

Chapter 5 Selection and Implementation of Pilot Projects

Chapter 5 Selection and Implementation of Pilot Projects

As discussed in Chapter 4, jute products and computer software were selected as the most potential sub-sectors. The current Study conducted the Pilot Projects for those two sub-sectors from October 2007 to August 2008 (from the Third Field Survey to the Sixth Field Survey). This chapter describes planning policy and basic design of the Pilot Projects, as well as conclusion, recommendations and lessons obtained by implementing the Pilot Projects. Note that details of the Pilot Projects are reported in the “Pilot Project Completion Report,” a supplementary volume of the current Final Report.

5.1 Pilot Project for Jute Products Sub-sector

This section summarizes planning policy and basic design of the Pilot Project in jute products sub-sector, as well as conclusion, recommendation and lessons obtained by implementing it. 5.1.1 presents the selection process of the Pilot Project, followed by 5.1.2 that discusses basic design of it. Then, 5.1.3 summarizes conclusion, recommendations and lessons obtained through implementation and evaluation exercise of the Pilot Project in jute products sub-sector.

5.1.1 Pilot Project Selection Process

First of all, a long list of candidate Pilot Projects was prepared and screened by applying two selection criteria. Then, the JICA Study Team presented a final plan at the workshop on June 24, 2007 where the industry stakeholders gathered. The participants accepted the final plan.

5.1.1.1 Long List of Pilot Projects

The JICA Study Team had explained five constraints, which hampered export growth of the jute products sub-sector at the previous workshop to select two priority sub-sectors (refer to Chapter 4). The JICA Study Team prepared a long list of the Pilot Project candidates with reference to the five constraints against export growth of jute products. Thus, the Pilot Project proposals were developed from the viewpoint of eliminating or reducing factors impeding export growth. The five constraints are listed below.

Table 5.1-1 Constraints against Export Growth (Jute Products)

Constraint 1	State-own jute mills are inefficient and half of them is now closed.
Constraint 2	There is limitation of cultivation area of raw jute due to competition with rice production.
Constraint 3	Production facilities are outdated and production management technology is low.
Constraint 4	Progress has not been really made in developing new usage and application of jute products.
Constraint 5	Jute is in harsh competition with synthetic fibers whose product development progress is way ahead of jute.

The JICA Study Team prepared a long list of Pilot Project candidates for each of the five constraints. The completed long list contains a total of ten candidate projects as follows.

LONG-LIST PROJECTS FOR JUTE PRODUCTS SUB-SETOR

(Numbered as LL-J+Number)

Constraint 1: State-own jute mills are inefficient and half of them is now closed.

LL-J1: Productivity improvement of state-own jute mills

LL-J2: Study and recommendation on the management system of state-own jute mills

Constraint 2: There is limitation of cultivation area of raw jute due to competition with rice production.

LL-J3: Development of high yield variety of jute

Constraint 3: Production facilities are outdated and production management technology is low.

LL-J4: Introduction of long-term credit facilities for the jute mills

LL-J5: Introduction of production management skills for productivity improvement

LL-J6: Classroom training of top managements of jute mills

Constraint 4: Progress has not been really made in developing new usage and application of jute products.

LL-J7: Competition and seminars of new design and usage of jute products in Bangladesh and abroad

LL-J8: Establishment or strengthening of R&D institutes for new usage and application of jute products

- LL-J9: Collection and dissemination of information about new products for jute mills and brokers

Constraint 5: Jute is in harsh competition with synthetic fibers whose product development progress is way ahead of jute.

- LL-J10: Advertisement of usage of jute as environment friendly natural fibers

5.1.1.2 First Screening of the Long List

The JICA Study Team screened the ten projects in the long list by applying the following two criteria. As a result, the following projects were removed from the long list on account of their irrelevance to the present Study.

Criterion 1: On-going programs/projects organized and commenced by other organizations

- LL-J3: Development of high yield variety of jute
- Bangladesh Jute Research Institute (BJRI)
 - Bangladesh Agriculture Development Corporation (BADC)
- LL-J7: Competition and seminars of new design and usage of jute products in Bangladesh and abroad
- Jute Diversification Promotion Centre (JDPC)
 - Export Promotion Bureau (EPB)
 - Japan External Trade Organization (JETRO)
- LL-J8: Establishment or strengthening of R&D institutes for new usage and application of jute products
- Bangladesh Jute Research Institute (BJRI)
- LL-J9: Collection and dissemination of information about new products for jute mills and brokers
- Jute Diversification Promotion Centre (JDPC)
- LL-J10: Advertisement of usage of jute as environment friendly natural fibers
- Unnecessary to specifically take up this issue as a project because media, public and private organizations often announce the fact.

Criterion 2: Inappropriate projects as a subject of JICA's Study

- LL-J4: Introduction of long-term credit facilities for the jute mills
- The JICA Study Team has no access to financial resources to meet the requirements even if the Team is able to illustrate a financial credit scheme about LL-J4.

LL-J1: Productivity improvement of state-own jute mills

- Although the JICA Study Team can contribute to the projects LL-J1, interests of the Ministry of Textile and Jute and Bangladesh Jute Mills Corporation (BJMC) are unclear. Since the BJMC is the only corporation that manages all state-own mills, each mill cannot make decision by itself even in process improvement.

LL-J2: Study and recommendation on the management system of state-own jute mills

- Although the JICA Study Team can contribute to the project LL-J2, there may be big constraints for implementation of proposed recommendations due to the state-own nature of the targets.

5.1.1.3 Short List and Final Selection**LL-J5: Introduction of production management skills for productivity improvement****LL-J6: Classroom training of top managements of jute mills**

- LL-J5 and LL-J6 are the final candidates for a Pilot Project, both of which aim at modernization of existing jute mills, in terms of improvement of productivity of factories in LL-J5 and improvement in management skills in LL-J6. LL-J5 is a direct approach to inefficient production management and Japanese improvement methods like KAIZEN and 5S are not popular in the country. Therefore, LL-J5 was presented as the final proposal for the Pilot Project at the workshop under the following project title, to which the participants in the workshop gave consents.

“Production Processes Improvement (KAIZEN) Project ”**5.1.2 Conceptual Design of Pilot Project for Jute Products Sub-sector**

For the Pilot Project proposal selected according to the preceding section, “LL-J5 Introduction of production management skills for productivity improvement,” conceptual design of the following Pilot Project was made in consideration of the budget framework allowed for the Project in terms of finance and human resource.

5.1.2.1 Principles of Conceptual Design

The selected Pilot Project aims to introduce the “KAIZEN (continuous improvement)” technique that has developed in Japan to Bangladesh. Its primary objective is to improve productivity of the jute mills that currently operate spinning and weaving processes. Basic principles of the Project selection and conceptual design are described below in terms of relevance to the Study’s objective, i.e., export diversification.

(1) Strengthening of the key export sub-sector

As mentioned earlier, garment products account for 75% of the total value of the country's exports, followed by frozen shrimps and raw jute and jute products, which hold 4 to 5% share each. Other export items account for a combined share of around 20%. For the interest of reducing the risk of depending heavily on garment exports, it is therefore important to boost exports of products that ranked near to the enormous garment sector. Although jute has been a traditional export item but was losing its ground, jute has now potential to grow in the international market thanks to its environment-friendly nature. Thus, the Pilot Project contributes to export diversification by expanding export values of jute products, which is one of the key export sub-sectors in Bangladesh.

(2) Need for high quality yarns for diversification of jute products

At present, jute products exported from Bangladesh are dominated by low value added products, such as traditional sacks, cords and ropes, and carpet backing cloth. To produce higher value added products (curtains, other materials for household goods and clothes that mix spun jute and other fabrics), it is imperative to be able to produce fine jute yarns of uniform thickness, without any knot to join broken fibers.

At present, the industry produces jute yarns for low value added products due to outdated equipment and low levels of production and management technologies. Commercialization of so-called Jute Diversified Products (such as a shopping bag) by using low quality jute yarns currently available in the country would not likely contribute greatly to export growth, even if design is modified to meet the market needs. An optimum solution is to establish production capability to produce yarns and woven fabrics that can be used for production of high grade jute products.

(3) Possibility of export expansion through capacity utilization ratio

In the international market, jute regains popularity on account of environmental friendliness in comparison to synthetic fibers. However, jute mills in the country seem to be operated at around 50% or below in capacity utilization. Although the Pilot Project could take only four model jute mills as an experimental purpose of KAIZEN technologies, it is expected that the KAIZEN approach would be applied to a total of 124 jute mills over the country. If the operating ratio is improved by 10% by applying KAIZEN techniques, jute product exports can be increased by US\$ 100 million, which is equivalent to the value of export of an item in the top ten in the export statistics.

5.1.2.2 Conceptual Framework of the Pilot Project

Conceptual design of the Pilot Project for jute products sub-sector was made as follows.

Name of Project:	Production Processes Improvement (KAIZEN) Project
Target Area:	Throughout Bangladesh
Target Group:	Private jute mills in Bangladesh, which have spinning and weaving processes. Four mills are selected as experimental mills.
Implementing Body:	National Productivity Organisation (NPO) (Supporting Agencies) JICA Study Team and EPB
Overall Goal:	Export of jute products of Bangladesh will increase in terms of value and volume.
Project Purpose:	Four experimental mills will strengthen international competitiveness by improving productivity and quality, and method of KAIZEN will come into wide use in jute mills in Bangladesh

Output

1. A KAIZEN team is organized in a mill and commences collection of performance data of the mill.
2. Method of the performance data collection is reviewed and revised for continuation.
3. Subjects and method of KAIZEN are scrutinized upon the collected data and KAIZEN starts.
4. KAIZEN activities are continued with periodical review and necessary revisions.
5. The results and effects of KAIZEN are summarized for released to public as good practices.

Activities (Those activities are done in each experimental mill)

- 1-1 Organize a KAIZEN team in a mill.
- 1-2 Structure a KAIZEN system among the management of the mill, the JICA Study Team and the KAIZEN team.
- 1-3 Make stakeholders and all employees of the mill aware of the KAIZEN movement.
- 1-4 The JICA Study Team teaches the KAIZEN team activities of KAIZEN.
- 1-5 The KAIZEN team begins collection of performance data of the mill.
- 2-1 The JICA Study Team reviews the midway results of the data collection and give necessary revisions to the KAIZEN team.

- 2.2 Preliminarily summarize the performance data and discuss production processes to be improved by KAIZEN activities.
- 2-3 Determine the method of data collection to be done by the KAIZEN team until the next visit of the JICA Study Team to the mill.
- 3-1 Discuss and determine subjects, target figures for improvement and methods of KAIZEN.
- 3-2 A KAIZEN team implements KAIZEN activities by a guidance of the JICA Study Team.
- 4-1 Review the effects of KAIZEN and revise methods if the target figures are not achieved.
- 4-2 Review and revise method of KAIZEN so as to achieve the target figures.
- 5-1 Compare the performance data Before- and After-KAIZEN and assess the effects of KAIZEN.
- 5-2 Announce the effects of KAIZEN to all stakeholders and employees of the mill and organize a permanent system to continue KAIZEN.
- 5-3 Release the effects of KAIZEN to the public at a KAIZEN seminar.
- 5-4 Publish a report of the KAIZEN practice for the benefit of the jute products industry in Bangladesh.

5.1.2.3 Organization for Project Implementation

(1) Counterpart: National Productivity Organisation (NPO)

In Bangladesh, KAIZEN and 5S are virtually unknown to industry and other sectors. To disseminate these concepts, the JICA Study Team has decided to transfer knowledge and expertise in the course of the Pilot Project, namely advisory service for selected mills. For this purpose, the National Productivity Organisation (NPO) was named as the counterpart organization to receive technology transfer on an OJT basis. NPO has agreed to make its staff members accompany the JICA Study Team as they visit client companies. On September 30, 2007 the Study Team and NPO signed an agreement to assign NPO's three staff members to the Pilot Project and make at least one staff accompany the Study Team during the field service. Upon completion of the Pilot Project, NPO was expected to be responsible for dissemination of KAIZEN techniques for the whole jute industry of the country, as transferred by the JICA Study Team.

(2) Organization for project implementation

1) Team of instructors

The Pilot Project for improvement of jute production technology was conducted by a consulting team that visited the selected four mills. The consulting team consisted of the following members in Table 5.1-2.

Table 5.1-2 KAIZEN Working Group

KAIZEN Technical Support Team	JICA Study Team	Mr. Yasuo TAKEUCHI Sub-leader of the JICA Study Team, Pilot Project leader
		Mr. Yasuo UESUGI Expert in charge of production control technology
		Mr. Naoya NISHIGAKI Expert in charge of management methods / cost management
		Mr. Md. Shahe Alam Translator (Japanese and English/Bengali)
	NPO	(Team-Leader) Mrs. Awlia Khanam, Senior Research Officer
		Mr. MD. Abdul Musabbir, Research Officer
		Mr. MD. Nazrul Islam, Statistical Investigator
KAIZEN team		15-25 officers were assigned in each mill.

* At least 1 member of NPO staffs accompanies the JICA Study Team at any time.

At the same time, the mill that receives the consulting team organized a KAIZEN team. The JICA Study Team had requested each company for formation of a KAIZEN team consisting of around 20 persons whose job types are shown below in Table 5.1-4.

2) Selected model jute mills

Companies that participated in the Pilot Project (KAIZEN implementation process) were selected from those that attended the workshop on June 24, 2007. At the workshop, the JICA Study Team outlined the Pilot Project and invited attendants to participate in the Project. A total of eight companies had made a formal application. However, the Study Team had to narrow them down to four mills, shown in Table 5.1-3, for scheduling reasons.

The eight companies were evaluated according to a set of selection criteria. The primary factor was the geographical location (near Dhaka) to allow efficient itinerary in providing advisory service. Also taken into consideration were that the selected companies had their own spinning and weaving processes, that their levels of technology varied, and that their management was willing to lead KAIZEN activities as confirmed by the JICA Study Team upon visit. As a result, the following four companies were selected and the JICA Study

Team signed an agreement with each company on July 5 2007, with regard to participation and cooperation relating to the Pilot Project.

Table 5.1-3 Participating Companies in the Pilot Project for Jute Products

Company Name	Address	Responsible Executive	Main Products	Capacity	No. of Employees
Broad Burlap Industries Ltd.	Betka, Munshinganj	Mr. Kafil Choudhury (Executive Director)	Yarn, CBC	Spinning: 2144SPL, Loom:68 (wide loom for cbc) Production: 6-8t/day	550
Janata Jute Mills Ltd. (mill no.1)	Palash, Narsingdi	Mr. Mahamudul Huq (Deputy Managing Director)	Hessian Cloth, Sacking	Spinning: 4300, Loom:287 (conventional), Production: 20-30t/day	1734
Nabarun Jute Mills Ltd.	Kanchan, Pu Pang, Narayougang	Mr. T.D.Mitra (Director)	Hessian Cloth, Sacking, Yarn	Spinning: 3140, Loom:250 (conventional), Production: 20t/day	850-870
Pubali Jute Mills Ltd.	Gharasal, Narsingdi	Mr. Kamran T.Rahman	Hessian Cloth, Sacking	Spinning: 3400, Loom:220 (conventional), production: 18t/day	1220

* Production is measured on a Yarn basis.

3) KAIZEN team in jute mills

A KAIZEN team was organized in each mill by assigning members by production process wise.

Table 5.1-4 KAIZEN Team Members

Team Leader (Managerial position)		1 person
Spinning process:	Fore-spinning Process	2 persons
	Spinning and Twisting Processes	2 persons
	Maintenance (1 for Fore-spinning, 1 for Spinner and 1 for Winder)	3 persons
Weaving process:	Preparation Process	2 persons
	Weaving Process	2 persons
	Maintenance (1 for Preparation and 1 for Weaving Machine)	2 persons
Inspection		2 persons
Laboratory		2 persons
Process Management		2-3 persons
Costing		2 persons
Total Members		22-23 persons

5.1.2.4 Implementation Schedule

Figure 5.1-1 shows a timetable for implementation of the Pilot Project. As shown below, field surveys and activities in Japan were carried out alternately. During the Pilot Project, a total of four field surveys were conducted. Activity schedule for each field survey is outlined as follows. Note that activity numbers and description are the same as those contained in the conceptual design in the section 5.1.2.2.

(1) The 3rd field survey ----- Round (1)

(September 21, 2007 ~ November 10, 2007 <51 days>)

- 1-1 Organize a KAIZEN team in a mill.
- 1-2 Establish a KAIZEN system among the management of the mill, the JICA team and the KAIZEN team.
- 1-3 Make the start of the KAIZEN movement known to stakeholders and all employees of the mill.
- 1-4 The JICA team teaches the KAIZEN team Knowledge and techniques relating to KAIZEN activities.
- 1-5 The KAIZEN team begins collection of performance data of the mill.

(2) The 4th field survey ----- Round (2)

(January 11, 2008 ~ February 9, 2008 <30 days>)

- 2-1 The JICA team reviews the interim results of data collection activities and gives advice including revisions to the KAIZEN team.
- 2.2 Tabulate the performance data and identify production processes to be improved by KAIZEN activities.
- 2-3 Determine the data collection method to be done by the KAIZEN team until the subsequent visit by the JICA team to the mill.

(3) The 5th field survey ----- Round (3)

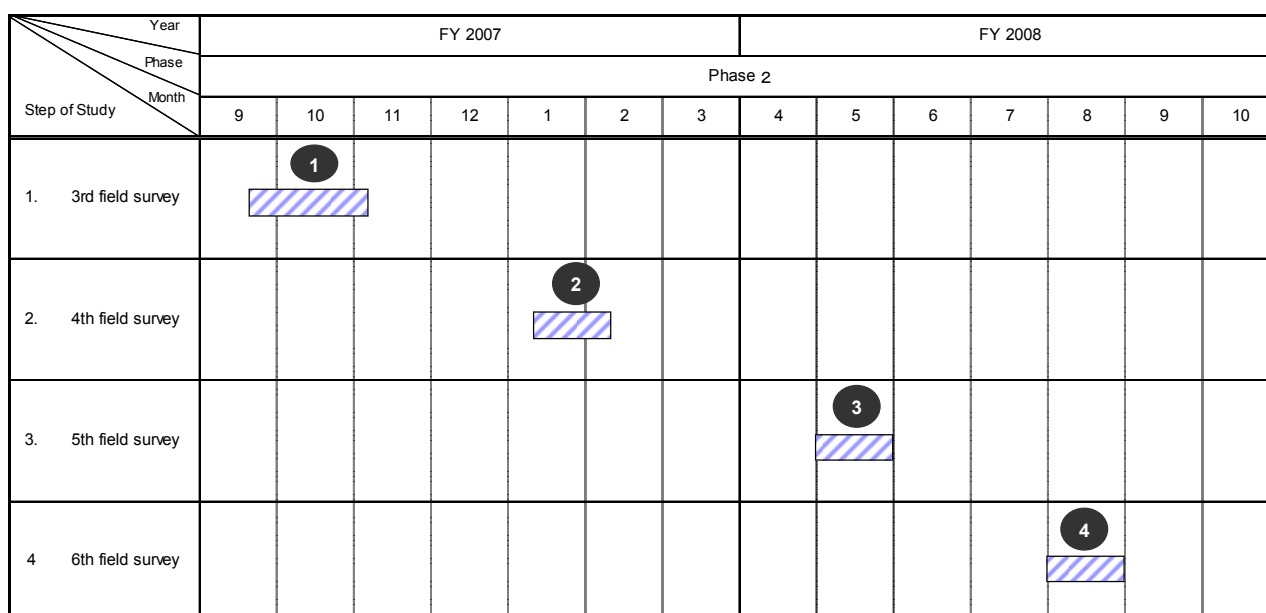
(May 1, 2008 ~ the end of May 2008 <30 days>)

- 3-1 Discuss and determine subjects, target figures for improvement and specific KAIZEN method.
- 3-2 A KAIZEN team conducts KAIZEN activities under guidance and advice of the JICA team.
- 4-1 Review the effects of KAIZEN activities and revise the methods if the target figures are not achieved.
- 4-2 Review and revise the KAIZEN methods necessary to achieve the target figures.

(4) 6th field survey ----- Round (4)

(August 1, 2008 ~ August 30, 2008 <30 days>)

- 5-1 Compare the performance data before- and after-KAIZEN and assess the effects of KAIZEN activities.
- 5-2 Announce the effects of KAIZEN activities to all stakeholders and employees of the mill and organize a formal permanent system to drive continuous KAIZEN activities.
- 5-3 Make the effects of KAIZEN activities known to the general public at a KAIZEN seminar.
- 5-4 Publish a report on the KAIZEN practice and its results for the benefit of the entire jute products industry in Bangladesh.

**Figure 5.1-1 Work Schedule for Pilot Project in Jute Products Sub-sector****5.1.3 Conclusion, Recommendations and Lessons**

This section presents conclusion, recommendations and lessons that were obtained through the terminal evaluation on the Pilot Project in jute products sub-sector based upon the “JICA’s Guideline for Project Evaluation.” Note that the detail of the terminal evaluation and the evaluation methods are explained in the “Pilot Project Completion Report,” a supplementary volume of the current Final Report.

5.1.3.1 Conclusion

- (1) The Pilot Project has been implemented according to the original plan and had successfully achieved the Project Purpose

The Project's Input and Activities were made without any change from the original plan. As a result, the Output was smoothly produced, and the Project Purpose – to improve productivity of the Bangladesh jute products industry through KAIZEN activity – was successfully achieved so far as the model mills were concerned.

Table 5.1-5 shows results of the KAIZEN activities in quantitative terms. All the four model mills achieved the target figures that they had set on their own.

Table 5.1-5 Summary of Improvement in Productivities of Model Mills (%)
(From January 2008 to July 2008)

Mill	Spinning		Weaving	
	Decrease in rate of thread breakage	Production increase	Decrease in machine shutdown rate	Production increase
A	38.8	18.4	27.7	13.0
B	24.2	13.6	11.1	15.1
C	53.8	6.2	19.8	9.8
D	65.9	5.6	35.5	15.7
Average	45.7	11.0	23.5	13.4

In the average figures, the spinning section of the model jute mills improved their production by 11% in terms of quantity mainly because of spinning stoppage reduction by 45.7%. The weaving section also increased their production by 13.4% in quantity mainly because of weaving machine stoppage reduction by 23.5%.

- (2) There is the strong need for KAIZEN activity and companies have capacity to adopt and manage change

The Pilot Project's concept matched the jute industry's demand, even in consideration of limiting factors, including the limited number of model mills, limited input, and a limited implementation period. This is because the Project addressed the issue of poor productivity, which was pointed out by the related parties as the core problem of the industry, by proposing a direct solution. In addition, the wrap-up seminar for the Pilot Project held on August 20, 2008 was attended by 31 persons representing jute companies, and those who learned KAIZEN techniques for the first time at the seminar expressed, in their response to the

questionnaire survey, that they came to realize effectiveness of KAIZEN techniques and wanted to apply them to their own companies.

Meanwhile, the Pilot Project verified that the model mills were capable of implementing KAIZEN techniques. It is therefore concluded that KAIZEN activities can be handled by other jute mills. Furthermore, the Pilot Project saw clear signs of change in mindset among the management, mill managers and workers. Four model mills are all traditional jute mills and the managements of these mills had been facing chronic deficits due to low productivity. However, these management officers became able to be hopeful for sustainable operation of their jute mills thanks to productivity improvement by KAIZEN activities. Besides, it became clear that the active leadership of the management could change mindset of the workers on production sites. One of the model mills actually shared the profits obtained from the KAIZEN activities with the mill workers.

Management methods of the mill managers had been based upon their own experiences and they had tended to manage the mills by sharply rebuking the workers for their mistakes. Yet, these mill managers experienced the KAIZEN technologies based upon the PDCA cycle through the Pilot Project. The mill managers apprehended effectiveness of modern management methods like KAIZEN. As KAIZEN required the “data sharing” with the workers, the mill managers came to look upon the mill workers as the partner. On the other hand, mill workers showed the keenest commitments to KAIZEN activities. They were surprised with the improvement of their working environment by the 3S activities. Furthermore, these mill workers came to recognize a virtuous circle where working as per the job standards in a good working condition improves productivity of the jute mill, which will then heighten their salary.

(3) Outlook for achievement of the Overall Goal is uncertain

While the Overall Goal, “Export of jute products of Bangladesh will increase in terms of value and volume” would be achieved theoretically, there are uncertainties about the important assumptions (supply of raw materials, labor instability, electricity) as well as prospect for the sustainability of KAIZEN activity. Thus, the achievement of the Overall Goal is volatile and depends much on the important assumptions.

(4) There are several inhibiting factors between the Output and the Project Purpose

The Pilot Project has verified that KAIZEN activities taken up in the Project can be effective in productivity improvement of the jute industry. However, there are the critical important assumptions that lie between the Output and the Project Purpose, so that one

should realize that the Project Purpose cannot be achieved only by KAIZEN activities. These important assumptions, if they go in a wrong direction, will impede productivity improvement, namely adequate renewal and maintenance of production equipment, labor management (low wage work drives workers from the jute industry), and power supply (frequent occurrence of power outage).

(5) Prospect for continuity of KAIZEN activity is not very bright

Needless to say, KAIZEN activity cannot contribute to the achievement of either the Project Purpose or the Overall Goal unless the Pilot Project continues. Only when KAIZEN activity is implemented at many jute mills throughout the country, it will lead to the industry's productivity improvement, which would then contribute to export growth. Then, as similar KAIZEN initiatives are taken in other sectors, productivity of industry in the country as a whole will improve significantly. However, sustainability of the Project is not promised because the NPO, the proposed implementation body, has still to show firm commitment.

5.1.3.2 Recommendations

(1) Systematic implementation of KAIZEN activity in the entire jute industry

In Bangladesh, there are 18 jute mills operated under the state enterprise, BJMC, and 80 jute manufacturers that belong to BJMA (trade association), all of which have both spinning and weaving processes. In addition, 55 companies are registered with BJSA, trade association of jute product manufacturers that operate the spinning process only. These organizations are expected to lead organizational efforts to initiate KAIZEN activity and disseminate it throughout the country. Preferably, the efforts should be taken under agreement by the three organizations.

(2) Promotion of KAIZEN activity and recruitment of beneficiary companies

It is recommended to promote KAIZEN activity to jute companies widely and recruit companies that are interested in implementing it, by advertising it on publications of the abovementioned organizations and by holding seminars similar to the wrap-up seminar of the Pilot Project. This promotional campaign should be led by the NPO by tapping experience from the Pilot Project and using the KAIZEN Manual as far as possible.

(3) Establishment of the KAIZEN activity support system and resources

It has been formally decided that KAIZEN activity initiated in the Pilot Project will continue to be promoted by the NPO, which has been established for industry's productivity improvement and is thus qualified to assume such role. One major obstacle as foreseen is the difficulty in securing the operating budget at the MOI. Another problem is the shortage of NPO staff members who have gained experience in the Pilot Project (only three did in the form of OJT). The recruitment of additional KAIZEN advisers from other technical support organizations should be considered.

It is desirable to invite two or three experts in KAIZEN guidance and advisory service from Japan to conduct training for advisers (lecture and OJT). Formal request for Japanese organizations may be considered after the above (1) has been achieved.

(4) Need for cost sharing by beneficiary companies relating to implementation of KAIZEN activity

As mentioned earlier, the NPO has agreed to disseminate the KAIZEN techniques developed under the Pilot Project to jute mills throughout the country. However, it is difficult for the NPO to secure the MOI budget to cover necessary costs. In the Pilot Project, the JICA bore costs relating to NPO staff members, including daily allowance, transportation, accommodation, and meals. In the future, these costs should be borne by companies that benefit from KAIZEN activity. Thus, the recruitment of beneficiary companies should be made by announcing the need for cost sharing.

5.1.3.3 Lessons

(1) The management's commitment as key success factor

In the Pilot Project, major activities were conducted at each mill under leadership of the mill manager and workers, who organized a KAIZEN team. In practice, however, many decisions relating to the project implementation and KAIZEN activity must be made by the management at the head office. For instance, the management's approval was required to dispose of unused articles in the 3S activity. This means, if the management had not realized the need for project implementation, many activities would not have been put into practice.

In Bangladesh, companies and other organizations often require the management's approval on many day-to-day business decisions. Under this circumstance, the

management's interest and commitment are essential for the project's success. To do so, it is important to let the management understand tangible benefits expected from the project.

(2) Importance of motivation to drive employees' awareness and attitude

The Pilot Project has revealed that KAIZEN activity helps drive employees' awareness and attitude. At a model mill, the management promised employees to distribute profits to be earned from the proposed KAIZEN activity. Thus, KAIZEN activity can cause the change in mindset of both management and workers. The effect of KAIZEN activity depends much on awareness and attitude of workers who are engaged in it. Also, it was a pleasant surprise to find that many workers at the model mills were committed to KAIZEN activity, as opposed to the impression obtained during the field tour prior to the start of the activity.

(3) Importance of quantitative analysis of problems and the sharing of the results

Under the Pilot Project, the KAIZEN team was able to collect relevant data, identify problems in quantitative terms, and share the results among team members. In the past, employees had presumably been aware of problems intuitively. On the other hand, the Pilot Project created a new experience where they were able to visualize problems by analyzing and sharing them on a quantitative basis. A clear understanding of a problem led to a clear solution. This indicates that quantitative analysis of problems and the sharing of the results are very important for companies and their employees to understand modern production management techniques.

5.2 Pilot Project for Computer Software Sub-sector

This section summarizes planning policy and basic design of the Pilot Projects in computer software sub-sectors, as well as conclusion, recommendation and lessons obtained by implementing it. 5.2.1 presents the selection process of the Pilot Project, followed by 5.2.2 that discusses basic design of it. Finally, 5.2.3 summarizes conclusion, recommendations and lessons obtained through implementation and evaluation exercise of the Pilot Project in computer software sub-sector.

5.2.1 Pilot Project Selection Process

The same procedure was taken in Pilot Project selection as done for the jute products sub-sector. First of all, a long list of candidate Pilot Projects was prepared and screened by applying two selection criteria. Then, the JICA Study Team presented a final plan at the workshop on June 25, 2007 where the industry stakeholders accepted the plan.

5.2.1.1 Long List of Pilot Projects

The JICA Study Team had explained five constraints, which hampered export growth of the computer software sub-sector, at the previous workshop to select two priority sub-sectors (refer to Chapter 4). The JICA Study Team prepared a long list of Pilot Project candidates with reference to the five constraints against export growth of computer software. Thus, the Pilot Project proposals were developed from the viewpoint of eliminating or reducing factors impeding export growth. The five constraints are listed below.

Table 5.2-1 Constraints Against Export Growth (Computer Software)

Constraint 1	Access to international markets has not been well established and Bangladesh lags behind India in securing USA market.
Constraint 2	There is need for specific language skills in entering non-English speaking markets.
Constraint 3	Business relations with foreign system integrators have not been well established.
Constraint 4	Human resources like project manager, who plays a leading role in securing a business order, are in short of supply.
Constraint 5	Access to finance is not easy because software companies do not possess credible collaterals.

The JICA Study Team prepared a long list of Pilot Project candidates for each of the five constraints. The completed long list contains eleven candidate projects in total as follows:

LONG-LIST PROJECTS FOR Computer SOFTWARE SUB-SECTOR

(Numbered as LL-S+Number)

Constraint 1: Access to international markets has not been well established and Bangladesh lags behind India in securing USA market.

LL-S1: Building of matchmaking systems with foreign System Integrators (SI) Venders

LL-S2: Promotion of subcontracting business with Indian software industry

Constraint 2: There is need for specific language skills in entering non-English speaking markets.

LL-S3: Encouragement and provision of incentives for non-English foreign language schools

LL-S4: Education of technical terms of computer software in the existing language courses

Constraint 3: Business relations with foreign SI Venders have not been well established.

LL-S5: Establishment of a structural system and tools in BASIS for business relations with foreign SI

LL-S6: Organization of Bangladeshis in the target country for business relations to the country

LL-S7: Periodical workshops and seminars for making business relations in the target country and/or Bangladesh

Constraint 4: Human resources like project manager, who plays a leading role in securing a business order, are in short of supply.

LL-S8: Strengthening of market-oriented training of new graduates of universities and colleges

LL-S9: Improvement of curriculum of universities to meet requirements of the software industry

LL-S10: Establishment of training courses for acquiring CMMI certificates

Constraint 5: Access to finance is not easy because software companies do not possess credible collaterals.

LL-S11: Introduction of a bridge loan facility applicable to the computer software industry

5.2.1.2 First Screening of the Long List

The JICA Study Team screened the eleven project candidates contained in the long list by applying the following two criteria. As a result, the following project candidates were removed from the list on account of their irrelevance to the present Study.

Criterion 1: On-going programs/projects organized and commenced by other organizations

- LL-S1: Building of matchmaking systems with foreign System Integrators (SI) Vender
- Business to Business (B2B), Danish International Development Assistance (DANIDA)
 - Local Enterprise Investment Centre (LEIC), Canadian International Development Agency (CIDA)
- LL-S7: Periodical workshops and seminars for making business relations in the target country and/or Bangladesh
- Expos in Bangladesh (BASIS, DANIDA, JETRO)
- LL-S10: Establishment of training courses for acquiring CMMI certificates
- Program in LEIC (CIDA)
- LL-S11: Introduction of a bridge loan facility applicable to the computer software industry
- Export Promotion Bureau (EPB)

Criterion 2: Inappropriate projects as a subject of the JICA's Study

- LL-S3: Encouragement and provision of incentives for non-English foreign language schools
- Since this program is encouragement activity to be done by the Bangladesh government, this is inappropriate for a Pilot Project.
- LL-S4: Education of technical terms of computer software in the existing language courses
- This program is inappropriate for a Pilot Project but should be done by language schools.
- LL-S8: Strengthening of market-oriented training of new graduates of universities and colleges

- BASIS is going to start discussions with related universities as this is one of big problems in education and training for the computer software sub-sector.

LL-S9: Improvement of curriculum of universities to meet requirements of the software industry

- Same as LL-S8.

5.2.1.3 Short List and Final Selection

As a result of the first screening exercise, the following candidate projects, namely, LL-S2, LL-S5 and LL-S6, were selected as the final candidates. The JICA Study Team opines about each candidate as follows.

LL-S2: Promotion of subcontracting business with Indian software industry

- As the JICA Study Team considers India to be huge markets of Bangladesh software industry for subcontracting, the Team sounded out opinions of the BASIS and its member companies. However, none showed interest for the subcontracting jobs to India.

LL-S5: Establishment of a structural system and tools in BASIS for business relations with foreign SI

- BASIS receives assistances from various donors including JETRO, DANIDA, CIDA etc. More self-help efforts, however, are necessary to receive walk-in potential buyers by providing database of its member companies and relating information.

LL-S6: Organization of Bangladeshis in the target country for business relations to the country

- Taking Japan as a sample, there are Bangladeshis who are working for the computer software industry in Japan. If these persons are organized in Japan as coordinators between the market in Japan and suppliers in Bangladesh, suppliers would be able to knock the door of the non-English speaking market.

Putting LL-S5 together with LL-S6, a final plan for the Pilot Project for the computer software sub-sector was designed. This final plan was presented at the workshop under the following title, which was agreed by the stakeholders.

“Establishing an institutional mechanism for export marketing of the computer software industry in Bangladesh (Sample market: Japan)”

5.2.2 Conceptual Design of Pilot Project for Computer Software Sub-sector

For the Pilot Project proposal selected according to the preceding section, “Establishing an institutional mechanism for export marketing of the computer software industry in Bangladesh (sample market: Japan),” conceptual design of the following Pilot Project was made in consideration of the budget framework allowed for the project in terms of finance and human resource.

5.2.2.1 Conceptual Framework of Pilot Project

Conceptual design of the Pilot Project for computer software sub-sector was made as follows.

Name of Project:	The Project for Establishing the Institutional Mechanism for Export Marketing of Computer Software Industry in Bangladesh (Sample Market: Japan)
Target Area:	Bangladesh and Japan
Target Group:	Computer Software Companies in Bangladesh
Implementing Agency:	BASIS (Especially the International Market Development Standing Committee) (Supporting Agencies) JICA Study Team and EPB
Overall Goal:	Computer Software export from Bangladesh will increase
Project Purpose:	Computer Software Industry in Bangladesh will acquire institutional capabilities that can be applied to many international markets especially non-English speaking markets (It is expected that the Project will promote access to Japanese market as it employs the Japanese market as the sample)

Output

1. Brochures of the companies that intend to exploit international markets will be drawn up.
2. Comprehensive brochure for the Computer Software industry in Bangladesh will be drawn up.
3. Database of Computer Software companies of Bangladesh will be established (for business reference of Japanese buyers).

4. Market needs of the potential-partner Japanese companies will be comprehended and criteria for partner qualification (of Japanese companies) will be established.
5. Institutional system for the Bridge SE (System Engineer) that intermediates Bangladeshi and Japanese markets will be structured.
6. A seminar for advertisement and popularization of Computer Software industry of Bangladesh will take place in Japan.
7. A system for business matchmaking between Bangladeshi and Japanese companies through intermediation of the Bridge SE will be established.

Activities

- 1-1 Recruit and select Computer Software companies that are interested in exploiting Japanese market.
- 1-2 Draw up brand-new brochures for their own companies with support from the JICA Study Team.
- 1-3 Finalize those brochures both in English and Japanese for export marketing.

- 2-1 Collect data and information of Computer Software industry in Bangladesh.
- 2-2 Draw up the brochure for Computer Software industry in Bangladesh.

- 3-1 Select articles to be presented in the database of Bangladeshi Computer Software Companies where potential buyers can conduct business search.
- 3-2 Create the database through collected data and information as well as by referring to Output 1 and 2.

- 4-1 Conduct a questionnaire survey on Japanese Computer Software companies by which those interested in business with Bangladeshi companies can be extracted (The questionnaire is to be conducted in Japan by the JICA Study Team).
- 4-2 Organize information on the Japanese companies collected by the questionnaire for business reference of Bangladeshi suppliers.

- 5-1 Recruit Japan-based Bangladesh companies (or subsidiaries), Bangladeshi ICT businessmen in Japan in order to constitute the Bridge SE system (by the JICA Study Team).
- 5-2 Establish the Bridge SE system that intermediate business between Bangladesh and Japan.

- 6-1 Identify the seminar venue (in Japan) and select/invite Japanese companies.
- 6-2 Hold the seminar.

- 7-1 Identify needs of both Bangladeshi and Japanese markets and bridge the gap between the identified needs.
- 7-2 Establish the system where information on demand/supply in the both markets can widely be shared.
- 7-3 BASIS establishes the system where it introduces potential business partners to the interested Japanese companies.

5.2.2.2 Project Description

(1) Market structure of demand side

The detailed scheme of the Pilot Project is described below by reference to Figure 5.2-1. The objective of the Pilot Project was to promote software exports of Bangladesh to non-English speaking countries. Japan was selected as a sample of non-English speaking countries. Thus, the right-hand side of the Figure, i.e., “ABROAD,” represents Japan. This constitutes a market where there are end users of computer software as well as suppliers called system integrator (SI) vendors.

(2) Supply side

The supply side involves the Bangladeshi software industry, representing the left-hand (BANGLADESH) side in Figure 5.2-1. In the industry, there are currently more than 400 companies that are formally registered, of which approximately 260 belong to the Bangladesh Association of Software and Information Services (BASIS).

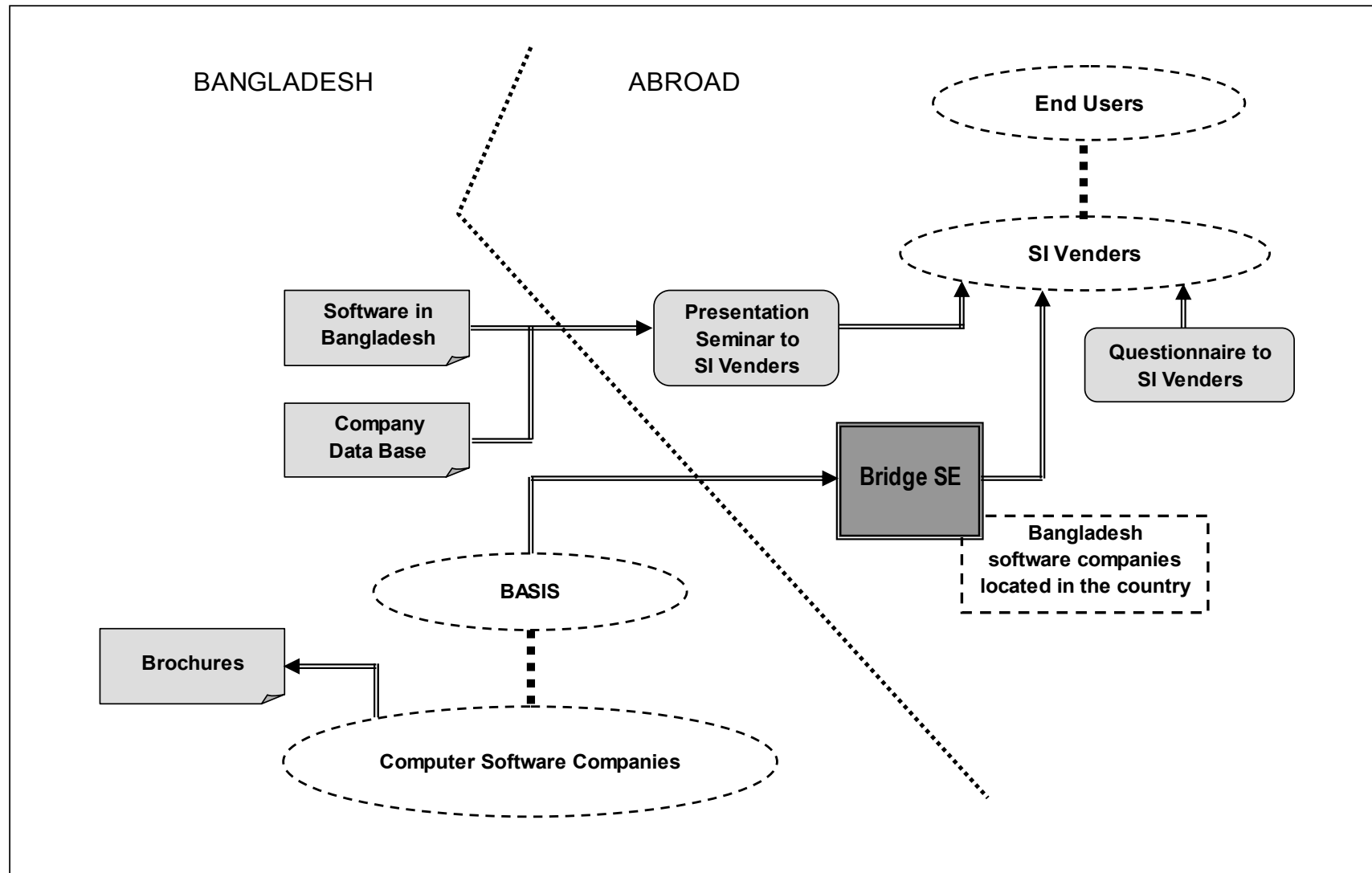


Figure 5.2-1 Schematic Concept of Pilot Project

(3) Building of the bridging function

In Figure 5.2-1, “Bridge SE” is indicated in the central area by the dark back. Bridge SE was to be located in Japan to promote and receive orders from Japanese companies, outsource them to Bangladeshi companies, and deliver completed software to Japanese customers. One of the problems relating to this contractual relationship is that the Bridge SE needs to communicate, negotiate and contract with Japanese customers (SI vendors) in Japanese, while it has to use English (or Bengali) for outsourcing to and supervision of Bangladeshi software companies. Also, the Bridge SE must have expert knowledge on a broad range of software services. For these reasons, the Pilot Project viewed the building of the bridging function as the most important issue.

5.2.2.3 Organization for Project Implementation

(1) Counterpart: Bangladesh Association of Software and Information Services (BASIS)

The counterpart of the current Study is formally the Ministry of Commerce, and practically the Export Promotion Bureau (EPB). For this Pilot Project, the JICA Study Team requested the BASIS to undertake the roles of counterpart whereby both parties signed a cooperation agreement on July 8, 2007. Also, member companies of the BASIS, which participated in the Pilot Project, were considered to be the members of the working group (the number of the companies that participated in the Pilot Project was 42 at the beginning of the Project). During the Pilot Project, the JICA Study Team was responsible for the overall project management and the BASIS for project implementation with EPB’s support. After completion of the Pilot Project, the BASIS was expected to become primary contact with the Bridge SE system formulated in Japan.

(2) Organization for project implementation

The JICA Study Team assigned two experts to the Pilot Project, and the sub-leader oversaw the project implementation in Bangladesh, whereas the leader conducted coordination activities in Japan. The conceptual image of the Project implementation organization is shown below.

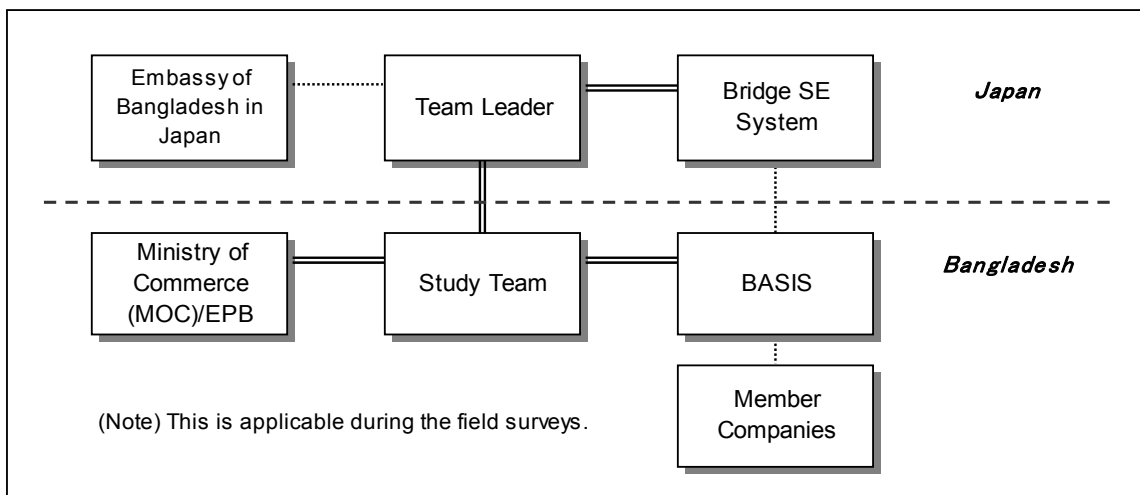


Figure 5.2-2 Implementation Organization for the Pilot Project

5.2.2.4 Implementation Schedule

Figure 5.2-3 shows a timetable of the Pilot Project. As seen from the timetable, the JICA Study Team had conducted a total of four field surveys in Bangladesh for the implementation of the Pilot Project. Meanwhile, the Pilot Project attached a high value to the home work in Japan, and hence, period of the home work of the Project was relatively long.

Step of Study	FY 2007													FY 2008				
	Phase 2																	
	9	10	11	12	1	2	3	4	5	6	7	8	9					
1. 2nd home work	□																	
2. 3rd field survey	▨		1															
3. 3rd home work				□														
4. 4th field survey						▨	2											
5. 4th home work						□												
6. 5th home work								□										
7. 5th field survey									▨	3								
8. 6th home work												□						
9. 6th field survey													▨	4				
10. 7th home work																	□	

Figure 5.2-3 Work Schedule for Pilot Project in Computer Software Industry

The following describes the implementation schedule of the activities that had been undertaken in the Pilot Project, by time-series of the Study implementation. Note that the activity numbers and descriptions are the same as those contained in the conceptual design in the clause 5.2.2.1.

(1) The 3rd field survey (September 17, 2007 - November 3, 2007)

- 1-1 Recruit and select Computer Software companies that are interested in exploiting Japanese market.
- 1-2 Draw up brand-new brochures for their own companies with support from the JICA Study Team.
- 2-1 Collect data and information of Computer Software industry in Bangladesh.
- 3-1 Select articles to be presented in the database of Bangladeshi Computer Software Companies where potential buyers can conduct business search.

(2) The 3rd home work

- 5-1 Recruit Japan-based Bangladesh companies (or subsidiaries), Bangladeshi ICT businessmen in Japan in order to constitute the Bridge SE system (by the JICA Study Team).

(3) The 4th field survey (January 18, 2008 - February 9, 2008)

- 1-3 Finalize those brochures both in English and Japanese for export marketing.
- 2-2 Draw up the brochure for Computer Software industry in Bangladesh.

(4) The 4th home work

- 4-1 Conduct a questionnaire survey on Japanese Computer Software companies by which those interested in business with Bangladeshi companies can be extracted (The questionnaire is to be conducted in Japan by the JICA Study Team).
- 5-2 Establish the Bridge SE system that intermediate business between Bangladesh and Japan.

(5) The 5th home work

- 4-2 Organize information on the Japanese companies collected by the questionnaire for business reference of Bangladeshi suppliers.
- 6-1 Identify the seminar venue (in Japan) and select/invite Japanese companies.
- 6-2 Hold the seminar.

(6) The 5th field survey (May 16, 2008 - June 4, 2008)

- 7-1 Identify needs of both Bangladeshi and Japanese markets and bridge the gap between the identified needs. (Note that this activity was taken up throughout the Project period but information of needs of Japanese companies was best shared here).
- 7-2 Establish the system where information on demand/supply in the both markets can widely be shared. (Note that this activity was taken up throughout the Project period but information of demand/supply in Japanese offshore market was best shared the most here).

(7) The Sixth home work

- 3-2 Create the database through collected data and information as well as by referring to Output 1 and 2.

(8) The 6th filed survey (August 1, 2008 - August 30, 2008)

- 7-3 BASIS establishes the system where it introduces potential business partners to the interested Japanese companies.

5.2.3 Conclusion, Recommendations and Lessons

This section presents conclusion, recommendations and lessons that were obtained through the terminal evaluation on the Pilot Project in computer software sub-sector based upon the “JICA’s Guideline for Project Evaluation.” Note that the detail of the terminal evaluation and the evaluation methods are explained in the “Pilot Project Completion Report,” a supplementary volume of the Final Report.

5.2.3.1 Conclusion

(1) Bangladesh can become a software exporting country

In the conceptual design process for the Pilot Project, the study was conducted to see if the Bangladeshi computer software industry is capable of making exports to Japan and other markets. It was concluded that the industry had sufficient export capability. The JICA Study Team expert in the software industry visited the 42 companies that had the intent to participate in the Pilot Project and evaluated them through interview and according to the checklist. Based on the evaluation results, the Pilot Project was implemented without changing the original conceptual design.

- (2) The Pilot Project has been implemented according to the original plan and had successfully achieved the Project Purpose

Inputs and Activities of the Pilot Project were made substantially according to the original plan. As a result, Output was smoothly produced and satisfactory results were obtained. In the implementation process that required participation of the counterpart organization and related parties, it took considerable effort to establish the Bridge SE organization and organize the seminar in Tokyo. Overall, the Project did not face any notable problem and was smoothly ended.

After the completion of the Pilot Project, the BIK Japan acquired its first business inquiry in January 2009. The BIK Japan sent this inquiry to the BASIS with some specification translated into English on January 17, 2009. Then, the BASIS forwarded the inquiry to all the 37 member companies that participated in the Pilot Project on the next day (January 18, 2009). According to the BIK Japan, several companies responded to the inquiry despite the fact the due date for the response was the next day of the date when the BASIS distributed the inquiry over to the member companies. The workflow from acquirement of business inquiry to the response to the inquiry exactly followed the plan developed in the Pilot Project. This indicates that the achieved Project Purpose (export marketing mechanism in Japan) actually functions in real business. It should be noted, however, that a problem arose after the completion of the Project, as discussed in (4)

- (3) The Project's target countries (regions) should be clearly delineated

The Project Purpose was set to build a system to promote the industry's entry to non-English speaking markets, and Japan was selected as a sample market. However, evaluation conducted upon completion of the Project revealed that there was a significant difference in requirements for designing the market entry support system between Japan and other non-English speaking markets. It was concluded that the Japanese market distinguished itself from other non-English speaking countries, suggesting the need for development of different systems for different countries.

Thus, the Project Purpose of the Pilot Project should be further narrowed down to the establishment of an export promotion system targeting the Japanese market. However, the Overall Goal (to increase software exports) needs not to be changed.

- (4) The Project Purpose is not necessarily consistent with expectation of related parties in Bangladesh

The Project Purpose of the Pilot Project is that “Computer Software Industry in Bangladesh will establish export marketing mechanism that can be applied to international markets, especially non-English speaking markets (It is expected that the Project will promote access to Japanese market as it employs the Japanese market as the sample).” As discussed in (2), the Project Purpose has been achieved. It should be noted, however, that the system was established for the Project Purpose but it does not warrant sustainability in the future.

Meanwhile, the BASIS (counterpart for the Project) and the participating companies did not entirely agree with the idea that the Project Purpose was achieved. They seem to consider the Overall Goal (to increase software exports) to be the Project Purpose and would not think that the Project Purpose was achieved unless an actual contract was effected during the Project period. Note, however, that no one on the Bangladesh side stated that the JICA Study Team was responsible for concluding a contract. In a sense, this is a foregone conclusion expected from the two parties and their different viewpoints on the Project and its purpose.

- (5) Possibility of continuation of the Pilot Project and inhibiting factors

If the Bangladeshi software industry targets Japan as a highly potential export market, the Pilot Project will have to be implemented on a continuous basis, albeit the need for some refinement of its scheme. This notion is substantiated by the fact that Japanese companies consider the Bridge SE-led business (in Japanese) to be essential. If the Pilot Project is dissolved with completion of the current Study, it will take additional and substantial input to restart the similar approach from scratch, much more than that required for continuation of the Pilot Project. Furthermore, opportunity for entering the Japanese market will probably have been lost already.

The key factors for supporting continuation of the Pilot Project are the reinforcement of the Bridge SE resource and the commitment by the BASIS and its member companies.

5.2.3.2 Recommendations

- (1) The Bridge SE resource should be reinforced

Under the Pilot Project, the Bridge SE organization, the BIK Japan, was established by three software/IT companies operated by Bangladeshis residing in Japan. These companies

are specialized in software development and related service and are capable of doing business in Bengali, English, and Japanese. However, they are not excelled at marketing activity in Japan. Meanwhile, many Japanese companies prefer to deal with Japanese sales personnel. Thus, it makes sense that the Bridge SE organization has Japanese staffs who conduct sales and marketing activities. In fact, the BIK Japan now commissions most of its sales activities to a Japanese company. Yet, it has still to establish a strong technical and financial base required to pursue its purpose with sustainability. It is therefore desirable to strengthen the BIK Japan from this viewpoint as well as in consideration of possibility to start up a new Bridge SE organization.

- (2) BASIS should assume ownership in maintaining and developing the collaborative arrangement with the Bridge SE organization

During the Pilot Project period, the JICA Study Team served as the bridge between the BASIS and the BIK Japan. Due to the lack of communication between them under their own initiative, however, any formal arrangement has not been made to define their collaborative relationship and its rules. As the BASIS is expected to assume ownership in maintaining and developing the collaborative relationship with the Bridge SE resource in Japan, it needs to establish leadership in driving continuation of the Pilot Project. In particular, it should build consensus amongst the participating companies about the leadership and the collaborative arrangement with the BIK Japan (or a new Bridge SE organization), followed by the future direction of its involvement with the continuation of the Pilot Project.

- (3) The Bangladesh government and industry should provide financial support for the Bridge SE organization

BIK Japan is organized by three software/IT companies operated by Bangladeshis residing in Japan. The three companies are very small and use a Japanese company to carry out sales activity on a fee basis. In fact, they continue to spend money without a definite prospect for winning contracts and may reach financial limitation in due course. To support their activity, therefore, it is imperative to provide financial support from the participating companies in Bangladesh (potential beneficiaries) via the BASIS. Furthermore, it is desirable that the Bangladeshi government bear certain portions of marketing costs via the BASIS.

- (4) Participating companies and BASIS should build up a pool of software engineers with Japanese language ability

The export promotion system established under the Pilot Project had the primary purpose of helping Bangladeshi software/ITES companies with their lack of Japanese language ability. In the course of the Project, however, it became apparent that Japanese companies wanted to ascertain technical and business capabilities of Bangladesh software/ITES companies by working with Bangladesh engineers (with Japanese language ability) in on-site development projects. This means, Bangladesh software engineers are required to have sufficient language ability required for such development tasks in Japan.

To meet such demand, it is desirable to reinforce Japanese language education in Bangladesh in a long-term. In addition to the long-term approach, it is recommended to promote effective use of Bangladeshi engineers who are currently working in Japan. One idea is that the companies participating in the Project collaboratively retain Bangladeshi engineers working in the companies of Bangladeshis residing in Japan on a lease-agreement basis, and send them to Japanese customers.

5.2.3.3 Lessons

- (1) Need for sharing the Project Purpose

The Pilot Project set the Project Purpose that was difficult to quantify or visualize. As a result, while the Project Purpose was achieved from perspective of the planner (JICA Study Team), it was not very clear to the beneficiaries (counterpart and participants). Then, the beneficiaries seemed to view the Overall Goal (increase in sales and exports) as the Project Purpose. Although the JICA Study Team tried to make the Project Purpose clear through the series of workshops and seminars, its effort fell short of enabling the two parties to share the common Purpose with clear understanding. It is therefore important to monitor and evaluate understanding of related parties of the project and its intent, which should be carried out periodically throughout the project period.

- (2) Importance of leadership within the counterpart organization

Under the Pilot Project, the private trade association served as the counterpart. The counterpart staff members were the presidents of private enterprises and were not able to devote themselves to the Project management. As a result, the Project lacked strong leadership. The leadership within the counterpart organization would have increased its sense of ownership about the Project, while empowering communication with the Bridge SE organization in Japan.

(3) Importance of human resource

In the Pilot Project, the proposed Outputs had been steadily produced, which led to the achievement of the Project Purpose. Yet, the achievement had not generated the desired effect (actual contract award), partly because it takes considerable time for the Bangladeshi software/ITES industry to penetrate into the Japanese market, together with generally long lead time for software business between initial contact and contract award. At the same time, quality of human resources in the Bridge SE organization is considered to be an additional factor. While they have sufficient knowledge and skills in software technology and Japanese language, their marketing capability relating to the Japanese market is not satisfactory. As mentioned earlier, the alliance with a Japanese company was established to make up for the situation and extensive marketing activities have already started. In addition to the establishment of the organization, availability of competent human resources in the organization is essential in the project's success.

(4) Importance of a participatory approach

In the implementation process, extensive cooperation was obtained from the government organizations, private organizations, and companies in Japan and Bangladesh. It was beyond the expectation and seems to come from national characteristics of Bangladesh and the congeniality with Japan and its people. Another factor peculiar to the Pilot Project is the effort by the JICA Study Team to take a participatory approach emphasizing free exchange of opinions and collaborative activities based on the common perspective and recognition. Although the Project Purpose may not have been entirely shared, as discussed in (1), the participatory approach was proven to be a critical factor for maximizing the effects of development projects in the country.

Chapter 6 Action Program for Jute Products Industry

Chapter 6 Action Program for Jute Products Industry

This chapter proposes an action program for export diversification of the jute products industry in sections of 6.3 and 6.4. In prior to proposing the action program, the section 6.1 analyzes the current state and issues of the industry and concludes them in the form of SWOT analysis, which is the base of a framework for development of the action program. The section 6.2 presents a skeleton of the action program, being composed of a vision, a development purpose, and strategies, on the basis of the results of a problem analysis performed at the workshop for related parties.

6.1 Current State of the Jute Products Industry and Key Issues

This section reviews the business environment surrounding jute products industry in Bangladesh and presents a SWOT analysis to identify key issues.

6.1.1 Characteristics of Jute

Jute favors a cultivation climate of high temperature and high humidity. It is said to be most suitable for cultivation in the climate zone in Bangladesh and West Bengal of India. India (West Bengal, Assam, Tripura, and Lushi Hills), Bangladesh, Myanmar and Nepal produce the total jute production of the world according to FAO statistics.

(1) Varieties

Jute is a yearly plant of the linden family. Jute fibers are collected from the skin of the plant covering the stalk. Major varieties are Deshi and Tossa. The former is called white and is characterized by white color. It accounts for 10% of the cultivated area. On the other hand, the latter is more popular, accounting for 80% of the cultivated area, because of inclusion of golden fibers. In the remaining 10% of the cultivated area, other varieties are grown. Tossa's acreage yield is relatively low but its market price is higher by 5% than that for Deshi. Deshi (white) with a higher yield is considered to be suitable enough for agricultural, industrial and construction applications.

<u>Variety</u>	<u>Botanical name</u>	<u>Characteristics</u>
Deshi	Corchorus Capsularis	"White," high yield, and low sales price
Tossa	Corchorus Oletorius	Inclusion of golden fibers, low yield, high price

Jute fibers have the following characteristics.

1) Usage

Traditional jute products, such as hessian cloth, sacking, bandage, and CBC (Carpet Backing Cloth), are made to take advantage of jute fiber's peculiar characteristics.

2) Cultivation and harvest period

The climate of high temperature and humidity is suitable for jute cultivation. Seeds are planted in February to May and plants grow to 2m – 3m high in four months. The harvest season is between June and September. Quality of jute fiber varies with harvest time, as follows.

When plants come to bloom: Fibers are fine with low strength. Leaves are edible.

When flowers fall: Fibers are fine and have the highest strength, most suitable for harvest.

When fruits ripe: Fibers are coarse and rigid. In Bangladesh, many farmers harvest jute plants that have grown to this stage (3m high) because raw jute is traded by weight.

(2) Environmentally friendly plants

- 1) Jute plants grow rapidly and absorb 14 tons of carbon dioxide per one ton of jute and release 10 tons of oxygen. The figures are substantially large in comparison to other plants. Note that the production of synthetic fibers from petroleum involves substantial CO₂ emission.
- 2) Jute fibers are naturally degradable and are thus considered to be environmentally friendly in comparison to non-degradable synthetic fibers (when used for sandbags, soil improvement felts, farming materials, and shopping bags).

(3) Fertilization effect

Jute absorbs and fixes nitrogen in the air, resulting in fertilization of soil after jute cultivation. It is thus suitable for crop rotation when repeated cultivation (such as rice) is not appropriate, according to interview at BJRI. In Bangladesh, triple crop rotation is possible. According to the report "In Search of a Future for the Jute Sector" by the Centre for Policy Dialogue (CPD), many farms in Bangladesh practice crop rotation consisting of jute, fallow, and rice.

(4) Commercial application

Every part of jute is commercially exploited.

- Skin: To be used to make fibers.
- Stalk: Wall and partition materials for houses in Bangladesh
- Root: Fuel
- Leaves: Edible while they are young (popular in the market as foodstuff similar to Jew's mallow)

6.1.2 History of the Jute Industry in Bangladesh

The history of the jute industry can be divided into the following four phases.

(First and second phases)

From 1947 to 1971 or up until 30 – 40 years ago, the jute industry was the country's leading exporter. In 1971/72, when Bangladesh became independent from Pakistan, exports of jute products such as hessian cloth and sacking amounted to around 450,000 tons and US\$ 195 million annually ("State of Affairs of the Jute Industry of Bangladesh," Mr. Kamran T. Rahman, Chairman of BJMA, November 5, 2007). When raw jute was added, the total jute export exceeded US\$ 250 million. Based on the country's total export in 1972/73, amounting to US\$ 348.42 million ("Bangladesh Export Statistics 2004-2005," EPB), the jute industry accounted for more than 70% of total exports.

(Third phases)

The jute industry, nationalized in 1971, underwent the glorious period between 1971 and 1983. Jute products accounted for more than 70% of the country's exports. Unlike the garment industry today, the industry used local raw materials only and thus its sales contributed exclusively to national economic development. This was the period when state enterprises made profits.

(Fourth phase)

Between 1983 and 2007, state owned enterprises continued to record deficits and were increasingly privatized. In the process, private companies coexisted with state enterprises and grew steadily. Under the World Bank's Jute Sector Reform Program (JSRP), which was started in 1993, privatization of public mills accelerated. Major events and milestones during the four phases are summarized below.

Table 6.1-1 History of the Jute Industry in Bangladesh

	National history	Jute industry and its major events
First phase	1947 Became independent as East Pakistan from the British India.	<ol style="list-style-type: none"> 1. Bangladesh produced raw jute until 1947. The spinning and weaving operations were concentrated in the present India. 2. Raw jute production reached the peak level of 3 million tons per year.
Second phase	1947 – 1971 East Pakistan, Pakistan	<ol style="list-style-type: none"> 1. The first jute mill was established in 1950, and jute spinning and weaving mills grew in number and size after 1965. 2. Founders were mostly Pakistani, called “Marwaris.” 3. In 1971, the jute industry had total production capacity consisting of 23,836 looms and 190,000 spindles.
Third phase (1)	1971/72 Became independent from Pakistan; 85% of industries were nationalized upon independence, including the complete nationalization of jute sector.	<ol style="list-style-type: none"> 1. Majority of Marwaris population (68%) escaped from the country immediately after independence. 2. As the government was required to operate many jute mills, it established BJMC. 3. BJMC operated 73 mills originally, which increased to 78 at the peak level. 4. As a result of nationalization, the government granted annual subsidy of TK200 million to BJMC.
Third phase (2)	1971/92 – 1982/83 Under nationalization	<ol style="list-style-type: none"> 1. The TK200 million subsidy was ended in 1976/77, because BJMC improved performance steadily. 2. BJMC turned to the black in 1979/80. It operated 77 jute mills, 2 CBC mills, and 2 spare parts manufacturing plants, totaling 81 facilities. 3. In 1981, BJMC operated 74 mills and employed approximately 192,000 persons, consisting of 165,000 workers and 27,000 managers.
Fourth phase	July 1982/1983 – 1992/93 Start of renationalization	<ol style="list-style-type: none"> 1. In July 1982, the Renationalization Law was enacted and 10 mills were returned to former shareholders with accumulated deficits and government loans. 2. The capacity expansion boom by private jute mills was started in 1985. Especially, spinning processes designed for yarn production were added by installing relatively modern equipment.
Fourth phase (2)	1992/1993 – 1999 Under the World Bank’s Jute Sector Reform Program started in 1993, privatization accelerated. (“State of Affairs of the Jute Industry of Bangladesh,” Mr. Kamran T. Rahman, Chariman of BJMA, paper dated November 5, 2007)	<p>In 1993, the World Bank provided the Jute Sector Adjustment Credit (JSAC) totaling US\$250 million for the purpose of implementing the Jute Sector Reform Program (JSRP), under the condition that the Bangladesh government takes action in the five items. Although it raised expectation for further privatization of state enterprises in the jute industry, the Bangladesh government failed to satisfy the conditions, while spending US\$50 million. As a result, the agreement was annulled in 1997.</p> <p>Four objectives of JSRP</p> <ol style="list-style-type: none"> 1. Capacity rationalization 2. Un-sustainability of the past debt 3. Interim loss finance 4. Privatization

	National history	Jute industry and its major events																				
		<p>Five items to be executed as condition for the World Bank’s JSRP</p> <p>1. Closedown of nine public sector mills</p> <p>2. Reduction of production capacity of two large mills</p> <p>3. Write-off of bank loans outstanding on June 30, 1992</p> <p>5. Privatization of 18 public sector mills</p> <p>However, the government failed to fulfill the promise and ended the agreement with the World Bank in 1997.</p> <p><u>BJMC’s financial/operational conditions in 1998 – 1999</u></p> <p>Cumulative deficit : TK29 billion</p> <p>Total debt : TK11 billion</p> <p>Annual deficit in 1997/98 : TK2,380 million</p> <p>Total production capacity : 451,707 tons</p> <p>Looms in operation : 12,350 units</p> <p>Production : 312,000 tons</p> <p>Export : 256,000 tons</p> <p>Domestic sales : 29,000 tons</p> <p>Under the World Bank’s pressure, jute mills under BJMC decreased to 33 in 1999.</p>																				
Fourth phase (3)	<p><u>2000 – 2007</u></p> <p><u>Public mills:</u></p> <p>While jute product prices remained unchanged or fell in some years, the production cost rose steadily to accumulate deficits in eight years. Meanwhile, the number of public mills reduced from 33 to 18 (including 3 other than jute production) in the steps shown on the right.</p> <p><u>The number of private mills</u> increased to 106, including new startups and privatized ones.</p>	<p><u>Disposition of 33 public mills</u></p> <p>- Three closed (Bahadat Dhaka Caspet Factory (BDCF), Karnafuli, Furat Karnafi)</p> <p>- Five leased to private investors (Qaumi, Reaching, People, MM, RR)</p> <p>- Five sold with debt (Nishat – November 6, 2003; MymgnsHING – November 21, 2003; Baowa – March 24, 2004 closed; Nabarun – February 12, 2005; Hafiz Textile Mills – April 7, 2005 closed)</p> <p>- Two on sales (Daulatpur and Mondwar)</p> <p>- Three operational in non-jute production (Galfra Habib, Mills Furnishing, Jute-Fiber Glass Industry)</p> <p>- Fifteen still in operation</p> <p>Development of private mills</p> <p>(As of November 2007, “Bangladesh Jute at a Glance” published by BJSA)</p> <table><tr><th></th><th><u>No. of companies</u></th><th><u>Production</u></th><th><u>Employment</u></th></tr><tr><td>BJMA:</td><td>55</td><td>128,231</td><td>42,908</td></tr><tr><td><u>BJSA:</u></td><td><u>51</u></td><td><u>300,578</u></td><td><u>46,508</u></td></tr><tr><td></td><td>106</td><td>428,809</td><td>89,508</td></tr><tr><td>BJMC:</td><td>21</td><td>129,419</td><td>49,923</td></tr></table>		<u>No. of companies</u>	<u>Production</u>	<u>Employment</u>	BJMA:	55	128,231	42,908	<u>BJSA:</u>	<u>51</u>	<u>300,578</u>	<u>46,508</u>		106	428,809	89,508	BJMC:	21	129,419	49,923
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	106	428,809	89,508																			
BJMC:	21	129,419	49,923																			

Source: Compiled by JICA Study Team from various references

6.1.3 Production and Trade of Raw Jute and Jute Products

6.1.3.1 Positioning of the Bangladesh Jute Industry in the World

According to FAO Statistics, world production of raw jute is dominated by four countries as shown in Table 6.1-2. India is the largest producer of raw jute and Bangladesh comes second. These two countries represent a combined share of 97.5% of the world production. On the other hand, Bangladesh accounts for 92.1% of the world raw jute export. Major importing countries are Pakistan, India, and China.

Table 6.1-2 World Production and Export of Raw Jute

(Unit: 1,000t)

Country	Production			Export		
	2004/2005	2005/2006	(%) 2005/2006	2004/2005	2005/2006	(%) 2005/2006
Bangladesh	810.00	990.00	40.5	306.6	440.5	92.2
India	1,193.60	1,392.30	57.0	-	-	-
Myanmar	33.99	43.26	1.8	13.7	17.3	3.6
Nepal	16.89	17.66	0.7	-	-	-
Others	-	-	-	19.8	19.8	4.2
Total	2,054.48	2,443.22	100.0	340.2	477.5	100.0

Source: World Production and Export of Jute Fiber, FAO Statistics 2006

Table 6.1-3 shows world production and export statistics of jute products, which are made from raw jute. As seen in the table, Bangladesh exports approximately 85% of jute products manufactured locally and is the world leading exporter by controlling nearly 60% of the world market. In Table 6.1-2, production volume of jute products is less than one half that of raw jute because raw jute is exported without local processing more than half.

On the other hand, India makes more jute products than its raw jute production because it imports raw jute mainly from Bangladesh. Also, India exports only 13% of jute products made locally. Thus, the country is the world largest producer and consumer of jute products. This is probably attributable to its restriction on use of plastics materials for packaging. In the world statistics of jute product exports, India and Bangladesh hold a combined share of more than 85%.

Table 6.1-3 World Production and Export Statistics of Jute Products

Country	Production (Unit: 1,000t)					Export (Unit: 1,000t)			
	1995	2001/02	2002/03	2003/04	2004/05	2002	2003	2004	2005
Bangladesh	524.4	479.1	515.9	543.1	485.7	400.6	391.9	439.4	440.0
India	1,506.2	1,585.9	1,655.6	1,587.5	1,592.0	189.9	243.8	193.0	208.1
China	535.0	-	-	-	-	9.1	15.9	16.1	16.5
Thailand	101.6	-	-	-	-	7.3	7.9	6.3	6.3
Pakistan	76.9	-	-	-	-	-	-	-	-
Nepal	16.0					10.0	10.0	13.0	13.0
Myanmar	0.0	3.0	3.8	4.3	3.9	-	-	-	-
Rest of the world	248.7	-	-	-	-	60.2	54.9	72.4	70.1
Total	3,008.8	-	-	-	-	676.0	724.4	740.2	758.0
Share of Bangladesh						59.3%	54.1%	59.4%	58.3%

Source: FAO statistics 2006

6.1.3.2 Current State of the Jute Products Industry: Production, Export and Distribution

(1) Production capacity and operating rate

As of October 2008, companies in the jute products sector are registered with the two trade associations and a state owned company, which is BJMC, as shown below. Note that the figures are adjusted for duplicated registration with two associations. The total number of employees represented by member companies is also presented.

	<u>Number of companies (2008)</u>	<u>Number of employees (2005/06)</u>
BJMA	55	42,908
BJSA	51	46,508
BJMC	15*	49,732
Total	122	139,131

Note*: BJMC's figure means the number of mills under one company, but it is denoted as the number of companies for convenience)

The total installed capacity is said to be around 350,000 spindles and 30,000 looms in Bangladesh. Based on a standard set of one loom and eight spindling machines, generally adopted in the textile industry, the following production capacities are estimated as shown in Table 6.1-4, which also shows the average operating rates sourced from BJMC's data.

Table 6.1-4 Installed Capacity and Operating Rates

	Installed Capacity		Operating Rates
	Looms	Spindles	Average
BJMA	11,112	88,896	28.3%
BJMC	10,734	85,872	62.8%
BJSA	-	127,203	89.2%
Total	21,846	301,971	Average 45.3%

Source: BJMA, BJMC and JICA Study Team

As of October 2008, BJMC has difficulty in financing the cost for procurement of raw materials due to cumulative deficits and its operating rate seems to fall below 50%. As more mills are expected to close down, both of the production capacity and the operating rate need to be adjusted downward.

(2) Production and export records

Table 6.1-5 shows recent trends in production and export of jute products. Products listed in the table are defined as follows and are considered to compose the jute product category. Although jute-based handicrafts and similar products are not included in statistics, their figures are negligible.

- Hessian : Woven cloth with a finer weave pattern than sacking, used for shopping bags and other applications
- Sacking : Jute woven bags for storing grains or coffee beans, etc.
- CBC : Carpet backing cloth
- Carpet : Carpet completed
- Yarn/twine : Jute fibers processed to yarns or twines, not woven

Table 6.1-5 Production and Export in Bangladesh

	Production (Unit: ton)						
	2000~2001	2001~2002	2002~2003	2003~2004	2004~2005	2005~2006	2006~2007
Hessian	82,159	72,554	65,205	59,012	45,181	53,402	40,494
Sacking	182,769	190,802	177,353	178,769	130,873	164,049	152,889
CBC	37,566	33,867	29,701	26,178	17,214	24,543	19,809
Carpet	1,115	786	568	249	95	21	6
Yarn/Twine	198,329	278,273	224,601	319,571	329,890	301,940	360,115
Total	501,938	576,282	497,428	583,779	523,253	543,955	573,313
Raw Jute Consumption	281,100	294,900	278,500	326,900	293,000	304,600	321,100
	Export (Unit: ton)						
	2000~2001	2001~2002	2002~2003	2003~2004	2004~2005	2005~2006	2006~2007
Hessian	75,130	83,106	56,656	60,547	44,577	56,259	37,809
Sacking	145,246	131,906	116,056	90,303	91,207	118,176	104,546
CBC	32,297	28,093	26,509	24,630	15,717	21,084	18,592
Carpet	290	106	50	24	1	8	5
Yarn/Twine	173,892	197,775	198,503	235,802	269,063	280,610	318,044
Total	426,855	440,986	397,774	411,306	420,565	476,137	478,996
Raw Jute Consumption	-	-	-	-	-	-	-
Export ratio (%)	85.00	83.80	80.00	70.50	80.40	87.50	83.50

Source: BJSA

The jute industry in Bangladesh produced 9.9 million tons of raw jute in 2005/6, of which nearly 45% (4.4 million tons) was exported as raw jute mainly to Pakistan, India and China. The remaining 5.6 million tons were used to manufacture jute products in Bangladesh, most of which were low value added, traditional products. As nearly 85% of jute products made in the country were exported, more than 90% of locally produced raw jute was consumed outside the country in form of raw jute and jute products (Refer to Table 6.1-8).

Breakdown of jute exports (value basis) by product category is shown below.

Table 6.1-6 Breakdowns of Jute Exports by Product Category

(Unit: Million Taka)

Year	Exports (value basis)		
	Product	Raw Jute	Total
2001/02	131.0	37.5	168.5
2002/03	122.8	51.8	174.6
2003/04	119.9	45.5	165.4
2004/05	148.4	30.7	204.7
2005/06	201.2	97.7	298.9
2006/07	215.6	91.4	307.0
	(US\$ 312 million)		(US\$ 445 million)

(3) Export destinations

Major countries importing Bangladeshi raw jute and jute products in 2007/08 are listed below in order of value.

Table 6.1-7 Major Export Destinations for Bangladesh Raw Jute and Jute Products

Raw Jute			Jute Goods		
	(US\$ Million)	(%)		(US\$ Million)	(%)
Pakistan	47.2	28.6	Turkey	93.5	23.1
China	45.4	27.5	Iran	43.1	10.6
India	41.5	25.1	India	34.5	8.5
Russia	5.0	3.0	Belgium	28.5	7.0
Ivory coast	3.6	2.2	Syria	19.2	4.7
Brazil	2.8	1.7	Sudan	18.8	4.6
Sub-total	145.5	88.1	USA	14.9	3.7
Total	165.1	100.0	Indonesia	14.2	3.5
Source: "Country-wise export of commodities by broad description from Bangladesh during the period July – June, 2007-2008," EPB			Netherland	12.5	3.1
			Japan	12.3	3.0
			Thailand	10.5	2.6
			Sub-total	302.0	74.5
			Total	405.5	100.0

The country's jute production/export balance in 2005/06 is estimated as follows.

Table 6.1-8 Jute Production/Export Balance (2005/06)

(Unit: 1,000 tons)

1) Production of raw jute	990.0
2) Export of raw jute	440.5
3) Production of jute products	544.0
4) Export of jute products	476.1
5) Total consumption of raw jute 2) + 3)	984.5
6) Total export 2) + 4)	916.6
7) Export ratio 6) /1)	92.5%

Note: No adjustment is made for inventory volume.

Source: Tables 6.1-2 – 6.1.-7

(4) Supply chain and value chain

Figure 6.1-1 shows the supply chain from raw jute to jute products. The workflow is based on CPD's report "In Search of a Future for the Jute Sector." Percentages were calculated on the basis of the JICA Study Team's field survey, while production is taken from

BJSA's "Bangladesh Jute at a Glance." According to CPD's report, distributors are classified into the following categories.

- Collector (Faria)
- Root cutter/grader (Bepari)
- Trader (Mahajan)
- Logistics supporter for Bepari (Aratdar)

When raw jute is shipped directly from a farmer to an exporter, the exporter serves as Bepari as well.

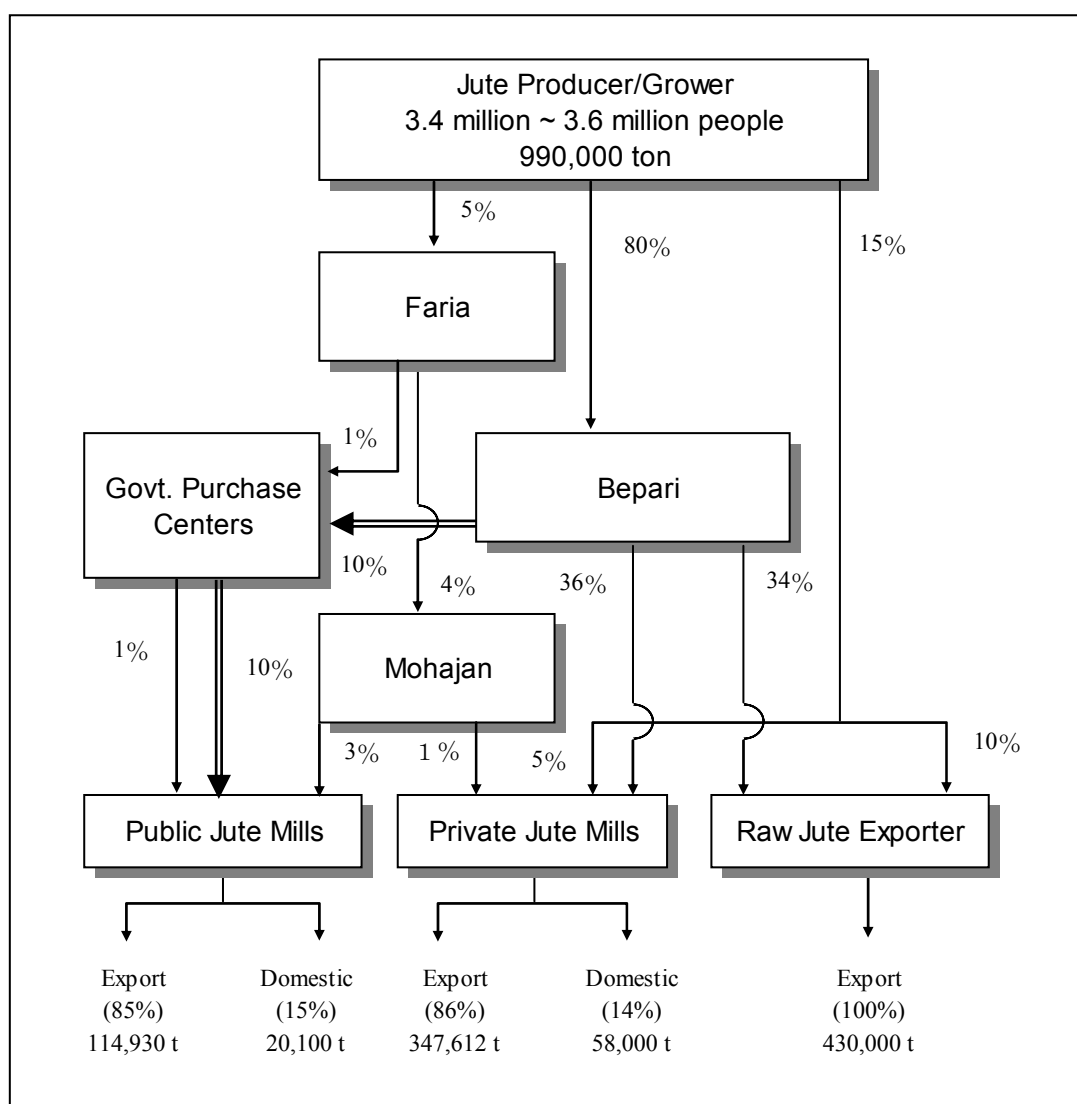


Figure 6.1-1 Jute Industry's Supply Chain

Note that public jute mills are owned by BJMC, and private jute mills consist of member companies of BJMA and BJSa. Finally, raw jute exporters are members of BJEa (Bangladesh Jute Exporter's Association). In terms of general flow of products, most of raw jute shipped by farmers (80%) is sold to Bepari, while 10% goes directly to exporters, and the remaining 5% to private jute mills.

The following diagram presents a general value chain consisting of farmers, raw jute traders, and jute mills.

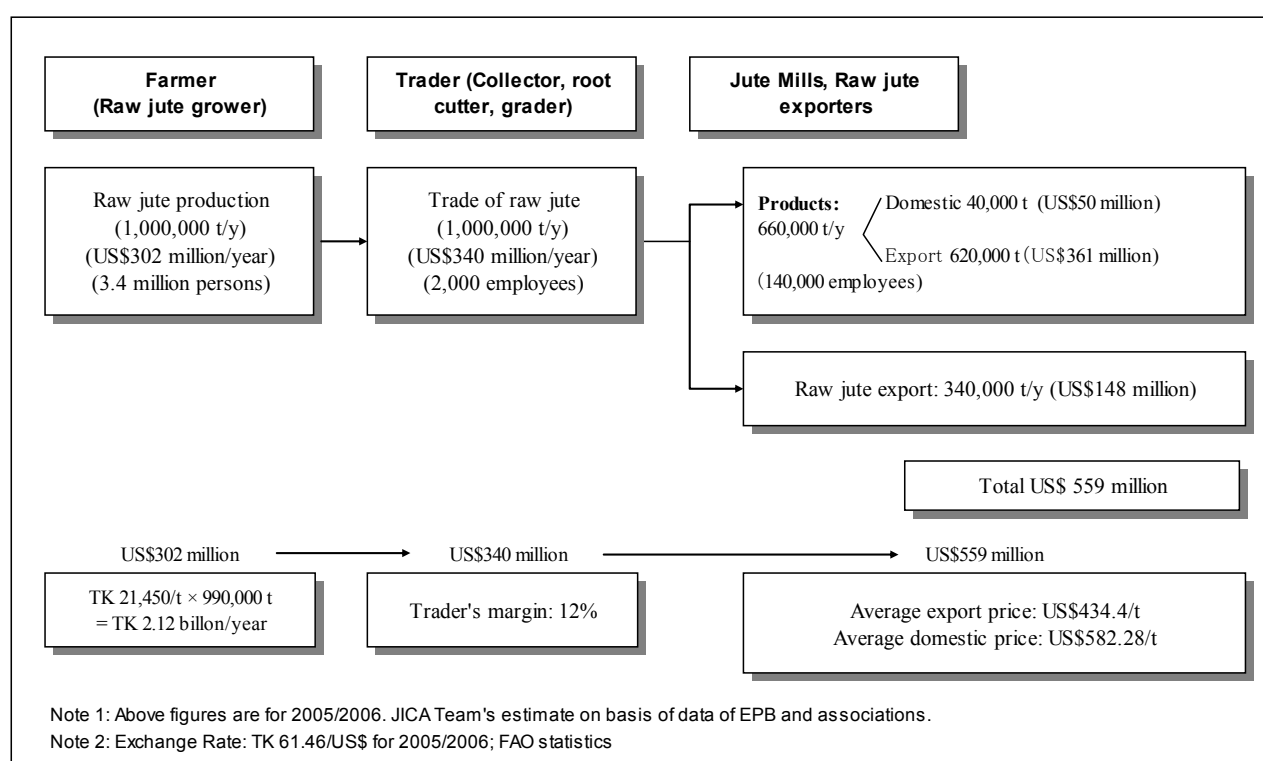
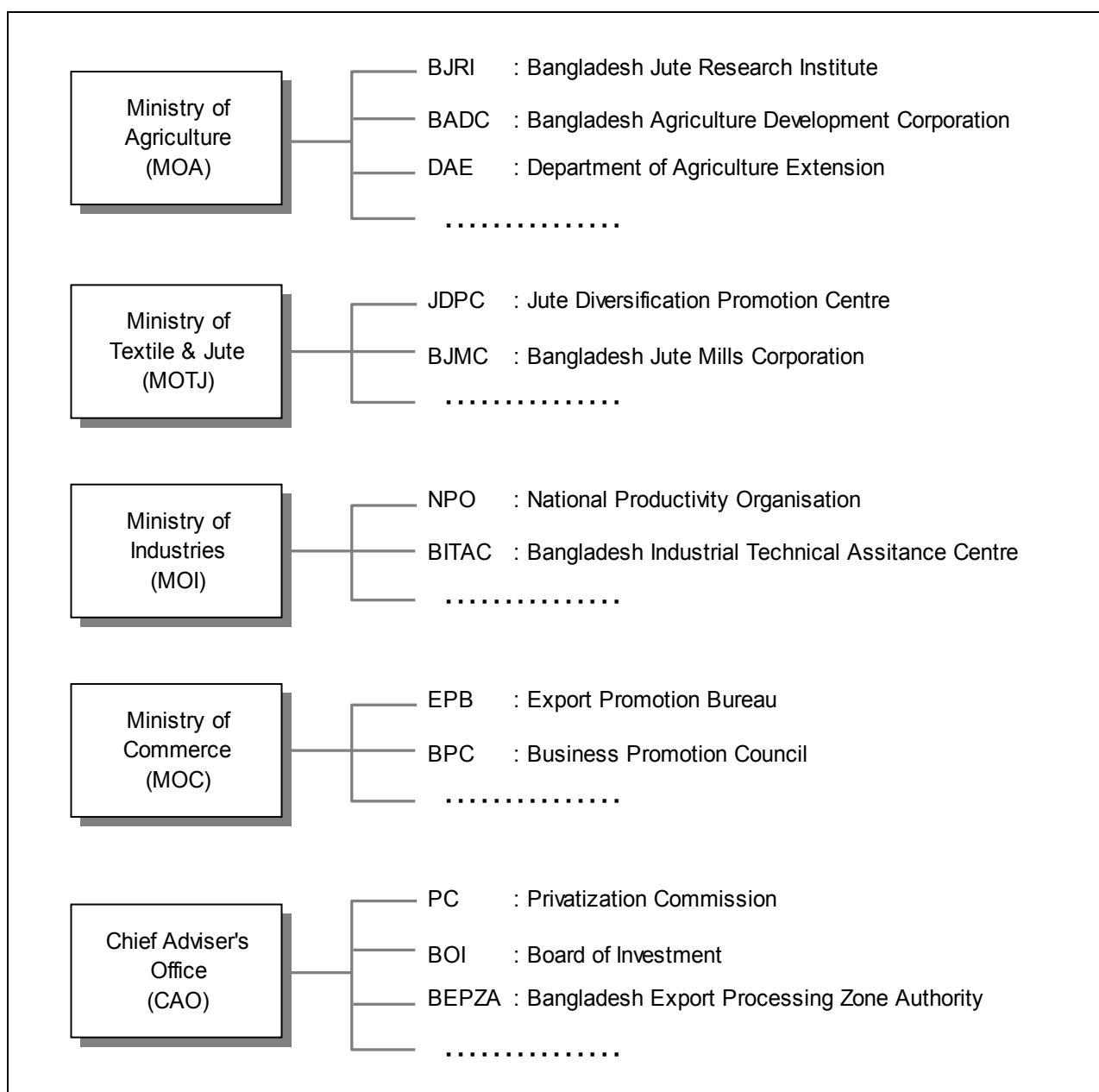


Figure 6.1-2 Jute Industry's Value Chain

6.1.4 Ministries and Government Organizations Relating to Jute Industry Promotion

6.1.4.1 Public Organizations

Figure 6.1-3 lists five ministries and their subordinate organizations that are closely associated with promotion of the Bangladesh jute industry. Notably, these ministries primarily perform the planning, budgeting, supervising, and monitoring functions, leaving program implementation and other operational activities to subordinate organizations. The following sections outline functions of key organizations relating to jute industry promotion.



Source: JICA Study Team's surveys

Figure 6.1-3 Ministries and Their Subordinate Organizations that are Closely Associated with Promotion of Jute Industry

(1) MOA

1) BJRI

The BJRI has reduced its workforce to 485 persons.

Agriculture Department (around 250 staff members) is responsible for improvement of jute-related agricultural technology. In particular, it is primarily engaged in development of jute seeds, together with farming techniques suitable for developed seeds. BJRI has

developed many HYV seeds, including leading 14 varieties, thereby contributing to improvement of jute varieties and yield per unit area. It is also responsible for production of the Breeder Seeds for new varieties to deliver them to BADC. (BJRI's "Hand Book of Agricultural Technologies of Jute, Kenaf and Mesta Crops")

Technology Department (around 200 staff members) is engaged in technological development for the jute industry. It has obtained 40 – 50 patents and has implemented around 50 technology transfer projects. Leading examples of technology developed by the department include co-spinning of jute and other fibers (e.g., cotton), improvement of jute's dyeing light-fastness, anti-flaming, and improvement of jute quality by using enzyme in the retting process.

In addition to the above two core departments, BJRI has Training Department (around 30 staff) that makes effective contribution in commercialization of technology developed by Technology Department.

2) BADC

Although this is relatively a small organization (around 50 staff members), BADC plays a critical role in development and supply of jute seeds. It augments the Breeder Seeds delivered by BJRI into Foundation Seeds in BADC's own two seed farms. Then, it supplies them to contract farms for further augmentation by providing technical advice in order to produce specific quantities for commercial supply to the market. The seeds augmented by the contract farmers are called Certified Seeds, which are distributed to the end jute farmers. BADC also controls prices of HYV seeds when they are supplied to the market.

3) DAE

DAE is responsible for dissemination of farming techniques suitable for commercialized HYV seeds e.g., sowing time, fertilization, and harvest time to farmers. This is very important because an actual yield from a HYV seed varies greatly with farming techniques used (see 6.1.5.2). Adequate farming techniques can achieve a much higher yield from the same HYV seed, nearly 1.5 times that achievable from less adequate ones.

DAE's organization and the number of staffing are summarized as follows.

Food Crop Wing	877
Cash Crop Wing.....	27
Field Protection Wing.....	229

Training Wing.....	552
Planning Evaluation Wing.....	79
Administration & Personnel Wing.....	182
Field Service Wing	20,466

Jute is handled by Cash Crop Wing, together with tobacco and lacquer. Rice and maize, which compete with jute for land use, are under jurisdiction of Food Crop Wing. There is a significant difference in the staff numbers between the two wings. Cash Crop Wing disseminates farming techniques in cooperation of Field Service Wing.

(2) MOTJ

1) JDPC

JDPC was established in March 2002 by revolving fund and grant fund of EU and MOTJ. This is an organization leading efforts to promote diversification of jute products and exports of higher value added products, especially commercialization of new products (JDPs: Jute Diversified Products) and their production. For this purpose, it provides a wide range of services from provision of market and technology information, to feasibility study, and financial access. In addition, it provides credit guarantee and grant-in-aid services for product development. Its staff members are 20 and the membership totals around 500 companies. See Program 2-1 in 6.3.2 for detailed discussion on JDPC.

2) BJMC

BJMC is a state owned enterprise engaged in production of jute products by operating 16 jute mills at present (November 2008). It still holds more than 50% share of domestic production. While it is the key player in the jute products industry, it has a cumulative deficit which is difficult to reduce despite the government's financial support. Complete privatization of the company mainly under the leasing system is about to become reality.

(3) MOI

1) NPO

The organization has served as the counterpart organization for the JICA Study Team in the Pilot Project. It was established with the mission to promote productivity improvement in the production line, and it is expected to play a central role in dissemination of production management technology to the jute industry from now onward. It has 35 – 40 staff members and is primarily responsible for dissemination of production management and

quality control techniques to various industries. Thus, it does not necessarily target the jute industry for its service.

2) BITAC

It is primarily responsible for implementation of practical skill training that leads to productivity improvement. It owns and operates four training centers equipped with necessary machinery in Dhaka, Chittagong, Chandpen, and Khulna. Its full quota is 600 persons, consisting of 526 technical and engineering staff and 74 administrative. However, the actual workforce is 561. Classroom education is provided by its technology and engineering officers (staffed by 88 university graduates (quota)) and practical training is conducted by technical employees (graduates from vocational training schools). Like NPO, BITAC is also expected to play a leading role in dissemination of production management technology to the jute industry.

(4) MOC

1) EPB

The EPB has been active as the counterpart and working group for the present Study. It is spearheading the country's export promotion policy. During the East Pakistan era, it was organized as the regional office. After independence, it was reorganized to the central government's organization. It is primarily responsible for export promotion, export policy formation, and some export-related services. As of the end of October 2008, it has six divisions and two cells, employing 242 persons in total. See 3.1.2 for detailed information.

2) BPC

It was originally established as the counterpart organization for the World Bank's "Bangladesh Export Diversification Project (BDXDP)." After the completion of BDXDP, it was transferred to the MOC's jurisdiction. It focuses on four sectors, ICT, light engineering, leather, and medicine and herbal plant. Its total workforce is 17, including three experts in each sector. Primary activities are related to improvement of awareness and training. Its operating fund comes from the MOC, trade associations relating to the four sectors, and donor organizations, i.e., GTZ (leather), SEDF (light engineering), and KATALYST (ICT). BPC indirectly has relation to the jute products industry through its target group of the light engineering industry, which is a supplier of spare parts for jute mills.

(5) Prime Minister's Office

1) PC

It was originally established as the Privatization Board and became the Privatization Commission (PC) in 2000 upon the enactment of the Privatization Act. Between 1993 and 2007 (June), 74 privatization projects were implemented. Jute mills owned by BJMC were originally sold at book value, including debts. Now, they cannot find a buyer even if debts are not written off from the balance sheet. As a result, the MOTJ has changed privatization policy to use the leasing system. Under the leasing system, the government retains ownership of state enterprises and their assets, so that it is outside the PC's jurisdiction.

2) BOI

The BOI was established in December 1989 under Prime Minister's Office by transferring the function from the MOI. It is responsible for registration (BOI does not use a word "approval") of investment projects upon application and provides various incentives under the Investment Promotion Law. Although the BOI is expected to play a critical role in diversification of export items by attracting foreign direct investment, its workforce has reduced from an original 600 to 300 because it was not able to hire new employees.

3) BEPZA

The BEPZA provides an incentive package that offers more generous conditions than ordinary incentives, mentioned in Export Policy, for companies operating in an Export Processing Zone (EPZ). EPZ is considered to be effective in attracting foreign direct investment and serves to create a favorable environment for diversification of export products by offering an optimum combination of hardware (land and utilities) and software (tax and other incentives). As of the end of December 2008, there are eight EPZs (the largest one in Chittagong and the second largest one in Dhaka) where around 292 factories are in operation by employing 230,000 workers (female 66%). The majority (66%) is textile and garment manufacturers. Foreign companies total 219, led by 63 Korean companies.

(6) Other public organizations

1) IJSG (International Jute Study Group)

It was established under UNCTAD's initiative in April 2004 and is an international organization financed by the UN's Common Fund of Commodities. The Bangladesh office serves as the worldwide headquarters for jute commodity. Its members include Bangladesh, India, Switzerland, and the EU, totaling 27 countries. Pakistan and Nepal are expected to

join in the near future. Bangladesh sends MOTJ officers as representative to meetings of IJSG. IJSG's organization is small, being composed of five officers and ten supporting staff members. The building containing exhibitions for JDPs has been donated by the government and accommodates JDPC's office as well.

6.1.4.2 Private Organizations

(1) BJMA (Bangladesh Jute Mills Association)

This is a trade association representing jute product manufacturers that have both spinning and weaving lines. As of May 2008, it has 80 members (including sponsoring companies). In 2006/07, the data of BJMA say that the BJMA member companies installed a total of 12,210 looms, of which 3,721 units were in operation. In the same year, they made approximately 573,000 tons of jute products (including hessian, sacking, CBC, carpet, yarn, and twine). They employ approximately 43,000 workers in total. The BJMA provides a variety of services including policy recommendation and advice to the government, the publication of newsletters for members, provision of industrial information, compilation and sharing of production and export data provided by member companies.

(2) BJSA (Bangladesh Jute Spinners Association)

The BJSA is a trade association representing private sector jute companies that own the spinning process only. It was established in 1979 and its membership is 55 companies as of May 2008, of which 12 companies are also BJMA members. Many of BJSA member companies produce yarns and twines, which are entirely exported. In 2006/07, production capacity of 51 companies belonging to the BJSA owned approximately 140,000 spindles and 378,000 tons per year. Of total, the actually utilized capacity was 123,000 spindles and 313,000 tons per year. Workforce employed by the BJSA member companies is approximately 46,500 persons. The BJSA's primary activities include the provision of industrial information for member companies, compilation of production and export data provided by member companies into statistical data, and the publication of monthly journal "Spinners News."

(3) BJGA (Bangladesh Jute Goods Association)

The BJGA is a trade association representing jute product exporters (excluding directly exporting jute mills). The membership does not include raw jute exporters that are members of BJA below. As of February 2007, there are 231 members, including the BJMC, private sector exporters of jute products, and trading companies, as well as some foreign buyers.

Primary activities are policy recommendation to the government, the sharing of information among members, the publication of newsletters, and the co-sponsoring of trade shows.

(4) BJA (Bangladesh Jute Association)

The BJA is primarily organized by raw jute exporters. It was originally established as the Pakistan Jute Association in 1959. After independence, it was renamed to the Bangladesh Jute Association. It has a membership of 214 companies at present, many of which are exporting raw jute (141 companies). In addition, there are 43 “kutchi balers” (companies specialized in cutting and preparation of jute roots) and 18 “pulca balers” (engaged in grading of raw jute). These two types of balers are also engaged in distribution business. Note that raw jute exports from Bangladesh are entirely made by private companies.

6.1.5 Other Important Issues

6.1.5.1 Influence of BJMC on the Jute Industry

BJMC, state enterprise operating the integrated spinning and weaving processes, is considered to create huge influence on the entire jute industry in the following respects.

(1) Mixture of the public and private companies

It does not make any rationale in economic sense in that the state enterprise is mixed with private companies in the same market (same products) to compete with each other. The following data summarize the competitive condition in 2005/06.

	<u>Production (tons)</u>	<u>No. of mills</u>	<u>Employment</u>
BJMC	149,300	27	49,723
BJMA	121,100	55	42,908

In 2008, BJMC’s mills decreased with declines in production and workforce.

(2) Cumulative deficit and causes

Table 6.1-9 shows BJMC’s operating loss in the past decade and their share in total loss made by all the State Owned Enterprises (SOEs) in Bangladesh. As BJMC reported US\$ 2 - 3 billion loss yearly, it filled the deficits with the government’s financial assistance and government-guaranteed bank loans. Nevertheless, BJMC’s loss accounted for half portions of the entire loss reported by all SOEs.

Table 6.1-9 BJMC's Operating Loss

BJMC Losses (TK. Billion and %)			
	BJMC	as % of manufacturing SOE losses	as % of all SOE losses
1997-97	2.5	30.5	22.1
1997-98	2.8	45.4	95.8
1998-99	3.0	47.0	71.6
1990-2000	3.0	65.4	15.3
2000-01	3.8	58.3	15.0
2001-02	3.9	54.6	23.2
2002-03	2.1	49.3	-
2003-04	2.1	49.8	30.5
2004-05	1.7	46.6	6.0
2005-06	2.3	51.7	8.7

SOE: State Owned Enterprise

Source: Monitoring Cell, Ministry of Finance

BJMC's chronic operating loss seems to come from excess workforce and high salary levels (because of government employees), poor management and labor productivity, and pricing for sales regardless of profitability. The following table summarizes an excerpt from cost comparison between BJMC and BJMA in the report "In Search of Future for the Jute Sector" that was prepared by the Centre for Policy Dialogue (CPD).

Table 6.1-10 Cost Comparison between Public (BJMC) and Private (BJMA)

	Public (BJMC)	Private (BJMA)
- Operating cost (Hessian, TK/ton)	120,220	54,603
- Workers wage (Spinning Section, Semiskilled)	5,740 TK/month	4.159 TK/month
- Labor productivity (ton/person)	2.5	4.7
- Jute purchasing price (Tossa TK/maund*)	881.8	948.7
- Export price (Hessian, TK/t)	53,987	62,548
* 1 maund = 37kg		

Source: In Search of Future for Jute Sector, CPD

(3) Competition with private companies

As many complaints about BJMC are heard from private companies, some of them are shown here as opinions of the private sector, mainly BJMC's undesirable behavior in terms of purchase and pricing. One is competition in purchase of raw materials in terms of seasonal concentration and pricing. As BJMC purchases raw jute in large quantities within a short period of time, farmers do not ship raw jute to the market until BJMC's budget is

approved, causing price hikes. Also, BJMC tends to set sales prices at low levels. For example, it exports hessian at lower prices regardless of cost, requiring private companies to lower prices and creating market confusion.

Under these circumstances, private companies are losing confidence in the jute politics of MOTJ, which opts to protect BJMC's position because of its ownership interest, i.e., private companies view the jute politics to represent the interest of BJMC and thus be incapable of fair policy making and implementation to serve the best interest of the entire industry of jute products.

(4) Key considerations to BJMC's privatization

It is becoming increasingly difficult for BJMC to finance its operating deficit by relying on government-guaranteed bank loans, because the government's line of credit is decreasing. In addition, raw jute suppliers are reluctant to accept later payment from BJMC. Because of difficulty in obtaining raw jute, BJMC mills are reportedly operated far below capacity and a large number of workers have been discharged. As a result, all of 15-16 BJMC mills might be privatized in the form of leasing to private operators. This means that mills of BJMC will become state-owned ones under private operation.

BJMC has argued its justification for existence that only the state-own company can purchase raw jute at a stable price from farmers and secure jobs for a number of workers at higher salaries and wages. Actually, BJMC has produced jute products and employed workers more than those of BJMA member companies. BJMC is, however, losing the justification for existence because of its inefficient operation, causing the government big loss. Privatization should be carried out under the leadership of the MOTJ in an efficient and transparent manner, in light of the fact that BJMC has been wielding a strong influence in the jute products industry, including raw jute purchase and employment. It is also expected that the MOTJ will be released from the need to consider the interest of BJMC in policy making and will be able to develop and implement jute industry policy from the national and international points of view.

6.1.5.2 Current State of and Future Prospect for Jute Cultivation

(1) Current state

Raw jute production in Bangladesh, once reached its peak level of 3 million tons per year, has been decreasing steadily under competitive pressure from synthetic fiber in the market as well as food crops such as rice and maize in cultivated area, now falling below 1

million tons per year (Note that DAE classifies rice and maize as “Food Crop” and jute, tobacco and lacquer as “Cash Crop”). In the recent 4-5 years, however, the cultivated area remains unchanged to reflect recovery of jute demand as a result of increasing popularity as an environmental-friendly product.

Table 6.1-11 Raw Jute Production in Bangladesh

	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006
Production	924,700t	793,300t	963,000t	810,000t	990,000t
Cultivated area	519,600ha	436,600ha	499,800ha	450,000ha	500,000ha
Yield (t/ha)	1.78	1.82	1.93	1.80	1.98

Source: FAO Statistics 2006/2.p19

Generally, farmers opt to plant profitable crops. Farmers in Bangladesh, where triple cropping a year is normally practiced, select a cropping pattern that would maximize profits. Most farmers grow rice but do not plant it successively for triple cropping. Instead, they practice crop rotation of rice and jute, while laying land fallow in between. Although the cultivate area for jute decreases in competition with rice, it will not decrease rapidly to a critical level partly because Bangladesh has the rainy season and is sometimes struck by a cyclone, during which land is inundated, making cultivation of rice and other crop unsuitable while that of jute suitable. Also, jute plants absorb and fix nitrogen in the air to fertilize the soil with nitrogen, so that the cropping pattern of jute – fallow – rice is ideal for cultivation of rice that requires nitrogen for growth.

(2) Jute seed supply system

Approximately 4,000 tons of seeds are used to produce 990,000 tons of raw jute. They can be roughly divided according to their source and variety, as follows.

4,000 t	— {	1000 t	BBD HYV Seeds
		1000 t	HYV seeds produced by farmers
		2000 t	2,000 tons Imported HYV seeds (mainly from India)

Note that all seeds used for jute cultivation are high yield varieties, which are then graded according to yield. BBD HYV seeds are produced from Breeder Seeds developed by BJRI, which are then used by BADC to produce Foundation Seeds, from which contract farms grow Certified Seeds that are distributed to end jute farmers. The highest yield BBD HYV seeds account for only 20% of all seeds consumed. This is both because price of the BBD HYV is higher than imported HYV seeds (TK50/kg for imported HYVseeds and

TK55/kg for BBD HYV) and because there is a resource shortage in DAE for agricultural extension service. The supply chain of seeds is illustrated in Figure 6.1-4.

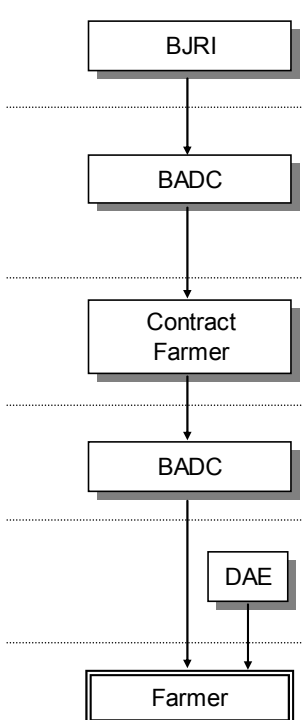
Organization/part in the supply chain	Role	Production record in 2007
 BJRI	Establishment of cultivation conditions suitable for breeder seeds	Less than 1 ton
BADC	Production of foundation seeds, delivery to contract farmers, and buyback after augmentation to a specific quantity	21.8 tons
Contract Farmer	Contract farmer Cultivation of certified seeds from foundation seeds	1,200 tons
BADC	Supply of certified BBD HYV seeds bought back from contract farmers to the market	1,200 tons supplied but 400 tons unsold in 2007/08.
DAE	Instruct farmers based upon agricultural standards of BJRI	
Farmer	Farmers They use BBD HYV seeds obtained from the above route, as well as their home-grown seeds and imported seeds.	Farmers tend to use cheaper seeds more than higher yield varieties.

Figure 6.1-4 Production and Supply Balance of BBD HYV Seeds in 2007

The government provides subsidy to encourage wider use of BBD HYV seeds. The price/cost configuration in 2007 is summarized as follows.

- 1) Breeder Seeds provided by BJRI to BADC: Free of charge
- 2) Sales price for Foundation Seeds from BADC to contract farmers: TK16/kg (Production cost is TK130/kg)
- 3) Buyback price for Certified Seeds (BBD HYV Seeds) from contract farmers to BADC: TK75/kg (Production volume: 1,200 tons)
- 4) Sales price for Certified BBD HYV seeds to jute farmers: TK55/kg (TK20/kg subsidized to compensate for the buyback price of TK75/kg.)
(Sales price for imported HYV seeds was TK50/kg being cheaper than that for BBD HYV Seeds by TK5/kg)

(3) Types of jute varieties and yields

As discussed in 6.1.1, jute plants are roughly divided into Deshi and Tossa varieties, with the Meshta variety holding a small share. The two major varieties are compared below.

Table 6.1-12 Comparison of Deshi and Tossa

	Deshi (white) variety	Tossa variety
Yield (tons/ha) ^{*1}	1,844	2,158
Seed price (TK/ha) ^{*1}	1,123	1,199
Sales price for jute ^{*2} (October, 2008: grade TOP-MID f.o.b) ^{*2}	TK35.51~13.25/kg	TK37.79~14.10/kg

Source: *1: CPD, *2: BJMA

According to the actual figures in Table 6.1-12, Tossa variety is much higher in yield and only a little higher in price than Deshi variety. It therefore makes sense that 80% of cultivated area for raw jute production is occupied by Tossa cultivation. However, the theoretical yield data can be separately obtained from BJRI's publication as shown in Table 6.1-13. According the table, Deshi can produce higher yield than Tossa can. Especially, the data tell that yields of CVL-1 and CC-45 are very high.

Table 6.1-13 Comparison of Deshi and Tossa Varieties (BBD HYV)

(Yield; ton/Ha)

	Without advice or farming techniques	With advice on farming techniques
Deshi White (Corchorus Capsularis)		
1. D-154	2.07	4.89
2. CVL-1	2.46	5.16
3. CVE-3	1.97	4.52
4. CC-45	2.49	5.16
5. BJRI DESHI/PAT5	2.45	2.75 ~ 3.25
6. BJRI DESHI/PAT6	2.12	2.50 ~ 3.00
7. BJRI DESHI/PAT7	2.75	2.50 ~ 3.00
Average	2.33	4.14
Tossa (Corchorus Olitorius)		
1. O-4	2.32	3.00 ~ 3.50
2. O-9897	2.73	3.00 ~ 4.00
3. OM-1	2.49	2.50 ~ 3.40
4. BJRI Tossa/PAT4	2.90	2.50 ~ 3.40
Average	2.61	3.57
Grand Average	2.43	3.94

Source: Hand Book on Agricultural Technologies of Jute, Kenaf and Mesta Crops, BJRI

Note that data presented in the above table represent test results at experimental farms, using BBD HYV seeds in both cases. Clearly, there is a significant difference in yields of the two varieties with or without advice on farming techniques. Here, farming techniques are expected to be taught by DAE and include the following information. In practice, however, extension service to teach farming techniques on jute cultivation is seldom carried out.

- 1) Selection of soil suitable for jute cultivation
- 2) Adequate sowing time
- 3) Adequate harvest time
- 4) Adequate amount of sowing per unit area
- 5) Adequate amount of fertilizer application per unit area

6.1.5.3 Promising Jute Diversified Products (JDPs)

The jute products industry is still relying on traditional products, such as hessian, sacking, twines, and CBC. The JICA Study Team believes that the industry can improve profitability of traditional products by strengthening preventive maintenance (adequate stock and use of spare parts) and by installing new production equipment. Meanwhile, it is worth considering promising JDPs with view to seeing opportunity to improve profitability by developing a high value added product or application.

Traditionally, product development opportunities for the jute products industry are centered on women's shoes and sandals (decoration), and handmade-taste bags that feature jute's texture, bath mats, and carpets, which are not suitable for mass production. These products are high value added but cannot contribute greatly to increasing export in amount of monetary value because of a small production lot. In addition, BJRI has been active in developing apparel applications to take advantage of jute's textile characteristics, and interior applications such as drapery and wallpaper. However, chance of success in these applications is low because jute has poor light-fastness rating and coarse texture.

After all, development of new applications should focus on the fields where jute's characteristics can be used to its maximum advantage. Jute has major advantages in stable supply, low price, good strength, and environmental friendliness offered by natural fibers. Recently, news is heard about product development based on these advantages. Prospective products suitable for mass production are described below. There are potential buyers for them and they can be commercialized by Bangladesh industry.

(1) Felt materials for soil improvement

This application was developed by JDPC and has been commercialized by a jute manufacturer in small scale production, which exports products to Australia. The felt material can be made from low-grade jute, including waste generated at a mill, hard part close to the root, and lower-grade raw jute damaged in the retting process. The felt material based on low-grade jute fibers has good water-holding capacity and can be used for soil improvement, such as fertilization of infertile soil and the greening of desert, when it is buried in the ground. After the lapse of a certain period, it decomposes and fertilizes the soil. This application was originally developed to reuse waste pieces of synthetic fibers and has been used for soil improvement, soil reinforcement, and sound insulation (as part of a sound-proof wall). Similarly, jute felt can be used for sound-proofing application, in addition to soil improvement.

(2) Heating insulating paper for agriculture use

In Japan, when seedlings are planted in the field, they are covered by plastic films, except for their head. This has heat insulating and insect screening effects and is indispensable in healthy growth of seedlings. After full growth of seedlings, however, these plastic films are no longer needed and have to be discarded, producing a large amount of plastic waste. If they are replaced with jute-based unwoven fabric paper, it decomposes and turns into fertilizer. This eliminates the need for waste disposal and fertilization. Some buyers look for jute-based unwoven fabric paper that incorporates herbal essence to repel insects. Furthermore, jute felt and paper materials have high potential to replace plastics seedling pots by taking advantage of decomposability.

(3) Automotive panel reinforcement

Jute fibers are felted, to which polypropylene powder is added and mixed evenly, and the mixture is heat pressed to make a panel. It is generally 1mm – 1.3mm thick. Automakers demand a thin felt to minimize body weight. Jute (or Kenaf) can be used for reinforcement of the thin material and accounts for more than 50% of the total weight. European carmakers, including Volvo and Mercedes, start to use the jute-based panel reinforcement. Toyota's several models use kenaf-based felt material for two panels installed on the inside of the front doors and a partition panel between the rear seat and the trunk space. This could be replaced by jute in future.

In fact, it is said that jute is generally superior to kenaf for a reinforcement material in terms of availability, price stability, fiber's fineness, strength, plasticity, and other factors.

For this reason, reinforcement using a thin plastics panel is a promising application for jute. Also promising are core materials for automotive and large plastic molded products.

(4) Reinforcement for building boards

Building boards enjoy great demand as replacement for plywood and plastics boards. A Japanese leading building board manufacturer has established a joint venture in Malaysia and produces and sells kenaf-based products. The company is now examining possibility of commercializing jute-based materials in order to replace kenaf for the same reason in the case of the automotive panel. The production process is simple; the mixture of jute felt and phenol/adhesive paste is evenly mixed and heat pressed. Jute content of the finished board is 95%. This application would lead to substantial jute demand, possibly making domestic production of building boards viable.

(5) Shopping bag

As synthetic fiber or plastic shopping bags are losing popularity due to environmental concern, jute is considered to be a promising substitute.

(6) Padding, uniforms, and sheets for hospital and hotel

Padding for beds and chairs is another promising application. At present, polyurethane is used as padding for high grade chairs and is very costly. Also, there is a good prospect for development of jute-based sheets for hospitals and hotels that give priority to high functionality and economy.

6.1.6 Conclusion (SWOT Analysis)

To conclude the current state analysis of the jute products industry, SWOT analysis was conducted as follows. Its results are highlighted for each of the four elements (strength, weakness, opportunity and threat) in order of importance.

(1) Strengths

1) Environment suitable for jute cultivation, including climate and farming population

Bangladesh is suitable for jute cultivation because of its high temperature and high humidity climate. Also, it is situated on a fertile delta area formed at the confluence of two rivers, the Ganges originated in the Himalayas and the Brahmaputra originated in Tibet. There is the flood season to allow retting of jute plants. A combination of these favorable conditions makes the country the ideal place for producing high grade jute at low cost.

Furthermore, there are 3.4 – 3.6 million farmers engaged in jute production, enough to meet growing demand. Abundant farming population capable of producing jute reliably and at low cost is a notable strength for the industry.

2) Long-term export channels and supply system

Because of the traditional industry, the country has well-developed infrastructure from raw jute production to jute product export, as well as long-standing export markets in India, Europe, the Middle East, and Africa. Supply capacity and the stable customer base, which have been developed through the history of maintaining the position of the world leading jute exporter, are undoubtedly a formidable strength. Production facilities boast expertise and experience that have been gained through long years of operation and are capable of ensuring stable supply.

3) Low-cost and high-quality workforce available to jute product manufacturers

In Bangladesh, there is ample supply of high quality and low-cost workforce, albeit the poor working environment and conditions. This helps industry to achieve the current level of production, regardless of aging production equipment and difficulty in purchase of spare parts. In particular, many mills are established in rural areas where jute farms are concentrated, resulting in stable supply of labor force.

4) Availability of raw jute for production of JDPs

Bangladesh is the second largest producer of raw jute (990,000 tons in 2005/06, according to FAO), following India which produces slightly less than 1.4 million tons. Yet, India makes large amount of imports and has no surplus supply capacity for domestic raw jute. On the other hand, Bangladesh is the major exporting country of raw jute (nearly one half of production). Thus, the amount of raw jute currently exported would be allocated for mass production of JDPs as they are commercialized.

5) Broad government support

BJRI, BADC and DAE provide public support in relation to seeds, and BJRI and JDPC support technological development. For product exports, a cash back program equivalent to 7.5% of the FOB price is available. Also, the industry is eligible to a variety of support programs including export finance. Although the current level of government support has declined from the peak level, it still remains significant in terms of breadth and depth.

(2) Weaknesses

1) Weakness in government leadership in jute industry promotion

The cultivated area for jute tends to decline due to competition from food crops such as rice (In fact, the Bangladeshi government directed the farmers to augment rice production after heavy damage caused by huge cyclone in 2008). On the other hand, demand for traditional jute products is expanding worldwide on the strength of the rise in environmental concern (Although the latest statistical data for the world jute demand is not available, interview survey for jute companies in Bangladesh revealed that they are currently not able to keep up with the incoming business inquiries from overseas). In addition, jute products industry is exploring new application for jute usages. In order to respond effectively to these situations, it is necessary to improve yield per unit area in the stage of jute agriculture, as well as to modernize the aged production facilities and introduce production management technologies in the industrial stage. Besides, the existence of the state-owned company, BJMC, in the industry is one of the causes for the complicated structure of the jute industry of Bangladesh. While there should be the strong leadership of the government to solve the problems stated above, it is, in practice, difficult to find such leadership from the government agencies including MOTJ.

2) Low productivity of the traditional jute products industry

Low productivity (i.e., low profitability) in the manufacturing of jute products is considered to be a root cause for problems faced by the industry. Low profitability prevents proper maintenance of production equipment, not to mention the purchase of new equipment. Traditional jute product manufacturers are known for low salary and poor working conditions in comparison to other industries. They may go bankrupt from loss of workforce. Yet, they can improve profitability substantially by improving productivity, as shown in the action program proposal in 6.3. If not, this weakness will continue.

3) Inability of local suppliers to supply spare parts

Even if the jute industry achieves productivity improvement by introducing production management techniques, the extent of improvement will be inherently limited. This is substantiated by experience from the Pilot Project conducted at four private model jute mills, i.e., productivity can be improved by 10% - 15%, but further improvement is not possible unless parts are supplied with high quality and at adequate price. At present, there are a number of local suppliers, but they do not have adequate supply capacity in terms of quality and price. It is important to foster them quickly in order to establish a reliable supplier base.

4) Negative impacts of BJMC on the industry's healthy development

The state enterprise has been operated at a loss in long years. It cannot survive without the government's financial assistance of TK1.5 – 2 billion to make up for the annual deficits. Meanwhile, its management lacks proper principle or policy. It sets low export prices deliberately for the purpose of maintaining a high operating rate, while neglecting profits, and it unduly raises the purchase price for raw jute. These behaviors cause confusion in the jute product market where it competes with private companies. This anomalous condition should be corrected urgently if the Bangladesh jute industry is to achieve healthy growth.

5) Frequent power outage and low quality of electricity

Power outage occurs every day, lasting one to two hours. Quality of electricity supply is low due to significant voltage fluctuation. While power outage adversely affects production quantity, voltage fluctuation has a negative influence on quality of yarns. Improvement of electricity supply is therefore conducive to improvement of productivity and profitability of the jute industry, and should be given of priority. Meanwhile, jute mills may consider the installation of a co-generation system or the switching to a gas-fueled power generation system (although local gas resources face a risk of depletion). In any case, stable supply of electricity is one of the government's mandates.

6) Small demand for jute products in the country

At present, one million tons of raw jute are produced annually and approximately 45% are exported without local processing. The remaining 55% are locally processed to manufacture jute products, but 85% of them are exported. This means that only 10% (raw jute basis) are consumed locally. It is far smaller than the domestic consumption rate in India. To increase local consumption, the government may consider the enactment of a law requiring 100% jute products to be used for cement bags, sugar packing, and sacks for potatoes and other agricultural products, as done in India. In addition, extensive efforts are required to increase domestic consumption.

(3) Opportunities

1) Increased popularity of jute products due to the environmental friendliness drive

Environmental friendliness becomes a watchword for industry in the context of the global warming issue. Jute absorbs 14 tons of carbon dioxide and releases 10 tons of oxygen as one ton of jute grows. This is a very high absorption rate in comparison to other

plants and makes jute an environmentally friendly product. Furthermore, jute products boast a lower CO₂ emission than synthetic fiber products and are renewable and naturally decomposed when they are used for farming purposes, offering an additional advantage in terms of environmental impacts. In consequence, jute products are expected to be increasingly demanded widely in the world.

2) Emergence of mass produced jute products

There is increasing demand for mass produced, higher value added, jute products, including building materials, automotive parts, and farming materials. There are a number of business inquiries and talks that may lead to commercialization of actual products. They can create great opportunity for manufacturers of traditional jute products. Prospective products in the applicable categories are discussed in 6.1.5.3.

3) Opportunity for raw jute production despite the decrease in the cultivated area

Even if demand for jute products increases, the industry's growth potential will be limited by the decrease in the cultivated area for raw jute, which is happening recently. While it creates concern about the future of the industry, there is opportunity to increase raw jute production significantly on the same cultivated area if BBD HYV seeds are planted by all farmers and appropriate farming techniques are disseminated. In fact, it is feasible to double the yield per ha from present two tons to four tones if five BBD HYV seeds (Tossa varieties) and seven BBD HYV seeds (Deshi varieties) developed by BJRI are planted and cultivated according to appropriate conditions. Furthermore, it is conceivable that new varieties with a higher yield will be developed in the near future. If this occurs, raw jute production will not decrease even if the cultivated area for jute is replaced with competing crops such as rice.

4) Opportunity for improvement of profitability for traditional, mass produced products

On the industrial average, production equipment for jute products is operated at slightly over 45% of capacity. The operating rate of BJMA mills is much lower at 28.3%. Reasons for the low rate of operation are attributed to absence of production technologies, aged production facilities, and a lack of spare parts of high quality for the production machines. As a result, jute industry of Bangladesh is observing the case in which the more the jute is processed (from raw jute to yarn and finally to products), the lower the value is added. As processing does not bring in higher added value, the jute companies tend to limit the operation for manufacturing the processed products, which in turn decrease the rate of operation in the jute industry. However, if domestic supply of spare parts increases, and if

appropriate production management technologies and modern production facilities are introduced, profitability of jute products industry is largely improved even from traditional jute products.

5) Increased investment in flexible production of high value added products

Investment in SMEs for the purpose of manufacturing and selling handicrafts, household goods, and general merchandize is on the rise. This means the emergence of small manufacturers specialized in flexible production (variety of products in small lot), as differed from mass producers of traditional products. While their presence in the export business (value basis) is very small, further growth will develop them to a major export item because they are high value added products.

(4) Threats

1) Reconsideration of the jute industry's potential by government and society

The jute industry was previously the leading industry representing 70% - 80% of the country's export, similar to the apparel industry at present. It is now on the decline as it has lost share to synthetic fiber products that can be made and sold at low cost. As a result, the jute industry is viewed as a thing of the past by the government, labeled as a labor-intensive, low-profit industry. The industry cannot attract workers. If the negative image of the industry persists in society, its growth opportunity will be taken away.

2) Possible damage caused by mismanagement of the BJMC privatization process

As discussed earlier, BJMC, which produces more than 50% of the total jute product production in the country, has been operated at a loss over long years, while creating undue pressure on private companies in the raw material and end user product markets. Although privatization of BJMC mills is the irreversible process, it would create substantial loss if all the 15 BJMC mills closed over the short period of time. In that case, the jute industry of Bangladesh would lose, for example, jute export markets that BJMC has developed for long, as well as stable employment opportunities and raw jute market. Jute farmers would lose raw jute market opportunity by half in the same case. It may adversely affect the export market for jute products, the industry's employment, and the raw jute market, which have been subject to improper management by BJMC, together with the MOTJ. However, correction of such mismanagement would create a strong shock to the jute industry if privatization is carried out in incorrect steps.

3) Potential business failure due to continuation of the industry's poor working conditions

Traditional jute product mills pay low wage and have very poor working conditions, e.g., the air is polluted by jute dust particles (visibility of less than 10m) to produce unsanitary conditions. Hard labor in the dark and hot conditions, with low wage, will discourage workers from jute mills. In fact, signs of workers' departure are already seen at some mills.

4) Departure of farmers from jute production

Farms in Bangladesh are capable of triple cropping, but many of them practice crop rotation using jute for soil fertilization. Once the food crisis occurs, however, the government will encourage farms to produce food crops by offering subsidy (this was done under the previous cyclone damages). As farmers are free to choose which crop they grow, they may switch to food crop production if they cannot sell raw jute at competitive prices in comparison to other products. The significant decrease in the number of farmers producing jute could adversely affect the operation of the jute products industry.

5) Development of decomposable synthetic fiber

The synthetic fiber industry is developing fibers and plastics that are flammable and decomposable in soil. If they are commercially developed to provide low-cost, light and moldable products using petrochemical materials, they will erode the environmentally friendly advantage of jute products.

6.2 Development Vision, Purpose and Strategy

On June 24, 2007, a one-day workshop was held under attendance of 48 persons representing the jute industry and related organizations in Bangladesh. Its aim was to discuss the problems faced by the jute products subsector and to agree on the core problem and its direct causes. To do so, the participatory problem analysis was performed. It is one type of the PCM (Project Cycle Management) technique, under which participants write down their opinion on a specific topic in a card, and then the opinions are arranged and characterized under agreement by the participants. Figure 6.2-1 shows the results of the problem analysis, which is called a simplified problem tree. Based on the problem tree, a development purpose for the action program was established, followed by a development vision and a general framework for development strategies.

6.2.1 Development Purpose

At the workshop, a core problem for the jute products subsector was agreed by the participants, namely “productivity in the jute industry is low.” According to the PCM technique, solving the core problem is a development purpose for the action program. The development purpose is expressed as the following statement that describes the situation after the problem has been solved.

Development purpose: The jute products industry revives as a modernized industry through improvement of productivity.

The country’s jute industry previously boasted its position as the major export industry, accounting for over 80% of the country’s total export value. However, it lost its market share to synthetic fibers that offered advantage in cost and workability, including the domestic market where ready-made garment (RMG) took over the prominent position. In the recent few years, the industry’s exports represent slightly less than 5% of the total exports of Bangladesh and compete with frozen shrimps for the second largest export item. In the context of national economy, the jute products subsector is positioned as a high value added industry processing raw materials available in the country. Jute products are strongly demanded in the market and over 90% of jute products are exported. In the course of the Pilot Project, however, it was revealed that the industry’s production equipment is generally old (40 years old on average) and the machinery operating rate is estimated at below 50%. Another concern relating to production is low wage that encourages workers to leave the industry, suggesting the danger of the industry’s decline. For these reasons, the development purpose of promoting the industry’s revival by using productivity improvement as driving force is considered to be appropriate.

6.2.2 Development Vision

As seen in Figure 6.2-1, problems in the upper strata (0-1 through 0-5), which is placed above the core problem (0-0), are more significant problems caused by the core problem. These problems can be solved when the core problem is solved through the accomplishment of the development purpose, i.e., the jute products industry achieves high productivity. By integrating the conditions where problems 0-1 through 0-5 have been solved, the development vision for the jute products industry can be stated as follows.

Development vision: The jute products industry largely contributes to the rise of living standards of the Bangladesh people by export of higher value added products.

This development vision is justified for the following reason. The jute industry is a traditional export industry using locally available raw materials and employs estimated 3.5 million workers in the entire supply chain from jute cultivation to distribution, manufacturing, and sales. As the industry is classified as labor intensive, it can improve export competitiveness substantially if the jute products sub-sector, which assumes the central role in the industry, achieves improvement of productivity as stated in the vision. The higher yield of raw jute use is then expected to allow fair distribution of wealth to not only production workers but jute farmers.

6.2.3 Development Strategy

The development strategy represents an approach to the achievement of the development purpose established for the action program. The development purpose is derived from the respective core problem, which can be solved by dealing with its direct causes. In the problem tree shown in Figure 6.2-1, card Nos.1 through 5 are considered to be direct causes for the core problem faced by jute mills, i.e., “low productivity.” While these problems are positioned as core elements of the development strategy, problems in lower strata in the problem tree are also raised. For the purpose of analysis, all the problems are categorized as follows. Note that some problems may be classified into more than two categories.

Category (1) Problems relating to policy and institution

- 3-4 Fund is insufficient
- 10-3 Effective jute policy is absent
- 10-4 Policy is discriminatory between public and private sectors
- 10-5 Jute goods is losing market for synthetic products in better longevity and quality

Category (2) Problems relating to operation and management technology

- 1. Machinery operating rate is low
 - 1-1 Next process is not well considered
 - 1-2 Handling is not on time
 - 1-3 Skilled workers are lacking
- 4-4 R&D is insufficient
- 10-2 Available jute technologists are inadequate
- 10-6 Management is not efficient
- 10-7 Proper maintenance of machines is not being done
- 10-8 There is frequent power failure

Category (3) Problems relating to machinery outdated

- 3. The industry is using old and outdated machinery
 - 3-1 There is not enough profit to buy new machine
 - 2-2/3-4 Fund is insufficient
 - 3-2 Innovation in machinery lacks
 - 3-3 New machines are not being manufactured of late
 - 3-5 New machines are not available
- 10-2 Available jute technologists are inadequate

Category (4) Problems relating to available of raw materials

- 2. Insufficient supply of raw jute affects productivity in mills
 - 2-3 Low price of raw jute
 - 2-4 High variety seeds are not available

Category (5) Problems relating to labor

- 5. Labor unrest happens
 - 5-1 There is non-payment of wages in due time
 - 5-2 There is non-payment of benefits in due time
 - 5-3 Workers are losing jobs
 - 5-4 There is political involvement in labor association
 - 5-5 Insecurity of service of labor prevails

Category (6) Problems relating to human resource development

- 4. Workers are not efficient
 - 4-1 Training is insufficient
 - 4-2 Training facility is not available
 - 4-3 Workers do not have motivation

1-3 Skilled workers are lacking

Category (7) Problems relating to new investment

2-1 Cash flow is insufficient

2-2/3-4 Fund is insufficient

3-1 There is not enough profit to buy new machine

10-1 Interest rate is high

10-5 Market for jute products is replaced by synthetic fibers

Then, the development strategy was developed for each of the seven categories in consideration of experience from the Pilot Project and the results of questionnaire surveys of 20 companies. Table 6.2-1 summarizes “restrictions for growth for jute products industry” based on the results of the questionnaire surveys, together with comments by the respondents. Table 6.2-2, on the other hand, summarizes the “advantages for growth” in the same manner as above.

First of all, Category (1) “Problems relating to policy and institution” appears to be rather indirectly related to the development purpose of “productivity improvement.” Nevertheless, policy recommendation seems to be required in relation to the promotion of the jute industry, as judged from the draft Jute Policy that is being developed for the first time in the past six years. In consideration of its contribution to the achievement of the development purpose from the macro standpoint, it was decided to leave Category (1) as a core element of development strategy.

As for Category (4) “Problems relating to availability of raw materials,” the advantage for growth is rated at the highest level of 33, as shown in Table 6.2-2, albeit some complaints about price. During the interview survey of the model mills under the Pilot Project, responses indicated that there was no significant problem relating to availability, although the price rose sharply, which did not affect productivity. In light of the fact that these problems are basically relating to farming, it has been decided not to take them up as development strategy for achieving the “productivity improvement” purpose.

Category (5) “Problems relating to labor (job insecurity)” is an important problem for the country, which persists in the country’s poor economic status. While these problems undoubtedly impede the improvement of productivity in the labor intensive jute industry, they are not limited to the jute industry but are tackled as common problems faced by the country’s industry as a whole (including agriculture, manufacturing, and service). For this reason, Category (5) is considered to be an external condition of the jute industry and thus not included in the action program framework for development of the jute industry. However, Category (6)

“Problems relating to human resource development” is considered to be the issues that can be dealt with by the jute industry on its own, and thus, is included in the action program framework.

Finally, Category (7) “Problems relating to new investment” is not considered to have direct impacts on the development purpose of productivity improvement, i.e., solving the financial problem (sufficient supply of fund) is not conducive to higher productivity. However, supply of fund can become an effective solution for problems in Category (3) (outdating of machinery), so that it is dealt with in relation to the development strategy for Category (3).

Based on the above considerations, the following four development strategies were established for action program on export promotion for the jute products industry.

Strategy 1 Recommendation on policy related issues (Category (1))

Strategy 2 Modernization of production facilities (Category (3) and (7))

Strategy 3 Dissemination of production management technology (Category (2))

Strategy 4 Reorientation of the management and mill officers (Category (6))

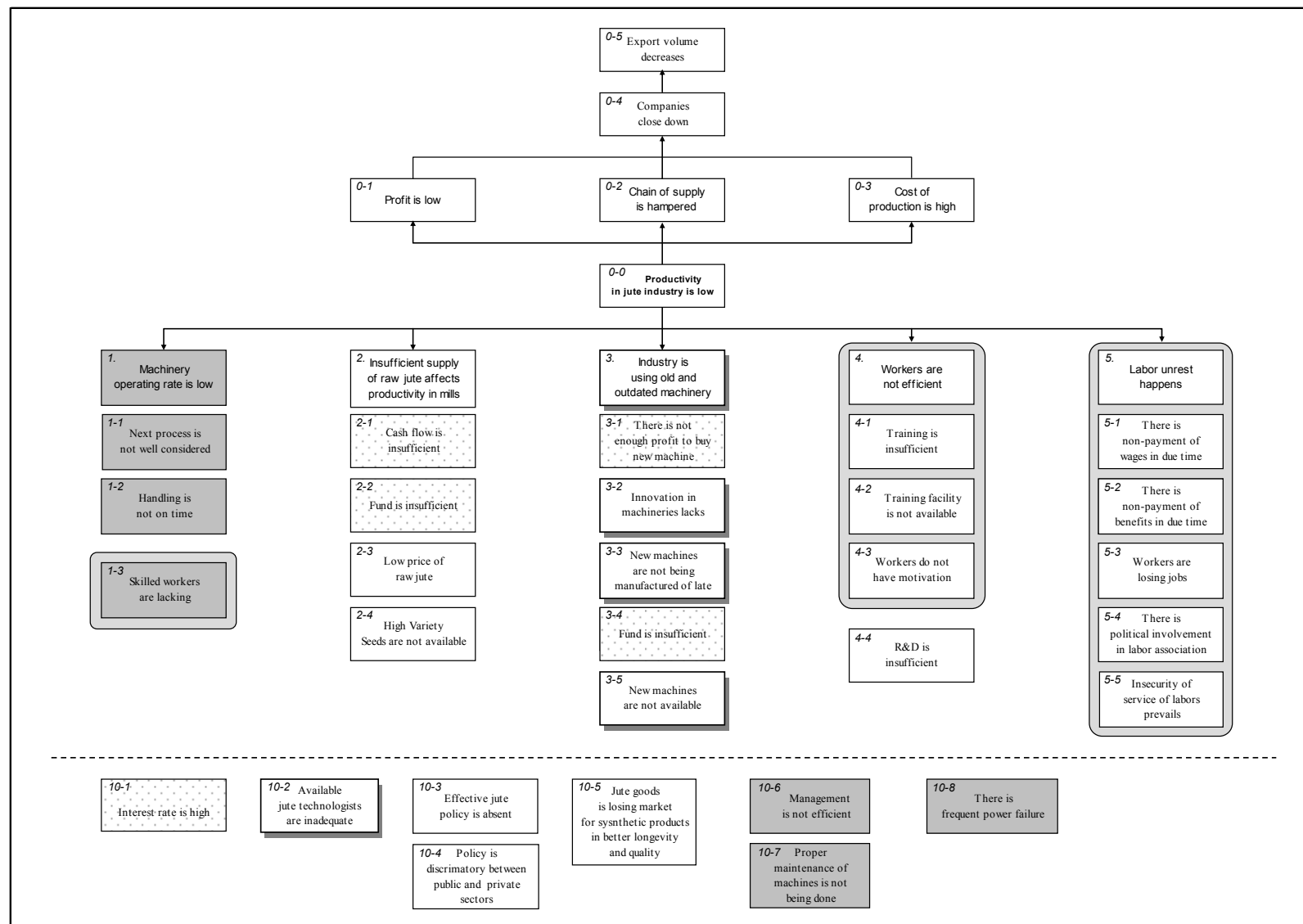


Figure 6.2-1 Problem Tree for Jute Products Sub-sector (Result of Problem Analysis at the Second Workshop on June 24, 2007)

**Table 6.2-1 Analysis of Questionnaire Survey Results
(Constraints for Jute Export Growth)****Coverage:** 20 jute products manufacturers**Scores:** 3 points – no constraint; 2 points – fair constraint; 1 point – strong constraint**Points in the left side column:** The level of satisfaction is indicated on a three-point scale. The items with 2 or lower points are mesh marked to highlight a relatively high level of dissatisfaction.**Relative scoring for constraints:** Respondents were asked to select three items among the following five factors, which they considered to be the most impeding factors, and to rank them in the order of constraint level, from 1 to 3. 3 points were assigned to the rank 1, 2 points the rank 2, and 1 point the rank 3, with zero point for not-selected items. Then, the total score for each item was calculated for 20 companies. The higher the score gets, the higher the level of constraint becomes. An item ranked first by all 20 companies receives 60 points.

(1) <u>Financing</u> 1.68 1. Short-term working capital 1.75 2. Long-term capital investment 2.35 3. Interest rate 0.95 4. Collateral requirement 1.65	(Comment) ... <Financing> Relative level of limitation - 25 While strong limitation is felt about finance in general, nine companies cited no problem in comment. They used internal reserves and obtained bank loans as required. Another nine companies cited high interest rate, collateral requirement and/or difficulty in obtaining bank loans.
(2) <u>Physical distribution</u> 2.31 1. Transportation of raw materials 2.35 2. Access to airports and ports 2.10 3. Cost 1.90 4. Loss during transportation 2.90	(Comment) ... <Physical distribution> Relative level of limitation - 0 Generally, little limitation is felt about distribution. The largest number of companies (8) indicated complaint about airports and ports, including port congestion, the shortage of containers, strikes, and customs clearance procedures. Five companies cited road conditions as a limiting factor, while four indicated no problem.
(3) <u>Infrastructure</u> 2.01 1. Road 2.10 2. Factory site 2.40 3. Water/electricity/gas supply 1.45 4. Telecommunications 2.10	(Comment) ... <Infrastructure> Relative level of limitation - 24 This item shows a very high level of limitation in terms of impediment to export. 17 companies cited power failure as a major impeding factor, suggesting the need for construction of power plants.
(4) <u>Policy and institution</u> 1.96 1. Export policy 1.65 2. Customs and inspection 1.95 3. Labor law 2.25 4. Taxation 2.00	(Comments) ... <Policy and institution> Relative level of limitation - 10 This item represents a relatively low level of limitation. Nine companies favored policy encouraging exports, four companies demanded tax reduction and subsidy. Two companies wanted correction of discriminatory treatment between the public and private sectors.
(5) <u>Education and training</u> 1.10 1. Management education organization 1.05 2. Vocational training organization 0.90 3. R&D support organization 1.15 4. Export support organization 1.30	(Comment) ... <Education and training> Relative level of limitation - 26 This item shows the highest level of limitation. 17 companies indicated the absence of appropriate training facility, and they emphasized the poor state of worker training facilities, rather than management training facilities.

Source: JICA Study Team, "Questionnaire Survey of 20 Companies"

**Table 6.2-2 Analysis of Questionnaire Survey Results
(Advantages for Jute Export Growth)****Coverage:** 20 jute products manufacturers**Scores:** 3 points – strong advantage; 2 points – fair advantage; 1 point – weak advantage**Points in the left side column:** The level of satisfaction is indicated on a three-point scale. The items with 2 or lower points are mesh marked to highlight a relatively low level of advantage.**Relative scoring for advantage:** Respondents were asked to select three items that they considered to be most advantageous and to score them in the order of advantage level, from 1 to 3. 3 points were assigned to the highest scored item, 2 points the second highest, and 1 point the third highest, with zero point for other items. Then, the total score for each item was calculated for 20 companies. The higher the score gets, the higher the level of advantage becomes. An item ranked first by all 20 companies receives 60 points.

(1) <u>Raw material</u>	<u>2.03</u>
1. Availability	2.15
2. Quality	2.05
3. Cost	1.55
4. Delivery period	2.35

(Comment) ...<Raw material>

Relative level of advantage - 33

Eight companies indicated no problem about availability of raw materials, while eight companies complained about price inflation and fluctuation. Six companies cited unstable supply because they were not able to make purchase at appropriate time.

(2) <u>Human resource</u>	<u>1.48</u>
1. Availability of skilled workers	1.35
2. Skill level	1.75
3. Labor cost	2.05
4. Education and training	0.75

(Comment) ...<Human resource>

Relative level of advantage - 13

11 companies complained about the shortage of skilled workers. On the other hand, eight companies had no problem about human resource, and most of them conducted in-house training. Two companies were troubled by involvement of labor unions, and one company complained about high wage and high turnover.

(3) <u>Export marketing</u>	<u>2.15</u>
1. Export market growth	1.95
2. Export channel	2.40
3. Export market information	2.15
4. Export procedures	2.10

(Comment) ...<Export marketing>

Relative level of advantage - 25

Only one company served the domestic market only. 11 export companies were satisfied with market conditions. Two companies wanted government support for export promotion. One company cited competition with state enterprises as impeding factor and another high interest rate/export procedures.

(4) <u>Product development</u>	<u>2.01</u>
1. In-house development of export products	2.95
2. Number of workers in product development division	2.89
3. Access to R&D facilities	0.47
4. Collection of new product information	1.65

(Comment) ...<Product development>

Relative level of advantage - 5

17 out of 20 companies responded that they were doing product development according to the market changes. Two companies were specialized in CBC production and had no time for product development. One company made no comment. Most companies conducted in-house development. Notably, "access to R&D facility" remained at a very low level of 0.75.

(5) <u>Expansion of supply capacity</u>	<u>2.09</u>
1. Own company's production expansion plan	2.20
2. Other company's production expansion plan	2.21
3. New market entry plan	1.95
4. Foreign investment	2.00

(Comment) ...<Expansion of supply capacity>

Relative level of advantage - 14

The following comments were about new entrants to the jute market. Six companies noted that there were a few entrants in response to good market conditions. Eight companies point out difficulty faced by new entrants. Five companies stated that new entrants introduced new technology, new products, and new management techniques. One company wanted government support for new entrants.

Source: JICA Study Team, "Questionnaire Survey of 20 Companies"

6.3 Action Program Proposals (Jute Products Industry)

From the problem analysis workshop attended by representatives of the government and private sectors (see 6.2), a core problem impeding export growth of jute products was identified. In order to solve the core problem “poor productivity of the jute products industry,” the following four strategies have been established.

- Strategy 1 Recommendation on policy related issues
- Strategy 2 Modernization of production facilities
- Strategy 3 Dissemination of production management technology
- Strategy 4 Reorientation of the management and mill officers

In this section, objectives of the above four strategies are described. Then, the means to achieve the objectives are developed and proposed as programs. Program proposals have been developed on the basis of the results of a baseline study, lessons learned from the Pilot Project, and the results of supplemental studies. Then, the JICA Study Team finalized proposals through discussion and confirmation with related government offices and organizations concerning each program.

6.3.1 (Strategy 1)

Recommendation on Policy-related Issues

The development policy for the Bangladesh jute industry was first formulated and announced by the MOTJ in 2002, entitled “National Jute Policy 2002.” Five years later, it was being revised as National Jute Policy 2007. According to the draft proposal (provisional English translation), the national policy has a comprehensive coverage and addresses a broad range of issues. It sets forth twelve objectives and implementation strategies for each objective (from one to five strategies per objective). Then, it lists activities that have to be conducted by related organizations.

As discussed in 6.1 and 6.2, Bangladesh has many policy-related problems. Major issues are summarized as follows.

- 1) The development policy for the jute industry is formulated and implemented by many ministries, agencies and related organizations in a complex manner. It is difficult for the MOTJ to maintain the sole ownership in policy making and implementation.
- 2) In the jute industry, state enterprises and private companies are competing in the same market, which does not constitute a level playing field. As a result, friction and loss occur in many parts of the supply chain.
- 3) The country’s farmland that grows jute, which is the strongest source of competitiveness for the industry, may decrease in competition with other cash crops and food crops.
- 4) The jute industry is one of the basic export industries but traditional, low-valued added products such as sackings, hessian cloths, CBC and ropes dominate its exports.

As for the problem in 1), the MOA, the MOTJ, the MOI, the MOC, and the MOF are involved in jute industry-related policy and have organizations in charge of jute policy implementation. It is difficult to implement National Jute Policy under the sole leadership of the MOTJ. It is proposed to establish a commission to unify functions of related ministries and agencies in relation to the jute industry as Program 1-1.

The problem in 2) represents one of major issues faced by the jute industry in the country. The current Study originally intended to propose the reinforcement of BJMC in terms of productivity improvement, financial transparency, and improvement of profitability. However, the JICA Study Team has excluded it from the action program in anticipation that the state enterprise is obliged to be privatized due to a rapid decrease in government budget allocation and a privatization plan using the lease system. Program 1-2, proposing a plan to double the

yield in jute cultivation, addresses the problem in 3). Finally, the problem in 4) is addressed in Program 2-1 of Strategy 2, which presents a specific action plan, rather than policy recommendation.

In consideration of the above factors, the following two programs are proposed under this strategy.

Program 1-1 "Introduction of unification functions of related organizations in jute industries"

Program 1-2 "Program for doubling of the acreage yield in jute cultivation"

6.3.1.1 (Program 1-1)

Introduction of Unification Functions of Related Organizations in Jute Industries

I. Program Outline and Rationale

This program is basically a policy recommendation to propose the establishment of a jute commission and can be implemented by the Bangladesh government on its own. As discussed earlier, the jute industry employs 3.5 – 4 million people in the cultivation, processing, and distribution sectors. If families are included, the industry is said to support 10 – 20 million populations. At the same time, it is strongly influenced by politics because it has to compete with other crops for a limited cultivation area, not to mention the conflict of interest between state enterprises and private companies. On the other hand, jute products receive increasing attention as an environmental friendly material, and policy unification is called for in order to develop the industry further.

In fact, many ministries are associated with the jute industry. For instance, the MOA is involved in the production (raw material supply) stage, the MOI and the MOTJ are related to the production stage, the MOC distribution and marketing, the MOF government budget allocation, and the MOPEM electricity supply. Furthermore, each ministry has several organizations in charge of jute-related policy implementation, not to mention private organizations (e.g., trade associations), as discussed in 6.1. The MOTJ is expected to implement jute policy in a fair manner, while serving national interest, by keeping effective communication with various ministries and agencies. At present, the MOTJ is in the process of formulating Jute Policy 2007 to revise the former policy (Jute Policy 2002).

In reality, however, as related budget and human resource allocations depend on each ministry's budget and tend to follow a similar pattern over the years, it is difficult to implement balanced programs based on a broad view. Furthermore, the MOTJ has a state enterprise, BJMC, under its jurisdiction and tends to represent its interest. This can be criticized by the private sector as the lack of fairness in jute policy.

Clearly, a new organization should be established to control and coordinate activities of related organizations for the purpose of furthering national interest in a strategic, speedy, fair and efficient manner. This program therefore proposes the establishment of a jute commission authorized to control and coordinate activities of related ministries and agencies. If the proposal is criticized as something overkill, an alternative proposal may be made to give the

MOTJ the leadership in close cooperation of other ministries and private organizations. In this case, however, it is imperative to separate BJMC from the MOTJ in order to ensure fair and strong control over the jute industry.

The proposed Jute Commission's control functions include the following.

- 1) To establish and manage a committee representing related ministries, agencies, research institutes, and industries, which is in charge of coordinating activities of government offices and reflecting industry's opinions.
- 2) To promote privatization of state enterprises effectively and quickly in cooperation of the Privatization Commission.
- 3) To give priority to jute industry-related programs according to importance and urgency.
- 4) To allocate the government budget from long-term perspectives and according to importance and urgency.
- 5) To collect and analyze follow-up data related to actual record in the previous year in order to reflect the results in the subsequent year.
- 6) To collect all information required for jute policy from related organizations for compilation and analysis.

II. Program Implementation Plan

(1) Program purpose

To establish an organization capable of controlling jute policy to serve the national interest and the spirit of inter-ministerial policy management; and to compile the jute-related budget over the boundary of ministries and make budget allocation according to priority and urgency. In this connection, promotion of BJMC's privatization – a long-awaited issue relating to the government organization – should be difficult for the MOTJ to keep the fairness because it has a direct conflict of interest and its position is to preserve the status of the state enterprise. Similarly, the program to double the jute yield as proposed in Program 1-2 is too large for the MOA to handle because of resource constraint. Instead, they should be taken up by the Jute Commission as national programs.

(2) Target group

The jute industry as whole

(3) Executing body

The Jute Commission to be established under the cabinet's initiative, and the MOTJ serving as secretariat

(4) Proposed form of organization (two proposals)

1) Proposal 1: Establishment of the National Jute Commission

It is proposed to establish the Jute Commission by giving it the inter-ministerial policy coordination function. In fact, the Bangladesh has many commissions having the similar function, including the Planning Commission, the Bangladesh Telecommunication Regulation Commission, the Bangladesh Energy Regulatory Commission, and Privatization Commission (PC). The commission will be chaired by a person in neutral position to ensure fairness and transparency.

The following organization is presented as one proposal.

Table 6.3-1 Structure of National Jute Commission

Chairman: A person retired from a neutral organization and similar	
Secretary: Secretary of MOTJ	
Member:	
1. Secretary	: Ministry of Textile & Jute (MOTJ)
2. Secretary	: Ministry of Agriculture (MOA)
3. Secretary	: Ministry of Finance (MOF)
4. Secretary	: Ministry of Commerce (MOC)
5. Secretary	: Ministry of Industries (MOI)
6. Secretary	: Ministry of Power, Energy & Mineral Resources (MOPEM)
7. Vice Chairman	: Export Promotion Bureau (EPB)
8. Director General	: Bangladesh Jute Research Institute (BJRI)
9. Chairman	: Bangladesh Agriculture Development Corporation (BADC)
10. Director General	: Department of Agriculture Extension (DAE)
11. Executive Director	: Jute Diversification Promotion Centre (JDPC)
12. Chairman	: Bangladesh Jute Mills Corporation (BJMC)
13. Chairman	: Bangladesh Jute Mills Association (BJMA)
14. President	: Bangladesh Jute Spinners Association (BJSa)
15. Chairman	: Bangladesh Jute Association (BJA)
16. Chairman	: Bangladesh Jute Goods Association (BJGA)
17. Chairman	: Bangladesh Jute Exporters Association (BJEA)

2) Proposal 2: Liaison Committee Led by the MOTJ

This proposal would respond to the criticism that the Jute Commission is organizationally superfluous and a liaison committee led by the MOTJ is more realistic in the context of achieving the program's objective. In light of the fact that the original intent of the program is to establish an inter-ministerial organization, the reorganization of the MOTJ should become the prerequisite to the formation of such committee, i.e., separation of BJMC from the MOTJ to make the ministry neutral from the state enterprise and private companies. Note that the committee to be formed under this proposal seems to have the same organization as the Jute Policy Implementation and Evaluation Committee that is proposed under Jute Policy 2007 (draft proposal).

If the BJMC is to be separated from the MOTJ, BJMC would need to be privatized along with 15 mills that belong to it. In that case, BJMC had better give up on the direct management of these mills and lease them to private companies. This leasing company is different from a shareholding company that has interests in connection with dividends and stock selling. The government would need to write off the accumulated debt of BJMC in order that the privatized BJMC can be commercially viable. Actually, the present leasing system also does not make the private companies bear any liabilities of the BJMC's mills when they are leased out.

Table 6.3-2 Jute Policy Implementation, Evaluation Committee

1. Secretary (Chairman)	: Ministry of Textile & Jute (MOTJ)
2. Secretary (Chairman)	: Ministry of Agriculture (MOA)
3. Secretary (Chairman)	: Ministry of Finance (MOF)
4. Secretary (Chairman)	: Ministry of Power, Energy & Mineral Resources (MOPEM)
5. Chairman	: Bangladesh Parjatan Corporation (BPC)
6. Chairman	: Bangladesh Agriculture Development Corporation (BADC)
7. Director General	: Directorate of Jute (DOJ)
8. Director General	: Department of Agriculture Extension (DAE)
9. Director General	: Bangladesh Jute Research Institute (BJRI)
10. Executive Director	: Jute Diversification Promotion Centre (JDPC)
11. Industrial Economist	: Ministry of Textiles and Jute (MOTJ)
12. Chairman	: Bangladesh Jute Mills Association (BJMA)
13. Chairman	: Bangladesh Jute Spinners Association (BJSa)
14. Chairman	: Bangladesh Jute Association (BJA)
15. Chairman	: Bangladesh Jute Exporters Association (BJEA)
16. Chairman	: Bangladesh Jute Goods Association (BJGA)
17. Deputy Secretary (Jute)	: Ministry of Textile and Jute (MOTJ)

Source: Annexure-B of Jute Policy-2007

6.3.1.2 (Program 1-2)

Program for Doubling of the Acreage Yield in Jute Cultivation

I. Program Outline and Rationale

As discussed in the SWOT analysis for the jute products industry in 6.1, the total land area used for jute cultivation is around 500,000 hectares and remains unchanged in the recent few years. On the other hand, the Bangladesh Awami League, a ruling party of the new government that came into power in January 2008, stated in its election manifesto “self-sufficiency of food crops.” This means a threat to the jute products industry because it may lose the greatest competitive advantage, i.e., ample supply of locally produced high quality jute.

This program proposes the doubling of jute yield so that the current production level can be maintained even if the cultivated area is reduced by half. On the other hand, if the present cultivated area is maintained, jute production will be doubled. This is also good news because jute enjoys worldwide demand as environmental friendly product. In fact, the increase in jute production is rather an urgent issue as there is concern about the country’s supply capacity of raw jute, e.g., a Japanese company plans to import jute products in large quantities but has some doubt about stable supply from Bangladesh. This program is therefore proposed as a national plan to maintain or increase the current level of jute production by means of yield increase, while increasing the cultivated acreage for rice and wheat. It is recommended to implement this program concurrently with the establishment of the Jute Commission under Program 1-1.

The doubling of jute yield per acreage can be accomplished by promoting the use of high yield variety (HYV) seeds and by improving farming techniques. At present, some HYV seeds are used but their seed content is relatively low (see 6.1). The doubling of jute yield can be accomplished as follows.

- 1) The current average yield: 9.9 million tons of raw jute harvested from 500,000 ha of farmland = 1.98 tons/ha
- 2) Full conversion to BBD HYV seeds (at present, 20% of the total): 2.55 tons/ha
- 3) Application of appropriate farming techniques to all farms by the DAE: 3.68 tons/ha

Under the above assumptions, the yield increase would be limited to 86%. If the Tossa seed (used for 400,000 ha at present) is replaced with the Deshi seed (100,000 ha), the 100% increase is feasible. Note that Deshi (called “white”) is suitable for industrial and agricultural applications. While DAE provides extension service to teach the following farming techniques, little service is conducted for jute farms in recent years.

- 1) Cultivation using suitable soil
- 2) Appropriate seeding time
- 3) Appropriate harvest time
- 4) Adequate amount of seeding per unit area
- 5) Adequate amount of fertilizer application

The program is proposed as policy recommendation because its implementation will require concerted efforts of the entire government, including the MOA, as well as the following adjustments of manpower and budget allocation.

- 1) Manpower allocation in DAE's extension service for jute farmers: At present, Food Crop Wing covering rice farmers has 877 extension officers, whereas Cash Crop Wing including jute, tobacco, and lacquer has only 27 officers. Undervaluation on importance of jute should be done away with and the Cash Crop Wing should be assigned of more manpower.
- 2) The MDA's budget allocation to the BADC: In 2007, BDD HYV seeds were priced at TK55/kg on market. On the other hand, the import price was TK50/kg, so that a large amount of locally produced BDD HYV seeds (400 tons out of 1,200 tons) remained unsold. To promote use of BDD HYV seeds by all farmers, the government should take drastic measures to supply HYV seeds at lower cost than imported ones.

II. Program Implementation Plan

(1) Program purpose

With the growing concern about the environmental issues, raw jute and jute products are expected to enjoy increasing demand worldwide. Also, raw jute is finding new applications in the field of mass consumption goods, including reinforcement materials, building material boards, jute paper for agricultural use, and felt materials used for soil improvement. Meanwhile, the cultivated area for jute may decrease due to competitive pressure from food crop growers. Under these circumstances, the program will serve the best interest of the industry by ensuring the maintenance or increase in raw jute production even if the cultivate area continues to decrease.

(2) Target group

Jute farmers (3.5 million people)

(3) Executing body

MOA (BJRI/BADC/DAE), the proposed Jute Commission

(4) Output

- 1) The yield of raw jute cultivated per unit area will double.
- 2) Three organizations involved in development and dissemination of HYV seeds will reinforce their resources (including staffing) to achieve the program objective, i.e., BJRI (research institute responsible for seeds development), BADC (commercialization and supply of HYV seeds), and DAE (disseminating farming techniques suitable for newly developed HYV seeds to farmers).
- 3) The industry can avoid opportunity loss relating to its failure to take advantage of growing worldwide demand for raw jute and jute products.
- 4) Bangladesh can take leadership in jute exports in the world market.

(5) Program activities

- 1) The program concept and implementation system are established, including increased allocation of budget and manpower to BJRI's agricultural division and BADC (in particular, the lowering of market prices for BBD HYV seeds), increased manpower allocation to DAE's Cash Crop Wing, the formation of the project team at the MOA, and periodical holding of the liaison committee organized by BJRI, BADC, and DAE.
- 2) The three organizations urge the MOA to establish the implementation system and organization as early as possible.
- 3) The request is made to the MOA for the improvement of the distribution system, such as stabilization of raw jute prices
- 4) The task force to solve the retting program is established under BJRI's agricultural division, together with construction of retting water tanks by the central government.

(6) Input

- 1) MOA budget (increased budget allocation to BJRI, BADC, and DAE)
- 2) Human resources (R&D personnel and extension officers)
- 3) Specific measures to implement the yield doubling plan

The whole amount of jute seeds (4,000 tons) will be switched to BBD HYV seeds. Assuming that the present cultivated area of 500,000 ha is maintained, the following resultants are estimated.

Table 6.3-3 Estimation of Yield and Production from HYV Seeds and Appropriate Farming Techniques

Acreage	BBD HYV Seeds	Average Yield	Expected volume of production
Tossa 400,000 ha (80%)	Olitorius	3.57 t/ha	1,428,000 t/year
	O-4, O-9897, OM-1 BTRI-TOSSA-PAT4		
Deshi 100,000 ha (20%)	Capsulaais	4.14 t/ha	414,000 t/year
	D-154, CVL-1, CVE-3, CC-45 BJRI BJRI-DESHI-PAT5 BJRI-DESHI-PAT6 BJRI-DESHI-PAT7		
500,000ha		3.68 t/ha	1,842,000 t/year

Source: Hand Book on Agricultural Technologies of Jute, Kenaf and Mesta Crops, BJRI

Conditions:

- (1) DAE disseminates farming techniques in a timely manner.
- (2) Market prices for the BBD HYV seeds are always lower than imported prices.

Note that the above assumptions fall short of achieving the purpose of doubling the yield. In addition, it is imperative to develop HYV seeds better than the BBD in three years (it is possible according to BJRI).

- 4) Establishment of the periodical liaison committee to reinforce cooperation among BJRI, BADC and DAE.

(Special note)

In Bangladesh, the following three-cycle crop rotation system is widely practiced: (1) jute cultivation; (2) fallow period; and (3) rice cultivation. As jute absorbs nitrogen in the air and fixes it in the soil, the field is laid fallows for a specific period before nitrogen content becomes absorbable to plants and rice that requires nitrogen is grown. Thus, jute and rice do not necessarily conflict each other like single-cycle cropping pattern.

6.3.2 (Strategy 2)

Modernization of Production Facilities

Bangladesh is the world largest exporter of jute products. According to the FAO's statistics, 758,000 tons of jute products were exported worldwide and Bangladesh accounted for 440,000 tons, followed by India 208,100 tons in 2005. The two countries held a combined share of 85.5% tons. Total exports of jute products account for 86% of its production. Product exports do not differ much from raw jute exports, 476,137 tons vs. 440,460 tons, respectively. Production and export by the country's jute industry in 2005 are summarized as follows.

<u>Raw jute production</u>	990,000 tons
Raw jute exports	440,000 tons
Jute products production	554,137 tons
(Jute products exports	476,137 tons)
(Jute products local markets	78,000 tons)
Grand total	994,137 tons

As for jute products, the composition of production capacity in 2005/2006 is summarized as follows.

	<u>Spinning machine</u>	<u>Weaving machine</u>	<u>Operating rate</u>
BJMA	88,896 spl	11,112 units	28.3%
BJMC	85,872 spl	10,734 units	62.8%
<u>BJSA</u>	<u>127,203 spl</u>	<u>—</u>	<u>89.2%</u>
Total	301,971 spl	21,846 units	45.3%

Thus, the average operating rate of the jute products industry falls below 50%. On the other hand, raw jute consumption (476,000 tons) is more or less the same as raw jute exports (440,000 tons). Thus, exported raw jute can be locally processed to jute products if the installed capacity should be fully utilized. Possible reasons for the large amount of raw jute exports are as follows.

- 1) There are seasons when export becomes more profitable for farmers and brokers than sales to the local market, i.e. jute mills.

- 2) The current production capacity is the installed capacity at the time of construction and cannot be fully utilized for some reasons.
- 3) Jute mills are discouraged from full capacity production because their market is limited in size.

In the recent few years, there is strong demand for jute products, including traditional lines such as bags, so that the third reason is not applicable. Thus, the jute products industry needs to address the second problem and improve productivity and profitability, thereby to solve the first problem by acquiring the ability to purchase raw jute at higher prices that can compete with the export market. For this purpose, Strategy 2 addresses modernization of production facilities and equipment and proposes the concrete programs. While modernization of production equipment requires capital investment, it must accompany improvement of jute products. Thus, the equipment modernization strategy should give consideration to the following factors.

- 1) Repairing and reuse of the existing (aged) equipment
- 2) Delineation of capital investment requirements and implementation of feasibility study
- 3) Fundraising for capital investment
- 4) Continuation of appropriate operation skills and equipment maintenance

While the fourth problem is addressed in Strategies 3 and 4 to propose specific programs, the following three programs are proposed to address the remaining three problems.

Program 2-1 "Guidance for new investment in Jute Diversified Products (JDP)"

Program 2-2 "Acceleration of transaction of local spare parts for jute mills"

Program 2-3 "Introduction of new credit facilities for the export sector diversification program"

6.3.2.1 (Program 2-1)

Guidance for New Investment in Jute Diversified Products (JDP)

I. Program Outline and Rationale

Among manufacturers of traditional jute products, many of them wish to enter the higher value added JDP business. Also, many of entrepreneurs who intend to enter the jute products industry are considering investment in the JDP business from the beginning. In particular, owners of large enterprises making traditional jute products frequently talk about low profitability and possibility to enter the JDP business, but they cannot gain access to technology and know-how relating to product diversification. This program is designed to help jute companies, both new entrant and incumbent, to enter the JDP business by providing appropriate advice and guidance in the following areas.

- 1) Provision of information on new products and markets
- 2) Securing of access to production equipment and manufacturers relating to new products
- 3) Provision of information on product development projects (including production process)
- 4) Support for market study and production equipment survey
- 5) Support for implementation of feasibility study
- 6) Support for financial access required for new investment

These activities will be carried out under the leadership of trade associations and in cooperation of related organizations.

II. Program Implementation Plan

(1) Program purpose

To develop the environment to enable and facilitate investment in production of new products.

(2) Target group

Including existing manufacturers and new entrants who are interested in production of new jute products.

(3) Executing body

As for new product and R&D information, it is desirable to make JDPC as the executing body. It should be founded by trade associations that are direct beneficiaries and in cooperation of BJRI. As JDPC performs the following functions, they match the program's purpose and the program is expected to reinforce its functions.

Functions of JDPC

- (i) Assessment of the current state potential of jute diversification
 - To assess the current status of jute diversification and its potentials in the short-term, mid-term and long-term perspectives.
- (ii) Verification of appropriate production technology and process for diversified products
 - To identify the suitable technologies and processes for production of jute-diversified products and uses and acquire marketable technologies and processes for commercialization including transfer of technology from R & D.
- (iii) Assessment of supply and demand for diversified products
 - To assess demand and supply situation of diversified jute products and the related products in domestic as well as overseas markets and make projection on their future growth.
- (iv) Development of financial sources
 - To look for suitable sources of finance for diversified jute producing enterprises.
- (v) Support for feasibility study relating to investment of diversified products
 - To help private entrepreneurs for the preparation of bankable project proposals for investment in diversified jute products, undertaking feasibility studies, market studies research and promotion etc.
- (vi) Support for access to financial service
 - To assist, support and facilitate the private entrepreneurs with package of promotion and extension services and linkages with financial institutions for promotion of new capacity and optimal utilization of the existing capacity.

Structure of JDPC

JDPC was established in May 2002 by a revolving fund and grant aid from EU and an investment fund from MOTJ. Two directors under an executive director manage the following three sections having a total staff of 20 persons. JDPC owns 43 technologies that are identified and/or acquired by JDPC. JDPC operates its own credit guarantee scheme and a grant-in-aid scheme for investment in production of diversified products.

- (i) Technology and Project Feasibility Section
- (ii) Market Research and Promotion Section
- (iii) Project Monitoring and Implementation Section

The Steering Committee of JDPC

1. Secretary, Ministry of Textiles and Jute (MOTJ)	Chairman
2. Joint Secretary (Industry), Ministry of Textiles and Jute	Member
3. Joint Secretary, Ministry of Industries (MOI)	Member
4. Joint Secretary, Ministry of Commerce (MOC)	Member
5. Joint Secretary, Ministry of Finance (MOF)	Member
6. A representative of International Jute Study Group (IJSJG)	Member
7. Chairman, Bangladesh Jute Mills Corporation (BJMC)	Member
8. Member, Board of Investment (BOI)	Member
9. Director General, Bangladesh Jute Research Institute (BJRI)	Member
10. Managing Director, BASIC Bank Limited	Member
11. Director, Implementation, Monitoring and Evaluation Division	Member
12. Deputy Chief (Planning), Ministry of Textiles and Jute	Member
13. Deputy Chief (Industries), Planning Commission	Member
14. Director, Federation of Bangladesh Chambers of Commerce and Industry (FBCCI)	Member
15. Director, Dhaka Chamber of Commerce and Industry (DCCI)	Member
16. Chairman, Bangladesh Jute Mills Association (BJMA)	Member
17. Chairman, Bangladesh Jute Spinners Association (BJSJA)	Member
18. Chairman, Bangladesh Handloom Board (BHB)	Member
19. Executive Director, Jute Diversification Promotion Centre (JDPC)	Member-Secretary

(4) Program Output and Activities

1) To hold the founders' meeting

A joint conference should be held under attendance of trade associations representing private companies (such as BJMA, BJSA, BJGA, BJA, and BJFA) and government research organizations (JDPC, BJRI, and IJSG). At the initial stage, BJMA that represents the private sector and JDPC that represents the government sector will become founders and will discuss the following subjects. They should reach a general agreement on service content, the implementation system, and organization.

2) To publish a periodical information magazine

Initially, a quarterly magazine on information relating to new products, markets, production technology and process will be published and sold to members. In the future, it will be published monthly and bi-monthly. The first version will be four pages. Information sources will be identified. Note that trade associations such as BJMA and BJSA requested BJRI and JDPC to provide information for their internal organs, but they have been turned down. Generally, it is desirable to exchange information unless confidential (such as patent).

3) To develop a system for quick distribution of market information

While the JICA Study Team conducted the study, it met Japanese buyers who visited Bangladesh to look for new products. They want to find suppliers and visit MOC and JDPC. The proposed system is designed to distribute potential buyer information to member companies.

4) To reinforce resources and functions of JDPC's consultation service desk

JDPC's consultation service desk will be provided with additional resources and functions to provide useful information for private enterprises having an idea about a new product and technology. The service will be advertised in the information magazine proposed in 2) above.

5) To support feasibility study on a prospective investment project

To conduct feasibility study, information on relevant markets and equipment, prices should be collected, followed by verification of financial viability. For this purpose, JDPC will introduce experts (consultants) according to the needs. Also, it will assist in preparation of a project proposal for financial institutions on the basis of the feasibility study. It will

organize a mission to visit and study foreign markets by using the MOC's subsidy, with the deficit to be covered by participants.

6) Support for project financing

JDPC will introduce companies to financial institutions suitable for a specific investment project, while providing its credit guarantee and grant-in-aid services as required. The loan scheme proposed in Program 2-3 can be used after establishment.

(5) Input

To conduct a variety of activities proposed above, human resources should be strengthened, especially JDPC, because these activities are included in its duties. Thus, the following input is mainly concerned with input to be covered by trade associations in the private sector.

1) Human resource

Private organizations will voluntarily hire a coordinator who will have an office space within JDPC to coordinate activities by private and government organizations. At the same time, JDPC will hire one service personnel and one staff responsible for publication of the information magazine.

2) Facility

JDPC's guidance office will be established within JDPC, and a telephone and a personal computer (PC) will be installed.

3) Program cost

- Labor costs for the above three persons (US\$ 450/month (of which US\$ 300 to be paid to JDPC staff)
- One PC: US\$ 1,500
- Publication of the periodical information magazine (to be bought by private organizations)
Eventually, the publishing cost should be financed by sales to member companies.
- Individual investment projects

The consulting cost will be borne by beneficiaries, and JDPC will introduce a competent consultant. Also, available subsidy will be introduced.

6.3.2.2 (Program 2-2)

Acceleration of Transaction of Local Spare Parts for Jute Mills

I. Program Outline and Rationale

To secure profits from production of traditional jute products by using the existing aged equipment, the first step is to introduce modern production management technology to the jute mill. Even if it is successfully introduced, production management technology cannot be fully effective in improvement of productivity unless high quality spare parts can be obtained timely and economically. Steady supply of spare parts is indispensable in ensuring proper maintenance (i.e., preventive maintenance) of production equipment. In Bangladesh, manufacturers of traditional jute products use many machines that have been operated for more than four decades.

At present, low quality spare parts are imported from India and cause equipment failure repeatedly. In fact, there are parts suppliers in Bangladesh, which can make spare parts of similar quality. Furthermore, higher quality parts can be procured locally if a reasonable price is paid. However, procurement by buyers (jute product manufacturers) from local suppliers (light engineering companies, mainly metalwork shops) does not expand due to the lack of communication. Furthermore, healthy growth of spare parts procurement is also prevented by an undesirable practice, i.e., frequent incidence of bribery or embezzlement relating to the deal between the buyer and the supplier. The practice is widely seen in both the private and public sectors. To compensate for this wasteful cost or loss, the supplier delivers products of inferior quality and the buyer accept them. This program aims to end this undesirable practice with view to promoting proper equipment maintenance and productivity improvement.

II. Program Implementation Plan

(1) Program purpose

To accelerate distribution of locally made spare parts in the competitive market for the purpose of promoting business between the jute products and light engineering industries, thereby to increase profits for them. At the same time, the program is expected to foster parts suppliers.

(2) Target group

Jute product manufacturers and light engineering companies supplying parts in Bangladesh

(3) Executing body

The selection process should start with negotiation between the respective trade associations.

Jute products industry : BJMA and BJSA

Parts supply industry : BEIOA (Bangladesh Engineering Industry Owners' Association)

Government organization : BPC (Business Promotion Council, under the MOC)

(Note) The study team is coordinating negotiation between BJMA and BEIOA. The first meeting will have to be arranged by the JICA Study Team.

(4) Program output and activities

Any business talk that may start in the course of the following activities will not be disturbed as it meets the program's objective.

1) Organization of the buyer group

- Formation of a group composed of BJMA and its member companies (voluntary basis)
- Formation of a group composed of BJSA and its member companies (voluntary basis)
- Formation of a basic agreement between BJMA and BJSA

2) Organization of the supplier group

- Formation of a group composing of BEIOA's member companies
- Invitation to BEIOA's member companies for spare parts supply business (via BPC)

3) Roundtable meeting between the buyer and supplier groups

- Formation of a basic agreement on collaborative relationship
- Presentation by the buyer group of a list of parts they intend to purchase
- Distribution of the parts list to the supplier group

4) Organization of the trade fair for business matchmaking (on a periodical basis)

- Organization of the exhibitions for parts that buyers want to purchase (reverse trade fair)
- Organization of the exhibitions for parts that suppliers want to make

5) Joint purchase through the public bidding process

- The list of spare parts that buyers wish to purchase will be compiled and published on newspapers and other media.
- Suppliers will bid for a specific contract by quoting a price, alone or by a consortium.
- The quoted prices will be made public immediately after the bid has been closed and a contract will be awarded to a successful supplier.

(5) Input

As the program activities are essentially ordinary business activities conducted by buyers and suppliers, costs should be borne by all participants.

- Human resource

As participating companies conduct program activities as part of their ordinary business operation, no cost is required.

- Organization of the trade fair

The cost for organization of the trade fair in (4)-4) is around US\$10,000 per fair, with some variations according to the size and location. The cost will be borne by beneficiary companies (organizing the trade fair).

6.3.2.3 (Program 2-3)

Introduction of New Credit Facilities for the Export Sector Diversification Program (ESDP)

I. Program Outline and Rationale

BJMA is a private organization representing companies that own and operate the spinning and weaving processes. As of October 2008, it has 55 member companies. These companies had been operated as private companies before the country's independence (the East Pakistan era) and were nationalized in 1971. Some of them were then resold to previous owners after 1982. In the process, the majority of them (78 mills) retained the state enterprise status and was organized under BJMC. Since then, their number has reduced to 15 mills, which are still operated under the umbrella of BJMC. These jute mills operated under BJMA or BJMC primarily make traditional jute products by using equipment of nearly 40 years old. In particular, BJMC continues to report deficits and cannot expect much financial assistance from the government, so that its 15 mills are expected to be privatized (in the form of leasing).

On the other hand, BJSA is a trade association of companies having the spinning process only. Since 1985, it has been expanding its membership, totaling 51 companies at present. Many of them use relatively new production equipment and show the highest levels of operating rate and profitability in the jute products industry. In addition, the industry is seeing the emergence of companies that make JDPs by using a few weaving machines from yarns purchased from outside sources. Without having a spinning mill, these companies focus on flexible production (variety of products in small lot).

Meanwhile, jute mills under BJMA or BJMC cannot earn profits without modernizing equipment and will likely drive the jute products industry which produces such traditional products as hessian cloth and sacking, toward a further decline. It is necessary to separately consider modernizing spinning machines and weaving machines. As for the spinning machines, there have not emerged any innovative machines, suggesting that no progress has been made in this field. Thus upgrading of spinning machines can be sufficiently realized by procuring the machines produced by the Golden Eagle of China. On the other hand, some innovative weaving machines such as those produced by the Sultzer are available, which have far better in productivity and quality than the traditional weaving machine. Therefore, the modernization of weaving machines should be implemented by procurement of the innovative machines like the Sultzer's. In the questionnaire survey of 20 jute companies, a strong restriction on fundraising was pointed out. Productivity of jute mills that operate both spinning

and weaving processes is fairly low and all such mills except 4 to 5 mills are facing chronic deficits, which makes it difficult for them to access the finance. In consideration of these factors, this program proposes the establishment of a new loan scheme for equipment modernization of the jute products industry by using the fund totaling US\$ 50 – 100 million. Note that the target group may be expanded from the jute industry to other export industries. The fund will be primarily composed of loans by donor organizations.

II. Program Implementation Plan

(1) Program purpose

To establish a loan scheme to support equipment modernization by the jute products industry for the purpose of promoting productivity improvement and diversification of export products. The target group may be expanded outside the jute product industry.

(2) Target group

The program will target the jute products industry or all export industries (limited to manufacturing). The target group can be varied according to an actual demand for loan and the amount of the fund. Eligibility will not include company size.

(3) Executing body

The fund (tentatively called the ESPD Fund) will be composed of loans by donor organizations. The central bank will receive the loans. Loans to end borrowers will be made through participating financial institutions (PFIs), i.e., 20 – 30 commercial banks. Note that this loan scheme is the same structure as SMESDP (SME Sector Development Program) Phase I implemented by the ADB. SMESDP is operated by the total fund of US\$50 million and has 20 PFIs.

(4) Program output and activities

1) To estimate loan demand and finalize the fund size

According to the ADB, SMESDP has completed loans in three years after its start, two years ahead of the planned schedule, and it is now under preparation for Phase II. An ADB official in charge of SMESDP indicates that there is unlimited demand for the loan scheme. Thus, there is fairly large potential demand.

In the jute industry, a set of spinning machines (Golden Eagle) with annual production capacity of 16 – 18 tons costs around US\$ 1.5 million. Similarly, a set of one Benninger warper and 30 Sulzer weaving machines costs US\$ 500,000 – 600,000 (US\$ 500,000 in case of used machines) As a result, a typical mill needs to invest as much as US\$ 2 million, although the average loan would be much smaller. Given 120 mills producing jute products in the country, it may be difficult to make loans totaling US\$ 50 million in five years. Clearly, more accurate estimate of loan demand is required. (For instance, the average loan made under the above SMSDP is less than US\$ 15,000 per case.) Thus, it is assumed that the loan scheme will cover all export industries and US\$50 million will be lent to the central bank as the fund to be disbursed in five years.

2) To determine breakdown of the fund according to type of loan as well as their spreads

As one example, the fund may be applied to the following types of loan.

Project loan	: US\$ 35 million
Program loan	: US\$ 10 million
<u>TA component</u>	<u>: US \$5 million</u>
Total	US\$ 50 million

The project loan consists of loans to individual companies, while the program loan targets joint projects by several companies, with the upper limit being set for US\$ 10 million, and can be converted to the project loan. On the other hand, the Technical Assistance (TA) component is used for retention of consultants, covering costs and expenses relating to PFI's capacity building, support for project formation and examination, the planning and implementation of programs contained in Strategies 3 and 4, and other consultation services.

In the case of SMEDP, the central bank loans the fund to PFIs at 5% and PFIs make loans to companies at 13% - 18%. PFIs can set the interest rate and other loan terms at their discretion. The spread (difference between 5% and 13 – 18%) is applied to the PFI's fee, bad debt reserve, and reserve for foreign exchange risk. It can also be used to finance service similar to the TA component and to lower interest rates. Note that the amount of the spread is largely dependent upon an arrangement between the central bank and the PFI with regard to foreign exchange risk.

3) To determine the executing body of the ESPD Fund

See “(3) Executing body” for detail.

4) To develop a framework for the ESPD Fund

The following framework is proposed.

- Eligibility for the project loan:

(Proposal 1) Existing or new companies in the jute products industry, which make capital investment for export expansion

(Proposal 2) Companies belonging to export industries

- Eligibility for the program loan:

An association or group of companies that conduct an export promotion project

- Type of investment to be covered:

Procurement of production equipment, utilities and auxiliary facilities and equipment, and spare parts for equipment maintenance and modernization

- Export obligation:

The borrower is required to export 60% of products increased by capital spending using the ESPD Fund.

- Line of credit: US\$ 50,000 - US\$ 2 million, provided that the upper limit is set at 80% of the total fund requirement.

- Loan terms and conditions:

Repayment period of 4 – 6 years, and the grace period for 1 – 2 years

- Interest rate: 1% – 2% below the market rate

- Collateral requirement:

The fixed property to be pledged is assessed at 70% of its book value, provided that the PFI may set a more favorable condition at its discretion.

(5) Input

The fund based on loans from donor organizations: US\$ 50 million as Phase I.

6.3.3 (Strategy 3)

Dissemination of Production Management Technology

As discussed earlier, the jute products industry has a number of problems leading to “poor productivity.” Through the KAIZEN activities conducted in the Pilot Project, model mills were able to improve productivity as expected, despite presence of various problems, such as aged equipment, insufficient fund, and low morale of workers. This was accomplished by implementing effective KAIZEN techniques to change the work method as well as the mindset of related parties in the right direction. In the process, the model mills realized that there were many problems to be tackled before taking productivity improvement measures that would require major investment. At the same time, it became apparent that there is a serious lack of knowledge and experience in the country relating to KAIZEN techniques to solve these problems.

After completion of the Pilot Project, it was concluded that the model jute mills had a strong desire to conduct KAIZEN activities in the future. They expressed the intention to continue KAIZEN activities on their own to make a change. Also, clear signs of mindset change were seen throughout each model mill, from the management to managers and workers. Finally, at the final seminar of the Pilot Project held in August 2008, attended by 31 persons representing various jute mills, many participants stated that, in their response to the questionnaire survey, they learned the KAIZEN methods for the first time, realized their effectiveness, and wanted to implement them at their own mills.

In consideration of these factors, the JICA Study Team believes that dissemination of production management techniques would be most important for the jute products industry as well as the country’s industry in general to improve productivity. Generally, the following support measures are applicable when the government tries to promote dissemination of production management technology and improving productivity of jute mills.

- 1) Implementation and dissemination of specific production management techniques
- 2) Enhancement of technical advance and consultation service
- 3) Reinforcement of technical support organizations
- 4) Management education
- 5) Education and training of workers
- 6) Equipment modernization

The support measures in 4) and 5) are addressed in Strategy 4. Equipment modernization is addressed in Strategy 2 as it ends up in the area of finance.

In Strategy 3, Program 3-1 is proposed to initiate support measures in 1) and 3), and Program 3-2 is proposed to address the needs for support measures in 2) and 3).

Program 3-1 Training of consultants for production management technologies

Problem 3-2 Implementation of a traveling-clinic-type KAIZEN activities to jute mills

To ensure that KAIZEN activities can produce an effect that leads to the achievement of the development purpose, it is imperative to disseminate them to jute mills throughout the country, followed by their adoption on a continuous basis. This way, jute mills can improve productivity and expand exports as the end result of productivity improvement. Then, if KAIZEN activities implemented and incorporated by jute mills are adopted by other industries to promote productivity improvement, they will be able to create dramatic impacts on the country's industrial development. Thus, the two programs constitute the foundation of Strategy 3.

6.3.3.1 (Program 3-1)

Training of Consultants for Production Management Technologies

I. Program Outline and Rationale

This program proposes the training of Bangladeshi consultants through transfer of expertise and knowledge on production, factory operation and management from foreign experts. As local experts in the area of production management are in extremely short supply, cooperation of foreign consultants is indispensable. The program aims to produce impacts and the trickle-down effect of high quality consultants on the local industry and companies.

One of the reasons for the delay in dissemination of production management technology is the slow pace of organizational activity by the National Productivity Organisation (NPO). As a result, many managers incorrectly believe that productivity cannot be improved without replacing production equipment. They have no idea about what effect equipment maintenance can produce. To correct these wrong beliefs, adequate advice and guidance by consultants having accurate knowledge and experience is indispensable. It is therefore important to train qualified consultants so as to create the environment that facilitates many jute mills in implementation of KAIZEN activities toward productivity improvement.

At present, there is an apparent lack of recognition on the need for human resource development in the area of production management. However, such need is expected to increase in the future as more and more managers understand the need for productivity improvement. Meanwhile, it is important to officially recognize consultants having adequate production management techniques in order to ensure their permanent status and quality of their service by means of skill certification. These consultants so certified ("Registered Management Consultant (RMC)") are expected to act as facilitator or leader for Programs 3-2, 4-1 and/or 4-2, which are proposed here. Furthermore, the program is expected to serve as opportunity to expand productivity improvement activities from the jute industry to other industry sectors.

For these reasons, the program proposes to train local consultants who get acquainted with the latest production management techniques.

II. Program Implementation Plan

(1) Program purpose

To educate local consultants with production management techniques, which would lead to productivity improvement at jute mills throughout the country.

(2) Target group

Staff members of NPO and the BITAC, jute mill workers, retired engineers (formally working with jute mills), and contract engineers; a full-time six-month training course, consisting of 20 participants per batch.

(3) Executing body

MOI (including NPO and BITAC) and MOTJ

(4) Output

Consultants receiving the MOI's certification are trained. Each training course (batch) lasts six months and consists of 20 participants. Assuming that five batches are conducted in three years to provide some time allowance, a total of 100 production management consultants can be produced.

(5) Program activities

The program will consist of the following activities required to train participants to become consultants having sufficient knowledge within a specific period of time. As for the curriculum, see Table 6.3-4.

- 1) Establishment of qualifications/requirements for the production management consultant
- 2) Recruitment and selection of qualified candidates for the training program
- 3) Designing of a educational program/course to teach practical production management techniques
- 4) Implementation of classroom education for 20 participants at the BITAC's facility (Dhaka) for six months
- 5) On-the-job training to follow up the classroom education in 4) at jute mills in or near Dhaka
- 6) Certification and registration of participants who have reached specific skill levels upon completion of the training program, as Registered Management Consultant.

(Training method and curriculum)

The program proposes the training method to give intensive training for around 100 participants for a three-year period. The curriculum indicated in Table 6.3-4 has been developed according to the following basic design framework.

- 1) Lecture by experts in the field of production management (initially by foreign consultants)

Subjects expected: The economic environment in Bangladesh, the jute industry trend, basic knowledge on textile, management basics (I) – (II), production management (I) – (IV), quality control, financial management, materials/purchase management, labor management, and information management

- 2) Implementation of OJT in the following areas

- Production management (twice)
- Quality control (once)
- Financial management (once)
- Materials/purchase management (once)
- Labor management (once)

(6) Input

- 1) Experienced personnel of NPO and BITAC, university and college instructors, and foreign consultants
- 2) Training facility
 - Education and training in Dhaka
 - Existing facilities of BITAC, NPO and other organizations
 - Jute mills (OJT)
- 3) Financial source
 - Technical assistance by foreign organizations, government budget, and payment by beneficiaries

(Preliminary cost estimate)

The following preliminary costs are estimated for one batch (six months), consisting of 20 participants and Bangladeshi instructors. No cost for foreign consultants is included.

a) Remuneration for lecture and OJT instructors

Lecture Instructor: 5 man-days/week x 4 weeks x 4 months (excluding 8 weeks of OJT period) = 80 man-days/batch

Assuming the unit price of US\$ 100 per man-day, US\$ 100/man-day x 80 man-days = US\$ 8,000/batch

OJT Instructor: 20 man-days (4 men times 5 days)/week x 8 weeks = 160 man-days/batch; US\$ 100/man-day x 160 man-days = US\$ 16,000/batch

*A total of 20 OJT instructors are grouped into 4 teams (5 instructors for 1 team). OJT lasts 6 weeks and production synthesis training lasts 2 weeks, totaling 8 weeks.

b) Accommodation, daily allowance, and equipment use

BITAC facilities are assumed to be used here.

23 persons x 24 weeks/batch = 552 nights/batch

Including facility use costs (e.g., classroom): US\$ 40/night x 552 = US\$ 22,080/batch

Note that 23 persons include 20 participants, two instructors, and one administrative staff. Although the accommodation cost is not required for residents in Dhaka, the above estimation assumes that all participants will stay at accommodation facilities.

c) Miscellaneous and contingency

20% of the sum of a) and b) above: (US\$ 8,000 + US\$ 16,000) x 20% = US\$ 9,216/batch

d) Total cost

US\$ 55,296/batch

This course will be implemented in 5 batches in three years.

- Annual cost

Assuming five batches in three years, the cost for three years will be US\$ 276,480 (US\$ 55,296 x 5). The cost per person is US\$ 2,765 as 20 persons are assumed to participate (US\$ 55,296/20). There will be no indemnification for participants. The assumption above is based upon the case where only Bangladeshi instructors will be hired (US\$ 100/day).

[Note]

While the program is designed to target the jute industry, the coverage can be extended to other industries.

Table 6.3-4 Six-month Training Course for Production Management Consultants

Weekly timetable : Daytime from Sunday to Thursday Daily timetable : 9 : 00 ~ 16 : 00 (13 : 00 ~ 14 : 30 for lunch)

month	week	Subject	Lecturer	month	week	Subject	Lecturer	
1st month	week1	Opening ceremony ...		4th month	week13	It is OJT (financial management) enforcement in the 13th week	Expatriates	
		1.Industrial environment of Bangladesh ① The present conditions of the jute industry and the future prospects ② The problem of the jute industry and future development ③ Basic knowledge of the spinning such as (Yarn and Jute) ④ The basic knowledge of the spinning machine	University professors Expatriates		week14	12. Material purchasing management ① A way of thinking of the material purchasing ② A method of the inventory control (Adequacy of the stock and reduction of the stock) ③ A way of thinking of VAVE and the practice	Expatriates	
			2. Management basics (I) ① The management and the leadership ② A management organization ③ A management system ④ Corporate strategy and decision making		University professors	week15	13. Production control (IV) ① With the production system ② Quality, the appointed date of delivery, cost control ③ Productivity improvement and efficiency up	Expatriates
					3. A production control section (I) ① A process / operation / a transportation analysis (Method Engineering) ② A factory plan ③ Management of Osamu tool and the metering equipment ④ Management of loading and a layout	Expatriates NPO staffs	week16	It is OJT (purchasing management) enforcement in the 16th week
	week 3-4			5th month		week17	14. Personnel management ① The way of thinking of the labor law ② Way of thinking and how to lead personnel management ③ A wage rule and performance rating ④ How to make office regulations	University professors
2nd month	week5	4. A production control section (II) ① A method of the facilities management maintenance (Daily life management and a periodic inspection) ② A way of thinking and practice law of the TPM	Expatriates		week18	15. Information management ① IT and system management ② How to lead office work analyses ③ The good use of computer	Bangladeshi Experts	
	week6	It is OJT (production control training) enforcement in the 6th week	Expatriates NPO Staffs		week19	It is OJT (personnel management) enforcement in the 19th week	Expatriates NPO staffs	
	week7	6. Quality control (Production control) ① A quality control outline ② Of the quality control, actually (Introduction of the QC technique) ③ Standardization ④ The quality improvement of the textile ⑤ How to work on ISO	Expatriates		week20	OJT ~ production synthesis training ① ~		Expatriates
					week21	OJT ~ production synthesis training ② ~		Expatriates
	week8	It is OJT (quality control) enforcement in the 8th week	Expatriates NPO staffs	week22	A completion examination Completion Ceremony			
3rd month	week9	8. Management basics (II) 8. The leadership of the director ① The role of the director, worker education ② How to lead QC circle activity ③ The leadership of the director	Expatriates					
	week10	9. A production control section (III) ① Way of thinking and how to lead 5S activity ② A way of thinking of the management judging from an eye and the practice law	Expatriates					
	week11	It is OJT (production control training) enforcement in the 11th week	Expatriates NPO staffs					
	week12	10. Financial management ① The viewpoint of financial statements ② Way of thinking and how to lead cost management ③ How to lead cost accountings ④ Break Even Point	Expatriates					

The OJT enforcement company chooses it from BJMA and BJMC

6.3.3.2 (Program 3-2)

Implementation of Traveling-clinic-type KAIZEN Activities to Jute Mills

I. Program Outline and Rationale

This program is designed to improve productivity at jute mills by providing technical advice by experts in the field of production management technology in the traveling clinic style. Essentially, it proposes continuation of the Pilot Project. By increasing beneficiary companies and creating success stories, the program is expected to create positive impacts and the trickle-down effect on the entire industry.

According to the questionnaire survey conducted at the time of the seminar after the completion of the Pilot Project, many respondents expressed continuous effects of the Pilot Project, e.g. “follow-up of KAIZEN activities continues,” “the jute industry implements the KAIZEN model continuously and accurately,” “KAIZEN activities continue to create and maintain good working environment.” At the same time, some cited impeding factors: “reluctance of top management,” “continuation of old practice and management style,” and “lack of full-time staff in charge of KAIZEN activity.” These responses indicate that the need for KAIZEN activity is recognized, whereas it is difficult to put it into practice. As managers who have attended at the seminar realize that a KAIZEN activity can produce significant results without spending a lot of money, they want to learn production management and KAIZEN techniques that are readily applicable to their own factories. Under these circumstances, the sending of a production management expert to a factory for improvement and dissemination of the techniques is considered to be an effective way to meet the needs.

These activities involving diagnosis and KAIZEN should preferably be handled by personnel of technical support organizations or private consultants. However, these human resources are in absolute shortage in Bangladesh, e.g., under the Pilot Project, only two NPO staff members were capable of teaching KAIZEN activities to jute mills. The JICA Study Team’s research and study indicates that there is private consultant having expertise in the field. In the future, it is desirable to use RMCs (certified under Program 2-1) as field advisers. In the meantime, this program needs to rely on foreign experts. Thus, it will serve as a technology transfer program for Bangladeshi consultants in the program management field.

II. Program Implementation Plan

(1) Program purpose

To accomplish productivity improvement at jute mills that participate in the program and transfer KAIZEN techniques to them; to improve productivity of participating jute mills by 10% at least, and to train Bangladeshi production management experts (consultants) and contribute to capacity building of related organizations.

(2) Target group

- Jute mills receiving field advice on KAIZEN activity
- NPO and BITAC staffs participating as local consultant

(3) Executing body

MOI (including NPO and BITAC) and MOTJ

(4) Output

Direct introduction of KAIZEN techniques to a total of 30 jute mills in three years and productivity improvement, and indirect transfer of production management technology to NPO and BITAC staff

(5) Program activities

The program expects the consultant team to serve as the traveling clinic for jute mills and provide field advice on KAIZEN activity.

- 1) To select jute mills for field advice.
- 2) To organize a consultant team (basically consisting of two persons).
- 3) To conduct field advice on KAIZEN activity.

(6) Input

1) Human resources

- Foreign consultants, NPO/BITAC staff, and RMCs certified under Program 3-1

2) Facility

- Jute mills selected for the traveling clinic service

3) Financial source

- Combination of technical assistance by foreign donor organizations, government budget, and payment by beneficiaries

(Cost estimate)

The following is the preliminary cost estimate for the traveling clinic service for one company for five days x five cycles in five months. It is based on the Pilot Project, but the cost for foreign consultants is not included.

- a) Transport (car rental): $\text{US\$ } 100/\text{day} \times 2 \text{ days/cycle} = \text{US\$ } 200/\text{cycle}$; $\text{US\$ } 200/\text{cycle} \times 5 \text{ cycles} = \text{US\$ } 1,000$
- b) Accommodation facility: $\text{US\$ } 40/\text{day} \times 5 \text{ days/cycle} \times 2 \text{ persons} \times 5 \text{ cycles} = \text{US\$ } 2,000$
- c) Local consultants (NPO): $\text{US\$ } 15/\text{day} \times 5 \text{ days/cycle} \times 5 \text{ cycles} \times 2 \text{ persons} = \text{US\$ } 750$
- d) Miscellaneous and contingency: 20% of a) – c); total of a) – d): $\text{US\$ } 4,500$
- e) Total (cost required for 25-day service per company; total of a) – d)): $\text{US\$ } 4,500$

(7) Example of program implementation plan

1) Methodology and framework

The program's methodology is based on the traveling clinic service under which the consultant team visits jute mills throughout the country to provide advice on KAIZEN activity, for the purpose of improving productivity.

2) The number of companies to be visited

- Under the Pilot Project, a team of two Japanese experts visited four companies in one month. It turned out to be a very hard schedule (no day off). Under the program, three companies will be visited in one month.
- A team consisting of two foreign consultants will visit three companies in one batch (five months) with one month recess after the batch, totaling six companies per year.
- If more consultants are used:
 - 12 companies per year by two teams (consisting of two foreign consultants each)
 - 18 companies per year by three teams (consisting of two foreign consultants each)
- If the program is continued for three years, one team will be able to serve 18 companies, two teams 36, and three teams 54.
- It is assumed, as a basic plan, that two teams conduct the consultation of five batches each in three years, giving guidance to 30 beneficiaries.

3) Number of visits and service description

The consultant team will identify problems at each mill, propose corrective measures on the basis of production management theory, and check the results at the subsequent visit. As the team visits each mill once per month and provide advice for five days, which constitute one cycle. Each mill will receive five visits and thus five cycles of clinic service. This service schedule has been determined on the basis of lessons learned from the Pilot Project, which was considered to be insufficient in the number of cycles applied (four per each company) while the interval was long (two months). See Figure 6.3-1 and Table 6.3-5 for conceptual view of the proposed service schedule.

4) Continuation of traveling clinical service

If local consultants (NPO/BITAC staff) accompany the foreign consultant team, they will be able to learn skills and techniques relating to field advice and succeed the program ownership in the future.

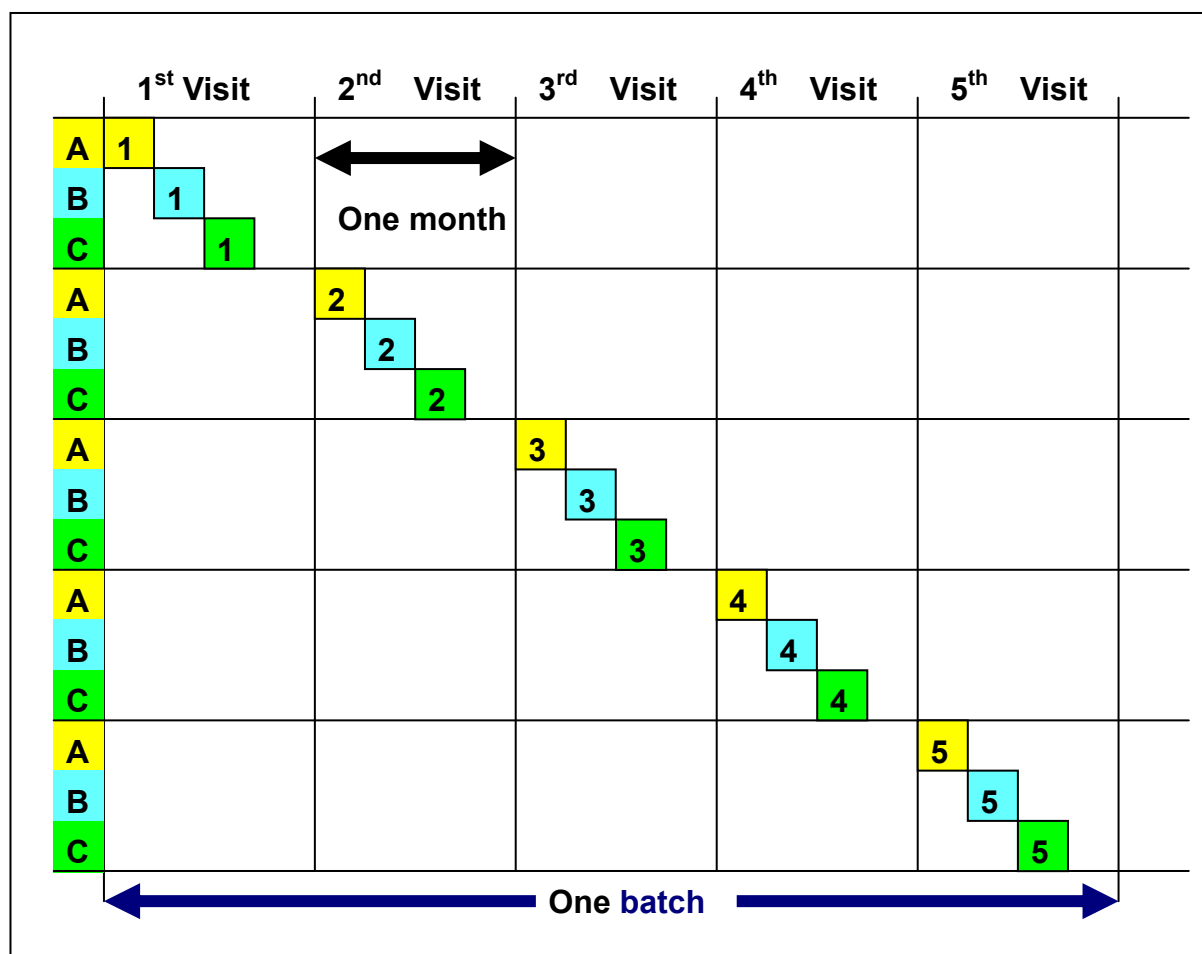


Figure 6.3-1 Round Guidance Rotation

Table 6.3-5 Implementation Plan for the Productivity Improvement Program

	Dormant stage (to understand kaizen concept and methodology)	
	1) KAIZEN for yarn quality improvement	2) 5S activities on the shop floor and accomplishment of visual management
1 cycle	Day 1	1. Presentation of implementation steps and teaching of kaizen-related knowledge to the kaizen team (common)
	Day 2	2. Teaching of kaizen-related knowledge (common)
	Day 3	3. Implementation of the current state analysis by the kaizen team (confirmation of product quality)
	Day 4	4. Current state analysis of each process and identification of issues
	Day 5	5. Sharing of results of current state analysis and identification of issues
		3. Implementation of the current state analysis at the model mill
		4. Determination of issues to be tackled and development of the implementation plan
		5. Delineation of issues to be tackled until the next cycle

One month interval between the first and second cycles (during which the mill carries out activities for addressing the identified issues)

	Awakening stage (to initiate specific kaizen activities)	
	1) KAIZEN for yarn quality improvement	2) 5S activities on the shop floor and accomplishment of visual management
2 cycle	Day 1	1. Inspection of the shop floor and confirmation of the current status relating to issues (evaluation of levels of understanding and implementation)
	Day 2	2. Confirmation with the kaizen team about the methodology for current state analysis and direction of kaizen activity
	Day 3	3. Confirmation of problems and development of corrective measures for each process
	Day 4	4. Same as above
	Day 5	5. KAIZEN report, and delineation of issues and corrective measures
		3. Deployment from the model shop to the entire mill (current state analysis)
		4. Implementation of initiatives for kaizen goals
		5. KAIZEN report, and delineation of issues and corrective measures

One month interval between the second and third cycles (during which the mill carries out activities for addressing the identified issues)

	Recognition stage (repetitive implementation of kaizen activities)	
	1) KAIZEN for yarn quality improvement	2) 5S activities on the shop floor and accomplishment of visual management
3 cycle	Day 1	1. Inspection of the shop floor and confirmation of the current status relating to issues (evaluation of levels of understanding and implementation)
	Day 2	2. Implementation of current state analysis for each issue
	Day 3	3. Information sharing by the kaizen team on the basis of the results of current state analysis
	Day 4	4. Implementation of corrective measures for each issue
	Day 5	5. Goal setting and establishment issues for the next cycle
		2. Delineation of issues to be tackled in relation to 5S activities at the mill
		3. Development of corrective measures for each issue and implementation
		4. Implementation of visible management
		5. Goal setting and establishment issues for the next cycle

One month interval between the third and fourth cycles (during which the mill carries out activities for addressing the identified issues)

	Enrichment stage (development of ability to initiate and implement spontaneously)	
	1) 1) KAIZEN for yarn quality improvement	2) 5S activities on the shop floor and accomplishment of visual management
4 cycle	Day 1	1. Confirmation of the current state of goal achievement and delineation of issues
	Day 2	2. Implementation of current state analysis for each issue
	Day 3	3. Information sharing by the kaizen team on the basis of the results of current state analysis
	Day 4	4. Implementation of corrective measures for each issue
	Day 5	5. Goal setting and establishment issues for the next cycle
		2. Delineation of issues to be tackled in relation to visible management at the mill
		3. Development of corrective measures for each issue and implementation
		4. Same as above
		5. Goal setting and establishment issues for the next cycle

One month interval between the fourth and fifth cycles (during which the mill carries out activities for addressing the identified issues)

	Development stage (goal setting for addressing a new issue)	
	1) KAIZEN for yarn quality improvement	2) 5S activities on the shop floor and accomplishment of visual management
5 cycle	Day 1	1. Confirmation of the current state of goal achievement and delineation of issues
	Day 2	2. Implementation of corrective measures for each issue
	Day 3	3. Same as above
	Day 4	4. Same as above
	Day 5	5. Evaluation on achievement of goals
		2. Implementation of corrective measures relating to visible management
		3. Same as above
		4. Same as above
		5. Evaluation on achievement of goals

6.3.4 (Strategy 4)

Reorientation of the Management and Mill Officers

During the Pilot Project, the JICA Study Team identified a number of problems commonly seen among the jute mills, i.e., inadequate equipment maintenance, reluctance to quality problems, work practice and management without consideration to other shops or processes, and poor housekeeping. Also, old work styles – a chief or senior worker bosses around workers without a clear instruction or explanation – were still prevailing. To deal with these problems properly, it is imperative to have a good manager who can act as the leader to change practice and mindset of workers. However, there is no formal system to teach modern shop floor management to field managers, thereby preventing most mills from taking effective measures to improve shop floor management from the bottom up.

In addition to the training of field managers, understanding and cooperation of the management are indispensable in solving the problems relating to day-to-day shop floor management. In this connection, reorientation of the management is very important. The Pilot Project produced measurable results primarily because the management of the model mills assumed the leadership in KAIZEN activities, as requested by the JICA Study Team. The management decided to organize a KAIZEN team led by the mill manager. By achieving a clean and well-organized shop floor and great improvement of productivity as a result of their commitment and leadership, the management and the mill manager seem to be able to truly feel effectiveness of modern production management techniques.

This strategy therefore aims to create opportunity for the management and operational managers of jute mills throughout the country to learn basics of business management and production management technologies, thereby to help improve productivity of the entire sector substantially. Ideally, these efforts should be made by technical colleges (e.g., establishment of a special course for corporate managers) and public organizations such as the productivity organization. In Bangladesh, however, technical colleges that provide education relating to the jute industry have abolished the department specialized in jute production, and NPO does not offer a course relating to jute mill operation and management due to the shortage of human resource (instructors) and budget.

In consideration of these factors, it is proposed to introduce a reorientation system for the management and mill officers under the initiative of the trade association representing jute

product manufacturers. In the future, when a pool of instructors grows, it is expected that public organizations will offer their own courses on a permanent basis.

Program 4-1 "Introduction of training system for management officers in jute mills"

Program 4-2 "Introduction of training system for management and their successors of jute mills"

6.3.4.1 (Program 4-1)

Introduction of Training System for Management Officers in Jute Mills

I. Program Outline and Rationale

This program proposes education and training of jute mill management officers. Management officers include the mill manager, section chiefs, and supervisors. Generally, they do not receive adequate education or training for factory operation and production management. Continuation of operational practice (as seen at many mills) without learning basics of factory operation and management could block productivity improvement and prevent smooth operation. It is therefore important to improve knowledge and skill levels of management officers by teaching basic techniques and methods, which would also raise their motivation. The bottom line is to build a mechanism to eliminate causes for poor productivity at jute mills.

During the Pilot Project, the JICA Study Team found that the management of the model mills strongly felt the need for education and training. The program attempts to address the need and proposes a fee-based education and training program. In consideration of a possible conflict with work schedule of participants, the proposed program will be offered for three days per week (one unit) and six weeks (one batch). It may be changed to weekend or night courses. A bottleneck would be the shortage of instructors (quality and/or number) and support of donor organizations will be required in the initial stage.

II. Project Implementation Plan

(1) Program purpose

The primary purpose of the training course is to provide opportunity for mill management officers to obtain basic knowledge required for advanced levels of operation and management. As a result, they are expected to play the central role in the productivity improvement drive.

(2) Target group

Management officers of jute mills participating in the training course and their companies

(3) Executing body

Trade associations representing jute product manufacturers, such as BJMA and BJSA, will plan and implement the program. The cost will be borne by beneficiaries (companies sending participants).

(4) Output

- 1) The formal education system/course for mill management officers is established.
- 2) Management officers raise awareness of the current situation at their mill.
- 3) Management officers master KAIZEN techniques that lead to problem solving.

(5) Program activities

- 1) A formal education program/course is established for mill management officers.
- 2) An official announcement and advertisement will be made to recruit participants (to maximize participations from many mills, as well as management officers who have a strong desire to learn).
- 3) Management officers will renew their assessment of the current situation at their mills by learning basics of operation and management from experts.

(6) Methodology

- 1) The program will be conducted in four areas where jute mills are concentrated, namely Dhaka, Chittagong, Khulna, and Champure, to be established as basic facility. Each basic facility will teach 20 participants. The course will be conducted for three days (lecture) per week, called one unit, and six units (weeks) will constitute one batch. Each facility will be able to offer two batches per year.
- 2) It is assumed, as a 3-year plan, that the course will be conducted once a year at four places training 80 persons per year and 240 persons in three years in total.
- 3) Lectures by consultants and experts on management officer education
Expected subjects: Role of management officers and basics of mill management (I) – (II), the method for instruction and training for subordinates, quality control, improvement of cost awareness, cost management, TPM methodology; see Table 6.3-6 for the proposed curriculum

(7) Input

1) Human resource (instructors)

- Professional staff of NPO and BITAC
- University and college testing staff
- Foreign consultants (support by donor organizations will be required)
- Registered Management Consultant to be certified under Program 3-1 in the future

2) Facility

- BITAC's education and training facilities

3) Cost

- The cost will be borne by beneficiaries.

(Preliminary cost estimate)

The preliminary cost for one batch of the training course (six weeks per facility) consisting of two instructors and one administrative staff, but not including remuneration to instructors and staff salary.

- a) Transport (car rental): $\text{US\$ } 100/\text{day} \times 3 \text{ days/unit} \times 6 \text{ units} = \text{US\$ } 1,800$
- b) Accommodation and daily allowance: $\text{US\$ } 40/\text{day} \times 3 \text{ days/unit} \times 3 \text{ persons} \times 6 \text{ units} = \text{US\$ } 2,160$
- c) Facility: $\text{US\$ } 50/\text{day} \times 3 \text{ days/unit} \times 6 \text{ units} = \text{US\$ } 900$
- d) Miscellaneous and contingency: 20% of a) – e): $\text{US\$ } 972$
- e) Total of a) – d)): $\text{US\$ } 5,832$

The total cost for the four facilities is $\text{US\$ } 23,328$. The amount will be doubled if each of the four facilities holds two batches of course.

Table 6.3-6 A Curriculum of Training Course for Mill Management Officers

(3days/week×6cycle)	
1st week i. The role of the factory manager and basics of the factory management (I)	Lecturer ※
Understand the summary of the production system and learn a way of thinking of the factory management and learn a role as the manager and necessary knowledge.	Local lecturers/ Expatriates
1) The summary of a way of thinking and the production system of the factory management.	
2) Duties and the role of the factory manager.	
3) How to lead productivity improvement by IE (Industrial Engineering).	
2nd weeeek ii. Basics of the factory management (II)	Local lecturers/ Expatriates
Apply basic technique such as IE and 5S and learn a step of the improvement.	
1) The way of the inflection for basics and productivity improvement of 5S.	
2) Improvement (on desk practice).	
3rd week iii. The guidance method of the subordinate	Local lecturers/ Expatriates
Learn methods of upbringing and the ability improvement of the subordinate by OJT	
1) Upbringing and how to use subordinates.	
2) A way of the display of the leadership.	
3)How to communicate?	
4th week iv. The making of structure for quality improvement	Local lecturers/ Expatriates
iv. The making of structure for quality improvement. We learn the "structure" making of which a customer is satisfied with and the defectiveness zero.	
1) Way of thinking and how to lead quality control.	
2) How to lead statistical quality control.	
5th week v. How to lead uplift and reduction of cost price awareness	Local lecturers/ Expatriates
Learnt about a point of the cost management to secure profit and learn how to lead reduction in cost.	
1) The grasp of a system and the cost price of the cost management.	
2) Way of thinking / how to lead reduction in cost.	
6th week vi) How to lead TPM	Local lecturers/ Expatriates
1) A way of the facilities check.	
2) How to lead equipment maintenance.	

6.3.4.2 (Program 4-2)

Introduction of Training System for Management and Their Successors of Jute Mills

I. Program Outline and Rationale

Under the Pilot Project, the model mills have produced visible results on account of strong backup from the management for KAIZEN activity. In selecting the model mills, the JICA Study Team imposed a condition that the president must attend at key meetings relating to KAIZEN activities. Also, it was agreed that a model mill will be revoked immediately upon violation of any agreement with the Study Team. As a result, it is widely known that the leadership of the management is a critical success factor for KAIZEN and TQM activities. The management of a model mill promised the payment of a special bonus to workers for productivity improvement achieved by KAIZEN activity, which invigorated it further.

While the four model mills that participated in the Pilot Project are large enterprises having 550 – 1,700 employees, three are many SMEs in the industry, including new entrants (spinning and new products). Growth potential of SMEs is said to be limited to the management's capacity, which includes knowledge and experience in business administration and production management. However, the management of the Bangladesh's manufacturing industry, regardless of company size and including the jute products sector, has fairly limited capacity that is generally outdated and narrow in scope. A major reason for lack of management capacity is a limited opportunity to have systematic education on management theory and practice.

The program proposes an education and training course for the management (including executive officers and would-be successors). As continued from the previous program, the program will offer the course consisting of six units (each unit lasts three days per week), which constitutes one batch (six weeks). Note that the course will be held in Dhaka only.

II. Program Implementation Plan

(1) Program purpose

- To provide opportunity for the management and their successors to learn modern management techniques, which are essential in making their companies competitive.

(2) Target group

- The management of companies that are members of BJMA or BJSA, and their successors

(3) Executing body

BJMA, BJSA and other jute-related trade associations will plan and implement the program by mobilizing their member companies. The cost will be borne by beneficiaries (companies represented by participants).

(4) Output

- 1) A formal education system/course for the management is established.
- 2) An official announcement and advertisement will be made to recruit participants (to maximize participations from many mills, as well as management officers who have a strong desire to learn).
- 3) The management can learn modern management theories from experts.
- 4) They can also learn from case studies including foreign countries, which are presented by experts, as well as through the exchange of opinions.

(5) Program activities

The program will be conducted as a lecture course intended for the management (including successors), which is held in Dhaka and consists of six units (each unit consists of three days per week, which is called one batch). One batch will consist of 15 participants and two batches will be held each year. The curriculum for each batch will be established flexibly between 60 and 100 hours per year, so that it can be combined with weekend and/or night courses.

- 1) For each unit, management-related subjects will be offered in the form of lecture.
- 2) Each class will mix managers and would-be successors to encourage their interaction.
- 3) The course will help participants to understand the need for better operation and management of their mills in order to back up management officers.
- 4) The course will primarily consist of lectures by management experts.

Expected subjects: Business administration and role of the management, management and business strategies, financial management, production management (including quality control), labor management, and project management

See Table 6.3-7 for the proposed curriculum.

(6) Input

1) Human resources

- University and college teaching staff
- Foreign consultants
- Registered Management Consultant to be certified under Program 3-1 in the future

2) Facility

- Education facilities of BJMA, BJSA and other related organizations

3) Cost

- The cost will be borne by beneficiaries.

(Preliminary cost estimate)

The preliminary cost for one batch of the training course covers two instructors and one administrative staff, but not including remuneration to instructors. In the initial stage, foreign consultants will need to be hired. In the future, it is desirable to use Registered Management Consultant to be certified under Program 3-1.

- a) Transport (car rental): $\text{US\$ } 100/\text{day} \times 3 \text{ days/unit} \times 6 \text{ units} = \text{US\$ } 1,800$
- b) Accommodation and daily allowance (two instructors and one administrative staff):
 $\text{US\$ } 40/\text{day} \times 3 \text{ days/unit} \times 3 \text{ persons} \times 6 \text{ units} = \text{US\$ } 2,160$
- c) Facility: $\text{US\$ } 50/\text{day} \times 3 \text{ days/unit} \times 6 \text{ units} = \text{US\$ } 900$
- d) Miscellaneous and contingency: 20% of a) – c): $\text{US\$ } 972$
- e) Total of a) – d): $\text{US\$ } 5,832$

[Note]

The program can be applied to other manufacturing industries. The number of batches can be increased according to the actual needs.

Table 6.3-7 Training Course for the Management of Jute Mills

(3days/week×6cycle)		
week1	i. Corporate management and the role of the business manager.	Lecturers
	Ascertain a change of the management environment and deepen understanding about duties and the role of the business manager, the structure of the corporate management.	Local lecturers/ Expatriates
	1) Management environment change and corporate management in the future. 2) Duties and the role of the business manager.	
week2	ii. Corporate strategy / a management plan.	Local lecturers/ Expatriates
	Understand corporate strategy, the importance of the plan and learn it through a strategic development procedure and, by practice of the company's strategic development, acquire ability for practical drafting.	
	1) Knowledge of a way of thinking and the marketing of the corporate strategy. 2) The development of corporate strategy / the management plan.	
week3	iii. A financial accounting.	Local lecturers/ Expatriates
	Understand the viewpoint of financial statements and acquire the ability that is necessary for financing strategic drafting through various analyses, the inflection of cashflow statements.	
	1) The way of a viewpoint and the inflection of financial statements. 2) Financial analysis and a break-even analysis. 3) A viewpoint / the way of thinking of cashflow statements.	
week4	iv. Production / quality control.	Local lecturers/ Expatriates
	Learn the way of thinking of production control and the quality control to aim at the healthy, smooth production.	
	1) An aim and the construction of the production control system. 2) Way of thinking and how to lead quality control.	
week5	v. Personnel training management.	Local lecturers/ Expatriates
	Raise the independence of will of the employee and wear the management technique of the manager to let an organization activate and the practical technique of the personnel management.	
	1) Organization activation and the talented person management. 2) Knowledge and the measures of the personnel management.	
week6	vi. Project management.	Local lecturers/ Expatriates
	Learn technique and the how to lead project management to give a maximum result for the duties that a business manager was given.	
	1) Way of thinking / how to lead project management.	

6.4 Five-year Program Implementation Plan and Implementation Schedule

This section describes the implementation schedule for the action program proposed for the jute products industry. The five-year program implementation schedule is proposed in consideration of four strategies and nine programs by level of importance, priority, and ease of head start.

6.4.1 Outline and Structure of Action Program

(1) Strategy and program design

The action program has been developed on the basis of the results of seven field surveys that were conducted over two years, starting in February 2007. It also reflects various lessons learned from the Pilot Project that was conducted for one year during the two-year study period. Table 6.4-1 lists the entire organization of the action program being composed of a development vision, purpose, strategies and programs. General outlines of individual programs are presented in Table 6.4-2.

The overall program structure is illustrated in Figure 6.4-1, which shows how specific strategies and programs should work together to achieve the development purpose, “productivity improvement of the jute products industry.” In terms of four elements of industrial development, i.e., management, marketing, equipment, and production management, Strategy 4 represents the management division, Strategy 2 the equipment division, and Strategy 3 the production management division. Finally, Strategy 1 represents policy recommendations and supports other strategies directly or indirectly. Note that the “marketing” element is not covered because it is not a key factor for productivity improvement that constitutes the action program’s development purpose.

(2) Multifaceted relationship among programs

Each program is designed to produce output that straddles over multiple strategies and that cannot be linked only to a specific strategy. Figure 6.4-2 shows interrelationship between the individual programs and strategies. In the diagram, mark “●” represents relationship between a specific program and a strategy under which it is positioned. On the other hand, mark “○” represents a close linkage between a specific program and other strategy. From the diagram, the individual strategies and programs are structured in a multifaceted relationship.

For instance, “Program 3-1 Training of consultants for production management technologies” is positioned under Strategy 3. At the same time, it serves as training of

trainers for “Strategy 4 Reorientation of the management and mill officers.” Furthermore, when the national consultant certification system is established to cover all industries, it will have close relationship with policy recommendations in Strategy 1. On the other hand, Strategy 3 has four programs under it as viewed from the interrelationship diagram, when programs 2-2 and 4-1 are added.

Table 6.4-1 Action Program for Export Promotion for the Jute Products Industry

Vision:

The jute products industry largely contributes to raise of living standards of the Bangladeshi people by export of higher value added products.

Development purpose:

The jute products industry revives as a modernized industry through improvement of productivity.

(Strategy 1) Recommendation on policy related issues

Program 1-1 Introduction of unification functions of related organizations in jute industries

Program 1-2 Program for doubling of the acreage yield in jute cultivation

(Strategy 2) Modernization of production facilities

Program 2-1 Guidance for new investment in Jute Diversified Products (JDP)

Program 2-2 Acceleration of transaction of local spare parts for jute mills

Program 2-3 Introduction of new credit facilities for the export sector diversification program

(Strategy 3) Dissemination of production management technology

Program 3-1 Training of consultants for production management technologies

Program 3-2 Implementation of a traveling-clinic-type KAIZEN activities to jute mills

(Strategy 4) Reorientation of the management and mill officers

Program 4-1 Introduction of training system for management officers in jute mills

Program 4-2 Introduction of training system for management and their successors of jute mills

Table 6.4-2 Summary of Program Proposals for the Jute Products Industry

Program name	Target group	Output	Major activities	Executing body
Strategy 1 Recommendation on policy related issues				
Program 1-1 Introduction of unification functions of related organizations in jute industries	Jute industry as general	Focused allocation of government resources for jute industry promotion (disbursed by multiple ministries)	Establishment of the National Jute Commission organized by representatives of the public and private sectors	Initiation by the cabinet, MOTJ (secretariat)
Program 1-2 Program for doubling of the acreage yield in jute cultivation	Approx. 3.5 million jute farmers	Doubling of jute yield per unit area by means of dissemination of BBD HYV seeds and adequate farming techniques	Focused allocation of resources based on a specific yield doubling plan	MOA (BJRI/BADC/DAE) Strategy 2 Modernization of production facilities
Strategy 2 Modernization of production facilities				
Program 2-1 Guidance for new investment in Jute Diversified Products (JDP)	Potential investors in the jute industry	Focusing on successful inducement of new investment in relation to JDPs	Strengthening of a formal system to support sharing of new product information by private organizations	MOTJ/JDPI, BJMA, BJSA
Program 2-2 Acceleration of transaction of local spare parts for jute mills	Jute product and parts industries	Invigoration of trade between local parts suppliers and jute product manufacturers, or improvement of transparency	Strengthening of communication in relation to parts trade; creation of the competitive market	BJNA, BJSA, BEIOA
Program 2-3 Introduction of new credit facilities for the export sector diversification program	Companies making capital investment for export expansion	Supply of long-term capital spending fund for product diversification and equipment modernization	Request for financial support by donor organizations, and consideration of an implementation system and assessment of financial demand	MOC/MOF (promotion); BB and PFIs (implementation)
Strategy 3 Dissemination of production management technology				
Program 3-1 Training of consultants for production management technologies	NPO/BATAC staff members/engineers in general	Training of 100 production management experts (trainers) in three years	Implementation of a six-month training course consisting of lecture and practical training	MOTJ, MOI (NPO, BITAC)
Problem 3-2 Implementation of a traveling-clinic-type KAIZEN activities to jute mills	Jute mills wanting to have KAIZEN-related guidance and advice	Productivity improvement by 10% through KAIZEN activities under field advice by experts	Diagnosis and advice by experts for one mill (five visits per week, totaling five months)	MOI (NPO, BITAC)
Strategy 4 Reorientation of the management and mill officers				
Program 4-1 Introduction of training system for management officers in jute mills	Jute mill management officers	Teaching of modern production management techniques to mill officers who have not received formal training	Lecture-based training in four areas (where jute mills are concentrated), consisting of three days per week, totaling six weeks	Private organizations such as BJMA and BJSA
Program 4-2 Introduction of training system for management and their successors of jute mills	Jute mill owners and managers	Creation of opportunity for the management and would-be successors to learn modern management techniques	Lecture-based training in Dhaka, consisting of three days per week, totaling six weeks	Private organizations such as BJMA and BJSA

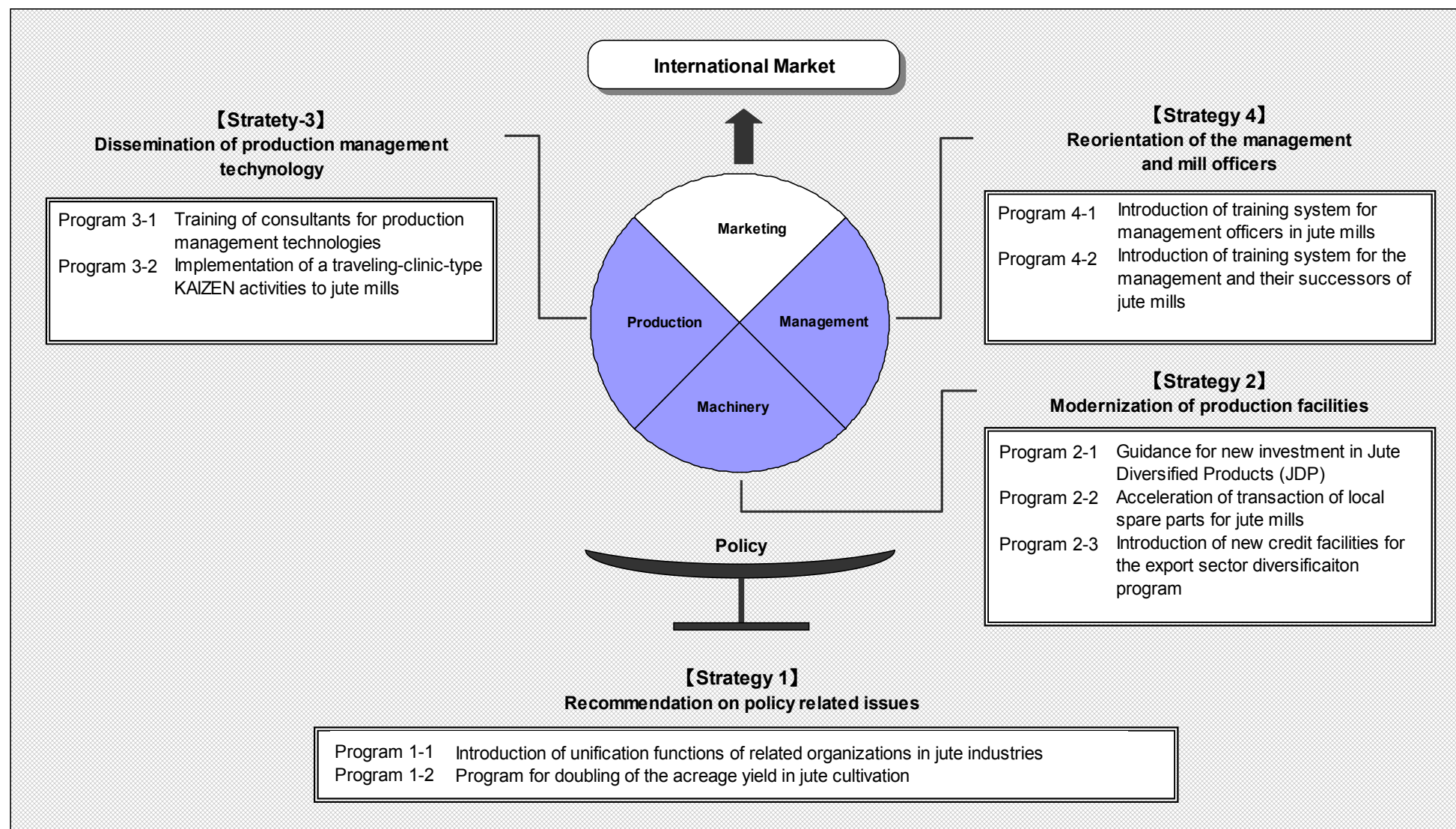


Figure 6.4-1 Schematic Diagram Showing the Program Structure (Jute)

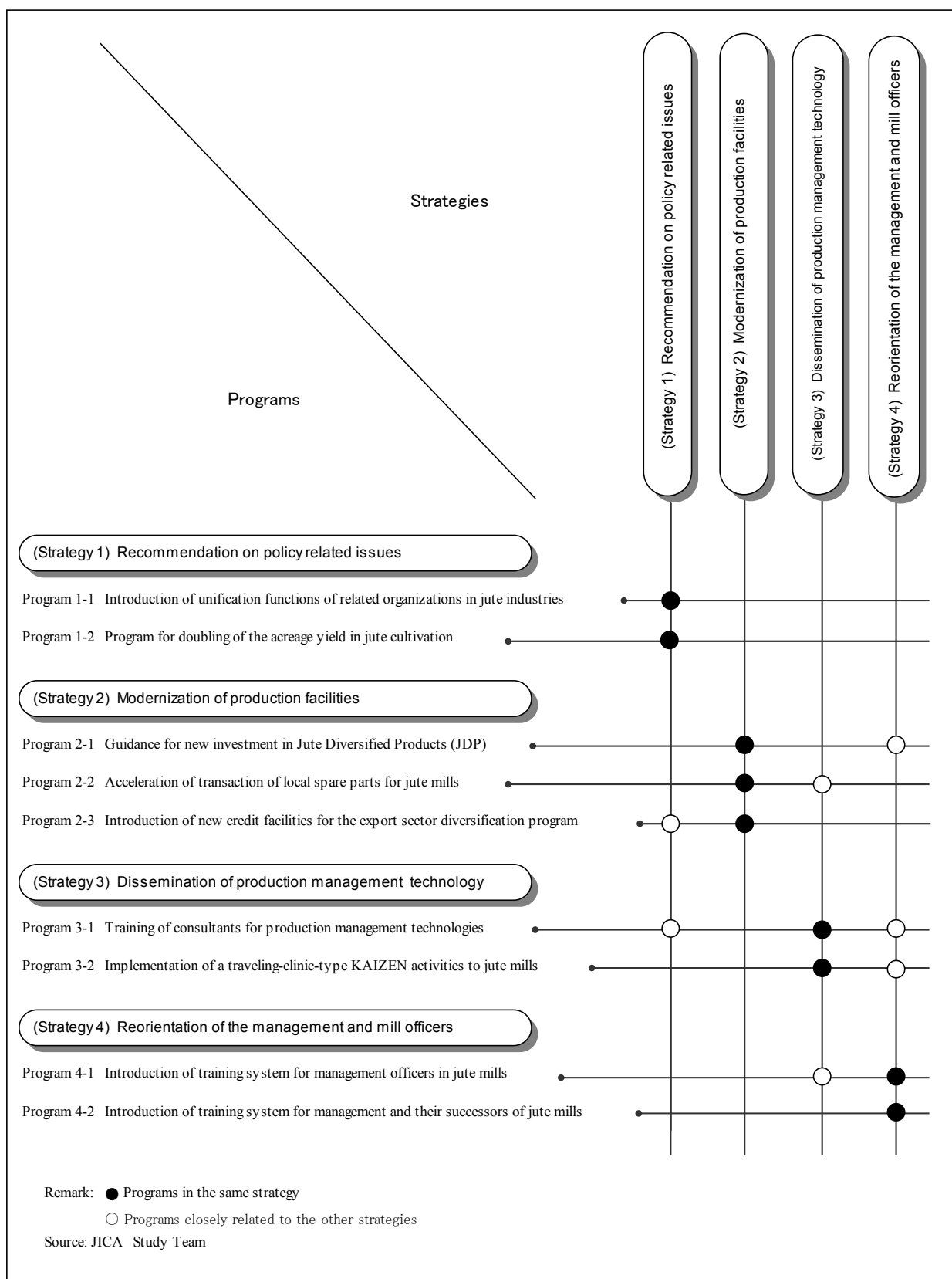


Figure 6.4-2 Multifaceted Relationship among Proposed Programs

6.4.2 Priority Setting for Program Implementation

In establishing implementation schedules for the nine proposed programs, priority is set for the order of implementation on the basis of two factors, i.e., the level of contribution to the accomplishment of the development purpose and the level of program feasibility. The level of contribution measures the program's effectiveness as to how well it can help achieve the development purpose, while the level of program feasibility tells how difficult it is for the program to be actually materialized realized (or to start out).

(1) Level of contribution to the accomplishment of the development purpose

Given the low operating rate of jute mills operated by BJMA member companies, below 30%, equipment modernization is clearly effective in improving productivity of the jute products industry. From this standpoint, Program 2-2 "Acceleration of transaction of local spare parts for jute mills" and Program 2-3 "Introduction of new credit facilities for the export sector diversification program" should be given of high priority. Then, improvement of production management technology comes next, as the current level of production management technology of the country's industry seems to be among the lowest in the region. In this context, three programs are considered to meet the objective, namely Program 3-1 "Training of consultants for production management technologies," Program 3-2 "Implementation of a traveling-clinic-type KAIZEN activities to jute mills," and Program 4-1 "Introduction of training system for management officers in jute mills."

On the other hand, Program 2-1 "Guidance for new investment in Jute Diversified Products (JDP)" and Program 4-2 "Introduction of training system for management and their successors of jute mills" are effective in achieving the development purpose but are considered to be a rather indirect approach. Finally, Program 1-1 "Introduction of unification functions of related organizations in jute industries" and Program 1-2 "Program for doubling of the acreage yield in jute cultivation" are clearly very important for the jute industry, e.g., if the yield doubling plan is announced and implemented, it will create a great expectation for the jute products industry. Nevertheless, their level of contribution to the accomplishment of the development purpose (productivity improvement) is fairly low. Each program is scored with Level 1 being 100 points, as follows.

In consideration of the above analysis and evaluation, the proposed programs are rated according to the level of contribution as follows.

1) Level 1 100 points

Program 2-2 Acceleration of transaction of local spare parts for jute mills

Program 2-3 Introduction of new credit facilities for the export sector diversification

2) Level 2..... 60 points

Program 3-1 Training of consultants for production management technologies

Problem 3-2 Implementation of a traveling-clinic-type KAIZEN activities to jute mills

Program 4-1 Introduction of training system for management officers in jute mills

3) Level 3 40 points

Program 2-1 Guidance for new investment in Jute Diversified Products (JDP)

Program 4-2 Introduction of training system for management and their successors of jute mills

4) Level 4 20 points

Program 1-1 Introduction of unification functions of related organizations in jute industries

Program 1-2 Program for doubling of the acreage yield in jute cultivation

(2) Feasibility

In principle, program priority is governed by the level of contribution to the accomplishment of the development purpose. On the other hand, feasibility may decrease with an increase in program size, e.g., a large project may be less feasible while it shows a high level of contribution to purpose achievement. For instance, a program that may become feasible ten years later should be given of lower priority. In this sense, feasibility is another key factor for setting priority for program implementation. Programs that are subject to a larger restraint on implementation are those requiring government budget allocation, introduction or modification of policy and legislation, or large resource input (manpower, fund, and asset). In evaluating feasibility of the proposed programs, time factors relating to the implementation process are not considered here but in the stage where the time schedule is established in the next section. Each program is scored with Level 1 being 50 points, as follows. Scores assigned to feasibility are one half those for the level of contribution to the accomplishment of development purpose, because the latter is weighed more than the former when program priority is evaluated.

1) Level 1 50 points

Program 2-1 Guidance for new investment in Jute Diversified Products (JDP)

- The program's objective can be largely achieved by strengthening the current JDPC.

Program 2-2 Acceleration of transaction of local spare parts for jute mills

- It primarily focuses on matching between supply and demand, while no investment is required.

2) Level 2 30 points

Program 1-2 Program for doubling of the acreage yield in jute cultivation

- The program can be implemented independently by MOA-related organizations, while budget allocation and manpower assignment will be required.

Problem 3-2 Implementation of a traveling-clinic-type KAIZEN activities to jute mills

- This is continuation of the Pilot Project with which NPO has experience, while the MOI's budgeting is required.

3) Level 3 20 points

Program 2-3 Introduction of new credit facilities for the export sector diversification program

- Financial assistance by donor organizations is required, together with the Bangladesh government's leadership in the implementation process.

Program 3-1 Training of consultants for production management technologies

- Given the shortage of qualified instructors for the consultant training program, technical assistance from donor organizations is essential, and there is uncertainty about recruitment of trainees participating in the six-month program.

Program 4-1 Introduction of training system for management officers in jute mills

- Because local instructors are in short supply, they need to be trained under Program 3-1 and technical assistance from donor organizations is indispensable in the initial stage.

4) Level 4 10 points

Program 1-1 Introduction of unification functions of related organizations in jute industries

- As some oppositions are expected, efforts to gain consensus within the government are required.

Program 4-2 Introduction of training system for management and their successors of jute mills

- As many participants cannot be attracted by local instructors, technical assistance from donor organizations is essential in the initial stage.

(3) Overall evaluation and priority setting

The scores representing the level of contribution to the accomplishment of the development purpose as well as program feasibility are added up to obtain the overall score, and scores for all the programs are classified into three ranks. As already pointed out, the level of contribution is weighed more (twice) than the feasibility, i.e., 100 – 20 points (Levels 1 – 4) are assigned to the former, and 50 – 10 points (Levels 1 – 4) to the latter. The highest priority group represents the overall score of 100 or more points, the second priority group more than 50 points and less than 100 points, and the third priority group less than 50 points. The results are summarized in Table 6.4-3. In the number of programs, there are two programs in the highest priority group, four in the second priority group, and three in the third priority group.

Table 6.4-3 Priority Rating for the Proposed Programs

Program name	Level of contribution	Feasibility	Total	Priority
Strategy 1 Recommendation on policy related issues				
Program 1-1 Introduction of unification functions of related organizations in jute industries	20	10	30	■
Program 1-2 Program for doubling of the acreage yield in jute cultivation	20	30	50	■
Strategy 2 Modernization of production facilities				
Program 2-1 Guidance for new investment in Jute Diversified Products (JDP)	40	50	90	■■■
Program 2-2 Acceleration of transaction of local spare parts for jute mills	100	50	150	■■■■■
Program 2-3 Introduction of new credit facilities for the export sector diversification program	100	20	120	■■■■■
Strategy 3 Dissemination of production management technology				
Program 3-1 Training of consultants for production management technologies	60	20	80	■■■
Program 3-2 Implementation of a traveling-clinic-type KAIZEN activities to jute mills	60	30	90	■■■
Strategy 4 Reorientation of the management and mill officers				
Program 4-1 Introduction of training system for management officers in jute mills	60	20	80	■■■
Program 4-2 Introduction of training system for management and their successors of jute mills	40	10	50	■

Note: Highest priority group ■■■■■ (100 points or higher)

Second priority group ■■■ (50 points - less than 100 points)

Third priority group ■ (Less than 50 points)

Source: JICA Study Team

6.4.3 Five Year Implementation Plan and Schedule

The action program for the jute products industry is proposed to implement nine programs over a period of five years, and its implementation plan and schedule are developed here. Essentially, detailed examination of the action program proposals will start after the submission of this Report and the formal preparation work will start in July 2009 when the new fiscal year commences. Major factors to be considered in the development of the implementation schedule are the priority ranking made in the previous section, program linkage (dependency), and the ease of head start.

(1) Relationship between priority and implementation schedule

Needless to say, a program with high priority should be started as early as possible. It does not necessarily mean, however, that a program with low priority should or can be set aside for later implementation. Furthermore, it is difficult to say how long such program schedule can be delayed or what justification can be made. In consequence, so long as the action program's role is to show a preliminary (target) schedule, there is no reason to delay the start of the low priority program unless it is justified from the dependency relationship with the preceding program. This can be further explained from the standpoint of the two criteria for priority setting (level of contribution and feasibility).

Level of contribution

Priority becomes lower for a program that is expected to make indirect contribution to the accomplishment of the development purpose. As a result, the programs under Strategy 1 "Recommendation on policy related issues" are rated lowest under this criterion. However, these programs have broad impacts on the target group under the present Study and their implementation should not be delayed just because of the low level of contribution to the achievement of the development purpose, for it serves national economic interest.

Level of feasibility

As discussed earlier, level of feasibility estimates degree of difficulty in making a proposal into a real program. Some programs may be delayed or even cancelled in the implementation stage. Nevertheless, it is not logical to allow for "delay" in the planned schedule, although a relatively long preparation period may be acceptable. Delay can be simply avoided by adjusting allocation of input resources on the basis of government policy.

Significance of priority

Thus, the implementation schedule should not assume any delay in the start of a low priority program, because it would negate significance of priority setting for program

implementation. Priority is set when resources (manpower, fund and asset) are limited and need to be allocated only to selected programs. It thus serves as criteria to select a program from mutually exclusive ones.

(2) Program linkage

Some of the proposed programs are linked to each other in terms of dependency, i.e., one program must be completed before the other can start. The following are examples of program linkage.

1) Program linkage (1)

Preceding program

Program 1-1 Introduction of unification functions of related organizations in jute industries

Dependent program

Program 1-2 Program for doubling of the acreage yield in jute cultivation

Program 1-2 should preferably be started after the National Jute Commission has been established by Program 1-1 to control activities of related ministries. This program linkage is considered to be moderate but is not imperative.

2) Program linkage (2)

Preceding program

Program 3-1 Training of consultants for production management technologies

Dependent program

Problem 3-2 Implementation of a traveling-clinic-type KAIZEN activities to jute mills

Program 4-1 Introduction of training system for management officers in jute mills

Program 4-2 Introduction of training system for management and their successors of jute mills

Program 3-1 is positioned as a “trainers’ training” program to produce local experts (consultants) in business management and production management, who are in turn expected to become trainers for the subsequent programs. Thus, there is a strong program linkage between these programs.

3) Program linkage and implementation schedule

The above two examples represent the cases where a specific sequence of programs – completion of a preceding program and then the start of a subsequent program – is in logical order. If the killer assumption, i.e., the subsequent program can never be started unless the preceding one is completed, is not established, the two programs can be concurrently started and/or implemented. Furthermore, it cannot be assumed that a preceding program is always implemented. As a result, program linkage should not be overemphasized in the implementation plan, which would create a risk of jeopardizing the entire implementation process.

In the above examples, program linkage (1) represents a rather weak linkage and should not be reflected in the implementation schedule. On the other hand, program linkage (2) is considered to be strong, but foreign consultants sent by donor organizations can substitute for local consultants who may not be available in the initial stage. For this reason, it is proposed to set one year interval between the two programs in case foreign consultants are required.

(3) Other considerations

The proposed programs are classified into two types, those that are entirely new to the country and those that represent the reinforcement or improvement of ongoing programs. In the latter case, ongoing programs do not conflict with the proposed ones, or they are not in a trade-off relationship. Either can be incorporated into the other or both can be implemented in parallel. Furthermore, some of the proposed programs can be integrated into one, but they are proposed as they are, in consideration of the fact that such integration would adversely affect feasibility in increasing difficulty in terms of implementation (e.g., involvement of multiple executing bodies, and increase in input resources).

(4) Formulation of the implementation schedule

The five-year implementation plan and schedule for the action program is summarized in Figure 6.4-3. In consideration of the factors in (1) through (3), it is assumed that the start of Programs 3-2, 4-1 and 4-2 will be postponed by one year, while other programs will be concurrently started at the beginning of the first year. Note that actual implementation time will likely vary according to the resolution of “key points in implementation” in the figure and allocation of input resources.

While the implementation schedule is established over the time span of five years, the action program should be implemented in the long run, rather than completion within five years. In fact, the program implementation schedules proposed here can be classified into the following three patterns (see Figure 6.4-3).

- Programs marked by “▷” will be continued as part of routine job once the implementation plan has been decided.
- Programs marked by “▶” will be continued repeatedly by treating a proposed program as one batch.
- Programs marked by “■” will complete in five years, provided that their results (accomplishments) will form the basis of a follow-up program or activity.

		1st year (2009July-)	2nd year (2010July-)	3rd year (2011July-)	4th year (2012July-)	5th year (2013July-)	Continu- -ation	Output during 5 years	Important assumption
(Strategy 1)	Recommendation on policy related issues								
Program 1-1	Introduction of unification functions of related organizations in jute industries	Consensus	Establishment	Actions as Commission			▷	Establishment of National Jute Commission & its start	Consensus of the cabinet
Program 1-2	Program for doubling of the acreage yield in jute cultivation	Planning	Organization	Actions for doubling of jute yield			▷	Doubling of the acreage yield from 2VHa to 4VHa	Allocation of the government resources to the program
(Strategy 2)	Modernization of production facilities								
Program 2-1	Guidance for new investment in Jute Diversified Products (JDP)	Study preparation	Strengthening	Sound operation			▷	Increase in investment to area of Jute Diversified Products.	Allocation of the government resources to the program
Program 2-2	Acceleration of transaction of local spare parts for jute mills	Planning	Exhibition Open bit	Exhibition Open bit	Exhibition Open bit		▶	Doubling of domestic supply of spare parts: Periodical exhibitions and open bids	Mutual trust between buyers and suppliers
Program 2-3	Introduction of new credit facilities for the export sector diversification program	Decision	Application	Evaluation	Organization-building	Financing to export industries	▷	Introduction of a long-term credit facility for modernization of machinery	Source of fund (F/A from a development partner)
(Strategy 3)	Dissemination of production management technology								
Program 3-1	Training of consultants for production management technologies	Preparation	5 batches training with 20 trainees each (6 month course)				▶	Fostering 100 certified consultants: 5 batches x 20 trainees	Possibility of foreign T/A
Program 3-2	Implementation of a traveling-clinic-type KAIZEN activities to jute mills		Preparation	Guidance for 30 jute mills by 2 pairs of consultants (6 mills/batch)			■	KAIZEN guidance for 30 jute mills: 2 teams x 2 batches x 3 mills/batch	Possibility of foreign T/A: Success of Program 3-1
(Strategy 4)	Reorientation of the management and mill officers								
Program 4-1	Introduction of training system for management officers in jute mills		Preparation	Education for 20 persons at 4 regions a year (6 weeks/batch)			■	Training of 240 persons of manager level: 12 batches x 20 trainees	Success of Program 3-1
Program 4-2	Introduction of training system for management and their successors of jute mill		Preparation	Education for 15 persons a year at Dhaka (6 weeks/batch)			■	Training of 90 management of jute mills: 6 batches x 15 trainees	Interest of management of jute mills

T/A: Technical Assistance

F/A: Financial Assistance



The program will be continued as a routine work after five years.



The program will be repeatedly continued as batches after five years.



The program is completed within five years, being followed by another program.

Figure 6.4-3 The Five-year Implementation Plan and Schedule for the Action Program

Chapter 7 Action Program for Software Industry

Chapter 7 Action Program for Software Industry

This chapter consists of four sections. Section 7.1 identifies and analyzes the current state of software/ITES (hereinafter referred to as “software” except the case where “ITES” needs to be mentioned for specific purposes) industry of Bangladesh and major issues faced by it. Then, in 7.2 and 7.3, the action program for export promotion of the software industry of Bangladesh is proposed, as developed on the basis of the conclusions obtained in 7.1 and the results of the Pilot Project discussed in 5.2. Finally, a five-year implementation plan for the action program is proposed in 7.4.

7.1 Current State of Software Industry and Key Issues

This section reviews Bangladesh’s software industry, including the current state and key issues faced by it. In 7.1.1, the industry’s current size and business environment are described. In 7.1.2, the industry’s export status and competitiveness is discussed. In 7.1.3, the SWOT analysis of the industry is performed, as a conclusion of the analysis on current state of software industry of Bangladesh, on the basis of the foregoing two sections.

7.1.1 Industry Size and Business Environment

This section presents general profiles of the Bangladeshi software industry including industry size and business environment. The description on the industry size is made in comparison with those of other countries. The business environment covers infrastructure, finance, related policies and institutions, and related organizations.

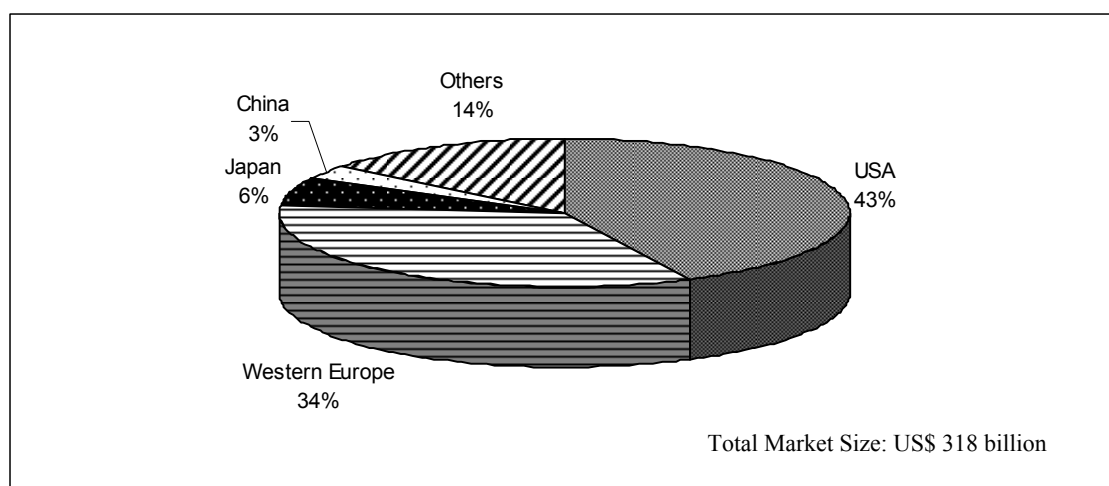
(1) Industry size

According to the World Information Technology and Services Alliance (WITSA), software market size in the world (total of domestic sales in all the countries) was estimated at around US\$ 318 billion in 2006. Figure 7.1-1 shows that the United States, the world largest software market, accounts for some 43% (about US\$ 136 billion) of the total market in the world, while the Western Europe holds the share of 34% (about US\$ 108 billion) and Japan holds that of 6% (about US\$ 18 billion). Thus, three of the most developed regions of the world carry the combined share of 83% of the software market of the world. The WITSA estimates that the compound annual growth rate (CAGR) of the software market in the world between 2007 and 2011 would be at around 6.0%.

Meanwhile, according to the Bangladesh Association of Software and Information Services (BASIS), the software market size in Bangladesh (domestic sales) was estimated at

around US\$ 120 million in 2007. This approximately amounts to 0.038% of the size of software market in the world in 2006. Also, the size of the software market in Bangladesh is smaller than those of other countries having the emerging IT industry, including China (US\$ 11 billion as of 2006), India (US\$ 8 billion as of 2006), and Viet Nam (US\$ 220 million as of 2005)¹. However, the industry is growing rapidly in recent years. The BASIS indicates that the industry's market size has been expanding at an annual average rate of 40% in the recent few years. The BASIS attributes this growth to strong export expansion and demand surge from local industries that widely make business automation efforts (in particular, garment and knitwear, telecom, and financial sectors).

At present, over 400 software companies are registered in Bangladesh pursuant to the Company Act. These companies employ around 12,000 persons in total. These companies are dominated by small and medium-sized enterprises in terms of employment. For instance, the number of employees in the 38 companies that have participated in the Pilot Project under the present Study ranges between 5 and 215, with the average being around 50. According to the Bangladesh Computer Samity (BCS), there were approximately 25,200 IT professionals in the country (as of 2006), including those working for non-IT companies. Nevertheless, these figures are smaller than those in Viet Nam that also has the emerging IT industry but smaller population than Bangladesh does (refer to Table 7.1-1).



Source: WITSA

Figure 7.1-1 Country's Share in Software Market in the World

¹ Center of the International Cooperation for Computerization. "Trends in Offshore Software Development in Japan"

Table 7.1-1 Comparison of Software Industry Size with Emerging IT Markets

Country	China	India	Viet Nam	Bangladesh
Market Size (in US\$ million)	(2006) 11,000	(2006) 8,000	(2005) 220	(2007) 120
The Number of Companies (number)	(2005) 10,000	(2006) 3,300	(2005) 720	(2007) 400
The Number of IT Professionals (number)	(2006) 450,000	(2006) 1,300,000	(2006) 35,000	(2006) 25,000

Center of the International Cooperation for Computerization, BASIS, BCS

(2) Business environment

1) Infrastructure

According to a questionnaire survey of 20 software companies conducted by the JICA Study Team (via a local consultant) in May 2007, as many as 11 companies cited unstable electricity supply as the largest obstacle to their business growth. Software companies, by nature of business, require uninterrupted and quality supply of electricity. In fact, approximately 85% of the companies that participated in the Pilot Project own or share an in-house power generator (or co-generator) and 64% have an uninterrupted power supply system (UPS) mostly for servers.

As for telecommunication networks, Bangladesh has been connected to a marine cable network (SEA-ME-WE-4) since 2006, which provides 24Gb bandwidth for internet connectivity. Major cities in the country are connected to the network via high speed optic fiber cables. The actual access speed rate for internet achieved by the 38 companies that participated in the Pilot Project, according to the questionnaire survey, varies widely between around 21kbps and 3Mb. The survey results indicate the average rate of about 384kbps, with the most frequent response being 128kbps (9 companies), followed by 256kbps (4 companies) and 512kbps (4 companies).

Note that the Bangladesh Computer Council (BCC) developed a building complex accommodating software companies - called "ICT Incubator" - in 2002. Tenants (approximately 50) are provided with uninterrupted electricity supply and free access to the high speed internet (Refer to Table 7.1-3).

2) Finance

According to interview surveys with the Bangladesh Bank, non-collateral loans are not provided in Bangladesh except the case where special policy support is extended. Collaterals are generally restricted to immovable assets, while government bonds and the certificate of order from an international organization or a multinational corporation is accepted in exceptional cases. As many software companies do not possess a highly valued fixed property, they have difficulty in gaining access to commercial loan. The results of the questionnaire survey covering BASIS member companies (conducted by the JICA Study Team in July 2008) indicate that only about 30% of 57 companies have obtained commercial loans thitherto.

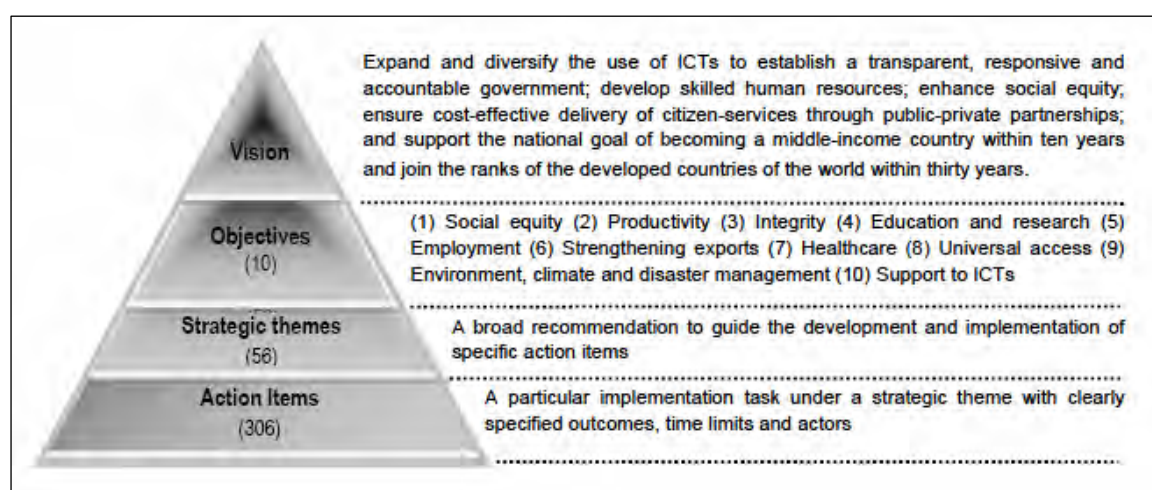
In Bangladesh, there are special financial schemes for software companies. One of them is the Export Promotion Fund (EPF) managed by the Export Promotion Bureau (EPB). The EPF offers a loan scheme to provide export-related working capital for software and handicraft companies, as fully described in 7.1.2 (2) “Export Capacity and Competitiveness.” On the other hand, the Bangladesh Bank operates an equity finance scheme, called the Equity and Entrepreneurship Fund (EEF), which supplies public capital to companies that lack fundraising capability in the form of equity contribution. Under the scheme, the Bangladesh Bank (representing the government) makes equity contribution up to 49% of the total share. Beneficiary companies are required to buy back the government’s equity interest within eight years after the first contribution made by the Bangladesh Bank. If the buyback is made within three years, it can be made at the face value. If it is made in the fourth year or afterwards, either the company’s liquidation value per stock or the face value, whichever higher, applies. As of November 29, 2007, a total of 32 software companies used the scheme.

As of the end of October 2008, the Infrastructure Development Company Limited (IDCOL), a nonbank financial institution under the Ministry of Finance, decided to establish a non-collateral loan facility to provide working capital for IT companies, entitled “Shonchalok.” The Ministry and the IDCOL will contribute Tk. 250 million each to establish the fund, from which Tk. 50 million will be loaned to five financial institutions that provide cooperation in the initial stage, at an interest rate of 7% per annum. These financial institutions will provide working capital loans for member companies of IT industry associations: Tk. 10 million at maximum per order; upon presentation of a certificate of order; and the maximum interest rate of 11.5% per annum. Note that the financial institutions will solely assume default risk.

(3) Related policies and institutions

1) Policies

Bangladesh has the National ICT Policy. It was first formulated in 2002 as the National ICT Policy 2002 and is still in effect as of November 1, 2008. Meanwhile, the National ICT Policy Review Committee started the policy amendment process in May 2008 and submitted the final draft for the new National ICT Policy to the Ministry of Science and Information and Communication Technology (MOSICT) in September 2008. The final draft concludes that the current National ICT Policy 2002 has not been effectively implemented. While the Policy contains 103 policy directive items in 16 fields, only 8 items have been implemented, 61 partially implemented, and 34 not implemented at all. Then, the final draft for the new National ICT Policy sets forth the action plan consisting of visions, objectives, strategic themes, and action items. As shown in the Figure 7.1-2, a vision has 10 objectives, followed by 56 strategic items and 306 action items to reflect the intention of respective items above them. All the 306 items defines an execution agency, expected outcome, and an implementation period (short-term: 18 months or shorter; medium-term: 19 months to less than 5 years; and long-term: 5 years to less than 10 years).



Source: National ICT Policy Review Committee "Report of the National ICT Policy Review Committee"

Figure 7.1-2 Image of the New ICT Policy

Besides, the Bangladesh Awami League, a ruling party of the new government that came into power in January 2009, stated in its election manifesto "Our vision is to make Bangladesh digital in 2021."² The manifesto makes a public statement as follows:

- 1) IT education will be made compulsory at secondary level by 2013;

² Quoted from "Election Manifesto of Bangladesh Awami League-2008," Bangladesh Awami League

- 2) IT education will be made compulsory at primary level by 2021;
- 3) ICT Task Force will be reactivated; and
- 4) High-tech park, software technology park, ICT incubator and computer villages will be set up at suitable locations in the country.

2) Related taxation and laws

Software companies in Bangladesh are fully exempted from corporate income tax until FY2011. Furthermore, computer software is subject to low import tax rate of 7.5%, which is divided into import duty of 3%, advanced income tax (prepaid tax on profits from domestic sales of imported goods) of 3%, and advanced trade VAT of 1.5%. Note that the ordinary VAT and the supplementary tax (imposed on luxury goods) are exempted. Also, the import duty is not applied to computer software if it is imported for exporting purpose; it is reimbursed after payment, called “Duty Draw Back Facility.” In the area of law and acts relating to software, the ICT Act 2006 and the Copyright Act 2000 were enacted, including the provisions to address the improvement of the security environment in the software industry.

(4) Related organizations

In Bangladesh, the following government organizations and trade associations are engaged in development and promotion of the software industry.

1) Support to ICT Task Force (SICT) Programme

To achieve the objective of the National ICT Policy 2002, ICT Task Force has been established as the supreme decision-making body in the area of ICT policy, with the Prime Minister being the chairperson. In 2003, the Bangladesh government created the Support to ICT Task Force (SICT) Programme within the Planning Division, Ministry of Planning, as the organization responsible for project implementation and general administration for the ICT Task Force. SICT primarily implements and manages the projects relating to e-government. As shown in Table 7.1-2, it has been implementing 36 projects (including those under implementation).

2) Bangladesh Computer Council (BCC)

The BCC was established under authority of the Bangladesh Computer Council Act 1990. It is a government organization under jurisdiction of the Ministry of Science and Information and Communication Technology (MOSICT). It serves as an organization in charge of implementation of the country’s ICT policy and carries out nationwide activities for

promotion of the ICT industry. Major activities include advisory services on computerization of government organizations, computer-related education, development of ICT infrastructure, formulation and implementation of the ICT policy, and implementation of ICT-related projects. Table 7.1-3 lists the leading projects that were or are implemented under the leadership of the BCC. In addition, the ICT Task Force has approved the implementation of the “ICT Professionals Skills Assessment and Enhancement Program (IPSAEP),” which aims to develop national standards for ICT education, training, and skills assessment. It will be implemented under the BCC’s leadership and in the form of academic-industry collaboration.

Table 7.1-2 Projects Undertaken by SICT Programme

	Project	Status
1	e-Governance Application and Automation of Sher-e-Bangla Nagar Telephone Exchange under Ministry of Post and Telecommunication	Completed
2	Online Public Exams Results and Education Statistics under Ministry of Education	Completed
3	Online Daily Market Price at the Department of Agriculture Marketing under Ministry of Agriculture	Completed
4	Interactive Website of Ministry of Expatriate Welfare and Overseas Employment	Completed
5	Interactive Website for Ministry of Labor and Employment	Completed
6	Hardware & Connectivity of Bangladesh Tea Board	Completed
7	Interactive Website of the Ministry of Land	Completed
8	Land record archiving and automation of Record Room at Manikganj DC's Office under the Ministry of Land.	Completed
9	Process Automation at Board of Investment	Completed
10	Hardware, Software and Connectivity at Special Security Force (SSF).	Completed
11	Interactive Website for Cabinet Division	Completed
12	The automation of Result and other internal Processing at Public Service Commission	Completed
13	Office Automation of RAB	Completed
14	Backbone Connectivity of Armed Forces Division Computer Network with PM Office and Allied Support.	On-going
15	Process Automation at Bangladesh Livestock Research Institute	Completed
16	e-Police	On-going
17	IT system development and interactive website of River Research Institute (RRI), Faridpur.	Completed
18	Process Automation of Fisheries Research Institute, Mymensingh	Procurement-stage
19	Interactive Website of Ministry of Liberation War Affairs.	Procurement-stage
20	Interactive Website of Ministry of Civil Aviation and Tourism	On-going
21	Interactive Website of Ministry of Chittagong Hill Tracts Affairs.	Completed
22	Interactive Website of Rural Development and Co-operatives Division	Procurement-stage
23	Interactive Website of Ministry of Industries	Procurement-stage
24	Process Automation and Network Connectivity for Jail Department, Eleven Central Jails	On-going
25	Development of the Interactive website and eGovernance application of Dhaka DC Office	On-going
26	Development of the Interactive website and eGovernance application of Jamalpur DC Office	On-going
27	Development of the Interactive website and eGovernance application of Sherpur DC Office	On-going
28	Development of the Interactive website and eGovernance application of Comilla DC Office	On-going
30	Interactive website for Bangladesh Karmachari Kallyan Board	On-going
31	BIMAN Corporation Training Centre	Completed
33	Hardware, Software and Connectivity at President's Guard Regiment (PGR).	Completed
34	LAN set-up and connectivity among Ministries based at Bangladesh Secretariat	On-going
35	Setting up GIS Facilities in Agriculture Division of the Planning Commission and e-Government Survey	Completed
36	President's Office Automation	Procurement-stage

Source: Website of Support to ICT Task Force Programme

Table 7.1-3 Examples of the Project by BCC

Project	Period	Description
1 Development of ICT incubators	2002	Office spaces on the 3rd – 9th floors and the 11th floor in BSRS Building, located in Dhaka's Kawran Bazar, are rented to software and ITES companies, totaling 68,563 square feet. The number of tenants is 46 at present. The BASIS is responsible for facility management. The tenants pay monthly rent of Tk. 22 per square feet to the BCC. The BCC then adds a supplemental amount (subsidy) and pays the total amount as official rent to the building owner. The tenants can have high speed internet access for free and uninterrupted electricity supply.
2 High-tech park development	January 2006 – December 2007 (First Phase)	This project constitutes the first phase of the high-tech park plan that will be developed in Kaliakoir in suburbs of Dhaka, 40km from the city center. The formal project name is "Basic Infrastructure Development Project for Hi-Tech Park at Kaliakoir (1st Phase)." The total site area is 231,385 acres and is divided into five blocks. In the first phase, the first block was developed and constructed at the cost of Tk. 250 million, including administrative office buildings and related infrastructure facilities and site preparation including subdivision. Then, feasibility study for the second phase was conducted by a consultant. The BCC is seeking foreign investment for further development. Tenants can obtain land at low cost. The high tech park will accommodate a broad range of hi-tech industries, including ICT (software and hardware) and ITES, agro-bio/genetic technology, automobile, metalworking, new/advanced materials, medical supplies/devices, pharmaceutical/clinical products, textile and garment (R&D), plastics, machinery, electronics (including design), human resource development, design/consulting, and bioinformatics.
3 ICT Internship Program	Under Implementation	A six-month internship program is intended for graduates from universities with degree in computer science or engineering and senior year students who have completed the graduation examination. Member companies of the BASIS and the BCS receive interns. Each intern receives monthly salary of Tk. 5,000, of which the BCC contributes 60% (Tk. 3,000). The program is designed to accept 500 interns annually, but due to the shortage of host companies, actual internship is limited to around 300.
4 Computer Education Course	Under implementation	The program is designed for government employees as well as general citizens and offers a variety of courses ranging from beginner's level to the advanced (professional programmer) level. It was first offered in 1990 and a total of 12,270 persons attended its courses up to March 2006.

Source: BCC

3) ICT Business Promotion Council (IBPC)

IBPC was established in 2003 as part of the World Bank's Export Diversification Project (BDXTP). It is under supervision of the Ministry of Commerce. The country's three IT trade associations (BASIS, BCS and ISPAB) contribute some portions of operating

costs of the IBPC. In addition, the Council's board members include representatives from these associations. Thus, the IBPC functions as a platform for public-private partnership. Its principal activity is to promote capacity building of the country's software industry as a whole. It also provides financial assistance in relation to local IT trade shows and human resource development activities conducted by the trade associations.

In its initial stage, the IBPC was actively engaged in overseas marketing activity as well. Upon establishment of the IBPC, the Bangladesh ICT Business Center (BIBC) was founded in Silicon Valley of the USA as the counterpart office of the Council. The BIBC served as a joint branch and marketing office of Bangladeshi software companies. In the BIBC, software engineers from the American Association of Bangladesh Engineers and Architects (AABEA) – an organization of Bangladeshis residing in the USA - were engaged in activities to generate business leads. However, significant results were not produced and the BIBC was closed in December 2005.

4) Bangladesh Association of Software and Information Services (BASIS)

BASIS, established in 1997, is a national organization representing software/ITES companies in Bangladesh. As of November 2007, its membership totals 260 companies, which generate most of revenues for the country's IT industry. The BASIS sets forth the following objectives. In addition, the BASIS has conducted various activities with the JICA Study Team as the Pilot Project's counterpart.

- To expand the software/ITES markets (domestic and export).
- To assist its member companies in entering the international market.
- To strengthen its organizational capability to improve international competitiveness of member companies.
- To make policy recommendations on software/ITES business to the government.
- To develop competent human resources for the software/ITES business industry.

To accomplish these objectives, the BASIS has been carrying out a broad range of activities, including the organization of "BASIS SoftExpo" (annual exhibition on software development and ITES), support for member companies participating in international exhibitions, arrangement with foreign companies for alliance programs, and policy recommendation on the improvement of systems and institutions relating to the software/ITES industry. Table 7.1-4 lists industrial promotion programs that have been implemented by the BASIS in recent years (including those currently underway).

Table 7.1-4 Industrial Promotion Programs Recently Implemented by BASIS

Program	Period	Description
1 BASIS SoftExpo	Annually	It is the largest software/ITES trade show in the country, held annually. The cost is partly funded by the BASIS and the Ministry of Commerce. SoftExpo in 2008 was held in February 2008 and was participated in by around 150 companies, local and foreign. Concurrently with the exhibition, seminars on the software/ITES industry are held. In 2008, 15 seminars were held. SoftExpo 2009 is scheduled for January 27 – 31, 2009.
2 Object Oriented Programming (OOP) Training Programme	Under Implementation	This provides object oriented training on Dot Net, Java and PHP under the IBPC's financial assistance. It is designed for new employees of software companies to learn skills required to become "industry-ready" as quickly as possible. Each training class consists of 30 – 35 students and provides intensive training for six day per weeks, lasting six hours per day. The training period is one month (150 hours in total) and annual training teaches 25 classes.
3 IT-UPGRADE	First Phase (July 2007 – February 2008) Second Phase (April 2008)	A technology and skills upgrading program for software companies implemented by the BASIS, under assistance of EU's Asia Invest and under partnership with University of Bremen and Paris Chamber of Commerce and Industry. The principal purpose was to transfer latest multimedia application technology from the EU.
4 BITMAP	October 2006 – February 2008	A training program for improvement of BASIS's organizational capacity and the training of export consultants implemented by the BASIS, under assistance of EU's Asia Invest and under partnership with Denmark SME Federation, Pan-Manchester Chamber of Commerce and Industry, and Finland's T&E. The emphasis was placed on quality and process management at software/ITES companies. 21 persons (13 representing BASIS member companies and 8 private consultants) participated in eight courses held for four sessions.

Source: BASIS

5) Bangladesh Computer Samity (BCS)

The BCS is the largest ICT industry association established in 1987. As of May 2008, it had a membership of 623 companies. Note that the BCS represents not only software/ITES companies but those in the ICT-related industries as a whole. As a result, member companies include sellers, distributors, resellers, hardware vendors, educational institutions, and Internet Service Providers (ISPs), among others. Many of software/ITES companies having the BCS membership are also members of the BASIS. The BCS's major activities include promotion of computerization throughout the country, computer education, and the organization of ICT trade shows such as BCS Computer Show. The BCS represents

Bangladesh at the WITSA and the Asian-Oceanian Computer Industry Organization (ASOCIO).

6) Internet Service Providers Association of Bangladesh (ISPAB)

Established in 1998, the ISPAB is a trade organization representing internet service providers in the country. It has a membership of 56 companies. The ISPAB's activities include the development of unified business standards, the provision of technology and legal information for the members, and ISP-related policy recommendation.

7.1.2 Current State of Software Export

This section reviews the current state of exports made by software industry of Bangladesh, including its export capacity and competitiveness.

(1) Current state

According to export statistics of Bangladesh in FY2007/8, the value of software exports³ of Bangladesh accounts for only 0.18% of the country's total export value. Meanwhile, the BASIS's study indicates that, of over 400 software companies in the country, more than 100 companies make exports to over 30 countries. The industry's exports have been growing rapidly in recent years and the total value of software exports grew at an annual average rate of 78% between FY2002/3 and FY2005/6. However, it turned to negative growth in the recent two years and the export value in FY2007/8 remained at approximately US\$ 24.8 million (Table 7.1-5), way below the EPB's target of US\$ 30 million.

As for export destination, the USA accounts for more than half of the total value of software exports in FY2007/8. Other major export destinations are Japan, the United Kingdom, and Germany. Also, Table 7.1-6 indicates that many countries importing software services from Bangladesh are English-speaking countries.

Table 7.1-5 Recent Trends in Software/ITES Export Value

Fiscal year	2002-03	2003-04	2004-05	2005-06	2006-07	2007-8
Export value	4.20	7.19	12.68	27.01	26.08	24.82
Rate of increase/decrease	50.0%	71.2%	76.4%	113.0%	-3.4%	-4.8%

Source: Bangladesh Bank

³ Based on receipt of the computer service account in the Bangladesh Bank's international balance of payment statistics.

Table 7.1-6 Major Destination of Software Export (FY 2007/8)

(Unit: US\$ 1,000)

Country	Export	% of Total
U.S.A.	13,297	53.6
Japan	2,555	10.3
U.K.	1,977	8.0
Germany	1,898	7.6
Malaysia	955	3.8
Denmark	919	3.7
Singapore	733	3.0
Canada	442	1.8
India	380	1.5
Switzerland	356	1.4
Netherlands	324	1.3
Hongkong	171	0.7
France	155	0.6
Sweden	88	0.4
Bhutan	75	0.3
Norway	71	0.3
Cyprus	68	0.3
Austraria	58	0.2
U.A.E.	50	0.2
New Zealand	47	0.2
Others	202	0.8
Total	24,821	100.0

Source: Bangladesh Bank

(2) Export capacity and competitiveness

This section describes the industry's export capacity and competitiveness in terms of technology and quality levels, availability of human resources, labor cost, and export promotion activity.

1) Technology and quality levels

With growth of international business, software companies in Bangladesh have been building up quality and process management systems pursuant to international standards. According to the BASIS, more than 20 member companies have already obtained ISO certification on quality management. Of all the companies that participated in the Pilot Project, one fourth has obtained ISO9001: 2000 certification. Meanwhile, as of October 2008, one Bangladeshi local software company was awarded of CMMI (Capacity Maturity Model Integration) Level 3 appraisal. Five more companies were expected to receive the Level 3 by the end of 2008 through a pilot project to support the CMMI appraisal, called "Local Enterprise Investment Centre (LEIC)," which was conducted by Canadian

International Development Agency (CIDA). Furthermore, many companies are certified partners of multinational IT companies including Microsoft and Oracle.

In terms of skill levels, twenty-one out of 38 companies that participated in the Pilot Project have engineers who have received certification from Microsoft, Oracle, Sun Microsystems or Cisco Systems. Of 1,926 employees of all these participating companies, 204 are these certified engineers (who may obtain certification from two or more companies).

2) Availability of human resources

According to the World Bank's estimates in 2005, Bangladesh had population of around 140 million. The Census 2001 indicates that the total population was around 124 million, of which young productive age groups between 15 and 34 years old accounted for 33.74%. As for potential workforce available to the software industry, 59 out of 78 universities in the country have IT-related departments/courses (computer science, engineering, etc.) according to the University Grants Commission of Bangladesh (UGC). In terms of enrollment, there were 16,381 students majoring in IT-related fields as of 2006. Although detailed data are not available, if all the enrollments is divided by 4 academic years, over 4,000 students on average graduate with IT-related degree annually in Bangladesh.

In addition, according to the BASIS, there are approximately 300 technical schools that teach IT technology and skills. Graduates from these schools provide rich labor supply particularly to ITES industries such as graphics design, DTP, web design, web publishing, and network maintenance and management.

3) Labor cost

In the area of offshore software development service (software exports in the form of outsourcing), Bangladesh offers a major advantage in low development cost. According to a study conducted by the Ministry of Foreign Affairs of Denmark in 2006, monthly salary of programmers working at Bangladeshi local IT companies is in the range between US\$ 75 and US\$ 400, system analysts between US\$ 380 and US\$ 600, and project managers between US\$ 300 and US\$ 750⁴. As shown in Table 7.1-7, the study tabulates monthly salaries of different job types according to the type of company (local, joint venture formed by local and foreign companies, and multinational operating in Bangladesh).

⁴ Ministry of Foreign Affairs of Denmark, "Business Opportunity Study within IT and Telecommunication Industry in Bangladesh," November 2006

Table 7.1-7 Salary Range by Job Types in IT Companies in Bangladesh

Position	Salary range (USD/Month)		
	Local	Joint Ventures	Transnational
Network engineer	230-300	400-750	600-1,200
Programmer	75-400	400-700	400-1,200
System architect	380-600	400-900	400-1,000
System analyst	380-600	400-900	400-1,000
Testing/QA	380-600	400-900	400-1,000
Project management	300-750	400-900	600-1,200
Graphic designer	300-600	400-700	400-1,200
Web developer	75-400	400-700	400-1,000

Source: Ministry of Foreign Affairs of Denmark

In terms of man-month price charged in actual projects, the JICA Study Team collected data on the lowest and highest average rates charged by 24 companies that have participated in the Pilot Project and have made data available before December 31, 2007. The results indicate that the average monthly charge for programmers ranges between US\$ 753 and US\$ 1,102, system engineers between US\$ 1,076 and US\$ 1,556, and project managers between US\$ 1,571 and US\$ 2,239. Note that further variations must be taken into account according to individual projects and companies.

Finally, international comparison is available from a handout material distributed at the “JETRO Outsourcing Fair for IT Software 2005/J-OFIS 2005” held by JETRO in 2005, which presents IT-related labor cost levels in East and Southwest Asian countries in the form of self-assessment by the professionals. Aside from variation among companies, the average cost in India is one half of that in Japan, and that in Pakistan and Sri Lanka (US\$ 80 - US\$ 100 per day) is at the same level as or slightly below India. The cost in China remains one third of that in Japan, and that in Viet Nam is further lower (one half of that in India and two thirds of that in China). Finally, the average cost in Bangladesh is in the range between US\$ 1.5 and US\$ 2.0 per hour (US\$ 12 - US\$ 16 per day for 8-hour work), far below other countries.

4) Export support activity

The BASIS has an export promotion arm called the “Standing Committee on Export Facilitation⁵.” The committee convenes a several times per year to discuss on overseas market development strategy and make proposals and recommendations to the executive

⁵ Originally established as the Standing Committee on International Market Development, it was renamed to the Standing Committee on Export Facilitation in July 2008 in order to express its focus on export promotion.

committee. Since the establishment in June 2006, the standing committee had held eight meetings up to November 2007. The BASIS formally names the USA, the United Kingdom, Scandinavian countries, and Japan as priority targets for export promotion. A few times each year, the BASIS arranges for exhibition and participation in foreign trade shows by its member companies under financial assistance from the EPB and other organizations. Typically, the EPB has been providing assistance for local software companies to participate in foreign trade shows once or twice per annum, especially GITEX in Dubai. In FY2008/9, the EPB newly extended its support to “OutsourceWorld” that was held in New York, in October 2008, where 16 BASIS member companies participated. (Note that the EPB’s financial support was used to cover costs relating to the installation of Bangladesh Pavilion and the holding of PR seminars.)

Another program to provide direct export-related support is the Export Promotion Fund (EPF) managed by the EPB. The EPF makes low interest loans to software and handicraft companies to supply export-related working capital. The Janata Bank is responsible for fund management. Of the total fund of Tk. 50 million, Tk. 40 million is earmarked for software companies. The maximum amount of loan per company is set at Tk. 5 million. The nominal interest rate is 4.5% but a 2.5% service fee must be added to make the actual rate of 7%. The first loan was made in 2002 and loans totaling around Tk. 20 million have been executed to five companies up to May 2008. The EPF requires borrowers to present the certificate of contract award from customers abroad, which needs to be verified through the Bangladesh foreign mission in countries to which export is made.

As for support by international donor organizations, the Danish International Development Assistance (DANIDA) is carrying out the B2B Programme. Carried out in 15 developing countries, the programme does not provide direct support for export promotion but instead is designed to promote business matchmaking between Danish and local companies. It aims to help recipient countries to improve the business environment by transferring expertise and technology from Danish companies through the long-term and sustainable relationship with local companies. In Bangladesh, 57 joint ventures and alliances have been formed and operated under the programme as of April 29, 2008. They include 18 joint ventures/alliances in the field of software/ITES, which contribute to the country’s software/ITES exports in the form of offshore development center and outsourcing contracts.

7.1.3 Conclusion (SWOT Analysis)

To conclude the current state analysis of the software industry of Bangladesh in foregone sections, a SWOT analysis is conducted as follows. Its results are highlighted for each of the four elements (strengths, weaknesses, opportunities and threats) in order of importance.

(1) Strengths

1) Availability of high quality and low cost workforce

As discussed earlier, the labor cost of software companies in Bangladesh remains at a very low level in comparison to other countries where the IT industry is emerging. At the same time, there are a large number of software engineers who have international level skills, including those officially certified by multinational IT companies. According to the results of interview surveys of more than 40 local software companies conducted by the IT expert of the JICA Study Team during the Pilot Project period, it was concluded that Bangladeshi software companies have achieved the level of technology that is demanded by foreign customers. Furthermore, the fact that a large number of Bangladesh engineers can perform their job in English is considered to be a major strength of the software industry of Bangladesh in consideration of strong outsourcing demand.

2) Eligibility for government support as priority sector

The software industry is designated as one of the Highest Priority Sectors in the government's Export Policy 2006 – 2009. In fact, the industry receives a wide range of public support, including exemption of corporate income tax, eligibility for a special loan scheme, priority access to basic infrastructure, support for marketing activity, and support for human resource development activity. In addition, many industrial promotion projects are originated under the leadership of ICT Task Force chaired by the Prime Minister and the SICT as implementation body.

3) Large demand for business automation by other local industries

The Bangladeshi economy steadily grows at an annual rate of 6% or over in the past years. Rapidly growing industries include garment and knitwear, finance, and telecom. As discussed earlier, there is large demand for business automation by these industries, which contributes greatly to growth of the software industry.

4) Large Non-Resident Bangladeshi (NRB) population living overseas

A large number of Bangladeshis live in many countries including the USA, the United Kingdom, the Middle East, and Japan, among others. They facilitate the development of overseas business networks. For instance, the Bangladesh ICT Business Center (BIBC) was established in the USA as a counterpart office of IBPC for the purpose of shared marketing office for Bangladesh software companies in cooperation of a Bangladeshi organization in the USA, which was closed in December 2005. In addition, under the Pilot Project of the current Study, the organization for business intermediation (Bridge SE system) was organized by three IT companies of Bangladeshis living in Japan.

5) Presence of an active trade association (BASIS)

As mentioned earlier, the BASIS is a leading trade association representing software companies in the country. It is actively engaged in the industry's promotion activity. In particular, it conducts a range of field-based support activities, including human resource development for member companies, support relating to participation in foreign trade shows, and coordination of support programs by donor organizations. It participated in the Pilot Project under the Study as the counterpart, mainly focusing on the establishment of the supply system in Bangladesh.

(2) Weaknesses

1) Unstable electricity supply

Stable supply of electricity is critical for smooth operation of software companies because their business operation relies heavily on servers and other computer systems. In particular, they have to use electricity heavily, night and day, as they perform work outsourced by foreign customers in different time zones. In fact, many companies install uninterrupted power supply and power generation systems within their premises, creating additional financial burdens.

2) Lack of financial access

As already pointed out, software companies often lack sufficient loan collateral (fixed property). At the same time, lenders generally do not have expertise to assess the value of intellectual property accurately, which is a major asset of software companies. As a result, most software companies have difficulty in obtaining loans. The lack of financial access prevents them from securing funds for capital investment and day-to-day operation, particularly making it difficult to carry out a large project.

3) Lack of overseas marketing capability

The Bangladeshi software industry is still obscure in the world market. The results of a questionnaire survey covering Japanese companies (54 responded), which was conducted as part of the Pilot Project, 89% of respondents did not know that the software industry existed in Bangladesh. This is confirmed by the problem analysis workshop in June 2007, under attendance of persons relating to the software industry, where various problems relating to overseas marketing, such as the lack of promotional activity and the shortage of export market information, were raised. In fact, the lack of marketing capability prevents the industry from taking advantage of its strengths, i.e., low-cost labor force and international level technology and skills.

4) Problems relating to human resource

While software engineers in Bangladesh generally have high levels of technology and skill, there are various problems relating to the industry's human resources in general. From the industry's standpoint, the lack of practical skill among new employees, the lack of a formal system to promote academia-industry cooperation, high turnover of new employees, and the shortage of training facilities that can be used by the industry. These problems increase the investment risk relating to training and education of new employees. Also, many point out that the shortage of middle managers adversely affects project or process management capability of individual companies. Furthermore, most software companies cannot perform work in a language other than English and Bengali, which is an obstacle in export expansion in non-English speaking markets.

5) Lack of industrial maturity

In Bangladesh, there are no national IT-related technical standards or skill certification and testing systems. As a result, it is difficult for companies, both local and foreign, to evaluate and assess quality of software engineers accurately. Also, local software companies do not have enough experience in large projects partly due to the difficulty in securing working capital, and partly due to the small size of companies and domestic market.

6) Insufficiency of ICT policy implementation

While the Bangladesh government has effectuated the comprehensive ICT policy, many policy directives in it have not been effectively implemented. According to the National ICT Policy Review Committee, only 8 out of 103 policy directive items set forth under the National ICT Policy 2002 have been implemented fully. The results of interview surveys by

the JICA Study Team and the problem analysis workshop held in June 2007 indicate that a major factor for failure of policy implementation is the lack of knowledge on the IT industry among government officials.

(3) Opportunities

1) Long-term prospect for large potential workforce on account of large young population

As discussed in 7.1.2, younger age groups dominate the country's population exceeding 140 million. This suggests long-term availability of potential workforce for the software industry, representing a significant opportunity in consideration of the fact that most industrialized countries face the shortage of IT engineers due to the aging population and the decline in the industry's attractiveness to young workers.

2) High potential for becoming a major provider of outsourcing service

The EU recognizes Bangladesh as one of the most attractive twenty countries for business outsourcing. Also, the Goldman Sachs announced that Bangladesh was one of the highly growing markets, or, "Next 11," next to BRICs. As the software industry in India is increasingly facing the shortage of its IT engineers, together with the rise in their salary, there is an increasing opportunity for Bangladesh to emerge as a major outsourcing service provider in the world market. Furthermore, the labor cost in middle income countries (including Southeast Asia and Latin America) is expected to rise further, thereby creating outsourcing demand in general.

3) Establishment of action plans under the new National ICT policy

The final proposal for the new National ICT policy sets forth the comprehensive action plan including 306 action items. Clearly defined action plan will ensure effective policy implementation. In addition, as discussed earlier, the Bangladesh Awami League, a ruling party of the new government that came into power in January 2009, stated in its election manifesto that Bangladesh will be made digital in 2021. The manifesto states that software industry and IT services will be developed by providing all possible assistance to talented young people and interested entrepreneurs.

4) Prospect for further expansion of domestic demand

At present, there is increasing demand for the software services by the telecom industry (cellular phone applications), financial institution (financial service), and the garment and knitwear industries (business automation). The industry can expect continuous business

growth if the current demand remains robust for a fairly long period of time. Also, additional demand is expected to come from the increase in government's IT projects in terms of expenditure, as well as the increase in public investment relating to e-government.

5) Improvement of the business environment surrounding the industry

As shown in the case of the IDCOL (see 7.1.1), there is possibility that the non-collateral loan scheme for software companies is to expand in several organizations. This would lead to the improvement of business environment for the software industry in terms of availability of fund for capital investment and day-to-day operation. One of the major benefits from this will be the growth of individual software companies in size and the improvement of the ability to handle a large project. Meanwhile, if the IPSAEP successfully becomes a national standard for IT skill training and certification, there will be unified standards to evaluate and assess quality of software engineers. Furthermore, if the national standard is accepted in other countries in the form of mutual certification, the transaction cost relating to technical assessment will be reduced for foreign companies.

(4) Threats

1) Continued decrease in the number of students who want to work for software companies

At present, around 4,000 students study ICT-related fields at universities each grade year but not all of them attempt to find a job with software companies. Rather, these potential IT experts tend to go to telecom companies and financial institutions that raise salary at higher rates. Also, graduates from topflight universities such as the University of Dhaka and the BUET opt to seek job opportunities abroad. If these conditions continue, the Bangladeshi software industry will lose its strength in terms of high quality and low cost workforce.

2) Abolition of policy incentives

If ongoing support measures, such as tax incentive, preferential loan scheme, support for improvement of access to infrastructure, marketing support, and human resource development, are discontinued before the software industry reaches the stage where public support is no longer required, it will work as an impediment to the industry's sustainable development.

3) Further deterioration of infrastructure (especially power supply)

If construction of infrastructure facilities cannot keep up with industrial development, electricity supply to the software industry will further deteriorate. In this connection, if the government fails to provide effective support measures such as the construction of infrastructure sharing facilities such as the ICT Incubator, software companies will have to bear higher costs to deal with insufficient infrastructure.

4) To fall behind other countries having the emerging IT industry

If countries having the emerging IT industry, such as Egypt, Pakistan, the Philippines, Sri Lanka and Viet Nam, among many others, start to gain big presence in the priority target markets for the Bangladeshi software industry (the USA, the United Kingdom, Scandinavian countries, and Japan), these markets will become too competitive. Another threat is that IT engineers in non-English speaking emerging countries, such as China and Viet Nam, gain English proficiency, thereby becoming major competitors for Bangladesh in English speaking markets. Also, if medium- and small-sized IT companies in India change management policy and shift from subcontractors for large enterprises in India to primary contractors for overseas customers, the outsourcing market will be overcrowded. Finally, if industrialized countries step up policy to regulate overseas outsourcing in an attempt to protect local employment, it will threaten the outsourcing market.

7.2 Development Vision, Purpose and Strategy

On June 25, 2007, a one-day workshop was held under attendance of 42 persons representing software companies and related organizations in Bangladesh. Its aim was to discuss the problems faced by the computer software industry and to agree on the core problem and its direct causes. To do so, the participatory problem analysis was performed. It is one type of the PCM (Project Cycle Management) technique, under which participants write down their opinion on a specific topic in a card, and then the opinions are arranged and characterized under unanimous agreement by the participants. Figure 7.2-1 shows the results of the problem analysis, which is called a simplified problem tree. Based on the problem tree, a development purpose for the action program was established, followed by a development vision and a general framework for development strategies.

7.2.1 Development Purpose

At the workshop, a core problem for the software industry was agreed by the participants, namely “self-sustaining growth of software industry is low.” According to the PCM technique, solving the core problem is a development purpose for the action program. The development purpose is expressed as the following statement that describes the situation after the problem has been solved.

Development purpose: Software industry attains sustainable growth through export expansion.

The Bangladesh software industry was still small as export sector, with its value of export totaling slightly less than US\$ 25 million (in 2007/8) and representing only 0.18% of the total export value of Bangladesh (18th among the country’s export items according to the EPB’s “Export Performance for 2007-08”), although it grows rapidly in recent years. Its neighbor, India, has established reputation and reliance in the world software market, and China is leading the Asian market. In addition, Viet Nam and the Philippines are emerging in terms of price competitiveness. Thus, Asian countries are establishing strong presence in the world software market. If Bangladesh is to ride on the waves, it needs to improve the industry’s competitiveness by capitalizing on its own strength. As this development purpose emphasizes sustainable growth of the Bangladeshi software industry, it seems to be appropriate as the basis of the master plan for export promotion of the industry to be developed.

7.2.2 Development Vision

As seen in Figure 7.2-1, problems in the upper strata (0-1 through 0-5), which is placed above the core problem (0-0), are more significant problems caused by the core problem. These problems can be solved when the core problem is solved through the accomplishment of

the development purpose. By integrating the conditions where problems 0-1 through 0-5 have been solved, the development vision for the software industry can be stated as follows.

Development vision: Bangladesh is a major software supplier in Asia.

The development vision is significant in that it aims to develop the country to a major software supplier in Asia by making maximum use of low-cost, excellent human resources. It will help significantly improve the country's image in the international community, as India is accomplishing now. As a result, it can constitute a clear vision for development of the software industry.

7.2.3 Development Strategy

The development strategy represents an approach to the achievement of the development purpose established for the action program. The development purpose is derived from the respective core problem, which can be solved by dealing with its direct causes. In the problem tree shown in Figure 7.2-1, card Nos.1 through 5 are considered to be the direct causes for the core problem faced by the software industry, i.e., "low self-sustaining growth." While these problems are positioned as core elements of the development strategy, problems in lower strata in the problem tree are also raised. For the purpose of analysis, all the problems are categorized as follows. Note that some problems may be classified into more than two categories.

Category (1) Problems relating to policy and institution

1. Government initiatives in IT implementation is not committed
 - 1-1 Budget is not enough
 - 1-2 Government employees have less knowledge/expertise in IT
 - 1-3 Government has little experience in ownership of intellectual property rights
 - 1-4 Leaders in governments are not IT-enabled
 - 1-5 IT education policy is not defined to meet the current technology
 - 1-6 Right people in government are not in right place
 - 1-7 People in IT industry are not present in policymaking
 - 1-8 E-government strategy is not clear
- 3-3 Government initiative in HR development is poor
- 4-3 IT promotion in Bangladesh is very slow
- 10-4 E-government progress is not fast enough to spur domestic IT growth

Category (2) Problems relating to marketing

2. Software industry of Bangladesh is not known to the world
 - 2-1 PR activities are insufficient

- 2-2 Marketing intelligence is poor
- 2-3 Continuous marketing effort is not made in target market
- 2-4 Export structure is not sufficiently understood
- 2-6 Export market information is not with Bangladesh's software industry
- 4-4 Foreign customers do not have confidence in Bangladesh software industry to deliver big projects

Category (3) Problems relating to human resource development

- 3. Industry-standard manpower is not easily available
- 3-1 Application-specific training for large-scale investment is not available
- 3-2 Industry-academia collaboration in managing professional development is missing
- 3-3 Government initiative in HR development is poor
- 3-4 Course curriculum do not meet industry standard
- 3-5 CSE enrollment in university continuously goes down
- 3-6 The most talented do not choose to join the software industry
- 3-7 International standard coding is not known to majority programmers
- 1-5 IT education policy is not defined to meet the current technology
- 2-7 There are not many engineers who can communicate with target market language
- 4-1 Official qualification like CMMI is not established
- 4-6 The number of mid-level managers is less

Category (4) Problems relating to strength and capability of software industry

- 4. The industry has only a little experience in managing large projects
- 4-1 Official qualification like CMMI is not established
- 4-2 There is no demand from outside for big projects in Bangladesh
- 4-5 Domestic market is not big enough to gain experience in big projects
- 5-7 Successful entrepreneurs do not invest in software business
- 5-8 Reinvestment is difficult
- 10-1 Most of software companies are not well organized
- 10-2 Quality control is absent
- 10-5 Companies do not focus on the most potential product(s)
- 10-7 Time-based project schedule is not adopted

Category (5) Problems relating to finance and investment

- 5. Investment is not sufficient
- 5-1 Venture capital is not established
- 5-2 Return from investment is uncertain
- 5-3 Banks lack expertise to evaluate intellectual property
- 5-4 Incentives for short-term investment is not available
- 5-6 Financing policy for supporting IT business is weak

- 5-7 Successful entrepreneurs do not invest in software business
- 5-8 Reinvestment is difficult
- 5-9 IPO (initial public offering) is missing in software industry
- 10-3 Financing for working capital is difficult to obtain

Category (6) Problems relating to infrastructure development

- 10-6 Electricity supply is not stable
- 10-8 Internet price is high

Then, the development strategy was developed for each of the six categories in consideration of experience from the Pilot Project and the results of questionnaire surveys of 20 companies in the software industry. Table 7.2-1 summarizes “constraints for growth for the software industry” based on the results of the questionnaire surveys, together with comments by the respondents. Table 7.2-2, on the other hand, summarizes the “advantages for growth” in the same manner as above.

Category (5) “problems relating to finance and investment” is very important for the software industry that generally lack fixed assets used as collateral. In the questionnaire survey, financing constitutes the severest limitation (Table 7.2-1, relative level of limitation – 30). On the other hand, “Export Policy 2006 – 2009” (effectuated in December 2007) designates the software industry as one of the Highest Priority Sectors and promises high eligibility for financial support. Thus, problems in Category (5) will be addressed in the development strategy for Category (1) “problems relating to policy and institution.”

As for Category (6) “problems relating to infrastructure development”, in particular, electricity and roads constitute a major problem affecting the country’s industry as a whole. For instance, several power generation projects have been announced but have made little progress. After all, infrastructure development is a national issue that is too large to be discussed in the context of the software industry alone. Thus, this category is not included in the development of the export promotion strategy for the software industry.

Strategy 1 Recommendation on policy related issues (Categories (1) and (5))

Strategy 2 Intensive marketing to priority economies and countries (Category (2))

Strategy 3 Capacity building of software industry (Category (4))

Strategy 4 Human resource development competitive in the export market (Category (3))

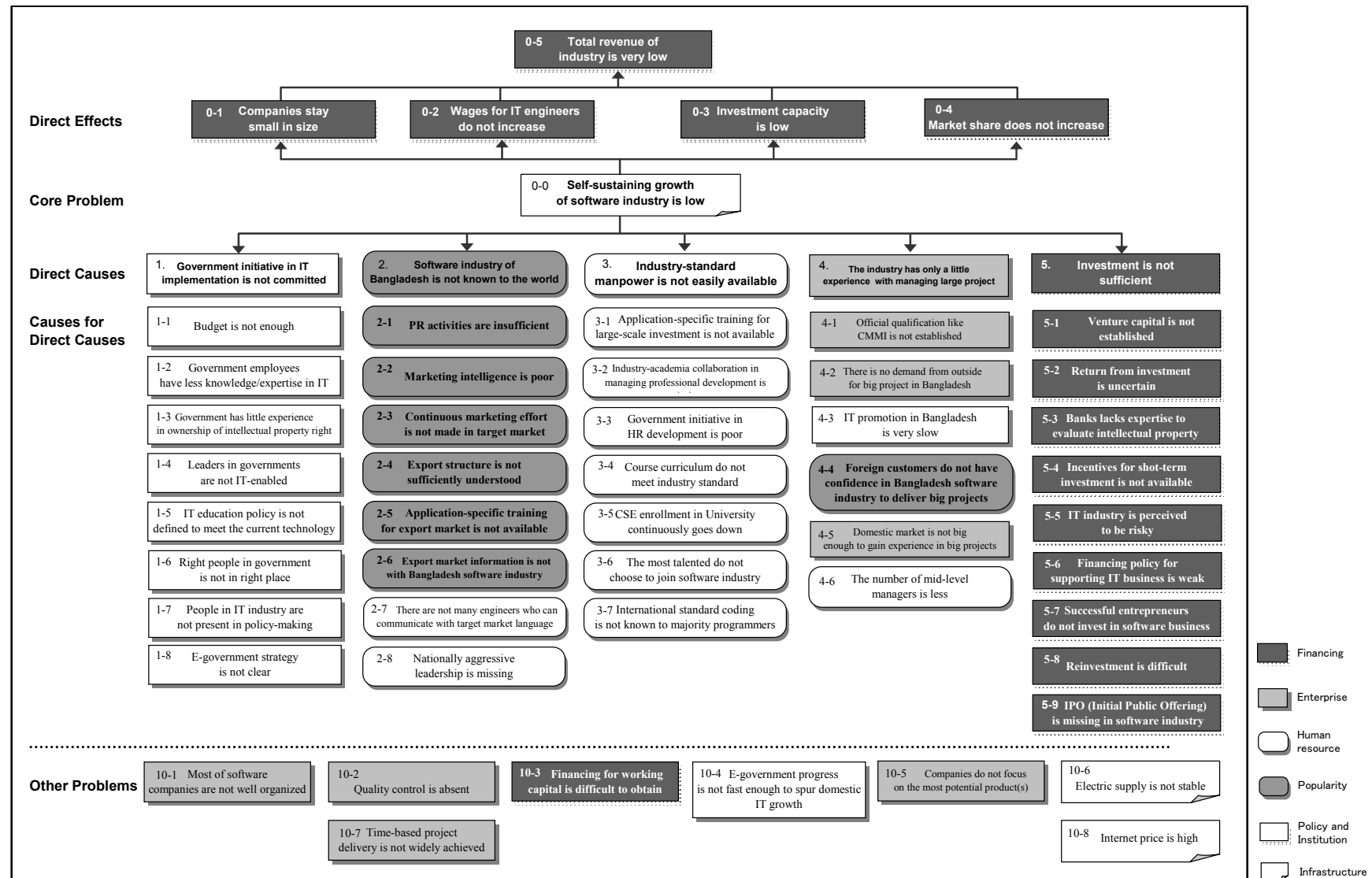


Figure 7.2-1 Problem Tree for Computer Software Sub-sector (Result of Problem Analysis at the Second Workshop on June 25, 2007)

**Table 7.2-1 Analysis of Questionnaire Survey Results
(Constraints for Software Export Growth)**

Coverage: 20 jute products manufacturers

Scores: 3 points – no constraint; 2 points – fair constraint; 1 point – strong constraint

Points in the left side column: The level of satisfaction is indicated on a three-point scale. The items with 2 or lower points are mesh marked to highlight a relatively high level of dissatisfaction.

Relative scoring for constraints: Respondents were asked to select three items among the following five factors, which they considered to be the most impeding factors, and to rank them in the order of constraint level, from 1 to 3. 3 points were assigned to the rank 1, 2 points the rank 2, and 1 point the rank 3, with zero point for not-selected items. Then, the total score for each item was calculated for 20 companies. The higher the score gets, the higher the level of constraint becomes. An item ranked first by all 20 companies receives 60 points.

<p>(1) <u>Financing</u> 1.58</p> <p>1. Short-term working capital 2.15</p> <p>2. Long-term capital investment 1.70</p> <p>3. Interest rate 1.15</p> <p>4. Collateral requirement 1.32</p>	<p>(Comment) ... <Financing> Relative level of limitation - 30</p> <p>Only two companies responded that financial conditions were not good, while other 18 companies indicated good conditions and six companies self-financed. Many companies seem to rely on their own fund. Many companies complained about banks. Five companies believed that banks did not like to lend software companies, and two complained about high interest rate.</p>
<p>(2) <u>Physical distribution</u> 2.53</p> <p>1. Transportation of raw materials 2.35</p> <p>2. Access to airports and ports 1.95</p> <p>3. Cost 2.10</p> <p>4. Loss during transportation 3.00</p>	<p>(Comment) ... <Physical distribution> Relative level of limitation - 4</p> <p>To reflect the fact that the software industry is rarely associated with physical distribution, 17 companies considered this item to be no limiting factor (3 did not comment). One company experienced delay in delivery and two companies complained about difficulty in Internet access. These will be addressed in the category on infrastructure.</p>
<p>(3) <u>Infrastructure</u> 2.23</p> <p>1. Road 2.20</p> <p>2. Factory site 2.50</p> <p>3. Water/electricity/gas supply 1.95</p> <p>4. Telecommunications 2.25</p>	<p>(Comment) ... <Infrastructure> Relative level of limitation - 28</p> <p>11 companies cited power failure as the most impeding factor for growth of the software industry, while 10 companies were concerned about poor Internet service (including two companies that indicated power failure). One company felt that industrial siting was restricted by power failure. Two companies found no problem and one company had no comment.</p>
<p>(4) <u>Policy and institution</u> 1.86</p> <p>1. Export policy 1.78</p> <p>2. Customs and inspection 1.50</p> <p>3. Labor law 2.15</p> <p>4. Taxation 2.10</p>	<p>(Comment) ... <Policy and institution> Relative level of limitation - 11</p> <p>Four companies had no comment and three evaluated export promotion policy as good. The majority of respondents (eight companies) considered the export system and procedures to be complicated and troublesome and wanted them to be simpler and more flexible. Six companies specified desirable policy measures, such as tax incentive, import ban, and implementation of fair policy.</p>
<p>(5) <u>Education and training</u> 1.65</p> <p>1. Management education organization 1.90</p> <p>2. Vocational training organization 1.90</p> <p>3. R&D support organization 1.67</p> <p>4. Export support organization 1.10</p>	<p>(Comment) <Education and training> Relative level of limitation - 20</p> <p>14 companies pointed out the shortage of training institutes in the area of software. Around one half of them cited the insufficient number of facilities and other half poor quality of training. Some felt that there was the sufficient number of facilities but were not satisfied with quality. Five companies felt that training facilities were sufficient. One company cited the need for linking BASIS's export market information with training content.</p>

Source: JICA Study Team, "Questionnaire Survey of 20 Companies"

**Table 7.2-2 Analysis of Questionnaire Survey Results
(Advantages for Software Export Growth)**

Coverage: 20 software companies

Scores: 3 points – strong advantage; 2 points – fair advantage; 1 point – weak advantage

Points in the left side column: The level of satisfaction is indicated on a three-point scale. The items with 2 or lower points are mesh marked to highlight a relatively low level of advantage.

Relative scoring for advantage: Respondents were asked to select three items that they considered to be most advantageous and to rank them in the order of advantage level, from 1 to 3. 3 points were assigned to the rank 1, 2 points the rank 2, and 1 point the rank 3, with zero point for not-selected items. Then, the total score for each item was calculated for 20 companies. The higher the score gets, the higher the level of advantage becomes. An item ranked first by all 20 companies receives 60 points.

<p>(1) <u>Raw material</u> 2.19</p> <p>1. Availability 2.25</p> <p>2. Quality 2.10</p> <p>3. Cost 2.05</p> <p>4. Delivery period 2.35</p>	<p>(Comment) ... <Raw material> Relative level of advantage - 15</p> <p>For the software industry, operating system is considered to be a raw material. Two companies viewed hardware to be a raw material as well. 18 companies felt no problem in this area, including three companies that made no comment. Some pointed out difficulty in obtaining special software within the country.</p>
<p>(2) <u>Human resource</u> 1.94</p> <p>1. Availability of skilled workers 1.65</p> <p>2. Skill level 2.35</p> <p>3. Labor cost 1.75</p> <p>4. Education and training 2.00</p>	<p>(Comment) ... <Human resource> Relative level of advantage - 34</p> <p>12 companies responded that they had no problem in this area because they retained skilled personnel. On the other hand, five companies complained about the shortage of skilled talent. Three companies tried to meet demand by means of in-house training. One company made no comment.</p>
<p>(3) <u>Export marketing</u> 1.62</p> <p>1. Export market growth 1.90</p> <p>2. Export channel 1.50</p> <p>3. Export market information 1.80</p> <p>4. Export procedures 1.53</p>	<p>(Comment) ... <Export marketing> Relative level of advantage - 12</p> <p>10 out of 20 companies made exports. Of total, one company exported 100%, one 90%, and other eight 10% - 20%. Of the remaining 10 companies that made no export, three companies wanted to export while seven preferred to focus on the domestic market. Major export destinations are the U.S., the UK, and India.</p>
<p>(4) <u>Product development</u> 2.02</p> <p>1. In-house development of export products 2.91</p> <p>2. Number of workers in product development division 2.30</p> <p>3. Access to R&D facilities 0.89</p> <p>4. Collection of new product information 2.45</p>	<p>(Comment) ... <Product development> Relative level of advantage - 23</p> <p>Most companies responded that they were engaged in quality improvement and product development according to the customer needs. One company felt that they should make efforts to develop new software, and one stated that they sometimes modified software imported.</p>
<p>(5) <u>Expansion of supply capacity</u> 2.31</p> <p>1. Own company's production expansion plan 2.50</p> <p>2. Other company's production expansion plan 2.30</p> <p>3. New market entry plan 2.25</p> <p>4. Foreign investment 2.20</p>	<p>(Comment) ... <Expansion of supply capacity> Relative level of advantage - 9</p> <p>Opinions were divided equally about new entrants. Nine companies responded that new entrants did well by entering the potential market with new technology. Eight companies felt that survival would be difficult because of the highly demanding market. One company viewed intensive investment to be a key success factor. Four companies commented that new entrants did unfair business.</p>

Source: JICA Study Team, "Questionnaire Survey of 20 Companies"

7.3 Action Program Proposals

As discussed in 7.2, the problem analysis workshop concluded that the core problem faced by the Bangladeshi software industry was “self-sustaining growth of the software industry is low.” Then, the following four strategies were established to address the issues.

Strategy 1 Recommendation on policy related issues

Strategy 2 Intensive marketing to priority economies and countries

Strategy 3 Capacity building of the software industry

Strategy 4 Human resource development competitive in the export market

In this section, the above four strategies are described in detail. Then, the means to achieve the objectives of the strategies (“programs”) are developed and proposed. Program proposals have been developed on the basis of the results of a baseline study, lessons learned from the Pilot Project, and the results of supplemental studies. Then, the JICA Study Team finalized proposals through discussion and confirmation with related government offices and organizations concerning each program.

7.3.1 (Strategy 1)

Recommendation on Policy Related Issues

(1) Current state of incentives provided for the software industry

Bangladesh's Export Policy 2006 – 2009 designates the software industry as one of the Highest Priority Sectors. The Highest Priority Sectors are defined as “those product sectors which have special export potentials, but such potentiality could not be utilized properly due to certain constraints, and more success is attainable if adequate support is rendered to them.” In other words, the Export Policy specifies that these industries are expected to achieve significant growth if adequate support is provided. Then, it lists twelve incentives for the Highest Priority Sectors.

This strategy makes policy recommendations in relation to the political support systems provided to the industries. It emphasizes, among others, effective application of policy-driven incentives. The twelve incentives for the Highest Priority Sectors listed in the Export Policy 2006 – 2009 are summarized as follows.

- 1) Financial support (low-interest project loan and low-interest export loan)
- 2) Tax incentive (exemption of income tax, refund of customs duties)
- 3) Support for market development (production, marketing, foreign market search)
- 4) Subsidy (utilities charges, air transport fare, and others that do not conflict with the WTO)
- 5) Others (infrastructure development, reinforcement of technical support organizations, and foreign investment promotion)

For the software industry, there are policy-driven programs that provide many of the above incentives. As for tax incentive, software companies enjoy the income tax exemption until 2011. For instance, the questionnaire survey conducted by the JICA Study Team of BASIS member companies in July 2008 indicates that approximately 89% of respondents (57 companies) are taking advantage of corporate income tax exemption. As for “marketing,” the EPB provides financial support for exhibitors in overseas ICT trade shows, at least once or twice each year. Also, this year, the EPB provided a large amount of financial assistance for participation in “OutsourceWorld 2008” held in the USA where 16 BASIS member companies participated. In the area of technical support, the IBPC and the BCC have been extending a wide range of support for human resource development programs. As for infrastructure (incentive for development of physical infrastructure, including electricity), the BCC has developed the ICT Incubator that ensures uninterrupted power supply and free high

speed internet access and has benefited around 75 software/ITES companies. Note that marketing-related programs are proposed in Strategy 2, infrastructure (Software Park) in Strategy 3, and technology (human resource development) in Strategy 4.

(2) Issues relating to management of export promotion policies

In most countries, support policies announced by the government are simply stipulated in the itemized form and often face various problems in terms of program management. Bangladesh is no exception to this and its support policies (incentives) face the following challenges.

- 1) Improvement of systems and institutions to provide incentive
- 2) Improvement of access by recipients to incentive
- 3) Monitoring of and evaluation on actual implementation of each incentive
- 4) Meeting the needs of the target industry
- 5) Implementation of an incentive that is not being implemented
- 6) Expansion of a useful incentive

The current state of incentives for the software industry, which is discussed in (1), is based on the Study Team's field surveys to collect data and information that represents the actual implementation status. It is, however, difficult to assess the actual results of incentive from the data on supplier side, because: 1) it is not clear as to what political support system/program the listed incentive in the Export Policy should be actually applied to; and 2) the Export Policy does not specify clear targets and indices in regards to the incentives. Also, it does not specify or describe a ministry in charge of a specific incentive, its executing body, application procedures, assessment standards, and the evaluation system. All together, they make it difficult for potential beneficiaries to gain access to each incentive. At the same time, they cannot make the supply side (ministries) held accountable for provision/implementation of a specific incentive. To improve the situation, this action program, in the Strategy 1, proposes a program for clear definition and delineation of incentives under the Export Policy so as to ensure effective implementation of export promotion policies and related incentives.

To ensure that the clearly defined incentives, as recommended above, can be effectively applied to the software industry's export promotion, government officers engaged in formulation and provision of various incentives need to obtain sufficient knowledge on the IT industry and business. According to the questionnaire survey of BASIS member companies by the JICA Study Team in July 2008, almost all (97.6%) of respondents (57 companies)

believe that government officers in charge of incentive programs lack knowledge on software business, assessment of intellectual property, IT in general, and finance relating to the IT industry. This action program therefore proposes a program to improve the supply system for the policy-driven incentives within the framework of the current strategy.

(3) Effective operation of export finance

Political incentive relating to export finance (low interest loan) for the software industry is already provided under the Export Promotion Fund (EPF). However, the EPF scheme has extended loans to only five companies thus far. As there is no other low-cost non-collateral loan scheme for the software industry, the EPF is very useful for software companies that do not possess fixed assets that can be used as collateral. In consideration of the fact that beneficiaries of financial incentive in the software industry are relatively small in number and non-collateral loan is highly important for the software industry, this action program proposes a program for effective use of financial incentives within the framework of the current strategy.

In overall consideration of the above factors, the following three programs are proposed under this strategy.

Program 1-1 “Improvement of execution and monitoring system for incentives in Export Policy”

(handle the above 1), 2), 3) and 5) in (2))

Program1-2 “Provision of financial support system to promote software export”

(handle the above 1), 2), 4) and 6) in (2))

Program 1-3 “Basic IT education program for government officers”

(handle the above 1) in (2))

7.3.1.1 (Program 1-1)

Improvement of Execution and Monitoring System for Incentives in Export Policy

I. Program Outline and Rationale

Program 1-1 proposes clear definition and delineation of incentives to be specified in the next Export Policy. By defining those incentives that can benefit the software industry clearly, the program aims to promote effective use of incentives by software companies.

As discussed earlier, the Export Policy 2006 – 2009 designates the software industry as one of the Highest Priority Sectors. With the highest priority status, the software industry is eligible to public support consisting of 12 incentives. At present, there are several political support programs that provide these incentives to software industry. The software industry can receive those public supports that are supposedly represented by various incentives listed in the Export Policy. However, those incentives listed in the ongoing Export Policy do not specify the program/system that each incentive should be applied to, its executing body, and application procedures including assessment standards. Also, a formal system to monitor and evaluate the incentive and its progress, including actual results, targets and indices is not defined. This makes incentives in the Export Policy unattractive and unrealistic to their potential beneficiaries.

Export Policy has been effectuated upon adoption by the national parliament. The software industry is designated in it as one of the Highest Priority Sectors, which involves the industry having high potential for export growth if proper support is provided. If a government agency is named as the executing body for a specific incentive program listed in the national Export Policy, it is held accountable for its planning and implementation (although not legally bound). This program aims to improve viability for potential beneficiaries and accountability for the executing body by clearly defining incentive programs listed in the next Export Policy, thereby to improve access for software companies to actual incentive programs.

II. Program Implementation Plan

(1) Program purpose

- To clearly define incentives listed in Export Policy, including their nature and intent, thereby to allow software companies to use incentives effectively and efficiently.

(2) Target group

- Software companies in Bangladesh

(3) Executing body

- The Ministry of Commerce and the Export Promotion Bureau (EPB)

(Note that in the stage of the policy-making, the executing body shall collect opinions on the policy-oriented incentives from the private associations and incorporate them into the Export Policy where necessary.)

(4) Output

The following matters in Program activities shown in (5) below relating to incentives that can benefit the software industry (or the priority industries including software industry) under the next Export Policy are defined clearly and in detail.

(5) Program activities

1) Understanding of the implementation status of incentives

The EPB's Policy and Planning Division studies the implementation status of incentives listed in Export Policy 2006 – 2009.

2) Definition of each incentive

The EPB's Policy and Planning Division defines and specifies the policy-oriented program/system that incentives in the next Export Policy shall be applied to, their content, and responsible ministries and agencies.

3) Delineation of the executing body and implementation procedures

The EPB requests, via the Ministry of Commerce, the ministries and agencies in charge of applicable incentives listed in the next Export Policy, together with organizations responsible for their implementation, to submit content of incentive programs, application procedures, assessment criteria and process, annual targets for implementation, and indices representing actual progress in comparison to respective targets. It then incorporates them into the next Export Policy.

4) Delineation of a monitoring and evaluation mechanism

The EPB establishes a committee on monitoring and evaluation of the policy implementation status within the Policy and Planning Division.

III. Recommendations on the Next Export Policy

For instance, one of the incentives listed in Export Policy 2006 – 2009 “Export loans with soft terms and lesser interest” should be described in detail, as shown in Table 7.3-1. The description way shown in the table should also be applied in the next Export Policy 2009 – 2012.

Table 7.3-1 Detail of Incentives (Example)

1	Name of the incentive: “Export loans with soft terms and lesser interest”
1-1)	Applicable program name: “Export Promotion Fund”
1-1-1)	Target industries: Software and handicraft industries
1-1-2)	Program outline
	- Low interest loan to provide export-related working capital
	- Total fund: Tk. 50 million (software – Tk. 40 million; handicraft – Tk. 10 million)
	- Interest rate: 4.5% (to add 2.5% as service fee, resulting in the actual interest rate of 7.0%)
	- Maximum amount of loan per company: Tk. 5 million
	- Collateral: Not required (subject to submission of the export order)
	- The export order must be certified through a respective Bangladesh embassy
1-1-3)	Implementation status: Five companies (total amount of Tk. 20 million)
1-1-4)	Executing body: EPB
1-1-5)	Implementation organization: Janata Bank
1-1-6)	Application procedures: A general guideline is available from the EPB
1-1-7)	Assessment criteria/process: A general guideline is available from the EPB
1-1-8)	Monitoring and evaluation organization: EPB (based on the report from Janata Bank)
1-1-9)	Program target: Loans to five companies per year, and full recovery of loans
1-1-10)	Indices used: The annual number of companies receiving loans and the amount of loan recovered (based on the report from Janata Bank)

7.3.1.2 (Program 1-2)

Provision of Financial Support System to Promote Software Export

I. Program Outline and Rationale

This program has the primary purpose of establishing a formal financial support system for the software industry, in particular the non-collateral loan scheme to provide working capital. Financial institutions in Bangladesh do not provide non-collateral loans unless required for public policy purpose. In commercial loans, collateral is limited to fixed property (e.g., land and building). On the other hand, many software companies do not possess fixed property having a sufficient value. Furthermore, a formal technique to value intellectual property, the valuable assets of software companies, is not established. As a result, software companies have difficulty in gaining access to commercial loan. The results of the JICA Study Team's interview surveys indicate that a major problem faced by software companies is to secure working capital required for project management until they can receive payment from customers. According to the questionnaire survey of BASIS member companies conducted by the Study Team in July 2008, only 30% of respondents (57 companies) have obtained bank loans.

As discussed earlier, there is a non-collateral working capital loan scheme for the software industry in Bangladesh, entitled the "Export Promotion Fund (EPF), which is managed by the EPB. EPF is a useful financial product as software companies have difficulty in gaining access to commercial loans. However, only five companies have benefitted from this scheme thus far. According to the interview surveys that the JICA Study Team has conducted with software companies, the followings are identified as the factors that make it unattractive for the software companies to utilize the EPF:

- 1) Eligible industries to the EPF are limited only to software and data processing companies (not inclusive of ITES companies);
- 2) Selection and approval process is complicated and requires lengthy time;
- 3) Lengthy time is consumed between application and disbursement (6 to 9 months currently);
- 4) Pooled fund is small (40 million Taka for software and data processing companies at present); and
- 5) Repayment system is complex.

In consideration of the facts stated above, the program makes the following two proposals (Part I and Part II). Both of them are characterized by policy-oriented incentives and are proposed within the strategy's theme "Recommendation on policy related issues."

Part I: Establishment of the credit guarantee system for working capital loans to be provided for software companies

Part II: Improvement of the EPB's low interest loan scheme to provide export-related working capital, the Export Promotion Fund (EPF), according to the needs of the software industry

Part I aims to encourage non-collateral loans to software companies by means of government guarantee for repayment of loans to provide working capital. Part II is designed to improve the EPF, which provides incentive for export promotion, in order to meet the needs of the software industry, thereby to improve accessibility by software companies to the EPF.

II. Part I Implementation Plan for the Credit Guarantee Program

Part I: Establishment of the credit guarantee system for software/ITES companies

(1) Program purpose

- To establish a government credit guarantee system for working capital loans made to software/ITES companies, thereby to improve their access to non-collateral loans.

(2) Target group

- Software/ITES companies in Bangladesh

(3) Executing body

- 1) Credit guarantee organization: Credit Guarantee Division with financial expertise to be newly established within the Bangladesh Computer Council (BCC)
- 2) Loan execution organization: Financial institutions under the Ministry of Finance (ICB, IDCOL, BSRS, etc)
- 3) Investor: Ministry of Science and Information & Communication Technology (MOSICT)

(4) Output

A government credit guarantee system will be established for working capital loans that are provided for software/ITES companies.

(5) Program activities

- 1) The BCC and financial institutions negotiate the establishment of the credit guarantee system.
- 2) The BCC establishes the credit guarantee division.
- 3) Financial institutions establish their own credit guarantee division.

(6) Input

- 1) Initial investment (government budget)
- 2) Operating fund of the BCC's credit guarantee division
- 3) Operating fund of financial institutions' credit guarantee divisions

III. Part I Planning Framework for the Credit Guarantee Program

A planning framework for the credit guarantee system for software/ITES companies in Bangladesh is discussed below as an example.

1) Basic concept

The creation of the credit guarantee system under the government (MOSICT) budget that is managed by government organizations provides public confidence on such system that is new to Bangladesh. Note that the credit line and the guarantee period will be kept small and short according to nature of the projects undertaken by local software/ITES companies, i.e., Tk. 10 million and 2 years at maximum. In the first stage, so as to gain experience, the system will be operated by using the budget of Tk. 400 million to guarantee loans to around 10% of software/ITES companies (400 establishments in total). The internal reserve will be deposited with commercial banks (fixed deposit) in order to cover a default risk with interest income as far as possible. Creditworthiness of the loan applicant (software companies) will be assessed by both the credit guarantee division proposed to newly establish within the BCC; and the financial institutions that actually execute the loans. If either of the assessors above concludes that the loan applicant is not creditworthy, then the loan, and thus credit guarantee, will not be executed after all. Note that the proposed credit guarantee system will not come with the insurance system against a loss to be occurred in connection with the

unexpectedly huge number of defaults by the borrowers. This is because the proposed credit guarantee system is relatively small in scale targeting only the software companies, and hence, risk of large-scale loss in pooled fund is not very high. As discussed later, risk of defaults is proposed to be covered by the interest income as far as possible.

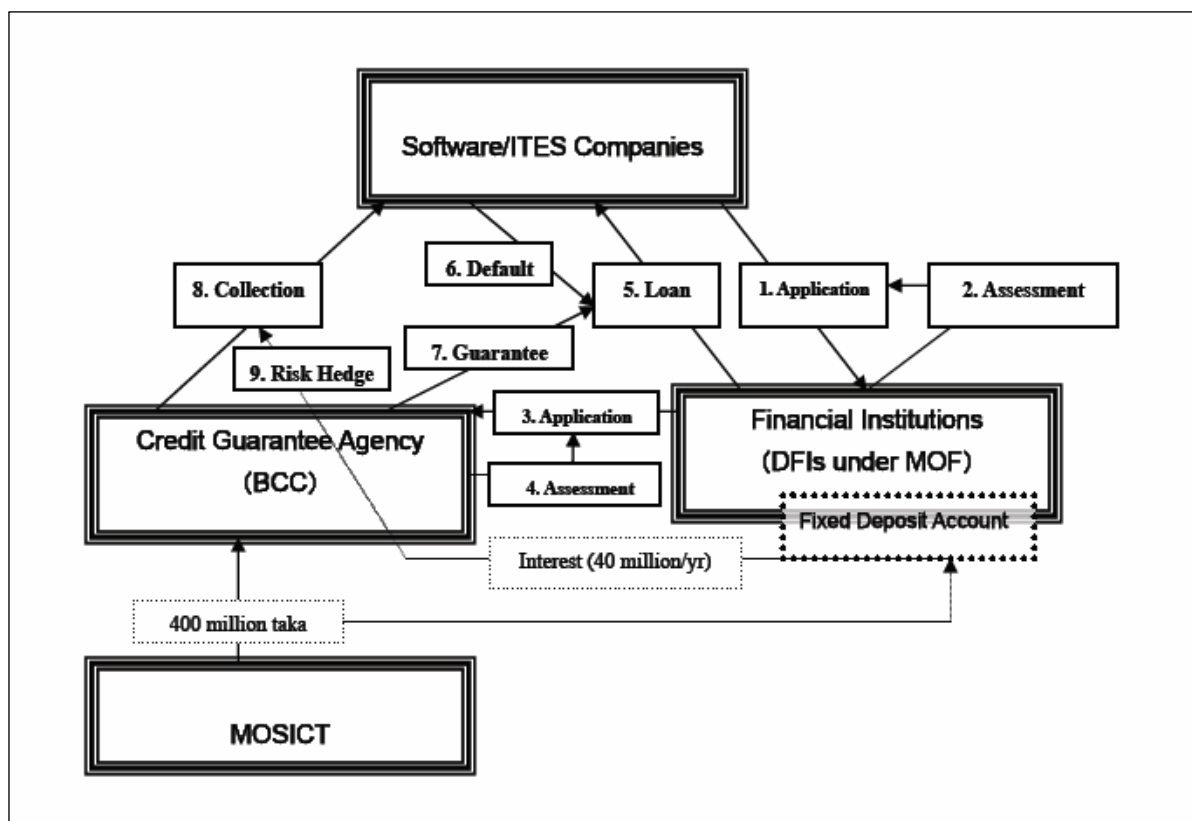


Figure 7.3-1 Conceptual View of the Credit Guarantee System

2) Target group

2-1) Eligible borrower: Software/ITES companies

2-2) Purpose of loan: To cover costs and expenses relating to software/ITES development and service (including custom development), e.g., salaries of workers engaged in development and service, outsourcing, purchase of hardware and software, licensing fee, and general administration.

3) Financial source and risk management

3-1) Government budget to establish the initial fund for credit guarantee service (MOSICT budget): Tk. 400 million

3-2) Fund pool: To deposit the initial fund of Tk. 400 million at the commercial bank's fixed deposit account (six months – one year) as reserve.

3-3) Risk management: To cover a default risk with interest income (around Tk. 40 million annually) as far as possible.

4) Management

4-1) Guarantee period: 2 years at maximum

4-2) Amount of guarantee: Tk. 10 million at maximum

4-3) Applicable interest rate: Close to long-term prime rate (decided by the lender (financial institutions))

4-4) Guarantee fee: Less than 0.75% of the outstanding balance of the guaranteed loan⁶

4-5) Collateral: Not required

IV. Part II Implementation Plan for the EPF Improvement Program

Part II: Improvement in operation of the current Export Promotion Fund (EPF) according to the needs of the software/ITES industry

(1) Program purpose

- To improve accessibility of software/ITES companies to the EPF.

(2) Target group

- Software/ITES companies in Bangladesh

(3) Executing body

- A working group consisting of EPB, BCC, FBCCI, BASIS, BCS, and Janata Bank

⁶ In Japan as an example, the credit guarantee system for software companies is managed by the Information Technology Promotion Agency (IPA), which sets the guarantee fee at the rate of 0.75% of the outstanding balance of the guaranteed loan. In the interview surveys with software companies, the BCC and the financial institutions, the JICA Study Team proposed the guarantee fee of 0.75% as the basis for further discussion to obtain the appropriate guarantee fee in this program. The consensus of all the interviewees, i.e., the possible guarantor, lenders and borrowers, was that 0.75% is too high for the software companies in Bangladesh. Unlike Japan, Bangladesh is yet to establish the credit system where project value and value of intellectual property are assessed as collaterals for loans. Hence, credit environment for software companies in Bangladesh is far severer than that in Japan is. In other words, large government support is necessary in credit guarantee system for software companies in Bangladesh; at least larger support than that provided to the same system in Japan. In consideration of above, the program proposes to set the guarantee fee at the rate of less than 0.75%, which is the rate applicable in case of Japan.

(4) Output

The following areas of EPF management will be improved to meet the needs of the software/ITES industry.

1) Target group (currently software and data processing companies)

- Inclusion of ITES companies should be considered.

2) Selection and examination process

- At present, the selection committee is not represented by the software/ITES industry. It should be considered to include representatives of the BASIS and the BCS in the committee.
- The selection and assessment committees are required to make a resolution under unanimous voting of designated representatives. It should be considered to accept attendance by proxy.
- The present system to certify the export order through a commercial attaché of an overseas Bangladesh embassy should be considered to be modified to speed up the request process in such a way that MOC directly orders the commercial attaché to verify the export order. (now the request is made from the MOC to the MOFA, then to the commercial attaché).

3) Period required between application and payment (6 – 9 months at present)

- It should be considered to limit the period to 1 – 2 months.

4) Fund (at present, Tk. 40 million for software companies)

- The increase in the fund should be considered. (If Tk. 5 million is loaned to each company, only eight companies will be able to benefit from the EPF.)

5) Repayment system

- It can be simplified, including the system to allow repayment from export proceeds directly to the EPF account of the EPB.

6) Publicity

- The BASIS and the BCS should consider education on the EPF program to member companies.

7.3.1.3 (Program 1-3)

Basic IT Education Program for Government Officers

I. Program Outline and Rationale

The primary purpose of this program is to improve knowledge on IT industry and business of government officers who are engaged in formulation and implementation of policies and incentives relating to software export promotion. It is proposed to conduct a five-day training program. It will help improve the incentive delivery system under Strategy 1 to promote effective application of export promotion policies and incentives. Note that the program does not concern IT skills development but basic knowledge on IT industry and business.

Interview surveys conducted by the JICA Study Team indicate that many respondents cited the lack of IT knowledge among government officers as a major problem. At the problem analysis workshop held in June 2007 for the purpose of developing a general framework for the current action program, it was pointed out that the lack of knowledge on the IT industry among government officers was a major factor for insufficient implementation of IT policy by the government. Furthermore, as discussed earlier, the results of the questionnaire survey of BASIS member companies indicate that many of the 57 respondents pointed to the lack of IT knowledge among the government officers.

In the trade involving the IT industry, including the software industry, intangible assets are dealt with and the movement of people takes a large part. In addition, the assessment of an asset value is related to the technique to assess intellectual property. Thus, the IT industry uses different knowledge from that used by other industries (specially primary and secondary). The IT industry in Bangladesh is a relatively new industry that developed after 1990 and government officers need to acquire adequate knowledge to understand the new industry.

If government officers responsible for policy formulation and implementation do not have knowledge on the IT industry, it will be difficult for them to formulate and implement policy that meets the industry's needs and characteristics. From this viewpoint, it is proposed to provide basic education on the IT industry and business for government officers on a periodical basis.

II. Program Implementation Plan

(1) Program purpose

- To improve knowledge on the IT industry and business among government officers, so as to allow them to use the acquired knowledge for policy formulation and implementation.

(2) Target group

- Class-I government offices (Class I involves the Secretary to Assistant Secretary level officers)

(3) Executing body

- The Bangladesh Computer Council (BCC) and the Ministry of Establishment

(4) Output

- 1) The periodical IT industry/business education program for government officers will be established.
- 2) Standard course materials for IT industry/business education will be developed.
- 3) Class-I government officers will acquire adequate IT industry/business knowledge.

(5) Program activities

- 1) The BCC develops the curriculum for the IT industry/business education program for government officers.
- 2) The BCC develops and standardizes course materials and final tests for the IT industry/business education program for government officers (to be updated annually).
- 3) The Ministry of Establishment promotes the program to a compulsory program for government officers through the National Training Council.

(6) Input (all covered by the MOSICT's budget)

- 1) Labor cost for instructors
- 2) Curriculum development cost
- 3) Program operation and management cost
- 4) Facility cost (venue rental)

(7) Planning framework for the IT industry/business education program for government officers

The following is a proposed example of the IT industry/business education program for government officers.

1) Ministries and agencies covered

- All ministries and agencies of the central government, Export Promotion Bureau (EPB), National Board of Revenue (NBR), Board of Investment (BOI), Department of Patents, Designs and Trademarks (DPDT), and Bangladesh Bank (BB)

2) Government officers required to participate

- All Class-I officers excluding Secretary and Additional Secretary level employees, totaling around 3,000 as of FY2006, or ministries and agencies (2,346), EPB (61), NBR (312), BOI (67), DPDT (39), and BB (96: 3 managerial staff each from 32 divisions). They are divided into the following three classes.
- Assistant Secretary level
- Deputy Secretary level
- Joint Secretary level

3) Program

3-1) Course titles (refer to the Table 7.3-2 for detail)

- First day: "Current states of Bangladeshi IT industry and ICT policy"
- Second day: "Current states of world IT industry"
- Third day: "Basics of IT businesses"
- Fourth day: "Basics of trade in service (software/ITEST trade focused)"
- Fifth day: "Basics of finance to IT industry"

3-2) Schedule

- 4 hours per course, and 5 courses in each batch

3-3) Facility⁷

- Training facility at BCC Bhaban

3-4) Frequency

- 3 batches per week, 12 batches per month, and 132 batches per year (excluding Eid and Ramadan month)

3-5) Number of participants

- 20 – 25 per batch, totaling 2,640 – 3,300 annually

3-6) Instructors

- The BCC staffs and outside instructors hired by the BCC

Table 7.3-2 Proposed Training Course Curriculum

Day	Course	Lecturer
Day 1 (4 hours)	1) Current states of Bangladeshi IT industry and ICT Policy	BCC staff/Professor
	Understand the current states of IT industry of Bangladesh including industrial structure, SWOT, market size, export value, export destination, organization system of related associations, benefits/incentives to IT companies, ICT policy, human resources, etc	
Day 2 (4 hours)	2) Current states of World IT industry	BCC staff/Professor
	Understand the current states of IT industry of the World including market size, growth trend, trend of offshore development, market demand of export destination, cost comparison of outsourcing countries, IT association of the foreign countries, IT promotion policy of foreign countries	
Day 3 (4 hours)	3) Basics of IT businesses	BCC staff/IT industrialist
	Learn basics of IT businesses including types of software development, types of ITES, types of Business Process Outsourcing, development process, business flow, contractual forms, types of marketing/sales activity, accreditation system, etc	
Day 4 (4 hours)	4) Basics of trade in service (software/ITES trade focused)	Professor/IT industrialist
	Learn basics of trade in service, focusing on software/ITES export, including WTO rule on trade in service, modes of offshore/onsite/offsite development, customs regulation of software/computer hardware, IT export promotion policy in Bangladesh, modes of payment in software/ITES trade, FERQ, etc	
Day 5 (3 hours + 1 hour examination)	5) Basics of finance to IT industry	Staff of Financial Institution/Professor
	Learn basics of finance to software development, including current states of financing to software/ITES industry, EPF, EEF, unsecured loan, working capital of software/ITES companies, basic knowledge on evaluation of IP/project value, financial incentives to IT industry of foreign countries	
	Examination	Scored by BCC staffs
Certification (Requirements: 1) Presence in over 80% of total training hours and 2) Over 80% right answer in examination)		Provided by BCC

⁷ Note that the training venue could be at the facilities in the Bangladesh Public Administration Training Centre (BPATC) under the Ministry of Establishment. However, in consideration of its geographic proximity to Dhaka central area, and nature of the training (specialized IT industry/business), the program proposes the BCC Bhaban for the training facilities.

3-7) Final examination

- The test will be prepared by the BCC and will be administered at the end of the fifth day.

3-8) Certificate of completion

- Participants who have achieved a percentage of attendance at more than 80% and have passed the final examination will receive the certificate of completion issued by the BCC.

3-9) Compulsory participation

- Government officers meeting the above criteria are required to participate in the program and obtain the certificate of completion.
- The certificate is valid for five years.
- Thus, certification holders are required to take the test again after the lapse of five years.
- The Ministry of Establishment will introduce the “mandatory clause for promotion” to restrict promotion for officers who have failed to hold the certificate of completion for more than two years.

4) Preliminary cost estimate (labor cost according to the BCC’s regulation)

- Instructor salary: 2,640 hours x Tk. 800 = Tk. 2,112,000 per year
- Curriculum development: 200 hours x Tk. 800 = Tk. 160,000 per year (revised annually)
- Administration cost: (Tk. 2,112,000 + Tk. 160,000) x 20% = Tk. 454,400 per year
- Facility: Not applicable
- Total: Tk. 2,726,400 per year

7.3.2 (Strategy 2)

Intensive Marketing to Priority Economies and Countries

Based on experience gained from implementation of the Pilot Project and the results of other relevant surveys conducted under the present Study, issues relating to marketing activity of the software industry in Bangladesh are summarized as follows.

- 1) Lack of effective PR activity
- 2) Poor marketing capability
- 3) Lack of continuous marketing efforts targeting priority countries
- 4) Poor understanding of the industry's export structure
- 5) Lack of sharing of information on export markets among local companies
- 6) Lack of confidence among foreign potential customers on the ability of Bangladeshi software industry to handle a large development project

Marketing activities can extend a very broad range from upstream to downstream. Marketing activities indispensable for the Bangladeshi software industry are listed in order of market development stages as follows: 1) advertisement and promotion activities for recognition and branding in the international market; 2) sales promotion activities focusing on the market characteristics of priority countries in order to create opportunities for business inquiry and project formation, such as seminars and direct marketing initiatives; and 3) development of a joint marketing system as well as a business implementation system and organization that undertake the work from contract awarding to product delivery.

For the Bangladeshi software industry, the first step should be to select countries for which an intensive marketing approach should be taken and then to develop marketing strategies and activities according to their different market characteristics. In context of the above three stages, efforts should be made in stage 1) to increase the industry's exposure in each priority country and improve recognition in the international market. In stage 2), to support sales promotion activities, a business bridging system and local partners should be established in each priority market. Finally, in stage 3), collaborative relationship with local partners and a formal support system to back up continuous sales activity should be required. To achieve these goals, the following programs are proposed in this strategy. They share the same purpose of reinforcing marketing capability of the Bangladeshi software industry targeting the international market.

Program 2-1 is concerned with activities in stage 1), centered on the Bangladesh diplomatic establishments in priority countries. Program 2-2 proposes activities that are called for in stage 2). Finally, Program 2-3 sets target in stage 3). Note that activities proposed in Program 2-3 virtually inherit those conducted under the Pilot Project.

Program 2-1 Reinforcement of basis for IT marketing in the target market

Program 2-2 Establishment of business bridging system in the target market

Program 2-3 Package Program for penetration to the software market in Japan

Note that the BASIS has formally proposed priority countries to the National ICT Policy Review Committee, namely the USA and Scandinavian countries in the short run (as English speaking countries) and Japan and the United Kingdom in the medium term. In addition, the questionnaire survey of BASIS member companies (57 responses) indicates that many respondents cited priority countries and regions, including Japan, the EU, the USA, the United Kingdom, and the Middle East (in order of importance).

7.3.2.1 (Program 2-1)

Reinforcement of Basis for IT Marketing in the Target Market

I. Program Outline and Rationale

This program aims to promote the Bangladeshi software industry in priority countries so as to raise recognition in the markets. In particular, it is proposed to establish the “ICT Promotion Desk” within the Bangladesh diplomatic establishments in priority countries and to develop and implement marketing strategies tailored to each of the priority countries.

The rationale for this program proposal is described below.

(1) High profitability for foreign projects: 5 – 10 times that for domestic projects

During the Pilot Project, the JICA Study Team conducted interview surveys of around 40 companies that participated in the Project. The results have revealed that Bangladesh has fairly large IT demand but profitability for local contracts is low. In fact, the average profit rate for local development projects is one fifth to one tenth that for foreign projects. Given such high profitability, together with cost advantage of the IT personnel, exploration of foreign markets is essential in further development of the software industry of Bangladesh.

(2) The major issue faced by the Bangladeshi software industry for foreign market development: improvement of recognition

As viewed from the foreign markets, the Bangladeshi software industry is not widely recognized at present. Take the Japanese market, for instance. According to the questionnaire survey of Japanese companies conducted by the JICA Study Team as part of the Pilot Project, only 11 % of respondents (54 companies in total) recognized existence of the software industry in Bangladesh. The current level of recognition of the Bangladeshi software industry in the Japanese market is much lower than the countries known as software exporter in form of offshore development contract, namely India, China, South Korea, Viet Nam, and the Philippines. Presumably this is not limited to the case in Japan. To promote the Bangladeshi software industry in the international market, therefore, improvement of market recognition through publicity and promotion is essential.

(3) Reinforcement of marketing capability in priority countries

Bangladesh lags behind other countries that have emerging IT industry in terms of offshore development-based software exports and needs to solve a variety of problems. As the first step, it is proposed to develop marketing strategies for a few priority countries selected for export promotion by the software industry. As a diversified approach is required for each of the priority countries due to language and cultural differences, it is important to select priority countries by taking into account the strengths and weaknesses of the Bangladeshi software industry.

After selection of priority countries, activities to increase the industry's exposure to each of the countries and markets will be conducted on a continuous basis. These activities will help improve recognition by making the Bangladeshi software industry better known in each country, thereby to form the marketing base in the respective country. To support these activities, this program proposes the establishment of an organization responsible for PR and branding activities within the Bangladesh embassy in each priority country.

II. Program Implementation Plan

(1) Program purpose

To promote the Bangladeshi software industry to priority countries for improvement of its recognition.

(2) Target group

Software companies in Bangladesh (Besides, software developers, system integrators, IT-related manufacturers and IT service providers, as well as IT business association and IT-related organizations in the government sector in priority countries will also be targeted)

(3) Executing body and sponsor

BASIS will serve as the executing body. The following government organizations will provide financial assistance. To establish the ICT Promotion Desk at the Bangladesh embassy in each priority country in order to lead marketing activities, cooperation between the MOC and the MOFA will be required in the initial stage.

<Proposed sponsorship>

1) Marketing research cost

: EPB/MOC

- 2) Cost relating to development of communication infrastructure between the ICT Promotion Desk and BASIS : EPB/MOC
- 3) Cost relating to recruitment for the ICT Promotion Desk staff and labor cost : EPB/MOC
- 4) Operating cost for the ICT Promotion Desk in priority countries : EPB/MOC
- 5) Assignment of personnel : BASIS, EPB/MOC, BOI, and MOFA
- 6) Cost relating to marketing activities in priority countries and development of marketing tools : EPB/MOC
- 7) Financial assistance for investment promotion in priority countries : BOI

(4) Output

- 1) Priority target countries for export promotion will be selected.
- 2) Marketing strategy tailored to market characteristics of each priority country will be established.
- 3) The ICT Promotion Desk will be established at the Bangladesh embassy in each priority country.
- 4) Promotion and marketing activities will be carried out by the ICT Promotion Desk.
- 5) Communication infrastructure will be built up, including the videoconferencing system to exploit business opportunities in each priority country and the B2B Web site to share market information.

(5) Program activities

- 1) Select priority target countries: Selection criteria are established in overall consideration of market size, language, actual needs among local companies, time difference from Bangladesh, cultural difference, and presence of competing countries.
- 2) Establish the ICT Promotion Desk within the Bangladesh diplomatic establishment in each priority country to serve as the local marketing office: Medium- and long-term marketing strategy are developed by using a local consultant specialized in market study under financial assistance of the Bangladesh government. In addition to cooperation of the MOFA, the costs relating to the establishment and management of the Desk are financed by EPB/MOC's budget. The government's financial assistance continues for the initial three years, with renewal being considered every three years.

- 3) Develop the collaboration system between the ICT Promotion Desk and marketing companies in priority countries: Its purpose is to improve recognition of the Bangladeshi software industry in each country. A marketing expert who is familiar with a local market is hired.
- 4) Develop communication infrastructure connecting the ICT Promotion Desk and BASIS, i.e., the videoconferencing system and the information sharing system consisting of market information service (issuance of periodical newsletters) and the B2B Web site to communicate with local companies
- 5) BASIS develops marketing tools in languages of priority countries (companies' handbook, industry pamphlets, and database on suppliers), based on which the ICT Promotion Desk conducts marketing activities in respective countries.
- 6) In order to develop an annual marketing program consisting of advertisement, promotion, seminars, and trade shows targeting priority countries, BASIS, the ICT Promotion Desk, and marketing companies in the partnership agreement jointly develop detailed marketing plans that set forth targets, activity goals and indices as evaluation metrics. Evaluation and monitoring for management of planned and actual results are jointly conducted by BASIS and EPB/MOC.

(6) Input

1) Human resource

- a. Assignment of personnel
 - Four persons are appointed by BASIS, EPB/MOC, BOI, and MOFA (one per each organization) and their salaries are paid by respective organizations.

2) Facility

- a. Cost relating to development of communication infrastructure between the ICT Promotion Desk and BASIS
 - Installation of the videoconferencing system: Approx. US\$ 200,000
(*The system connected with four countries; in the case of a package development contract; and including hardware)
 - Development of the B2B Web site for information sharing: Approx. US\$ 20,000
(*In the case of a package development contract; and including servers and other hardware)

- Operation and maintenance of the above systems, and content management of the Web site: Approx. US\$ 2,000/month

3) Other expenditures

a. Marketing research cost

- Cost relating to the development of an overseas strategy roadmap under the consulting contract: Approx. US\$ 20,000 per country (US\$ 80,000 for four countries)

b. Cost relating to recruitment for the ICT Promotion Desk staff and labor cost

- Recruitment cost: Approx. US\$ 20,000 per employee per country
- Labor cost for the ICT Promotion Desk: Approx. US\$ 80,000 per country
- * The labor cost varies somewhat among countries.

c. Operating cost for the ICT Promotion Desk in priority countries

- Operating cost for the ICT Promotion Desk: Approx. US\$ 50,000/country

d. Cost relating to marketing activities in priority countries and development of marketing tools

- Local marketing communication (MARCOM) cost: Approx. US\$ 60,000 per year per country
- * To be applied to advertisement, membership, direct marketing, and seminar.
- Development of marketing tools: Approx. US\$ 30,000 per country in the initial year
US\$ 10,000 per country in the second year and afterwards

e. Cost for investment promotion in priority countries

- Investment promotion cost: Approx. US\$ 40,000 per year and per country
- * The investment promotion seminar is held twice per year in each country.

7.3.2.2 (Program 2-2)

Establishment of a Business Bridging System in the Target Market

I. Program Outline and Rationale

This program proposes the establishment of a business bridging system in priority target countries on the basis of experience gained from the Pilot Project and similar cases in other countries. In particular, an organization to promote business matchmaking between the Bangladeshi software industry and priority target countries to be selected under Program 2-1 will be established in each country.

(1) Experience in the establishment of the ICT Center in the USA.

The Bangladesh ICT Business Center (BIBC) in the USA is a primary example of the business bridging system for the software industry in a foreign country. As discussed in 7.1, the BIBC was established as the counterpart office of the IBPC (ICT Business Promotion Council) in 2003 as part of the World Bank's Export Diversification Project. However, it was closed in December 2005 as it did not produce significant results. The main objectives of the ICT Business Center were as follows: 1) to serve as a local organization for member companies from Bangladeshi software industry, which is shared by representatives of these companies when they visit the USA; and 2) to use as the basis of sales activity for potential customers in the USA by hiring non-resident Bangladeshi (NRB) in the USA as sales staff. However, it failed to achieve the objective partly because the Center hired Bangladeshi IT engineers rather than marketing specialists and partly because no clear goals or activity plan were established.

(2) Experience in B2B Programme of Denmark's DANIDA

Also, Denmark's DANIDA implements a business bridging program called "Business-to-Business Programme (B2B)." The program has benefited a large number of Bangladeshi IT companies in terms of partnership development targeting priority countries. According to the list obtained by the JICA Study Team, 57 business partnerships are in place under the program as of April 29, 2008. More than one thirds of them are related to software/ITES. This sector, especially, ITES shows the highest possibility of partnership formation among all industrial sectors. Major factors include relatively small capital investment requirements, the ability of Bangladeshis to communicate in English, and the low labor cost of Bangladesh engineers.

In addition to the above, DANIDA provides financial assistance for local consultants (in Denmark) by focusing on B2B alliance. In many cases in B2B, a consultant hired in Denmark provides support for the establishment of business partnership. This indicates importance of presence of a local partner who coordinates support for Bangladeshi software companies in priority countries. In case of DANIDA, it characteristically provides incentive for both B2B partners, which is equivalent to subsidy.

(3) Experience in the Pilot Project targeting Japan

In contrast to the above programs that were carried out in countries where English is generally used for communication, the Pilot Project attempted to build a business bridging system targeting the Japanese market. It revealed that the software industry in Japan needed an intermediary organization to overcome language and other barriers. According to the questionnaire survey of Japanese companies conducted in the course of the Pilot Project, 76% of respondents (54 companies in total) indicated the need for such intermediary organization to explore offshore development opportunities.

Few IT companies in Bangladesh have made investment in relation to foreign market development, such as establishment of a branch office in foreign countries and the sending or hiring of personnel familiar with the market. This reflects the fact that Bangladeshi software industry has not reached the maturity stage to enable a single company to enter the foreign market on its own. Clearly, they need a reliable business partner (facilitator) and an effective support system to explore the foreign market.

(4) Establishment of the business bridging organization

Program 2-1 proposed the reinforcement of government activities for the purpose of improving recognition of the Bangladeshi software industry in general. On the other hand, this program proposes the startup of a business bridging system to promote actual business between potential customers in a target country and software companies of Bangladesh after the industry's recognition in the country has risen. Thus, the program is designed to capitalize on the foundation built under Program 2-1.

II. Program Implementation Plan

(1) Program purpose

To establish a business bridging system in priority target countries in order to improve responsiveness to business inquiries from potential customers. Furthermore a system to support contract awards will be established to ensure smooth sales activities.

(2) Target group

Software companies in Bangladesh (also including software developers, system integrators, IT manufacturers and IT service providers in priority countries, for which B2B contract will be promoted to assist Bangladesh supplier in entering the respective market)

(3) Executing body and sponsor

BASIS will become the executing body and will seek contract awards in cooperation of a local partner in each of the priority countries. In the first three years until successful B2B agreements are made, financial assistance will be provided by the following Bangladeshi government organizations.

<Proposed sponsorship>

- 1) Finance relating to promotion of foreign partnership: EPB/MOC
- 2) Finance relating to investment promotion from priority countries: BOI
- 3) Assignment of personnel: BASIS, EPB/MOC and BOI

(4) Output

- 1) Medium- and long-term business plans will be formulated by BASIS that define the roles and the responsibilities for each of the priority countries.
- 2) In each priority country, a joint business bridging system between BASIS and the local partner, which has bridge SE and sales engineering functions, will be organized to promote B2B contracts.
- 3) Business transaction rules, which define ways to screen business inquiries and match Bangladesh suppliers with projects, will be established and a work flow relating to the joint fulfillment system will be created.
- 4) Development projects will be awarded to Bangladesh suppliers through the business bridging system.

(5) Program activities

- 1) Select a candidate business bridging organization that is familiar with the local market by taking account of the local language: Experience gained from the Pilot Project indicates that it is important to select a qualified and appropriate organization that has to provide customized service.

- 2) Appoint personnel within BASIS to serve as counterpart for the bridging organization:
From the experience in the Pilot Project, it is important to assign full-time project staff to the Bangladesh counterpart organization in order to establish the close relationship with the bridging organization and to conduct joint activities to improve the program through regular meetings and according to an actual progress and the present situation.
 - 3) Establish the collaborative system with the ICT Promotion Desk in each priority country, which will be established under Program 2-1: Commencement of Program 2-2 is on the premise that the Program 2-1 contributes an impact in the target market in which the recognition of Bangladeshi software industry gains 60% increase in the target market country. As the ICT Promotion Desk is an organization in charge of branding the entire Bangladesh IT industry, it is difficult to perform the bridging function in the sales stage for software development service. Thus, BASIS is expected to find a partner that has already good sales record in the target country and possesses the bridge SE and sales engineering functions. BASIS needs to build up a joint fulfillment system representing Bangladesh suppliers and using the business bridging organization.
 - 4) Establish the business transaction rules to integrate contact points for business inquiries into the bridging organization in order to define steps from business inquiry to contract awarding to Bangladesh suppliers, and to define the work flow relating to the joint fulfillment system.
 - 5) Conclude the B2B agreement with the local bridging organization.
 - 6) Embark on sales activities (business creation activities such as direct marketing and seminar) via the business bridging organization locally.
 - 7) If the business bridging organization (partner) wins a contract, it is fulfilled according to the rules set in 4) and the bridging organization collects payment and sends it to the Bangladesh supplier.
- (6) Input
- 1) Human resource
 - a. Assignment of personnel
 - Three persons are appointed by BASIS, EPB, and BOI (one per each organization) and their salaries are paid by respective organizations.

2) Expenditures

- a. The government provides financial assistance for BASIS to promote foreign partnership.
 - Cost relating to the visit of BASIS representatives to each target country for partnership formation: Approx. US\$ 10,000 each (twice per year)
 - Cost relating to invitation of ten companies from the target country to Bangladesh in the first two years of market development: Approx. US\$ 25,000 for 5 companies/year
- b. Fund relating to investment promotion from priority target countries
 - To cover costs relating to the field tour (to Bangladesh) for investment promotion by 10 companies: Approx. US\$ 25,000 for 5 companies/year

7.3.2.3 (Program 2-3)

Package Program for Penetration to the Software Market in Japan

I. Program Outline and Rationale

This program proposes a package program to support software companies of Bangladesh for penetration to the Japanese market. Substantially, it is considered to be a continuation of the Pilot Project reported in 5.2 of the current Report.

From the Pilot Project, it became apparent that there was significant difference in requirements for market penetration between Japan (requiring Japanese language) and other non-English-speaking countries. In particular, Japanese companies outsourcing offshore development projects do not necessarily follow internationally accepted business practice. For instance, Japanese companies generally want to hire engineers of Bangladesh companies at their office (in the form of onsite development) for a certain period of time in order to verify skill levels and service quality of Bangladeshi software companies. This seems to be a business practice unique to Japanese companies.

As discussed in 7.1, the results of the survey covering companies participating in the Pilot Project indicate that software/ITES companies in Bangladesh employ 50 persons on average. It is thus important to develop long-term strategy, rather than seeking a large business opportunity from the beginning. In other words, the development process to target Japanese market should proceed in the following steps: 1) undertaking of offshore development projects through the business bridging organization; 2) undertaking of offshore development projects under direct contract between the client and the supplier; and 3) the establishment of offshore development centers by Japanese companies in Bangladesh.

At the same time, a short-term approach consisting of the following program package is proposed to address peculiar market conditions in Japan. For the first three years, the government's financial support will be requested to finance costs relating to the establishment of marketing partnership and sales promotion (project creation) activities. Moreover, it is important to carefully consider qualifications and requirements for personnel to be hired, as learned from the experience in the USA (see 7.3.2.2). In recruiting personnel engaged in new business development, he or she should be chosen from the viewpoint of market knowledge and marketing expertise. It may be a good idea to hire Japanese personnel because business development means the building of relationship with a variety of companies and individuals.

This program is positioned as the renewal of the Pilot Project (implemented between October 2007 and August 2008). In this connection, it is imperative to reorganize a business bridging organization for active marketing that needs to retain onsite engineers to allow verification of skills of Bangladesh companies at Japanese clients, so as to reflect lessons learned from the Pilot Project. Building on the previous experience increases possibility of success, rather than starting from scratch.

BASIS already has some knowledge on the Japanese market and its characteristics because it has participated in the Pilot Project as counterpart. Also, it has the company directory, the pamphlet introducing the software industry of Bangladesh and the company database, which were produced or developed in the Pilot Project. This program intends to capitalize on the results produced from the Pilot Project and to make successful market entry by taking advantage of its previous experience.

II. Program Implementation Plan

(1) Program purpose

To develop and implement a new entry program for the Japanese market by capitalizing on lessons learned from the Pilot Project, in particular, market entry under support of a business bridging organization, without having market presence as the Bangladeshi software industry.

(2) Target group

BASIS member companies that agree on the business alliance for Bangladesh suppliers

(3) Executing body and sponsor

BASIS will serve as the executing body, as continued from the Pilot Project, and will mediate between the local bridging organization and Bangladesh suppliers. In the first three years until successful B2B agreements are made, financial assistance will be provided by the following Bangladeshi government organizations. BASIS will be responsible for evaluation and monitoring by collecting relevant information from the bridging organization and reporting it to sponsoring organizations (participating companies and the EPB).

<Proposed sponsorship>

1) Marketing and sales promotion costs: Participating companies

- 2) Development of the Web site to promote individual companies: EPB/MOC and participating companies
- 3) Development of marketing tools in Japanese: EPB/MOC and participating companies
- 4) Financial assistance relating to the development of foreign partnership: EPB/MOC
- 5) Assignment of personnel: BASIS, EPB/MOC, and the business bridging organization

(4) Output

- 1) A program package for successful entry in the Japanese market, which defines the division of responsibilities, goals and targets, activity objectives, and evaluation metrics, will be developed by BASIS.
- 2) The B2B agreement with the business bridging organization in Japan will be concluded. Business transaction rules will be established to integrate contact points for business inquiries into the bridging organization in order to define steps from business inquiry to contract awarding to Bangladesh suppliers, and to define the work flow relating to the joint fulfillment and delivery system.
- 3) Companies to participate in this program will be recruited from the BASIS membership, which will be reorganized into the Bangladesh supplier group.
- 4) Sales and marketing activities will be carried out in Japan by the local business bridging organization, as appointed in 2), and information on business inquiries will be shared with Bangladesh suppliers.
- 5) Business inquiries will be negotiated and finalized through the bridging organization's efforts and development contracts will be awarded to Bangladesh suppliers.
- 6) Bangladesh suppliers will earn foreign currency as they receive payment for development contracts.
- 7) Satisfactory results will be achieved by the Bangladeshi software industry in the Japanese market.

(5) Program activities

- 1) Monitor effects of Program 2-1 and make preparation for the launching of this program.
- 2) Establish and maintain an export promotion model to match Japanese potential customers with Bangladesh suppliers through the bridging organization.
- 3) BASIS recruits companies willing to participate in the program from 37 companies that participated in the Pilot Project. In addition, other BASIS member companies are invited to join. These companies are organized to work together to conduct a development project that is awarded via the bridging organization. As the joint fulfillment system must be supported by efforts to harmonize process management, financial management, documentation control, and document format among participating

companies, general rules should be established about the work process from business inquiry to project assignment to Bangladesh suppliers, together with definition of the workflow in relation to the joint fulfillment system.

- 4) BASIS conducts a workshop with the above selected companies and gets consensus on the future collaborative relationship with BIK Japan, an existing business bridging organization established in Japan through the Pilot Project. Based on the consensus, BASIS documents the relationship with BIK Japan. In particular, it is important to mandate the BIK Japan to award the contract to the Bangladesh supplier group by defining cost burdens for beneficiary companies. On the other hand, if the workshop with participating companies or the discussion with BIK comes to conclusion that the collaborative relationship with BIK Japan cannot be continued, a new bridging organization should be organized by seeking an alternative relationship with other Bangladeshi IT companies operating in Japan. Such bridging organization is expected to satisfy the following conditions.
 - a. Record of contract award on software development or ITES in Japan
 - b. Sales organization that meets the following conditions and is capable of winning contracts in the Japanese market
 - Having record of marketing activities in Japan, such as seminars and direct marketing, and the holding of a database on the Japanese market
 - Having the business bridging function and bridge SEs who can communicate in Japanese and English or Bengali
 - Retaining Japanese sales staff and engineers
 - c. Ability to send Bangladeshi engineers to work onsite for quality verification
 - d. Interest in building an offshore development center (ODC) in Bangladesh
 - e. Record of offshore development in other countries
- 5) BASIS appoints full-time staff (or unit) on management of program implementation, responsible for general program management, contact point for the bridging organization and participating companies, monitoring of the bridging organization's business, maintenance of transparency, coordination in selection of suppliers for a specific project, division of responsibilities for joint fulfillment and selection of suppliers, the holding of regular workshops, and lobbying for government support.
- 6) BASIS and participating companies make sales tools. In particular, the company's directory made during the Pilot Project should be upgraded and modified, while pamphlets for new participants need to be made. Also, the company database made for the Pilot Project should be expanded by adding new participants (database format held with BASIS). At the same time, the Web site for the program is started up to publicize these sales tools.

- 7) The business bridging organization conducts a series of marketing activities (telemarketing, questionnaire survey, and seminar) on a periodical basis, creates and classifies the business leads, and conducts local marketing and sales activities for the Bangladeshi supplier group.

(Note: It should follow the process from onsite development to offshore development.)

From the Pilot Project experience, it has been learned that Japanese companies have general policy to require Bangladeshi companies to send its engineers who can speak Japanese to an onsite development project before awarding an offshore development contract, thereby to check the supplier's reliability in terms of technology and business performance.

- 1) To meet the needs, it is important to reinforce long-term Japanese language and ITSS education in Bangladesh. (See Program 4-1.)
- 2) On the other hand, the hiring of Bangladeshi engineers living in Japan may be considered to be the short-term measures. One approach is to lease software engineers of Bangladeshi companies operating in Japan (e.g., BIK Japan, BJIT, UNIQA, and United Global), jointly by participating companies, and to send them to Japanese companies. BASIS can supervise and coordinate these activities.

(6) Input

1) Human resource

- a. Assignment of personnel
 - Three persons are appointed by BASIS, EPB, and the business bridging organization (one per each organization) and their salaries are paid by respective organizations.
 - The bridging organization assigns a bridge SE and a sales engineer to win the business and to manage the project.

2) Facility

- a. Establishment of the business bridging organization in Japan
 - The bridging organization serves as the sole sales agent for the Bangladeshi supplier group and establishes a sales office. It bears all costs required for sales activity on the basis of the program participation fee collected from suppliers.
- b. Cost relating to the establishment of the Web site introducing Bangladesh suppliers:

Approx. US\$ 10,000

- * In the case of a package development contract; including servers and other hardware
- System operation and maintenance/maintenance of the Web site and its content:

Approx. US\$ 2,000/month

- * While the cost relating to the development, operation and maintenance of the Web site should preferably be financed by contribution from participating companies, the government may have to provide financial support in the initial stage, depending on the number of companies participating in the program.

3) Other expenditures

a. Marketing and sales costs

By concluding the B2B agreement, participating companies contribute the fund to cover local marketing and sales costs. Each company is expected to contribute US\$ 500 monthly and the business bridging organization uses the fund to conduct local sales activities.

- Local marketing and communication (MARCOM) costs: Approx. US\$ 60,000 annually

- * To be used for marketing activities to create business inquiries, such as telemarketing, DM, seminar and trade fair participation.

b. Development of sales and marketing tools

- * Preparation of brochures, pamphlets, and other sales tools in Japanese

Initial year: Approx. US\$ 30,000

Second and later years: Approx. US\$ 10,000

c. Financial assistance relating to formation of foreign partnership

- Cost relating to BASIS's visit to Japan for partnership formation: Approx. US\$10,000 per visit (twice annually)

- Cost relating to invitation of 10 Japanese companies to Bangladesh for field tour in the initial two years after the start of the market entry program: Approx. US\$ 25,000 for 5 companies/year

d. Financial assistance for investment promotion from Japan

- Investment promotion cost: Approx. US \$40,000 annually

- * The investment promotion seminar is held twice per year.

7.3.3 (Strategy 3)

Capacity Building of the Software Industry

One of characteristics of the Bangladeshi software companies is their relatively small size. As discussed in 7.1, the average number of employees among software companies that have participated in the Pilot Project is around 50. Also, the average annual sales of 22 participating companies, which have revealed financial data in FY2006, are approximately US\$ 2.1 million, with 4 companies reporting less than US\$ 100,000, 11 companies between US\$ 100,000 and less than US\$ 500,000, and 2 companies between US\$ 500,000 and less than US\$ 1 million. Those reporting less than US\$ 1 million account for approximately 77% of the total. The industry's small size in terms of financial capability results in insufficient investment in equipment, human resource development, and marketing activity.

The strength and capacity of software companies are generally measured by financial strength, technology/quality capability, project management capability, human resource, marketing capability, and installed equipment. Also, capacity of the whole software industry is evaluated by financial access, availability of public standards, presence of education and training facilities, and availability of government support based on formal policy. Among them, issues relating to technology/quality capability, project management capability, human resource development, public standards, and education and training facilities are addressed in Strategy 4. Then, government support and financial access are addressed in Strategy 1, and marketing capability in Strategy 2.

Therefore, this strategy addresses issues relating to equipment and infrastructure from the viewpoint of strengthening the industry's capacity in general. As discussed in 7.2, the issue of infrastructure development on a national level is too large to be discussed in the context of export promotion strategy for the software industry. Instead, this strategy approaches the issue by proposing construction of a facility that allows software companies to share existing infrastructure, rather than a national-level infrastructure project. Specifically, it is proposed to construct a "software park" that has infrastructure and other facilities that cannot be owned by a single company so that software companies having a relatively weak financial base can enjoy benefits from the shared facility. Note that the software park need not be constructed in a large site because the industry is primarily composed of small companies. Instead, it is proposed to develop the software park in a building, which is similar to the current ICT Incubator.

Thus, this strategy contains the following program:

Program 3-1 Facilitation of Construction of Software Park (Building)

7.3.3.1 (Program 3-1)

Facilitation of Construction of Software Park (Building)

I. Program Outline and Rationale

This program is designed to construct buildings that provide necessary business infrastructure for software/ITES companies, thereby to create the business environment that enables many software/ITES companies to improve export competitiveness.

According to the questionnaire survey of 20 software companies conducted by the JICA Study Team in May 2007 (commissioned to a local consultant), 11 companies cited unstable electricity supply as the most important obstacle to business growth, while 10 companies pointed out the poor internet connectivity and environment. These problems were also pointed out at the problem analysis workshop held in June 2007 and are considered to be major factors for deteriorating export competitiveness of software/ITES companies in Bangladesh. Clearly, it is an additional cost for local companies with small capital to solve these problems on their own, while it even creates a risk of weakening their financial base further.

At present, the ICT Incubator, which was developed by the BCC in the BSRs Bhaban in 2002, provides uninterrupted electricity supply and high speed internet access (free of charge) for tenant companies totaling around 50. It also sets a very low rent (Tk. 22 per square feet). It therefore serves as the facility to allow cash-strapped software companies to co-use valuable business infrastructure at low cost. According to the BASIS that manages the facility, it has been fully occupied in the past few years and the BASIS now receives 5 – 10 inquiries for vacancy per week. This indicates large demand and needs for the building-type software park as proposed in this program.

As discussed in 7.1, the BCC is currently implementing a “hi-tech park” development plan. The park will accommodate a variety of hi-tech companies including software houses. The development plan is now at the end of the first phase, and the park’s administration office, its infrastructure, and site preparation (subdivision) have been completed. However, the second phase is not yet specified in the Bangladesh’s Annual Development Programme (ADP). In fact, the BCC is waiting for private investment to continue the development plan of the hi-tech park. Meanwhile, the BCC plans to renovate its head office building to 15 stories and intends to provide the same facility for software companies as provided in the current ICT Incubator. However, this plan is not yet specified in the ADP either.

On the other hand, the BASIS shows interest in developing its own software park. It is currently requesting the MOSICT to provide its unused land in Mohakhali as the facility site with free of charge. While the BASIS plans to develop the software park on its own, the site is currently occupied by squatters who have to be relocated. Also, the land was originally acquired by the MOSICT for the purpose of building a satellite facility, and the land must be provided with a satellite facility, by law, even if it is transferred to the private sector. As a result, the BASIS needs to be exempted from the legal obligation if the land is to be used as the software park. Meanwhile, the BASIS is also making a request for use of an unused land (located in Tejgaon) owned by the Ministry of Industries for the same purpose. Reportedly, the land is not subject to encumbrance.

II. Program Implementation Plan

(1) Program purpose

- To provide necessary infrastructure at the building-type software park which can benefit many software/ITES companies.

(2) Target group and its needs

- Around 200 software/ITES companies

As discussed earlier, the BCC's ICT Incubator has been fully occupied in the past few years and the administrator (BASIS) receives 5 – 10 inquiries for vacancy per week. In Bangladesh, there are around 400 software/ITES companies, while the current ICT Incubator can accommodate 50 companies at maximum. It suggests high potential demand for the proposed software park facility.

(3) Executing body

- Bangladesh Association of Software and Information Services (BASIS)

The BASIS is managing the current ICT Incubator and thus has sufficient experience.

(4) Output

Two buildings will be constructed to serve as the software park.

(5) Program activities

- 1) The BASIS requests, via the MOSICT, provision of an unused land owned by the government (with free of charge). The site will be selected in consideration of distance

from Dhaka's commercial zone, access to backup power supply and telecommunication facilities, and the land use status (especially presence of squatters). As discussed earlier, the BASIS has already made two requests for provision of government land.

- 2) The government is expected to rent or otherwise provide the site for the BASIS with free of charge.
- 3) The BASIS obtains low-interest loans (5-8%) from financial institutions to finance facility construction.
- 4) The BASIS selects a developer.
- 5) The developer constructs two software park buildings.

(6) Input

- 1) Construction cost (including installation of equipment): Approx. Tk. 700 million (two buildings)
- 2) Interest rate: 5-8%

(7) Planning framework for the building-type software park development

1) Basic concept

The proposed software park will provide common facilities and services that are similar to those available at the BSRS building (ICT Incubator). It will be developed and managed by the BASIS on a commercial basis. The facilities (two buildings) will be built on a site, for which the provision for free of charge will be requested to the government.

2) Location

The software park will be built on a site in an area close to the BSRS building (Kawran Bazar), such as Tejgaon, Agargaon, and Mohakhali. The BASIS has already requested provision of two candidate sites in Tejgaon and Mohakhali, which are owned by the government.

3) Floor area and capacity

- The total floor area of one building will be around 150,000 square feet (twice that of the current ICT Incubator).

- Each building will accommodate around 100 companies (under the assumption that the average number of employees hired by software/ITES companies is around 50 and the floor area of 30 square feet is required per employee, including common space).

4) Infrastructure

- Common space and facilities (parking, restaurants, meeting rooms, recreational facilities, and business library)
- Uninterrupted electricity supply (electricity charge is paid by tenants)
- Free, high speed internet access (actual attainment of 384kbps at lowest)
- Videoconference facility (with a rental fee)

5) Shared service facilities

- Branch offices of government organizations, such as EPB, BOI, and DPDT
- Banks and ATMs
- Security service

6) Rent

- Monthly rent: About Tk. 20 per square feet (Tk. 22 at the current ICT Incubator, according to the BASIS's homepage)

7) Construction period

- 2 years and 6 months
- Facility expansion (construction of more buildings) to be considered after construction of two buildings completes, depending on demand for the constructed two buildings

8) Repayment plan (example)

One example of the repayment plan, when the BASIS raises all the funds by loans, is summarized as follows.

8-1) Assuming that office spaces totaling 280,000 square feet (300,000 square feet for two buildings less 20,000 square feet of common space) are leased with the monthly rent of Tk. 20 per square feet, the total rent income would be Tk. 5.6 million per month and Tk. 67.2 million per year. With the maintenance charge (including labor cost) assumed to be Tk. 2 million per year, the net annual income is Tk. 65.2 million, from which loan will be repaid.

8-2) Assuming that the BASIS borrows Tk. 700 million for the project without down payment and repays Tk. 65.2 million each year. In this case, the loan cannot be repaid if the interest rate exceeds 10%. It would take 41 years to complete repayment at 9%, 27 years at 8%, 22 years at 7%, 19 years at 6%, and 17 years at 5%.

Table 7.3-3 Repayment Scenarios for the Software Park Construction Project Finance

Outstanding Amount (Unit: Taka)							
Interest Rate	5%	6%	7%	8%	9%	10%	15%
1st Year	735,000,000	742,000,000	749,000,000	756,000,000	763,000,000	770,000,000	805,000,000
2nd Year	703,290,000	717,408,000	731,666,000	746,064,000	760,602,000	775,280,000	850,770,000
5th Year	598,325,936	634,419,443	672,038,028	711,227,271	752,033,637	794,504,480	1,033,546,774
10th Year	385,347,645	459,405,557	541,373,543	631,923,625	731,775,555	841,699,638	1,573,287,986
15th Year	113,527,380	225,197,499	358,109,843	515,400,552	700,605,984	917,707,912	2,658,900,352
17th Year	Repayment done	110,661,190	265,588,480	454,697,924	683,857,850	959,814,574	3,355,188,716
19th Year	-	Repayment done	159,660,770	383,894,378	663,959,392	1,010,763,634	4,276,030,077
22nd Year	-	-	Repayment done	254,997,853	626,878,656	1,107,933,197	6,242,939,193
27th Year	-	-	-	Repayment done	539,209,103	1,346,479,721	12,051,236,871
41st Year	-	-	-	-	Repayment done	3,106,888,694	82,233,963,408

7.3.4 (Strategy 4)

Human Resource Development Competitive in the Export Market

According to the SWOT analysis discussed in 7.1.3, the Bangladeshi software industry has strength in availability of high quality and low cost workforce. At the same time, the following weaknesses are pointed out in terms of its human resource.

- 1) Lack of practical work skills among new graduates (The curriculum of university-level education does not meet the actual needs for industrial skills.)
- 2) High turnover among new graduates, creating a high risk of investment relating to new employee education and the shortage of joint training facilities
- 3) Shortage of middle-level engineers and managers
- 4) Lack of IT-related national standards and certification examination system

For the Bangladeshi software industry to compete in the international market, the reinforcement of the education and training sector is crucial. The industry needs to develop skillful workforce if it is to promote exports effectively. In reality, however, the government fails to implement comprehensive human resource development policy to address the above needs.

The interview survey of a several universities having the CSE (computer science and engineering) department indicates that graduates from the department show a relatively low employment rate, and in fact, the number of graduates finding a job with a software company is recently on decline. At the same time, as telecom companies offer better employment conditions than software companies do, CSE students with good grades tend to choose the former. Furthermore, software companies have to bear the training cost for new graduates. They want to employ students who have received proper job training, but there is no place to receive such training other than BCC's internship program and some training programs provided by the BASIS from time to time.

For education and training of IT personnel, each person needs to design his career path and acquire professional skills that are required for the career path. In Bangladesh, however, there are neither professional skill standards for the IT industry, nor a certification test for information processing engineers (IT professionals), as seen in other countries including Japan.

In recognition of these situations, this strategy proposes the following two programs that are designed to promote human resource development fostering professional skills that are demanded for export promotion by the Bangladesh software industry.

Program 4-1 Introduction of ITSS (IT Skill Standard) to Bangladesh

Program 4-2 Placement Service and Practical Training for University Graduates

Program 4-1 aims to introduce IT Skill Standard developed by the Ministry of Economy, Trade and Industry of Japan to Bangladesh for the purpose of establishing it as the basis of IT engineer's education, training and skill certification system. The program proposes combination of ITSS education and Japanese language training with view to enabling Bangladesh engineers to work with Japanese clients. Program 4-2 proposes the establishment of a practical training center for new graduates from the CSE department. Both programs are designed to correct weaknesses of the Bangladesh's software industry in the area of human resource development.

7.3.4.1 (Program 4-1)

Introduction of ITSS (IT Skill Standard) to Bangladesh

I. Program Outline and Rationale

This program proposes an education and training program that combines a three-year technology transfer program for introduction of ITSS (IT Skill Standard) and a three-year Japanese language education program. In addition, it provides support for development of an ITSS-compatible education program as well as the establishment of a national IT professional skill certification examination system. The national examination system is expected to form the basis of mutual authentication with IT Professional Examination (currently joined by 11 Asian countries) administered by the IT Professional Examination Council (ITPEC). Rationales for the program proposal are described below.

(1) Fostering of IT professionals and the establishment of the national examination system

In Bangladesh, there is no national examination to certify IT professional skills. While the Bangladesh Computer Council (BCC) under the MOSICT is developing an IT professional skill certification system, it has still to be finalized. The lack of such certification system means that, for companies, there is no way to assess quality of IT engineers by means of test or qualification. For the IT professional, it means that there is no way to tell where he should go in terms of career development or how he can design his career path.

Generally, the prerequisite to the development of a national examination or a skill certification system is a proper curriculum that is developed by nationally recognized public organization. In Bangladesh, however, different companies conduct education programs that are based on different curriculums and standards. In other words, they have to develop and apply their own standards because the company does not have a unified certification system or a unified training program, as seen in Japan where government organizations or trade associations develop and maintain unified standards and programs for the IT and related industries.

(2) Development of the ITSS-based education program

ITSS has been developed by the Information Technology Promotion Agency of Japan (IPA) under the Ministry of Economy, Trade and Industry and defines skills required for provision of various IT-related services. Thus, it provides metrics (common framework)

useful for education and training of IT service professionals by educational institutions and companies. According to statistics compiled by IPA, approximately 60% of large corporations in Japan adopt ITSS as the means to measure IT skills. Also, ITSS is increasingly used in the English language zone. At present, the BCC is developing a training program entitled “IPSAEP (ICT Professionals Skills Assessment and Enhancement Program)” as part of human resource development efforts led by the Bangladesh government. This program intends to provide support for development of the IPSAEP training program by using ITSS’s training roadmap and sample curriculum.

(3) Participation in the Asian IT professional examination system for mutual certification

In the future, Bangladesh should aim to establish the BCC’s IPSAEP as the national skill certification system for IT professionals and to participate in the ITPEC’s IT Professionals Examination that is held in eleven Asian countries. Then, mutual certification between IPSAEP and similar examinations in Japan and other Asian countries will start. Eventually, Bangladeshi IT professionals will be able to enjoy the easing of working visa requirements for their entry to those Asian countries.

(4) ITSS and Japanese language education for IT professionals

This program proposes introduction of ITSS into the IT education and training system in Bangladesh. By combining it with Japanese language education, the industry will have IT professionals who have ITSS knowledge and Japanese language skills. In the medium term, this means growth of human resource that can serve the Japanese market. In the long run, once mutual certification with IT professional examinations in other Asian countries is established, Bangladesh will be able to provide IT resources for these countries in addition to Japan.

As one of the lessons learned from the Pilot Project experience, Bangladesh software companies seeking opportunity in the Japanese market are expected to have engineers who have language skills to understand the client’s specification requirements through oral communication in Japanese and to read and write specifications in Japanese. At present, the country holds an annual Japanese language proficiency test (JLPT), which attracts around 300 applicants annually in recent years. According to the test administrator, however, only four persons have passed the class 2 JLPT. BJIT Ltd., which targets the Japanese market, hires instructors to teach Japanese to its IT engineers for nearly four hours per day. This means substantial cost burdens on the company. To improve the situation, the program proposes a Japanese language education package in combination with ITSS education, which aims to

provide language education of 300 hours per year, allowing students to obtain at least the class 3 JLPT certification.

II. Program Implementation Plan

(1) Program purpose

To conduct education and training for applications of ITSS to the human resource development programs for Bangladeshi software industry; to make the industry ready to enter the Japanese market by combining ITSS education with Japanese language education for IT professionals; to develop the human resource development curriculum for IT professionals through applications of ITSS; and to establish a national skill certification examination system that can be compatible with similar systems in other Asian countries, thereby to make Bangladeshi IT engineers ready to work in the foreign market.

(2) Target group

IT engineers working for Bangladeshi software/ITES companies and university students of CSE departments (IT-related companies should be included as the target for ITSS dissemination.)

(3) Executing body and sponsor

ITSS based training curriculum development, because of its development and its institutional regulation process, presumably requires enormous time and resource. Moreover, considering the future participation in the Asian IT professional examination system for mutual certification, the Program should require a top level involvement with initiatives from MOSICT. Therefore, MOSICT should undertake roles as an execution body with BCC taking charge of the operation of the Program in cooperation of BASIS. BCC will take a lead in development of the national skill certification examination system and the human resource development program under assistance of relevant donor organizations, while the industry's needs are reflected under BASIS's support. As the program deals with development of IT professionals of Bangladesh, it should receive financial assistance from the following government organizations, while donor organizations will provide technical support for ITSS and Japanese language education.

<Proposed sponsorship>

- 1) Technology transfer (ITSS and Japanese language): Donor organization

- 2) Development of the ITSS-based educational curriculum: Donor organization and BCC/MOSICT
- 3) Training of instructors for the education programs: Donor organization and BCC/MOSICT
- 4) Development of the national skill certification examination system: Donor organization and BCC/MOSICT
- 5) Provision of training facilities: BCC/MOSICT, BASIS and UGC/MOE
- 6) Training of Japanese language instructors and curriculum development: Donor organization and BCC/MOSICT
- 7) Implementation of the education program: BCC/MOSICT and IBPC/MOC
- 8) Development of the Web site to advertize the training program and the national certification test: BCC/MOSICT

(4) Output

- 1) ITSS will be adopted as the country's IT skill standards.
- 2) The education program that is based on ITSS will be developed.
- 3) Instructors qualified to provide ITSS-based IT professional education will be trained.
- 4) The training center to conduct the program in 2) will be established.
- 5) Education program in 2) will be conducted to teach around 200 trainees per year.
- 6) The national skill certification examination system, which is compatible with similar systems in other Asian countries, will be established in Bangladesh.
- 7) Bangladesh will become ITPEC's member and will participate in the mutual certification system to establish IT professional examination commonly certified in Asian countries.
- 8) The Japanese language education program will be developed and instructors will be trained.
- 9) As many as 100 IT professionals will be trained to work for Japanese clients.
- 10) Requirements for working visa for Bangladesh IT professionals in Asian countries that participate in the ITPEC system will be eased, thereby making it easier for those professionals to work in those countries.

(5) Program activities

- 1) BCC takes a lead in receiving technology transfer from donor organizations about ITSS by inviting Japanese experts in relation to the development of the ITSS-based education curriculum and the training of Japanese language instructors.
- 2) Select, from the ITSS career path framework (Table 7.3-4), priority industries and subjects for the Bangladeshi software industry, and formulate educational policy to serve as the country's medium- and long-term IT education guidelines.

- 3) Develop the syllabus and curriculum for the applicable education programs that target the industries and subjects selected in 2) above under assistance of donor organizations and by using ITSS's training roadmap (Table 7.3-5) and ITSS's model curriculum (Table 7.3-6).
- 4) Apply and introduce the ITSS's common framework to one of the IPSAEP's modules (under BCC's leadership) for education of IT workers in preparation for skill certification. Also, configure the IPSAEP's education modules on the basis of ITSS under assistance of Japanese experts.
- 5) UGC introduces the ITSS-based education program in around five selected top-level universities. Candidate universities include DUET, CUET, KUET, RUET, BRAC University, Northsouth University, Southeast University, AIUB, and Independent University, among others, whereas the two topmost universities, University of Dhaka and BUET, may be excluded.
- 6) BCC takes the leadership in developing the national skill certification and examination systems and becomes a formal accreditation organization in the country.
- 7) BCC (MOSICT) applies to ITPEC, upon agreement from related organizations, for mutual certification between the IPSAEP and ITPEC's IT Professionals Examination.
- 8) Combine the ITSS-based IT education program at IPSEAP and the selected universities with Japanese language education (basic and IT-related, as well as Japanese business practice), which is conducted by Japanese instructors.

(6) Input

1) Human resource

a. Assignment of personnel

- Four persons are appointed by BASIS, BCC, UGC and IBPC (one per each organization) and their salaries are paid by respective organizations.

b. Input

- As for ITSS dissemination and the development of the training program, the donor organization sends one resident expert and two instructors (short-term) to conduct technology transfer in Bangladesh over three years. At the same time, the counterpart assigns one full-time staff and two instructors.
- As for Japanese language education and curriculum development, the donor organization sends one resident expert and two instructors (short-term) to conduct technology transfer in Bangladesh over three years. At the same time, the counterpart assigns one full-time staff and two instructors.

- For training of instructors for various education programs and the development of curriculums, the counterpart assigns at least one full-time staff per each curriculum.

2) Facility

a. Development of training centers

- Training center for IT workers

IT training facilities for IT workers will be established within BASIS and BCC. Each facility will have at least 20 seats and will be provided for three years in the initial stage.

- Training center for students

IT training facilities for students will be established within UGC's facilities. Each facility will have at least 20 seats and will be provided for three years in the initial stage.

b. Cost relating to the development of the Web site to advertize the training program and the national certification test: Approx. US\$ 5,000

*In the case of a package development contract; and including servers and other hardware

- Operation and maintenance of the above systems, and content management of the Web site: Approx. US\$ 1,000/month

3) Financial sources

a. Development of the ITSS-based education curriculum

To give priority to subjects required for the Bangladeshi software industry and to develop the curriculum in stages. The development cost will be borne by BCC/MOSICT.

b. Development of the IT professional skills certification system and the national certification system

To develop the systems suitable for the Bangladeshi software industry, while meeting the industry needs. The development cost will be borne by BCC/MOSICT.

c. Implementation of the education program

Implementation and operation costs for the developed programs will be covered by the government's financial support. It is imperative to secure the government's continuous assistance to reduce financial burdens of program participants and their companies.

(7) Program details

A general outline of ITSS and an example of program implementation under technical and/or financial assistance from a donor country or organization are presented below, together with key points relating to program implementation.

1) ITSS

a. What is ITSS?

ITSS (IT Skill Standard) has been developed by the Ministry of Economy, Trade and Industry and defines a set of skills required for provision of various IT-related services. Thus, it provides metrics (common framework) useful for education and training of IT service professionals by educational institutions and companies. According to statistics compiled by the Information Technology Promotion Agency of Japan (IPA), approximately 60% of large corporations in Japan adopt ITSS as the means to measure IT skills. Also, ITSS is increasingly used in the English language zone.

b. Examples of application

There are a variety of applications for each of the following recipient organizations or individuals. ITSS is designed to provide the lexical function for a variety of entities involved in the development and fostering of various professionals as they try to collaborate synergistically.

- IT service companies (including companies having the IT department)

ITSS provides guidelines for strategic human resource development and recruitment according to the corporate strategy. For a company that has established some standards for IT skills through its own development process, the internal standards can be positioned objectively with reference to ITSS by comparing both of them directly. Also, ITSS will provide metrics used to describe content of an education and training program offered by specialized service organizations (including universities) in terms of type of skill and its target level.

- IT professionals

ITSS provides guidelines for development of career path and decision as to how to proceed with skills development.

- Government

ITSS provides guidelines for development and implementation of effective IT skill development support programs. Also, it will be used to evaluate IT skills in relation to government procurement.

2) Example of program implementation

a. Education program for IT professionals (See ITSS document from the IPA's Web site for detail.)

If ITSS-based skill standard is adopted, target industries and subjects are selected from the career path framework shown in Table 7.3-4. In addition, there is training roadmap under ITSS as shown in Table 7.3-5, and IPA publishes model curriculum for ITSS-based education (an example of the model curriculum can be found in Table 7.3-6). These can be applied as the foundation for developing ITSS-based education programs and curriculum for Bangladeshi software industry.

b. Outline of the Proposed IT Professionals Education Program

- Training facilities: Three (BASIS, BCC and UGC)
- Class capacity: 20 – 25 students per class
- Equipment: One server and 20 PCs per class, equipped with necessary software, including operating system, LAN connectivity, and educational programs
- Training schedule: 2 hours for evening class (Sunday through Thursday); 6 months (one batch); 2 batches per year
- Courses: Selected from the ITSS training roadmap
- Target number of participants: 200 persons/year

c. Outline of the Proposed Japanese Language Education Program

- Training facilities: BASIS, BCC and Japanese language schools
- Class capacity: 20 – 25 students per class x 4 classes
- Equipment: CD/DVD players and audiovisual equipment
- Training schedule: 2 hours for evening class (Sunday through Thursday); 300 hours for 10 months (one batch); One batch per year
- Target number of participants: 100 persons/year
- Target level of achievement: Class 3 certification under JLPT

Table 7.3-4 IT Professional Career Path Framework

Job Categories	Marketing	Sales	Consultant	IT Architect	Project Management	IT Specialist	Application Specialist	Software Development	Customer Service	IT Service Management	Education
Specialty Fields	Marketing management Sales channel strategy Market Communication Consulting by visiting customers Product sales by visiting customers	Sales via media Product sales by visiting customers	Industry Business function Application Architecture Integration Architecture Infrastructure Architecture Systems development IT outsourcing Network service	Software product development Platform Network Database Common Application infrastructure Systems Management Security	Business application package Business application system Basic software Middleware Application software Hardware Software Facility management	Operations management System operation Service Desk Planning the training Instructions					
Level 7											
Level 6											
Level 5											
Level 4											
Level 3											
Level 2											
Level 1											

Source: IPA

Table 7.3-5 List of Training Courses for Software Development (Application Software)

Course category	Course group	Course name	Training method			Period		Page
			e-learning	Lecture	Workshop	e-learning (time)	Class (day)	
Common	Introductory	IT Basics 1	Introduction to IT	○		60		13
			Introduction to personal skills	○	○	12	3	15
	Basic	IT Basics 2	Basics of IT engineers	○		36		18
			Programming basics	○	○	30	5	21
		Basics of system development	Basic application development	○		24		24
			Basic database	○		12		27
			Basic network	○		24		29
			Basic security	○		18		31
		Basics of leadership	Basic leadership	○	○	9	1	34
		Basics of communication	Basic communication skills	○	○	9	1	37
		Basics of negotiation	Basic negotiation skills	○	○	9	1	40
		Basics of development techniques	Outlines of international/industry standards	○		6		43
			Platform key technologies	○		18		45
		Basics of project management	Basic project management	○		30		48
		Basics of software development process	Basic software development process		○		3	51
			Methodology for software product development		○		5	53
		Basics of key technology	Basics of key technology	○		12		56
			Globalization	○	○	6	1	58
			Accessibility	○	○	6	1	60
			Key technology for security management	○	○	18	3	62
			Key technology for network management	○		12		64

Source: IPA

Table 7.3-6 Model Curriculum for Software Development

Level	Course group	Course name	Code	Subject	
Intending to obtain level 1	IT Basics 1	Introduction to IT	AT111	Introduction to IT (1)	Outline
					To teach basic and general knowledge on strategy and management fields as one of the IT Basics 1" category, including the relationship between corporate management strategy and individual business areas, system development's lifecycle, project management,
					Eligibility/qualification
					Persons intending to obtain level 1 certification under IT SS/knowledge level equivalent to high school graduate
					Organization
					90 minutes x 15 sessions
					Total duration
					22.5 hours
					1st
					Orientation, historical background on IT and its use, characteristics of major information systems
					2nd
					Outline of typical systems by type of business and industry
					3rd
					Basic vocabulary of business activities and financial accounting
					4th
					Basic vocabulary required for formulation of IT strategy
					5th
					Objective and concept of information system strategy
					6th
					Definition of business requirements and development of solutions
					7th
					Corporate governance and legal terms
					8th
					Review
					9th
					Work outline and steps relating to software development process
					10th
					Outline of leading software development techniques
					11th
					Types of IT projects and project execution steps
					12th
					Basic vocabulary of system operation
					13th
					Types and rationale for system auditing
					14th
					Review
					15th
					Overall review
		Introduction to IT	AT112	Introduction to IT (2)	Outline
					To teach basic and general knowledge on technology fields as one of the IT Basics 1" category, including digitization of information, algorism, hardware, software, network, database, and security.
					Eligibility/qualification
					Persons intending to obtain level 1 certification under IT SS/having completed "Introduction to IT (1)" or equivalent knowledge
					Organization
					90 minutes x 15 sessions
					Total duration
					22.5 hours
					1st
					Orientation, representation of information on computer
					2nd
					Role of programming
					3rd
					Types of computers and configuring equipment
					4th
					Types and roles of software
					5th
					Forms and types of system processing
					6th
					Review
					7th
					Multimedia and human interface
					8th
					Application of network technology (1)
					9th
					Application of network technology (2)
					10th
					Database technology (1)
					11th
					Database technology (2)
					12th
					Information security measures (1)
					13th
					Information security measures (2)
					14th
					Review
					15th
					Overall review
		Introduction to personal skills	A120	Introduction to personal skills	Outline
					To teach basic requirements for IT professionals in terms of personal skill required for IT use, including teamwork-based leadership, basic communication skills (writing, speaking, listening, and thinking), basic presentation skills, logical thinking (pro
					Eligibility/qualification
					Persons intending to obtain level 1 certification under IT SS/knowledge level equivalent to high school graduate
					Organization
					90 minutes x 15 sessions
					Total duration
					22.5 hours
					1st
					Orientation and personal skills required for IT professionals
					2nd
					Basic business manners (1)
					3rd
					Basic business manners (2)
					4th
					Basic communication skills (two-way) (1)
					5th
					Basic communication skills (two-way) (2)
					6th
					Basic communication skills (effective conveyance of information)
					7th
					Basic communication skills (effective conveyance of information) – writing (1)
					8th
					Basic communication skills (effective conveyance of information) – writing (2)
					9th
					Basic communication skills (effective conveyance of information) – presentation (1)
					10th
					Basic communication skills (effective conveyance of information) – presentation (2)
					11th
					Basic communication skills (assortment, analysis, and retrieval of information) (1)
					12th
					Basic communication skills (assortment, analysis, and retrieval of information) (2)
					13th
					Basics of leadership
					14th
					Basics of negotiation
					15th
					Review

Source: IPA

Strategy 4 (Action Program 4-1) Program Concept Image

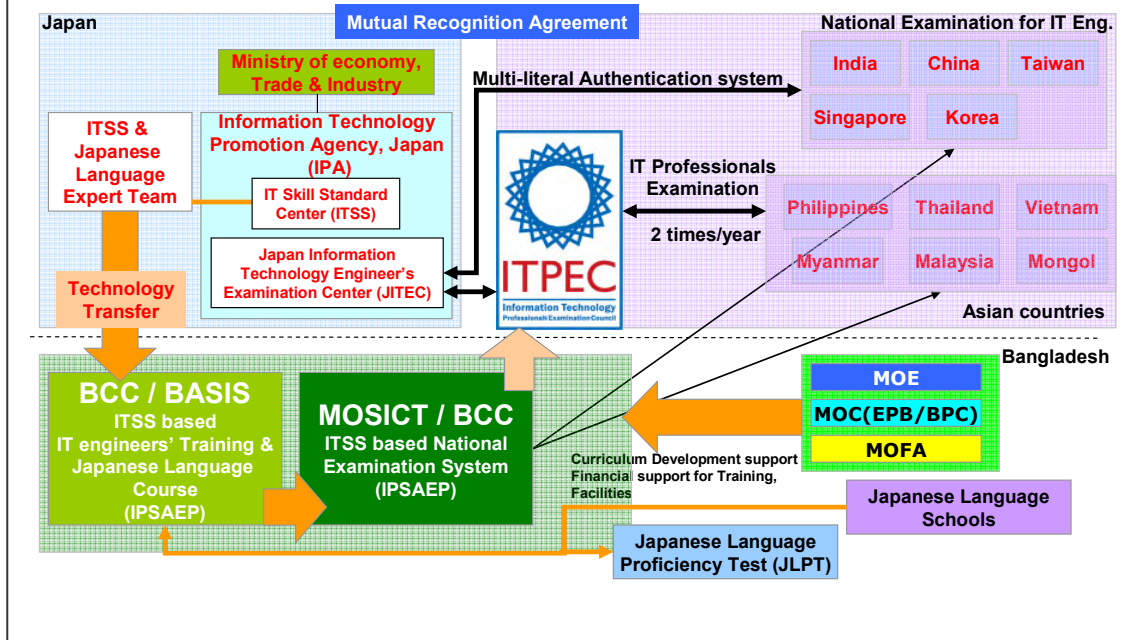


Figure 7.3-2 Image for Mutual Certification through ITPEC

7.3.4.2 (Program 4-2)

Placement Service and Practical Training for University Graduate

I. Program Outline and Rationale

This program is designed to: 1) establish a placement service center to promote employment of university graduates, which is operated jointly by universities and companies; and 2) establish an OJT-based practical training center to encourage employment of new graduates and improvement of their work skills. Rationales for the program proposal are outlined below.

(1) Difference in perception about human resource needs between universities and companies

At present, the Bangladesh software industry and the government operates a few programs to teach practical work skills to new employees. As seen in 7.1, BCC operates the internship program. The program accepts only 300 persons annually out of more than 3,000 applicants (Note that the program can actually admit 500 interns annually based on its regulation, but there is not enough capacity to receive 500 interns on companies' side). However, the interview survey of selected companies by the JICA Study Team indicates that companies are disappointed with interns because of a lack of practical work skills.

This reflects the fact that, while university professors teaching at the CSE courses do not have practical business experience, companies expect students to have knowledge and skills that can be acquired through actual work experience. Thus, university education can only teach textbook knowledge that is not sufficient to meet the needs in the actual job market.

As a result, local companies mostly accept interns as part of CSR, while giving up their original expectation. In fact, an increasing number of companies are reluctant to receive interns due to heavy burdens. Ideally, the human resource development process in the context of industrial development should proceed as follows: 1) to teach practical work skills to university graduates having a good academic record; 2) to promote their employment by companies; 3) to make them valuable assets for companies by acquiring practical skills; and 4) to allow them to contribute to industrial and national development. In Bangladesh, however, the internship program has been started as stage 1) but it works to discourage employment, failing to achieve the objective of stage 2).

(2) Need for career service and OJT training through academy-industry collaboration

According to professors of CSE Departments of University of Dhaka and BUET, the majority of their graduates has been finding a job in foreign countries. In contrast, graduates who remain in the country are facing difficulty in finding employment in Bangladesh even in the case where they have graduated with an excellent record and can become competent IT engineers. This seems to be largely attributable to the lack of university support for employment, as universities believe that their job ends by producing graduates. In fact, these prominent universities do not have a career center to provide support or advice for graduates who seek employment.

On the other hand, companies expect university graduates to have practical work skills so that they can work in a project team immediately after employment. However, there are few facilities to teach such skills to new graduates in Bangladesh. According to the interview survey of several BASIS member companies, they are ready to hire new graduates if they have adequate work skills. Also, many companies welcome the establishment of a training center that emphasizes OJT-based projects, as proposed under this program.

In consideration of the above factors, this program is designed to promote employment of university graduates majoring in CSE by meeting the needs of IT companies. Specifically, it is proposed to establish the following facilities according to the program implementation plan shown below: 1) a placement service center operated by academy-industry cooperation; and 2) an OJT-based practical training center.

II. Program Implementation Plan

(1) Program purpose

To provide placement service and practical skill training for university graduates in order to promote their employment by local software companies and to help improve competitiveness of the software industry as a whole.

(2) Target group

University students of CSE departments and new graduates, as well as IT engineers and middle managers who need to acquire practical work skills

(3) Executing body and sponsor

BASIS will take leadership in operation and management of the placement service center and the practical training center, and the following government organizations will provide financial assistance. Note that the practical training center will be supported by service companies (as selected from BASIS member companies), which will provide OJT opportunity by assigning suitable projects to the center. Note that the JICA Study Team has discussed deeply with BASIS about this program for many times.

<Proposed sponsorship>

- 1) Financial assistance for establishment of the placement service center and the practical training center: BCC/MOSICT and UGC/MOE
- 2) Financial assistance for operation and management of the placement service center and the practical training center: BCC/MOSICT and UGC/MOE
- 3) Provision of training projects for the practical training center: Companies that are the center's service members

(4) Output

<Placement service center>

- 1) The placement service center will be established within BASIS's office to support university graduates and IT engineers who are seeking employment.
- 2) Latest information on job opportunities and applicants will be published and shared by means of academy-industry cooperation.
- 3) The career fairs will be organized twice each year.
- 4) The career path seminar will be organized and held.
- 5) Employment of university graduates by local IT companies will be encouraged.
- 6) The career center will be opened by universities to serve as the access point for the placement center.
- 7) The Web site publicizing recruitment and employment information will be created and maintained.

<Practical training center>

- 1) The practical training center will be established within BASIS's office to provide practical skill training.
- 2) OJT opportunity in an actual IT project for trainees, not a lecture-based training, will be provided with free of charge by the center's service members for three months.
- 3) Supporting companies will be able to commission a project to the center for free of charge during the membership period.

- 4) Pre-employment training for university graduates will be encouraged to reduce a risk or burden for local IT companies in relation to employment of new graduates. Furthermore, competitiveness of the industry will be strengthened by improvement of its resource..

(5) Program activities

<Placement service center>

- 1) BASIS takes a lead in development of the project plan to establish and operate the center, including division of responsibilities, service content, event planning, and activity plans.
- 2) UGC urges universities having the CSE department to establish their career centers.
- 3) BASIS recruits service members (IT companies) and links the placement service center to university career centers by establishing a partnership with universities.
- 4) Develop the Web site publicizing job offers, job applications, and company information. It also posts job-hunting guides and employment procedures.
- 5) Organize the career fairs twice annually.
- 6) Organize the career path seminar for job seekers.

<Practical training center>

- 1) The related organizations organize advisory board prior to the start of the center's operation.
- 2) BASIS takes a lead in development of the project plan to establish and operate the center, including division of responsibilities, service content, and activity plans, and develops service guidelines.
- 3) According to the above service guidelines, implement a six-month pilot project and carry out feasibility study to prepare the Proof of Concept (POC).
- 4) Based on the performance report on the pilot project, the advisory board makes decision as to whether the center is actually established.
- 5) Prepare, based on the POC, a service agreement and specifications and BASIS's board members and related government organizations exchange an agreement with regard to the start of the service.
- 6) Recruit service members (15 – 20 companies) based on service specifications.
- 7) The center collects membership fees from service members and uses them for operation.
- 8) The center recruits trainees (free of charge).
- 9) The center receives an order for a development project from the service members and its project manager assigns the project to a trainee for three months. The trainee delivers the product to the center, which then delivers it to the client company.

(6) Input

1) Human resource

(1) Assignment of personnel

<Placement service center>

- Four persons are appointed by BASIS, BCC, UGC, and IBPC (one per each organization) and their salaries are paid by respective organizations.
- Each university's career center appoints one full-time staff.
- An operation manager is appointed from BASIS's board members.

<Practical training center>

- Four persons are appointed by BASIS, BCC, UGC, and IBPC (one per each organization) and their salaries are paid by respective organizations.

(2) Input of human resources

<Placement service center>

- Financial assistance will be received from the government to retain one full-time staff for the center's operation and management.
- The operation manager will be selected from marketing experts having experience in event planning and management by offering monthly salary of US\$ 300 – 400.

<Practical training center>

- The center will hire one project manager and one technical manager.
- Both managers should have five years or longer experience in their respective fields and will be hired for monthly salary of US\$ 1,500.

2) Facility

(1) Establishment of the centers and financial assistance

<Placement service center>

- The placement service center will be established within BASIS's office under the government's financial assistance. The government will provide US\$ 300 monthly to cover rent for land and office space.
- In addition, monthly financial assistance of US\$ 300 will be provided by the MOE for a career service center to be established at each university.

<Practical training center>

- The center will also be established within BASIS's office under the government's financial assistance, i.e., US\$ 300 monthly to cover rent for land and office space.

- Training equipment, consisting of one server, 20 PCs, and other equipment, will be purchased under the government financial assistance, totaling US\$ 20,000, and will be installed at the center.

3) Preliminary cost estimate

<Placement service center>

- Cost relating to the establishment of the center: Approx. US\$ 5,000 at the time of opening
- Salary for the center manager: Approx. US\$ 4,800 annually
- Operation cost: Approx. US\$ 24,000 annually
- Financial assistance for events: Approx. US\$ 20,000 annually
- Development of the Web site: Approx. US\$ 10,000
- *In the case of a package development contract; and including servers and other hardware
- Web site maintenance and content compilation: Approx. US\$2,000 per month

<Practical training center>

- Financial assistance for the pilot project: Approx. US\$ 40,000 over six months
- Cost relating to the establishment of the center: Approx. US\$ 20,000 at the time of opening
- Salary for the center manager: Approx. US\$ 36,000 annually
- Operation cost: Approx. US\$ 24,000 annually
- Development of the Web site: Approx. US\$ 10,000
- *In the case of a package development contract; and including servers and other hardware
- Web site maintenance and content compilation: Approx. US\$ 2,000 per month

Strategy 4 (Action Program 4-2) Program Concept Image

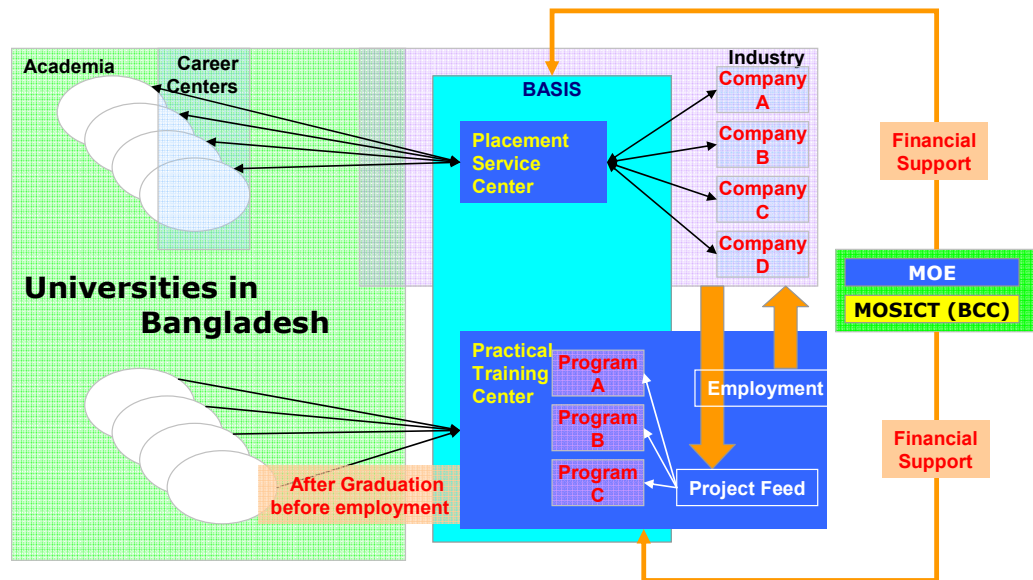


Figure 7.3-3 Image of Establishments in Program 4-2

7.4 Five-year Program Implementation Plan and Implementation Schedule

This section describes the implementation schedule for the action program proposed for the software industry. The five-year program implementation schedule is proposed in consideration of four strategies and nine programs by level of importance, priority, and ease of head start.

7.4.1 Outline and Organization of Action Program

(1) Strategy and program design

The action program has been developed on the basis of the results of seven field surveys that were conducted over two years, starting in February 2007. It also reflects various lessons learned from the Pilot Project that was conducted for one year during the two-year Study period. Table 7.4-1 lists the entire organization consisting of a development vision, a development purpose, strategies and programs for the action program. General outlines of the individual programs are presented in Table 7.4-2.

The overall program structure is illustrated in Figure 7.4-1, which shows how specific strategies and programs should work together to achieve the development purpose, “sustainable growth through the export expansion of the software industry.” In terms of four elements of industrial development, i.e., management, marketing, manpower, and monetary affairs, Strategy 2 represents the marketing division, Strategy 3 the management division, and Strategy 4 the manpower division. Finally, Strategy 1 represents policy recommendations and supports other strategies directly or indirectly, while it partially represents the monetary affairs division as well.

(2) Multifaceted relationship among programs

Each program is designed to produce output that straddles over multiple strategies and that cannot be linked only to a specific strategy. Figure 7.4-2 shows interrelationship between the individual programs and the strategies. In the diagram, mark “●” represents relationship between a specific program and a strategy under which it is positioned. On the other hand, mark “○” represents a close linkage between a specific program and other strategy. From the diagram, individual strategies and programs are structured in a multifaceted relationship.

For instance, Program 4-1 “Introduction of ITSS (IT Skill Standard) to Bangladesh” is positioned under Strategy 4. At the same time, it also has a bearing on Strategy 3 “Capacity building of the software industry,” in that the Program aims to develop the human resources

and to establish the national certification examination for IT industry. Furthermore, the Program is involved with Strategy 2 “Intensive marketing to priority economies and countries,” as it attempts to establish mutual certification system between the said national certification examination proposed to be developed in Bangladesh and those existing in other Asian countries. On the other hand, Strategy 3 has five programs under it as viewed from the interrelationship diagram, when Program 1-1, Program 1-2, Program 4-1 and Program 4-2 are added.

Table 7.4-1 Action Program for Export Promotion for the Software Industry

Vision:

Bangladesh is a major software supplier in Asia.

Development purpose:

Software Industry attains sustainable growth through export expansion.

(Strategy 1) Recommendation on policy related issues

Program 1-1 Improvement of execution and monitoring system for incentives in Export Policy

Program 1-2 Provision of financial support system to promote software export

Program 1-3 Basic IT education program for government officers

(Strategy 2) Intensive marketing to priority economies and countries

Program 2-1 Reinforcement of basis for IT marketing in the target market

Program 2-2 Establishment of business bridging system in the target market

Program 2-3 Package Program for penetrating to the software market in Japan

(Strategy 3) Capacity building of the software industry

Program 3-1 Facilitation of construction of Software Park (Building)

(Strategy 4) Human resource development competitive in the export market

Program 4-1 Introduction of ITSS (IT Skill Standard) to Bangladesh

Program 4-2 Placement service and practical training for university graduates

Table 7.4-2 Summary of Program Proposals for the Software Industry (1/2)

Program name	Target group	Output	Major activities	Executing body
Strategy 1 Recommendation on policy related issues				
Program 1-1 Improvement of execution and monitoring system for incentives in Export Policy	Software industry in general	Description of the incentives to be listed in the next Export Policy will be concretized and clarified.	Review and amendment on methods of description of incentives.	MOC and EPB
Program 1-2 Provision of financial support system to promote software export	Software industry in general	1. A government credit guarantee system will be established for working capital loans that are provided for software/ITES companies. 2. EPF management will be improved to meet the needs of the software/ITES industry.	1. Establishment of credit guarantee system. 2. Review and amendment on management of the EPF.	1. BCC/MOSICT, Development financial institutions under MOF 2. EPB, Janata Bank
Program 1-3 Basic IT education program for government officers	About 3,000 Class-I government officers	Class-I government officers will acquire adequate IT industry/business knowledge	Development of the curriculum/certification exam for the IT industry/business education program; Promotion of the program to a compulsory program for government officers.	BCC/MOSICT, Ministry of Establishment
Strategy 2 Intensive marketing to priority economies and countries				
Program 2-1 Reinforcement of basis for IT marketing in the target market	Software industry in general	The ICT Promotion Desk will be established at the Bangladesh embassy in each priority country	Selection of priority countries and establishment of ICT Promotion Desk in Bangladesh embassies in the priority countries.	BASIS, EPB/MOC, MOFA
Program 2-2 Establishment of business bridging system in the target market	Software industry in general	Business bridging systems to mediate software industries between Bangladesh and the priority countries will be established.	Establishment of business bridging system.	BASIS, EPB/MOC
Program 2-3 Package Program for penetrating to the software market in Japan	BASIS member companies which participate in the program.	Access to Japanese offshore markets will be improved.	Modification and continuation of the Pilot Project.	BASIS, EPB/MOC

Table 7.4-2 Summary of Program Proposals for the Software Industry (2/2)

Program name	Target group	Output	Major activities	Executing body
Strategy 3 Capacity building of the software industry				
Program 3-1 Facilitation of construction of Software Park (Building)	About 200 software/ITES companies	Two buildings will be constructed to serve as the software park	Construction of Two buildings to serve as the software park	BASIS
Strategy 4 Human resource development competitive in the export market				
Program 4-1 Introduction of ITSS (IT Skill Standard) to Bangladesh	IT engineers, CSE-major students, IT-related companies.	1) Education curriculum based upon ITSS will be developed; 2) National certification exam will be developed based on the curriculum developed in 1); 3) Mutual certification will be systemized between the national exam developed in 2) and those in other Asian countries; and 4) Japanese language education program will be developed.	1) Development of ITSS education program; 2) Development of national certification exam; 3) Establishment of mutual certification system with other countries; and 4) Development of Japanese language education program.	BCC/MOSICT, UGC/MOE, BASIS, Donors
Program 4-2 Placement service and practical training for university graduates	CSE-major students/graduates in search of job, IT engineers, middle-management officers in IT companies	Recruitment of CSE-students in software companies will be promoted; Practical training centre for OJT (with actual project assignment) will be established.	Establishment of placement service center and implementation of placement service; Establishment of practical training center and implementation of the trainings.	BCC/MOSICT, UGC/MOE, BASIS (including member companies)

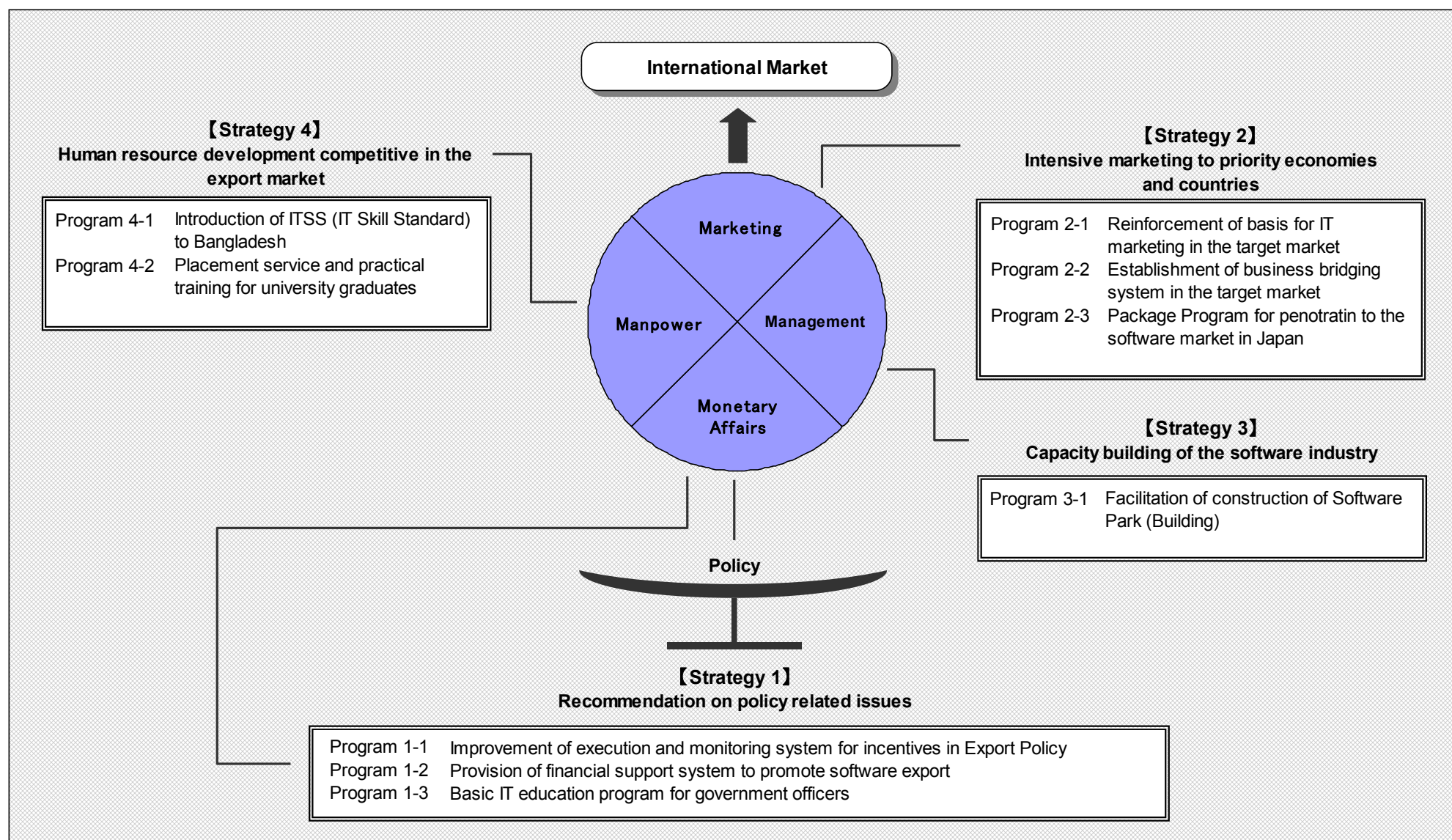


Figure 7.4-1 Schematic Diagram Showing the Program Structure (Software)

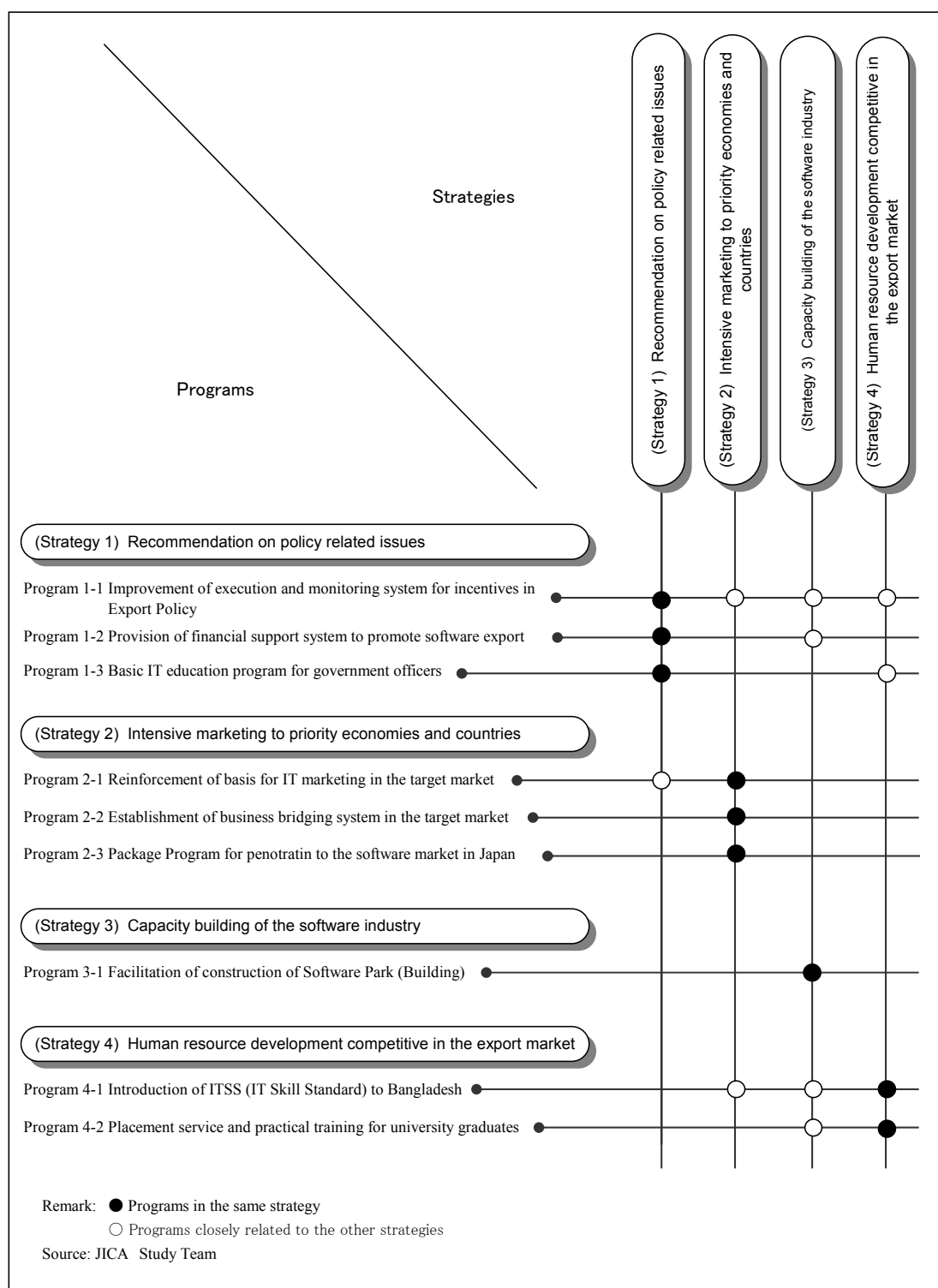


Figure 7.4-2 Multifaceted Relationship among Proposed Programs

7.4.2 Priority Setting for Program Implementation

In establishing implementation schedules for the nine proposed programs, priority is set for the order of implementation on the basis of two factors, i.e., the level of contribution to the accomplishment of the development purpose and the level of program feasibility. The level of contribution measures the program's effectiveness as to how well it can help achieve the development purpose, while the level of program feasibility tells how difficult it is for the program to be actually realized (or to start out).

(1) Level of contribution to the accomplishment of the development purpose

The development purpose of the action program for the software industry is "Software industry attains sustainable growth through export expansion." This development purpose has two propositional contents: One is "export expansion;" and the other is "sustainable growth." Among the nine proposed programs, the program that can make the direct contribution to both the propositional contents is Program 4-1 "Introduction of ITSS (IT Skill Standard) to Bangladesh." The program aims to develop the national certification examination for IT technology in Bangladesh and to establish mutual certification system between this examination and those in other Asian countries. Human resource development, including the establishment of national certification examination, is a key factor for sustainable growth of the industry. Further, mutual certification of the examination with those of other countries can promote the export growth. Thus, the level of contribution of the Program 4-1 "Introduction of ITSS (IT Skill Standard) to Bangladesh" to accomplishment of the development purpose is the highest.

Other programs that directly contribute to the export expansion are programs positioned under Strategy-2 "Intensive marketing to priority economies and countries." However, these programs are not primarily designed to contribute to the sustainable growth of the software industry.

Note that "export expansion" and "sustainable growth" in the development purpose have the causal relationship, that is, "export expansion" will lead to "sustainable growth." Therefore, the program that the level of contribution to export expansion is high is able to make larger contribution to the accomplishment of the development purpose, than the program that the level of contribution to the sustainable growth is high can. It follows from this that Program 4-1 and the programs under the Strategy-2 are given of the highest priority amongst all the proposed programs.

Meanwhile, as mentioned earlier, for the sustainable growth of the industry, human resource development is essential. Especially, continuous availability of competent human resources in the long term is prerequisite for the sustainable growth of the software industry. Hence, Program 4-2 “Placement service and practical training for university graduates” can make the large contribution to sustainable growth of the software industry.

On the other hand, Program 1-1 “Improvement of execution and monitoring system for incentives in Export Policy,” Program 1-2 “Provision of financial support system to promote software export” and Program 3-1 “Facilitation of construction of Software Park (Building)” are considered to be a rather indirect approach to accomplishment of the development purpose, whereas they all are important factors for the sustainable growth through export expansion of the software industry. Finally, the level of contribution of Program 1-3 “Basic IT education program for government officers” to accomplishment of the development purpose is considered to be fairly low, while the program is necessary to improve the policy/institutional environment to achieve the purpose.

In consideration of the above analysis and evaluation, the proposed programs are rated according to the level of contribution. Then, each program is scored with Level 1 being 100 points as follows.

1) Level 1 100 points

- Program 2-1 Reinforcement of basis for IT marketing in the target market
- Program 2-2 Establishment of business bridging system in the target market
- Program 2-3 Package Program for penetrating to the software market in Japan
- Program 4-1 Introduction of ITSS (IT Skill Standard) to Bangladesh

2) Level 2 60 points

- Program 4-2 Placement service and practical training for university graduates

3) Level 3 40 points

- Program 1-1 Improvement of execution and monitoring system for incentives in Export Policy
- Program 1-2 Provision of financial support system to promote software export
- Program 3-1 Facilitation of construction of Software Park (Building)

4) Level 4 20 points

- Program 1-3 Basic IT education program for government officers

(2) Feasibility

In principle, program priority is governed by the level of contribution to the accomplishment of the development purpose. On the other hand, feasibility may decrease with an increase in program size, e.g., a large project may be less feasible while it shows a high level of contribution to accomplishment of the development purpose. For instance, a program that may become feasible ten years later should be given of lower priority. In this sense, feasibility is another key factor for setting priority for program implementation. Programs that are subject to a larger restraint on implementation are those requiring government budget allocation, introduction or modification of policy and legislation, or large resource input (manpower, fund, and asset). In evaluating feasibility of the proposed programs, time factors relating to the implementation process are not considered here but in the stage where the time schedule is established in the next section. Each program is scored with Level 1 being 50 points, as follows. Scores assigned to feasibility are one half those for the level of contribution to accomplishment of the development purpose, because the latter is weighed more than the former when program priority is evaluated.

1) Level 1 50 points

Program 1-1 Improvement of execution and monitoring system for incentives in Export Policy

- Necessary input is very small. Modification of description methods of incentives in the Export policy does not require legal amendment.

2) Level 2 30 points

Program 1-3 Basic IT education program for government officers

- Necessary input is relatively small. There already exist training facilities for government officers that can be utilized in this program. Yet, the Ministry of Establishment needs to promote this program to a compulsory program for targeted government officers.

Program 2-3 Package Program for penetrating to the software market in Japan

- This is a continuation of the Pilot Project. Yet, financial contribution from the private companies is necessary.

Program 3-1 Facilitation of construction of Software Park (Building)

- BASIS already has plans to develop software parks. Yet, necessary input is relatively large compared to other programs.

Program 4-2 Placement service and practical training for university graduates

- Necessary input is small. Yet, industry-academia collaboration is required.

3) Level 3 20 points

Program 2-1 Reinforcement of basis for IT marketing in the target market

- Agreement between MOFA and MOF is required. Necessary input is large.

Program 2-2 Establishment of business bridging system in the target market

- Emergence of effects in Program 2-1 is a prerequisite. Governmental financial assistance is necessary to be provided to a private association (BASIS).

Program 4-1 Introduction of ITSS (IT Skill Standard) to Bangladesh

- Necessary input is large as the activities involved in this program range widely. Technical assistance of the donor organization is required.

4) Level 4 10 points

Program 1-2 Provision of financial support system to promote software export

- Bangladesh has virtually no experience in managing the credit guarantee system. Necessary input is relatively large. Cooperation from the financial institutions are required. Both the credit guarantee agency and financial institutions need to have technologies to evaluate creditworthiness of software companies.

(3) Overall evaluation and priority setting

The scores representing the level of contribution to the accomplishment of the development purpose as well as program feasibility are added up to obtain the overall score, and scores for all the programs are classified into three ranks. As already pointed out, the level of contribution is weighed more (twice) than the feasibility, i.e., 100 – 20 points (Levels 1 – 4) are assigned to the former, and 50 – 10 points (Levels 1 – 4) to the latter. The highest priority group represents the overall score of 100 or more points, the second priority group more than 50 points and less than 100 points, and the third priority group less than 50 points. The results are summarized in Table 7.4-3. In the number of programs, there are four programs in the highest priority group, three in the second priority group, and two in the third priority group.

Table 7.4-3 Priority Rating for the Proposed Programs

Program name	Level of contribution	Feasibility	Total	Priority
(Strategy 1) Recommendation on policy related issues				
Program 1-1 Improvement of execution and monitoring system for incentives in Export Policy	40	50	90	■■■
Program 1-2 Provision of financial support system to promote software export	40	10	50	■
Program 1-3 Basic IT education program for government officers	20	30	50	■
(Strategy 2) Intensive marketing to priority economies and countries				
Program 2-1 Reinforcement of basis for IT marketing in the target market	100	20	120	■■■■■
Program 2-2 Establishment of business bridging system in the target market	100	20	120	■■■■■
Program 2-3 Package Program for penetrating to the software market in Japan	100	30	130	■■■■■
(Strategy 3) Capacity building of the software industry				
Program 3-1 Facilitation of construction of Software Park (Building)	40	30	70	■■■
(Strategy 4) Human resource development competitive in the export market				
Program 4-1 Introduction of ITSS (IT Skill Standard) to Bangladesh	100	20	120	■■■■■
Program 4-2 Placement service and practical training for university graduates	60	30	90	■■■

Note: Highest priority group ■■■■■ (100 points or higher)
 Second priority group ■■■ (50 points - less than 100 points)
 Third priority group ■ (Less than 50 points)

Source: JICA Study Team

7.4.3 Five Year Implementation Plan and Schedule

The action program for the software industry is proposed to implement nine programs over a period of five years, and its implementation plan and schedule have been developed here. Essentially, detailed examination of the action program proposals will start after the submission of this Report and the formal preparation work will start in July 2009 when the new fiscal year commences. Major factors to be considered in the development of the implementation schedule are the priority ranking made in the previous section, program linkage (dependency), and the ease of head start.

(1) Relationship between priority and implementation schedule

Needless to say, a program with high priority should be started as early as possible. It does not necessarily mean, however, that a program with low priority should or can be set aside for later implementation. Furthermore, it is difficult to say how long such program schedule can be delayed or what justification can be made. In consequence, so long as the action program's role is to show a preliminary (target) schedule, there is no reason to delay the start of the low priority program unless it is justified from the dependency relationship with the preceding program. This can be further explained from the standpoint of the two criteria for priority setting (level of contribution and feasibility).

Level of contribution

Priority becomes lower for a program that is expected to make indirect contribution to the accomplishment of the development purpose. As a result, the programs under Strategy 1 "Recommendation on policy related issues" are rated lowest under this criterion. However, these programs have broad impacts on the target group under the present Study and its implementation should not be delayed just because of the low level of contribution to the achievement of the development purpose, for it serves national economic interest.

Level of feasibility

As discussed earlier, level of feasibility estimates degree of difficulty in making a proposal into a real program. Some programs may be delayed or even cancelled in the implementation stage. Nevertheless, it is not logical to allow for "delay" in the planned schedule, although a relatively long preparation period may be acceptable. Delay can be simply avoided by adjusting allocation of input resources on the basis of government policy.

Significance of priority

Thus, the implementation schedule should not assume any delay in the start of a low priority program, because it would negate significance of priority setting for program implementation. Priority is set when resources (manpower, fund and asset) are limited and need to be allocated only to selected programs. It thus serves as criteria to select a program from mutually exclusive ones.

(2) Program linkage

Some of the proposed programs are linked to each other in terms of dependency, i.e., one program must be completed or be in progress before the other can start. The following is an example of program linkage.

1) Program linkage

Preceding program

Program 2-1 Reinforcement of basis for IT marketing in the target market

Dependent program

Program 2-2 Establishment of business bridging system in the target market

Program 2-2 should preferably be started after the recognition of the Bangladeshi software industry in priority countries has been improved through implementation of the Program 2-1.

2) Program linkage and implementation schedule

The above example does not mean that the dependent program needs to wait for the preceding program to complete. It indicates that program linkage may not be strong. If the killer assumption, i.e., the subsequent program can never be started unless the preceding one is completed, is not established, the two programs can be concurrently started and/or implemented, or the subsequent program can be started during the implementation period of the preceding program. Furthermore, it cannot be assumed that a preceding program is always implemented. As a result, program linkage should not be overemphasized in the implementation plan, which would create a risk of jeopardizing the entire implementation process. For this reason, it is proposed to set one and half - three year interval between the two programs in order to wait for the Program 2-1 to produce necessary effects to start Program 2-2.

(3) Other considerations

The proposed programs are classified into two types, those that are entirely new to the country and those that represent the reinforcement or improvement of ongoing programs. In the latter case, ongoing programs do not conflict with the proposed ones, or they are not in a trade-off relationship. Either can be incorporated into the other or both can be implemented in parallel. Furthermore, some of the proposed programs can be integrated into one, but they are proposed as they are, in consideration of the fact that such integration would adversely affect feasibility in increasing difficulty in terms of implementation (e.g., involvement of multiple executing bodies, and increase in input resources).

(4) Formulation of the implementation schedule

The five-year implementation plan and schedule for the action program is summarized in Figure 7.4-3. In consideration of the factors in (1) through (3), it is assumed that the start of Programs 2-2 will be postponed by one and half years, while other programs will be concurrently started at the beginning of the first year. Note that actual implementation time will likely vary according to the resolution of “key points in implementation” in the figure and allocation of input resources.

While the implementation schedule is established over the time span of five years, the action program should be implemented in the long run, rather than completion within five years. In fact, the program implementation schedules proposed here can be classified into the following three patterns (see Figure 7.4-3).

- Programs marked by “▷” will be continued as part of routine job once the implementation plan has been decided.
- Programs marked by “▶” will be continued repeatedly by treating a proposed program as one batch.
- Programs marked by “■” will complete in five years, provided that their results (accomplishments) will form the basis of a follow-up program or activity.

	1st Year (2009.07~)	2nd Year (2010.07~)	3rd Year (2011.07~)	4th Year (2012.07~)	5th Year (2013.07~)	Mode of Continu- ation	Output in 5 years	Key Points in Implementation		
Strategy 1 Recommendation on policy related issues										
Program 1-1 Improvement of execution and monitoring system for incentives in Export Policy	Review Enactment	Implementation/Monitoring	Review Enactment	Implementation/Monitoring		▶	Concretization and clarification of incentives in Export Policy	* Approval from the cabinet		
Program 1-2 Provision of financial support system to promote software export	Review New guideline Planning/Budgetizing	Enactment	Operation on new guideline and monitoring			▷	Increase in working capital loans to software/ITES companies	* Allocation of government budget and approval from EPB executive board		
Program 1-3 Basic IT education program for government officers	Budgetizing/Mandatory clause Curriculum development	Establishment Training in 132 batches for 11 months	Continuation in reduced frequency for newly targeted officers like the newly recruited			▶	Increase in IT business/industry knowledge among government officers	* Viability of effecting mandatory clause for the participation		
Strategy 2 Intensive marketing to priority economies and countries										
Program 2-1 Reinforcement of basis for IT marketing in the target market	Budgetizing Country selection	Establishment	Branding/recognition improvement activities			▷	Improvement of recognition of Bangladeshi software industry in the priority countries.	* Allocation of the government resources to the program		
Program 2-2 Establishment of business bridging system in the target market		Monitoring on effects of Program 2-1/Budgetizing	Agreement with bridging organizations			▷	Improvement of access to markets in priority countries.	* Availability of credible bridging organization in each country		
Program 2-3 Package Program for penetrating to the software market in Japan	Monitoring on effects of Program 2-1 Company Recruitment/Marketing tools		Sales/marketing activities			▷	Improvement of access to Japanese market.	* Japan will be selected as one of target countries in Program 2-1		
Strategy 3 Capacity building of the software industry										
Program 3-1 Facilitation of construction of Software Park (Building)	Acquirement of land Fund collection	Construction				■	Many software/ITES companies will share necessary infrastructure.	* Land availability for free and low-interest loan availability		
Strategy 4 Human resource development competitive in the export market										
Program 4-1 Introduction of ITSS (IT Skill Standard) to Bangladesh	ToT Planning	Development Implementation of Japanese education with 200 trainees in 2 batches (10 month course)	Implementation of ITSS-based IT education with 400 trainees (20 classes) in 4 batches (6 month course)			▶	Development of ITSS-based national certification exam, which is mutually certified with those of other countries.	* Possibility of T/A		
Program 4-2 Placement service and practical training for university graduates	Budgetizing Planning	Establishment Pilot Project/FS	Career fair	Career fair	Career fair	Career fair	Career fair	▷	Encouragement of employment of CSE graduates with practical skills in software companies.	*Collaboration of academia and industry

▷ Will be continued as part of routine job once the implementation plan has been decided

▶ Will be continued repeatedly by treating a proposed program as one batch

■ Will complete in five years, provided that their results (accomplishments) will form the basis of a follow-up program or activity.

T/A : Technical Assistance

F/A: Financial Assistance

Figure 7.4-3 Five-year Implementation Plan and Schedule for the Action Program