Constraints and Opportunities Facing the Horticultural Sector in Bangladesh

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TABLE OF CONTENTS

I. Executive Summary ........................................................................................................ 4

II. Overview of the Study .................................................................................................. 7

III. Sectoral Background ................................................................................................. 9

3.1 Growth of Agriculture ............................................................................................... 9
3.2 Growth of Horticulture and Crop Sub-sector ........................................................... 9
3.3 Processing of Fruits and Vegetables .......................................................................... 13
3.4 Competitiveness of Producing the Crop ................................................................... 15

IV. Cross-Cutting Issues ................................................................................................ 16

4.1 Farm-gate Costs and Quality of Production ............................................................. 16
4.2 Range of Market Options ......................................................................................... 16
4.3 Marketing of Fruits and Vegetables .......................................................................... 16
4.4 National Export Scenario ......................................................................................... 23
4.5 Import of Fruits and Vegetables .............................................................................. 30
4.6 Incipient Processing Activity .................................................................................... 30
4.7 Air and Ocean Freight Options ................................................................................ 31
4.8 Overland Transportation ......................................................................................... 32
4.9 Infrastructure and Technology ................................................................................ 33
4.10 Investment and Working Capital ............................................................................ 36
4.11 Market Access ......................................................................................................... 36
4.12 Access to Information .............................................................................................. 37
4.13 Supply Chain Integration ......................................................................................... 38
4.14 Corruption ............................................................................................................... 39
4.15 Bureaucracy ............................................................................................................ 40

V. Supply and Value Chain Analysis of Fruits and Vegetables ........................................... 42

5.1 Mango ......................................................................................................................... 42
5.2 Pineapple .................................................................................................................... 47
5.3 Asian Vegetables ....................................................................................................... 49
5.3.1 Okra ........................................................................................................................ 49
5.3.2 Bitter Gourd ........................................................................................................... 52
5.3.3 Chilli ........................................................................................................................ 55
5.3.4 Potatoes .................................................................................................................. 58

VI. Summary and Recommendations ............................................................................. 66

VII. Next Steps .................................................................................................................. 76

Appendices

Appendix-1: Map of Bangladesh .................................................................................... 81
Appendix-2: Terms of Reference ..................................................................................... 82
Appendix-3: Contact List .................................................................................................. 87
Appendix-4: Interview Log ............................................................................................... 89

List of Tables

Table -1: Contribution of Agriculture to GDP
Table -2: Growth Rate of Agriculture and Its Sub-sectors
Table -3: Land Utilization by Horticultural Product Category
Table -4: Gross Domestic Product of crops and Horticulture at Current Prices
Table -5: Trend of Agricultural Production in Bangladesh
Table -6: Cultivation Cost and Net Returns of Boro Rice vs. Focus Commodities
Table -7: Forecast of PRAN Fruits & Vegetables Requirements
Table -8: Markets in Bangladesh
Table -9: Fruit & Vegetable Exports & Contribution to GDP
Table-10: Fruit & Vegetable Exports: Contribution to Total Exports
Table-11: Bangladesh Fruit & Vegetable Exports
Table-12: Bangladesh Vegetables Exports by Destination
Table-13: Bangladesh Fruit Exports by Destination
Table-14: Major Vegetables Exported from Bangladesh
Table-15: Bangladesh Exports of Dry Food, Jam, Jelly and Fruit Juices
Table-16: Bangladesh Potato Exports by Destination
Table-17: Cash subsidy (CS) for Agriculture, Agro Products
Table-18: Import of Fruits and Vegetables in Bangladesh
Table-19: Increases in the Biman Fresh Produce Freight Rate (Tk/kg) Schedules
Table-20: Imbalance between Air Freight Availability and Export Demand
Table-21: Post-Harvest Losses of Some Selected Fruits and Vegetables
Table-22: Post-Harvest Losses of Focused Commodities
Table-23: Possible Impact of Improved Quality Systems on Export Volumes
Table-24: Horticultural Seed Requirements and Sources
Table-25: Fruit Production by Variety
Table-26: Mango Area, Production and Yields by Major Region
Table-27: Principal Mango Importing Countries
Table-28: Pineapple Area, Production and Yields by Major Region
Table-29: Okra area, production and yields by major region
Table-30: Bitter Gourd Area, Production and Yields by Major Region
Table-31: Summer Chilli Area, Production and Yields by Major Region
Table-32: Winter Chilli Area, Production and Yields by Major Region
Table-33: Potato Area, Production and Yields by Major Region
Table-34: Principal Potato Importing Countries
Table-35: Export Values, Subsidy of Total FOB and SIP
Table-36: Operational Costs, Foreign Carriers, Dhaka Airport
Table-37: Transit Guidelines for Selected Commodities, Hortex vs. UC-Davis

List of Figures

Figure-1: Export of Fruits and Vegetables
Figure-2: Major Market Destinations of Fruits and Vegetables
Figure-3: Area under Different Major Fruit Crops in Bangladesh.
Figure-4: Principal Marketing and Distribution Channels for Mango/Pineapples
Figure-5: Value Chain Analysis of Mango
Figure-6: Value Chain Analysis of Pineapple
Figure-7: Supply Chain of Okra
Figure-8: Value Chain Analysis of Okra
Figure-9: Supply Chain of Bitter Gourd
Figure-10: Value Chain Analysis of Bitter gourd
Figure-11: Supply Chain of Green Chilli
Figure-12: Value Chain Analysis of Green Chilli
Figure-13: Supply Chain of Potato
Figure-14: Value Chain Analysis of Potato
I. Executive Summary

Although its role as a percentage of GDP has declined over the past 25 years, agriculture continues to occupy an important place in the Bangladeshi economy. If it occupies only 7.27% of Bangladesh’s agricultural land, horticultural production generates more than 18% of its agricultural GDP. In addition to its disproportionate contributions to agricultural growth and agricultural GDP, the horticultural sector also provides differentially higher net returns per hectare than do the conventional paddy crops which occupy primacy of place within the context of agricultural land use. Grower profitability is significantly higher on a per-hectare basis for each of the six focus commodities – mango, pineapple, okra, green chilli, bitter melon and potato -- than for Boro rice. Rice production in Bangladesh is rooted in historical food scarcity, in domestic consumption patterns, and in the knowledge base of the farming population. It is not a recommendation of this study that there be any wholesale abandonment of rice production in favor of horticultural crops. Still, as the value chain calculations presented in this study demonstrate, the conversion of a greater portion of Bangladesh’s limited arable land from cereal crops to horticultural products would appear to be a promising vehicle for the improvement of farmer income.

Our objective throughout the course of this study has been to identify ways to improve farmer incomes and consumer welfare through improvements in the environment in which Bangladeshi horticulture operates. In the course of the study, we began with a broad review of the entire horticulture sub-sector, with particular emphasis on production, fresh and processed transformation of fruits and vegetables, and the marketing channels – both domestic and export – which this product follows. We then turned our attention to the major cross-cutting issues which encourage or impede the growth and prosperity of the sub-sector, primarily seen from the viewpoint of the farmer, but also with consideration to the participation of the intermediaries, processors, transporters, sellers, retailers and consumers and exporters of Bangladesh’s fresh fruits and vegetables. In the course of this review we developed an extensive list of preliminary recommendations designed to improve farmer incomes and consumer welfare.

We then proceeded to a review of six specific commodities which make up our focus commodities. Our objective here was in part to evaluate the export suitability of each of these commodities, pursuant to the recommendation of commodity-specific recommendations to stimulate export activity where appropriate. At the same time, we also used these six commodities as our “field trials”, to evaluate the impact which our broad-based recommendations would have on each of these specific product groups. In the process of this review, we discovered that some – but not all – of our focus commodities possessed the basic advantages needed to compete successfully on the global stage. At the same time, we were led to the conclusion that any commodity-specific recommendations designed to favor any particular commodity’s global competitiveness were premature, given the urgent need for systemic improvements in the general environment in Bangladesh which would influence – if not determine – the success or failure of all such commodities in the export arena.

As a result of this realization, we returned our focus to the broad recommendations whose adoption would, we believe, dramatically improve farmer incomes and consumer welfare in terms of the production, commercialization and consumption of fresh fruits and vegetables in Bangladesh.

There are 29 recommendations in all:
1. Make better use of existing cold storage capacity for domestic distribution

2. Develop specific solutions to insure cold-chain integrity for export cargo

3. The SIP currently granted by Biman should be gradually phased out and replaced by an increase in the incentives paid by the GoB on potato and vegetable exports

4. Modify the system of subsidy payments to minimize delays and exporter uncertainty

5. Exporters and BFVAPEA logistics and negotiation capacities should be strengthened

6. Encourage export sector to establish a separate and private company to negotiate air freight rates, organize air charters, and develop time/volume contracts with liner carriers

7. The Government of Bangladesh should assist exporters in securing credit facilities to fund short-term financing required to fund charter cargo flights

8. The Government of Bangladesh should reduce the high costs of operations for airlines serving Zia International Airport

9. In exchange for reduced costs of operation, the Government of Bangladesh should require all carriers to provide horticultural exporters with improved and secure access to cargo space

10. Identify currently exported commodities which are compatible with ocean carriage.

11. Establish handling and transit temperature guidelines for each commodity, based on the specific operating conditions within Bangladesh

12. Develop tariffs, initiate trial shipments, compile the results, and proceed to incorporate ocean freight as basic element of export distribution for Bangladeshi horticultural products

13. Provide farmers, service providers and agro-processors with the energy they require at rates that are affordable

14. BADC and other agencies charged with overseeing the supply of reliable seed in Bangladesh should be given the resources necessary to meet their responsibilities

15. Upgrade testing laboratories in Bangladesh

16. Develop national quality management systems to train, and ultimately to accredit, growers and packers in the major international certification regimes such as HACCP, ISO, GAP, GMP, EurepGap and BRC

17. Develop agricultural research projects specifically targeted to address problems with horticultural yields and adaptability, as well as post-harvest losses and quality declines

18. The horticultural processing sector requires a like level of research support to assist it in addressing challenges in the areas of processing techniques, equipment application and manufacture, and new product development

19. Establish an Expert Committee to strengthen and develop agricultural marketing in Bangladesh
20. Restructure DAM providing additional facilities and trained manpower for promotion of agricultural marketing, agricultural market research, intelligence and certification (compliance with all international standards).

21. Amend the 1996 Market Management and Leasing Policy of 1996 and also amend the Agricultural Markets Produce Regulation Act of 1964 to cover all aspects of marketing including re-structuring of Market Management Committee and necessary legal reforms for effective and efficient marketing.

22. Increase investment in market infrastructure, arrange technical assistance and credit for improving market infrastructures including post-harvest management and processing facilities to reduce the wastage and more value addition for enhancing marketing margin and increasing return to farmers.

23. The Government of Bangladesh should work to normalize trade patterns and standards with India

24. The Export Promotion Board, and other official agencies, should dedicate resources to the horticultural sector in support of its efforts to develop new markets in Southeast and East Asia

25. The Ministry of Agriculture needs to develop the ability to conduct Pest Risk Analyses, and to negotiate and implement work plans, as part of the process of gaining horticultural access to promising markets in East Asia

26. Contract farming arrangements should be officially encouraged and facilitated as a means of reducing the costs of intermediation and integrating horticultural producers into the fresh produce supply chain.

27. Direct farm-to-market programs, such as that fostered by the Northwest Crop Diversification Project (NCDP), should also receive official endorsement and encouragement

28. The government should continue to assist farmers to reduce the added costs of informal tolls levied against fresh produce as it is carried from farm-gate to market

29. Efforts should also continue toward the reduction of informal payments for routine handling of export shipments through the Port of Chittagong and Zia International Airport

The remainder of this report contains more in-depth information as to the findings, recommendations and next steps, which we believe to be indicated.
II. Overview of the Study

The World Bank and IFC are engaged in a broad multi-sectoral study of constraints and opportunities facing the agribusiness industry in Bangladesh. The overall objective of this study is improvement of farmer incomes and enhancement of consumer welfare, achieved by identifying strategies and policy options for promoting sustainable growth in the overall agribusiness sector. Five agribusiness sectors were identified for particular focus:

1. Fruits and Vegetables
2. Aquaculture
3. Poultry
4. Dairy, and
5. Aromatic Rice

The authors of this background paper were asked to identify and assess principal opportunities and constraints within the fruits and vegetables sector. The terms of reference for this project (see Exhibit 1) requested that we place particular emphasis on fresh fruit and vegetable exports, processed fruit and vegetable activity destined for the domestic market, and export-oriented processed fruit and vegetable trade. The ToR further specified four products as focus commodities:

1. Mango
2. Pineapple
3. Asian Vegetables (Bitter Gourd, Okra, Green Chilli), and
4. Potatoes

The authors embarked on the preparation of this background study by reviewing the numerous studies commissioned by the Government of Bangladesh and by donor groups, which touched on this sector. We then interviewed a broad range of stakeholders (see Appendix --) from government, academic and research organizations, industry associations, private sector companies, and service providers. These inquiries in turn led us to discover a number of companies that have already found, or soon expect to find, success in the targeted fruit and vegetable agribusiness activities. There are examples of profitable operations underway across fresh export, processed export and processed domestic distribution channels in Bangladesh. At the same time, this survey exercise led us to identify a cluster of cross-cutting issues which appear to influence performance across most, if not all, of the commodities under examination.

Bangladesh’s fruit and vegetable sector benefits from several competitive advantages, which represent opportunities for commercial exploitation. Included under this heading would be the following:

1. Farm-gate costs and quality of production
2. Range of market options, including
   a. Significant domestic consumption base,
   b. Overseas Bangladeshis,
   c. Neighboring States of India, and
   d. Proximate export markets in South and Southeast Asia and the Middle East
3. Existing base of export activity and experience
4. Incipient processing activity
5. Air and ocean freight options

Set against these advantages/opportunities is a challenging list of constraints to further expansion of the processing and fresh export activities, including:

1. Transportation
2. Infrastructure and Technology
3. Market Access
4. Supply Chain Integration, and
5. Corruption

Following a discussion of the status and development of the fresh fruit and vegetable sector in Bangladesh, we will proceed to a general discussion of these constraints, then move on to a more detailed appraisal of the opportunities and constraints facing each of the six focus commodity groups.
III. Sectoral Background

3.1 Growth of Agriculture

Although its role as a percentage of GDP has declined over the past 25 years, agriculture continues to occupy an important place in the Bangladeshi economy. In 1980, the contribution of agriculture to GDP stood at 51%. By 2003-2004, its relative weight had declined to a still-significant 23 %. Of this total, 13% was made up by crops, 5% by fisheries, 3% by livestock 3%, and 2% by forestry (Table-1). No less important is agriculture’s role as a generator of job opportunities, accounting for over 62% of total national employment (AIS, 2006). Agriculture and agro-based commodities accounted for 11.2% of exports in 2002-2003. While GDP (in constant 1995-96 prices) grew annually at 5.0 % from 1992-1993 to 2002-2003, comparable annual rates of growth for the agriculture and crop sectors were 3.1% and 2.2% respectively. On average, the rate of agricultural growth during this period was higher than the rate of population growth (Actionable Policy Brief, 2004).

The GOB strategy for agricultural growth is reflected in the Poverty Reduction Strategy Paper and the Actionable Policy Brief (APB) of the Ministry of Agriculture. Both documents recognize agriculture and rural development as the key sector for enhancing pro-poor growth. In the APB, the basic framework for agricultural growth is focused on intensification of cereal production, diversification of high value crops, development of agricultural products (semi-processed and processed) and development of non-crop agriculture (livestock and fisheries).

Despite many problems and constraints, a remarkable agricultural revolution has taken place which is still evolving in response to natural calamities, population growth, urbanization, new technology in agriculture, new opportunities in the rural non-farm sector, commercialization and changes in macro policy, and sector policy reforms including market and trade liberalization and substantial reduction in public sector intervention in agriculture.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>26.01</td>
<td>25.34</td>
<td>25.03</td>
<td>23.08</td>
</tr>
<tr>
<td>Crops</td>
<td>15.43</td>
<td>14.59</td>
<td>14.70</td>
<td>13.23</td>
</tr>
<tr>
<td>Fisheries</td>
<td>3.42</td>
<td>3.19</td>
<td>2.95</td>
<td>2.91</td>
</tr>
<tr>
<td>Livestock</td>
<td>5.21</td>
<td>5.67</td>
<td>5.51</td>
<td>5.11</td>
</tr>
<tr>
<td>Forestry</td>
<td>1.95</td>
<td>1.89</td>
<td>1.87</td>
<td>1.83</td>
</tr>
</tbody>
</table>

Source: Bangladesh Economic Review, 2005

3.2 Growth of Horticulture and Crop Sub-sector

The agriculture sector consists of crop, forestry, fisheries and livestock sub-sectors. The crop sub-sector represents 57% of agricultural GDP, and accounts for 55% of sectoral employment. However, crop sub-sector growth has been highly unstable, varying from -3.4% in 1994-95 to 4.27% in 2003-04 (Table-2). The highest growth rate of 6.2% was registered in 2000-01, followed by 4.38 % in 2003-04, which shows that it is possible to enhance growth of crop agriculture with appropriate use of production inputs when favorable climatic conditions are present.

Side by side, growth instability in certain years indicates that crop sub-sector remains highly vulnerable to natural disasters and unpredictable climatic conditions. Growth of crops also depends on input supply, input quality and input price factors.
Table-2: Growth Rate of Agriculture and Its Sub-sectors

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Growth</td>
<td>4.93</td>
<td>5.23</td>
<td>5.27</td>
<td>6.27</td>
</tr>
<tr>
<td>Agriculture</td>
<td>-1.9</td>
<td>1.6</td>
<td>5.5</td>
<td>4.38</td>
</tr>
<tr>
<td>Crops</td>
<td>-3.4</td>
<td>1.1</td>
<td>6.2</td>
<td>4.27</td>
</tr>
<tr>
<td>Fisheries</td>
<td>6.8</td>
<td>9.0</td>
<td>4.5</td>
<td>3.09</td>
</tr>
<tr>
<td>Livestock</td>
<td>2.5</td>
<td>2.6</td>
<td>2.8</td>
<td>4.98</td>
</tr>
<tr>
<td>Forestry</td>
<td>2.8</td>
<td>4.5</td>
<td>4.9</td>
<td>4.18</td>
</tr>
</tbody>
</table>

Source: BBS, 2005

Crop agriculture in Bangladesh is dominated by cereal crops, which account for an estimated 80% of the 14.2 million hectares under production nation-wide. Cultivation of horticultural products takes up only about 7% of this total, divided as follows (Table-3).

Table-3: Land Utilization by Horticultural Product Category, 2003-2004

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Area (ha)</th>
<th>Land Use (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Horticulture</td>
</tr>
<tr>
<td>Vegetables</td>
<td>271,200</td>
<td>27</td>
</tr>
<tr>
<td>Potatoes</td>
<td>267,600</td>
<td>26</td>
</tr>
<tr>
<td>Fruits</td>
<td>214,400</td>
<td>23</td>
</tr>
<tr>
<td>Spices &amp; Condiments</td>
<td>266,000</td>
<td>28</td>
</tr>
<tr>
<td>Total Horticulture</td>
<td>1,019,200</td>
<td>100%</td>
</tr>
</tbody>
</table>

(BBS, 2004)

Although it occupies only 7.27% of Bangladesh’s agricultural land, horticultural production generates more than 18 % of its agricultural GDP. As can be seen in Table-4, horticultural production has generated between 18% and 20% of national agricultural GDP over the 4-year period from 2000/01 through 2003/04. Over this same period, horticultural GDP grew at an annualized rate of 7.8 %, versus a growth rate of 4.5 % for the crop sector, and only 3.8 % for the non-horticultural sectors as a whole. Growth of horticultural products accelerated from 1.01% over 1990-1996 to 3.21% over 1996-2000 period (Mujeri, 2000). Production of vegetables has increased from 1.24 to 1.85 million tons in 1995-96 to 2004-05. Similarly, the production of fruits during the same period has increased only from 1.49 million tons to 1.71 million tons. The production of spices also has increased significantly from 0.31 to 1.0 million tons during the same period. Potato production has made a quantum jump from 1.49 million tons in 1995-96 to 5.86 million tons in 2004-05 (Table-5).
Table- 4: Gross Domestic Product of Crops and Horticulture at Current Prices

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy (Aus, Aman &amp; Boro)</td>
<td>226100</td>
<td>220721</td>
<td>236651</td>
<td>254163</td>
</tr>
<tr>
<td>Wheat</td>
<td>10362</td>
<td>10131</td>
<td>9804</td>
<td>8431</td>
</tr>
<tr>
<td>Other cereals</td>
<td>393</td>
<td>1518</td>
<td>1735</td>
<td>2324</td>
</tr>
<tr>
<td>Beverages</td>
<td>10485</td>
<td>10918</td>
<td>11660</td>
<td>12910</td>
</tr>
<tr>
<td>Fibres</td>
<td>9211</td>
<td>10792</td>
<td>10208</td>
<td>10597</td>
</tr>
<tr>
<td>Vegetables</td>
<td>30749</td>
<td>30976</td>
<td>32888</td>
<td>38083</td>
</tr>
<tr>
<td>Fruits</td>
<td>16838</td>
<td>18147</td>
<td>20189</td>
<td>22443</td>
</tr>
<tr>
<td>Spices</td>
<td>12592</td>
<td>12193</td>
<td>12664</td>
<td>15091</td>
</tr>
<tr>
<td>Others</td>
<td>1195</td>
<td>1225</td>
<td>1297</td>
<td>1313</td>
</tr>
<tr>
<td>Hort. crops (Total)</td>
<td>61371 (18.01%)*</td>
<td>62541 (18.45%)</td>
<td>67038 (18.61%)</td>
<td>76930 (19.78%)</td>
</tr>
<tr>
<td>Pulses</td>
<td>7905</td>
<td>8021</td>
<td>8273</td>
<td>8234</td>
</tr>
<tr>
<td>Oil seeds</td>
<td>5889</td>
<td>5611</td>
<td>5600</td>
<td>6007</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>8184</td>
<td>7959</td>
<td>8569</td>
<td>8410</td>
</tr>
<tr>
<td>Other crops</td>
<td>735</td>
<td>753</td>
<td>700</td>
<td>831</td>
</tr>
<tr>
<td>Crops &amp; horticulture (Total)</td>
<td>340637</td>
<td>338963</td>
<td>360238</td>
<td>388835</td>
</tr>
</tbody>
</table>

Source: Hand Book on Environmental Statistics, 2005, BBS, Dhaka

- Percent GDP of horticultural crops as compared to crops at current prices.

Table- 5: Trend of Agricultural Production in Bangladesh (1995-96 to 2004-05)

<table>
<thead>
<tr>
<th>Year</th>
<th>Food Grains</th>
<th>Potato</th>
<th>Oilseeds</th>
<th>Vegetables</th>
<th>Fruits</th>
<th>Spices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rice</td>
<td>Wheat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995-96</td>
<td>17687</td>
<td>1369</td>
<td>1492</td>
<td>381</td>
<td>1244</td>
<td>1487</td>
</tr>
<tr>
<td>1996-97</td>
<td>18882</td>
<td>1454</td>
<td>1508</td>
<td>388</td>
<td>1290</td>
<td>1490</td>
</tr>
<tr>
<td>1997-98</td>
<td>18862</td>
<td>1803</td>
<td>1553</td>
<td>393</td>
<td>1307</td>
<td>1495</td>
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<tr>
<td>1998-99</td>
<td>19905</td>
<td>1908</td>
<td>2762</td>
<td>359</td>
<td>1433</td>
<td>1430</td>
</tr>
<tr>
<td>1999-00</td>
<td>23067</td>
<td>1840</td>
<td>2933</td>
<td>316</td>
<td>1559</td>
<td>1404</td>
</tr>
<tr>
<td>2000-01</td>
<td>25085</td>
<td>1673</td>
<td>3216</td>
<td>295</td>
<td>1578</td>
<td>1486</td>
</tr>
<tr>
<td>2001-02</td>
<td>24300</td>
<td>1606</td>
<td>2994</td>
<td>288</td>
<td>1605</td>
<td>1547</td>
</tr>
<tr>
<td>2002-03</td>
<td>25187</td>
<td>1507</td>
<td>3386</td>
<td>308</td>
<td>1608</td>
<td>1631</td>
</tr>
<tr>
<td>2003-04</td>
<td>26190</td>
<td>1253</td>
<td>3907</td>
<td>271</td>
<td>1741</td>
<td>1682</td>
</tr>
<tr>
<td>2004-05</td>
<td>25157</td>
<td>976</td>
<td>4856</td>
<td>258</td>
<td>1848</td>
<td>1712</td>
</tr>
</tbody>
</table>

Source: BBS, 2005 (´000'MT)
Bangladesh is blessed with many fruits and vegetable crops. More than 90 vegetables and 60 fruits are grown in Bangladesh. Major vegetables include potato, tomato, brinjal, cabbage, cauliflower, aroids, pumpkin, bottle gourd, cucumber, pointed gourd, bitter gourd, hyacinth bean, and yard long bean. In the case of fruits, banana, jack fruit, mango, pineapple, papaya, guava, lemons, pummelo, litchi and ber (jujube) are important.

Fruit and vegetable crops are grown in all over Bangladesh. But the extent of cultivation varies from one region to another. Some crops have concentrated areas for production because of favorable agro-ecological condition and better marketing facilities. Current production of vegetables is considerably below the domestic requirement. There is, therefore, a big gap between the vegetable productions -- estimated as 1.84 million tons -- and the national vegetable requirement -- estimated at 10.0 million tons. This gap is likely to expand further with progressive increases of population. The availability of vegetable is only about 70g (including potato) per head per day as against the minimum requirement of 200g /head/day from nutritional point of view (Hossain, 2004). Most of the fruits produced in the country are consumed at domestic level. The consumption of fruits per head per day is only 32g as against the requirement of 75g per head/day, which indicates that the present production can meet only 42.67% of the requirements (Bari and Jalil, 2005).

In addition to its disproportionate contributions to agricultural growth and agricultural GDP, the horticultural sector also provides differentially higher net returns per hectare than do the conventional paddy crops, which occupy primacy of place within the context of agricultural land use. Fruit and vegetable crops in general are profitable (Table-6) and thus farmers prefer to grow them for higher income. Moreover, there exists scope to strengthen the national economy by exporting fresh as well as processed fruits and vegetables.

### Table-6: Cultivation Cost and Net Returns of Boro Rice vs. Focus Commodities

<table>
<thead>
<tr>
<th>Crop</th>
<th>Total Cost of Production (Tk/ha)</th>
<th>Net return (Tk/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boro Rice</td>
<td>24,885</td>
<td>9,630</td>
</tr>
<tr>
<td>Mango</td>
<td>25,008</td>
<td>225,228</td>
</tr>
<tr>
<td>Pineapples</td>
<td>27,621</td>
<td>29,729</td>
</tr>
<tr>
<td>Potato</td>
<td>40,544</td>
<td>42,070</td>
</tr>
<tr>
<td>Okra</td>
<td>23,732</td>
<td>47,129</td>
</tr>
<tr>
<td>Bitter Gourd</td>
<td>29,775</td>
<td>56,068</td>
</tr>
<tr>
<td>Chili</td>
<td>33,533</td>
<td>63,277</td>
</tr>
</tbody>
</table>


In all cases, grower profitability is significantly higher on a per-hectare basis for each of the six focus commodities than for Boro rice. Rice production in Bangladesh is rooted in historical food scarcity, in domestic consumption patterns, and in the knowledge base of the farming population. It is not a recommendation of this study that there be any wholesale abandonment of rice production in favor of horticultural crops. Still, as these value chain calculations demonstrate, the conversion of a greater portion
of Bangladesh’s limited arable land from cereal crops to horticultural products would appear to be a promising vehicle for the improvement of farmer income.

3.3 Processing of Fruits and Vegetables

The role of processed fruits and vegetables in the domestic and export economies is also quite small, although there are a number of large-scale enterprises (PRAN, Square, Eurasia Food Processing, BD Foods among them) who appear committed to expanding this sector. In Bangladesh, the modern organized fruit processing industry comprises relatively small volumes of canning, freezing and dehydration. However, jams, jellies, and pickles are made in large quantities, chiefly by small entrepreneurs at the home or cottage scale. In addition, extruded snacks, puffed rice and potato chips are made and sold in the domestic market by small and medium enterprises. Some units, especially larger ones, have modern facilities operating hygienically in conformity with Good Manufacturing Practices (GMP). On the whole, however, most facilities are in need of up-grading and personnel require considerable training on a wide range of aspects of manufacturing sanitation and efficiency.

To put agro-processing into perspective, Bangladesh produces 4-5 million metric tons of horticultural produce each year. PRAN, which is believed to account for more than half of the horticultural produce which moves through processed channels, consumes an estimated 12,000-15,000 metric tons per year. Even under the most liberal of assumptions, then, it would appear that transformation of horticultural products into processed food products accounts for less that 1% of total horticultural production. Typical usage patterns of horticultural raw materials for the processed sector, based once again on information received from PRAN, are presented at Table-7.

**Table- 7: Forecast of PRAN Fruits and Vegetables Requirements, 2006**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Requirements (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aromatic Rice</td>
<td>3500</td>
</tr>
<tr>
<td>Mung Dal</td>
<td>2500</td>
</tr>
<tr>
<td>Peanut</td>
<td>1500</td>
</tr>
<tr>
<td>Red Chili</td>
<td>150</td>
</tr>
<tr>
<td>Mango, Green</td>
<td>10000</td>
</tr>
<tr>
<td>Mango, Ripe</td>
<td>20000</td>
</tr>
<tr>
<td>Tomato</td>
<td>1500</td>
</tr>
<tr>
<td>Olive</td>
<td>200</td>
</tr>
<tr>
<td>Turmeric</td>
<td>800</td>
</tr>
<tr>
<td>Coriander</td>
<td>1000</td>
</tr>
<tr>
<td>Garlic</td>
<td>2000</td>
</tr>
<tr>
<td>Onion</td>
<td>2000</td>
</tr>
</tbody>
</table>

Source: Private conversation, 2006

Across the range of horticultural processors with whom the authors met, principal finished products include the following:

- Pickles (mango, olive, jackfruit, garlic, chilli, tamarind)
- Jams & Jellies
- Juices & Concentrates
- Purees & Sauces
- Spices
- Chanachur
- Frozen Asian vegetables

If agricultural and horticultural exports are small, then processed horticultural exports would appear to be miniscule. Export activity in this processed sector is in its infancy. Neither BBS nor EPB maintain separate statistics on the export of processed horticultural products. In the course of our conversations with processors, however, it was clear that their focus rests primarily on the domestic Bangladesh market. This strategy appears to be due, in part, to their desire to service an under-supplied domestic market, and, in part, to provide them with the opportunity to realize improvements in manufacturing and new product development systems within the context of a forgiving environment. During this testing/roll-out phase, exports appear to be taking place on an opportunistic basis only, directed primarily toward India, the Middle East, and East Africa. Several processors did, however, indicate their determination to expand more seriously into export channels once production and new product challenges had been successfully met.

A wide range of technology options are available today and can be adopted depending on raw material availability and quality, product range, scale of operations, desired product quality as per consumer preference, buyer specification or trade regulations, shelf life required, destination markets and so on. Decisions regarding each of these and other parameters need to be made carefully for each unit or plant in a context-specific manner. There is enormous flexibility available and systems can be put together to match an extremely wide range of requirements. It is, therefore, necessary to determine these carefully, based on a clear understanding of the market, which must be understood properly in this highly market-driven industry, and then to design a system to match these requirements. Processing of fruits and vegetables allows for different production operations to be taken up at different levels, each level making products or intermediates as required, which can be integrated downstream. Suitable technologies are available and can be selected for multiple, decentralized and semi-processing facilities to prepare, preserve and protect produce for later centralized processing, packaging and marketing. In some developing countries, models for such decentralized networked production have been effectively developed and demonstrated, such as in India, where such demonstration projects are being pilot tested in the north-eastern states with the support from APCTT and the Government of India’s Ministry of Science and Technology.

The processing industry is crucially dependent on backward linkages to the raw material in terms of its quality, both inherent to the variety as well as in relation to the effect of harvest, post-harvest and storage/transport handling. The importance of linking up processing units and operations with the procurement and quality of the raw produce itself cannot be overemphasized and must form part of the overall activity undertaken. Leaving aside issues pertaining to improved varieties and planting materials, and even taking the currently available raw material as given, a great deal can be achieved through effective backward linkages in terms of the viability and profitability of the unit, improvement in incomes of growers and reduction of produce losses. Often the issues are as much as economic as they are technological or qualitative. Keeping in mind these issues, produce (and especially fruit) handling systems -- notably in harvest, post-harvest, storage and transport, as well as in marketing infrastructure and other arrangements -- require major improvements if shifts are to be made away from the present low level of exports. Apart from infrastructural issues, most of these can be achieved through effective training and other human resources development strategies, all of which need to be built in to any technology transfer endeavor. This would require collaboration between institutions or agencies dealing with processing aspects, on the one hand, and with horticulture, on the other, so that necessary synergy is brought about. Backward linkages down to the farm level should be built in, including measures relating to the improvement of produce quality, on-farm practices and post-harvest handling.
3.4 Competitiveness of Producing the Crop

The comparative advantage or profitability of the high value crops is an important parameter for promotion of diversification. Comparative advantages of different crops assessed in a study (Shahabuddin, 1999) conducted by IFPRI in terms of net economic profitability and domestic resource costs (DRC) ratios (or financial return) confirmed earlier World Bank observation (World Bank, 1995) that, except for a few import competitive crops (such as sugarcane, oil seeds, chilli and onion) Bangladesh has a comparative advantage in the production of most agricultural crops. The longer–term comparative advantage assessed in terms of expected technological innovation (resulting in higher yields) and changes in world market conditions (particularly after 2005) demonstrate substantial improvements in both financial and economic profitability for most crops (other than HYVs boro). Modern varieties of potato display strong comparative advantage even under existing farming practices, which will improve further with technological innovations. The profitability estimates show that vegetables appear to be highly competitive in terms of returns. All vegetables (except radish) have highly favourable financial returns when compared with rice, even those of HYVs. The financial returns of vegetable products for export appear to be fabulously high as compared to that of most other crops. However, their exports are constrained by lack of experience with these crops in Bangladesh, as well as by a variety of marketing problems including product quality, acceptable packaging, high transport costs and market access. Intensive and well-organized efforts are needed to permit the exploitation of comparative advantage and profitability of high value crops. Comparative advantage can be improved through reducing production costs, by raising yields, or by reducing import costs. This can be achieved through introduction of modern technologies in production, marketing and processing of these crops.

Researchers should prioritize their agenda in light of crop management problems faced by the farmers, such as development of varieties to reduce duration of the crops, so as to better fit the crop(s) in existing rotations, mitigate the pest pressure on crops, and develop attributes in crops that meet market demands and consumer preferences. For instance, the export of potatoes has been recently started to Singapore, Malaysia and Sri Lanka. In order to expand exports, the varieties of potatoes should meet the preferences of foreign consumers, along with solving farmer’s constraints. Similarly, introduction and adoption of processing varieties of potatoes will surely help in manufacturing more processed products from potatoes in the country.

Eliminating the current yield gap between actual and potential yields holds tremendous promise for Bangladesh agriculture, especially with regard to fruit and vegetable crops. The gap can be narrowed by demonstrating improved management practices for improved varieties, and by improving the production and supply of quality seeds. Cooperative marketing and contract marketing may be developed and promoted. Further development of agro-processing and marketing networks should also be pursued through effective means of enhancing competitiveness. The processing efficiency of these crops needs to be improved for value addition at the domestic market as well as to compete in the international markets. Improved varieties, better seed, adequate agronomic practices, advanced marketing channels and finally modern processing techniques will have to be brought in place in order to make substantial changes in the production and marketing status of these commodities.

Despite low domestic price of vegetables compared with international prices, export volumes remain insignificant. Correcting this situation will require some positive actions to be pursued, especially in the arena of foreign trade policies. Development of agro-processing industries and marketing networks provide effective means for reducing variability in prices. Development of rural infrastructure -- including roads and internal water transport, rural electrification, and communication facilities -- is an essential pre-requisite for integrating localized rural markets with other urban markets. In fact, market integration can induce a virtuous circle, whereby agro-processing industries will have new opportunities to expand, which in turn will promote the diversification in agriculture. This will also help reduce cost of production and promote export-led growth in agriculture especially in horticulture.
IV. Cross-Cutting Opportunities and Constraints

As mentioned above, Bangladesh’s fruit and vegetable sector benefits from several competitive advantages, including the following:

4.1 Farm-Gate Costs and Quality of Production

Low daily wage rates, abundant supplies of water for irrigation, and an adequate supply of arable land all contribute to the competitive cost profile of production agriculture in Bangladesh. More than 75% of the nation’s arable land is given to the production of rice. Now that improved varieties and production techniques have allowed the country to become self-supporting in rice, an increased portion of this arable acreage can be converted to the production of commodities such as fresh fruits and vegetables, which would serve the triple objectives of boosting farmer incomes, permitting the population to upgrade the nutritiousness and diversity of its diet, and also develop import substitution for those crops where Bangladesh maintains a competitive advantage. Based on our observations of produce crops in the fields and at non-urban markets, the underlying quality of production, particularly in the case of vegetables, appears to be adequate both for domestic fresh and processed consumption, and for entry into targeted export markets.

4.2 Range of Market Options

The range of market options includes the followings

- Significant domestic consumption base – 144 million consumers;
- Overseas Bangladeshi – estimated to number as many as 10 million worldwide;
- The 7 neighboring States of Northeast India (Assam, Tripura, Nagaland, Mizoram, Monipur, Meghalaya and Sikim) -- representing an additional 120 million consumers, and
- Proximate export markets in South and Southeast Asia and the Middle East.

4.3 Marketing of Fruits and Vegetables

Marketing of horticultural crops is quite complex and risky due to the perishable nature of the produce, the seasonality production, and the logistics challenges of high weight-to-value shipments. The spectrum of prices from producer to consumer, which is an outcome of demand and supply of transactions between various intermediaries at different levels in the marketing system, is also unique for fruits and vegetables. Moreover, the marketing arrangements at different stages also play an important role in price levels at various stages as product moves from farm gate to the ultimate user. These features make the marketing system of fruits and vegetables quite different from other agricultural commodities, particularly in providing time, form and space utilities. While the market infrastructure in Bangladesh is better developed for food grains, fruits and vegetables markets are not well developed and markets are congested and unhygienic.

Multiple actors -- local collectors, local traders, local market aratdars and their agents, urban wholesalers and their commission agents, rural and urban retailers -- constitute the important components of the marketing system. The wholesalers and their agents mainly determine the market price of fresh produces. This is the most popular and common marketing structure. It is estimated that, in the process of marketing, as much as 10-40% of the produce is lost due to mishandling, improper packing and transportation. Market price is determined by the marginal cost of supply and demand. The wholesalers are able to pass on their entire risks, partly to farmers in terms of lower farm gate prices, and partly to consumers in terms of higher wholesale prices than what would have been the outcome had the farmers been able to sell their produces directly to consumers. This partially explains the large differential between farm gate price and wholesale/retail price as observed in the market. The more elastic is the
demand, the higher would be the farm gate wholesale price differential. The pattern of agricultural markets in Bangladesh consists of the following:

**Primary rural markets**: this market is composed of farmers and small retail traders having few permanent shops. This market operates usually twice in a week.

**Rural assembly markets**: traders from distant places gather in these markets with a view to collecting marketable surplus. Because of the presence of sizeable number of traders, commercial trading takes place in these markets. Significant numbers of permanent shops (i.e., “mokam”) and processors are found in these markets. The presence of commission agents, banks and easy transport systems make these markets more useful to the operators. This type of market operates every day, or every other day.

**Secondary markets**: this market is large and composed of traders who operate nationally. Commission agents, jothdars, wholesalers, processors, exporters – all are active in this market. Normally, such markets are easily accessible by various means of transport. With large numbers of permanent shops and service institutions, these markets operate on all working days.

**Urban wholesale markets**: these are specialized markets operating in a particular line of products (e.g., rice, vegetable, and fruits). These markets bridge the gap between distant wholesalers and large number of retailers. Commission agents called aratdars organize and operate these markets.

**Urban retail markets**: in these markets, consumers collect their necessary items directly. The retailers present a variety of items in these markets to meet the daily necessities of the consumers.

There are about 13,319 markets (Table-8) in the country. The markets located in the rural or semi-urban areas are mostly in poor condition with limited logistics, infrastructural, management and institutional facilities. Roads, especially the link and approach roads of the rural markets, are not in good condition. Road transportation has relatively improved, but the cost remains very high which, in turn, raises the product price.

**Table-8: Markets in Bangladesh**

<table>
<thead>
<tr>
<th>Division</th>
<th>Primary/Retail</th>
<th>Assembling/Wholesale</th>
<th>Wholesale-cum-Retail</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhaka</td>
<td>2911</td>
<td>234</td>
<td>670</td>
<td>3815</td>
</tr>
<tr>
<td>Chittagong</td>
<td>1795</td>
<td>77</td>
<td>527</td>
<td>2399</td>
</tr>
<tr>
<td>Rajshahi</td>
<td>2001</td>
<td>271</td>
<td>963</td>
<td>3235</td>
</tr>
<tr>
<td>Khulna</td>
<td>1458</td>
<td>120</td>
<td>367</td>
<td>1945</td>
</tr>
<tr>
<td>Barishal</td>
<td>815</td>
<td>57</td>
<td>199</td>
<td>1071</td>
</tr>
<tr>
<td>Sylhet</td>
<td>650</td>
<td>66</td>
<td>138</td>
<td>854</td>
</tr>
<tr>
<td><strong>Grand Total =</strong></td>
<td><strong>9630</strong></td>
<td><strong>825</strong></td>
<td><strong>2864</strong></td>
<td><strong>13,319</strong></td>
</tr>
</tbody>
</table>

Source: DAM, 2006

A study by the Department of Agricultural Marketing (DAM) analyzed the cost of marketing\(^1\) and concluded that for the five spices in general, the producers get about 65% of the consumers price, with the remaining 35% divided among traders (5%) wholesalers/aratdars (20%) and retailers (10%). The total marketing cost was established at 12% (3% by producers, 3% by traders, 4% wholesalers and 2% by retailers). These statistics are encouraging but do not reflect the real situation in the field for high-risk fresh produce like tomato, as was discovered by the agriculture sector review team during recent field trips to different parts of Bangladesh. Obviously there are hidden barriers to entry into the market, which do not allow the marketing margins of non-rice agriculture to come down. There are associations/cartels on the buyers’ and transporters’ sides, but much less organization on the sellers’ side, especially for

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\(^1\)“Study of the spices of Bangladesh: Constraints and Potentials”, CDP, DAM, August 1998.
smallholders. Some would say a total institutional change in favor of the farmers is needed, in order to enhance the bargaining power of the farmer associations/cooperatives in the marketing of their products.

4.3.1 Constraints in Operation and Management of Markets

4.3.1.1 Policy constraints
Markets of Bangladesh are operated and managed by the Agricultural Markets Produce Regulation Act of 1964 (amended in 1985). The act refers to one single market in one single city. As a result, only the 392 markets which existed when the Act was amended are notified where the government authority issues the license to the traders and fixing the market charges. This selective regulation and enforcement run counter to the intent of the act, which is supposed to be the governing legislation covering all aspects of marketing in Bangladesh. It does not outline a self-governing management system; provide guidelines for proper conduct of the operations; adherence to particular standards of operation; and the food safety and quality assurance mechanisms. Market participants usually do not play any role in the management of the markets. Even the existing act, good or bad, is not properly enforced. The government is more interested in revenue collection than in treating the markets as centres for economic growth and services. Market management is very weak, and the role of government organizations (including DAM, DMAC and Parishads at different levels) is simply for revenue collection. The government organizations have legislative control only over 392 notified markets, which is only 2.38% of all the markets in Bangladesh. Lessees appear interested only in collecting market tolls, and not in organizing and properly maintaining the market. High toll (market charges) collection inhibits the growers from selling their produce directly in the market. The gazette notification (6th volume) published on 22 September 1994 by DAM on market charges is not adequately followed. Revenue collected is rarely returned to the market for infrastructure development.

4.3.1.2 Institutional Constraints
The institutional constraints are many in the existing marketing system. In terms of physical markets, there are problems of multiple ownership and control of the land on which the market is constructed. Market infrastructure development, market operations and market revenue collection systems are all beset with problems. There is no coordination among these operations. All operate independently and usually without any consideration of competing interests. Private sector organizations also have institutional problems. Individual firms practice a top-down approach to management that stifles innovation, while industry associations rely heavily on political patronage and the availability of a strong motivational leader.

4.3.1.3 Infrastructural Constraints
Infrastructural constraints are few, but they are chronic. The markets are congested and develop in an unplanned manner. Most markets lack basic support facilities such as godowns, cold or cool storage, potable water, drainage, and vehicle access for loading and unloading. Storage facilities for food grains, fish and potatoes are relatively better developed; but for perishable high value horticultural crops (vegetables, fruits and spices), storage facilities are lacking. Multipurpose cold storage and cold chain management are very new ideas in Bangladesh. However, small scale cold storage facilities of perhaps 10-20 tons within a market would be sufficient for day to day operations, and could be constructed with minimal cost by insulating existing buildings and installing the appropriate refrigeration. Most of these facilities could be created with appropriate use of the collected market revenues.
4.3.1.4 Human Resource Constraints

There is also shortage of adequate human resources with requisite skills and experience in market management. The weak performance of the Market Management Committee is partly due to a lack of experience and management skills. Most of those who are involved in market management have limited management background. No one has modern market management skills, including GO-NGO staff.

4.3.1.5 Information Constraints

There is no organized market information system. The majority of market participants rely on their own information network (traders, wholesalers, commission agents, etc.), including the private sector. Many traders and wealthy farmers now use mobile phones to collect market information, but the small and medium farmers have no access to such market information. They are not even aware of the importance of market information. Market intelligence services to all intents and purposes are non-existent in Bangladesh.

4.3.1.6 Quality control

Most of the markets do not properly follow the standard weights and measures determined by BSTI (Bangladesh Standard and Testing Institutes). Different weights and measures are used, and the growers are usually cheated. The established monitoring system is not working properly. There is no standard grading system for different products in rural markets. Sorting and grading systems are underdeveloped and outdated.

4.3.1.7 Recent Initiatives in Market Developments

Although the cultivation of horticultural crops is 3-4 times more profitable than rice, subsistence farmers are reluctant to grow highly perishable crops because of the risks involved in marketing. Therefore, within the markets themselves, measures could be introduced to assist farmer-sellers to better manage their market risks. For example, the Shoshyo Gudam Rin Prokolpo (SHOGARIP) for cereals could be extended to fruits and vegetables, allowing farmers to avoid distress sale during and after harvest.

The Department of Agricultural Marketing (DAM) has taken an important initiative in renting 77 godowns, of 250 metric tons each in 36 districts, from the Local Government Engineering Department (LGED). Here DAM is working to develop good organization and management with the participation of the growers. There is also a need for a gradual transition of market hierarchy and balanced spatial distribution and stronger linkages between different levels of markets.

Major urban and peri-urban centers tend to be over-served by all types of markets. Due to market risks and economies of scale, urban markets have developed faster than rural markets, which tend to be scattered. All rural markets do not have equal access to urban markets. Links are tenuous, more so when one considers the supermarkets and upscale restaurants that are coming up in increasing numbers in many cities.

These establishments require regular and timely supply of quality products. Under the Agricultural Commodities Wholesale Market Infrastructural Development Project implemented by DAM, six markets (one in each division) have been developed. Another project -- NCDP (Northwest Crop Diversification Project), implemented by the GoB and the Asian Development Bank (ADB) -- is renovating and upgrading 16 wholesale and 61 growers’ markets throughout the Northwest region, consisting of one wholesale market per district and one grower’s market in each upazila in the project area.
Markets will be provided with loading and unloading areas, covered areas for produce display and storage, a fresh water supply, sanitation, women corners, as well as packinghouse and waste disposal facilities. Moreover, a provision has been made to procure 16 reefer vans and establish 16 mini-cold storages in the wholesale markets by the NCDP and to establish a central market (Terminal market) in Dhaka for marketing perishable high value crops. NCDP has developed an alternate supply chain (Box-2) through the introduction Farmers Marketing Group (FMG), in replacement of the traditional marketing system.

Box-1: Review of Current Marketing Policy

The emerging need for market research and intelligence does not reflect in the existing policy and the essentials for agricultural producers to be linked to the global market. Steps identified in the ‘National Agriculture Policy’ (sub-clause 11.1) were not followed. Government of Bangladesh has to do more in developing the agricultural marketing system to ensure fair benefits for the growers and the consumers. Reorganizing and strengthening of DAM and establishing “Krishi Mulla Kamishan” (Agriculture Price Commission) were not pursued vigorously as envisaged in the current policy.

Programs identified in the ‘National Agriculture Policy’ sub-clause 11.2 mostly not yet implemented. These programs include:

- Storing of harvested agro produces (only cereals and potato) in the favorable environment throughout the year.
- Establishment of multipurpose cold storage for fresh horticultural produces.
- Promotion of demand and supply of agro produces through the development of transportation facilities (some progress has been made, but much more needs to be done).
- Reduction of post harvest losses and agro-processing (received little attention despite the fact that there is serious lack of information in this area and that agricultural growth prospect will be truncated without substantial investments in post harvest management including processing).
- Sorting, grading, packaging and quality control of the agricultural produces for domestic and international market (partially achieved by reducing bank interest but awareness building, filling the information gap, and developing skilled human resources still lag behind).
- Hat/bazaars and associated infrastructures for smooth and effective marketing (not developed adequately).

Bangladesh falls short of the accepted norm of one market for every 4000 farmers. Dissemination of market information to the growers, traders and consumers is very weak due to total lack of attention to this critical element of marketing.

Information support to the consumers/users, businessmen and processors on latest production and processing technologies is still lacking. Assistance in developing marketing database is all but non-existent. The agricultural commodities produce markets regulation act, 1964 (revised in 1985) has been amended recently but it is not in force, and the amendment is not complete. Steps for developing contract-farming linkages between the growers and the enterprises, traders, exporters and processors have made some progress. Several private enterprises/companies have initiated contract farming. The concept of self-help cooperative marketing system has been tested in a project with rice seed marketing. Assurance of reasonable prices to the growers by strengthening the procurement system of agro produces during post harvest glut or crop loss and maintenance of steady prices of agro-produces in the market through provision of output price support has not been followed through.

Source: Actionable Policy Brief and Resource Implications- Agriculture Sector Review (Crop Sub-sector), Ministry of Agriculture, 2005.
Direct marketing shall enable farmers to meet the specific requirements of wholesalers from the farmers' inventory of graded produce and of retail consumers based on consumers' preferences, thus enabling farmers to take advantage of favourable prices and improve their net margin. It encourages farmers to undertake grading of farm produce at the farm gate and obviates the need for farmers to haul produce to regulated markets that are not necessarily spaced on the principles of efficiency.

### Box-2: Farmers Marketing Group Approach of NCDP

The Northwest Crop Diversification Project (NCDP) has been designed for the small scale farmers for promoting economic growth and reducing poverty through diversification and intensification of High Value Crops (HVCs) which can give higher profit than dry season high yielding Boro rice and have market demand. It is a seven year long project of GOB under operation in 61 Upazilas of 16 districts of Rajshahi Division in Northwest region of Bangladesh. Ten thousands Small Farmer’s Group (SFGs) have been formed (20 members per group). Small farmers will be trained on production, post-harvest processing and marketing of HVCs and credit support will be provided for HVCs production, processing and marketing. It is estimated that 40,000 ha of additional land area will be brought under HVCs production and about 370,000 tons of additional production will be harvested at the end of the project period and 4.4 million employments will be generated.

To market these huge additional produces profitably, an attempt has been made by NCDP through organizing Farmers Marketing Group (FMG). Under FMG approach, through developing an alternative supply chain instead of the traditional existing marketing system, a fundamental improvement will occur, so that NCDP beneficiaries can attain a profitable and competitive marketing system within a quickest possible time. Group Marketing is some sort of co-operative marketing. A Group of NCDP Small Farmers (male & female) will unite together to perform the different marketing activities of their produces. The spirit is that the members of the group take the responsibility of performing individual activities of marketing. This will definitely lead to collective decisions resulting in reducing marketing costs, which ultimately will lead in higher profit earnings. The FMGs will be a local forum in the production area where farmers can identify their own marketing problems, and can help themselves in solving those problems gainfully. It can be expected that the socio-economic condition of the SFGs will improve through participation in the marketing of their own produces.

- To improve the farmer’s skill in marketing and institutionalize group marketing system at village level for the SFG members, improve bargaining power, reduce marketing costs and price spread to channelize huge HVC production to various destinations effectively. It will play a vital role in linking the FMGs with profitable market outlets.

### Formation of FMG

Maximum of one FMG will be formed from 20 SFGs under a particular NGO. The members of FMG will be elected by the members of SFG. Each FMG will be formed with maximum of 20 and minimum of 15 members. A 9 (nine) members Executive Committee (EC) will be formed having three office bearers namely, Chairman, Secretary and Treasurer and 6 EC members. At least one of the office-bearers must be a woman in case of mixed group. The EC will be elected for a minimum period of one year. The Services of the partner NGOs should be expanded to include formation of FMG from among the members of the SFGs already formed, developed and trained by the respective NGOs, and the project will provide/arrange required need-based training on marketing to the FMGs through District and/Upazila Agriculture Office, DAM and concerned NGOs either independently or jointly.

### Working Capital of FMG

For incurring operational cost of FMG, a core fund will be raised through the contribution of the members. Part of the credit money be drawn from the crop production loan under “Handling, Packaging and Transport” (5-10%) may be utilized as working capital. The core fund will be initiated, as “Revolving Fund” and Executive Committee will decide the norms of fund operation in accordance with the business plan. Benefit sharing of the group marketing business will be distributed @ 30% and 60% among the members of FMG and SFGs respectively and the rest 10% may be kept as capital fund. Representative members of FMG will distribute/transact benefit in their respective SFG as per approval of Executive Committee of the FMG. The bank account of the FMG will be maintained with joint signature of any two of the Chairperson/General Secretary and Treasurer.
Direct marketing thus enables farmers and buyers to economize on transportation costs and to improve price realization considerably. NCDP has selected direct farmer marketing as one of the alternative marketing structures that sustains incentives for quality and enhanced productivity, reduces distribution losses, and improves farmer incomes.

In promoting marketing systems, the Government of Bangladesh need to examine existing policies, rules and regulations with a view to minimizing conflict between successful private sector operations. A review is required of all laws which regulate participation in markets, such as registration/licensing, commodities traded, controls on packaging and labeling, laws affecting market place access, and laws affecting supply -- including controls on movement of produce and volume of commodities traded. A Task Force should be set up under the Ministry of Agriculture, Department of Agricultural Marketing (DAM) to undertake a review of all marketing legislations and suggest introduction of necessary legal reforms to promote free and fair marketing system for agricultural and allied products.

From the view point of a complete supply chain from farm to the market, basic infrastructure for all types of perishable horticulture produce is required at the following levels:

- Small pre-cooling units in the production areas where the field heat of the produce can be removed at a fast rate to bring down the temperature of the produce to the desired level before putting the product into cold storage. The refrigerated transport units from the farm to the cold storage may also be utilized as mobile pre-cooling units for this purpose;
- Collection centers near the farms;
- Medium to small cold storages having multi-product, multi-chamber facilities are the most popular segment where horticulture produce is stored as transit godowns;
- Specialized cold storage with facility of built in pre-cooling; high humidity and Controlled/Modified Atmosphere are required for storage of the produce for a longer period. These specialized storages are essential to extend the shelf life of the produce; without such storage the strategy of storing the product to meet the demand in the off season is not feasible;
- Other components like ripening chambers close to the markets and display cabinets at retail outlets;
- Linkages for conversion of fresh produce into other marketable forms;
- Integrated Pack Houses to serve farms in respective regions. Farms associated with each of the centers would collect farm produce and bring them to common cold storage centers, where these products could be given treatments, such as washing, sorting, grading and packing. These products will then be preserved in the appropriate cold storage facility. The services of these centers will not only increase the value of the farm product, but will also remove most of the unwanted bio-degradable bio-mass from the horticulture products, which can be utilized as farm manure or even as cattle feed.

There has been concern in recent years regarding the inefficiency of the marketing system for fresh fruits and vegetables. It is generally believed that this is leading to high and fluctuating consumer prices, while only a small share of the consumer’s price is reaching the farmers. Marketing of horticultural crops is complex. The high percentage of mark-ups between farmgate price and consumer price is indicative of large inefficiencies and relatively poor marketing efficiency. There is a great need to improve the marketing of fruits and vegetables. One important measure would be to bring more markets under the regulation and supervision of a well--represented market committee. Another measure would be the promotion -- and perhaps the enforcement -- of open auctions in the markets. Yet another measure could be efforts to bring more buyers and sellers into the markets, bringing them closer to perfect markets. The direct participation of farmers should be increased.
Market infrastructure should be improved through storage (go-down) facilities, cold storages, loading and weighing facilities. Improvement in the road network, and cold-chain facilities are also of substantial importance. Market infrastructure is important not only for the performance of various marketing functions and expansion of the size of the market but also for transfer of appropriate price signals leading to improved marketing efficiency. High investment with entrepreneurial skills is required for creation and managing these infrastructures.

Therefore private investment in the market infrastructure development may be encouraged by modifying various procedure backed up by package of incentives. Nevertheless, for providing infrastructure in remote and difficult areas, the public sector would need to continue to play an important role.

Greater transparency of the operations through supervisions and systems can also help substantially. The market integration and efficiency can also be improved by making up-to-date market information available to all participants through various means, including a good market information systems, internet and good telecommunications facilities at the markets.

To promote agricultural growth and thereby maximizes benefits from exports of agricultural products in the face of the challenges arising from economic liberalization and globalization. The main objective of an efficient agricultural marketing system should be to ensure that a greater share of the ultimate price of the agricultural produce goes to the farmers. In the context of the increase in the production of agricultural commodities and the fast changing economic scenario, issues relating to the development of agricultural marketing have assumed great significance. Some of these issues related to development of infrastructure for agricultural marketing, establishing sound linkages between production and marketing, development of market intelligence for the benefit of farmers and consumers, promotion of direct marketing, application of Information Technology in marketing and encouraging public, private and cooperative sectors to make investments for the development of agricultural marketing.

4.4. National Export Scenario

4.4.1 Export Composition

The Bangladesh export basket is very narrow. Although it consists of around 145 products, 5 major products alone contribute some 87% to the total export earning of the country. These are readymade garments (42%), knitwear (33%), frozen food (5%), jute goods (4%), and leather (3%). The second tier of products are specialized textile and household linen (2.55%), chemical products (2.28%), cap (1.19%), raw jute (1.11%) and leather footwear (0.68%). The first and second categories of 10 products together contribute about 95% to the country’s total export. Agricultural produces (consisting of vegetables, fruits, betel nuts, betel leaves, potato, coconut, rice, tobacco, raw cotton, spices, mustard oil and others) constitute 0.95% of total national export, out of which the contribution of fruits and vegetables is only 0.54%. This relates to the export statistics of 2004-2005.

4.4.2 Market Outlets

In the same way, export outlets for Bangladesh are also very narrow, mainly concentrated in North America and West Europe. Although Bangladeshi products are distributed to about 180 countries, major market outlets also number only 10. These include USA (26%), Germany (17%), UK (12%), France (7%), Belgium (4%), Italy (4%), the Netherlands (4%), Canada (4%), Spain (3%), and Sweden (2%). Together, they provided market outlets to 83% of the total export of Bangladesh in 2003-2004. UK is, however, the only market, among these 10 major markets, which imports substantial quantity of vegetables and fruits from Bangladesh, with produce imports valued at US$9.51 million in 2003-2004. Although fruits and vegetables constitute less than 0.50% of the total export to the UK from Bangladesh, the UK accounts for 38% of the vegetables and fruits export from Bangladesh, making it the largest single export destination for Bangladeshi fruits and vegetables.
4.4.3 Export Performance of Fruits and Vegetables

Bangladesh primary horticultural exports are fresh vegetables and fruits. Exports of frozen vegetables and fruits have started recently. If the export performance of vegetables and fruits since 1992-1993 is analyzed, it is observed that there had been a tremendous export growth during the first 5 years from 1992-93 to 1997-98, followed by a sharp decline in export over the next 5 year period from 1998-99 to 2002-2003. The dramatic decline of fruit and vegetable exports in the year 1998-99 may be ascribed to an unusually long and devastating flood, but the recurring decline over subsequent years is a clear indication of loss of export markets due to irregular supply. In the financial year 2003-04, however, export of fruits and vegetables resumed its upward slope, reaching a level of US$ 24.84 million. This was taken to signify that lost markets had been regained, and that diversification of frozen fruits and vegetables had begun to gather steam. This optimism was reinforced the following year, when exports of fruits and vegetables reached a record level of US$46.41million in the year 2004-2005.

If this positive trend can be maintained through streaming lining the supply chain and fulfilling the continuously changing market access requirements, vegetables and fruits from Bangladesh are likely to emerge as a major export sector in the years to come. This may be seen in figure-1.

![Figure-1: Export of Fruits and Vegetables (1992-93 to 2004-05) EPB, 2006](image)

Although Bangladeshi fruits and vegetables are being exported to about 30 market destinations, the major buyers are, in fact, located in two regions: the U.K. and the Middle East. In the Middle East region, the major market outlets are Saudi Arabia, UAE, Qatar, Bahrain and Oman. These seven individual markets together contribute more than 93% to the total export earning from fruits and vegetables from Bangladesh and as such, are considered as the most important market outlets for this sector. Market-wise, outlets of fruits and vegetables from Bangladesh in 2003-2004 are presented in Figure-2.

Over the years, there has been little structural change in the export pattern of fruits and vegetables. These 7 markets have historically played the same important role as of today, accounting for more than 90% of the total fruit and vegetable exports from Bangladesh. In terms of ranking, however, there have been occasional changes among the 4 smaller Middle Eastern countries, while Saudi Arabia and the UK have invariably occupied the second and first positions respectively.
Figure-2: Major Market Destinations of Vegetables and Fruits (2003-2004)

![Pie chart showing market destinations for vegetables and fruits]

The role of export earnings as a contributor to aggregate agricultural GDP remains quite small. Agriculture and agro-based commodities accounted for about quarter of the total exports.

Table- 9: Fruit & Vegetable Exports & Contribution to GDP, 2002-2004

<table>
<thead>
<tr>
<th>Item</th>
<th>2002/03</th>
<th>2003/04</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total GDP</td>
<td>Export GDP</td>
</tr>
<tr>
<td>Vegetables</td>
<td>32,888</td>
<td>808</td>
</tr>
<tr>
<td>Fruits</td>
<td>20,189</td>
<td>0.2</td>
</tr>
<tr>
<td>Other</td>
<td>1,297</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>54,374</td>
<td>808</td>
</tr>
</tbody>
</table>

NB: Potatoes included in vegetables

Likewise, the role of agriculture, in general, and of fruits and vegetables in particular, as contributors to overall Bangladesh exports, is marginal.

Table-10: Fruit & Vegetable Exports: Contribution to Total Exports (1998-99 to 2004-05)

(USD, millions)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Frozen food</td>
<td>274.32</td>
<td>363.23</td>
<td>321.81</td>
<td>420.74</td>
</tr>
<tr>
<td>Agri. products:</td>
<td>22.09</td>
<td>18.36</td>
<td>25.45</td>
<td>82.50</td>
</tr>
<tr>
<td>- Vegetables</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>43.33</td>
</tr>
<tr>
<td>- Potatoes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.20</td>
</tr>
<tr>
<td>- Fruits</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.10</td>
</tr>
<tr>
<td>- Others</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>34.87</td>
</tr>
<tr>
<td>Tea</td>
<td>38.56</td>
<td>21.58</td>
<td>15.47</td>
<td>15.48</td>
</tr>
<tr>
<td>Raw jute</td>
<td>71.75</td>
<td>67.18</td>
<td>82.46</td>
<td>96.19</td>
</tr>
<tr>
<td>Jute goods</td>
<td>303.82</td>
<td>230.36</td>
<td>257.18</td>
<td>307.48</td>
</tr>
<tr>
<td>Others</td>
<td>4602.32</td>
<td>5766.59</td>
<td>5846.07</td>
<td>7731.80</td>
</tr>
<tr>
<td>Total exports</td>
<td>5312.86</td>
<td>6467.30</td>
<td>6548.44</td>
<td>8654.19</td>
</tr>
</tbody>
</table>

EPB, 2005
4.4.4 Existing Base of Export Activity and Experience

Fresh vegetable exports have grown over the past 4 years from $15 million in 2001 to $43 million in 2004, an annualized rate of growth amounting to 41%. The Middle East and the United Kingdom together account for over 90% of these exports (48% and 42%, respectively). The Export Promotion Bureau does not track fresh fruit or vegetable exports by individual variety, which makes it difficult to quantify with precision the relative importance of each of the many fresh fruits and vegetables which are exported from Bangladesh.

Table- 11: Bangladesh Fruit & Vegetable Exports (USD'000’)

<table>
<thead>
<tr>
<th>Item</th>
<th>Year 2001/02</th>
<th>Year 2002/03</th>
<th>Year 2003/04</th>
<th>Year 2004/05</th>
<th>Annual growth rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>15,313</td>
<td>13,240</td>
<td>24,700</td>
<td>43,332</td>
<td>41</td>
</tr>
<tr>
<td>Fruits</td>
<td>0</td>
<td>3</td>
<td>137</td>
<td>3,075</td>
<td>1354</td>
</tr>
<tr>
<td>Potato</td>
<td>88</td>
<td>218</td>
<td>562</td>
<td>1,177</td>
<td>137</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>0</td>
<td>9</td>
<td>42</td>
<td>176</td>
</tr>
<tr>
<td>Total</td>
<td>15,403</td>
<td>13,461</td>
<td>25,408</td>
<td>47,626</td>
<td>46</td>
</tr>
</tbody>
</table>

Source: Export Promotion Bureau, 2006

The list presented in Table-14, compiled by HORTEX in 1998 via an informal survey of its affiliated exporters, provides a reasonable approximation of the product mix to the ethnic markets (principally comprised of overseas Bangladeshis) in the two major market destinations such as the United Kingdom and the middle East.

Table- 12: Bangladesh Vegetables Exports by Destination (USD'000’)

<table>
<thead>
<tr>
<th>Country /Region</th>
<th>2003/04</th>
<th>2004/05</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>9,505</td>
<td>18,777</td>
<td>+ 97</td>
</tr>
<tr>
<td>Other Europe</td>
<td>705</td>
<td>2,687</td>
<td>+ 281</td>
</tr>
<tr>
<td>Middle East</td>
<td>13,664</td>
<td>20,847</td>
<td>+ 52</td>
</tr>
<tr>
<td>SE Asia</td>
<td>233</td>
<td>645</td>
<td>+ 277</td>
</tr>
<tr>
<td>North America</td>
<td>333</td>
<td>316</td>
<td>- 5</td>
</tr>
<tr>
<td>Other</td>
<td>260</td>
<td>60</td>
<td>- 23</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24,700</td>
<td>43,332</td>
<td>+ 75</td>
</tr>
</tbody>
</table>

Source: Export Promotion Bureau, 2006

Exports of fresh fruits, fresh potatoes and processed produce items are far below vegetable items in absolute value terms, but have recently begun to exhibit interesting growth trends. While most exports are shipped to ethnic markets serving overseas Bangladeshi consumers in Europe and the Middle East, BRAC (the world’s largest NGO) has worked successfully in recent years to develop distribution into upstream channels in these regions and in Southeast Asia through a rigorous program of technical assistance to contract growers, efficient post-harvest handling, and use of world-class cartons and packing materials.
### Table- 13: Bangladesh Fruit Exports by Destination (USD'000’)

<table>
<thead>
<tr>
<th>Country/Region</th>
<th>2003/04</th>
<th>2004/05</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>25</td>
<td>506</td>
<td>+ 1924</td>
</tr>
<tr>
<td>Other Europe</td>
<td>-</td>
<td>14</td>
<td>-</td>
</tr>
<tr>
<td>Bahrain</td>
<td>2</td>
<td>68</td>
<td>+ 3300</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>56</td>
<td>46</td>
<td>- 18</td>
</tr>
<tr>
<td>UAE</td>
<td>1</td>
<td>74</td>
<td>+ 7300</td>
</tr>
<tr>
<td>Qatar</td>
<td>-</td>
<td>296</td>
<td>-</td>
</tr>
<tr>
<td>India</td>
<td>45</td>
<td>1506</td>
<td>+ 3246</td>
</tr>
<tr>
<td>Pakistan</td>
<td>-</td>
<td>14</td>
<td>-</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>-</td>
<td>390</td>
<td>-</td>
</tr>
<tr>
<td>Singapore</td>
<td>-</td>
<td>154</td>
<td>-</td>
</tr>
<tr>
<td>North America</td>
<td>1</td>
<td>4</td>
<td>+ 75</td>
</tr>
<tr>
<td>Others</td>
<td>8</td>
<td>3</td>
<td>- 62</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>138</strong></td>
<td><strong>3075</strong></td>
<td><strong>+ 2128</strong></td>
</tr>
</tbody>
</table>

Source: Export Promotion Bureau, 2005

### Table- 14: Major Vegetables Exported from Bangladesh – 1998

<table>
<thead>
<tr>
<th>English Name</th>
<th>Middle East countries (Tonnes)</th>
<th>U.K. (Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitter gourd</td>
<td>438</td>
<td>-</td>
</tr>
<tr>
<td>Yard long bean</td>
<td>384</td>
<td>18</td>
</tr>
<tr>
<td>Green Chilli</td>
<td>238</td>
<td>67</td>
</tr>
<tr>
<td>Potato</td>
<td>228</td>
<td>-</td>
</tr>
<tr>
<td>Snake gourd</td>
<td>167</td>
<td>22</td>
</tr>
<tr>
<td>Stolon of taro</td>
<td>138</td>
<td>27</td>
</tr>
<tr>
<td>Wax gourd</td>
<td>126</td>
<td>-</td>
</tr>
<tr>
<td>Teasel gourd</td>
<td>92</td>
<td>-</td>
</tr>
<tr>
<td>Pointed gourd</td>
<td>126</td>
<td>-</td>
</tr>
<tr>
<td>Green papaya</td>
<td>88</td>
<td>15</td>
</tr>
<tr>
<td>Ridge gourd</td>
<td>79</td>
<td>-</td>
</tr>
<tr>
<td>Hyacinth bean</td>
<td>77</td>
<td>--</td>
</tr>
<tr>
<td>Jackfruit</td>
<td>-</td>
<td>54</td>
</tr>
<tr>
<td>Lemon</td>
<td>-</td>
<td>36</td>
</tr>
<tr>
<td>Taro tuber</td>
<td>-</td>
<td>26</td>
</tr>
<tr>
<td>Egg plant</td>
<td>-</td>
<td>25</td>
</tr>
<tr>
<td>Bottle gourd</td>
<td>-</td>
<td>18</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>97</td>
</tr>
</tbody>
</table>

Source: Hortex Foundation survey on exporters, 2000
Table- 15: Bangladesh Exports of Dry Food, Jam, Jelly and Fruit Juices

<table>
<thead>
<tr>
<th>Item</th>
<th>Export Value ('000'USD)</th>
<th>Annual Growth Rate (%)</th>
<th>Market Share by Country (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2003-04</td>
<td>2004-05</td>
<td></td>
</tr>
<tr>
<td>Dry food</td>
<td>4121</td>
<td>4457</td>
<td>+ 8</td>
</tr>
<tr>
<td>Jam &amp; Jelly</td>
<td>8</td>
<td>67</td>
<td>+ 737</td>
</tr>
<tr>
<td>Fruit Juices</td>
<td>750</td>
<td>3191</td>
<td>+ 325</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4879</strong></td>
<td><strong>7715</strong></td>
<td><strong>+ 58</strong></td>
</tr>
</tbody>
</table>

Source: Export Promotion Bureau, 2005

Table- 16: Bangladesh Potato Exports by Destination, 2003-2005

<table>
<thead>
<tr>
<th>Country /Region</th>
<th>2003/04 ($000)</th>
<th>2004/05 ($000)</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>48</td>
<td>1</td>
<td>- 98</td>
</tr>
<tr>
<td>Italy</td>
<td>95</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bahrain</td>
<td>-</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>-</td>
<td>77</td>
<td>-</td>
</tr>
<tr>
<td>UAE</td>
<td>29</td>
<td>45</td>
<td>+ 35</td>
</tr>
<tr>
<td>Malaysia</td>
<td>53</td>
<td>610</td>
<td>+ 1050</td>
</tr>
<tr>
<td>Singapore</td>
<td>95</td>
<td>388</td>
<td>+ 308</td>
</tr>
<tr>
<td>India</td>
<td>36</td>
<td>25</td>
<td>- 31</td>
</tr>
<tr>
<td>Rep. of Korea</td>
<td>200</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>2</td>
<td>6</td>
<td>+ 200</td>
</tr>
<tr>
<td>Indonesia</td>
<td>-</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>North America</td>
<td>1</td>
<td>2</td>
<td>+ 100</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1</td>
<td>- 80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>563</strong></td>
<td><strong>1177</strong></td>
<td><strong>+ 109</strong></td>
</tr>
</tbody>
</table>

Source: Export Promotion Bureau, 2005

4.4.5 Incentives/Assistance for Export

The Government of Bangladesh has declared the following package of incentives/facilities for export promotion:

- Income tax exemption for export earning: Under the income tax law, for businesses other than cases where the owners of the factories not registered in Bangladesh, all exporters will get 50% exemptions in their income taxes;
- Exemption in insurance premium;
- Bond facilities for export oriented industries;
- Facilities for duty free import of capital machineries for export-oriented industries;
- The export-oriented industries will get the advantage of importing 10 percent spare parts of their capital machineries without duty every two years;
- Providing alternative facilities to export-oriented local textiles and RMG other than duty-bond or duty-draw-back;
- Tax holiday;
- Duty-draw-back scheme.

At present a cash subsidy (CS) is being given, among others, on the following horticultural products (Table-17). The Government of Bangladesh has announced its plan to continue cash incentives for 11 exportable products for the fiscal year 2006-07, and has already allocated Tk.5.0 billion in the budget. Recently, however, the GOB has decided to reduce its cash incentive for three agro-based exportable sub-sectors (fresh vegetables, processed agro-products and allied fruits) from its original 30% down to 20% for the fiscal year 2006-07. This new incentive package took effect on 1 July 2006. The government took the move to avoid some anomalies in the arrangements of distribution of incentives. Under the new directives announced by Bangladesh Bank, in the case of agro-processing items, the exporters will have to use 70% local ingredients for receiving the said incentive.

**Table-17: Cash subsidy (CS) for Agriculture, Agro Product (Vegetable, Fruits/Agro processing)**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Product/sector</th>
<th>Cash Subsidy admissible in % of net repatriated fob value</th>
<th>Procedure/terms and conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>a) Vegetables, fruits and processed products/Betel leaf and betel nut.</td>
<td>30</td>
<td>a) Cash subsidy is released after repatriation of export proceeds in foreign currency. ADs must submit the CS application of exporters to Bangladesh Bank within 180 days after credit of export proceeds to their Nostro Account abroad.</td>
</tr>
<tr>
<td></td>
<td>b) Potato</td>
<td>15</td>
<td>b) Export proceeds realized through banking channel against documents drawn under L/C is considered for CS.</td>
</tr>
<tr>
<td></td>
<td>c) Processed agro-products (local materials contribution 80%)</td>
<td>30</td>
<td>c) Recently Bangladesh bank has amended the condition and allowed export proceeds realized in banking channel through documents drawn against export contract to be considered for cash incentives.</td>
</tr>
<tr>
<td></td>
<td>d) Processed agro-products (local materials contribution 70%)</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

Source: Bangladesh Bank, 2004
4.4.6 Export Ratio between Primary Product and Manufactured Product

All these developments in the agriculture sector have had little effect in overall export activity levels. The shares of jute and tea to national export earning declined from 93% in 1972 to only 7% in 2004-2005. Efforts to export quality aromatic rice also failed to meet their desired success. Against this backdrop, fruits and vegetables showed some ray of hope, as exports thereof increased tremendously between the years 1994 and 1998 from US$ 8 m. to US$32 m. But this sector again had serious setback in the latter part of 1998 due to floods and excessive rain, and it has taken five years to overcome the resulting loss of market and start growing again. The other strong sub-sector in agriculture has been frozen food. But the impact of this growth is so small on the overall export of the country that the export ratio between primary and manufactured products had gone down from 13:87 in 1992-93 to 7:93 in 2004-05.

4.5 Import of Fruits and Vegetables

Under the free market economy of global trade regimes, there is virtually no restriction on imports into Bangladesh. As such, fruits and vegetables in demand in Bangladesh are freely imported on payment of customs duties and other tax/charges. The last 5-year import figures of fruits and vegetables are presented as Table-18.

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (Million Taka)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998-1999</td>
<td>3324.8</td>
</tr>
<tr>
<td>1999-2000</td>
<td>5935.0</td>
</tr>
<tr>
<td>2000-2001</td>
<td>4968.0</td>
</tr>
<tr>
<td>2001-2002</td>
<td>5639.0</td>
</tr>
<tr>
<td>2002-2003</td>
<td>6784.0</td>
</tr>
</tbody>
</table>

Source: Agricultural Year Book, 2004

Imports of fruits and vegetables have been steadily growing every year (Table-18). The items generally imported are potatoes, cucumber, peas and other vegetables (fresh/chilled), onion and shallots, garlic, peas shelled, beans dry shelled skinned or not, small red beans dry shelled, kidney bean dry shelled, lentils dried shelled and other leguminous seeds. It is reported that four items (onion, peas, chick peas and lentils) constitute 84-98% of import. Notably, these are not really vegetables. Moreover, the items, which we do export, are quite different from those that we import.

4.6 Incipient Processing Activity

Utilization of fruits and vegetables in the production of processed consumer products is already underway, with usage focused on mango, tomato and seasonal products. Both large-scale and small-scale operators declare themselves to be operating profitably in this sector, although not all companies in the sector have enjoyed equal success. Most companies appear to have initiated their operations by servicing domestic demand, with several of them already actively engaged in the export marketing of their products. PRAN processes 45,000 MT of product each year. Eurasia has recently decided to add frozen vegetables to its ready-to-eat frozen offerings. Presenter and Rajshahi Mango Products are examples of smaller-scale pickle & chutney packers run by their founding entrepreneurs. Square’s entry into the consumer products business has met with enough success to justify further investments in fresh fruit production for export, and to diversify beyond its core spice business into pickles, snacks and aromatic rice. While there is activity in the processed arena, its impact on the horticultural production base is small.
4.7 Air and Ocean Freight Options

Air Freight

Biman Airways dedicates 80% of its lift capacity, at below-market rates, to fruit and vegetable exports destined for the Middle East and the United Kingdom. Over 85,000 tonnes of air cargo capacity depart from Dhaka’s Zia International Airport each year. For export markets, the subsidized air freight capacity of Biman Airlines meets only 30-40% of the estimated demand for Bangladesh’s principal export commodities to the principal destination markets served by Bangladeshi exporters. While additional lift is available from the numerous foreign flag carriers that service Zia International Airport, their unsubsidized rates are uncompetitive with those of Biman. Thus, the Biman rate structure serves both as an export stimulus, with respect to the cargo that it can accommodate, and as a “ceiling”, with respect to the other 60%-70% of demanded and exportable product which becomes unaffordable and uncompetitive were it to be carried at market rates into the same markets served by Biman. Furthermore, this subsidized rate depends upon the continuation of the government’s policy to support fruit and vegetable export growth, despite the growing deficits which Biman has recorded in recent years. The precarious foundation which Biman’s subsidized rate structure provides is well evidenced by a recapitulation of recent changes in Biman’s cargo rates.

Table-19: Increases in the Biman Fresh Produce Freight Rate (Tk/kg) Schedules (2003-2006)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AbuDhabi/Dubai/Muscut/Doha</td>
<td>39.20</td>
<td>43.66</td>
<td>45.54</td>
<td>49.77</td>
<td>51.35</td>
<td>56.28</td>
<td>65.96</td>
<td>65.96</td>
<td>66.93</td>
<td>70.38</td>
</tr>
<tr>
<td>Bahrain</td>
<td>45.65</td>
<td>50.74</td>
<td>52.89</td>
<td>57.33</td>
<td>59.15</td>
<td>64.32</td>
<td>74.80</td>
<td>74.80</td>
<td>75.90</td>
<td>75.90</td>
</tr>
<tr>
<td>Jeddah</td>
<td>51.50</td>
<td>56.84</td>
<td>59.04</td>
<td>63.63</td>
<td>65.65</td>
<td>71.20</td>
<td>75.40</td>
<td>82.28</td>
<td>83.49</td>
<td>83.49</td>
</tr>
<tr>
<td>Kuwait</td>
<td>54.40</td>
<td>60.18</td>
<td>62.74</td>
<td>67.41</td>
<td>69.55</td>
<td>75.40</td>
<td>79.60</td>
<td>88.32</td>
<td>88.32</td>
<td>88.32</td>
</tr>
<tr>
<td>Singapore</td>
<td>44.46</td>
<td>56.66</td>
<td>57.84</td>
<td>62.37</td>
<td>64.35</td>
<td>69.68</td>
<td>73.70</td>
<td>74.80</td>
<td>72.45</td>
<td>72.45</td>
</tr>
<tr>
<td>Kuala Lumpur</td>
<td>45.05</td>
<td>46.64</td>
<td>47.39</td>
<td>51.66</td>
<td>53.50</td>
<td>58.29</td>
<td>62.31</td>
<td>68.00</td>
<td>60.72</td>
<td>60.72</td>
</tr>
<tr>
<td>UK/Rome/Paris</td>
<td>81.35</td>
<td>89.90</td>
<td>92.89</td>
<td>101.43</td>
<td>104.65</td>
<td>111.22</td>
<td>127.16</td>
<td>127.16</td>
<td>135.93</td>
<td>153.18</td>
</tr>
<tr>
<td>Frankfort</td>
<td>83.65</td>
<td>91.45</td>
<td>95.34</td>
<td>103.95</td>
<td>107.25</td>
<td>113.90</td>
<td>129.88</td>
<td>129.88</td>
<td>138.69</td>
<td>153.18</td>
</tr>
</tbody>
</table>

Source- BRAC, 2006; *Current rate.

A recently announced rate increase by Bangladesh Biman has not yet been executed due to the verdict given by the high court in response to a protest filed by the exporters’ association. The court has ordered a 2-month stay. Even without this latest proposed increase, Bangladesh Biman’s rate increases since October of 2003 have been running at an average pace of some 25% per annum. This reliance on subsidized air freight has served to focus exporter energies on maximizing their access to space aboard Biman passenger flights, distracting them from a number of other profitable objectives:

- Meeting unsatisfied demand in current base markets by utilizing commercial air and sea capacity which is currently available to them;
- Organizing charter cargo flights;
- Developing distribution to other markets within the logical distribution network for Bangladesh, including Southeast and East Asia;
- Working directly with growers to secure product at a more optimal combination of quality and cost.
The airfreight industry is bedeviled by subsidized freight rates, the use of poor packaging, lack of proper cooling and handling facilities and the payment of incentives to guarantee freight space (FAO/World Bank Study, 2002). According to the Bangladesh Fruits, Vegetables & Allied Products Exporters Association (BFVAPEA), simply meeting unsatisfied demand in key markets currently served by its membership would lead to an increase in export volumes of more than 160%.

**Ocean Freight**

While there is considerable capacity at Chittagong to accommodate the unmet export demand for Bangladeshi fruits and vegetables, at rates that would be significantly lower than even the subsidized Biman rates, most exporters simply do not use ocean freight for their exports. While some export commodities would not be able to withstand the rigors of ocean voyages measured in days and weeks, rather than air freight trips measured in hours, some commodities could certainly tolerate the additional transit times. Greater use of ocean freight would reduce the average cost of all Bangladeshi perishables exports, thereby improving their competitiveness in the market. In addition, it would reduce the pressure on an already over-taxed air freight system, and provide a logical differentiation between cargo values.

The major seaport of Chittagong is well served by several of the world’s premier perishables carriers – Maersk, American President Lines, NYK, and Hapag Lloyd – and boasts sufficient container yard capacity and refrigerated plug slots to support a quantum increase in perishables throughput. Although there have been no tariffs filed (or requested) for the carriage of fresh fruits or vegetables, rates listed in existing tariffs for refrigerated containers carrying frozen cargo would lead us to believe that ocean freight to Dubai would amount to $0.22-$0.25/kg. This compares to an air freight charge ranging from Biman’s subsidized rate of $0.64/kg to the open market rate of $1.00/kg.

4.8 **Overland Transportation**

In the internal market, there are virtually no refrigerated vehicles in common use for the domestic transportation of fresh fruits and vegetables. Most products are shipped from farm to market in loose stowage or mounded up in baskets on open trucks or river skiffs. Since most of the product shipped to Middle Eastern and UK markets is purchased by exporters at the urban markets of Dhaka, export and domestic product suffer equally from this tortuous transit.

Unfortunately, exporter attention has been consumed by the struggle to maximize access to below-market air freight slots, leaving them with no organizational energy to push carriers and researchers to determine what commodities could be converted to ocean containers, what markets could be serviced by ocean-bound deliveries, or what would be the appropriate carrying temperatures and transit time limits for each commodity.

Another issue also constraining exports of agro-industrial products from the country are bureaucratic customs and shipping procedures, and informal taxes (speed money) that have to be paid to get clearance for commodities sent by sea. These constraints are severely affecting the agribusiness export potential of the country by adding considerable costs -- in some cases (estimated as high as 5-10% of F.O.B values). The informal tolls are usually paid in cash or by hired brokers available at the port area. Much greater attention needs to be paid to the issues of export procedures, tariffs and informal tolls.
Table-20: Imbalance between Air Freight Availability and Export Demand

<table>
<thead>
<tr>
<th>Country</th>
<th>Weekly Demand (mt)</th>
<th>Weekly Lift (mt)</th>
<th>Weekly shortfall (mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United kingdom</td>
<td>200</td>
<td>55</td>
<td>145</td>
</tr>
<tr>
<td>Kuwait</td>
<td>60</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>UAE</td>
<td>200</td>
<td>45</td>
<td>155</td>
</tr>
<tr>
<td>Qatar</td>
<td>60</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Muscat</td>
<td>30</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Dammam</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Riyadh</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Jeddah</td>
<td>120</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Bahrain</td>
<td>50</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>800</td>
<td>305</td>
<td>495</td>
</tr>
</tbody>
</table>

Source: (BFVAPEA estimate, 2006)

4.9 Infrastructure & Technology

Infrastructural constraints constitute perhaps the single most important bottleneck to expansion of export activities in Bangladesh. Main roads are generally good, although access roads into production areas can be highly problematic, especially during the rainy season. Traffic conditions range from highly congested to death-defying. Packing plants with adequate sanitation, hygiene, processing and storage facilities are a rarity. Cold storage, where it exists, appears to be dedicated to the storage of seed potatoes.

In agribusiness, assembly and wholesale markets play a vital role in the quality of primary products, smooth transactions, packaging, preshipment treatments and shipments to destination both inside and outside the country. Urban markets are generally old, dirty, bereft of cold storage facilities, and highly congested. Electric power is a leading infrastructure constraint. Load shedding/power failure is a common feature. Power breakdown is experienced several times a day.

The lack of adequate infrastructure and post-harvest technology (see below) contributes to extraordinary losses along the progress of the product from farm to market. According to research information provided by the Post Harvest Technology Division of Bangladesh Agricultural Research Institute, post-harvest losses among 14 selected fruit and vegetable crops range from a low of 14% to a high of 46%. With specific reference to the economic impact of post-harvest product loss on the economic performance of the six focus commodities, the findings are no less dramatic.

In most of the processing facilities we visited, the equipment and processes were old, unsophisticated, and only marginally adequate to meet export market requirements for sanitation, food safety, or certification. While such technology may have been appropriate for initial ventures designed to satisfy domestic demand, it does not represent a sufficient platform to launch competitive export operations. Neither public nor private sector resources offer any meaningful assistance in the areas of new product development, testing for food safety or hygiene, quality management nor certification to insure compliance with public and private requirements as practiced in Europe, North America, Australia or North Asia.
Table-21: Post-Harvest Losses of Some Selected Fruits and Vegetables

<table>
<thead>
<tr>
<th>Crop</th>
<th>Producer</th>
<th>Collector</th>
<th>Wholesaler</th>
<th>Retailer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mango</td>
<td>2.0</td>
<td>5.0</td>
<td>22.0</td>
<td>4.0</td>
<td>33.0</td>
</tr>
<tr>
<td>Pineapple</td>
<td>2.0</td>
<td>4.0</td>
<td>8.0</td>
<td>4.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Banana</td>
<td>2.0</td>
<td>4.0</td>
<td>8.0</td>
<td>6.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Papaya</td>
<td>6.0</td>
<td>10.0</td>
<td>15.0</td>
<td>4.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Lime</td>
<td>4.0</td>
<td>8.0</td>
<td>14.0</td>
<td>2.0</td>
<td>28.0</td>
</tr>
<tr>
<td>Beans</td>
<td>4.0</td>
<td>6.0</td>
<td>13.0</td>
<td>5.0</td>
<td>28.0</td>
</tr>
<tr>
<td>Carrot</td>
<td>3.0</td>
<td>6.0</td>
<td>12.0</td>
<td>4.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Cabbage</td>
<td>4.0</td>
<td>7.0</td>
<td>9.0</td>
<td>5.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Bitter gourd</td>
<td>4.0</td>
<td>6.0</td>
<td>11.0</td>
<td>6.0</td>
<td>27.0</td>
</tr>
<tr>
<td>Tomato</td>
<td>5.0</td>
<td>10.0</td>
<td>15.0</td>
<td>7.0</td>
<td>37.0</td>
</tr>
<tr>
<td>Okra</td>
<td>3.0</td>
<td>10.0</td>
<td>13.0</td>
<td>8.0</td>
<td>34.0</td>
</tr>
<tr>
<td>Eggplant</td>
<td>2.0</td>
<td>5.0</td>
<td>6.0</td>
<td>7.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Chillies</td>
<td>2.0</td>
<td>3.0</td>
<td>5.0</td>
<td>4.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Potatoes</td>
<td>3.0</td>
<td>4.0</td>
<td>12.0</td>
<td>6.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Av.% loss</td>
<td>3.3</td>
<td>6.3</td>
<td>11.6</td>
<td>5.1</td>
<td>26.3</td>
</tr>
</tbody>
</table>

Source- Naqvi, 2006 and BARI, 2006

While such stringent requirements may not yet be in place in the export market segments currently served by Bangladeshi exporters, the trend toward wider adoption of such standards in Southeast Asia and the Middle East, if not yet in East Africa, appears clear. In a 2004 report on the Bangladesh Horticultural Industry, one seasoned observer estimated the impact from improvements in quality systems in terms of additional access to export markets:

Table-22: Post-Harvest Losses of Focus Commodities

<table>
<thead>
<tr>
<th>Crop</th>
<th>Production ('000' MT)</th>
<th>% loss</th>
<th>Total losses ('000' MT)</th>
<th>Rate/kg</th>
<th>Total losses (Million Taka)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mango</td>
<td>243.0</td>
<td>33.0</td>
<td>80.19</td>
<td>9.20</td>
<td>737.75</td>
</tr>
<tr>
<td>Pineapple</td>
<td>213.0</td>
<td>18.0</td>
<td>30.34</td>
<td>4.17</td>
<td>126.53</td>
</tr>
<tr>
<td>Potato</td>
<td>390.71</td>
<td>25.0</td>
<td>976.75</td>
<td>5.00</td>
<td>4883.75</td>
</tr>
<tr>
<td>Bitter gourd</td>
<td>26.0</td>
<td>27.0</td>
<td>7.02</td>
<td>5.00</td>
<td>35.10</td>
</tr>
<tr>
<td>Okra</td>
<td>24.0</td>
<td>46.0</td>
<td>11.04</td>
<td>5.00</td>
<td>55.20</td>
</tr>
<tr>
<td>Chillies</td>
<td>138.7</td>
<td>14.0</td>
<td>19.32</td>
<td>6.50</td>
<td>125.58</td>
</tr>
</tbody>
</table>

Production agriculture in fruit and vegetable crops in Bangladesh makes little use of such modern intensive practices as drip irrigation, fertigation, high-density plantings, and scientific methods of seed selection and propagation. Low labor costs rarely provide a permanent competitive edge in the international trade in horticultural products. Once this advantage begins to diminish, it must usually be replaced by increases in productivity or by reduction in non-labor cost components,
Table-23: Possible Impact of Improved Quality Systems on Export Volumes (MT)

<table>
<thead>
<tr>
<th>Destination Market</th>
<th>Current</th>
<th>+ 5 years without quality improvements</th>
<th>+ 5 years with quality improvements</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>European ethnic</td>
<td>2,500</td>
<td>2,000</td>
<td>2,000</td>
<td>Decline in traditional ethnic markets</td>
</tr>
<tr>
<td>European supermarket</td>
<td>500</td>
<td>100</td>
<td>1,500</td>
<td>Expansion in ethnic vegetable sales</td>
</tr>
<tr>
<td>European value added</td>
<td>0</td>
<td>0</td>
<td>1,500</td>
<td>Expansion in semi-prepared vegetables to restaurants &amp; for ready meals</td>
</tr>
<tr>
<td>Middle Eastern ethnic</td>
<td>12,500</td>
<td>12,500</td>
<td>12,500</td>
<td>Market static</td>
</tr>
<tr>
<td>Middle Eastern supermarket</td>
<td>0</td>
<td>0</td>
<td>2,500</td>
<td>Growth in supermarkets</td>
</tr>
<tr>
<td>SE Asian wet markets</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>Static</td>
</tr>
<tr>
<td>SE Asian supermarket</td>
<td>0</td>
<td>0</td>
<td>500</td>
<td>Supermarket expansion</td>
</tr>
<tr>
<td>SE Asian sea freight</td>
<td>1,000</td>
<td>1,500</td>
<td>2,500</td>
<td>Product reaching more sophisticated markets</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17,000</strong></td>
<td><strong>16,600</strong></td>
<td><strong>23,500</strong></td>
<td></td>
</tr>
</tbody>
</table>

(G. Dixie, June 2004)

The limited availability and use of reliable planting materials and hybrid seeds represent a further challenge to farmer incomes. In a paper presented at the Agri-Invest 2003 Seminar in Dhaka (“Niche Markets for Agribusiness in Bangladesh”, 03/12/2003), the authors observed that there is a huge gap between the demand and supply of true and reliable planting material:

Table-24: Horticultural Seed Requirements and Sources

<table>
<thead>
<tr>
<th>Crop</th>
<th>Seed Requirements (MT)</th>
<th>Source of seed supply (%)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BADC</td>
<td>PVT/NGO</td>
<td>Informal</td>
<td></td>
</tr>
<tr>
<td>Potato</td>
<td>330,615</td>
<td>1.9</td>
<td>1.5</td>
<td>96.6</td>
<td></td>
</tr>
<tr>
<td>Vegetable</td>
<td>3,101</td>
<td>0.7</td>
<td>51.2</td>
<td>48.1</td>
<td></td>
</tr>
</tbody>
</table>

(“Niche Markets for Agribusiness in Bangladesh” Agri-Invest 2003)

The report argues that the use of substandard seed reduces the yield and quality of the end product. This is especially important in the case of export and processed channels, and underlines the need to enhance the development of the seed industry, including:

- Biotechnology & tissue culture
- Commercial production of plantlets for pineapple and other fruit crops
There does not appear to be any “Center of Excellence” for the development and dissemination of improved standards for post-harvest handling of horticultural products. There is room in Bangladesh for dramatic improvement in visual quality, preservation of organoleptic attributes, reduction in shrink, and extension of shelf life. Fortunately, much of the knowledge base that would serve as the foundation for such improvements already exists elsewhere in the world. The major task would not be to invent or discover new processes, but rather to adapt and implement existing practices in Bangladesh.

4.10 Investments and Working Capital

Expansion and modernization of agribusiness demand a very high volume of investment and working capital. Modern technologies of production, processing, storage, transportation and trading of different inputs, services and commodities are indeed very costly, particularly those processes and products which requires a high standard of quality assurance. Automation of plants and equipments is essential for maintaining quality assurance, particularly for exportable products. Working capital requirements for agro-based industries are also high as these industries often entail longer gestation periods.

Credit for agricultural activities is available from commercial banks. However, the amount of credit available annually from each bank is limited. There are not enough bank branches to serve all potential customers, and loan procedures are complex and protracted. It is said that, in addition to formal charges, frequently an informal charge of 10% is levied by staff of the issuing bank in most cases.

Lack of adequate export finance is also identified as a major constraint. Most of the exporters face the problem of obtaining export finance. High rates of interest on bank capital are also a constraint. Exporters are of the opinion that the rate of interest is higher in Bangladesh when compared to other countries with which Bangladesh is competing. Formalities for getting bank loans are time-consuming. Banks are highly centralized and the authority of local managers is limited. Exporters are required to pay extra money at every stage of loan approval.

4.11 Market Access

Market access issues are becoming increasingly complex and diversified. Many convenient and/or high-value export markets remain inaccessible to Bangladeshi producers and exporters due to the country’s inability to overcome phytosanitary barriers. Exporters are not adequately aware about the sanitary and phytosanitary measures of the WTO. The SPS measures of the country are not harmonized on the basis of guidelines and recommendations. The government systems working in this area have been organized to respond to certain WTO matters, but they are not yet equipped to adapt to SPS and other environmental/health related matters. The existing mechanism for information gathering, processing and dissemination is not working properly, and there is no effective system for coordination, follow-up and monitoring. As such, the core group of stakeholders still remains essentially unaware, uninformed and unconcerned.

There does not appear to be any experience in, or capacity for, conducting Pest Risk Assessments or negotiating mitigation protocols that would allow Bangladeshi fruits and vegetables to enter markets for which they are otherwise well suited. To address the issues of SPS, the following interventions are indicated:

- The present inspections and quarantine rules of Bangladesh relating to plant health and all other concerned products need to be modernized in order to meet the needs of importing countries with respect to the FAO convention regarding the application of SPS measures.
The national standardizing bodies are now controlled by different Government agencies, which cannot coordinate these complex SPS requirements. It would be beneficial to improve the structure, as well as the capacities, of the national standardizing bodies so as to bring them under one umbrella relation to SPS standards.

Bangladesh should maintain effective participation in international standardization activities and regulations, particularly in ISO, Codex Alimentarius and IOE activities, where international SPS rules are set and modified.

Appropriate country-wide training for farmers and the exporters should be arranged in order to create awareness about the activities, rules and regulations of SPS measures.

Develop and improve existing quality standards by amending domestic legislation. Quality control procedures prescribed by HACCP emphasize hygiene and prevention of contamination in the production process. Such procedures would not only improve market access into developed nations but also provide a larger good by making available good quality and safe food for the local population as well.

More, better equipped laboratories for testing samples for exports and for testing samples of imported items.

Ensure aggressive marketing, Government may render information services to the exporters on SPS measures for the target markets.

Approach international agencies including FAO and WTO and donor agencies for technical assistance to the concerned Bangladeshi entities involved in the development of SPS measures.

A course covering topics such as WTO, Agreement on Agriculture, SPS Agreement and other related domestic legislation’s should be introduced and made compulsory in advanced level degree courses in agricultural colleges and universities.

Bangladesh should participate on a more regular basis and more actively in the standard-setting meetings in international organizations such as Codex Alimentarius Committee and International Plant Protection Convention.

Developing countries should put forward proposals to create a trust fund to support developing countries for different purposes as mentioned in the SPS Agreement including technical assistance. In addition, countries could also use this fund to elicit the assistance of legal professionals in dispute settlement procedures.

The message must be conveyed that the traditional ways of exporting fresh fruits and vegetables are inadequate. This must be understood and recognized by all agencies, policy makers, implementers and users, so as to promote widespread implementation of food safety standards. Appropriate institutional capacity will be needed in order to make this happen.

4.12 Access to Information

Market information is a pre-requisite for making investment decisions in agribusiness. Entrepreneurs need to know production and supply trends, demand and prices, trade concessions and facilities of domestic and export markets, tariff and non-tariff barriers and opportunities, appropriate technologies, plant and machinery specifications and prices, standards and restrictions, inter alia. Entrepreneurs can generally manage to collect information on domestic markets but access to information on export markets can become very difficult and costly.

Most exporters have neither the in-house capacity to gather necessary trade information nor the networking facility to access market information. Hortex Foundation is doing its best to provide market information and market feed back (Box-3), but its efforts are hampered by declining support from its
financial contributors, and by a generalized dissatisfaction with its services and orientation on the part of the exporters it was organized to serve.

The efforts of the Export Promotion Bureau (EPB) to provide the entrepreneurs with business information and market intelligence are commendable. The EPB has assisted exporters by imparting training or offering training facilities, organizing trade fairs and furnishing required information. This present level of services and activities, however, does not match the increasing demand of the exporters. EPB's capacity is limited because of a lack of resources needed to build up the required facilities, to procure modern training equipment, and to publish and disseminate trade-related publications.

**Box-3: Supportive Role of Hortex Foundation**

The Horticultural Export Development Foundation (Hortex Foundation) is working for the development, promotion and marketing of exportable horticultural products with particular emphasis on high-value, non-traditional crops to non-traditional markets. In the area of both export diversification and production expansion, Hortex Foundation has been playing a catalytic role since 1997-98. They provide:

- Technical assistance in respect of production and post-harvest handling including sorting, grading, packaging and transportation;
- cool-chain facility from the production centre to the point of shipment;
- Quality packaging cartons of international standards;
- Market information and market feedback;
- Training on market requirement and Total Quality Management (TQM);
- Monitoring produce quality throughout the production and marketing chain.

As a promotional and facilitating agency, Hortex Foundation virtually works through NGO and private sector and provides them technical assistance and input supports for export development of horticultural crops. By this time they have succeeded in demonstrating how the present "market to market" lower end marketing approach can be gradually replaced by "production to market" upper end strategy through institutionalization of contract farming, cool chain management, quality upgradation and packaging improvement.

The chambers and trade associations including the BFVAPEA also lack capacity to provide adequate management; training in trade laws, procedures and documentation; and giving assistance to their members in accessing relevant information on export markets, import sourcing, quality requirements and international standards. Information is a very cost-intensive business, and businessmen are constantly in need of such information. In this regard, exporters are generally dissatisfied with the performance of the Bangladesh missions abroad.

4.13. Supply Chain Integration

As Bangladesh farmers have diversified from subsistence crops to a blend of subsistence and cash crops within their production mix, there has been a lag as concerns the information available to them for purposes of crop planning and commercialization.

This void has been further complicated by a weakness in local and regional organizational structures, which typically provide this type of information to individual farmers in other agricultural economies, both developing and developed. Despite the efforts of the Departments of Agricultural Extension (DAE) and Agricultural Marketing (DAM) within the Ministry of Agriculture, and the special projects funded by IFAD and other donor groups, the lack of a transparent and readily accessible flow of information for the
planning, production, storage, transportation and commercialization of horticultural crops compromises both farmer incomes and consumer welfare.

On occasion this lack of integration can manifest itself as an uncoordinated series of individual production decisions taken by farmers across a district, which leads to under-planting of a given commodity, underutilization of production and intermediary facilities, and undersupply of product to consumers. This appears to have been the case this season with the potato crop in Rangpur, where growers and cold storage operators are jointly suffering from a 40% under-production of potatoes in the district, motivated primarily by farmer concerns about adverse weather, high fertilizer prices, availability of hybrid seed, and shortages in the power supply.

The lack of broad coordination and predictability in the flow of product to market is also an important element contributing to the elevated costs of intermediation which appear to operate in Bangladesh: Given the relative simplicity of the path which fruits and vegetables follow from farm to market, the role of middlemen in these transactions seems unjustifiably large and expensive. In many instances product passes through five different sets of intermediaries from farm-gate to consumer plate. Through direct participation in the marketing of their production, farmers can reduce margin losses to intermediation by as much as 50%, thereby minimizing their marketing costs and increasing their profitability.

Depending upon the product, it is not unusual under the current transactional model for such intermediary transactions to absorb 60% or more of the final consumer price for any given fruit or vegetable product as per the following distribution:

- Farmer (40% of consumer price)
- Faria (15%)  
  Beparie (10%)  
  Aratdar (20%)  
  Paiker (15%)  
- (60% of consumer price)

Recent experiments with direct farmer-to-retailer sales of Alphonso mangos in Maharashtra State in India have demonstrated that farmers can capture up to 70-80% of the final consumer price for their products. In Bangladesh, the long chain of intermediates leaves producers with a far smaller share of the final price. This is due, in large part, to a variety of factors such as the number of intermediaries, the cost of various market functions rendered by intermediaries, and the distances separating the producers and consumers. Degrees of perishability, variety and quality, and sub-standard market infrastructure also influence the marketing costs and price levels. Producers’ share is relatively high in areas where market infrastructure facilities are better. Some studies have cited examples of improvements in producers’ share over a period of time due to improvement in market infrastructure, such as cold storage facilities. Share often varies during peak and lean seasons. Substantial variations in producer’s share in consumer’s price for fruits and vegetables can also be observed even in the same location.

4.14 Corruption

Widespread corruption in the public service, especially in customs, port, government offices and banks, is a significant impediment to export growth in Bangladesh. When the costs of “informal tolls” on public roads serve to inflate transportation costs, then logic would dictate that success in reducing the effects of this and other ‘hidden costs’ would serve to improve both farmer incomes and consumer welfare. Published reports in the domestic press contend that the price of vegetables in Dhaka is three times higher than in the rural producing area, attributing the largest component of this cost increase to informal toll collections between farm and market. This newspaper article (Dainik Janakantha-21st November, 2005) cited official government studies, and mentioned that, for shipping a truck of vegetables from Jessore to
Dhaka, the truck fare varied from Tk. 8000/- to 8500/-. Of this total amount, formal tolls amounted to Tk. 840/- (Tk. 40/- ferry terminal charge at Doulatia/Paturia, Tk. 770/- ferry charge, Tk. 30/- as bridge tolls at Tora). In addition to these formal tolls, informal tolls cost an additional Tk. 700/- (45% of total costs), with collections occurring at nine different points over the truck’s laden route. Thus, total tolls accounted for 18-19% of the total freight cost from Jessore to Dhaka. Of this total, 45% was attributable to informal tolls.

Similarly, for shipping a truck of vegetables from Norshingdi to Dhaka, no formal tolls were paid but informal tolls required the payment of Tk. 620/- in eight different points. The study concluded that 68% of all tolls collected in the transport of vegetables from Rangpur to Dhaka consisted of informal tolls paid to local police, or in the form of “subscriptions” in favor of trade unions. Between Jessore and Dhaka, the comparable up-charge for informal tolls was 45%. Components of these informal tolls may include:

- Tips for loading and unloading truck onto ferry
- Subscriptions for trade union
- Monthly fixed tolls for police sergeants
- Informal tolls for police sergeants on the highways.

According to this report, the study revealed that moving a truckload of fruits or vegetables to Dhaka from the Rangpur, Bogra or Rajshahi areas typically required the payment of Tk 2100 in informal tolls.

If the purpose of this report is to improve farmer incomes and enhance consumer welfare, then clearly any reduction in the level of these informal tolls which the government could achieve would lead either to an improvement in farmer incomes, or to an enhancement of consumer welfare through increased horticultural consumption, or both. There is a comparable network of payments reportedly required to move cargo into and out of the Port of Chittagong, and through Zia International Airport. In both instances, speed money requirements are considered commonplace to expedite documentation, insure correct handling, and avoid delays in the clearance processes.

The issue of corruption, and the extent and pervasiveness of its economic impact, is not raised here to address foreign perceptions of governance, nor to add weight to what has become a pervasive theme in virtually all development reviews of Bangladesh. Our purpose here is far more modest and practical. As stated earlier, our goal in this report is to improve farmer incomes and to enhance consumer welfare. Hence, any recommendations on this subject of corruption, as with all other recommendations in this report, are designed primarily to control unnecessary costs which operate to the detriment of farmer incomes and/or consumer welfare. According to a published report of Dhaka Chambers of Commerce & Industries (DCCI) on "Examination of Market Access Barriers Confronting LDC Products", curbing corruption requires a holistic approach and the Government should enforce better control mechanisms in the public service. This could be achieved by introducing management information systems and software into government offices. Making government servants accountable for their actions would also help to reduce corruption. Competitive salary packages would also reduce corruption.

### 4.15 Bureaucracy

Exporters are of the opinion that Government rules and regulations pertaining to exports are complicated, and too much paper work is needed. Considerable amount of Senior Management’s valuable time is spent with government’s officials over interpretations and changes in laws and regulations. Big firms engaged in export business have to appoint officers for sorting out matters with the government and agencies. Since small and medium size firms are more affected by complications of laws and regulations, they are found to be more critical about government services. According to DCCI study report, the Senior Management has to spend a sizable amount of time with banks. Formalities for getting bank loans are time-consuming. Banks are highly centralized. Ability of local managers is limited. Local offices have to
wait up to 6 months for a decision from the head office. Exporters are required to pay extra money at every stage of loan approval.

Each year the World Bank and the International Finance Corporation publish their ranking of countries based on the ease of doing business in each country. A high ranking on the ease of doing business index means the regulatory environment is conducive to the operation of business. In its 2006 “Doing Business” report, the WB/IFC rankings placed Bangladesh 88th overall among the 175 countries considered in the study. This represented a drop of 7 spots in the overall list when compared to the previous year.

<table>
<thead>
<tr>
<th>Ease of...</th>
<th>2006 rank</th>
<th>2005 rank</th>
<th>Change in rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing Business</td>
<td>88</td>
<td>81</td>
<td>-7</td>
</tr>
<tr>
<td>Starting a Business</td>
<td>68</td>
<td>63</td>
<td>-5</td>
</tr>
<tr>
<td>Dealing with Licenses</td>
<td>67</td>
<td>64</td>
<td>-3</td>
</tr>
<tr>
<td>Employing Workers</td>
<td>75</td>
<td>75</td>
<td>0</td>
</tr>
<tr>
<td>Registering Property</td>
<td>167</td>
<td>167</td>
<td>0</td>
</tr>
<tr>
<td>Getting Credit</td>
<td>48</td>
<td>41</td>
<td>-7</td>
</tr>
<tr>
<td>Protecting Investors</td>
<td>15</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Paying Taxes</td>
<td>72</td>
<td>69</td>
<td>-3</td>
</tr>
<tr>
<td>Trading Across Borders</td>
<td>134</td>
<td>132</td>
<td>-2</td>
</tr>
<tr>
<td>Enforcing Contracts</td>
<td>174</td>
<td>174</td>
<td>0</td>
</tr>
<tr>
<td>Closing a Business</td>
<td>93</td>
<td>87</td>
<td>-6</td>
</tr>
</tbody>
</table>

With specific reference to export-friendliness, Bangladesh ranked in the bottom quartile for ease of trading across borders.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Bangladesh</th>
<th>Region</th>
<th>OECD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documents for export (number)</td>
<td>7</td>
<td>8.1</td>
<td>4.8</td>
</tr>
<tr>
<td>Time for export (days)</td>
<td>35</td>
<td>34.4</td>
<td>10.5</td>
</tr>
<tr>
<td>Cost to export (US$ per container)</td>
<td>902</td>
<td>1,236</td>
<td>811</td>
</tr>
<tr>
<td>Documents for import (number)</td>
<td>16</td>
<td>12.5</td>
<td>5.9</td>
</tr>
<tr>
<td>Time for import (days)</td>
<td>57</td>
<td>41.5</td>
<td>12.2</td>
</tr>
<tr>
<td>Cost to import (US$ per container)</td>
<td>1,287</td>
<td>1,495</td>
<td>883</td>
</tr>
</tbody>
</table>

While Bangladesh is clearly not alone within the region in its documentation requirements, its extended timelines, and high costs for export activities, it is – in each case – materially above the OECD countries in this regard. Improvement in each of these indices would assist entrepreneurs to establish their export activities (including fruit and vegetable activities) more quickly, and to grow them faster.
V. Supply and Value Chain Analysis of Fruits and Vegetable

5.1 Mango

At 243,000 metric tons of annual production, mangoes rank third in fruit production in Bangladesh, behind bananas and jackfruit (Table-25).

<table>
<thead>
<tr>
<th>Crop</th>
<th>2001/02 MT</th>
<th>2001/02 %</th>
<th>2002/03- MT</th>
<th>2002/03 %</th>
<th>2003/04 MT</th>
<th>2003/04 %</th>
<th>3-year Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banana</td>
<td>654</td>
<td>42%</td>
<td>650</td>
<td>40%</td>
<td>707</td>
<td>40%</td>
<td>4%</td>
</tr>
<tr>
<td>Jackfruit</td>
<td>275</td>
<td>18%</td>
<td>276</td>
<td>17%</td>
<td>280</td>
<td>16%</td>
<td>1%</td>
</tr>
<tr>
<td>Mango</td>
<td>187</td>
<td>12%</td>
<td>243</td>
<td>15%</td>
<td>243</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>Pineapple</td>
<td>163</td>
<td>10%</td>
<td>154</td>
<td>9%</td>
<td>213</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td>Melons</td>
<td>86</td>
<td>6%</td>
<td>85</td>
<td>5%</td>
<td>89</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>Guava</td>
<td>50</td>
<td>3%</td>
<td>78</td>
<td>5%</td>
<td>80</td>
<td>4%</td>
<td>26%</td>
</tr>
<tr>
<td>Other</td>
<td>153</td>
<td>10%</td>
<td>143</td>
<td>9%</td>
<td>162</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1558</strong></td>
<td><strong>100%</strong></td>
<td><strong>1629</strong></td>
<td><strong>100%</strong></td>
<td><strong>1774</strong></td>
<td><strong>100%</strong></td>
<td><strong>7%</strong></td>
</tr>
</tbody>
</table>

Source: BBS, 2004

Mango occupied about 26.4% of the total area covered by fruits in Bangladesh as presented in figure 3...

Figure-3: Area under Different Major Fruit Crops in Bangladesh

The major mango producing districts are presented in Table-26. The approximate flowering period of mango in Bangladesh is during February, and harvesting period is during Mid April to Mid June. The important varieties are, Fazlee, Langra, Gopalbogh, Ashwina, Khirshapati, and Gooti (unnamed seedling mangoes).

There has been a great decline in the production of mango during the last few decades. During this period, India and Pakistan increased their production. Side by side, other leading mango producing countries such as, the Philippines, Indonesia, Mexico, Haiti, China, Tanzania, Madagascar and Dominican Republic also increased their production.
Table-26: Mango Area, Production and Yields by Major Region, 2003/04

<table>
<thead>
<tr>
<th>District</th>
<th>Area (000 ha)</th>
<th>Production (000 MT)</th>
<th>Yield/ha (tons)</th>
<th>Total Production (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajshahi</td>
<td>9.85</td>
<td>78.16</td>
<td>7.94</td>
<td>32</td>
</tr>
<tr>
<td>Sylhet</td>
<td>3.84</td>
<td>16.70</td>
<td>4.35</td>
<td>7</td>
</tr>
<tr>
<td>Dinajpur</td>
<td>3.47</td>
<td>11.80</td>
<td>3.40</td>
<td>5</td>
</tr>
<tr>
<td>Rangpur</td>
<td>3.33</td>
<td>15.01</td>
<td>4.51</td>
<td>6</td>
</tr>
<tr>
<td>Dhaka</td>
<td>3.15</td>
<td>13.04</td>
<td>4.14</td>
<td>5</td>
</tr>
<tr>
<td>Tangail</td>
<td>2.72</td>
<td>7.85</td>
<td>2.89</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>24.04</td>
<td>100.04</td>
<td>4.16</td>
<td>41</td>
</tr>
<tr>
<td>TOTAL</td>
<td><strong>50.4</strong></td>
<td><strong>242.6</strong></td>
<td><strong>4.81</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: BBS, 2004

The reasons for the decline in mango productions in the country are due to agro-ecological, technical and socio-economic, some of which are outlined below;

- Old age of many trees, with correspondingly low productivity;
- A general lack of interest and attention from owners;
- A lack of management and care of trees, the general attitude being that mangoes do not need to be taken care of or fertilized as with field crops;
- General ignorance of the growers about proper methods of cultivation, and apathy regarding improved techniques of production;
- Absence of adequate plant protection measures for control of insect, pests and diseases;
- Planting of trees too closely, creating competition for sun-light and nutrition, compounding problems of low productivity;
- Indiscriminate clearing of productive trees for house-building, road construction, field crops or for use as fuel wood;
- Inadequate and improper use of fertilizer and other inputs;
- Poor post-harvest management practices, including inadequate transportation, improper packaging;
- Lack of storage and preservation facilities and processing industries; and
- Traditional marketing practices, which do not help producers to realize adequate, proceeds from the sale of their fruits.

To revive and improve the situation and to bring mango production on the right track, the following measures may be suggested;

- Increase the productivity of mango cultivation by adapting modern management practices;
- Bring a general awareness for use of right varieties, manage properly, apply fertilizer judiciously, irrigate in proper manner;
- Protect the trees from attack of insect-pests and diseases;
- Harvest properly, handle carefully, and market in the proper manner.

When agro-ecological requirements of mango are understood, good varieties are chosen, propagated and planted in a systematic manner; inter crops are raised properly to offset the initial loss of money during the first few unproductive years; insect, pests and diseases are well identified and controlled, leading to good yields year-on-year, there will be enough production to be harvested and marketed to earn reasonable incomes from fresh and processed sales. At the same time, Bangladesh can eventually aspire to the reversal of its current status as a net importer of mango.

**Supply and Value Chain Analysis of Mango**

There are several actors involved in the production and marketing of mango. Supply chains represents the participants involved in the flow of product from farm to market (including traders, processors and exporters). The supply chain of mango in Bangladesh is presented in Figure-4.

**Figure-4: Principal Marketing and Distribution Channels for Mango/ Pineapples**
At present various channels are operating in various scales and degrees in the markets.

Channel-1: Growers directly sell to pre-harvest contractors in advance who in turn sell to exporter or wholesaler/retailer

Channel-2: Commission agents collect from growers and sell to wholesalers who supply to processor or retailers;

Channel-3: Commission agents collect from growers and supply directly to the processor who sell to exporters/retailers.

Channel-4: Growers to local traders who sell to village markets

Channel-5: Growers to local traders who supply to wholesalers who sell to processor or retailers;

The Period of Marketing

The domestically-supplied mango market operates mainly during four months (e.g., May, June, July and August), with the peak being in June and July, and much lesser quantity in August and May. This is the case with respect to superior quality, grafted mangoes, originating in the leading mango producing areas in the west. On the other hand, the mangoes known as *Gooti* in the west and *deshi* in the east can be found around the market in May and June only. According to some estimates, more than 70% of the growers sell their crops at blossoming or fruit-setting stage. Thus, the marketing of mango commences more or less from the blooming stage, if not earlier, and the ownership of fruits, even on the tree, changes hands at that time from producers to traders.

The sale of commercially valuable mangoes often takes place three times:

(a) At first, from grower to 2nd party at pea/marble stage,

(b) Secondly, from 2nd party to 3rd party at mature stage on the tree, and

(c) Thirdly, from 3rd party to wholesaler at Dhaka or elsewhere.
The farmer’s share of the consumer’s price can be as little as 20%, and never be more than 50%. However, a large number of owners of mango gardens are absentee owners who live in cities and towns away from the garden, and prefer to leave the care of their gardens to the advanced buyers, selling the expected produce even at prices well below those that could be obtained by holding onto the production until harvest time.

When the fruits reach their destination, they are kept in the godowns of the Aratdar (the commission agents) for 2-4 days, in return for which the Aratdar receive a commission of 7-10% of the wholesale price received by the consignee on auctioning the product. The retailers buy baskets from the wholesalers and sell them to the consumers, either by number or by weight. The retailers do not use any fixed prices, and most sales involve bargaining with their customers.

The grower's share in the consumer price of mango stands at 39.0%. The margins of the traders and wholesalers/retailers stand at 1.5% and 16.2% respectively. The margins of the intermediaries (faria/bepari, commission agent-cum wholesalers and retailers, transportation, handling, packing, market charges, fees, and tolls and the wastage in the process of marketing mango) are given in Figure-5. The marketing costs stand 1.72%, 28.06% and 16.16% at farmers, local assembly traders and wholesaler/retailer levels respectively.

More significant, however, is the fact that Bangladesh is a significant net importer of mango, and occupies first place among India’s worldwide network of export destinations. Indeed, the authors were struck by the enthusiasm expressed during our interview at the Export Promotion Bureau concerning the valuable role which Indian mangoes serve by filling in shortfalls in domestic production and in providing Bangladeshi consumers with a reasonably priced option.

Table-27: Principal Mango Importing Countries

<table>
<thead>
<tr>
<th>Destination</th>
<th>Share (%)</th>
<th>Volume (MT)</th>
<th>Value USD (000)</th>
<th>Value Share (%)</th>
<th>Value/kg (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>1</td>
<td>10,688</td>
<td>33,191</td>
<td>5</td>
<td>3.11</td>
</tr>
<tr>
<td>France</td>
<td>4</td>
<td>32,299</td>
<td>58,404</td>
<td>8</td>
<td>1.81</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
<td>11,938</td>
<td>15,646</td>
<td>2</td>
<td>1.31</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>4</td>
<td>31,933</td>
<td>39,555</td>
<td>6</td>
<td>1.24</td>
</tr>
<tr>
<td>Netherlands</td>
<td>11</td>
<td>91,133</td>
<td>112,519</td>
<td>16</td>
<td>1.23</td>
</tr>
<tr>
<td>Germany</td>
<td>4</td>
<td>31,937</td>
<td>37,090</td>
<td>5</td>
<td>1.16</td>
</tr>
<tr>
<td>Portugal</td>
<td>2</td>
<td>19,639</td>
<td>20,696</td>
<td>3</td>
<td>1.05</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>4</td>
<td>35,740</td>
<td>32,462</td>
<td>5</td>
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<tr>
<td>Singapore</td>
<td>2</td>
<td>17,398</td>
<td>12,880</td>
<td>2</td>
<td>0.74</td>
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<tr>
<td>United States</td>
<td>34</td>
<td>278,422</td>
<td>192,891</td>
<td>27</td>
<td>0.69</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>7</td>
<td>54,793</td>
<td>31,346</td>
<td>4</td>
<td>0.57</td>
</tr>
<tr>
<td>UAE</td>
<td>7</td>
<td>59,562</td>
<td>28,480</td>
<td>4</td>
<td>0.48</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>5</td>
<td>42,786</td>
<td>10,146</td>
<td>1</td>
<td>0.24</td>
</tr>
<tr>
<td>Malaysia</td>
<td>3</td>
<td>26,128</td>
<td>5,106</td>
<td>1</td>
<td>0.20</td>
</tr>
<tr>
<td>ROW</td>
<td>10</td>
<td>79,963</td>
<td>73,518</td>
<td>10</td>
<td>0.92</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99</strong></td>
<td><strong>824,359</strong></td>
<td><strong>703,930</strong></td>
<td><strong>100</strong></td>
<td><strong>0.85</strong></td>
</tr>
</tbody>
</table>

Faostat – 2003
Comments regarding insufficient domestic mango production were also repeated by several processors of mango pickles, who spoke particularly to the difficulty of maintaining adequate supplies of green mangoes to provide their production plants with sufficient raw materials. One such processor has encouraged a major mango planting program that began in Natore four years ago (concentrating on the guti and ashina varieties). Within seven years it is hoped that these plantings will replace the Northern region sources, including Indian imports, for all of this processor’s mango requirements.

Given the absence of any export culture among mango growers or handlers, the considerable room for expanded production without risk of over-supplying the domestic market, and the attractive grower margins which are shown in the value chain analysis, it seems reasonable to conclude that fresh mangoes do not represent any significant export opportunity for the foreseeable future. Considerable scope exists, on the other hand, to increase the national production of mangoes, both as import-substitution for fresh consumption, and as a key ingredient in the expanding processing sector for use in the formulation of mango pickles, both for domestic and export distribution.

5.2 Pineapples

Pineapples rank fourth among all fruit varieties produced in Bangladesh, with 213,000 MT produced during the 2003/04 (Table-25). With an estimated grower margin of Tk 53,000/ha, pineapple also rank high in terms of grower profitability. As was the case with mangoes, however, the export potential for pineapple, either fresh or processed, must be classified as limited.

<table>
<thead>
<tr>
<th>District</th>
<th>Area (000 ha)</th>
<th>Production (000 MT)</th>
<th>Yield/ha (tons)</th>
<th>% of Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangail</td>
<td>4.65</td>
<td>52.64</td>
<td>11.32</td>
<td>24</td>
</tr>
<tr>
<td>Sylhet</td>
<td>2.68</td>
<td>40.07</td>
<td>14.95</td>
<td>19</td>
</tr>
<tr>
<td>Khagrachori</td>
<td>2.02</td>
<td>24.69</td>
<td>12.22</td>
<td>12</td>
</tr>
<tr>
<td>Rangamati</td>
<td>1.93</td>
<td>26.35</td>
<td>13.65</td>
<td>13</td>
</tr>
<tr>
<td>Mymensingh</td>
<td>0.90</td>
<td>13.83</td>
<td>15.37</td>
<td>7</td>
</tr>
<tr>
<td>Chittagong Hill Tracts</td>
<td>0.82</td>
<td>12.85</td>
<td>15.67</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>3.62</td>
<td>42.35</td>
<td>11.70</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16.62</strong></td>
<td><strong>212.78</strong></td>
<td><strong>12.80</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: BBS, 2004

The major pineapple producing districts are presented in Table-29. The approximate flowering period of pineapple is during February to March and harvesting period is during May-September.

Supply and Value Chain Analysis of Pineapple

There are several actors involved in the production and marketing of pineapples. The supply chain of pineapple is similar to mango and presented in Figure-4. At present various channels are operating in various scales and degrees in the markets:

Channel-1: Growers directly sell to pre-harvest contractors in advance who in turn sell to exporter or Wholesaler/retailer
Channel-2: Commission agents collect from growers and sell to wholesalers who supply to processor or retailers; Channel-3: Commission agents collect from growers and supply directly to the processor who sell to exporters/retailers.
Channel-4: Growers to local traders who sell to village markets
Channel-5: Growers to local traders who supply to wholesalers who sell to /processor or retailers;

Marketing Costs, Margins and Growers Share of Pineapples

The grower's share in the consumer price of pineapple stands at 21.0% . The margins of the farias, beparis and retailers stand at 5.83%, 12.5% and 20.09% respectively. The margins of the intermediaries (faria/bepari, commission agent-cum wholesaler and retailers, transportation, handling, packing, market charges, fees, and tolls and the wastage in the process of marketing pineapple) are presented in Figure-6. The marketing costs stand 10.8%, 16.7% and 13.3% respectively.

Figure-6: Value Chain Analysis of Pineapple

A. Farmers and intermediaries share in consumer's price
Profit margins/100 pineapples;
- Farmer share = Tk.250.00 (20.83%)
- Faria's share = Tk.70/- (5.83%)
- Bepari's share = Tk.150/- (12.5%)
- Retailer's share = Tk.241/- (20.09%)

B. Marketing costs (transportation, handling, packaging, market charges, fees and tolls, wastage and other costs)
Profit margins/100 pineapples;
- Farmer share = Tk.250.00 (20.83%)
- Faria's share = Tk.70/- (5.83%)
- Bepari's share = Tk.150/- (12.5%)
- Retailer's share = Tk.241/- (20.09%)

World production of pineapple is concentrated in the hands of twelve countries, which together generate 80% of global supplies, which represented slightly less than 16 million tons in 2004. Three quarters of this production is dedicated to processing (juice, concentrate and canned fruit), with Thailand, the Philippines, Indonesia and Vietnam controlling the lion’s share of this segment. The remaining 25% of world production, which moves into fresh channels, is dominated by Costa Rica, epicenter of the MD-2 variety, while the Ivory Coast, Ghana and others lag far behind with their traditional Smooth Cayenne variety. In this battle of the giants, particularly where the processed giants are virtually neighbors of...
Bangladesh, there appears to be little room for Bangladesh to establish the economies of scale required to become a substantial player on the export stage. This does not preclude the possibility of establishing a niche position with a specialty sub-variety, such as the baby pineapple fostered by HORTEX, especially for the markets of the Middle East. It bears noting, however, that most of the major fresh exporters to Europe and the Middle East, such as Kenya, Ghana and the Ivory Coast, have their own versions of a baby pineapple. Hence, the marketability of such a product would need to be closely studied to confirm that there is an adequate window at a price, which offsets the added costs and risks of export.

**Identified problems in production and marketing of pineapples**

a) Scattered production  
b) Short period of availability  
c) High costs of transportation  
d) High percent of wastage  
e) Lack of proper storage and preservation facilities  
f) Absence of proper sorting and grading and any post-harvest treatments  
g) Inadequate processing facilities.

**Causes of high percent of post-harvest losses are as follows;**

a) Harvesting at incorrect maturity stage (usually not suitable for distant market)  
b) No fungicidal/hot water treatment  
c) Rough handling and transportation  
d) Improper packaging  
e) Lack of storage facilities at different stages of marketing, viz assembling, wholesale and retail levels etc.

With fruit that is both bulky and highly perishable, per unit transportation costs to move pineapple from the field to the consuming centres is very high when compared to less bulky and perishable horticultural products.

### 5.3 Asian Vegetables: Okra, Bitter Gourd & Chilli

#### 5.3.1 Okra

The area and production of okra were 7070 hectare and 240230 tons respectively during the year 2003-2004. The major producing districts are Chittagong, Kustia, Dhaka and Rajshahi, together generating 46% of the total production (Table-30).

**Supply and Value Chain Analysis of Okra**

In general the supply chain of okra can involve any of the following channels:

a) Direct marketing to consumers at primary markets by the producers to village traders of retail sales to rural consumers;  
b) Farm gate sales to collectors, traders, commission agents or buyers, or  
c) Sales to traders and wholesalers at assembly markets where greater quantities of produce are disposed of, either  
   i. By producers themselves or
There are several actors involved in the production and marketing of okra, including input suppliers, traders, processors and exporters. The supply chain map of okra is presented in Figure-7. This supply chain represents the overall market position where the actors are present. The study revealed that about 8% was consumed by the growers themselves and 92% of products are sold. The producer sells the produce immediately after harvest. 28% of farmers sold okra at farm gate and 72% sold in the local markets.

The value chain analysis (Figure-8) suggests cost of land preparation was 23% of total cost of production followed by fertilizing (23%) and marketing (11%) of okra. A breakdown of land preparation indicates that 41% of land preparation costs are made up for seeds and 23% for labour. The breakdown of spraying indicates that 82% of spraying cost was incurred for fungicides and pesticides only. The cost of inputs -- such as seeds, fertilizers and agro-chemicals -- are high and are not readily available, which leads to adulteration and higher prices.

### Table-29: Okra area, production and yields by major region, 2003/04

<table>
<thead>
<tr>
<th>District</th>
<th>Area (000 ha)</th>
<th>Production (000 MT)</th>
<th>Yield/ha (tons)</th>
<th>% of Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhaka</td>
<td>0.69</td>
<td>1.75</td>
<td>2.54</td>
<td>7</td>
</tr>
<tr>
<td>Chittagong</td>
<td>0.69</td>
<td>2.78</td>
<td>4.03</td>
<td>12</td>
</tr>
<tr>
<td>Jessore</td>
<td>0.45</td>
<td>1.68</td>
<td>3.73</td>
<td>7</td>
</tr>
<tr>
<td>Rangpur</td>
<td>0.45</td>
<td>1.46</td>
<td>3.24</td>
<td>6</td>
</tr>
<tr>
<td>Kushtia</td>
<td>0.40</td>
<td>1.92</td>
<td>4.8</td>
<td>8</td>
</tr>
<tr>
<td>Rajshahi</td>
<td>0.39</td>
<td>1.52</td>
<td>3.90</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>4.00</td>
<td>13.12</td>
<td>3.28</td>
<td>54</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7.07</strong></td>
<td><strong>24.23</strong></td>
<td><strong>3.43</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Marketing Costs and Price Spread of Okra

On average, the marketing cost per hectare worked out to be Tk. 2804/-. Price margins vary according to the quality of the produce and differ from place to place. The basic retail price was Tk.10.0/kg and the cost of production incurred by the producer was Tk.3.20/kg of okra. The net price received by the producer was worked out Tk. 5.00/kg. The price of okra is lower during April to September and starts to increase gradually with time and shoots up to its maximum during December to February. The maximum price prevails at February and decreases gradually with time. Such wide price fluctuations are mainly due to the seasonal character of production and supply. The seasonal fluctuation may, however, be reduced by using early and late varieties to complement the traditional mid-season varieties, thus smoothing out the supply curve.

A breakdown of marketing costs indicates that 59.9% of marketing costs are spent for transport only. The transportation system plays an important role in the marketing of produce. Due to absence of adequate and quick transport facilities the cost of marketing increases. Careless handling or delay in transit causes serious damages and loss, which also increases the marketing costs of the produce. The producer stated that selling produce at farm level or in the market directly to consumers’ gives better price remuneration.
The analysis of marketing costs and margins indicates that decreasing the number of intermediaries in the existing marketing system may increase the producers’ share in the ultimate consumer price. Seasonality, underdeveloped marketing and transport systems, and poor infrastructure intensify the price volatility. The lack of a support price and lack of effective producers’ organization are the major problems faced by the growers in marketing of okra.

Okra is a product which appeals to many ethnic groups in the Middle East and Europe, Africa, the Caribbean, India and Pakistan beyond its appeal to overseas Bangladeshi. Sophisticated post-harvest handling techniques are essential to the maintenance of quality in transit, and its short shelf-life probably precludes its transportation via any vector other than air freight. Okra represents a product well-established in Bangladesh, with strong domestic consumer demand and a grower profitability profile, at Tk 14,000/ha, nearly triple that of Boro rice.
Figure -8: Value Chain Analysis of Okra

Okra is exported from Bangladesh in both fresh and frozen form. BRAC and traditional exporters ship okra to ethnic and upstream markets in Europe, the Middle East and Southeast Asia. In addition, Eurasia Food Processing processed nearly 11 MT of okra through its IQF plant near Dhaka and shipped the product via reefer container ex Chittagong to the UK. Assuming that post-harvest handling requirements can be addressed successfully by exporters, the ability of Bangladesh’s okra to compete on the world stage should be largely a question of price. In addition, this is certainly one of the commodities which would be of particular interest in line with efforts to explore market opportunities in the seven neighboring states of India.

5.3.2 Bitter Gourd

The area and production of bitter gourd were 6,600 hectare and 25,650 tons respectively during the year 2003-2004. The major producing districts are Chittagong, Rangpur, Rajshahi, Dhaka and Jessore, which combine to account for 46% of the total production (Table-31).

Supply and Value Chain Analysis of Bitter gourd

There is no simple market channel for Bitter gourd, and all market channels function differently. Marginal or small-holder farmers take their produce to the nearest village and sell it immediately after harvest because of storage limitations, as well as a need for immediate cash money. The supply chain of Bitter gourd follows the marketing channel which is presented in Figure-9.

A part of the marketed vegetables move directly from the growers to the consumers. The other part moves through varying number of intermediaries or middlemen who have specific designations according to the role that they play in the whole chain.
### Table -30: Bitter Gourd Area, Production and Yields by Major Region, 2003/04

<table>
<thead>
<tr>
<th>District</th>
<th>Area (000 ha)</th>
<th>Production (000 MT)</th>
<th>Yield/ha (tons)</th>
<th>% of Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhaka</td>
<td>0.62</td>
<td>1.77</td>
<td>2.86</td>
<td>7</td>
</tr>
<tr>
<td>Chittagong</td>
<td>0.61</td>
<td>4.00</td>
<td>6.56</td>
<td>16</td>
</tr>
<tr>
<td>Rangpur</td>
<td>0.55</td>
<td>2.49</td>
<td>4.53</td>
<td>10</td>
</tr>
<tr>
<td>Jessore</td>
<td>0.48</td>
<td>1.22</td>
<td>2.54</td>
<td>5</td>
</tr>
<tr>
<td>Rajshahi</td>
<td>0.48</td>
<td>2.07</td>
<td>4.31</td>
<td>8</td>
</tr>
<tr>
<td>Dinajpur</td>
<td>0.35</td>
<td>1.10</td>
<td>3.14</td>
<td>4</td>
</tr>
<tr>
<td>Mymensingh</td>
<td>0.32</td>
<td>1.10</td>
<td>3.44</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>3.19</td>
<td>11.90</td>
<td>3.73</td>
<td>46</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6.60</strong></td>
<td><strong>25.65</strong></td>
<td><strong>2.89</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Figure-9: Supply Chain of Bitter Gourd

[Diagram showing the supply chain from Market to Domestic Market, detailing the Export Market and Domestic Market with various nodes such as Exporter (BRAC), Processor (IQF Plant), Retailer, Wholesaler, etc., with numbers indicating quantities and percentages.]
The intermediaries are Faria, Bepari, Aratdar, Paiker (wholesalers) and Retailers. The supply chain map shows that assembly traders purchase directly from the field in certain cases. Farmers of large holdings sell their produce through middlemen (farias) and store for future marketing. Some farmers of small holding also sell to farias. From the primary markets, middlemen take the product to assembly markets and from there to urban or semi-urban markets. These channels have hundreds of producers/growers, hundreds of primary and secondary markets of traders, farias, and wholesalers, and thousands of retailers.

Marketing Costs and Price Spread of Bitter gourd

On an average, the marketing cost per 40 kg of produce worked out to be Tk. 166/- (Figure-10). Price margin varies according to quality of the produce from location to location and differs from place to place. The farmer’s net selling price was Tk. 5.00/Kg, which was 42% of the consumer’s price. The profit margin of traders and retailers was 12% and 14% of consumer’s price, respectively. The price of bitter gourd is lower during April to June and starts to increase gradually with time and reached its maximum during November to March.

The maximum price normally occurs in December, and decreases gradually with time. Such wide price fluctuations are mainly due to the seasonal character of production and supply. The transportation system plays an important role in the marketing of produce. Transportation is a key determinant of the availability of market produce at the proper time and place. Rickshaws, head loads and country boats are the main means of transportation from the farm gate to the local markets. Head loads, rickshaws, vans, push carts, and country boats are the major means of transportation used by Farias. On the other hands, Beparis mainly use trucks to carry vegetables from the local market to the urban wholesale market; sometimes they use country boats, trains, and passenger buses to shift their purchased products.

Figure-10: Value Chain Analysis of Bitter Gourd

Cost of production/ha = Tk.45433/- (Tk.3.63/kg)
Yield (tons) per ha: 12.50
Total selling price/ha = Tk.62500/-
Selling price/kg = Tk.5.00
Farmer’s net profit/ha = Tk.17067/-

A. Farmers price receipt/40.0 kg
Tk.200/- (42.0% of consumer’s price)

B. Marketing costs/40.0 kg;
Farmer = Tk.14/- (3.0% of consumer’s price)
Traders = Tk.62/- (13.0% of consumer’s price)
Retailers = Tk.90/- (19.0% of consumer’s price)
Farmer’s net selling price = Tk.186/- (39% of consumer’s price)

Profit margins/40 kg:
Traders = Tk.58/- (12.0% of consumer’s price)
Retailers = Tk.70/- (14.0% of consumer’s price)
The value chain analysis (Figure-10) reveals that the maximum component cost of production (27%) was incurred for wages, which was followed by input costs (20%) and land preparation (18%). A break down of input costs indicates that 85% of land preparation costs are made up by fertilization and 10% by pesticides uses.

Based on surveys of BFVAPEA members, Bitter Gourd is the most important export commodity in terms of demand from overseas Bangladesh, representing some 20% of total vegetable volumes shipped to the Middle East. Generating total revenues of Tk 128 million, it also accounts for over 3% of total vegetable GDP during the 2003/04 season. Like okra, it lends itself to frozen processing as well as to fresh sale. In 2004, bitter gourd accounted for 4% of Eurasia’s total frozen vegetable exports for the year. At farm level, and at local markets, the visual appearance of this product creates a very favorable impression, although it suffers greatly from the rigors of transportation and handling, based on follow-up evaluations at Kawran and Sham Bazaars. Improvements in packaging, post-harvest cooling, and handling would appear to hold particular promise for the reduction of shrinkage and preservation of visual quality for bitter gourd.

5.3.3 Chilli

The area and production of chilli were 160,210 hectares and 138,740 tons respectively during the year 2003-2004. The major producing districts of summer chilli are Pabna, Rangpur, Rangamati and Kustia (Table-31), while the winter chilli are Barisal, Comilla, Noakhali, Faridpur and Jamalpur (Table-32).

Combining the winter and summer crops, green chillis generated total sales in 2003/04 of nearly Tk 902,000, representing 2.4% of total vegetable GDP in Bangladesh. In addition to accounting for over 10% of all vegetable exports to the Middle East, green chillis also topped the list of vegetable varieties exported to the United Kingdom, contributing over 25% of total export volume. Together with okra and bitter gourd, green chilli should represent a priority commodity in terms of market research in the seven neighboring states of northeast India.

<table>
<thead>
<tr>
<th>District</th>
<th>Area (000 ha)</th>
<th>Production (000 MT)</th>
<th>Yield/ha (tons)</th>
<th>% of Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pabna</td>
<td>2.86</td>
<td>2.47</td>
<td>0.86</td>
<td>11</td>
</tr>
<tr>
<td>Rangpur</td>
<td>2.25</td>
<td>2.13</td>
<td>0.95</td>
<td>8</td>
</tr>
<tr>
<td>Rangamati</td>
<td>2.09</td>
<td>1.90</td>
<td>0.91</td>
<td>8</td>
</tr>
<tr>
<td>Rajshahi</td>
<td>1.86</td>
<td>1.31</td>
<td>0.70</td>
<td>6</td>
</tr>
<tr>
<td>Dinajpur</td>
<td>1.72</td>
<td>1.69</td>
<td>0.98</td>
<td>7</td>
</tr>
<tr>
<td>Faridpur</td>
<td>1.66</td>
<td>1.41</td>
<td>0.85</td>
<td>6</td>
</tr>
<tr>
<td>Jessore</td>
<td>1.64</td>
<td>1.41</td>
<td>0.86</td>
<td>6</td>
</tr>
<tr>
<td>Kustia</td>
<td>1.63</td>
<td>1.87</td>
<td>1.15</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>7.43</td>
<td>9.19</td>
<td>1.24</td>
<td>39</td>
</tr>
<tr>
<td>TOTAL</td>
<td>23.14</td>
<td>23.38</td>
<td>1.01</td>
<td>100</td>
</tr>
</tbody>
</table>
### Table -32: Winter Chilli Area, Production and Yields by Major Region, 2003/04

<table>
<thead>
<tr>
<th>District</th>
<th>Area (000 ha)</th>
<th>Production (000 MT)</th>
<th>Yield/ha (tons)</th>
<th>% of Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barisal</td>
<td>24.00</td>
<td>17.43</td>
<td>0.73</td>
<td>15</td>
</tr>
<tr>
<td>Noakhali</td>
<td>14.86</td>
<td>10.72</td>
<td>0.72</td>
<td>9</td>
</tr>
<tr>
<td>Comilla</td>
<td>13.99</td>
<td>12.45</td>
<td>0.89</td>
<td>11</td>
</tr>
<tr>
<td>Faridpur</td>
<td>11.67</td>
<td>7.61</td>
<td>0.65</td>
<td>7</td>
</tr>
<tr>
<td>Patuakhali</td>
<td>10.83</td>
<td>6.18</td>
<td>0.57</td>
<td>5</td>
</tr>
<tr>
<td>Jamalpur</td>
<td>8.81</td>
<td>7.51</td>
<td>0.85</td>
<td>6</td>
</tr>
<tr>
<td>Chittagong</td>
<td>7.29</td>
<td>5.46</td>
<td>0.75</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>45.62</td>
<td>48.00</td>
<td>1.05</td>
<td>42</td>
</tr>
<tr>
<td>TOTAL</td>
<td>137.07</td>
<td>115.36</td>
<td>0.84</td>
<td>100</td>
</tr>
</tbody>
</table>

**Supply and Value Chain Analysis of Chilli**

In general, the green chilli marketing supply chain is fragmented. Many intermediaries (local traders Bepari/Faria, local commission agents, wholesalers/aratdars, urban and rural retailers) are involved in the supply chain. A common supply chain of green chilli is shown in Figure-11. The supply chain shows four types of channels that are currently operating in various scales and degrees in the market. The study revealed that 1.80% of green chilli was consumed by the growers, 67.20% was sold out immediately after harvest mainly due to cash need and lack of storage facilities, and 31% was preserved as dry chilli.

The value chain analysis (Figure-12) suggests costs of fertilizing (38.70%) and marketing (12.94%) constitute over 50% of the total value added for green chilli production. A breakdown indicates that 51.96% of land preparation costs are made up for labor alone. Similarly, a breakdown of marketing costs indicates that 55.62% and 20.23% of cost are spent for transport and labour respectively.

**Channel-1:** The producers directly sell products to the retail market/consumers and in some cases producers sell to traders who, in turn sell to retail markets.

**Channel-2:** In this channel, the producers sell products to traders who, in turn sell to wholesale markets and wholesalers sell through urban retailers.

**Channel-3:** In this channel, the exporter collects produce from producers through their agents and brings to their warehouses and finally sends to the airport for export for consumption by overseas ethnic populations.

**Channel-4:** Contract growers and BRAC supply their produce to packinghouse, where the produces are sorted, graded, packaged and cooled and sent through refrigerated van to the airport for export to the upscale markets.

**Marketing Costs and Price Spread of Chilli**

On average, the marketing cost per hectare worked out to be Tk. 3262/-. The breakdown of 77.12% of spraying cost is incurred for fungicides and pesticides only. The cost of production of chilli was TK.25216.00 per hectare. Average gross return was TK.6.50/kg. Average cost/ kg of green chilli was TK.4.06/kg. It should be noted that low yield rate and low margin of profit of farmers are a reflection of an improper and inadequate application of fertilizers and a poor quality of agro-chemicals, which limit the use of such inputs. This deserves attention for necessary intervention.
Price margins vary according to varieties and quality of the produce from location to location and season to season. Trade, retail and wholesale prices were Tk. 7.86, Tk. 10.50 and Tk.15.50 respectively. Selling at farm level or in the market directly to consumers gives an enhanced price remuneration of about 20-25%. This may be due to the absence of intermediaries between producer and consumer. From the analysis of marketing cost and margin, it appears that decreasing the number of intermediaries in the existing marketing system can increase the producers ‘share in consumers’ price. Seasonal variation, underdeveloped marketing and transport systems, poor infrastructure, and insufficient storage facilities intensify price volatility.
The price of chilli is lower during October to April and from May it starts to increase gradually with time and reach the maximum during August and September. Such wide price fluctuations are mainly due to the seasonal character of production and supply. The seasonal fluctuation may, however, be reduced by introducing early and late varieties for arranging regular supply to the urban areas. The transportation system plays an important role in the marketing of green chills. Due to the absence of adequate and quick transport facilities the cost of marketing increases. Careless handling or delay in transit causes serious damages and loss, which also increases the marketing cost of the produce.

Problems/constraints of Chilli Production

- Lack of high yielding varieties
- Non-availability of thermo and photo-insensitive varieties suited to off-season/year round production.
- High costs of inputs and adulteration of inputs etc.
- Inadequate production technology packages for the year round supply of chilli.
- Disease and pest problems
- Inadequate post harvest handling
- Research and extension activities of this crop are not up to the mark.

5.3.4 Potatoes

Since the introduction of imported seed into Bangladesh in 1958/59, the production of potatoes in Bangladesh has grown to occupy an important place in the horticultural economy. Today it accounts for 26% of all land employed in horticultural production. With a production of 3.9 million metric tons, and an average selling price of Tk 4.50/kg, contribution to horticultural GDP amounts to Tk 26.7 billion, and accounts for 18% of all horticultural GDP.
Table -33: Potato Area, Production and Yields by Major Region, 2003/04

<table>
<thead>
<tr>
<th>District</th>
<th>Area (000 ha)</th>
<th>Production (000 MT)</th>
<th>Yield/ha (tons)</th>
<th>% of Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bogra</td>
<td>43.19</td>
<td>578.6</td>
<td>13.40</td>
<td>15</td>
</tr>
<tr>
<td>Dhaka</td>
<td>35.15</td>
<td>902.6</td>
<td>25.68</td>
<td>23</td>
</tr>
<tr>
<td>Rangpur</td>
<td>34.81</td>
<td>510.4</td>
<td>14.66</td>
<td>13</td>
</tr>
<tr>
<td>Comilla</td>
<td>27.93</td>
<td>456.4</td>
<td>16.34</td>
<td>12</td>
</tr>
<tr>
<td>Rajshahi</td>
<td>27.16</td>
<td>227.9</td>
<td>8.39</td>
<td>6</td>
</tr>
<tr>
<td>Dinajpur</td>
<td>24.37</td>
<td>315.5</td>
<td>12.95</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>75.08</td>
<td>915.7</td>
<td>12.20</td>
<td>23</td>
</tr>
<tr>
<td>TOTAL</td>
<td>267.69</td>
<td>3907.1</td>
<td>14.60</td>
<td>100%</td>
</tr>
</tbody>
</table>

While potato exports, valued at $563,000 in 2003/04, represent only a small fraction of the crop’s current commercial value, there would appear to be significant potential to expand this export component. Of the world’s top 40 potato importing countries, Bangladesh’s horticultural exporters are already active in many, and are even shipping potatoes to some. Singapore and Malaysia, in particular, have been active markets for both Agro Concern and BRAC, the two dominant potato exporters in the country. Plans exist to expand these volumes aggressively in coming seasons. Both exporters use contract farming arrangements for their sourcing, and ship in unrefrigerated ocean containers, with all exports occurring during the 2-month harvest season. Provided that their markets can absorb the additional costs of refrigerated container carriage during for the remainder of their supplies, it would be possible to sustain export movement for an additional six months, and to expand market coverage to include most of Western Europe and East Asia.

Supply Chain of Potato

In general, the potato supply chain is fragmented. Many intermediaries (local traders, Bepari/Faria, local commission agents, wholesalers/aratdars, and urban and rural retailers) are involved in the supply chain. A common supply chain of potato is shown in Figure-13. The supply chain map shows various channels currently operating in different scales and degrees in the market.

Different categories of participants playing their respective roles in the supply chain of potatoes are as follows;

i. Producers
ii. Rural assemblers
iii. Wholesalers/Commission Agents
iv. Cold storage owners
v. Retailers
vi. Transporters
vii. Processors and Consumers.
Channel-1: The assembly traders procure from producers and sell to wholesaler/commission agents, and wholesalers are found to sell these to the retailers.

Channel - 2: The assembly traders/wholesalers procure potato & store in cold storage and sells to retailers.

Channel-3: The producer keeps the produce in cold storage and sell to traders/wholesalers, and wholesalers sell to retailers.

Channel- 4: The exporters (traditional/BRAC) procure from producer and export to foreign market through sea-shipment.

Channel– 5: The processor receives the potato for processing and then export through sea transport.

Nearly all producers sell a lion share of the potatoes they harvest. It is estimated that about 90% of the produce is generated as marketable surplus. Most of the growers sell their potatoes at household or at the packinghouse.
farm-gate. Some large growers supply to wholesalers/commission agents who deduct their commission. Growers in need of cash sell their potatoes at harvest. This is particularly true for the small farmers.

Growers frequently sell their potatoes to some type of rural traders or to rural consumers. These traders assemble small lots of potatoes into large quantities and transport the production to wholesalers/urban consumption centers. The essential service that the assemblers provide to the growers include:

(i) Arranging the transportation and its costs for small lots of potatoes to larger markets;
(ii) Reducing the risks associated with marketing farm produce away from the producers; and
(iii) Providing cash payment to growers as they sell their produce.

Transporters play an important role in the movement of potatoes from one point to another in the supply chain. Different types of transports are used including rickshaws, carts, trucks and boats. Potatoes are also carried short distances by head-load e.g. from boat to cold storage, from truck to market, from field to home, etc. Boats are most common in the Dhaka and Comilla regions due to extensive networks of rivers and canals in these districts. In contrast, road transports are widely employed in the northern districts of Bogra, Dinajpur and Rangpur. Road transport is becoming increasingly important in the country compared to river transport, due to continued improvements in road networks over the years. Road transport has a comparative advantage in speed and timely delivery of products. However, road transport is expensive compared to the river transport.

Wholesalers/Commission agents are major intermediaries as the potatoes destined for towns and cities pass through their hands. These traders typically have a godown or simple un-refrigerated warehouse. They receive, weigh and store the potatoes temporarily in loose form. Prior to sale, they also grade and bag the potatoes. Depending upon supply and demand conditions, these traders buy potatoes or receive them on a commission basis. During and after harvest, they are supplied by the rural assemblers and large growers. Wholesalers/commission agents sell potatoes to urban wholesalers, retailers and cold storage operators.

Cold storage owners provide space in a refrigerated store for preservation of potatoes for a set fee. There are 330 (2003) cold stores in the country, most of them are privately owned. A small number of cold stores are operated by NGOs (BRAC) and BADC, a government owned agency engaged in agricultural development activities. Most of the cold stores located are in Dhaka and Comilla regions, the principal centers of potato production. Cold store owners also buy potatoes for earning profit and capacity utilization of storage facilities. They procure potatoes from traders, wholesalers/commission agents and from large producers. Cold store owners usually begin storing (and or buying) potatoes when the main harvest period is in the peak and the price is low. They try hold-off releasing potatoes on to the market until the price has risen sufficiently to earn maximum profit.

Retailers sell potatoes to the consumers throughout the country and especially in the rural markets, towns and cities. They generally own a grocery shop or a small shed in the market place or along the roads and lanes in residential areas. These traders generally handle a few hundred kilos of potatoes a week. They procure potatoes from wholesalers/commission agents.

**Composition of the Retail Sector**
The retail sector of potatoes may be classified into the following categories;

1. Traditional retail stores in the market place of rural and urban areas
2. Stores on the roads/by lanes in the residential/populated areas
3. Sellers in the kitchen markets
4. Vendor/hawkers
5. Super markets.
Retail stores clustered in the market place in both urban and rural areas sell a large number of grocery items including potatoes. They procure potatoes from the wholesalers located in the same market or some other markets. Consumers generally go these markets to buy different commodities. These retailers offer a competitive price as they are located near the wholesalers and pay a low transport cost. Being in regular contact with the wholesalers, these retailers are more informed about the market situation.

Stores on the roadside/by-lanes in the residential/populated areas are relatively small operations and mostly exist in the cities and towns. Generally, their investment is smaller than the retailers in the authorized markets. They, however, also sell a large variety of grocery items including rice and potatoes. They procure from the nearby wholesalers or from other large retailers in the localities. Consumers generally buy a small amount of different items from these stores compared to the stores in the markets. These retail stores frequently charge a higher price than that set by the stores in the markets. In addition to fresh potatoes, potato chips are also available in the retail stores.

Potatoes are also sold by the vegetable sellers in the kitchen markets located within or near the urban or rural markets. They are small retailers and sell perishable agricultural items. Generally they maintain a minimum stock and procure from the wholesalers on a daily basis.

A large number of hawkers/vendors carry vegetables/potatoes/fruits to the doorsteps of the consumers in residential/populated areas, especially in the cities and towns. The vendors carry a small amount of vegetables/potatoes/fruits on a push cart and the consumers buy at their doorsteps. Since these retailers have little fixed investment, they can sell at a competitive price. The consumers generally buy a small amount from the vendors.

Supermarket is a relatively new addition to the retail sector of Bangladesh. A small number of supermarkets have started operation in the posh areas like Dhanmondi, Gulshan and Uttara of Dhaka city. Rich and upper middle classes are the customers of the supermarkets. They go to the supermarkets to purchase better quality agro-products. The storage and preservation system of the supermarket is superior to that of the ordinary retail stores. The supermarkets generally procure their food items including potatoes from the wholesalers and/or from the large growers through their agents. The small producers do not have access to supermarket chains. Both fresh and processed fruits and vegetable items including potatoes are available in the supermarket. The supermarkets are expected to emerge as a major outlet in the cities/towns in future.

**Value Chain Analysis of Potato**

The value chain analysis reveals that land preparation and fertilization constitute about 67% of total costs of production. A break down of land preparation indicates that 93.2% of land preparation costs are incurred for seeds only. The cost of inputs such as seeds, fertilizers and agro-chemicals are high and are not available on a timely basis. It should be noted that low yield rate and low margin of profit of farmers are reflections of improper and inadequate application of fertilizers and poor quality of agro-chemicals.

It is apparent from Figure-14 that transport is the major item in marketing costs (47.47% of the total marketing cost) followed by labour cost (24.3%), and other costs (28.2%). On an average, the marketing cost per hectare worked out to be Tk. 4167/-. The Value Chain Analysis (VCA) for potato production indicates the farmers are producing potatoes at a cost of Tk.57850.00/hectare. With an average yield rate of 18.93 MT/ha, this translates to a production cost of Tk. 3.06/kg. The average farmgate selling price was Tk. 66,255/-/ha (Tk. 3.50/kg). The profit for potatoes was calculated as Tk. 0.44/kg.
Figure-14: Value Chain Analysis of Potato

Marketing Costs and Price Spread

It was found that price margin varies according to location and differs from season to season. The producers state that selling potato directly to market/consumer gives better price remuneration and this may be due to the absence of middlemen between producer and consumer. The analysis of marketing costs and margin indicates that decreasing the number of intermediaries in the existing marketing system may increase the producers ‘share in consumers’ price. Causes of price volatility are similar to green chilli.

It appears that the grower’s share is higher in case of fresh potato as compared to cold stored potato. The price of potato is lower during January to May. From June it starts to increase gradually with time and becomes maximum in the month of December. Such wide price fluctuations are mainly due to the seasonal character of production and supply. The seasonal fluctuation may, however, be reduced by using early and late varieties, arranging regular supply to the urban areas and setting up of short-period cold storage facilities. The transportation system plays an important role in the marketing of potato. Due to the absence of adequate and quick transport facilities the cost of marketing increases. Careless handling or delay in transit causes serious damages and loss, which also increases the marketing cost of the produce.

Processing and Storage of Potato

Processing of agro-commodities in general and potatoes in particular is rather weak. Mazed (2000) in his paper stated that 0.5% of the horticultural produces are processed in Bangladesh. Potato processing in the country is mainly limited to making potato chips and French fries. French fries available in the fast food outlets are mostly produced at domestic and individual level. These are, however, small-scale operations. Three notable processing industries namely, Bombay Sweets, PRAN and S.K.Foods produce quality potato chips with improved packaging and are engaged in marketing through the retail sector all over the
Foreign technology is used in manufacturing better quality chips by large processing units, like Bombay Sweets.

### Table-34: Principal Potato Importing Countries, 2004

<table>
<thead>
<tr>
<th>Rank</th>
<th>Importing Country</th>
<th>Reporter($)</th>
<th>Trade Value ($)</th>
<th>Net Weight (kg)</th>
<th>Value/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Spain</td>
<td>206,541,897</td>
<td>723,105,280</td>
<td>723,105,280</td>
<td>$0.29</td>
</tr>
<tr>
<td>2</td>
<td>Germany</td>
<td>202,225,000</td>
<td>568,338,308</td>
<td>568,338,308</td>
<td>$0.36</td>
</tr>
<tr>
<td>3</td>
<td>Netherlands</td>
<td>202,138,596</td>
<td>1,639,278,429</td>
<td>1,639,278,429</td>
<td>$0.12</td>
</tr>
<tr>
<td>4</td>
<td>United Kingdom</td>
<td>173,917,785</td>
<td>364,785,337</td>
<td>364,785,337</td>
<td>$0.48</td>
</tr>
<tr>
<td>5</td>
<td>Belgium</td>
<td>163,171,455</td>
<td>991,083,473</td>
<td>991,083,473</td>
<td>$0.16</td>
</tr>
<tr>
<td>6</td>
<td>Italy</td>
<td>139,690,124</td>
<td>536,312,268</td>
<td>536,312,268</td>
<td>$0.26</td>
</tr>
<tr>
<td>7</td>
<td>France</td>
<td>97,702,890</td>
<td>308,386,319</td>
<td>308,386,319</td>
<td>$0.32</td>
</tr>
<tr>
<td>8</td>
<td>USA</td>
<td>66,834,562</td>
<td>260,961,262</td>
<td>260,961,262</td>
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</tr>
<tr>
<td>9</td>
<td>Canada</td>
<td>45,568,244</td>
<td>151,962,226</td>
<td>151,962,226</td>
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<tr>
<td>10</td>
<td>Portugal</td>
<td>44,336,642</td>
<td>206,037,741</td>
<td>206,037,741</td>
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<td>11</td>
<td>Greece</td>
<td>42,712,713</td>
<td>115,429,841</td>
<td>115,429,841</td>
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</tr>
<tr>
<td>12</td>
<td>Russian Federation</td>
<td>29,530,721</td>
<td>99,429,841</td>
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<tr>
<td>13</td>
<td>Sweden</td>
<td>23,542,294</td>
<td>69,185,601</td>
<td>69,185,601</td>
<td>$0.34</td>
</tr>
<tr>
<td>14</td>
<td>Denmark</td>
<td>22,804,977</td>
<td>82,018,553</td>
<td>82,018,553</td>
<td>$0.28</td>
</tr>
<tr>
<td>15</td>
<td>Austria</td>
<td>21,274,339</td>
<td>68,728,788</td>
<td>68,728,788</td>
<td>$0.31</td>
</tr>
<tr>
<td>16</td>
<td>Malaysia</td>
<td>20,473,309</td>
<td>76,360,329</td>
<td>76,360,329</td>
<td>$0.27</td>
</tr>
<tr>
<td>17</td>
<td>Norway</td>
<td>17,802,290</td>
<td>33,903,714</td>
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<tr>
<td>18</td>
<td>Ireland</td>
<td>17,723,907</td>
<td>32,466,557</td>
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<td>19</td>
<td>Switzerland</td>
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<td>33,633,171</td>
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<tr>
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<td>Czech Rep.</td>
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<td>104,273,403</td>
<td>104,273,403</td>
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</tr>
<tr>
<td>21</td>
<td>Mexico</td>
<td>12,308,176</td>
<td>42,386,046</td>
<td>42,386,046</td>
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<tr>
<td>22</td>
<td>Croatia</td>
<td>12,169,497</td>
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</tr>
<tr>
<td>23</td>
<td>Rep. of Korea</td>
<td>12,062,644</td>
<td>25,885,139</td>
<td>25,885,139</td>
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<tr>
<td>24</td>
<td>Singapore</td>
<td>10,018,642</td>
<td>30,950,843</td>
<td>30,950,843</td>
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</tr>
<tr>
<td>25</td>
<td>Aruba</td>
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<td>6,802,629</td>
<td>6,802,629</td>
<td>$1.46</td>
</tr>
<tr>
<td>26</td>
<td>Hungary</td>
<td>9,686,000</td>
<td>47,973,447</td>
<td>47,973,447</td>
<td>$0.20</td>
</tr>
<tr>
<td>27</td>
<td>Tunisia</td>
<td>8,372,059</td>
<td>26,438,385</td>
<td>26,438,385</td>
<td>$0.32</td>
</tr>
<tr>
<td>28</td>
<td>Senegal</td>
<td>7,827,794</td>
<td>41,953,191</td>
<td>41,953,191</td>
<td>$0.19</td>
</tr>
<tr>
<td>29</td>
<td>Poland</td>
<td>7,717,631</td>
<td>31,867,609</td>
<td>31,867,609</td>
<td>$0.24</td>
</tr>
<tr>
<td>30</td>
<td>Fiji</td>
<td>7,316,049</td>
<td>18,346,177</td>
<td>18,346,177</td>
<td>$0.40</td>
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<tr>
<td>31</td>
<td>Jordan</td>
<td>7,022,603</td>
<td>29,919,068</td>
<td>29,919,068</td>
<td>$0.23</td>
</tr>
<tr>
<td>32</td>
<td>Albania</td>
<td>6,809,550</td>
<td>24,540,610</td>
<td>24,540,610</td>
<td>$0.28</td>
</tr>
<tr>
<td>33</td>
<td>Luxembourg</td>
<td>6,625,029</td>
<td>9,021,127</td>
<td>9,021,127</td>
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<tr>
<td>34</td>
<td>El Salvador</td>
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<td>65,044,890</td>
<td>$0.10</td>
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<tr>
<td>35</td>
<td>Oman</td>
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<td>23,437,624</td>
<td>$0.27</td>
</tr>
<tr>
<td>36</td>
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<td>16,043,312</td>
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<tr>
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<td>41,394,964</td>
<td>41,394,964</td>
<td>$0.15</td>
</tr>
<tr>
<td>38</td>
<td>Finland</td>
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<td>20,315,797</td>
<td>20,315,797</td>
<td>$0.27</td>
</tr>
<tr>
<td>39</td>
<td>Thailand</td>
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<td>15,543,929</td>
<td>$0.34</td>
</tr>
<tr>
<td>40</td>
<td>China, Hong Kong, SAR</td>
<td>4,820,352</td>
<td>10,125,360</td>
<td>10,125,360</td>
<td>$0.48</td>
</tr>
</tbody>
</table>

(Comtrade)
Cold storage potatoes start coming to markets from July and remain available in the market till December. Potatoes are kept in cold stores throughout the country. Farmers also store potatoes on their premises on katcha floors (C.I.S. roof on bamboo poles with bamboo sidewalls). The growers also store potatoes in parts of their dwelling houses. The home-stored potatoes are sold between February and June. Cold Storage owners provide space and get fees. February- mid May is the best storage time. There are 320 cold storages in the country and the competition is unhealthy and capacity of storage is about 2.0 million tons of which 1.3 million tons is for potatoes and 0.5 million tons are for seed potatoes and the rest is for other crops. BADC stores only 10,000 tons of potato seed. Storage charges are about Tk.1.5 /kg. Table potato and seed potatoes are stored in the same chambers at temperatures around 8°C, which is not recommended for seed potato because the later needs temperature around 4°C. Higher temperature results in quality deterioration of seed potatoes and adversely affects potato production.

**Problems/constraints of Potato**

- Lack of high yielding varieties
- High costs of inputs and adulteration of inputs
- Inadequate production technology
- No integrated pest management (IPM) and disease control
- Insects pests and disease
- Inadequate post-harvest handling and transportation
- Inadequate research and extension
- Weak marketing.
V I Summary and Recommendations

Our objective throughout the course of this study has been to improve farmer incomes and consumer welfare through improvements in the environment in which Bangladeshi horticulture operates. Based on the observations and analysis in the preceding chapters, we believe the following recommendations will help to accomplish these objectives.

Transportation

A. Overland:

1. Make better use of existing cold storage capacity for domestic distribution

Any improvement in maintaining the cold chain intact would have a salutary effect on product quality and reduction in levels of post-harvest loss. In the near term, the absence of any cold storage capacity at the urban markets means that refrigerated transport to these points from Farm-gate would have limited positive impact. For product destined to processors, on the other hand, temporary storage in any of the 320 (largely underutilized) potato/seed potato storage facilities would provide a double benefit, prolonging useful life for farmers’ produce while generating incremental income for facility owners.

2. Develop specific solutions to insure cold-chain integrity for export cargo

As for fresh product destined for export under some form of pre-commitment between exporters and farmers (as in the case of contract farming arrangements), product should be transported in refrigerated trailers wherever possible if it is to leave the country by air, or in refrigerated containers loaded directly at farm or local collection station level if it will leave by ocean.

B. Air Freight:

3. The SIP currently granted by Biman should be gradually phased out and replaced by an increase in the incentives paid by the GoB on potato and vegetable exports

The subsidized rates and preferential access which Biman affords to horticultural exporters have been an important element in the growth of fresh fruit and vegetable exports in recent years. At this stage, however, this system appears to have fallen prey to the “Law of Unintended Consequences”, whereby a program designed to promote horticultural export growth is, in fact, stifling it. Most of the energy of traditional exporters, and of the BFVAPEA which represents them, appears focused on ways to increase the amount of subsidized lift capacity which Biman makes available, on maximizing their own individual access to such capacity, and on mitigating the frequency and extent of Biman’s rate increases. This has led Biman to account for 80% of fresh produce exports, while representing only 30% of total cargo lift ex Zia. This, in turn, means that the other 70% of total lift provided by all the other international carriers carries only 20% of total produce cargo. Exporter concentration on Biman-related issues appears to preclude them from making progress on the multiple fronts which would assure their future export competitiveness. With the sole exception of BRAC, it does not appear that exporters have made any significant effort to improve supply chain integration, product quality and packaging, value addition, new market development, exploration of alternative transportation vectors such as ocean freight or cargo charters – in short, any of the steps that would serve to insure long-term growth in the horticultural export sector. At the same time, Biman’s revenues continue to suffer under the weight of this subsidy, further compromising its ability to maintain and upgrade its fleet and its services.

If the Government of Bangladesh believes that it should provide subsidies to encourage the growth of the horticultural export sector, it should eliminate subsidies which do not serve this purpose, and replace them with subsidies that do. We believe that the SIP currently granted by Biman should be gradually phased
out according to a clear and well-communicated schedule. It should be simultaneously replaced by a parallel increase in the current 15% and 30% incentives paid by the GoB on potato and vegetables, fruits and processed products exports, respectively. The objective here is not to reduce the overall value of the incentives paid to exporters. It is rather a re-direction of subsidies toward activities that are more growth-oriented in nature. At current rates, 2003/2004 export volumes generated some $ 7.5 million in subsidies for the fruit & vegetable sub-sector, or some 30% of total FOB value.

Table-35: Export Values, Subsidy of Total FOB and SIP (2003-04)

<table>
<thead>
<tr>
<th>Item</th>
<th>FOB</th>
<th>SIP Subsidy (%)</th>
<th>SIP Subsidy Value ($’000’)</th>
<th>SIP Subsidy/MT ($’000’) *</th>
<th>SIP Subsidy Values ($’000’)</th>
<th>Aggregate Subsidy Values ($’000’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables</td>
<td>24,700</td>
<td>30</td>
<td>7,410</td>
<td>405</td>
<td>8,165</td>
<td>15,575</td>
</tr>
<tr>
<td>Fruits</td>
<td>137</td>
<td>30</td>
<td>41</td>
<td>405</td>
<td>45</td>
<td>86</td>
</tr>
<tr>
<td>Potato</td>
<td>562</td>
<td>15</td>
<td>84</td>
<td>405</td>
<td>186</td>
<td>270</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>30</td>
<td>3</td>
<td>405</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>25,408</td>
<td>-</td>
<td>7,538</td>
<td>-</td>
<td>8,399</td>
<td>15,937</td>
</tr>
</tbody>
</table>

Notes: 1) *Assumes 45% to EU @$386/MT, 55% to Middle East @$420/MT
2) Assumes 9,000 MT to EU, 11,000 MT to Middle East.

By replacing the SIP subsidy with an increase in the export subsidy, exporters would be motivated less by the portion of Biman’s freight capacity they are able to win in the weekly lottery, and more by their ability to increase their overall export movement. The disincentive against use of air carriers other than Biman would disappear, as would the bias against market development to destinations not served by Biman. By eliminating the price advantage that now favors Biman, exporters would also be encouraged to pursue more conventional avenues for acquiring competitive advantages. Since subsidies do not typically serve as a sound basis for long-term export competitiveness, additional measures should be adopted to assist the horticultural export sector to develop over time into a viable and competitive economic force in a subsidy-free environment.

4. Modify the system of subsidy payments to minimize delays and exporter uncertainty

Complaints abound regarding delays in payments of export subsidies, the complexity of the paperwork required, the number of different certifications which must be obtained, and the ultimate inability to collect on many of the past and present programs. Industry agreement to sacrifice the air freight subsidy, one of its most esteemed programs, will depend in large measure on its evaluation of the value and reliability of the compensatory programs which will replace it. Particular care should be taken to insure that the value and reliability of these programs are not called into question through faulty or inefficient implementation.

5. Exporters and BFVAPEA logistics and negotiation capacities should be strengthened

As the disincentives against use of non-Biman commercial carriers and charter providers are eliminated, it will be necessary for traditional and non-traditional exporters, and their associations, to upgrade skills in securing the best rates and service levels from alternative providers. There is little knowledge within the horticultural export sector of the complexities of negotiating service contracts with passenger airlines for preferential price/volume rates, to say nothing of the major logistical and financial organization required to bring in dedicated charter flights.
6. Encourage export sector to establish a separate and private company to negotiate air freight rates, organize air charters, and develop time/volume contracts with liner carriers

Several examples of such companies exist, such as the Ethiopian Horticulture Producers and Exporters Association. Since this group would perform commercial activities, possibly on a for-profit basis, other national exporter associations have found it convenient to establish a separate and private company for this purpose.

<table>
<thead>
<tr>
<th>Box-4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethiopian Horticulture Producers and Exporters Association (EHP)/Ethio-Horti Share (EHS)</strong></td>
</tr>
</tbody>
</table>

**Ethiopian Horticulture Producers and Exporters Association:** EHP began in September, 2002, with 5 members, all of them private companies. Today the association has 35 members, with 4 new applications pending approval. 18 are already producing and exporting:

- **35 Total Members**
- **2- Horticulture:** Most green bean exports
- **33- Floriculture:** 100% of floriculture exports

EHP is a non-profit organization with five service areas:

1) **Information Distribution:** establishment and maintenance of a global database covering market, production and transportation elements relevant to members’ production.
2) **Lobbying and Advocacy:** advancing its members’ interests at the local, regional, national and international levels
3) **Export Promotion:** Partially funded by DFID, FAO and other donor organizations
4) **Capacity Building:** Identifying bottlenecks in the supply chain, such as inadequate preparation of middle management, improving the breadth of the operators & supervisors, and developing materials and for handling systems and farm management. Help with organization comes from EARO, Almeya and other research & teaching institutions. Funding helped by the French Development Agency
5) **Technical Linkages:** acting to line up members with the vendors, experts, technology and other resources they need in order to improve their businesses

EHP is fostering unionization nation-wide to serve as a model for how owners and workers can work together. The Ethiopian Workers Federation is the official national workers union.

**Ethio-Horti Share:** EHP is a non-profit. Ethio-Horti Share was established in 2004 as a for-profit logistics company servicing the transportation needs of the EHP membership who are, in turn, its shareholders.

EHS has 2 freighter flights per week chartered with Ethiopian Airlines. This is supplemented by seasonal charters with KLM and Lufthansa

**Goals**

- 1) Routing can be improved by avoiding intermediate stops
- 2) Peak production can always be accommodated, without fear of being bumped
- 3) Rate is $1.35-$1.50/kg, which represents an advantage over surrounding African origins
7. The Government of Bangladesh should assist exporters in securing credit facilities to fund short-term financing required to fund charter cargo flights

One method for meeting the weekly shortfalls cited in Exhibit – would be to charter 4 Boeing 747-400 cargo flights (110 MT cargo capacity per flight), to service under-supplied markets in the UK (1 flight per week) and the Middle East (3 flights per week). Cash flow requirements for this level of operation would amount to some $600,000 per week, assuming charter flights can be organized at rates equivalent to the current SIP rates offered by Biman. Such capital requirements are well beyond the reach of the exporter association or its membership, leading to the need for financing assistance (and financial management assistance) at competitive rates to make the transactions possible.

8. The Government of Bangladesh should reduce the high costs of operations for airlines serving Zia International Airport

Handling costs, fuel costs, landing costs and royalty fees to Biman which are levied on foreign carriers calling Dhaka are considered high by international and regional standards, and serve as a disincentive to charter cargo operations, and indeed to expansion of service by current passenger carriers. Reduction of these charges would make it easier for exporters to attract new cargo carriers to Bangladesh, and would represent economic savings to current carriers. In a 2002 study by Accord Associates sponsored by The Hortex Foundation, the author discovered that operational charges levied on foreign carriers calling at Dhaka airport were 35% higher than those in Delhi, and 77% higher than those in Dubai (Table 36). Moreover, fuel costs were found to be 16-32% higher than in Delhi, and 61% higher than in Dubai.

Table-36: Operational Costs, Foreign Carriers, Dhaka Airport (basis B-707, 140 MT cargo weight)

<table>
<thead>
<tr>
<th></th>
<th>Dhaka</th>
<th>Dubai</th>
<th>Azerbaijan</th>
<th>Delhi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landing</td>
<td>$ 1,120</td>
<td>$100</td>
<td>$400</td>
<td>$1,500</td>
</tr>
<tr>
<td>Parking</td>
<td>$280</td>
<td>$50</td>
<td>$100 incl</td>
<td></td>
</tr>
<tr>
<td>Navigation</td>
<td>$ 280</td>
<td>$25</td>
<td>-</td>
<td>incl</td>
</tr>
<tr>
<td>Handling</td>
<td>$5,100</td>
<td>$1,825</td>
<td>-</td>
<td>$3,500</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$6,780</strong></td>
<td><strong>$3,825</strong></td>
<td><strong>$500</strong></td>
<td><strong>$5,000</strong></td>
</tr>
<tr>
<td>Fuel</td>
<td>$0.29/L</td>
<td>$0.18/L</td>
<td>$0.08/L</td>
<td>$0.25-0.25/L</td>
</tr>
</tbody>
</table>

Source: Accord Associates, personal communications with cargo airlines, Biman & BCAA

According to this same study, foreign cargo carriers are required to pay a royalty to Biman of 10% of the cargo charges for any inbound or export cargo they carry. Under this requirement, a cargo plane carrying 45 MT of exports at a freight rate of $2.00/kg would have to pay some $9,000 in royalties

9. In exchange for reduced costs of operation, the Government of Bangladesh should require all carriers to provide horticultural exporters with improved and secure access to cargo space

In return for eliminating their rate disadvantages versus Biman, and with operating costs at the Dhaka airport reduced, foreign carriers should be vigorously encouraged to allocate a certain minimum percentage of their air cargo capacity to horticultural exporters. This requirement should also apply to Biman, in exchange for the improvement in its revenue realization on the produce cargo it carries. In all cases, the allocation percentages should be the subject of system-wide analysis to establish levels of service which reflect both exporter requirements and carrier capabilities.
C. Ocean Freight:

10. Identify currently exported commodities which are compatible with ocean carriage.

Utilizing existing organizational resources (BARI, HORTEX) working in conjunction with BRAC, Agro Concern and the BFVAPEA and ocean carriers, a list of commodities should be identified as promising targets for conversion from air to ocean carriage. Within the context of our six target commodities, the prognosis appears to be promising:

Table-37: Transit Guidelines for Selected Commodities, Hortex vs. UC-Davis

<table>
<thead>
<tr>
<th>Crop</th>
<th>Shelf life (HORTEX)</th>
<th>Shelf life (DAVIS)</th>
<th>RF4 compatible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitter gourd</td>
<td>7-14 days @ 8-10 C</td>
<td>14-21 days @ 10-12 C</td>
<td>Yes</td>
</tr>
<tr>
<td>Baby pineapple</td>
<td>7-14 days @ 8-10 C</td>
<td>14-28 days @ 7-13 C</td>
<td>Yes</td>
</tr>
<tr>
<td>Okra</td>
<td>7-14 days @ 10 C</td>
<td>7-10 days @ 7-10 C</td>
<td>Yes</td>
</tr>
<tr>
<td>Green hot chilli</td>
<td>14-21 days</td>
<td>14-21 days @ 5-10 C</td>
<td>Yes</td>
</tr>
<tr>
<td>Potato – early</td>
<td>NA</td>
<td>10-14 days @ 10-15 C</td>
<td>Yes</td>
</tr>
<tr>
<td>Potato - late</td>
<td>NA</td>
<td>60-120 days @ 4-12 C</td>
<td>Yes</td>
</tr>
<tr>
<td>Mango</td>
<td>NA</td>
<td>14-21 days @ 13 C</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Source: HORTEX publications
UC-Davis, “Marine Container Transport of Chilled Perishable Produce”, 2000

11. Establish handling and transit temperature guidelines for each commodity, based on the specific operating conditions within Bangladesh

Excellent data exists with regard to general post-harvest handling for a wide variety of commodities, including most ocean freight candidate commodities within Bangladesh. Such data needs to be verified and re-confirmed within the context of Bangladesh, to insure that they are consistent with varietal and climactic conditions in the country. Maersk Line has offered to assist in this effort, and is highly qualified to serve as a technical resource. Although they were not consulted directly, we believe the same could also be said of several of the other international carriers operating out of Chittagong.

12. Develop tariffs, initiate trial shipments, compile the results, and proceed to incorporate ocean freight as basic element of export distribution for Bangladeshi horticultural products

Once exporters, carriers and importers become satisfied with the guidelines and confident in the out-turn results in the ports of destination, the next steps would involve institutionalization of the ocean freight vector within the export objective function, and to proceed toward the optimization of efficiencies through cost reduction, negotiation of service contracts, and refinement of the degree of integration across the supply chain beginning at farm level. From the exporter point of view, this will involve the development of skills similar to those detailed in Recommendation 5 above.
D. *Infrastructure & Technology*

13. Provide farmers, service providers and agro-processors with the energy they require at rates that are affordable

A 2003 World Bank policy review stated that “Power deficiencies are the most critical constraint on expansion of economic activity. “ Time and again the authors were told that planting decisions by farmers, and operating and investment decisions made by processors were unduly affected by concerns regarding the likelihood of cost rises or service interruptions in their energy requirements. At the time of our visit to the Chittagong Hill Tracts, Rangamati Food Products had been out of operation for 20 of the previous 24 months, largely due to problems in delivery of electricity required to operate the plant, or as a result of cash flow crises precipitated by these energy problems.

The reliable provision of electrical power is a national problem in Bangladesh, not one that is restricted to the horticultural sector. Still, the prospects for growth in this sector are being severely compromised by this problem, and would greatly benefit from its resolution

14. **BADC and other agencies charged with overseeing the supply of reliable seed in Bangladesh should be given the resources necessary to meet their responsibilities**

As shown in Exhibit, the percentage of vegetable and potato seed supplied from “formal” – or professional – sources is entirely too low to support reliable production, adequate product quality and vitality, and correct levels of farmer income. Use of substandard seed reduces the yield and quality of the end product. This is especially important in the case of export and processed channels. Need to enhance the development of the seed industry:

   a. Biotechnology & tissue culture
   b. Commercial production of plantlets for pineapple

15. **Upgrade testing laboratories in Bangladesh**

BSTI is not adequately equipped to perform many of the tests and certification required in export markets, nor to insure fruits and vegetables, or products derived from them, is free from chemical residues, dyes or heavy metal contamination. While this may not represent an immediate threat to the ability of national distributors and exporters to service today’s customers in ethnic markets, the time is drawing near when testing in most, if not all, of the markets of interest will insist that imported product carry test results confirming its compliance with plant health and food safety standards. No facility in Bangladesh is now able to provide such certification. It is of urgent importance that the official agency be upgraded, or that competent private companies be invited into the country, so as to make the credible provision of such certifications readily and affordably available.

16. **Develop national quality management systems to train, and ultimately to accredit, growers and packers in the major international certification regimes such as HACCP, ISO, GAP, GMP, EurepGap and BRC**

Procedures such as Hazard Analysis Critical Control Point (HACCP), Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP) constitute basic building blocks in the establishment of rules of commercial practice in international horticulture. EurepGap and British Retail Consortium (BRC) rules are specific procedural requirements developed by private retail groups to provide assurances as to the safe and healthy conditions under which imported fruits and
vegetables were grown and processed. Together, they serve, on the one hand, as guarantees for distant buyers and consumers regarding the healthiness and safety of the food products they are about to buy. On the other hand, they serve as early warning systems, providing farmers, intermediaries and processors with performance parameters which their product can reasonably be expected to meet. Such a system could play an important role in alleviating the levels of loss which we saw earlier in Tables 21 & 22.

Failure to meet these standards alerts upstream actors of the need to take corrective action in order to avert further economic prejudice, including the risk of loss of market. In many export markets, these types of accreditations are prerequisites to gaining access to higher-revenue retail accounts. Even in those markets where such stipulations are not currently in effect, there are signs that both the governments and the private retail sectors are moving in the direction of adopting such standards.

17. Develop agricultural research projects specifically targeted to address problems with horticultural yields and adaptability, as well as post-harvest losses and quality declines

BARI, BADC, and other entities in the national agricultural research system do good work in addressing these problems. Their present level of output, due largely to resources that are too small and mandates that are too broad, is not sufficient to trigger the levels of improvement needed to make horticultural production consistently viable for Bangladeshi farmers, or consistently attractive and profitable for exporters and overseas importers. If horticulture is to be developed to its potential, it will require a focused and specific research system able to address the full range of constraints and opportunities which horticulture represents for the Bangladesh agricultural economy.

18. The horticultural processing sector requires a like level of research support to assist it in addressing challenges in the areas of processing techniques, equipment application and manufacture, and new product development

In our discussions with horticultural processors, they pointed to the lack of any broad-based research support from the government or academic research communities which would help them deal with the above-mentioned problems. Several relied on research or vendor assistance acquired from offshore sources, but admitted it was not specific to the Bangladesh context. Several praised the help they had received from BARI, but insisted on the need for a broader range of support services to aid them in expanding their businesses.

E. Marketing and Market Access

18. Establish an Expert Committee to strengthen and develop agricultural marketing in Bangladesh

Responsibilities for this committee would, at the outset, include the following activities:

- Review the present system of agricultural marketing in the country with an eye toward increasing agricultural production and liberalization of international trade;
- Examine the organizational set-up and functioning of the DAM and Agricultural Produce Market Management Committees and recommend measures to make them more effective instruments for improvements in infrastructure and services to farmers, traders and consumers;
- Make recommendations for promoting pledge finance, direct marketing and alternative marketing systems;
- Examine existing policies, rules and regulations with a view to minimizing conflict in successful private sector operations;
- Review all laws which regulate participation in market such as registration/licensing, commodities traded, controls on packaging and labeling, laws affecting the market place, laws affecting supply including controls on movement of produce and volume of commodities traded;
- Study the requirements of additional investments in infrastructure, supply chain management from farm to the consumer and other facilities for the marketing system and to make recommendations for encouraging public, private and cooperative sectors to make such investments;
- Examine the requirements of market intelligence for the farmers, exporters, traders and consumers and to make recommendations in this regard;
- Examine the requirements of Market Extension, Research and training for the Agricultural Marketing system and to make recommendations in this regard;
- Recommend measures for effectively utilizing Information Technology tools with special reference to E-Commerce, E-Business, etc. for the development of a modern marketing system.

19. Restructure DAM providing additional facilities and trained manpower for promotion of agricultural marketing, agricultural market research, intelligence and certification (compliance with all international standards).

Improvement of marketing facilities, availability of skilled human resources, market intelligence gathering, dissemination and analysis of market prospects will help in improving the marketing of agricultural produces. Not only that, it will also improve quality control that will increase market access facilitating exports and regulating import quality.

20. Amend the 1996 Market Management and Leasing Policy of 1996 and also amend the Agricultural Markets Produce Regulation Act of 1964 to cover all aspects of marketing including re-structuring of Market Management Committee and necessary legal reforms for effective and efficient marketing.

Necessary amendments in the acts will remove existing barriers to market access and permit restructuring of the Market Management Committee with more participation of stakeholders (farmers, traders, NGOs and local government). Necessary reforms in organizational structure of market management, by removing unnecessary restrictions through establishing a sound framework, will reduce uncertainty of the market. Formulation of a general code of conduct will ensure the efficient marketing with full autonomy in the organization and management of the markets more transparently.

21. Increase investment in market infrastructure, arrange technical assistance and credit for improving market infrastructures including post-harvest management and processing facilities to reduce the wastage and more value addition for enhancing marketing margin and increasing return to farmers.

The relationship between agricultural development and investment in infrastructure both physical (roads, railways, transport facilities, electrification, post-harvest management and storage structures) and institutional (cooperatives, local self-government, banking institutions, extension agencies, marketing organizations and market intelligence net work) has been long recognized. A strong infrastructure can be the best guarantor for achieving full mobility of internal resources. Roads stimulate agricultural change and modernization not only through their immediate effects on relative prices and marketing opportunities but also through backward linkages. The roads open up opportunities for commercial agriculture and encourage shifts to production of higher value, transport-sensitive products (fruits, vegetables, dairy, poultry and marine products). Roads also improve access of the people to extension agents, banks, markets and health services. Market infrastructure is important not only for the performance of various marketing functions
and expansion of the size of the market but also for transfer of appropriate price signals leading to improved marketing efficiency. Infrastructure facilities lead to reduction in marketing costs which is crucial for increasing the realization of growers and reducing the costs to the consumer.

22. The Government of Bangladesh should work to normalize trade patterns and standards with India

The 120 million consumers in the 7 neighboring states of Northeast India represent an attractive potential export market for Bangladesh’s horticultural exporters. At present, however, trade between the two countries is unbalanced. In 2004/2005, India imported $45 million into Bangladesh, while importing only $5 million in return. Without wishing to look like mercantilists, the authors find this imbalance to be unnecessarily high, given the comparable economic status across the two borders. Non-tariff and para-tariff barriers are reported to be widespread at Bangladesh’s northern border. The importance of the Bangladesh market to India’s horticultural exporters would seem to give Bangladesh a leg up in seeking a more level playing field for the sale of its own products to Northeast India.

23. The Export Promotion Board, and other official agencies, should dedicate resources to the horticultural sector in support of its efforts to develop new markets in Southeast and East Asia

The markets of ASEAN and East Asia represent promising targets for Bangladesh’s efforts to expand its exports of potatoes and vegetables. The consumption bases in these countries are significant, Bangladesh’s cost structure should be competitive, and there is good availability of ocean and air freight options to deliver product to these markets. Exporters need market information, price reports, matching services, and credit facilities to attack these markets.

24. The Ministry of Agriculture needs to develop the ability to conduct Pest Risk Analyses, and to negotiate and implement work plans, as part of the process of gaining horticultural access to promising markets in East Asia

Entry for fruits and vegetables from new origins into the markets of Japan and China (and those of India, Australia, the United States and others as well) requires completion of an exacting array of studies designed to pre-empt the introduction of noxious pests, diseases or weeds into the importing country. Further steps in gaining access to such markets include the establishment of protocols to insure that product is treated and handled in such a way that pathogens will not accompany the products, and that enforcement programs are in place to guarantee compliance with these protocols. There is no capacity to conduct such studies, negotiate such protocols, or guarantee such compliance, today in Bangladesh.

F. Supply Chain Integration

25. Contract farming arrangements should be officially encouraged and facilitated as a means of reducing the costs of intermediation and integrating horticultural producers into the fresh produce supply chain

Contract farming holds excellent potential as a way for farmers to overcome market imperfections, to minimize the costs of intermediation, and gain market access in an efficient and transparent manner. Several fresh exporters and processors in Bangladesh already make significant use of contract farming as a way to secure reliable supplies of high-quality produce.
This structure frequently provides farmers with credit, inputs and technical assistance, while providing them with assured markets at pre-determined prices.

27. Direct farm-to-market programs, such as that fostered by the Northwest Crop Diversification Project (NCDP), should also receive official endorsement and encouragement

The organization of local, regional and urban markets by farmers and their cooperative organizations provide another interesting approach for integrating farmers more fully into the supply chain, and reducing the costs of intermediation.

G. Corruption:

28. The government should continue to assist farmers to reduce the added costs of informal tolls levied against fresh produce as it is carried from farm-gate to market

The added costs which such tolls impose are ultimately shared by farmer and final consumer, and work to the disadvantage of both parties. As such, these tolls impede growth both in production and in consumption. Curbing corruption requires approaching the problem holistically with firm commitment. The government should enforce better control mechanism in the public service and that could be achieved through introduction of Management Information System (MIS) /software in government offices. Making government servants more accountable for their actions and mass participation would also help to reduce the corruption.

29. Efforts should also continue toward the reduction of informal payments for routine handling of export shipments through the Port of Chittagong and Zia International Airport

As with the informal road tolls mentioned in the previous recommendation, these facilitating payments serve as a brake on export growth, and a reduction both to farmer incomes and to consumer welfare. Within the context of what is possible in Bangladesh, such payments should be discouraged or eliminated.
The goals for the next stage of the program should be the creation of sustainable improvements in the production, post-harvest handling, sale and distribution of horticultural production in Bangladesh, whether destined for domestic or export distribution. These improvements focus on improving farmer incomes and consumer welfare through broad improvements in the environment in which Bangladeshi horticulture operates. Given the extensive list of recommendations presented in the previous chapter, we thought it advisable to establish a series of timed priorities, dividing implementation of the 29 recommendations into a sequenced action plan, segregating the projects by time frame, and principal agents of implementation.

Table 5: Action Plan for Implementation of Recommendations

<table>
<thead>
<tr>
<th>Recommendation #</th>
<th>Activity</th>
<th>Time Frame</th>
<th>Lead Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Make better use of existing cold storage capacity for domestic distribution</td>
<td>6-12 months</td>
<td>GoB, private owners</td>
</tr>
<tr>
<td>4</td>
<td>Modify the system of subsidy payments to minimize delays and exporter uncertainty</td>
<td>6-12 months</td>
<td>GoB</td>
</tr>
<tr>
<td>5</td>
<td>Exporters and BFVAPEA logistics and negotiation capacities should be strengthened</td>
<td>6-12 months</td>
<td>BFVAPEA, private exporters, NGOs, consultants; SEDF, IFC can play role provided commercial operators or associations come up with appropriate proposal and plan of actions.</td>
</tr>
<tr>
<td>8</td>
<td>The Government of Bangladesh should reduce the high costs of operations for airlines serving Zia International Airport</td>
<td>6-12 months</td>
<td>GoB</td>
</tr>
<tr>
<td>10</td>
<td>Identify currently exported commodities which are compatible with ocean carriage</td>
<td>6-12 months</td>
<td>DAE, DAM, consultants, ocean carriers</td>
</tr>
<tr>
<td>11</td>
<td>Establish handling and transit temperature guidelines for each commodity, based on the specific operating conditions within Bangladesh</td>
<td>6-12 months</td>
<td>DAE, DAM, consultants, ocean carriers; SEDF, IFC can provide TA support for such activities provided that companies or associations come forward.</td>
</tr>
<tr>
<td>14</td>
<td>The regulatory role of BADC, and of other agencies charged with overseeing the supply of</td>
<td>6-12 months</td>
<td>GoB; SEDF is currently providing supports in this direction through two private organizations, and has</td>
</tr>
</tbody>
</table>
fruit and vegetable seed in Bangladesh, should be strengthened, in order to insure that farmers have reliable access to high-quality planting material for all of their production needs.

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<thead>
<tr>
<th>Number</th>
<th>Recommended Action</th>
<th>Implementation Period</th>
<th>Responsible Party</th>
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</thead>
<tbody>
<tr>
<td>19</td>
<td>Establish an Expert Committee to strengthen and develop agricultural marketing in Bangladesh</td>
<td>6-12 months</td>
<td>DAE/DAM, sectoral associations, NGOs, consultants</td>
</tr>
<tr>
<td>24</td>
<td>The Export Promotion Board, and other official agencies, should dedicate resources to develop new horticultural markets in Southeast and East Asia</td>
<td>6-12 months</td>
<td>GoB</td>
</tr>
<tr>
<td>28</td>
<td>The government should continue to assist farmers to reduce the added costs of informal tolls levied against fresh produce as it is carried from farm-gate to market</td>
<td>6-12 months</td>
<td>GoB</td>
</tr>
<tr>
<td>29</td>
<td>Efforts should also continue toward the reduction of informal payments for routine handling of export shipments through the Sea Port of Chittagong and Zia International Airport, Dhaka</td>
<td>6-12 months</td>
<td>GoB</td>
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**PHASE II**

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<tr>
<th>Number</th>
<th>Recommended Action</th>
<th>Implementation Period</th>
<th>Responsible Party</th>
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<tbody>
<tr>
<td>2</td>
<td>Develop specific solutions to insure cold-chain integrity for export cargo (use of refrigerated trailers or containers from farm gate to air or ship ports)</td>
<td>1-3 years</td>
<td>DAM/DAE, sectoral associations, transport interests; TA could be provided by World Bank/SEDF, IFC (feasibility, technology) if required, provided the exporters are interested in adopting this recommendation.</td>
</tr>
<tr>
<td>4</td>
<td>The SIP currently granted by Biman should be gradually phased out and replaced by an increase in the incentives paid</td>
<td>1-3 years</td>
<td>GoB, exporters, carriers</td>
</tr>
<tr>
<td></td>
<td>by the GoB on potato and vegetable exports</td>
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<tr>
<td>6</td>
<td>Encourage export sector to establish a separate and private company to negotiate air freight rates, organize air charters, and develop time/volume contracts with liner carriers</td>
<td>1-3 years</td>
<td>GoB, sectoral associations, air &amp; ocean carriers; SEDF can consider providing TA support (information, preparing business plan and strategy formulation for the new company.)</td>
</tr>
<tr>
<td>7</td>
<td>The Government of Bangladesh should assist exporters in securing credit facilities to fund short-term financing required to fund charter cargo flights</td>
<td>1-3 years</td>
<td>GoB; World Bank/ SEDF, IFC can consider a role in promoting access to finance for such operations.</td>
</tr>
<tr>
<td>9</td>
<td>In exchange for reduced costs of operation, the Government of Bangladesh should require all carriers to provide horticultural exporters with improved and secure access to cargo space</td>
<td>1-3 years</td>
<td>GoB</td>
</tr>
<tr>
<td>12</td>
<td>Develop tariffs, initiate trial shipments, compile the results, and proceed to incorporate ocean freight as basic element of export distribution for Bangladeshi horticultural products</td>
<td>1-3 years</td>
<td>GoB, sectoral associations, ocean carriers</td>
</tr>
<tr>
<td>15</td>
<td>Upgrade testing laboratories in Bangladesh</td>
<td>1-3 years</td>
<td>GoB, academic &amp; research institutions; SEDF can provide TA if the commercial operators come up with requisite and acceptable programs.</td>
</tr>
<tr>
<td>17</td>
<td>Develop agricultural research projects specifically targeted to address problems with horticultural yields and adaptability, as well as post-harvest losses and quality declines</td>
<td>1-3 years</td>
<td>GoB, academic &amp; research institutions</td>
</tr>
<tr>
<td>20</td>
<td>Restructure DAM providing additional facilities and trained manpower for promotion of agricultural marketing, agricultural market research, intelligence and certification</td>
<td>1-3 years</td>
<td>GoB</td>
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<td>(compliance with all international standards).</td>
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<tr>
<td>21</td>
<td>Amend the 1996 Market Management and Leasing Policy of 1996 and also amend the Agricultural Markets Produce Regulation Act of 1964 to cover all aspects of marketing including re-structuring of Market Management Committee and necessary legal reforms for effective and efficient marketing.</td>
<td>1-3 years</td>
<td>GoB</td>
</tr>
<tr>
<td>23</td>
<td>The Government of Bangladesh should work to normalize trade patterns and standards with India</td>
<td>1-3 years</td>
<td>GoB</td>
</tr>
<tr>
<td>26</td>
<td>Contract farming arrangements should be officially encouraged and facilitated as a means of reducing the costs of intermediation and integrating horticultural producers into the fresh produce supply chain</td>
<td>1-3 years</td>
<td>GoB; SEDF, IFC may provide TA support if appropriate partners or programs are found.</td>
</tr>
<tr>
<td>27</td>
<td>Direct farm-to-market programs, such as that fostered by the Northwest Crop Diversification Project (NCDP), should also receive official endorsement and encouragement</td>
<td>1-3 years</td>
<td>GoB; SEDF, IFC may provide TA support if appropriate partners or programs are found.</td>
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<tr>
<td><strong>PHASE III</strong></td>
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<tr>
<td>13</td>
<td>Provide farmers, service providers and agro-processors with the energy they require at rates that are affordable</td>
<td>GoB</td>
<td></td>
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<tr>
<td>16</td>
<td>Develop national quality management systems to train, and ultimately to accredit, growers and packers in the major international certification regimes such as HACCP, ISO, GAP, GMP, EurepGap and SEDF can provide technical support to the commercial operators for capacity building and accreditations/certifications.</td>
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<tr>
<td>18</td>
<td>The horticultural processing sector requires a like level of research support to assist it in addressing challenges in the areas of processing techniques, equipment application and manufacture, and new product development</td>
<td>GoB and donor assistance</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Increase investment in market infrastructure; arrange technical assistance and credit for improving market infrastructures including post-harvest management and processing facilities to reduce the wastage and more value addition for enhancing marketing margin and increasing return to farmers.</td>
<td>GoB and donor assistance</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>The Ministry of Agriculture needs to develop the ability to conduct Pest Risk Analyses, and to negotiate and implement work plans, as part of the process of gaining horticultural access to promising markets in East Asia</td>
<td>GoB</td>
<td></td>
</tr>
</tbody>
</table>
Appendix – 1: Map of Bangladesh
Appendix –2: Terms of Reference

Bangladesh Agro-business Opportunities and Constraints

Terms of Reference: Abt Associates Inc.

Case Study of the Fruit and Vegetable Sector

Background

Despite its declining contribution to GDP, the agricultural sector in Bangladesh (crops, livestock, fisheries and forestry) remains an important source of incomes and employment, accounting for 21.8 percent of GDP (2003) and employing 54 percent labor force. Overall the performance of the sector has been quite strong with agricultural GDP growing at an average annual rate of 3.8 percent between 1997/98 and 2002/03. During the past two decades the sector has been undergoing a gradual transformation; the contribution of crops and horticulture to agricultural GDP has declined while the fisheries sector has experienced rapid growth. In 2002/03 crops and horticulture accounted for 57.1 percent of agricultural GDP while livestock, fisheries and forestry accounted for 12.5 percent, 22.5 percent and 7.9 percent, respectively. Primary agricultural commodities are also significant export earners.

In addition to the primary agricultural sector, agro-businesses have also been an important contributor to national GDP and employment in Bangladesh. The term agro-business is used here to refer to the various off-farm components of agro-enterprise activities including the development and delivery of material inputs to the farming sector and the handling, processing, transporting, marketing and distribution of food and other agro-based products to consumers (including intermediate products for other industries such as hides and skins for manufacturing leather products).

Data limitations make it difficult to estimate the exact contribution of agribusinesses to GDP and employment. However recent estimates by the Asian Development Bank (ADB) set the contribution of agribusiness to GDP to be about 9 percent (ADB, 2004—Table 1). The same study also estimates that agribusiness accounts for a sizeable share (44 percent) of employment in micro, small and medium enterprises in Bangladesh and that agribusiness GDP has grown at 6 percent per annum during the 1990s, exceeding the growth rate of agricultural production.

Up until the early 1990s agribusiness activities in Bangladesh were dominated by state owned enterprises involved in the sugar, jute and fertilizer industries; private sector involvement was limited and concentrated on tea, rice and wheat milling. Liberalization and market reforms in the 1990s along with increasing demand for processed and higher-value foods accompanying per capita income growth and urbanization and improvements in infrastructure has brought about greater private sector participation in the sector, particularly in the poultry, shrimp, potato, fruit processing and retail sectors.

Although agribusiness growth has been strong, the share and size of agribusiness in Bangladesh is quite modest when compared internationally. In other developing countries, however, the agri-business sector has been a powerful source of growth, diversification and poverty alleviation (World Bank, 2003). Growth in the agri-business sector has the potential to help reduce poverty in Bangladesh, as well, where 53% of the rural population have incomes below the upper poverty line and 37% below the lower poverty

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2 The term agro-business/agri-business is also commonly used to refer to the commercial farm production sector as well as the service sector (education, banking, finance, investment and technical advice) catering to farmers and other agro-based enterprises.

3 This is based on data from 1999/2000. It is estimated that the rural non-farm sector accounts for about 33% of GDP.

4 For example, agribusiness’ share of GDP in Indonesia and Thailand in the late 1990s was 33% and 43% respectively (World Bank, 2003).
line. Eighty-five percent of the poor in Bangladesh live in rural areas (World Bank, 2002). Increasing population coupled with decreasing farm sizes in Bangladesh limit the ability of the agricultural sector to absorb the growing rural labor force. The agro-business sector is one potential area for generating increased rural employment. The recent PRSP document place considerable importance on the role of the rural non-farm sector and agribusiness in terms of ensuring pro-poor rural growth.

Like many other developing countries, Bangladesh faces new opportunities for growth of the agro-business sector arising from an array of demographic, social, technological, organizational and economic trends. With increasing urbanization and growing per capita incomes there is increasing demand for higher value food products and food service industry development. This is also paving the way for the development of an organized retail sector. Expanding output from the agricultural sector as well as growing diversification in agriculture is also providing a stronger base for growth of the agro-processing sector. Globally, there have been enormous developments in terms of emerging technologies which allow improved product quality, improved cost-efficiency and a reduction in a variety of business and food safety risks (World Bank, 2003). Multilateral trade liberalization has also opened new market opportunities for value-added agricultural products.

Currently the agro-business sector in Bangladesh faces complex challenges which prevent it from taking advantage of emerging opportunities. Coordination among actors in the value chain (farmers, traders, processors and service providers) is very weak, these chains tend to be very long, and there is a significant degree of mistrust among participants increasing costs and reducing competitiveness. Post-harvest management systems are poor despite the existence of technical solutions. Modernization of technology is also needed. There is little importance given to quality control and standards among participants in the value chain. Although domestic demand for quality standards is yet to evolve, grades and standards are taking on greater importance for those catering to more discerning export markets and failure to meet these standards has severe implications for entry or continued access to potentially lucrative export markets. The overall investment climate including the problem of corruption, poor law and order situation, severe infrastructure bottle necks and poor performance of the financial sector also affected private sector investments in agro-business and the performance of firms in the sector.

Objectives of the Study

Against this background, and building on several recent studies and projects undertaken by the World Bank (Bangladesh Growth and Export Competitiveness Study (SASPR) and the Bangladesh Non-Farm Sector Study (SASAR), Asian Development Bank (ADBTA No. 4139-BAN-Agribusiness Development Project) and USAID (Agro-based Industries and Technology Development Project Phase II), the World Bank and IFC (South Asia Enterprise Development Facility (SEDF)) are undertaking a study to (i) evaluate the different models of agro-business organization in Bangladesh in select sub-sectors; (ii) identify opportunities and constraints to the development and growth of agro-business in these sectors; and (iii) identify strategies and policy options for promoting sustainable growth in the selected sub-sectors and the overall agribusiness sector.

The study will focus on select agro-business sub-sectors with potentially strong growth prospects including the poultry, shrimp/aquaculture, dairy products, fruit and vegetable processing (Asian vegetables, potatoes, pineapples/mangoes) and high-value rice industries.

Terms of Reference for Abt Associates:

This ToR is for the preparation of a background paper on the fruit and vegetable (F&V) sector that would be used as input for the main Bangladesh Agro-business Study. The objective of the F&V sector background paper is to review the development and prospects of the F&V sector in Bangladesh. The study should assess the supply, demand, structure, and policy and institutional factors affecting the
competitiveness and growth of the fruit and vegetable processing sector and the fresh and processed fruit and vegetable export industry (focus commodities are potatoes, Asian Vegetables, mangoes and pineapples).

A very limited amount of fruits and vegetables (barely 0.5% of horticultural production) are actually processed in Bangladesh. Jams, tomato sauce, pickles, chutneys and fruit juices are the typical domestically processed products made from fruits and vegetables. Sixty percent of processing of horticultural products is undertaken by a single firm called Agricultural Marketing Company Ltd. (AMCL), known by its brand name PRAN. The company processes about 4-5 million tones of horticultural produce per year (0.3% of production). While PRAN, Square Pharmaceuticals, Eurasia Food Processing (BD) Ltd and several other large companies have been very successful both in the domestic market and have also begun exporting some products, the vast majority of other small-scale agro-processors involved in processing fruits and vegetables have not fared as well. Challenges in the sector include poor quality of raw materials (the period of availability of raw materials is short and unreliable and processing varieties are limited), limited vertical integration and obsolete technology. Firms also face major constraints in terms of accessing financing, adequate transportation and the availability of electricity.

The Bangladeshi fresh horticultural export industry annually exports around 15,000 MT of produce, mainly by air to Europe and the Middle East. The industry faces a number of pressing challenges related to high air freight charges, lack of air-cargo space and compliance with international quality and food safety standards in more discerning markets in addition to basic issues of competitiveness.

The background study on the F&V sector will:

Sector description
- Evaluate the role of the sector, if possible broken down by components of the supply chain in Bangladesh’s economy in terms of its contribution to GDP and employment. The study will also discuss the role of the sector in terms of its contribution to poverty reduction.
- Provide a summary of the market context of the F&V sector including recent trends in F&V supply and demand in Bangladesh and a brief discussion of these trends in the context of international trends and trends in South Asia
  - Should discuss growth rates and trends in F&V production and processing in Bangladesh including regional dimensions.
  - Consumer demand patterns including the income and price sensitivity of demand in Bangladesh, including possible consumer preferences for specific products. Trends in consumption of processed fruits and vegetables (domestic and imported).
  - Volume and value of F&V exports (fresh and processed), export trends and market share in major markets.
- Provide an overview of the industry structure including mapping of channels, participants, function and markets.
- Provide a review of trade policies and other policies affecting the sector, including various subsidy policies as relevant to the sector.
- Characterize the status of the current debate/thinking within the country/government on the strategic directions and options for the industry.
- Provide an assessment of the trends in the fresh and processed F&V retail sector.

Technical performance and institutions
- Review and assess the structure of production and technical performance of the sector.
Provide an overview and assessment of production practices and technical performance in different industry segments (household level and small-scale producers, medium and large enterprises). Technical performance could be assessed through industry specific performance indicators.

Examine the delivery of support services, in particular financing of production, quality control, technology transfer, input supplies.

In view of the increasing importance of food safety, plant health, and animal health issues for international trade in agricultural products and growing domestic concern over food safety issues, assess on-going programs/instruments to raise the quality/safety profile of the sub-sector and identify areas for improvement.

Supply Chain Analysis

Undertake a supply chain analysis for different industry structures (small-scale producers, medium and large firms etc)

- This should be a comprehensive analysis using data from a sample survey fielded to a representative sample of firms. Data collection will be facilitated by a local consultant.
- The supply chain analysis should: identify different stages in the supply chain for the different producers and processors; estimate value addition at each segment of the supply chain for them and measure cost, returns and time along the entire value chain; identify major bottlenecks that apply to each section of the value chain in areas of physical infrastructure (power, transport), logistics, post-harvest management, markets and marketing support services, technology transfer etc and identify factors such as administrative procedures, skills, access to capital, and corruption and evaluate how these factors affect costs in the value chain segments? The study should benchmark Bangladesh’s performance against similar value chains in comparator markets and identify specific areas where Bangladesh’s production/marketing is relatively efficient/inefficient. The review should also assess the role of the public sector in strengthening these supply chains for example, in terms of legislating an appropriate contract law and enforcing it effectively, strengthening the quality of agricultural extension services and providing complimentary infrastructure.

- Describe the main contractual arrangements between the different participants of the supply chain, and assess how equitable and sustainable they are.

- Drawing on the findings of the supply chain analysis:
  - Provide an assessment of the competitiveness of the Bangladesh F&V processing and fresh and processed F&V export industry for the different industry structures.
  - Provide an assessment of current post-harvest practices and marketing.
  - Examine the efficiency of markets, price formation and adequacy of marketing policies and infrastructure. The note will also review recent developments in terms of changing marketing structures in the F&V industry (for example development of contract farming operations) and assess the efficiency and equity implications.

Recommendations

- Identify and critically assess the opportunities and constraints for F&V sector (this should cover post-harvest management and domestic marketing, the processing sector and strategies to expand exports (fresh and processed)).
- Prepare a draft action plan outlining institutional, regulatory, policy, technical and organizational measures needed to promote further growth and employment generation of this sub-sector. The action plan should identify and differentiate between short term measures (than can be
implemented within 1-3 years) and medium term measures (that can be implemented in 3-5 years).

- Identify which specific institutional and policy measures would help in enhancing the private sector’s ability to improve value chain performance. Identify particular actions, which would enable small scale producers and processors to increase in size and benefit from economies of scale.
- Recommend interventions concerning administrative reforms as well as physical infrastructure needs with the greatest impact on efficiency/costs in the industry. Benefits from such interventions need to be quantified and sequenced. The analysis should recommend concrete actions to improve productivity, reduce costs, and strengthen forward and backward linkages in supply chains. This would include identifying steps that would tend to build trust among the different players along the chain.
- Finally, based on the findings of the study, the consultant will make recommendations for Bank Group support that will improve productivity and performance in the industry.

**Tasks**

In undertaking the study, the consultant will likely need to:

- Assemble and critically appraise previous studies and published statistics relating to the F&V industry;
- Undertake interviews with private companies, government officials, producer representatives, service providers (such as extension providers, business development services), and others involved in the F&V industry in Bangladesh.
- Design a data collection instrument and collect and analyze data for a value chain analysis. A local consultant in Bangladesh will provide assistance with collection of data for the value chain analysis, however Abt Associates will assume overall responsibility for this work.
- Collaborate with the local (Bangladeshi) consultant in undertaking this assignment.
- Prepare a draft report, of not more than 30 pages, not including any necessary data annexes. An executive summary of about 3-4 pages should be prepared.

The consultant will commence this assignment around February 14, 2006 and would deliver the draft report by May 14, 2006. Comments will be provided on that draft and the final report should be finalized by June 14, 2006. The Consultant will report directly to Mona Sur of the South Asia Agriculture and Rural Development Department of the World Bank.
<table>
<thead>
<tr>
<th>Entity</th>
<th>Contact Information</th>
</tr>
</thead>
</table>
| Padakhep Manabik Unnayan Kendra | Iqbal Ahammed – Executive Director  
Abul Ashraf – Member, Executive Committee |
| Proshika Bhaban | Qazi Khaze Alam – Director, natural Resources |
| Agribusiness Development Organization of Bangladesh | A. F. M. Fakhrul Islam Munshi – President  
Md. Zillur Rahman – Program Coordinator |
| Hortex Foundation | Md. Akmal Hossain – Acting managing Director |
| Bangladesh Agricultural Research Council (BARC) | Dr. Md. Abdur Razzaque – Member Director, Crops |
| Department of Agricultural Marketing (DAM), Ministry of Agriculture | Sirajul Islam – Director  
Munshi Abdul Ahah – Assistant Director |
| Plant Protection Wing, Department of Agricultural Extension (DAE), MoA | Dr. Rahim Uddin Ahmed – Director  
Kh. Mahfuzul Haque – Quarantine Entomologist  
Abdul Awal – Deputy Director |
| Northwest Crop Diversification Project (NCDP) | Abul Ashraf – Market Management Specialist |
| Bangladesh Standards & Testing Institute (BSTI), Ministry of Industry | Md. Safiqr Rahman – Director, Standards  
Habibur Rab Majumder – Deputy Director, Food & Agriculture  
Mr. Sen – Assistant Director – Food & Bacteriology |
| Rajshahi Mango Products | Raja Ahammed – Managing Director |
| Bangladesh Fruits, Vegetables & Allied Products Exporters Association (BFVAPEA) | S. M. Jahangir Hossain – General Secretary  
Md. Farid Uddin Ahmed – President  
Mohammed Monsur – Sr. Vice President  
Syed Salahuddin (Mamun) – Vice President |
| Export Promotion Board, Ministry of Commerce | Md. Abdur Razzak Mondal – Director |
| Flamingo Agro-Tech, Ltd. | A. K. Siddique – Chairman/M. D. |
| Bangladesh Agricultural Development Corporation (BADC) | Ahm Monirul Haq (Navri) – Project Director |
| B D Foods Limited | Md. Abdul Karim – Deputy General Manager |
| Bangladesh Agricultural Research Institute – Gazipur (BARI) | Dr. Md. Shahjahan – Principal Scientific Officer & Head, Postharvest Technology Division  
Mahmudul Islam Nazrul – Sr. Scientific Officer |
| Mouchas Unnayan Sangstha NGO – Madhupur, Tangail | Md. Abul Hossain – Executive Director |
| PRAN – Natore | Dr. Md. Anisur Rahman – Chief, Agro Business  
Engr. Sheikh Abdul Quadir – GM, Natore Plant |
| Agroconcern | Dr. Shaikh Abdul Quader – Founder |
| BRAC – Chandina | Md. Abdullah Al-Masoud – Manager, Field Ops  
Abul Kalam Ajad – Field Agronomist |
<p>| Bangladesh Seed Growers Welfare Association/Blue Moon Intl | Anwarul Huq – Chairman/Managing Director |
| Eurasia Food Processing (BD) Ltd | Md. Moinul Islam Chowdury – Managing Director |
| BRAC Headquarters – Dhaka | Mallik A-As-Saqui – GM, Agricultural Marketing |</p>
<table>
<thead>
<tr>
<th>Company / Location</th>
<th>Contact Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>BADC Veg &amp; Fish Coldstore, Zia Intl Airport</td>
<td>Krishibid Md. Jashim Uddin</td>
</tr>
<tr>
<td>Biman Bangladesh Airlines</td>
<td>S. M. Mossadeque Hussain – GM, Cargo Terminal</td>
</tr>
<tr>
<td>BRAC – Tongi</td>
<td>ATM Mahbub Alam – Engineer, Vegetable Export Program</td>
</tr>
<tr>
<td>Rangamati Food Products – Chittagong Hill Tracts</td>
<td>D. K. Barua – Managing Director</td>
</tr>
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<td></td>
<td>K. K. Barua – Director</td>
</tr>
<tr>
<td>Bangladesh Shipping Corporation</td>
<td>Abdul Hannan – Finance Director</td>
</tr>
<tr>
<td>Chittagong Port Authority</td>
<td>A. M. M. Shahadaf Hossain – Chief Executive</td>
</tr>
<tr>
<td>Maersk Line – Chittagong</td>
<td>Capt. Kamrul Islam Mazumber – General Manager, Chittagong Branch</td>
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<td></td>
<td>Md. Sarwar Alam Chowdhury – Assistant Manager</td>
</tr>
<tr>
<td>Square Pharmaceuticals</td>
<td>Jayanta Datta Gupta – Manager, AgroVet Division</td>
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<tr>
<td></td>
<td>S. K. Das – Director, Square Consumer Products</td>
</tr>
<tr>
<td>PRAN Headquarters – Dhaka</td>
<td>Major General Amjad Khan Chowdhury – CEO</td>
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<td></td>
<td>Ahsan Khan Chowdhury – Deputy Managing Director</td>
</tr>
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Appendix – 4: Interview Log

25 FEBRUARY – DHAKA

A. Meeting at World Bank with F & V Team
   Mona Sur – WB/Washington -- Team Leader
   Maria Priessec – IFC/Washington
   S. A. M. Rafiuzzaman (Rafiq) – WB/Dhaka, Irrigation Specialist
   Zaki Uz Zaman – IFC/Dhaka,
   Dr. Saleh Ahmed – F & V consultant

   • Review of schedule to identify needed additions, including more time for
     o packaging,
     o pallets,
     o domestic & export transportation (BA, Gulf, in addition to Biman; air freight
       forwarder; ocean forwarder, Maersk, port management),
     o FAO/EU meetings to discuss current projects on Food Safety

   • Identify commodities of special interest
     o Mango
     o Pineapple
     o Asian Vegetable (chilli, biter gourd)
     o Okra
     o Potato

   • Consider import-replacement products
     o Onion
     o Garlic
     o Ginger
     o Tomato

   • Explore (with BRAC et al) the profitability of green bean exports. How much
     investment? How much profit?

   • Pursue why there have been no export initiatives toward SE Asia, Japan or Korea

   • Explore efforts to move chilled cargoes from air to ocean vectors. What organizations
     perform/disseminate information regarding post-harvest experiences with temperature
     and atmosphere management to prolong transit life (a la UC-D)?

   • Who can tell us the story of live crab exports to Asia?

   • Need to develop a list of data we need

B. Discussions with Dr. Ahmed

   • Ministry of Agriculture Structure
     o Department of Ag. Extension, staffed down to the village level, including Plant
       Protection Wing, Food Crops Wing
     o Dept of Ag. Marketing
     o NARS (National Ag Research System), including BARI (ag research institute
       except tea & rice), BRRI (rice), BTRI (tea) and SRDI (soil research)

   • Northwest Crop Diversification project
     o 200,000 farming families, in 61 districts (upazilas), with ag training provided by
       DAE
     o 20 families unite, with 1 family selected to represent the entire group
     o 20 representatives combine their 400 families to form 1 FMG (farmer marketing
       group) which organizes its own farmers’ market (sales = TK 3.6-4.0 MM)
• NCDP now has 61 different FMG operating under its project, one for each upazila
• Upon entry, each farming family is required to take a “basic training” course in farming offered by the project. Upon completion, the family is then eligible for a micro-loan
• Donor (ADB, WB, DANIDA, USAID, etc) loans to the Bangladesh Bank at 1%; BB loans to Commercial Banks at 5%, Commercial Banks loan to NGO’s (BRAC, Grameen, Proshika, etc.) at 10%, NGO’s loan to farmers at 14%
• Since loans are often given for the length of a crop season, but interest rate is charged regardless of the term of the loan, actual loan rate may equate to 3x the face rate (14% charged on a loan outstanding for only 3 months)
• Loan size usually runs TK 5,000-10,000, with maximum of TK 20,000. No collateral is required, but farmer must deposit weekly savings into NGO’s bank

C. Padakhep Manabik Unnayan Kendra (see brochure)

Iqbal Ahammed – Executive Director
Adbul Ashraf – Member, Executive Committee

• NGO’s have many opportunities to work beyond micro-finance; Padakhep has expanded into agricultural services, ‘trying to open the windows into agricultural development
• Padakhep currently operates 7-8 agricultural projects for a wide assortment of donors:
  o IFAT
  o Danida
  o ADB
  o Oxfam
  o SEDP
• Padakhep helps some 200,000 families. 60% of these families are now active and successful with respect to vegetable production. Most of this production is homestead gardens, but there is some commercial production, esp. in shoreland (?) areas
• Major Problems
  o Storage
  o Marketing
    ▪ Communication
    ▪ Transportation
    ▪ Production Planning
    ▪ Business Plans
• For example, Ponchakor (?) tomato growers were able to sell their production direct to Dhaka, some 400-500 km away. But problems arose with transportation and with ‘service charges’ which went along with the transportation (a TK 6,000 load may incur TK 2,400 collected by policemen), as well as with packaging problems and poor post-harvest practices. Also, consumers were unwilling to pay a higher price for better quality, even though they could see the quality was better
• Individual farmers can’t fight the ‘syndicate’ of middlemen. The syndicate is politically powerful, and has succeeded in killing the cooperatives. But NGO’s, working with other politically powerful groups like DAM and DAE, can get the farmer direct access to the markets. This has led to Market Operating Groups, now called Farmer marketing Groups
• Middlemen along the chain cost 25-30%, and always require 42 lbs but only pay for 40 lbs
• Now doing contract farming for potato seed production. Contracts are negotiated to pay the farmers based on market price +. Padakhep hires agronomists to oversee production, advances inputs and some cash, then deducts costs and advances from final liquidation
• Iqbal believes that contract farming works only where there can be no compromise on quality
• Padakhep was founded in 1986, and limped along until 1997 when current management came on board
• Staff = 2,000, including 47 ag graduates and 80 skilled technicians
• E-Commerce: Working on computerized linkages to provide farmers with real-time price and quality and innovation information
• Activities, and families served
  o Micro-finance 200,000 families (TK1,000,000,000 portfolio, maximum individual credit = TK 200,000,000)
  o Commercial Agriculture 70,000 families
  o Homestead Gardening 200,000 families

D. Proshika Bhaban (see brochure)
Qazi Khaze Alam – Director, Natural Resources (also Chairman of FORAM and Executive Board Member of HORTEX Foundation)

• Active since 1976; senior management still intact, aged 54-60
• Initial activities were in training and development of human assets in BD
• Pro = training
  Shi = education
  Ka = action
• Now number 162,000 groups (+/- 20/group) with services organized per the needs of the group; total of 3.2 million people being served
• Organic agricultural development: Motivation/Marketing/Production
• Proshika is only (?) honey producer in all of BD
• BRAC and Proshika try to be complimentary, rather than duplicative, in their memberships. NGO’s compare member lists and try not to overlap
• 300 agricultural specialists now on staff, of which 15 organic specialists. Plan to increase to 600 within the next 2-3 years. Total staff numbers 9000, of which 1500 are involved in agriculture
• We later learned that Proshika had taken a huge step backward in 2001/2002 when they were seen to be backing the former ruling party. When the new party came in, it canceled all of Proshika’s projects, and Proshika shrunk dramatically. It is still recovering from that blow.
• Proshika is a firm believer in organic cultivation. Its president went to an IFOAM convention in Ottawa in 1976, and has worked to spread the organic gospel ever since
• There is no organic certification agency in BD. Proshika sells ‘organic’ products into the Dhaka market at minimal margins. Nearly 1000 farmers within 100 km of Dhaka are providing organic vegetables. In BD, incremental revenues for organic produce are small, but incremental costs are also small. Sales are now made at a 5-10% premium; 25% premium is the estimated B/E point
• Qazi is a Hortex Board member. Hortex is not doing a good job on
  o Export development
  o Organic development
  o Packaging development, or
  o Certification compliance
• Proshika runs a tissue culture operation producing potato seed, bananas, and orchids. Orchid supply > demand, and growers are not willing to pay a fair price for clean seed or planting material for potatoes or fruit. DAE can’t seem to help, and neither can Hortex.
• Hortex’s problem is that it has no skin in the game.
• If farmers continue to get unfair returns, commercial agricultural production in BD will fail.
• Development must be uniform to be sustainable
  o Local Market
  o National Market
  o International Market
• Proshika wants to know how WB can help to get organic certification done within BD.

E. Agribusiness Development Organization of Bangladesh (see brochure)
A.F.M. Fakhrul Islam Munshi, President
Md. Zillur Rahman, Program Coordinator
• Private sector association supported by USAID, working for the development of the agribusiness sector within the country.
• 20 agribusiness associations are members of ADOB, ranging across dairy, fertilizer, fishing, produce, poultry, seed, milling and supply groups.
• Munshi believes that all projects must be holistic, system-wide – rather than small/specific.
• Believes that processing would be a great way to improve the competitiveness of the agricultural sector; export dimension could be based on the 2-3(or 4) million overseas Deshis.
• Q: If Bangladesh is so attractive, why has there been so little FDI in the horticultural sector?
• A: There needs to be a “total package” for fruits & vegetables
  o Land Survey
  o Universities must be more practical/commercial in their orientation
  o Government policy must improve
    ▪ Seed improvement/certification/security
    ▪ Quality control, incl. laboratories
    ▪ Exchange programs for talented students
    ▪ Packaging
      ▪ Hygiene standards
      ▪ Performance standards
      ▪ Technical support
    ▪ Back-to-back L/C
    ▪ Cold chain
    ▪ Consistent incentives (fiscal & monetary)
    ▪ Arsenic control
    ▪ Proper publicity
    ▪ Media should be better used (could even save money on extension programs)
    ▪ Professionalism (“worthless private secretary”)

93
A. Hortex Foundation
Md. Akmal Hossain, Acting Managing Director

- “Baby of the World Bank”, created in 1993 as part of a larger WB/GoB development agreement
- Min of A helped to set up Hortex in 1993, but did not really get started until USAID offered to add funding for implementation
- WB funding came out in 1996, at which point Hortex began its operations. General Manager was hired in June of 1996, and then a year was spent hiring staff and identifying consultants. Operations took off in July of 1997.
- Target: High-value horticultural exports to high-priced markets (this excluded native crops already being sent to expatriate markets)
- Hortex was ordered to export 20 MT of French Beans in Year 1; actually exported 27 MT to UK/FR/NL/BL that year (1997/98)
- Excellent market support led to requests from London Buyer to supply following items
  - Bitter gourd
  - Okra
  - Green chili
- In 1998/99, exports rose to 42 MT. Hortex introduced its own-label corrugated cartons for shipments; enforced its quality standards through a MOU with BRAC and its national network; imported seed from NL and distributed it to farmers via BRAC; packing plant was built and workers were trained, under joint Hortex/BRAC program; in Year 1, Hortex supplied all its services for free, with the understanding the costs would be retained from BRAC’s final grower remittances from Year 2 onward
- From July of 1999 through April of 2003, ASIRP (a World Bank program) funded Hortex. Hortex met all assigned targets, adding floriculture, frozen vegetables and canned vegetables. Interim WB missions during ASIRP asked Hortex to expand into other agricultural areas (dairy, poultry, aquaculture) and asked Hortex to change its articles and to develop a business plan
- In March of 2003, WB decided not to approve new projects. At the same time, old projects were not renewed. Since Hortex had not been capable of incorporating fee recoveries into its programs, Hortex was faced with extinction. Its governing body decided at that time to keep Hortex alive
  - To provide support to affiliated groups
  - To try to find donor & government funding support
  - By reducing staff from 20 +/- project staff down to 5 professional/technical & support staff, of which 2 are now vacant
- Since March of 2003, Hortex has continued to support old and new clients with
  1. seed
  2. cartons (see 3 photos)
  3. test marketing
  4. production planning
  5. market planning (See brochure for statistical data)
  6. price & competition information, and training
- See market access study by Hortex (funded by UNCTAD) comparing Bangladeshi capabilities vs. market requirements
- Plant protection Wing issues phytosanitary certificates but has no equipment or inspection staff
• Hortex is operating in ‘interim mode’ until new donor project funding comes along
• Most important elements for expansion of horticultural exports
  i. Market access
  ii. Quality development
  iii. Product diversification
  iv. More emphasis on processing
  v. Market linkages
  vi. MRL’s
  vii. Traceability
  viii. transportation
• Hortex used to participate in produce fairs in Europe, Singapore & Japan
• Suggests we visit with
  i. BRAC
  ii. Eurasia
  iii. BFVAPEA
• Flowers (esp tuberose) were a great product in Rotterdam, but airfreight proved to be impossible once KLM stopped direct flights
• 30,000 MT ($46 million) of fresh and frozen fruits & vegetables exports in 2005. If BRAC could get the space on air freight, it could quadruple its volumes. If regular charter business could be set up, then business would take off
• Carton costs are TK 35/unit
• Scale of buyer/seller transactional volumes is too small for ocean freight

B. Bangladesh Agricultural Research Council
   Dr. Md. Abdur Razzaque – Member Director, Crops

The Bangladesh Agricultural Research Council (BARC) under the Ministry of Agriculture is at the apex of the national agricultural research system (NARS). It has the responsibility to strengthen the national agricultural research capability through planning and integration of resources. It is the umbrella under which the entire Bangladesh agricultural research effort is coordinated. This involved cooperative activities in several ministries of government: Agriculture, Forest and Environment, Fisheries and Livestock, Rural Development, Education, Industries, Commerce, Science and Technology, etc.

• Examples of successful contract farming
  i. NDCP project – seed potatoes
  ii. BRAC – rice seed
• BRAC is in the business of giving policy direction for agriculture
• POTATOES: In 1970’s, national production was 200,000 MT, with half of the seed imported, and half sourced domestically
• In 2004, national production was 5.8 million MT (30-year avg increase of 12% per year)
  i. Improved technology
  ii. Increases in storage capacity from 200,000 MT to 1.5 million MT over past 30 years
  iii. Present productivity = 14 MT/Ha, less than half of the potential production of 32-35 MT/Ha. Principal limiting factors are lack of reliable seed, and high input requirements
  iv. Year-round place in the market for fresh consumption
• There is some limited export activity, by Agroconcern and BRAC, especially to Singapore
• Principal potato varieties in Bangladesh (all 17-18% starch)
  i. Diamond
  ii. Cardinal
  iii. Patronus
  iv. Granola
• Some private companies are putting in higher starch varieties, such as Bintje (22% Starch)
• There was 0.11 Ha of land available per person in 1980; today that figure has declined to 0.06 Ha.
• In 1985 there were 8.8 million Ha of arable land; only 8.2 million Ha remain today
• BARC priorities
  i. Productivity
  ii. Improved sees systems (poor storage, inexperienced companies)
  iii. Quality improvement
     1. water
     2. fertilizer
     3. land management
• There is no fertigation in commercial use in Bangladesh
• Post-harvest loss on perishable crops averages 30%. The biggest problem is the emergence of over-supply situations on a spot basis.
• MANGO: Technology base is very weak. Production research and breeding trials are inadequate. Principal varieties:
  i. Ghopal Bhog – early
  ii. Khirshapat
  iii. Fasli
  iv. Ashwani -- late
• Export activities:
  i. Pineapple: limited, ethnic markets only
  ii. Mango: none
  iii. Litchi: none

C. Department of Agricultural Marketing (DAM)
Sirajul Islam – Director
Munshi Abdul Ahad – Assistant Director
• The Department of Agricultural marketing has four main services
  i. Market information/intelligence service
     1. Staff are posted in 64 districts plus four other stations, to monitor growers markets and village markets, and to collect prices
     2. Collection is bi-weekly, with three types of price and supply info furnished
        a. Assembly prices & volume
        b. Wholesale price & volume, and
        c. Retail price & volume
     3. Information is sent to government decision makers and to the DAM website (www.dam.gov.bd) and given to donor groups
     4. Service also publishes value chain analysis information for 256 items
  ii. Infrastructure development service
     1. Wholesale market construction (GoB) - have built 6 wholesale markets at a cost of $1.5 million
2. NCDP construction (GoB + ADB) – have built 60 growers markets and 16 wholesale markets, at a cost of $60 million
3. Integrated quality horticultural development project (GoB) – active in 6 districts, with a budget of $600 K
4. Fruit & Vegetable Processing at village level (GoB) – active in 6 districts with a budget of $1.5 million
5. Agribusiness Development Project (GoB + ADB) – designed to support development of commercial agribusiness activities. Budget is $ 67 million, with grants/loan ranging from a minimum of $500 to a maximum of $5,000.

iii. Market research service,
   1. Focus on several crops each year, to determine how the farmers are faring. Information is available on the DAM website

iv. Market regulation service
   1. Businessmen active in the wholesale markets need to be licensed by the DAM

   - 76% of all arable land in Bangladesh is in rice production. Rice production is not considered to be primarily commercial, but rather as a staple for consumption
   - There are 14,000 markets in Bangladesh. Of these, 392 – representing 20% of total volume throughput – are regulated
   - It is believed that commercial agriculture will expand only if there is expansion in contract farming
   - Implications of contract farming
     i. Consolidation at wholesale level
     ii. Disappearance of brokers, palliated somewhat by the establishment of separate markets to avoid problems with “syndicates”
     iii. Development of a para-statal regulatory framework for contract marketing

D. Plant Protection Wing, DAE
   Dr. Rahim Uddin Ahmed – Director (University of Missouri)
   Kh. Mahfuzul Haque – Quarantine Entomologist
   Abdul Awal – Deputy Director

- No idea how many phytosanitary certificates are issued each year in Bangladesh
- There are 28 persons authorized to sign phytos, but only 16 are actively involved
- There are 12 quarantine stations plus the HQ office; staff numbers 120, of which 50% are professional/technical level
- Fee schedule for fresh fruits and vegetables in TK .05/Kg, with a minimum of TK 20/certificate
- Pest surveys are not up to date. PRA’s are unknown. No modern equipment available to staff
- On the export side, phytos are given for betel leaf and betel nut exports into neighboring Indian States. UK has intercepted BD potatoes which accompanied vegetable shipments. EU does not accept potatoes from 3rd-world countries. France has rejected BD limes due to diseases.

- 2004-2005 exports

<table>
<thead>
<tr>
<th></th>
<th>10,000 Mt</th>
<th>2,200 Mt</th>
<th>2,250 Mt</th>
<th>14,450 Mt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh Fruit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betel Leaf/Nut</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

97
• On the import side, BD imports 5 million MT of foodstuffs per year. PPW recently quarantined/intercepted 30,000 MT of Indian wheat infested with rice weevil and lazar green beetle, The entire consignment was sent back to India

F. Northwest Crop Diversification Project (NCDP/DAE)
   a. Abul Ashraf – Market Management Specialist
   • Top Five Private Entrepreneur Firms
      i. PRAN
      ii. Square
      iii. Acme
      iv. Rajshahi Mango Products
      v. B. D. Foods

27 FEBRUARY – DHAKA

A, KAWRAN BAZAR
   • Accompanied by WB team plus Mr Ahad from DAM, who gave us the following recap of the market

Brief Description of Kawran Bazar

1. How big an Area : 01(One) Square Kilo meter
2. How many Aratdar : 800 (Eight hundred)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>No. of Aratdar</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dhaka City Corporation Approved Aratdar Association</td>
<td>86</td>
<td>Reg. No.164/81</td>
</tr>
<tr>
<td>2</td>
<td>New Market Tin Shade Approved Aratdar Association</td>
<td>111</td>
<td>Reg. No.54</td>
</tr>
<tr>
<td>3</td>
<td>Railway Market Aratdar Association</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Abdul Ali House Aratdar Association</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fruits Traders Aratdar Association</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Abu Syed Food Aratdar Association</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>West Kawran Bazar Traders/Aratdar Association</td>
<td>83</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Dhaka City Corporation New Market Tin Shade Aratdar Association</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Others</td>
<td>184</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>800</td>
<td></td>
</tr>
</tbody>
</table>

3. How many Paikers : 3,500-4,000
4. How many Mt sold : 7,000-8,000
5. How many Tk. Sold : Not Specified. Depends on season and Commodities
6. Trade Channel:
   • Market is located in downtown Dhaka, near to the Sonargaon Hotel
   • Tremendous diversity of product, both as to variety and as to quality. Most product showed considerable wear and tear from its trip to the market
• See 64 photographs taken during the course of the visit.

B. Bangladesh Standards & Testing Institute (BSTI)
   Md. Safiqr Rahman – Director (Standards)
   Habibur Rab Majumder – Deputy Director (Food & Agriculture)
   Mr. Sen - Assistant Director, Food & Bacteriology
   • BSTI is an autonomous agency under the Ministry of Industry (see brochure). There are 33 members of the council which governs the institute, drawn from research labs, ministries, and universities (see brochure)
   • BSTA has been a member of ISO since 1974, and of CODEX since 1982
   • There are 145 mandatory items which must be certified by BSTI, of which 52 are food.
     BSTI is actively involved with enforcement of food standards. Raids take place every month, and offenders can be jailed up to 1 year, and fined up to TK 100,000. Main crimes involve lack of licensing, cheating (mis-branding, mis-formulations) and mis-stamping
   • BSTI is BD’s only custodian of ISO; it currently presides over 2000 standards, of which 150 are harmonized with ISO.
   • There are 7,000 companies which hold licenses
   • BSTI does a lot of training, including sessions on HACCP guidelines
   • There is no HACCP certification agency now operating in Bangladesh
   • There is no ISO certification agency now operating in Bangladesh
   • There is no EUREPGAP certification agency now operating in Bangladesh
   • There are lots of certifying agencies located in India, who come to Bangladesh
   • BRAC is the only EUREPGAP-certified company in BD
   • PRAN is ISO-certified
   • There are no HACCP-certified operations in BD
   • BSTI Capacities (see 18 photos):
     i. Chemical residue testing – Yes (atomic absorption spectrometers, 4-5 people fully trained)
     ii. Microbiological testing – only total counts and Coliform counts
     iii. Heavy metals testing – fully equipped
   • 80% of the tests performed at BSTI are commissioned by sister-groups; only 5% are submitted by private groups
   • There are no private testing agencies for foodstuffs operating in BD. SGS and Bureau Veritas are active in textiles, but not in food.
   • Mr. Sen heads up the Chemical Testing Wing, with 12 people in the Dhaka lab and 2 in the Chittagong lab (39 slots authorized, 16 filled)
   • Mr. Shari, Certification Wing: certify only products, not companies or locations
     i. For PRAN mango juice, for example, the initial certification process requires 6 weeks to complete the analysis, followed by a review of samples once each year. In addition, market samples are drawn 3-4 times each year. On average, 30% of the samples fail.

C. Rajshahi Mango Products
   Mr. Raja Ahammed – Managing Director
   • Raja started this business in 1999 with an initial investment of TK 17,000 (about $350) and two workers. Their first products – mango pickles and garlic pickles – were based on technology developed by BARI.
• The pickle plant now employs 250 workers, at a plant in Rajshahi, 400 km north of Dhaka. In addition, there is a separate drinks plant, using French syrups, which employs twelve.
• Now active for 7 years, the company produces 47 items (see brochure), including jackfruit pickle
• Domestic sales amount to TK 1.5 crore (+/- $200,000)
• Export sales, which had increased to $60,000 in 2003/04, declined to $12,000 in 2004/05 due to rumors of product adulteration that were front-page news in BD for weeks on end (see BSTI notes above)
• Domestic sales follow two channels
  ▪ Direct sales, within Dhaka – 12 salespersons selling direct to the 1200 client shops in Dhaka
  ▪ Distribution companies, for all sales outside of Dhaka
• Export marketing is conducted on a direct basis with importers, selling on a fixed price (L/C or TT). Principal markets include
  ▪ USA
  ▪ UK
  ▪ Canada
  ▪ Australia
  ▪ India (where market presence requires lots of ‘sweet money’ largely due to the presence of too many testing institutes
• Principal Problems
  ▪ Technology: there is no good technical manufacturing help for new product development or for food safety
  ▪ Government Processes: BSTI certification costs TK 4,200/year/item. At 47 SKU’s, this amounts to TK 200,000, or $3,000, per year, not to mention the TK 2,100 license fee and the TK 2,100 testing fee. These services should be free.
  ▪ BSTI also charges at least Tk 4,000 to certify product for export
  ▪ Science laboratory: BARI provides its technology and technical assistance free of charge. BCSIR charges a minimum of TK 25,000 for its technology, without provision of technical assistance
  ▪ Interest rates: rates are lower for agro-processing, but should be even better. RMP is now paying 8-10% for its loans; rate should be below 5%
  ▪ Electricity: Needs to be more reliable, and heavy users should not be punished. Industrial users pay TK 4.5-5.0/unit (plus connection costs up to TK 4,000,000) as against home rates of TK 3.0/unit
  ▪ Advertisement: too expensive. 10 seconds on BTV = TK 30,000 per screening + sweet money

D. Bangladesh Fruits, Vegetables & Allied Products Exporters Assn (BFVAPEA)
S. M. Jahangir Hossain – General Secretary
Md. Farid Uddin Ahmed – President
Mohammed Monsur – Sr. Vice President
Syed Salahuddin (Mamun) – Vice President
• PROBLEMS
  ▪ Cargo space is only 50% of the requirement; there are no cargo flights for vegetables. Government subsidy is 30% below international rates (this began as 20% in 2002, increased to 25% in 2004, then 30% since 2005). Demand for lift to the UK is 30 MT for each of Biman’s 5 flights to London each week. Exporters only receive 5 MT per flight. BA only carries 2 MT per flight for its four weekly flights.
### United Kingdom

<table>
<thead>
<tr>
<th>Weekly Demand</th>
<th>Weekly Lift</th>
<th>Weekly Shortfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 MT</td>
<td>55 MT</td>
<td>145 MT</td>
</tr>
</tbody>
</table>

- Situation in the Middle East is similar

<table>
<thead>
<tr>
<th>Country</th>
<th>Weekly Demand (MT)</th>
<th>Weekly Lift (MT)</th>
<th>Weekly Shortfall (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuwait</td>
<td>60</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>UAE</td>
<td>200</td>
<td>45</td>
<td>155</td>
</tr>
<tr>
<td>Qatar</td>
<td>60</td>
<td>30</td>
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</tr>
<tr>
<td>Muscat</td>
<td>30</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Dammam</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Riyadh</td>
<td>40</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Jeddah</td>
<td>120</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Bahrain</td>
<td>50</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>600</td>
<td>250</td>
<td>350</td>
</tr>
</tbody>
</table>

- There is a similar shortfall to Italy, where weekly demand (40MT) exceeds weekly lift (15 MT) by 25 MT
- Biman rate to LHR is TK 151/kg, but BFVAPEA members pay only TK 116/kg, a discount of 23%. Space is allocated on the basis of a lottery system. 90 active export members compete for space, with 16 winning space on each flight. Each member averages 275 kg/wk to LHR.
- BFVAPEA management insists that there is no direct commerce in lottery proceeds – Those that win, export. If some exporters are larger than others, this is attributed to the fact that several members of the same family will participate as association members, then combine their proceeds for purposes of shipping.
- Management is very skeptical as to the viability of its assuming responsibility for charter cargo flights. If the government would be prepared to finance the costs of these flights at the ADB or WB rates of 1%, then perhaps the assn could take on the risks of charter flights, with initial charters in the range of 600 MT per week.
- Although the association is represented on the executive board of Hortex, no one is in love with Hortex.
- Management also indicated a high level of interest in receiving more information regarding ocean freight.

### 28 February – Dhaka

A. Export Promotion Board
   Md. Abdur Razzak Mondal – Director
- EPB is the national promotional agency within the Ministry of Commerce. Among its principal tasks are
i. Advise government on export promotion
ii. Help exporters in export development
iii. Market development activities (overseas commercial officers submit monthly reports to EPB)
iv. Advise government on trade policy
v. Develop human resources in the export sector
vi. Keep and disseminate export-related statistics

- EPB HQ is located in Dhaka, with regional offices in Chittagong, Rajshahi and Khulna, and with branch offices in Nangaon and Comilla
- Two main vehicles for export development
  - Cash assistance is available for a number of items; fruits & vegetables get 20% to all destinations (Q. How long does it take to collect? A. “It depends, but they are getting it.”)
  - Lowered cash requirements on interest rate determinations (7% for export industries, versus 15% for non-export loans)
- Mango: no surplus production available for export; domestic price is too high already when compared to Indian imports. Dumping of mangoes from India on the BD market is a good thing
- Pineapple: Plenty of pineapple available in the Hill Country
- Vegetables: mainly exported to ethnic markets; unable to dent upscale markets
- Mondal believes that India is a more efficient producer than BD, and does not need to import from BD. There are non-tariff barriers which impede the flow of BD product into India. For example, Hilsha fish are stopped at the border for phytosanitary purposes. Samples are sent to Delhi or Calcutta for testing before import is allowed. By the time testing is completed, the fish has rotted.
- EPB intends to work on these types of market access problems
- Ready-to-wear garments dominate the thinking of the EPB. The impact of the expiration of the MFA in early 2005 has been a year-on-year increase in exports of 25%, due to imposition of quotas on China by US & EU until 2008.

B. Flamingo Agro-Tech, Ltd (see brochure)
A. K. Siddique – Chairman/MD
- #1 potato starch factory in the country
- 500 acres of contract potato production in Rajshahi district, using Diamond and Cardinal varieties
- Their potato starch is food-grade, used as a thickening, binding and filling ingredient for soft drinks and noodles
- Plant was certified HACCP and ISO 9001:2000 by URS (UK certification company) in November of 2005
- Biggest problem has been the cost of the raw material, which has risen above TK %.00/kg in recent months.
- Siddique lived in Germany from 1972-1984, then returned to BD to work as an indent agent and textile entrepreneur. In 1997 he built a cold store in Jaipur, then in 2001 he started Flamingo to help relieve the potato over-supply situation
- Domestic market consumes only 1.3 million MT per year. Domestic production often ranges from 1.5 – 2.0 million MT per year.
- Value of the Flamingo product is $6,000,000. Chronology:
  - 2002 – Submitted project to Agrani Bank
  - 2003 – Sanction letter received
  - 2003 – opened L/C to NL for machinery
8/2004 – machinery received
1/2005 – installation begins
5/2005 – Trial run; product was sent out locally for certification, and also sent to Bangkok for international standards testing. Product was found to be 5% off, even though UK buyers said this was not a problem
11/2005 – Equipment was adjusted to meet BKK requirements
11/2005 – HACCP and ISO certifications received, at a total cost of $6,000

- Since raw material harvest does not begin until late February/early March, there was no raw material available for the remainder of 2005.
- Plant handles 10 MT of raw product per hour, and yields 1.5 MT of finished product. Operating at 24/7 for 8-9 months per year, finished product can be as much as 9,000 MT per year.
- Agrani Bank is squeezing hard for immediate first payment on the L/C amount before it will agree to extend working capital loan, despite the fact that commercial production will not even begin until March of 2006.
- Best markets pay up to $550/MT, but Flamingo does not expect to do better than $450-$500/MT during the first year’s operations.
- Raw product requirements translate to 2000 proprietary acres + 1000 acres of contract farming.

ADVANTAGES OF BANGLADESH:
- Labor cost
- Shipping cost to Asia & ME
- 8 months of production r/t 4 months elsewhere

NEEDS:
- Agrani Bank must be more patient and furnish working capital loan
- Better yields (NL = 70-90 MT/HA, BD + 15 MT/HA)
- Something to offset EU production subsidies
- Raw material cost < TK 5.00/kg (production costs = TK 3.50/kg)
- Markets – Thailand requires 40,000 MT/yr, Australia requires 60,000 MT/yr

C. Bangladesh Agricultural Development Corporation (BADC)
Mr. Ahm Monirul Haq (Naqvi) – Project Director

- BADC began 40 years ago in four states with four demonstration farms of 5 HA each (see brochure). Operations have now been expanded into an additional 19 states. Activities include
  - Develop mother plants of existing crops
  - Test new varieties
  - Form farmer groups within 10,000 Ha areas around demonstration farms to transfer knowledge and technology
  - Provide transportation to farmers to ship direct to markets
  - Establish “agro-service centers” which help farmers develop vegetable exports, including building and operating cold stores at ZIA airport in 1985 (120 MT capacity)
  - Have identified 400 Ha to grow export-oriented fruits & vegetables for export
  - BADC plays pivotal role in linking farmers & exporters
- 65% of all horticultural exports move out from mid-April through mid-October. Hence, demand for cold storage at the airport is equally seasonal
- BADC’s limited resources are entirely insufficient to meet needs of farmers. Moreover, private sector is not investing in cold storage or transportation infrastructure
- BADC rents its 3MT reefer van to exporters on a rental basis
• Plans are to build 50 MT cold stores in Chittagong, Jasur and Koomalaser
• BADC produces only 2.5% of the seed potatoes in BD. BADC has the best seed in the country. Private sector is working hard to improve its quality, but still not as good. Farmer seed is poorest of all.
• Potato exports are established to Singapore, Malaysia and Sri Lanka
• Indian potatoes are a wild crop, and hence are much less expensive than those of BD. If the border were opened, India would flood the market.
• BD needs better varieties for processing

**CONSTRAINTS**

- Farmers are not well educated on SPS matters
- Limited capacity for investment
- Exporters don’t want to work on ocean freight vectors
- Exporters operate without resources, and as cheaply as possible (witness their packaging materials)
- Exporters are too lazy to attend educational seminars

D. BD Foods Limited

Md Abdul Karim – Deputy General Manager

• BD Food is sister company of BD Group, with subsidiaries in UK and Saudi Arabia. Started in this business buying products from PRAN et al and shipping to SA & UK. In 2003, BD’s bank authorized it to set up its own factory in Gazipur. The company represents a $450,000 investment, of which 40% was bank-financed. Equipment was imported from Japan, Thailand, Singapore and India. They currently produce 41 SKU’s, and distribute 35% export and 65% domestic
• BD Food is a very new company, and has not yet shown itself to be successful. Still, management remains “hopeful”.
• Major Constraints:
  - Raw material costs: too much competition for mangoes. Cannot use Indian mangoes, since green mangoes are not available from India. Domestic green mango price is TK 10-12/kg
  - Cost of imported materials: foil for pouches, sugar, wheat, spices
  - Price inelasticity: prices cannot be raised without losing volume “How can my competitors survive with these costs and revenues?”
  - Government is not aware of agriculture’s role. Company is forced to pay VAT on domestic sales. 2 years ago, all foodstuffs were exempt; now, all foodstuffs save spices pat VAT. Regulations can be a problem. Quality certificates are not a problem. Customs can pose both formal and informal problems.
  - No real assistance from government agencies
1 MARCH – GAZIPUR

A. Bangladesh Agricultural Research Institute (BARI)

Dr. Md. Shahjahan – Principal Scientific Officer & Head, Postharvest Technology Division
Mr. Mahmudul Islam Nazrul – Sr. Scientific Officer

Bangladesh Agricultural Research Institute (BARI) an autonomous organisation under the Ministry of AGRICULTURE, responsible for conducting research on all crops except rice, jute, sugarcane, and tea for which there are separate institutes. It was established in 1908 as Agricultural Research Laboratory, Bengal at Dhaka. The laboratory was under the Bengal Department of Agriculture which was created in 1906. After the partition of India in 1947, the Bengal Department of Agriculture became the East Pakistan Department of Agriculture with two wings, one for research and the other for extension. The laboratory formed the research wing. In 1968, the Department of Agriculture was bifurcated into two separate directorates, namely, the Directorate of Agriculture (Extension and Management), and the Directorate of Agriculture (Research and Education). The latter was converted to Bangladesh Agricultural Research Institute (BARI) in 1976. During the early sixties, BARI was shifted to Joydebpur to allow rebuilding of its research facilities. The shifting was completed in 1980. The original laboratory buildings constructed in 1908 and located on Khamar Road near Farmgate in Dhaka, now house several other offices. The research farm of the original laboratory covered an area of about 182 ha.

In addition to the central station of Joydebpur (area: 165 ha), BARI has six regional stations and 24 sub stations. The institute has six crop-based research centres (Tuber Crops Research Centre, WHEAT RESEARCH CENTRE, Horticultural Research Centre, Pulse Research Centre, Oil Crops Research Centre, Spice Research Centre) to ensure a multi-disciplinary approach. The number of mandated crop in these centres exceeds 100; variety improvement and production have received priority. It has made good contribution towards the development of wheat, potato, mustard and vegetables. The institute has released 172 improved varieties of different crops. It also has the following original discipline-based research divisions: Agronomy, Soil Science, Entomology, Plant Pathology, Agricultural Economics, Farm Machinery and Process Engineering, Irrigation and Water Management, Plant Breeding, Postharvest Technology, and On-Farm Research. BARI had three constituent agricultural colleges, namely, Bangladesh Agricultural Institute, Patuakhali Agricultural College and Haji Mohammad Danesh Agricultural College, all affiliated to the BANGLADESH AGRICULTURAL UNIVERSITY, Mymensingh. Recently all the three institutes have been made science and technology universities and put under Ministry of Agriculture. The overall management of the institute is vested on a 12-member Board of Management. The chief executive of the institute is the Director General. Three Directors who are specifically responsible for three main areas of activities, namely, research, support services, and training and communication, assist him. BARI collaborates actively in research with several national and international organisations. [Mamun-ur Rashid]

- Dr. Shahjahan offered to furnish us with good data on post-harvest losses for fruits and vegetables, and on processing industries

B. Mouchas Unnayan Sangstha NGO – Madhupur, Tangail

Md. Abul Hosain – Executive Director

- Company’s name means Honey Production Development
- NGO began in 1996 as an agro-processing activity with EEF support of TK 13.5 million
- Once the processing activity got off the ground, Mr Hossain formed Presenter Co., Ltd, a stock company which he controls, in order to process a broad range of pickles (mango,
olive, garlic, chili & tamarind), jams (jackfruit, papaya & pineapple), juices (pineapple),
concentrates (pineapple) and jellies (jackfruit, papaya & pineapple)

• Also manufacture tomato sauce & ketchup
• All production is sold under the Presenter brand
• 18 employees/workers
• All production is procured through contract farming. Presenter works with 55 contract
growers and beparies, within a 60-km radius. 2005 use was as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PINEAPPLE</td>
<td>50,000 UNITS</td>
</tr>
<tr>
<td>MANGO</td>
<td>6 MT</td>
</tr>
<tr>
<td>OLIVE</td>
<td>3 MT</td>
</tr>
<tr>
<td>GARLIC</td>
<td>0.5 MT</td>
</tr>
<tr>
<td>CHILI</td>
<td>0.3 MT</td>
</tr>
<tr>
<td>PAPAYA</td>
<td>50,000 UNITS</td>
</tr>
<tr>
<td>JACKFRUIT</td>
<td>25,000 UNITS</td>
</tr>
<tr>
<td>TAMARIND</td>
<td>12 MT</td>
</tr>
<tr>
<td>TOMATO</td>
<td>0.3 MT</td>
</tr>
</tbody>
</table>

• Sales are made through distributors nationally. 2005 sales amounted to TK 12 Lakh, up
50 % from TK 8 Lakh in 2004
• Theirs is a fast growing, demand driven business where demand exceeds supply.
• The local beekeepers trained by Mr. Hossain now produce 150 MT of honey per year
• BIG PROBLEMS
  ▪ Advertising is very expensive
  ▪ Shortage of trained technical people
  ▪ Shortage of trained procurement people

2 MARCH – NATORE/DHAKA

A. PRAN – Natore

Dr. Md. Anisur Rahman – Chief (Agro Business)
Engr Sheikh Abdul Quadir – GM, Natore Plant

• Total group turnover = TK 3 Billion (+/- $50 million)
• Plant Tour (0900-1100) See 33 photos. Plant in located on a 30-acre facility, and
produces a wide assortment (105 SKU in 10 major categories) of pickles, juices and
spices. Plant relies on old equipment, procured second-hand from Thailand, with heavy
reliance on hand labor for filling and sealing of consumer packs (save for the individual
juice drinks). Hygiene did not appear to be a high priority, and there was no visible
evidence of compliance with and of the conventional certification systems.
• According to the plant manager, major challenges were as follows:
  o Electricity: Hope to convert from diesel to natural gas, as soon as the line is
    extended from Bogra to Natore. Grid system is down 4 hours per day, requiring
    the use of backup generators. Cost per KWh is TK 1.5 for natural gas, TK 5.7 for
diesel. Daily use at the plant is 2000 KWh per day
  o Help with automatic filling machine for chutney (very viscous and stony/fibrous)
  o Help with filling machine for mango or olive pickles in oil
• Are agro products profitable for PRAN? YES!
  o Raw product is cheap
  o Labor is cheap
  o Mechanized packaging will help to reduce costs even more
o Export markets are growing very fast and represent an excellent opportunity
o Harmonized standards would make the job a lot easier
o Sudan Red is sometimes found in UK on PRAN mustard oil. No lab in BD can test for the presence of Sudan dye
o BSTI has no standards for most of the ingredients used by PRAN. BSTI has standards for only 145 items; PRAN utilizes far more
o Gaps exist between research institutes and agro-enterprises, which could be helped by formation of a central coordinating council. Also, BARI/BIRI charge money to conduct training and extension. Linkages need to be included between government agencies
o PRAN has expanded the production of Chinigura aromatic rice from 500 acres to 25,000 acres, while reducing seed rates from 18 kg/ac to 15 kg/ac, and raising yields up from 6.5 mound/bigha to 9 mound/bigha. Meanwhile, price per mound has increased from TK 450/mound in 2000 to TK 600-700/mound in 2005
o Mung Beans (PRAN contract farming statistics)

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>TK 600-700/Md</td>
<td>TK 1200/Md</td>
</tr>
<tr>
<td>Production</td>
<td>3 Md/bigha</td>
<td>4.5 md/bigha</td>
</tr>
<tr>
<td>Acreage</td>
<td>700 HA</td>
<td>11,000 HA</td>
</tr>
<tr>
<td>Seed rate</td>
<td>3 kg/bigha</td>
<td>2.5 kg/bigha</td>
</tr>
</tbody>
</table>

- Future projection of requirements, 2006 (all in MT)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Requirements</th>
<th>Contract-Sourced</th>
<th>Outside Procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aromatic Rice</td>
<td>3500</td>
<td>2200</td>
<td>1300</td>
</tr>
<tr>
<td>Mung Dal</td>
<td>2500</td>
<td>1000</td>
<td>1500</td>
</tr>
<tr>
<td>Peanut</td>
<td>1500</td>
<td>800</td>
<td>700</td>
</tr>
<tr>
<td>Red Chili</td>
<td>150</td>
<td>0</td>
<td>150</td>
</tr>
<tr>
<td>Mango, Green</td>
<td>10000</td>
<td>0</td>
<td>10000</td>
</tr>
<tr>
<td>Mango, Ripe</td>
<td>20000</td>
<td>0</td>
<td>20000</td>
</tr>
<tr>
<td>Tomato</td>
<td>1500</td>
<td>0</td>
<td>1500</td>
</tr>
<tr>
<td>Olive</td>
<td>200</td>
<td>0</td>
<td>200</td>
</tr>
<tr>
<td>Turmeric</td>
<td>800</td>
<td>0</td>
<td>800</td>
</tr>
<tr>
<td>Coriander</td>
<td>1000</td>
<td>0</td>
<td>1000</td>
</tr>
<tr>
<td>Garlic</td>
<td>2000</td>
<td>0</td>
<td>2000</td>
</tr>
<tr>
<td>Onion</td>
<td>2000</td>
<td>0</td>
<td>2000</td>
</tr>
</tbody>
</table>

- There are big mango planting programs that began in Natore four years ago (esp for guti & ashina varieties) Within seven years it is hoped that these plantings will replace the Northern region sources for all mango requirements.
- Tomato price swings are too great for successful contract farming. Rather than contracts, PRAN gives seed to 100 growers, and only receives after price declines over the first few weeks.
- Bad experiences with contract farming in 2001 and 2003 led to structural changes. Now, price is set at Market + TK 25/mound, coupled with tough moisture and dust limits
- Advantage to contracts
  o Higher price (+TK 25), but 15 % moisture rather than 25%
  o Pure variety rather than a mixture
  o Assured supplies
• Next change in sight – Contract farming would work better with a bank (or some other guarantor) in the middle
• In encouraging the conversion from rice to other crops, PRAN starts from a small base, shows how to make more money, then relies on word-of-mouth
• PRAN is also organizing its own in-house extension program to deliver all necessary technical services to farmers
• Evaluation be an independent internal review committee determined that contract farming operations were a more profitable method of procurement (profit + control of quality) than sourcing by the supply chain people
• New product development starts with market surveys and profit studies. Natore produces 32 products, and adds 2-3 new products each year

B. Agroconcern
Dr. Shaikh Abdul Quader
• 21-year journey that began as a hobby farm while working on field crops for BADC (See brochure)
• Dedicated to the production of temperate vegetables
  o Cauliflower
  o Cabbage
  o Tomato
  o Lettuce
  o Broccoli
  o Bok choy
  o Chinese vegetables
• Of these, cabbage, cauliflower and tomato have proved most commercially viable
• Taiwan seed company provided seed of temperate crops with tropical tolerances. Company now imports all seed directly. Struck by the poverty in the neighboring villages, he promoted low-input practices, and in 1988 he succeeded in growing temperate crops successfully under these conditions
• All production now commercialized directly with aratdars, bypassing farias and beparies
• In 1989, decided to expand production to include okra, baby corn and gourds, and to move into export channels. Small production items (spinach, amaranth) were directed toward local markets, while larger scale production items were sent to Dhaka and Chittagong
• Since 1990, send 6-8 trucks per day to the Dhaka market. Product is grown on 50 acres (30 owned, 20 leased) and by outgrowers with ‘hundreds’ of acres
• This year will import 200 kg of cauliflower seed from Taiwan for outgrowers. Agroconcern is the sole representative of the TWN seed company in BD
• Now working on pollution-free production of temperate crops with tropical adaptation (ie: non-application of pesticides)
• Began work on seed potatoes in 1989 on 20 acres, as a cropping element with winter vegetables. Seed potatoes were sold locally. Seed potato production then increased through the involvement of local farmers. Those contract growers produced 500 MT per year. Lacking cold storage, they were forced to store table stock and seed in the same rooms.
• In 2000, decided to get involved in export of table grade to SE Asia markets – despite previous problems of rot on arrival by earlier BD exporters. Decided to focus on granola, and to develop higher quality standards
  o Larger size
  o Cleaner tuber
No injuries

- Longer shelf life
- Shipped to SNG in 2001 using dry FEU with one door off, packed in 15 kg sacks. Now shipping to KL in 19 kg, and to SNG in 10 kg and 15 kg
- Quality program involved a 3-year cycle
  - Import granola seed from NL
  - Grow out seed potatoes
  - Supply seed potatoes to contract growers, 50% with price, 50% open

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006 (est)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed</td>
<td>600</td>
<td>900</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Exports</td>
<td>100</td>
<td>50</td>
<td>50</td>
<td>350</td>
<td>1500</td>
<td>4000</td>
</tr>
<tr>
<td>Markets</td>
<td>SNG</td>
<td>SNG</td>
<td>SNG</td>
<td>SNG</td>
<td>SNG/KL</td>
<td>SNG/KL</td>
</tr>
<tr>
<td>Importers</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

- Last year sold to Sri Lanka, but ran into trouble with payments

<table>
<thead>
<tr>
<th>CONSTRAINTS</th>
<th>SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short season</td>
<td>Working on 3-month deal</td>
</tr>
<tr>
<td>Limited cold storage</td>
<td>Will build own cold storage</td>
</tr>
<tr>
<td>High early season prices</td>
<td>Rely on owned production</td>
</tr>
<tr>
<td>Need new varieties</td>
<td>Now testing 5 varieties</td>
</tr>
</tbody>
</table>

- Now studying the SNG market for late crop tomatoes
- Also interested in cauliflower, cabbage and tomato on 55-60 acres for the domestic market
- Potato margin in SNG now is TK 1/kg
- NEEDS
  - Transit temperatures for RF4 potatoes and tomatoes
  - Price information sources for KL and SNG
  - Clients in E. Malaysia, Penang & Indonesia

4 MARCH – DHAKA/CHANDINA

A. Sham Bazar (see 51 pictures)
  - Saturday morning free-for-all, including pirogues unloading product by water, trucks unloading product by land, and a stalwart exporter and BFVAPEA member putting together an export consignment by buying off the local market

B. Nimshar Bazar (see 22 pictures)
  - Smaller market, closer to the harvest sites, with noticeably cleaner, brighter product

C. BRAC Packing Shed– Chandina
  Md. Abdullah Al-Masoud – Manager, Field Operations
  Abul Kalam Ajad – Field Agronomist
  - 1999-2002: Only French Beans
  - 2002-2003: added bitter gourd, bottle gourd, chili, okra, eggplant, snake gourd, ridge gourd, coriander leaf, red amaranth, indian olive, extra-fine bean, baby corn, stolon of taro, wax gourd, fine beans,
BRAC Export History, 1998-2005

<table>
<thead>
<tr>
<th>Item</th>
<th>Season</th>
<th>98</th>
<th>99</th>
<th>00</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 French B</td>
<td>11/20-3/15</td>
<td>17.6</td>
<td>20.8</td>
<td>88.4</td>
<td>102.2</td>
<td>80.9</td>
<td>56.0</td>
<td>70.6</td>
<td>78.6</td>
</tr>
<tr>
<td>2 Long B</td>
<td>3/30-11/20</td>
<td>1.1</td>
<td>0.7</td>
<td>15.8</td>
<td>35.0</td>
<td>235.6</td>
<td>201.2</td>
<td>186.7</td>
<td>141.8</td>
</tr>
<tr>
<td>3 Bitter g</td>
<td>12 mos</td>
<td>0</td>
<td>0.0</td>
<td>9.3</td>
<td>39.2</td>
<td>108.1</td>
<td>109.4</td>
<td>59.9</td>
<td>73.2</td>
</tr>
<tr>
<td>4 Okra</td>
<td>04-07</td>
<td>0.3</td>
<td>0.0</td>
<td>3.7</td>
<td>0.6</td>
<td>8.0</td>
<td>4.2</td>
<td>5.2</td>
<td>10.1</td>
</tr>
<tr>
<td>5 Bottle g</td>
<td>12 mos</td>
<td>0</td>
<td>0.1</td>
<td>0.4</td>
<td>4.5</td>
<td>6.1</td>
<td>1.4</td>
<td>1.5</td>
<td>1.7</td>
</tr>
<tr>
<td>6 Snake g</td>
<td>04-09</td>
<td>0</td>
<td>0.1</td>
<td>0</td>
<td>0.2</td>
<td>0</td>
<td>0.8</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>7 Others</td>
<td></td>
<td>0</td>
<td>0.4</td>
<td>10.3</td>
<td>14.3</td>
<td>4.1</td>
<td>5.3</td>
<td>6.2</td>
<td>?</td>
</tr>
<tr>
<td>ttl</td>
<td></td>
<td>9.0</td>
<td>22.1</td>
<td>127.9</td>
<td>195.9</td>
<td>442.9</td>
<td>378.3</td>
<td>331.6</td>
<td>383</td>
</tr>
</tbody>
</table>

• NB: Commodities by market destination
  Dubai = 2 & 3
  Rome = 1-7
  Frankfort = 1-7
  **London = 3 & 4 + chili (but no French Beans)**
  Singapore = 1 + potato
  Malaysia = 1 + potato
• Other includes Spinach, Stolon of Taro, Red Amaranth, Green Papaya & Cucumber
• Professional staff at Chandina = 7
• 400 (200 acres) export farmers, of which 60 (30 acres) are EUREPGAP certified
• Cost of certification is high. Best farmers certified first; working on an additional 10 certifications per month
• BRAC ag practices are based on IPM
• 400 contract farmers are not bound by written agreements. BRAC supplies them with seed, inputs, cultural practices and pesticides. Materials are advanced, but not money. BRAC discounts advances against grower remittances. Price to growers is fixed for green beans, Market + TK 2.00/kg for other products
• BRAC uses BA, BIMAN, Emirates & Gulf Air
• Main problems for export expansion
  o Not enough air space
  o BRAC only services 1 importer per country

D. Bangladesh Seed Growers Welfare Association – Dhaka
Anwarul Huq – Chairman (also Managing Partner, Blue Moon Intl)
• BSGWA formed in 1994 (see brochures)
• There are 5 notified (ie: restricted) seed crops in Bangladesh, which cannot be imported directly. All new seed varieties for these crops must first be tested by BARI/BIRI/TCRC before they can be imported commercially by private companies:
  o Rice
  o Wheat
  o Potato
  o Jute
  o Sugar Cane
• Once a new variety has been tested and released by the national Seed Board (a process which can take up to 7 years), import is free.
• Principal potato varieties:
  o Diamond: 2000-4000 MT/yr ex NL, for table stock
- Asterix: 55 MT/yr ex NL, for industrial use, table stock, and export to Sri Lanka
- Granola: 50 MT/yr ex NL, for export only
- There is no legal potato trade with India, but there is lots of trade anyway
- Only two important potato exporters – BRAC and Agroconcern
- Haq’s father was the first to import potatoes into Bangladesh in 1958/59, from Darjeeling and Ceylon. First commercial production occurred in 1960. His father shipped to Burma until the junta took over, and grew out the first NL potatoes in 1961-62
- Munchiganj is the epicenter of the BD potato industry, with 150 cold stores with an average capacity of 8000 MT each; all of these cold stores are privately owned
- There are c. 327 cold stores in all of Bangladesh, with an average capacity of 6000 MT
- In 2003, BD produced 4.3 million MT of potatoes, all for fresh consumption (no frozen or processed)
- Blue Moon works with 350 growers based on Market + 15-20% on net useable weight, less advances of seed and inputs
- Business was very bad for two years due to over-supply (market price at TK 10-12/kg in 2004-2005)
- Cost Structure
  - Field Cost TK 5-6/kg
  - Harvest/Haul TK 1/kg
  - Transport > Cold Store TK 0.5/kg
  - Cold Storage TK 2/kg
  - Total Cost Basis TK 8.5-9.5/kg
- Fresh export product is only available in March and April; thereafter, all product comes from cold storage, at an added cost of TK 2/kg, and with higher sugar levels; cold storage product has up to 6 months of shelf life

5 MARCH – DHAKA/TONGI/CHITTAGONG

A. Eurasia Food Processing (BD) Ltd (a subsidiary of EuroFoods GP)
  Md. Moinul Islam Chowdury – managing director
  - Freezer plant (formerly a garment factory) began operation in January of 2002, began exports in August of 2003. Storage capacity is 60-70 MT. Plant received HACCP certification several months ago from Indian office of SGS. Hope to obtain ISO soon
  - Plant employs 500 (80% women, including middle-age women) working in two shifts, living within a 5-km radius. Eurasia tries to provide its workers more than garment wages; pay packets are often TK 70/80/90 per day. Have already built a school, are now building a hospital
  - Distribution
    |          |          |                |
    | Local market | 10%      | 1-2 FEU/month | (50 MT) |
    | USA        | 60%      | 8 FEU/month   | (200 MT) |
    | UK         | 30%      | 4 FEU/month   | (100 MT) |
  - 25-30% of product mix is fruits & vegetables, including shredded coconut, bean seeds, okra, stolon of taro, amaranth seed, tassel gourd and jack fruit seeds; most of the frozen fruits & vegetables ship to USA. Margin on vegetables is low, due to seasonality and technical problem in freezing
  - Customer in US is Deep Foods, a manufacturer of sub-continent products based in New Jersey
• Recently began a push into the BD market with frozen parathas and somosas. Operating at a break-even in order to compete with Bomba Sweet and Crown
• There are several untapped markets for Deshi specialty products, including RSA (4 million sub-cons), Middle East (30 million sub-cons), and Continental Europe

**MAJOR CONSTRAINTS**
- Good supply of vegetable; procure through beparie who ‘contract farm’ with 300 farmers
- Lack of technology for freezing Asian vegetables
- Electricity: they run their generator 11 hours per day. Can’t afford to invest in gas generators, which cost three times as much as diesel generators.
- Payment problems on sales to the BD market
- BSTI requires a 12-month expiry date, whereas UK and US customers want 24-month expiries
- BSTI seal is also a problem, since BSTI insists on it, but export markets don’t want it on their packaging
- BD government won’t help with organizing a cold store in UAE. Indian companies have already set up facilities in Jebel Ali and Sharjah, and are gaining a big advantage
- [MRL testing for vegetables costs $100/sample in Chennai, and takes 15-20 days. Not required at present by ethnic markets]

• Eurasia is incident-free worldwide since its inception
• Chowdury needs information on how to freeze cauliflower.

B. BRAC Headquarters, DHAKA
Mallik A-As-Saqui – GM, Agricultural Marketing

• Meeting delayed by crisis at Chittagong. Potatoes destined for export to SNG were being held up because imported mesh bags (imported from China) were not certified as environmentally friendly. Bureaucracy or Baksheesh??
• Export potential for vegetables ex BD is thought to be tremendous. BRAC currently exports 500-600 MT/yr, but could expand to 2000 MT (see print-out)
• Same case with potatoes, which stand at 2000 MT now, but could increase to 5000 MT. Plan is to ship dry to SNG/MLY during the harvest season (Feb/Mar/April), then in RF4 vans to SNG the remainder of the year. To date, have only shipped potatoes to SNG, MLY & UAE
• Contract farming for potatoes relies on Dutch seed, with product purchased at a fixed price (initially TK 5/kg, now TK 6/kg); growing 400MT at Tongi, 1000 MT at Diaudkandi
• MAJOR CONSTRAINTS
  - Cargo space: no ocean space available, limited to air; tried to organize charter flights, but no luck in finding a partner so far
  - Corruption and Negligence

• Current/Potential

<table>
<thead>
<tr>
<th>MT/WK</th>
<th>Current</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>UAE</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>UK</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Rome(Alitalia)</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Frankfort</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
• GREEN BEAN: Egypt is knocking out BD from Italian market, given its 6-hour vessel transit to Palermo, linking via RF4 trucks throughout Europe
• ASIAN VEGETABLE: Cyprus is shipping successfully to UK
• EXPORT INCENTIVES:
  o BRAC is owed TK 8 million for accruals since 2003 under the 15% FOB rebate; requires new carton boxes certified by Hortex; BRAC believes this money will never be paid
  o BRAC was owed TK 10 million for accruals since 2005 on the 20% incentives for potato exports and 30% incentives on vegetable exports. BRAC has already received TK 3 million of this total, with the remainder in process
• In order to recover incentives, exporter must present
  o Biman certificate
  o Bank certificate
  o EPB confirmation of each of these two documents
  o Following which, Bangladesh Bank transfers money
• Recovery of shrimp incentives is much faster, since they collect via L/C. Fruit & Veg is much slower, since payment is via telegraphic transfer
• Why only 1 distributor per country? “2 customers in 1 country is like 2 wives in 1 house.”
• BRAC has encountered repeated problems sending pre-packaged veg to EU, but has become very successful to SNG
• Tongi is now under-utilized. Equipment was imported from China; import permits took two years before receiving approvals, then spent another year in the port awaiting clearance. BRAC does not pay sweet money to anyone, anywhere, anytime; this can make for some major complications whenever approvals are required.
• Without cash incentives, potato and vegetable exports would not be profitable unless increased air cargo space were made available at TK 112/kg => UK, TK 65/kg => UAE. Under such conditions, exports would be profitable without incentives.
• BRAC has negotiated good service contracts with Singapore Air, and is working on the same with Alitalia and Emirates.
• BRAC has tried to organize charter flights with Chinese Airlines, but without success so far. BFVAPEA has been absolutely no help in such efforts. It is not an association – just a gang of small-time operators.

C. BADC Veg & Fish Cold Store, Zia Intl Airport
Krishhibid Md. Jashim Uddin
• Many exporters now use other airlines to supplement their space on Biman
• Other airlines do not accept bamboo baskets, which has led more and more exporters to use carton boxes
• Other airlines take more & more perishable cargo
• Hortex provides airfreight rates in its quarterly newsletter
• 1/3 of all fresh exports pass through the BADC airport cold store

D. Biman Bangladesh Airlines
S.M. Mossadeque Hussain – GM, Cargo Terminal
• 100,000 MT of cargo leave Zia airport each year. Of this total, Biman carries 30,000 MT.
• Biman’s 30,000 MT consist of 20,000 MT of F&V (while all other air vectors account for the balance of 7,000 MT of vegetables), plus 10,000 MT of other cargo
• Biman would like to carry 100% of the F&V exports. Since F&V is seasonal, Biman carries other cargo during the off-season.
• Cargo space is a function of passenger load on each flight, based on
  i. Type of eqpt (Airbus offers less, DC-10 offers more)
  ii. Routes (less baggage to ME, more baggage to EU)
  iii. Number of passengers flying
• To avoid off-loading, Biman allocates 500 Kg less than full capacity to accommodate last-minute changes in passenger weight, and also books 1000 kg of dry (ie: off-loadable) cargo on every flight
• Pricing is 30-35% less for F&V than for dry
  i. $1.46/kg F&V vs. $2.20/kg dry => UK
  ii. $0.70/kg F&V vs. $1.00/kg dry => UAE
• Believes exporters could double their exports if sufficient space were available
• There are 16 foreign airlines and charter operators operating at ZIA. None is interested in carrying F&V
  i. Low rates
  ii. Gulf airlines use dry cargo to re-load higher-value cargo in Gulf for onward shipment to EU
• If Hussain’s boss tries to raise rates or cut service for F&V, GoB would fire him. GoB is committed to helping farmers gain export access for their products
• Hussain set up the allocation system with BFVAPEA, because it was impossible to make any allocation decisions based on Biman criteria. System has worked well for 3+ years now.
• Why don’t exporters organize charters?
  i. Too expensive
  ii. No return leg
  iii. Too much capacity
  iv. Unreliable timing
  v. Requires good packaging. Only BRAC can meet this requirement; others do not have good professional attitude
• Some BFVAPEA members (15-20%) sell their space to other exporters.
• F&V exporters bring their cargo 4 hours before flight departure
• How to increase capacity during the May-August crunch time? Government would need to subsidize exporters for the differential between Biman rates and outside rates, so that exporters could induce other airlines to take F&V cargo
• Why doesn’t Biman bring in charter flights during this period?
  i. Biman is passenger-oriented. Any new investment should go toward more passenger lift
  ii. No return cargo, and Biman is already in a cash crisis
• Hussain believes
  i. there are too many exporters; number should only be 10-20
  ii. Product should be marketed to supermarkets, not to shops – higher margins, & more capacity to absorb full freight rates
• Hussain loses on every kg of F&V he handles
• Hussain likes Graham Dixie’s study a lot.
• Hussain plans to raise rates by 10% next week!

E. BRAC – Tongi Pack House
   ATM Mahbub Alam – Engineer, Vegetable Export Program
• Tongi packs four days per week
i. Saturday – Italy  } All flights on Biman  
ii. Sunday – Dubai & SNG } 1 LD3 on each of 6 flights  
iii. Tuesday – Dubai & SNG } 1000 kg/LD3  
iv. Wednesday – Germany  }  

- **MAJOR HEADACHES**  
  i. Cargo Space  
  ii. Freight Charges  
  iii. Schedule integrity (esp Biman)  
  iv. **BUYERS – Exotic (UK) has left BRAC, poached by Kenya**  

- **GOOD THINGS**  
  i. If more space were available, export markets would be happy to take more product  
  ii. Good supply of quality product from good contract growers  
  iii. Lots of excess capacity at Tongi: Now handling 25-30 MT per week, could increase to accommodate 75MT/wk (ie: operating at 30% capacity)  

- Tongi facility (see 4 photos) covers 21,000 sq feet.  
  i. Imported equipment from China works well  
  ii. Operations began in 2003  
  iii. Staff consists of 10 men in the office, 30 women on the packing line  

F. Flight to Chittagong  

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**6 MARCH – CHITTAGONG**  

A. Rangamati Food Products – Chittagong Hill Tracts  
D. K. Barua – Manaing Director  
K. K. Barua - Director  

- Plant started in 1981; brochure (accompanying) was printed in 1984 (see 25 photos)  
- Produce(d) chutney pickles, pineapple slice/pieces/juice, and tomato paste/puree/soup. Also canned meat & soup for army and hotels, as well as mango juice (1984-1995)  
- RFP completed BMRE (Balancing, Modernization, Replacement, Expansion) program in 2002, following which began to produce product for its 40 national distributors. After 3 months, major problems with electricity emerged (8/10/24 hours, then up to 72 hours without power, or with low voltage).  
- There was no improvement over the next three years. Ministry changed delivery program, and has finally solved the problems of delivery  
- Big problem now is with the cash flow problems caused by being out of operation for 18 months. Plant has only operated for two months over the past 36. RFP now desperately needs an infusion of working capital, but banks won’t ante up. Cost of the original project was TK 47 million. Loan balance is now TK 26 million, at 5% (with Bangladesh Krishi Bank). Barua believes he needs a line in the amount of TK 42 million to finance new equipment and operating capital.  
- Plant employs 30 women and 70 men – all tribal. Raw product is procured through beparies. All sales are through agents, except for military sales, which are direct.  
- Before BRME, output was 300 MT per year; after BMRE, output rose to 1800 MT per year (derived from 45,000MT of raw product).  
- There are no can manufacturers in Bangladesh. RFP import(ed) their cans from Taiwan
• RFP is the only industrial plant located in the Hill Tract
• Separately, we were informed that the Baruas are primarily interested in liquidating their holdings in RFP and returning to their home region in India.

B. Bangladesh Shipping Corporation – Chittagong
Abdul Hannan - MD
• BSC is a BD shipping company, operating 23 vessels (2 tankers, 1 container ship and 1 container ship, plus 10 multi-purpose vessels)
• All manning is Bangladeshi, all with BD flag. Oldest vessel is 1979, newest is 1991.
• Three vessels are on time charter, 3 are in repair, and 3 are providing a feeder service to SNG (5-day transit)
• BSC has been approaching profitability over the past 4 years.
• Future Plans: BSC holds down freight rates for BD exports, where only 25% of value goes for freight. BSC plans to bring in 2 new ships. Should have 45 to meet BD’s export requirements. Plan to buy one 750-TEU container vessel, and 2 multi-purpose ships
• BSC operates a slot service only; it does not own or operate any container equipment
• On average, there are 8 container ships in Chittagong port at any single time. It is a tidal port, with min/max draft of 7.2m/8.5m. Channel is sufficiently wide and deep for ocean-going ships; 2-3 miles of channel from anchorage to dockside.

C. Chittagong Port Authority
A.M.M. Shahadaf Hossain – Chief Executive (29th Chief Executive of Chittagong Port)
• Meeting began with a wide discussion with C.E. and labor union leaders regarding conversion from hourly rates vs. piece rates in conjunction with new container cranes operating in the port. C.E. had sent several of the leaders to other ports on the Indian Ocean to observe how well piece-work rates work on crane operations.
• Per port brochure, CY can hold 6,000 TEU in 150,000 m2. There are 210 RF$ plugs, with 50-MT and 40-MT cranes and what appears to be an adequate complement of straddle carriers, stackers, and other ancillary equipment. (See 13 photos of port installation).
• Under construction is a new container terminal adjacent to the existing quay. The new terminal will extend for 1000 linear meters, accommodating 5 berths, with 22 hectares of back-up space
• Port Authority also operates an inland container depot (ICD) in Dhaka.

CARGO HANDLED (MT)

<table>
<thead>
<tr>
<th>Year</th>
<th>Imports</th>
<th>Exports</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>15,609,048</td>
<td>2,009,492</td>
<td>17,618,540</td>
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<tr>
<td>2002</td>
<td>17,139,413</td>
<td>2,020,776</td>
<td>19,160,189</td>
</tr>
<tr>
<td>2003</td>
<td>18,984,335</td>
<td>2,457,554</td>
<td>21,441,889</td>
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<tr>
<td>2004</td>
<td>19,413,460</td>
<td>2,458,972</td>
<td>21,872,432</td>
</tr>
<tr>
<td>2005</td>
<td>22,989,122</td>
<td>2,895,769</td>
<td>25,884,891</td>
</tr>
</tbody>
</table>

Annualized Growth 10% 10% 10%
### 2005 EXPORTS BY COMMODITY (MT)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>% of Total</th>
</tr>
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<tbody>
<tr>
<td>Jute</td>
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<tr>
<td>Jute Goods</td>
<td>313810</td>
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<tr>
<td>Leather Goods</td>
<td>5595</td>
</tr>
<tr>
<td>Tea</td>
<td>6568</td>
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<tr>
<td>Garments</td>
<td>1019012</td>
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<tr>
<td><strong>Frozen Goods</strong></td>
<td><strong>40727</strong></td>
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<tr>
<td>Urea</td>
<td>384424</td>
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<tr>
<td>Naptha/Fuel Oil</td>
<td>99032</td>
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<tr>
<td>Ammonia</td>
<td>173805</td>
</tr>
<tr>
<td>Others</td>
<td>700815</td>
</tr>
<tr>
<td><strong>TOTAL EXPORTS</strong></td>
<td><strong>2895769</strong></td>
</tr>
</tbody>
</table>

- Considerable additional details included in the 2005 Port overview

D. Maersk Line – Chittagong

Capt. Kamrul Islam Mazumder – General Manager, Chittagong Branch
Md Sarwar Alam Chowdhury – Asst Mgr

- Minimal F&V cargoes ex Chittagong. BRAC began shipping potatoes in dry vans several years back. No exporter uses RF4 containers.
- Maersk Line can handle any RF4 requirements which F&V may generate.
- Important RF4 commodities
  - RSA Treefruit
  - PRC Treefruit
  - NZ/AUS Treefruit
  - PRC ginger
  - NL seed potatoes
- Maersk-BD does not have many RF4 specialists on the export side
  - Beef (chilled & frozen) => ME & US
  - Trial shipment of ice cream (Polar) => Dubai
  - Fresh mango & pineapple (still in concept stage)
- Maersk is ready to cooperate in the necessary groundwork to develop this export business
  - Develop carrying specs
  - Develop loading specs
  - Assemble transit time limits
  - File tariffs
- Captain Kamrul offered to contribute use of a RF40 to test temp & time limits
- No RF4 tariffs currently filed; routes/transit times online
A. Square Pharmaceuticals

Jayanta Datta Gupta – Manager, AgroVet Division
S. K. Das – Director, Square Consumer Products

- Square is a corporate giant in Pharma, and also a leader in consumer products
  - Spices
  - Fragrant rice
  - Agro-based products
- Command 70% SOM in all spices nationally
- Profits on foodstuffs are less than pharma. Lots of local competition prevents Square from charging premium prices
- Square employs 12,500, and exports to 37 countries
- Square started without land, procuring all product from farmers. Company has now purchased 500 acres in N. Bengal, and 3,500 acres in Stylhet.
- Primary production crop will be spices, but will also produce
  - Rock melon
  - Mushroom
  - Pineapple
  - Mango
- Plan is to grow these products for export markets, and to pack them in HACCP-certified packhouses
- Out of their plant in Pabnar, their principal segments are
  - Spices for consumer packs, as well as ready-to-cook mustard oil and sauce. Also produce mango, olive and lemon pickles (raw product is sourced through beparies)
    - Rqmts
      - Mango (gooti) = 800 MT raw product
      - Olive = 140 MT raw product
      - Lemon (shopkora) = 10 MT
  - Snacks: chanachur, crackers and dal
  - Aromatic and coarse rice
- Future plans include juices and flavored drinks
- They source their potato starch rqmts from Flamingo
- Spice is Square’s #1 product, exported to 16 countries (incl. ROK, SNG, Bhutan, UAE, Saudi, Kuwait, USA, UK, Germany
- Ingredients are locally sourced
  - Chili – 3000 MT
  - Turmeric – 3000 MT
  - Coriander – 1200 MT
- Spices are a good and profitable business
- Pickles and snacks are exported to Middle East, UK & USA
- Square is very interested in developing a contract relationship directly with farmers
- Challenges
  - Country is poor in post-harvest management & storage
  - Farmer relationships are difficult to develop
  - Too many middlemen
  - Hard to procure the right variety
- Square had a bitter experience with NGO’s in past contract farming ventures
B. PRAN – Dhaka headquarters
Major General Anjum Khan Chowdhury – CEO (45 minutes)
Ahsan Khan Chowdhury – Deputy M. D. (45 minutes)
• There is a gap in good banana farming
• Learning curve to achieve profitable scale of operation is a big problem
  o Domestic market is too small
  o Export market too challenging
  o Limited purchasing power
• Insufficient focus on processed product
• Variety is too favorable toward fresh consumption
• Poor access to financing
• Focus should be on processing rather than on production
• Aromatic Rice: PRAN has moved away from contract farming because production is now so high that open market purchase is easy and profitable
• Road communication in N. Bengal is good. Electricity is in a permanent crisis, but it’s workable. More natural gas should make everyone’s life easier.
• BD needs better driver education
• Seed is a severe problem
• Free trade with India would be a panacea
• Delivery of incentive payments can take 4-5 years
• To reduce poverty, create incentives for agro-processors
  o Privately-funded extension
  o Support for product innovation & development
• DISTRIBUTION GRID
  o 90 % Domestic
  o 10 % Export
    ▪ 30 % > Gulf
    ▪ 30 % > India
    ▪ 30 % > Africa (Mauritania to Angola, + Horn)
    ▪ 10 % > Other
• Pineapple juice concentrate = low margin; single-strength 1-liter margins are better
• Raw materials imports from India include mango, pineapple and spices, so that BD can serve as processor (grading & finishing)
• To be more competitive in agro-based exports, BD needs to de-regulate
  o Liberalize imports
  o Ease the exoneration of import duties
  o Easier access to import of cheap raw materials
• PRAN strategy focuses on supplying its products to the developing world, not the developed world. Hence, Tripura, at USD 200,000/month, takes ten times as much as the UK
• How can we compete with the rest of the world? Improve
  o Telecommunications
  o Borrowing & banking
  o Ports (Chittagong is twice as expensive, 1/3rd as efficient as other ports
  o Raw material sourcing
  o Bureaucracy
  o Bond problems (import for re-export)
• Ultimately, BD must be competitive with the Asian tigers
• India is five years behind BD in agro-processing; Pakistan is 5 years ahead
• PRAN COMPETITION
  o Domestic
    ▪ Juices/Drinks: Pepsi, Starship, Danish
    ▪ Water: Fresh, TIR
    ▪ Snacks: Bombay Sweets
  o Export
    -- Thailand     -- Turkey    -- RSA
    -- Malaysia     -- Kenya