

**BANGLADESH JUTE INDUSTRY:
OPPORTUNITIES FOR IMPROVED AND OR NEW
INDUSTRIAL APPLICATIONS**

**SOUTH ASIA ENTERPRISE DEVELOPMENT FACILITY
IFC**

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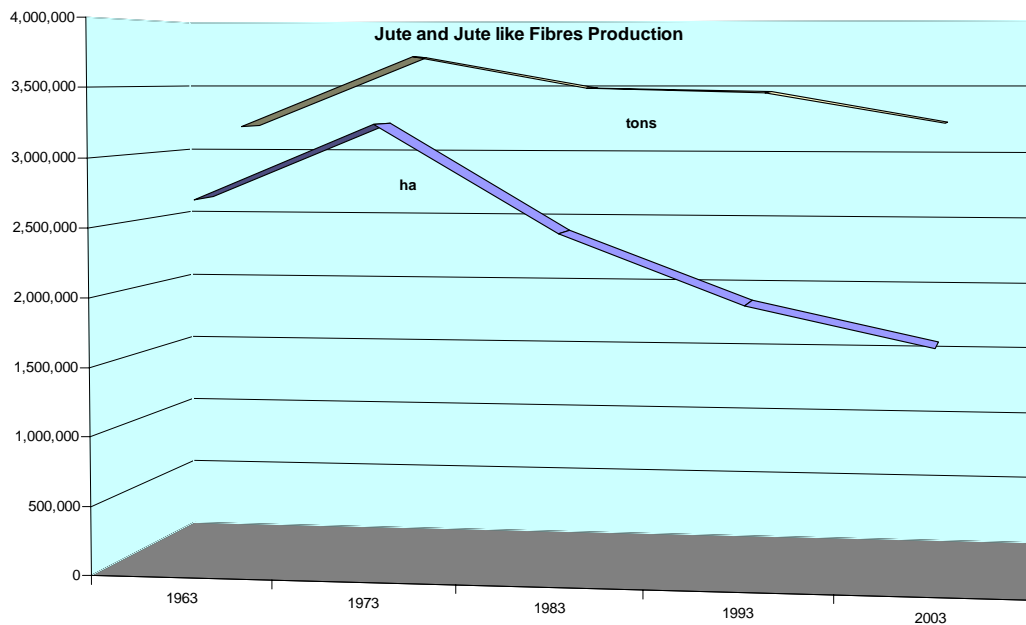
EXECUTIVE SUMMARY

9 million farmer, labourers, workers and 45 million dependents, earn less than a dollar a day per family to grow jute in rotation with rice. They grow three million tons on 1.6 million hectares. Jute provides a necessary break between rice crops and four times its weight in bio-mass to enrich the soil. It also provides a vital cash flow for people who live at the very margins of subsistence. It has been important to jute/rice based farming systems in parts of India and Bangladesh for over a Century and this fundamental has not changed.

SUPPLY

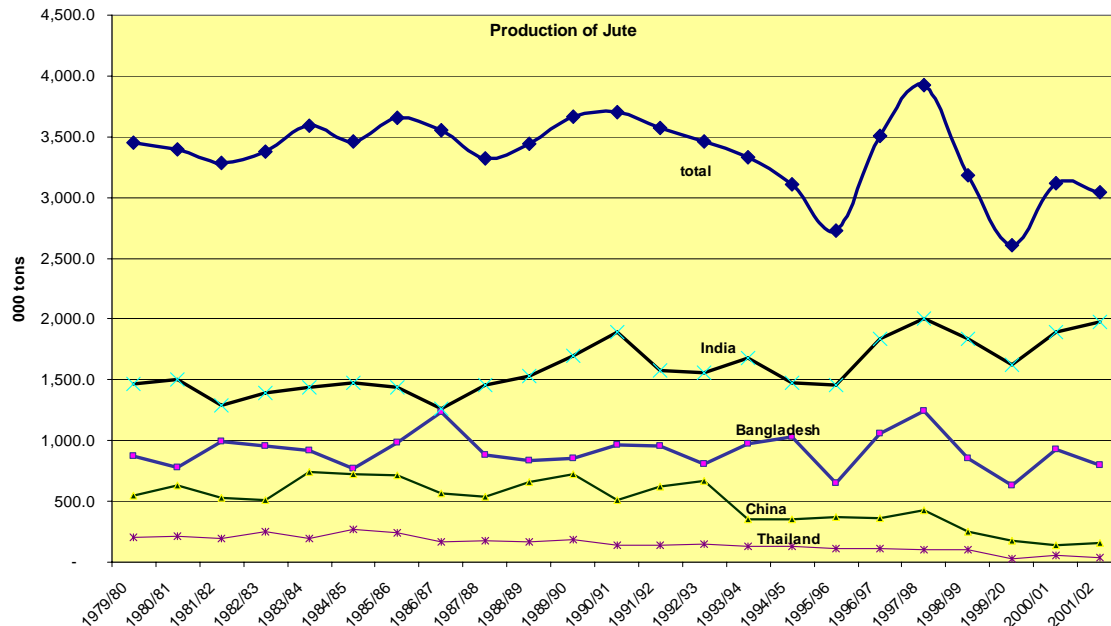
Production

Analysis of developments in production of jute depends on the time span over which they are considered (as in summary chart 1).



Summary Chart 1 – Source FAO

There has been a gradual reduction in production of jute after it reached its zenith in the early 1970s. It has now reverted to the levels in the early 1960s. Jute has lost the extra volumes produced in the latter 1960s but there has been a marked increase in productivity since the latter. The major producers today are India and Bangladesh, while China, Thailand, Myanmar, and Vietnam also produce, but in recent years China and Thailand sharply reduced production and production has all but collapsed in Indonesia and Cambodia (as in summary chart 2). Total area planted to jute declined consistently and significantly, nearly one million ha, over the last 30 years. Production of jute and jute like fibres fell by a global net 400,000 tons over the last decade alone, with China reducing 540,000 tons and Thailand 110,000 and India increasing production by over 430,000 tonnes.



Summary Chart 2 – Source FAO

India produces more jute despite less land being used to do so. Prices earned for jute and for rice are regulated in India There is also an increase in productivity in jute production in Bangladesh with a gradual decline in both, land use and production. After a fall in production in the 1970s, production stabilised in overall terms within the context of a general long term decline, if fluctuating between fairly wide margins.

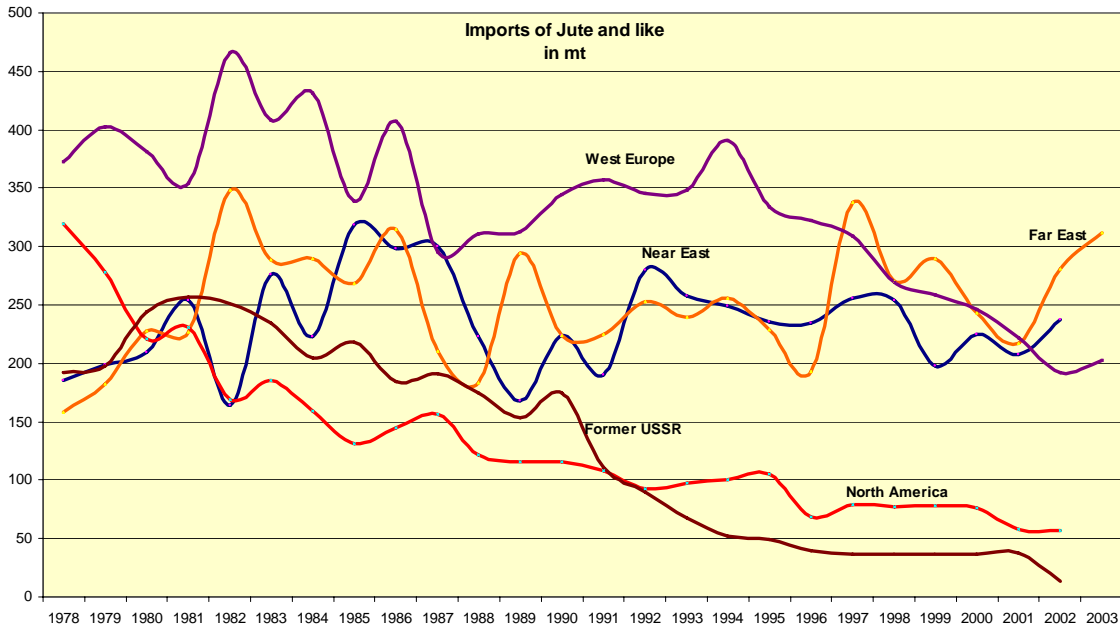
Trade

While production declined gradually, the most marked development has been changes in trade. World trade in jute and jute products, estimated at roughly \$700 million has halved over the last quarter of a Century, falling by over 600,000 tonnes. In very general terms this has led to a decline in exports by Bangladesh of 100,000 tonnes, India 200,000, China 180,000 and Thailand of 120,000 tonnes. Decline in world markets is masked by increased consumption within the Indian market and imports by China.

Some 800,000 tons of exports ¹have been lost over the 25 years, with 580,00 tons being accounted for by USA, Western Europe and the former USSR (as in summary chart 3) . Loss of exports of around 230,000 tonnes to USA over the last quarter of a Century, 180,000 tons to Western Europe and 170,000 to the former USSR account for much of the decline in trade. In the USA the losses were due mainly to the virtual elimination of use of jute as carpet backing combined with sacking, in Western Europe mainly to sacking and in the former USSR due to collapse of the economy and barter trade of the former USSR. During the same period there has been a loss in exports to Africa and Latin America of roughly 90,000 tons each.

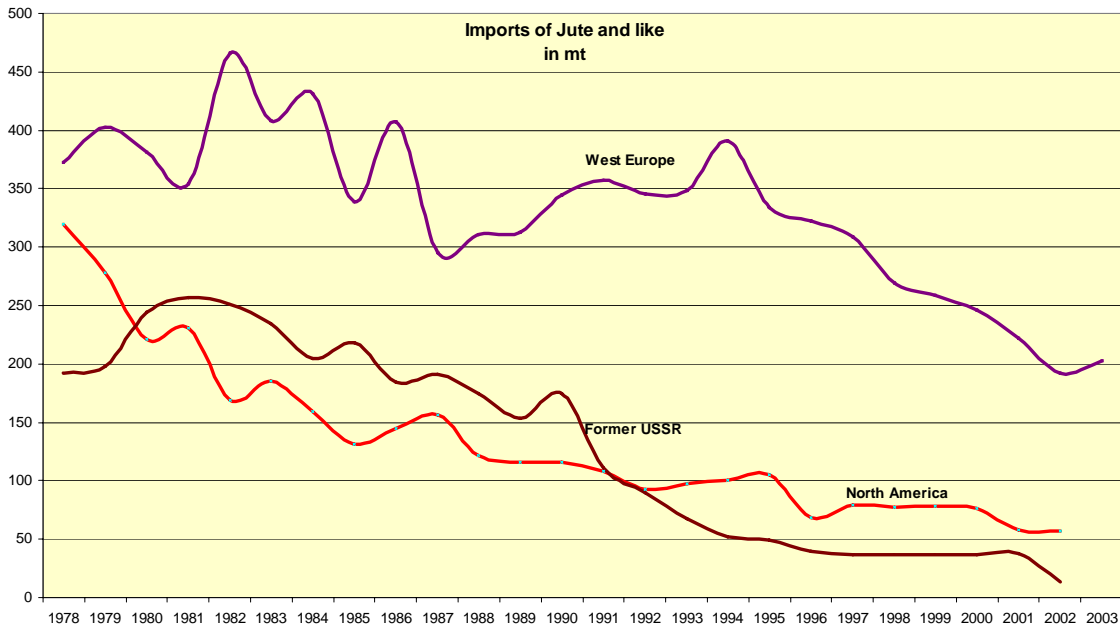
¹ Imports lost total 800,000 tons while exports lost are only 600,000 tons because of re-exports.

Exports to developing countries as a whole over the 25 years have not changed much in global terms but there has been a strong decline in Africa and Latin America compensated by increased imports by China and India. Again, although the net result in developing country markets as a whole is neutral, there has been a substantial decrease in non producing export markets.



Summary chart 3 – source FAO

The first major decline was in the case of the USA which dates back to the mid 1970s, followed by the collapse of the former USSR markets from 1990 and the latest has been Western Europe from the mid 1990s (as in summary chart 4). Taken together they constitute a major reduction in importance of jute in trade despite the compensation of rising imports by developing countries.



Summary chart 4 – source FAO

MARKETS

In the 1960s and early 1970s rapid growth in the carpet market in particular led to increase in demand for jute. At the height of this period 200,000 tonnes of jute carpet backing were being used in the USA. In the 1960s plastic substitutes emerged at the same time as growth in markets for jute strained availability and prices. Synthetic suppliers followed up market entry with product development and market promotion on far larger budgets than the jute industry.

The three most important factors that have caused the decline in world trade have been:

- virtual elimination of use of jute carpet backing in the USA
- decline of use of jute sacking and
- collapse of the economy of the former USSR.

Amongst traditional markets, therefore, jute consumption has been sharply reduced as carpet backing to polypropylene and sacking has lost ground to synthetics as is still loosing markets to bulk handling. Hessian has lost markets in the mid 1990s but is now holding firm and yarn sales have strengthened.

The decline in traditional export markets has been compensated by increased use of yarn in the Near East. However, decline of use in USA and Western Europe in particular is of great significance and has contributed to a reduction in the standing of the fibre in global trade. The loss of markets in Africa and South America has been smaller in overall volume terms but very significant in proportions.

While export markets declined, Indian consumption rose and today dwarfs all other consuming countries with about 1.2 millions tons being absorbed within the domestic market. Bangladesh and China too are major consumers, with the former absorbing 143,000 tons and China 164,000 tons. Given familiarity with jute in China, it is entirely possible that it could develop further as a major export market for Bangladesh. More than half the jute produced is now consumed within producing countries.

The response to changes in global trade was to try to cut costs, increase market awareness and develop new applications. Falling exchange rates, rising productivity and new investment in some mills helped cut costs but the reduction was nowhere enough to arrest fundamental developments. Market awareness was increased and helped reduce the rate of decline. A lot of effort and money has been spent on diversification but has been bedevilled by lack of product and market development. Moreover, the more substantial diversifications envisaged such as pulp, composites and mixed fibres have not been translated into commercial viability.

Some new end use applications have indeed led to exports including 10,000 tons as geotextiles, around 2,000 tons to market garden centres, mixed coir/jute door mats, 4,000 tons of carpets, a trickle of superior fabric furnishings, 500 tons of automobile padding and sales of mixed fibre products in India.

The main successful efforts have been developing the new food grade sacks, finer yarns used in denim production and yarn sales for woven carpets and use of jute sticks.

For the future, the most significant potential gains, of over 20,000 tons per annum would be from market development of sacks to developing countries, an effort to win back some of the lost

secondary carpet backing market, blended fibres, and possibly for use as pulp with less likely probability of developing composites in the near future.

Smaller volumes and more long term opportunities exist with all jute carpets, furnishings, garden centres, automobile insulation, soft luggage, shopping bags, wiping cloths, geotextiles, and laminates.

The current trend is towards losing more of the sacking market with Hessian and yarns holding market share. The market for Geotextiles is growing at a reduced rate but it is still possible to promote jute for a larger share of the market. In the absence of action to the contrary, jute production is likely to continue to decline at between 20,000-30,000 tons per annum.

RECCOMENDATIONS

1. It is important to increase our understanding of jute/rice based farming systems to identify farmer priorities and benefits with a view to ascertaining best income solutions.
2. The Bangladesh industry and Government needs to decide on which of two perspectives outlined since the 'sunset industry' argument requires a defensive strategy while the product and market development one requires market initiative.
3. The need for rationalisation of the mill sector remains strong in part to allow new investment to upgrade a reduced but more competitive sector and take advantage of market opportunities.
4. Priority should be given to developing those applications that offer scope for absorbing more than 20,000 tons of jute per annum (market development of sacks to developing countries, an effort to win back some of the lost secondary carpet backing market, blended fibres, and possibly for use as pulp) and the short list of smaller volume applications (all jute carpets, furnishings, garden centres, automobile insulation, soft luggage, shopping bags, wiping cloths, geotextiles, and laminates).
5. An opportunity exists to exploit recent developments in the supply of synthetic substitutes in the USA in particular to recapture part of the carpet backing sub-sector but it requires urgent consideration and a major initiative.
6. Food grade sacks are a success and there needs to be greater eco awareness of ensuring that jute products are contaminant free.
7. Sacking markets in Africa and South America have declined and efforts are required to win back some of the market share.
8. Technical advances have resulted in finer yarns and better fabrics, and is necessary to translate these into commercial applications.
9. Blended fibres in particular offer a range of development possibilities but there needs to be considerable product and especially market development focus.
10. There needs to be a road map for the jute industry.

1 BACKGROUND

9 million farmer, labourers, workers and 45 million dependents, earn less than a dollar a day per family to grow jute in rotation with rice. They grow three million tons on 1.6 million hectares. Jute provides a necessary break between rice crops and four times its weight in bio-mass to enrich the soil. It also provides a vital cash flow for people who live at the very margins of subsistence. This pattern of cultivation has been established for centuries and there is no immediate alternative.

Jute:

- environmentally friendly crop,
- enriches the soil,
- vital to ecology, economy and sustainability of rice cultivation,
- totally bio-degradable,
- unique and useful qualities,
- replaced within months,
- keeps 45 million from destitution and hunger.

Challenge from Synthetics

In the 1960s and early 1970s rapid growth in commodity trade and of the USA carpet market in particular led to an increase in demand for jute (see chart 1). The latter was of particular relevance to jute due to preponderance of tufted carpets which used jute primary and secondary jute backing. At the height of this period 200,000 tonnes of jute carpet backing were being used in the USA alone. This caused strains in availability with unreliable supplies and high prices, offering an opportunity and incentive to develop synthetic substitutes. It was obvious that jute production could not be expanded to the required degree at what turned out to be the lower prices that were made possible for the expansion that was taking place.

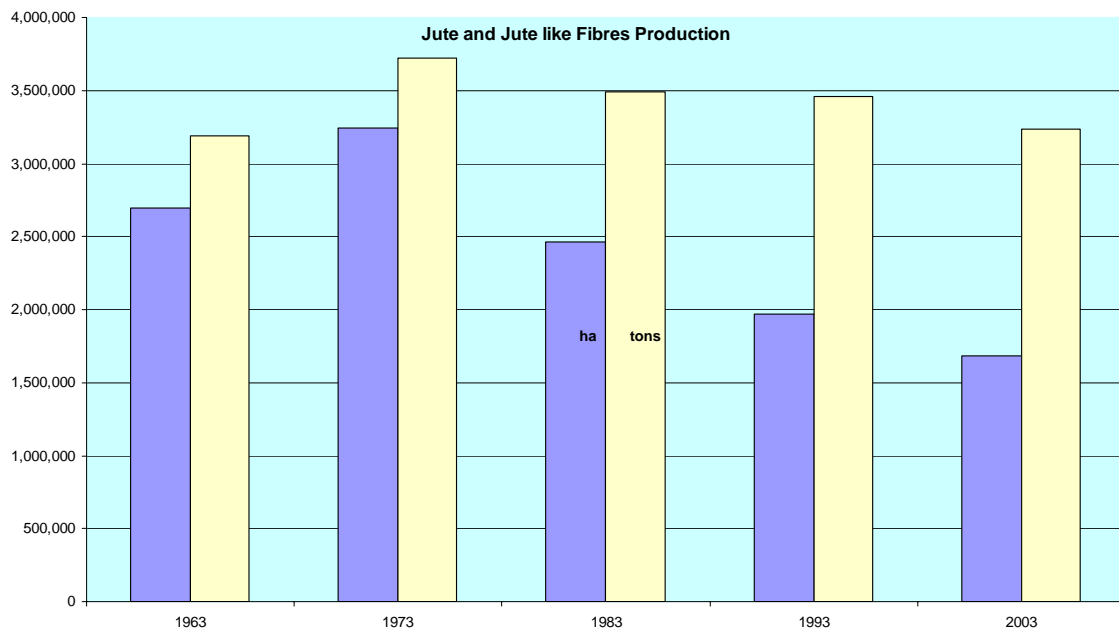


Chart 1 Source: FAO

In the 1960s plastic emerged a commercial by-product from the petroleum industry at the same time as growth in markets for jute strained availability and prices. Expected at first only to make a marginal contribution to petroleum, the petroleum industry priced as low as they could to secure end-uses. This was followed up by product development and market promotion on far larger budgets than the jute industry could muster. The volume and varieties of plastic over the next two decades represented a formidable force. Plastics were assisted by poor jute availability, high prices and tariffs and quotas in importing countries. In the way of an illustration, plastics captured 50% of the sacks market between 1965-75.

Plastics enabled cheaper products that suited a period during which consumer markets developed at a rate unknown in history. Costs of packaging became far lower. Carpets were produced that could be purchased by consumers never before able to buy them. Prices of plastics fell with economies of scale but strengthened as industry realised that this new revenue stream could more than contribute marginally and became used to earning profits on this by-product.

The jute industry fought back by trying to reduce costs, increasing productivity and new investment. This proved to be a fruitless task since it was never possible to reduce costs enough. The gap between the cost of jute and its synthetic substitutes was too large and supply assured. Moreover reducing costs required squeezing among the poorest in the world. In contrast to this, plastics were becoming cheaper due to economies of scale and improved production methods. The technologies that enabled this were serving far larger markets than merely jute substitutes.

Synthetic substitutes were improved by manufacturers in a continuing process. In some cases the reason for switching to plastics or staying with them was a technical one and the synthetic products were technically superior. This has certainly been the case for primary carpet backing where product development fitted in well with systems development for manufacture.

A major reversal for jute came as a product of a shift of processing from consumer to producer countries and former processors in consuming countries switched to synthetics. These processors were able to use their knowledge of markets gained while supplying jute to supplying the new materials. Their experience in the marketplace was not and could not be adequately compensated by efforts by jute processors in jute producing countries. What was a major gain in value added had this unfortunate incidental result of weakening marketing of jute.

The cause of jute was not helped by variable supply and unreliable delivery. In the way of an illustration, a carpet manufacturer in Dalton could contract for future deliveries only to find a shortage with prices rising and contractors reluctant to stick to bargains. In times of shortages carpet manufacturers had to pay more and were not sure of deliveries even at the higher prices.

2 SUPPLY

2.1 Production

In the post World War II period of reconstruction and growth, jute production increased to meet global market demand and peaked in the early 1970s at over 3.7 million tons but has since declined back to the pre 1960s levels of around 3 million tons. The most salient features of this decline are that production has become more concentrated in India and Bangladesh, jute consumption has declined in non jute producing countries and in some that have decreased production, and there is an underlying change in emphasis in the forms in which it is used.

A large range of countries produce jute as in the table below:

	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02
mt							
WORLD	2714.5	3502.6	3864.3	2765.2	2563.9	2603.8	3092.2
Developing	2,707.1	3,495.2	3,856.9	2,757.8	2,556.9	2,596.8	3,085.2
A. Africa	8.2	13.9	14.2	13.8	13.7	12.0	11.7
B. Latin America	24.6	31.0	28.8	27.1	25.4	24.1	23.7
C. Near East	4.8	5.1	5.3	4.2	3.7	3.6	3.6
D. Far East	2,669.5	3,445.2	3,808.6	2,712.7	2,514.1	2,557.1	3,046.2
1. Bangladesh	652.7	1,062.2	1,242.7	851.9	731.5	720.0	876.6
2. China	371.2	364.9	429.5	248.0	164.0	126.0	136.0
3. Cambodia	1.0	0.9	2.3	1.1	0.3	0.2	0.2
4. India	1,458.0	1,836.0	1,953.0	1,494.0	1,530.0	1,620.0	1,940.9
5. Indonesia	4.3	3.4	3.8	7.2	7.5	7.0	7.0
6. Myanmar	43.0	39.5	33.1	33.5	26.5	27.8	28.0
7. Nepal	14.9	14.0	15.5	15.2	15.2	15.2	16.4
8. Thailand	114.9	109.3	106.4	47.2	29.7	29.6	29.5
9. Vietnam	9.5	15.0	22.3	14.6	9.4	11.3	11.5
Developed Countries	7.4	7.4	7.4	7.4	7.0	7.0	7.0

Table 1-Source: FAO and Indian Jute 2002

The major producers are: India, Bangladesh, China, Thailand, Myanmar, and Vietnam, but in recent years China and Thailand have sharply reduced their production of jute and production has all but collapsed in Indonesia and in Cambodia the only jute mill has ceased operation.

The decrease in numbers of major producers can be ascribed to the weak market and low returns but is probably also linked to changes in farming systems based on jute. In the cases of China and Thailand, there is scant analysis available on the reasons aside from the obvious that the two countries have been undergoing a period of accelerated economic growth and rising standards of living which must be placing pressure on production of the lower value crops which were not afforded any significant measure of protection through regulatory means.

The immediate impact was a reduction in production and consumption although the rate of decline in China and Thailand after an initial trend of drastic rate has eased in the last two years and there are traces of a very limited recovery.

There is any case a current long term global decrease in production of jute. The trend is shown in the chart 2 below:

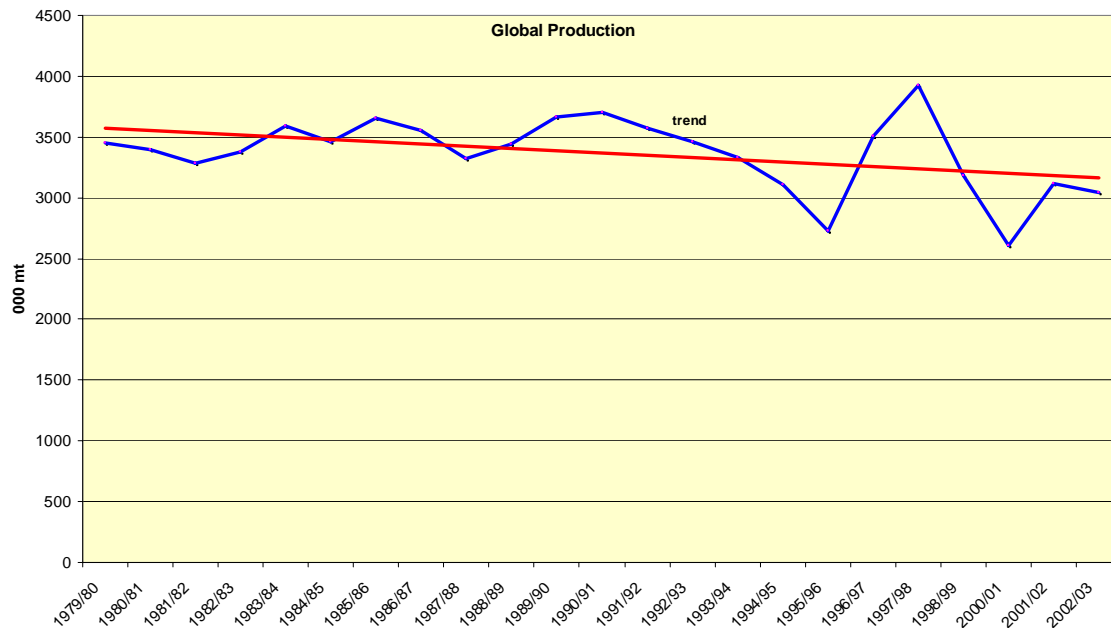


Chart 2-Source: FAO

Over the last 20 years, jute production and hectares declined and are still declining. Fall in the latter has been more pronounced than in production because of gains in productivity. Millions of small farmers grow 3 million tons on 1.6 million hectares. These are very poor people indeed and receive meagre but important returns for their efforts. Where this is not so as in the case of China and Thailand, who enjoyed stronger currencies than India and Bangladesh, farmers have moved to other crops.

Farmers, landless labourers, workers in processing, mill owners and traders are very important to Bangladesh and India. Neither country could possibly ignore their plight. At stake are a large jute sector but also the ecology and economics of rice cultivation which have profound implications in the two countries. Jute production is concentrated in West Bengal and Assam in India and Bangladesh and has a disproportionate impact on the two regions.

Jute based farming systems are essentially jute/rice systems with the rice crops yielding food for the farmers as well as commercial returns and jute a cash income. The combination of the two crop systems does not appear to have been analysed to any great degree as a commodity chain analysis, at least in published sources.

As a cash crop, jute provides crucial marginal income for the farmers and seasonal employment for landless labourers. It also prevents loss of rice crops through rotation and biomass enriches the soil. The contribution of jute has an even greater importance because the cash helps farmers to finance their activity and meet cash needs during festivals and family needs with reduced dependence on rural indebtedness.

Hectares devoted to jute in leading producing countries.

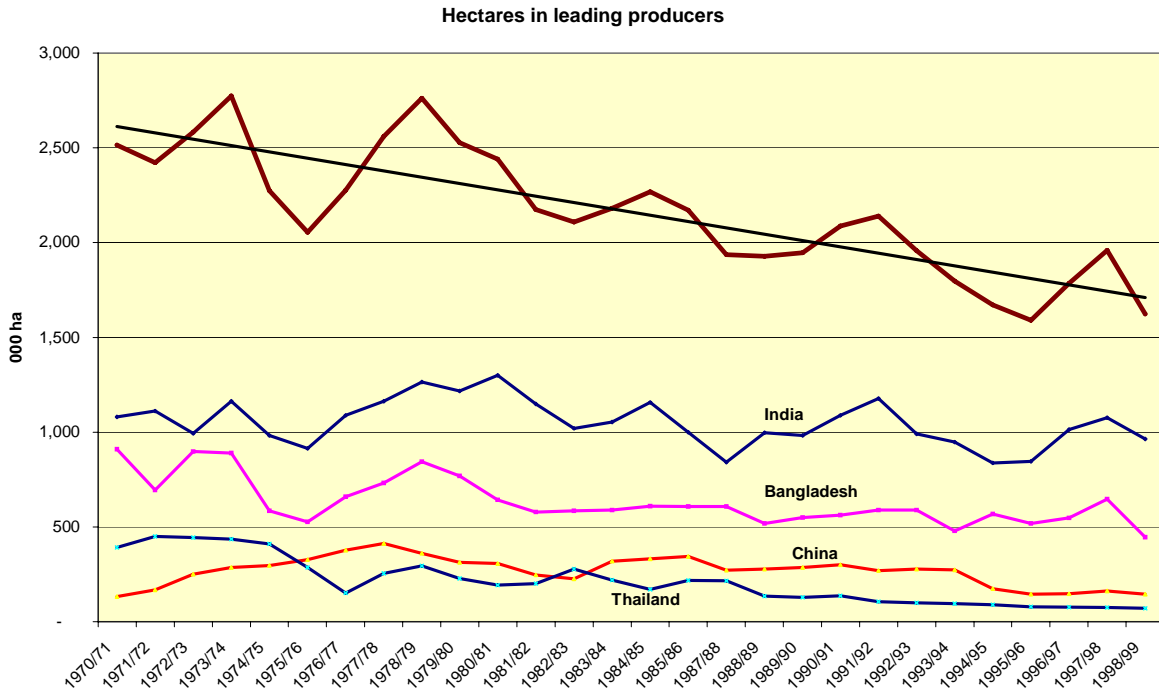


Chart 3-Source: FAO

As illustrated in the chart above, total area planted to jute has declined consistently and significantly, nearly one million ha, over the last 30 years. Production of jute and jute like fibres fell by a global net 400,000 tons over the last decade, with China reducing 540,000 tons and Thailand 110,000 and India increasing production by over 430,000 tonnes. In China it actually rose until 1985/86 and fell over 50% in 1994/95.

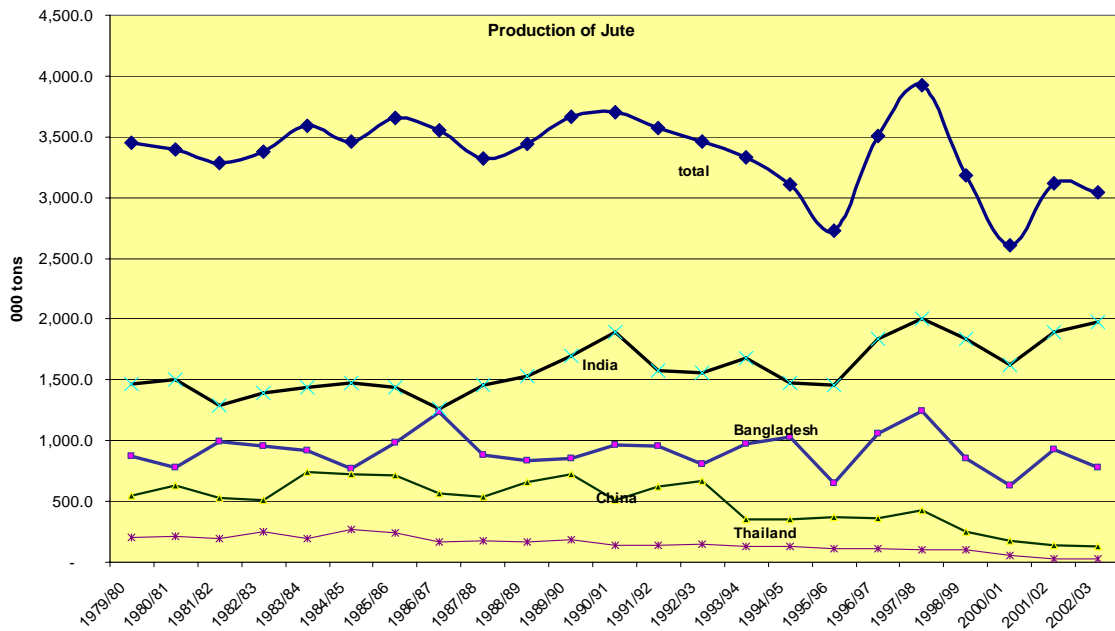


Chart 3 - Source: FAO

India

There has been a steady increase in productivity with the crop increasing as a consequence as illustrated in Chart 4. Current production is around 1.6 million tons per annum and jute continues to play a very important role in rice production economics in West Bengal. It is also important to the workers at the mills.

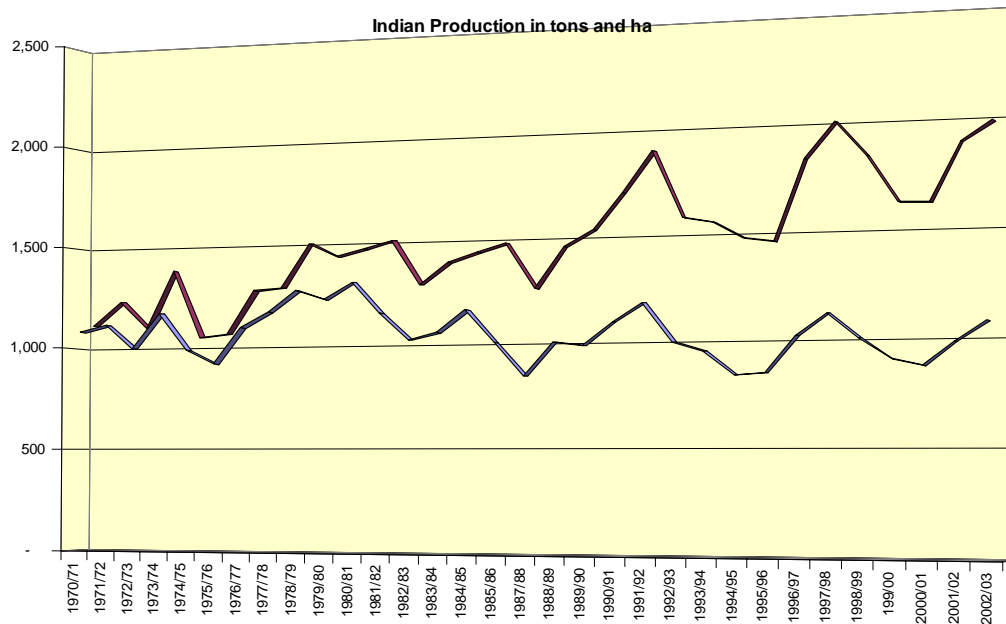


Chart 4 - Source: FAO

Efforts to increase production were constrained by a shortage of quality seeds which, together with a desire for higher returns led to emphasis on higher yielding varieties which are criticised by some in the trade as leading to lower quality fibre. However, the pattern established is unlikely to change due mainly to a shortage of superior seeds from Bangladesh.

India is producing more jute every year. This is despite that marginally less land is being used to do so. Prices earned for jute and for rice are regulated in India and devaluations until the last two years in any case led to rising rupee prices as an incentive to increase production and productivity, while a buoyant local market has often led to local prices that are higher than those being offered in world markets. The increased production is market and price driven with farmers able to use more fertilisers and nutrients whose prices are also controlled. The Indian economy has been going through an expansionary phase leading to a greater demand for packaging, while agricultural commodities remain very important politically. However, part of the reason for Government support has been to counteract declining world markets that would otherwise have caused serious economic dislocation and political consequences.

Emphasis is therefore on products in demand locally with sacking taking the lead, followed by Hessian and yarn, more important as exports. Carpet backing cloth, (CBC) production has stagnated due to the competition in falling export markets from Bangladesh and has all but ceased. While other products have gained in importance and these include yarn and bag production as well as a whole host of relatively minor in volume terms diversifications taking place.

Use of jute sacking has continued in the local market despite loosing cement and fertilisers and similar commodities to synthetics. Increased domestic competition is likely with the growth of the local synthetic industry as well as application although there is very strong political opposition to reducing market intervention. The use of jute sacks for sugar, in particular, is becoming a contentious issue due to the prevalence of a regulatory regime that has discriminated in the favour of jute.

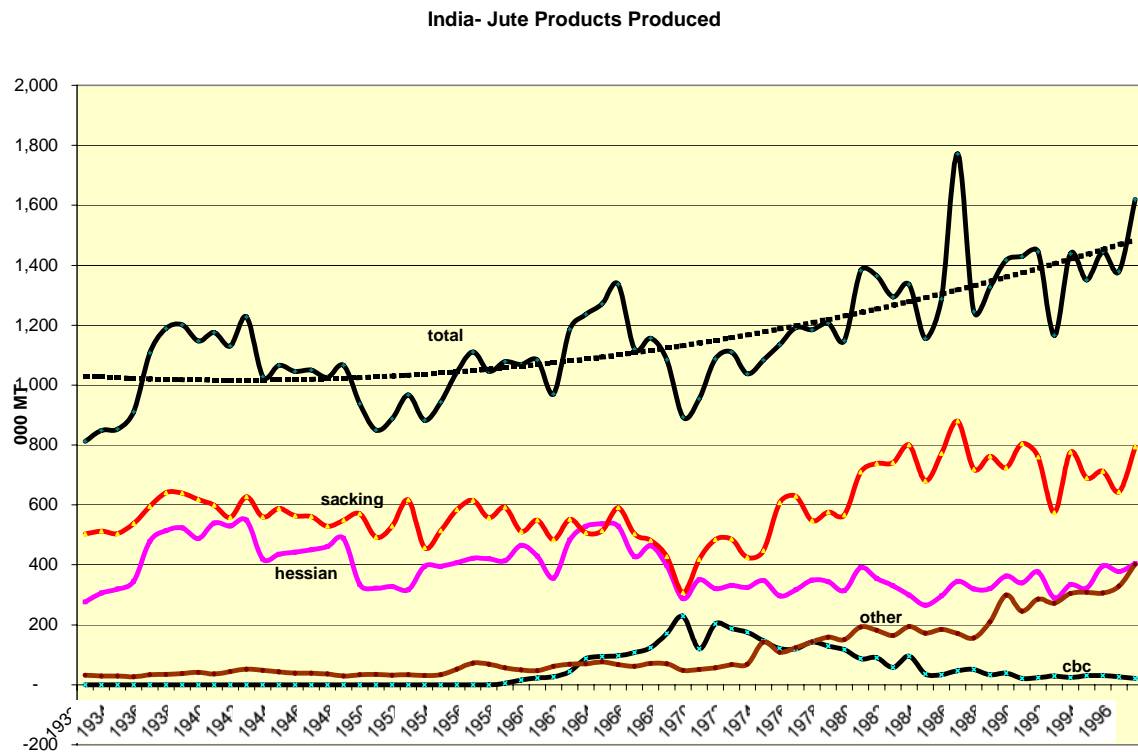


Chart 5 - Source: Indian Jute Mills Association

Bangladesh

There has also an increase in productivity in jute production with a gradual decline in both, land use and production. Bangladesh has not allowed the Taka to fall in value as much as the Indian rupee. With stagnant dollar prices in traditional export markets, this has increased pressure on farmer incomes and distribution margins.

After a fall in production in the 1970s, production stabilised in overall terms within the context of a general long term decline, if fluctuating between fairly wide margins. Jute farmers and farm labourers are of great economic and political importance to the country, as are workers in the jute industry who have few alternative employment prospects.

Decline in demand in traditional export markets as well as falling real values of exports and a squeeze on local prices has led to a great deal of unused capacity at the mills. A shortage of new capital to modernise processing has contributed to a large public sector faced with an increasing crisis. The World Bank made available a substantial credit line to close mills and renovate remaining ones but the project has stalled due to the near impossibility in the economic situation

of the country to dismiss or make workers redundant on a large scale. However, there has been a gradual reduction in processing capacity in recent years in face of very strong political resistance.

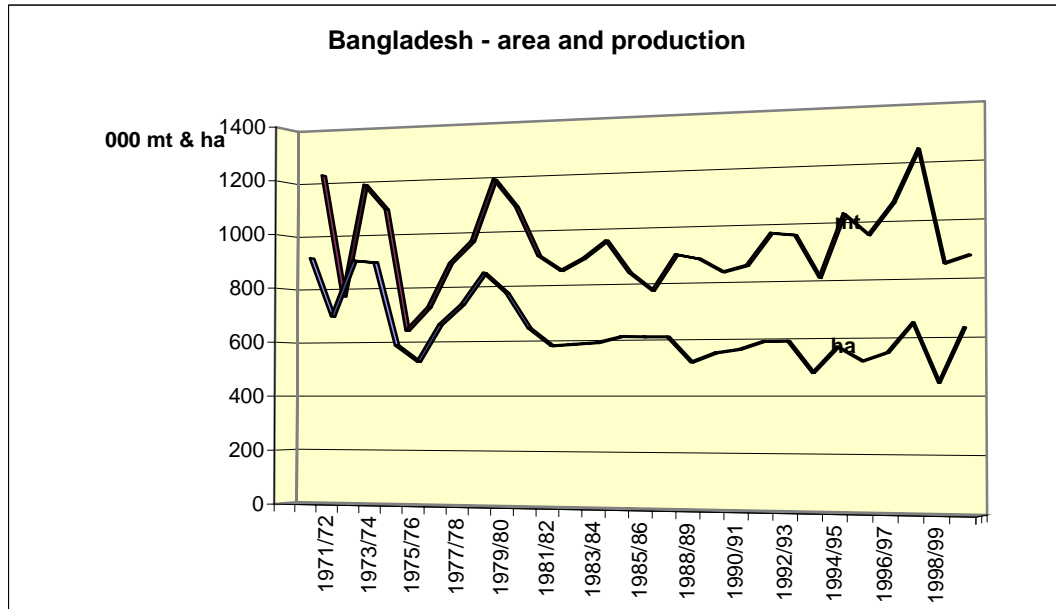


Chart 6 - Source: FAO

Bangladesh production, more export oriented than that of India, has been marked by a significant decline in Hessian and CBC production while sacking has remained comparatively stable, partly strengthened by continuing substitution of sack production in export markets through export of sacks, and there has been a strong statistical increase in the others category with yarn the most important component. Yarn is now listed separately in statistics and appears to be at least as important as sacking, as illustrated in chart 7 below.

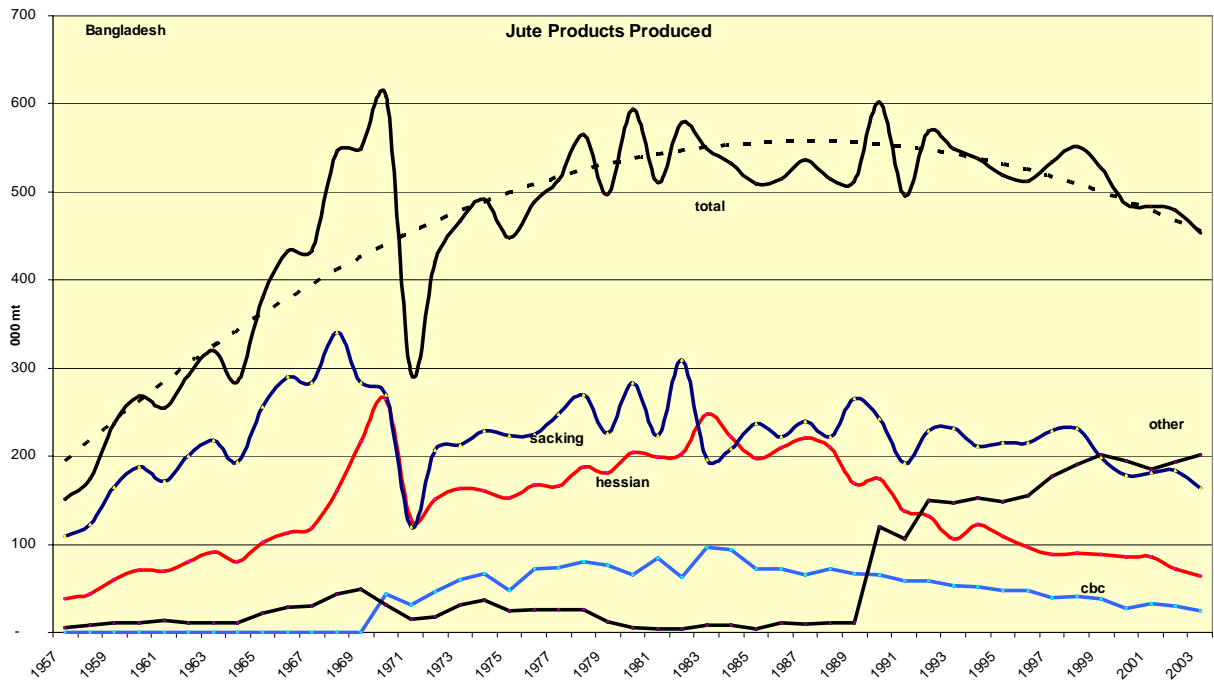


Chart 7 - Source: Bangladesh Statistics

Public mills keep producing sacking and many often accumulate substantial indebtedness. In order to keep selling, discounts are common. As a result it is difficult for the industry as a whole to make positive net results. There are some private mills that are not so encumbered and are active in exports trying to make viable returns.

The situation has been helped by the decline in Chinese production and imports to compensate for loss in production. However, it is unclear how much will be imported in the long run and there is an inevitability due to the nature of the process, as illustrated by what happened when European production of jute products was replaced by that in producing countries, of jute being replaced by substitutes for many end-uses. India is becoming an increasingly important export market for Bangladesh, particularly for fibre.

China

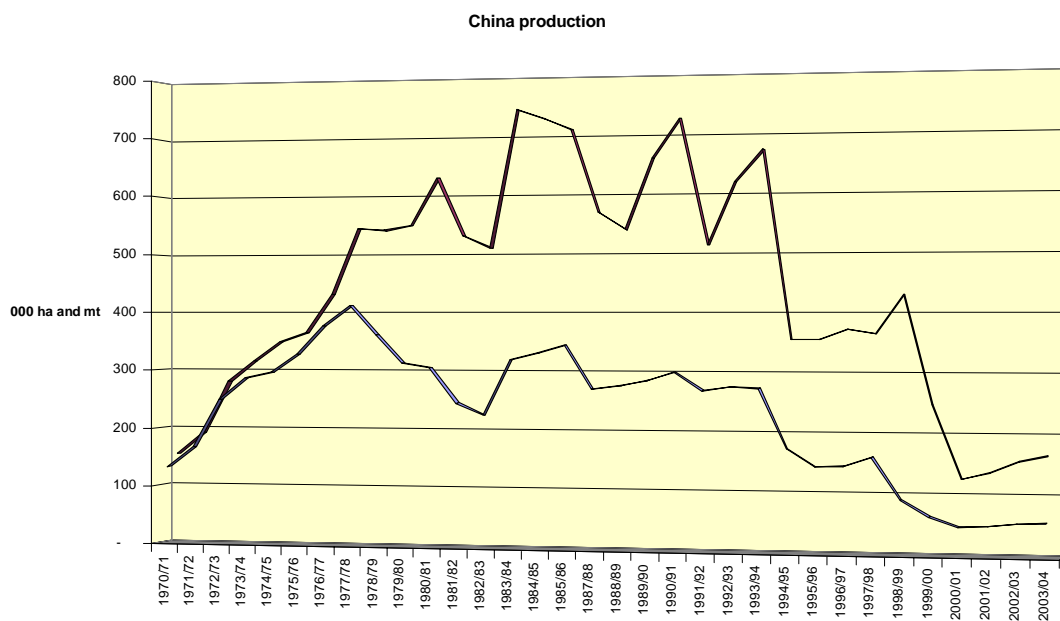


Chart 8 - Source: FAO

Chinese production fell drastically from a high of around 730,000 tons in 1984/85 to below 165,000 in 2003/04 but has shown a minor recovery over the latest two years. An interesting observation that can be made from studying Chart 8 above and that for India is the obvious impact on productivity of fertilisers with periods of rising production while area declined to a greater degree than can be explained purely by referring to improved seeds. The trend over the last decade is of area, productivity and production falling. There has been a shift in production from jute to other fibres and to rice. Part of this fall in production is being made up through imports and part will be lost to competition. It is difficult to judge at this stage what degree of losses will be sustained by jute but it does appear that after a very substantial initial decrease in use, there has been a recovery supplied by imports.

Thailand

Area and production in Thailand.

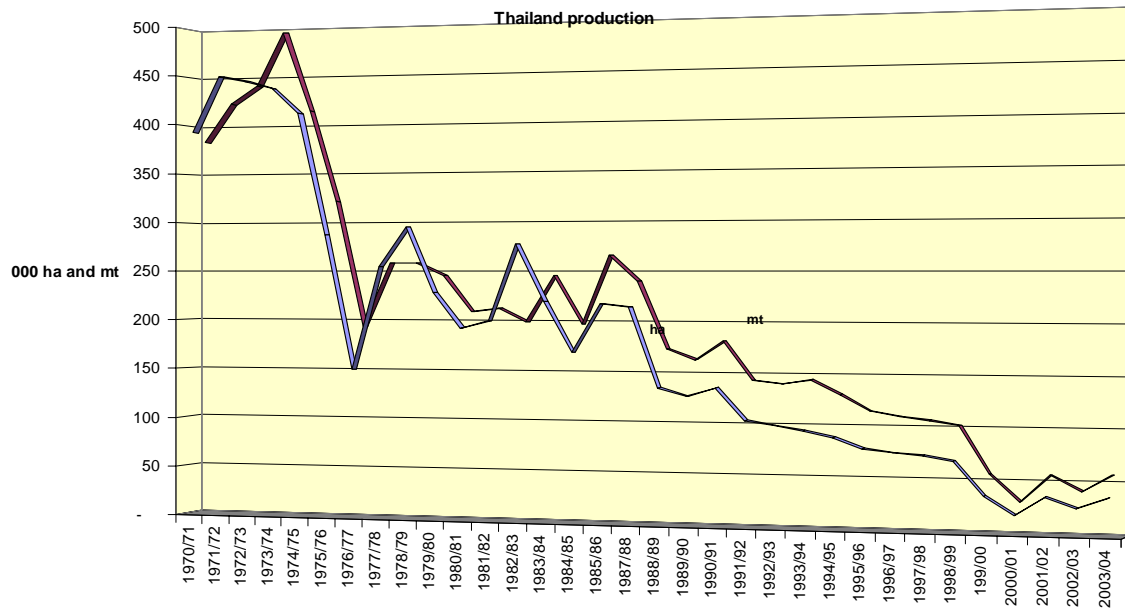


Chart 9 - Source: FAO

Thai production fell drastically in the 1970s after peaking in 1973/74 and has continued its decline, more gradually at first in the 1980s but accelerating again in the 1990s. From a level of 500,000 tons at peak levels in the 70s to below 50,000 tons represents a major re-allocation of resources. Thailand can now be considered a minor producer on par with Myanmar. The development also implies a significant loss of markets for jute as a fibre in Thailand.

2.2 TRADE

Global trade

World trade in jute and jute products, estimated at roughly \$700 million has halved over the last quarter of a Century, falling by around 800,000 tonnes. In very general terms this has led to a decline in exports by Bangladesh of 100,000 tonnes, India 200,000, China 180,000 and Thailand of 120,000 tonnes.

Reduction in exports of 600,000 tonnes was offset partially by an increase in consumption in India of 300,000 and production of 100,000 tonnes and reduction in production in China, Bangladesh and Thailand of 350,000 tonnes. Production fell marginally over the two decades and imports fell from 1.8 million to 1.2 million tons.

Decline in world markets is masked by increased consumption within the Indian market which now allows imports from Bangladesh of around 140,000 tons per annum. Decline in exports is also masked by the fact that China has changed from a producer to an importer. Developing countries now import more than developed countries as in Chart 11 below. Caution is advised in interpretation of trade data due to re-exports of jute products as such or re-use by those who receive jute as packaging.

Exports by leading producing countries.

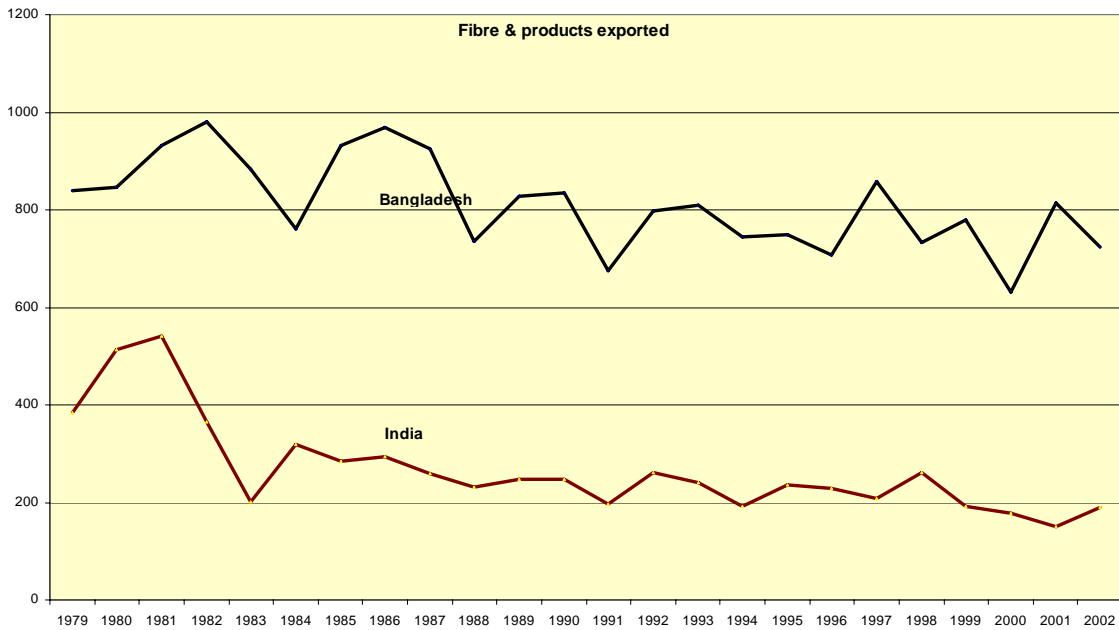


Chart 10 – Source FAO

The most important decline in imports of jute has been amongst the main importing developed countries. The first major decline was in the case of the USA which dates back to the mid 1970s, followed by the collapse of the former USSR markets from 1990 and the latest has been Western Europe from the mid 1990s. Taken together they constitute a major reduction in importance of jute in trade despite the compensation of rising imports by developing countries.

World imports of fibre and products by developed and developing countries

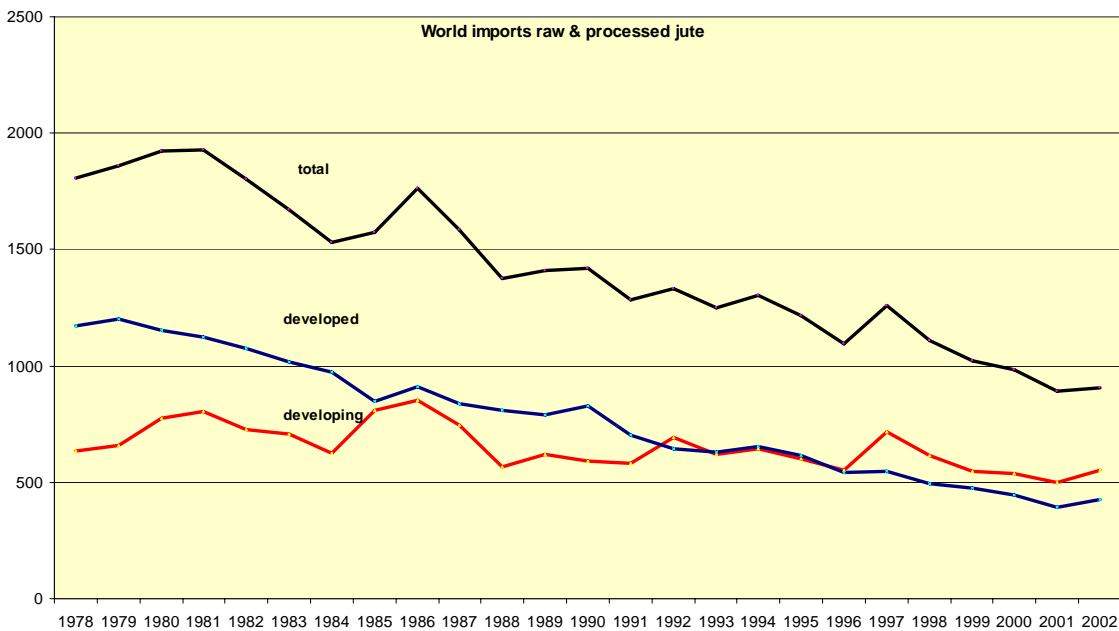


Chart 11 - Source: FAO

Leading developed importing countries.

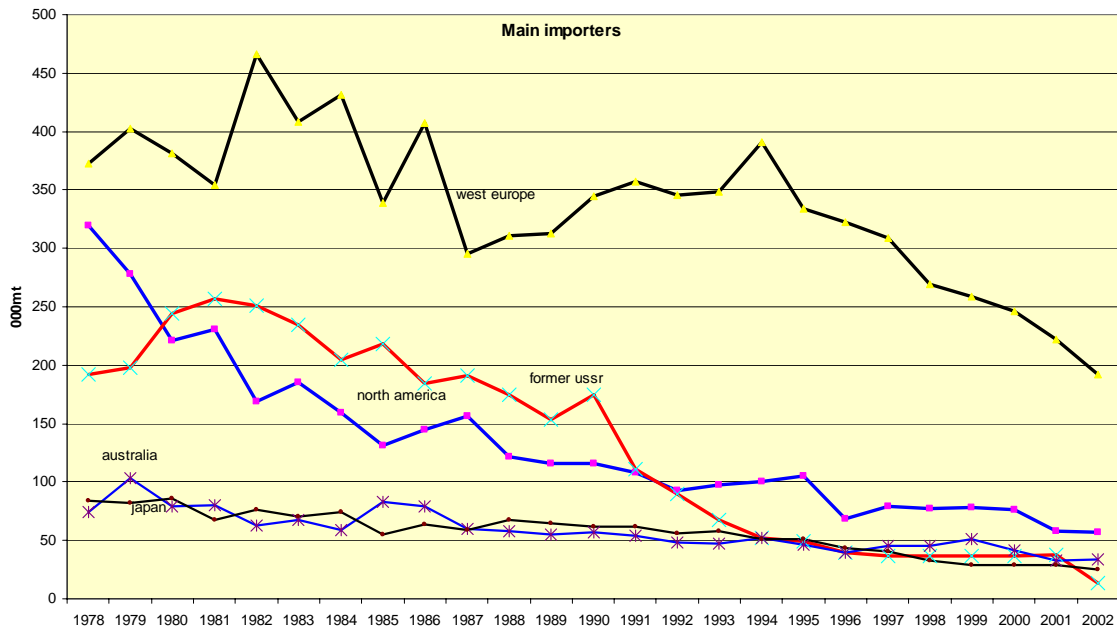


Chart 12 - Source: FAO

There has been an increase in importance of jute exports to developing countries as illustrated in Chart 13 given below, with exports holding firm and even increasing marginally. Imports by developing countries have held firm in the Near and Far East but declined until very recently to Africa and Latin America.

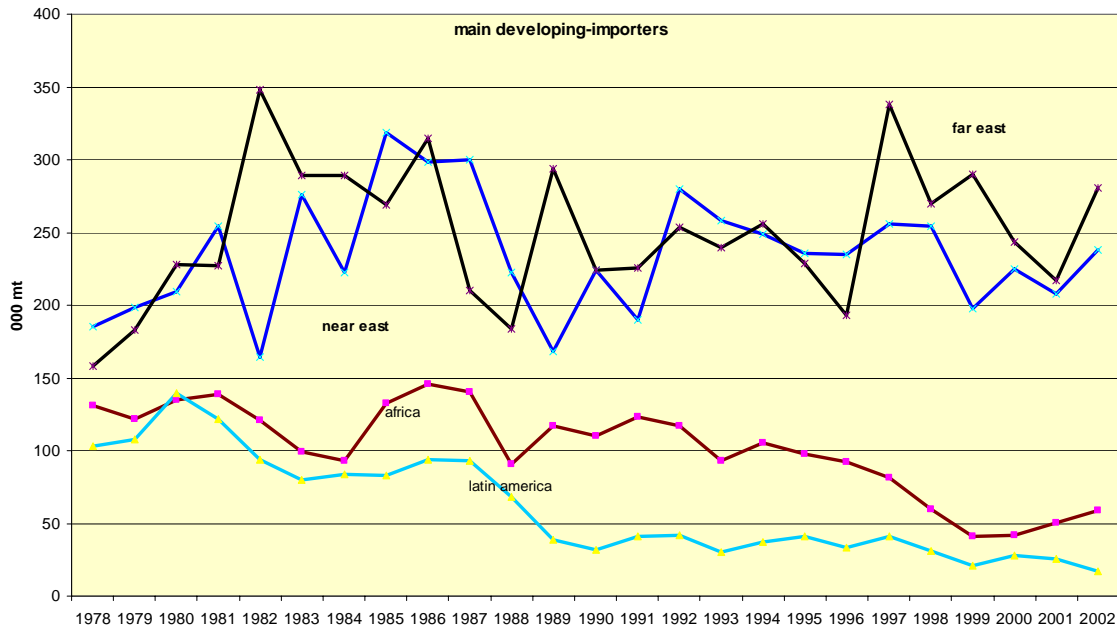


Chart 13 – Source FAO

2.3 Export markets

Some 800,000 tons of exports have been lost over the 25 years. It would have been higher were it not for the imports by China and India in recent years due to the former reducing production and seeking to substitute part of it through imports, and with the latter increasing consumption.

The three most important factors that have caused the decline in world trade have been:

- virtual elimination of use of jute carpet backing in the USA
- decline of use of jute sacking and
- collapse of the economy of the former USSR.

USA

The position of jute in world markets probably suffered its worst reversal in the USA. The decline has taken a material that was relatively well known in user sub-sectors to almost below critical mass where it is now relatively unknown with a whole new generation of people who do not even think of using jute. While overall global consumption may have been assisted by factors in other markets, the dominant position of the USA in world markets means that the reversal can not be adequately compensated.

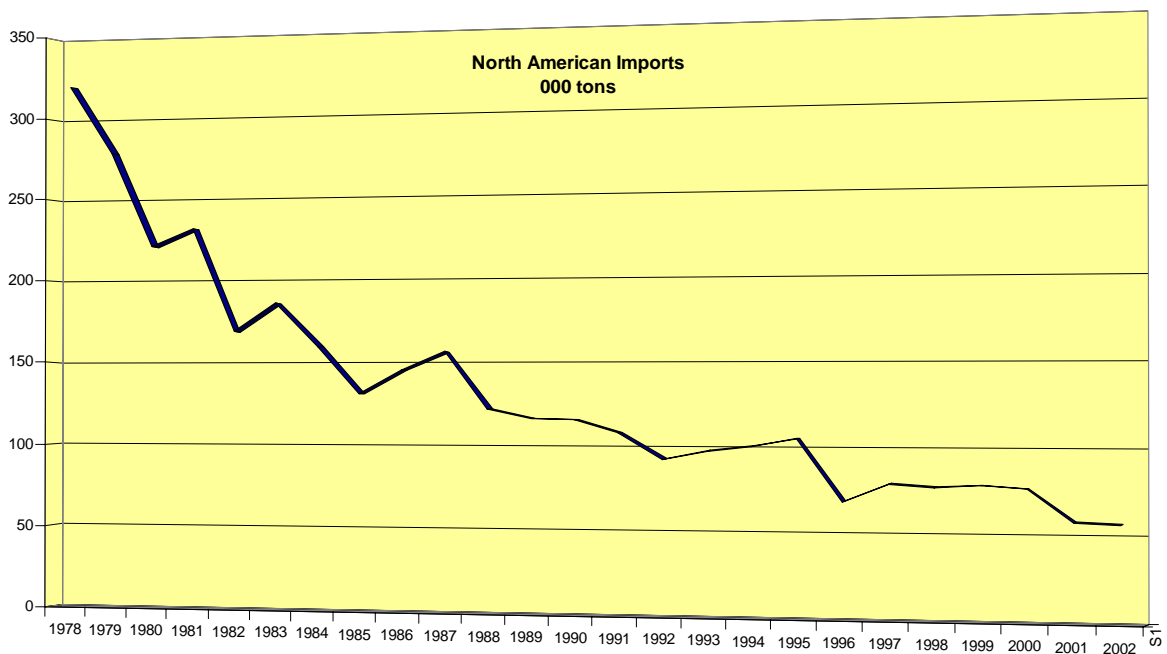


Chart 14 – source FAO

Loss of exports of around 230,000 tonnes to USA over the last quarter of a Century, 180,000 tons to Western Europe and 170,000 to the former USSR account for much of the decline in trade. In the USA the losses were due mainly to the virtual elimination of use of jute as carpet backing combined with sacking, in Western Europe mainly to sacking and in the former USSR due to collapse of the economy and barter trade of the former USSR.

With rapid growth of the USA carpet market in the 1960s and its domination by tufted carpets, use of jute climbed to 200,000 tonnes for the applications. Jute was the favourite material for primary and secondary carpet backing. Most of the American market has been lost with complete

elimination of primary backing in particular. In Europe and the Near East jute is still widely used as secondary backing. The decline started with problems of unreliable delivery, something that the growing industry could simply not afford. This led to the users turning to the synthetic industry, which built on this initial market entry on grounds of supply by technical and market development. Synthetics were promoted on price and availability at first but the arguments shifted to technical ones especially with a great deal of product development investment by the synthetics industry. In hindsight a shift of materials was inevitable because the carpet market grew to a point where global jute availability at prevalent prices was not able to service it.

Opinion is divided with some considering that the sector is irrevocably lost to jute. Those who do so cite reliability, prices and technical arguments. Another body of thought argues that given recent price movements with the gap between jute and synthetics narrowing, arguments on environmental grounds and the possibility of assuring supply, it would be possible to win back up to 10% of the secondary carpet backing market. In particular a window of opportunity is offered by the synthetic industry finds that it too has become commoditised and is in financial crisis.

The problems faced by sacking are more intractable. A shift to synthetic bags on grounds of a big difference in prices was the initial reason. Over time, greater use of bulk handling has accelerated and this has reduced need for all materials used in sacking. Synthetic bag manufacturers have partially overcome technical disadvantages developing ventilation and India is an important supplier. Moreover, delivery times for jute sacks are more than 2-3 weeks in the USA while synthetic bags can be delivered within a matter of days or a week. Timely delivery is a major factor in the markets. There is also a problem in ordering minimum quantities with a container carrying 85,000 sacks.

There is little consciousness among users of materials used and promotion is required. End-users are price driven unless buyers specify a material. Therefore, produce suppliers have little reason to choose except on grounds of availability and price. Paper bags are gaining market share by the day as is the dominance of bulk handling for many agricultural commodities. Promotion should be directed at the specifiers who are often open to persuasion on environmental grounds.

There are important technical characteristics that militate against the decline. Jute allows air to pass through and this is important for particular crops such as potatoes and onions when drying. It retains moisture and this helps with cement among other construction uses. Importing burlap is preferred because printing cloth is easier than printing sacks although the numbers of converters active has declined. There are also technical problems with some produce with fibres adhering to potatoes for example or synthetic fibres in cotton. It is preferable for food use particularly the new food grade sacks. Finally, although the up front cost of jute sacks is far higher than its synthetic substitutes, it can safely be used a number of times.

Trade in jute suffered mainly due to price competition from synthetics but also due to unreliable supply and inadequate distribution in some markets. There is not much that can be done to compete with synthetics on price since the disparity is likely to stay for most but by no means all products. Problems of supply arise despite existence of large stocks in some years. They do so because there can be even bigger changes in crops and also because stocks are in producing countries and at the mercy of vagaries of docks and shipping from jute growing countries.

The loss of much of the market in the USA owes at least as much to problems in distribution as to prices. Secondary carpet backing of jute is today cheaper than synthetic substitutes but has not

made a come back because of apprehension on deliveries, poor quality control, lack of product development and no market promotion for the last ten years.

The emphasis in the USA market is on cheap carpets produced in such a large volume that there is not enough jute being produced to supply any one of the three leading producers even if they were inclined to use it. Loss of market share has had as much to do with uncertainties on delivery and quality as on cost. While synthetic producers have improved their product, there has been no technical innovation for jute. Synthetic backing continues to erode jute market share even when jute is cheaper.

Western Europe

Jute has always been better known by potential en-users in Western Europe than in other markets such as the USA for historical reasons. There is a higher level of appreciation of the merits of using jute. Sacking could be used more than once, the carpet market had space in it for higher value products and woven carpets are popular using a great deal of yarn.

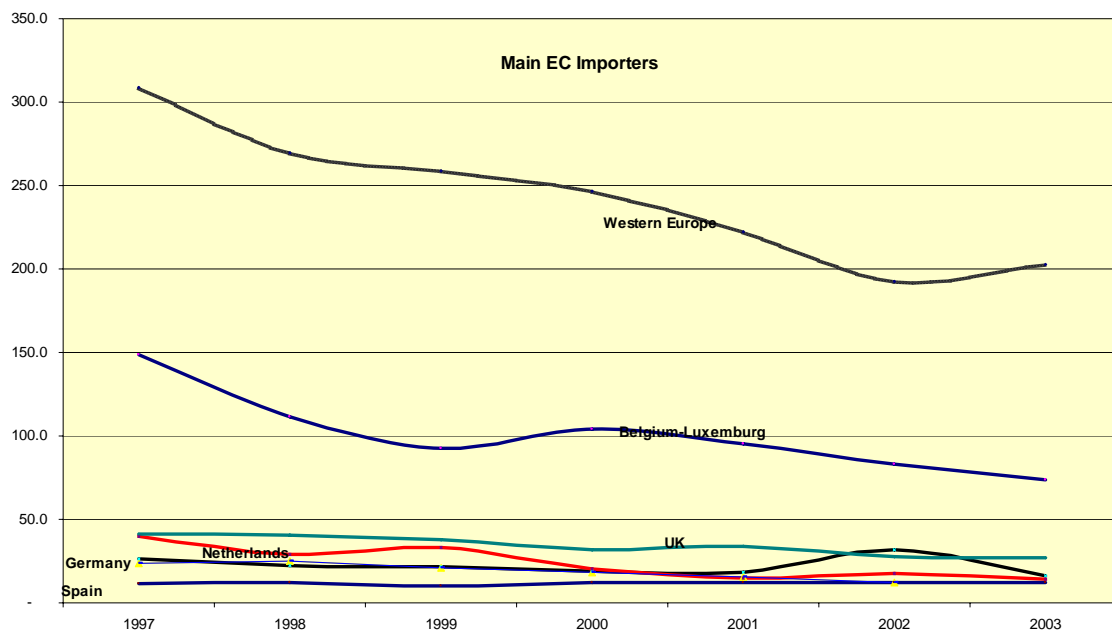


Chart 15 – Source FAO

The sharp decline from 1995 was due to reduced imports was due in part to the decline of imports by Belgium-Luxemburg and the UK related to re-structuring of carpet production to outside the Europe. There was also a decline in imports by Eastern Europe.

2.4 Relative importance of exports

The jute market for sacking is far more important in producing countries, particularly India, than it is in export markets. In contrast, export markets for yarn and CBC are far more important in export markets than the markets in producing countries. Jute sacks are still used for sugar and other agricultural crops in India and there are regulations reserving some commodities for jute sacks while in export markets important applications including use for sugar and wool have been all but lost.

In 1998, more sacking by far is now absorbed within mainly the Indian market than any other product with only 2% of sacking produced in India exported. India now allows limited imports of sacks from Bangladesh. Hessian is the second most domestically consumed product while both, CBC and yarn are produced for export markets more than for domestic consumption.

2.5 Exchange rates

With relatively stagnant dollar prices being paid for jute and jute products in world markets, higher costs of living in the two countries have been partly met through devaluations of the national currencies. These devaluations have been at an uneven rate with India devaluing most, followed by Bangladesh and Thailand and China devaluing least. The recent reversal in the long term decline as far as India is concerned is likely to exert upward pressure in costs of jute production since up to now a steady devaluation has compensated in rupee terms for the lack of increase in dollar ones. It is not clear yet whether this is a temporary development or part of a longer term appreciation.

Relative exchange rates

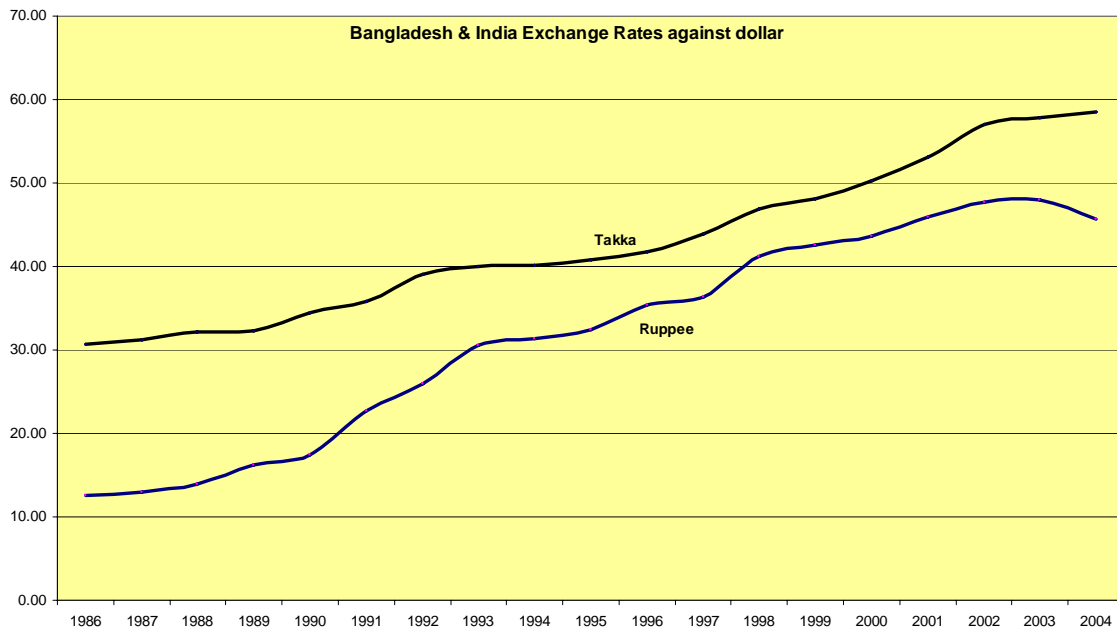


Chart 16 – Source VCA based on various primary sources

Given importance of the industry for India and Bangladesh, the international community has tried to help. The World Bank agreed hundreds of millions of dollars to rationalise the Bangladesh industry although project implementation has all but come to a standstill. UNDP also intervened with \$23 million to assist product diversification in India. Other significant donors included Norway in recent years.

WTO rules are to apply to Bangladesh and India over the immediate future. Application of these rules would hinder regulatory and financial protection for the two leading producers. Without regulatory protection, the Indian industry would have to make re-adjustments and the Bangladesh industry is not viable without substantial state assistance. However, the sector is far too important and thus politically sensitive for the two countries for support schemes to be abandoned in the near or even medium future.

3 CONSUMPTION

3.1 Producing Countries

India is by far the largest producer of jute and if the industry has lost some of its importance and glamour because other industries have developed, it remains very important politically and to the economy. The processing industry has developed as a result of partition from what is now Bangladesh. Faced with declining export markets, producers and processors looked to the growing domestic market to alleviate impact and were given every assistance the Government could give. As a result, India is the world's leading consumer of jute. The margin of protection given to use of jute has in fact resulted in a shortfall in fibre availability and some imports from Bangladesh have been common for some years. In more recent times imports of sacks has increased until today the two are imported in roughly equal proportions.

Indian consumption of jute dwarfs all other users by a very large margin, averaging at 1.6 million tons per annum or over half the jute being produced globally. Central to this consumption is the use of jute for sacking but also Hessian in construction and packaging. There has also been a major UNDP Project of \$23 million to promote diversification which has resulted in modernisation of part of the processing sector and a range of products of blended fibres, the most important of which is the use of jute with cotton in the denim sub-sector with jute accounting for around 10% of the material. This assumes particular importance as India is a major exporter of denim jeans. There are also minority uses that have led to exports such as jute fibre felt for use in automobiles, an all jute carpet, shopping bags and household furnishings.

Bangladesh and China too are major consumers, with the former absorbing 143,000 tons and China 164,000 tons. Given familiarity with jute in China, it is entirely possible that it could develop further as a major export market for Bangladesh.

India

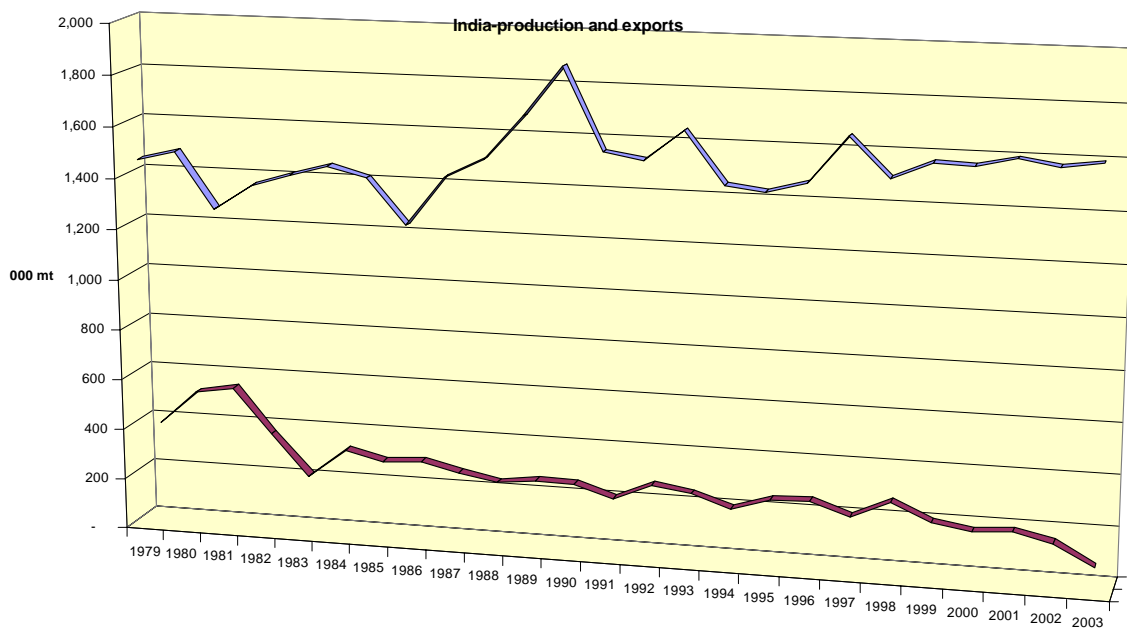


Chart 17 – source FAO data

India is undergoing a period of rapid economic growth and although some jute applications face competition such as sacking for sugar, the need for reusable sacks and the large role of the Government in procurement and distribution of commodities means that the demand for jute is likely to continue to grow. However, the Government also takes into account a growing synthetics lobby and the Mandatory Packaging Act has increased the allocation of polypropylene from 10% to 20%.

Projected imports by India

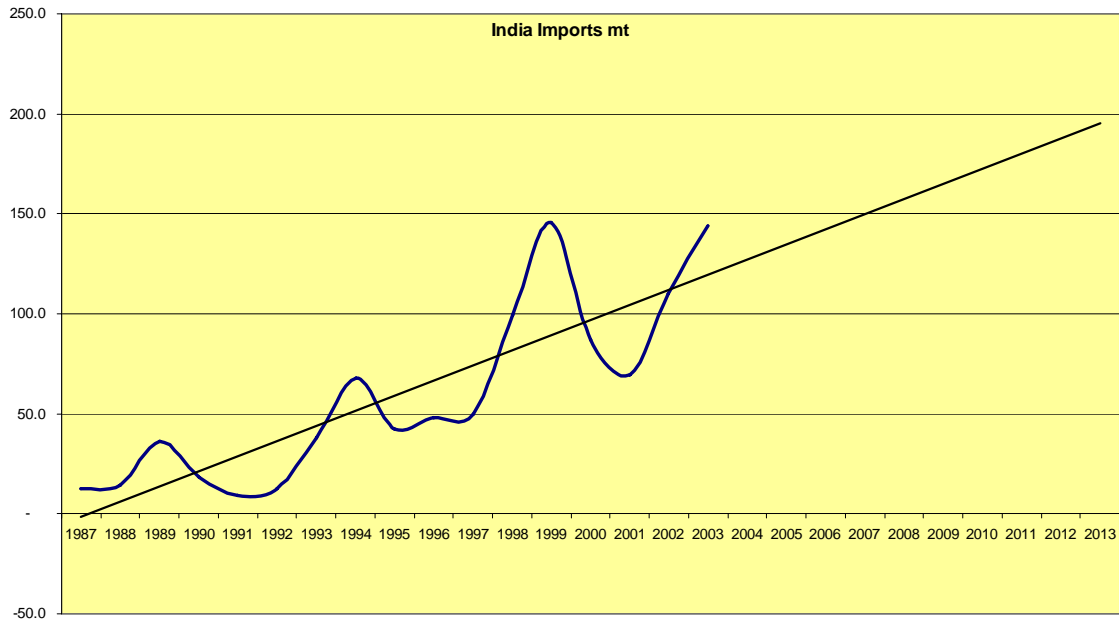


Chart 18 – source FAO

A recent revision to import regulations aimed at promoting regional trade has led to imports of fibre and sacks, currently in roughly equal proportions, from Bangladesh. Although there are times when the Indian industry objects, traders find the proposition attractive and it is very likely that the trend to importing sacks from Bangladesh will grow and India is likely to become and remain a significant importer. How much more India imports depends a great deal on the regulatory regime in the country but given existing trends would import another 50,000 tons in ten years time leading to annual imports of 200,000 tons or an increment of around 5,000 tons per annum (as illustrated in chart 18).

Jute declined in importance as a proportion of exports from India from 3% to the current level of below 0.5%. The proportion of jute produced that was consumed within the local market has also risen (as in the chart below) and is likely to rise further.

Bangladesh

Bangladesh, the only other major producer may grow and process less jute than India, but the sector is, despite growth of other sectors, if anything even more important to the country than for India. Decline in export demand combined to create a large measure of unused capacity. Public ownership has not proven particularly dynamic and the Government is trying to privatise the industry. The jute goods produced are as in the chart below:

Bangladesh production is almost completely export oriented although there are measures to encourage domestic consumption. In some years, exports are higher than production because of the large stocks that are maintained.

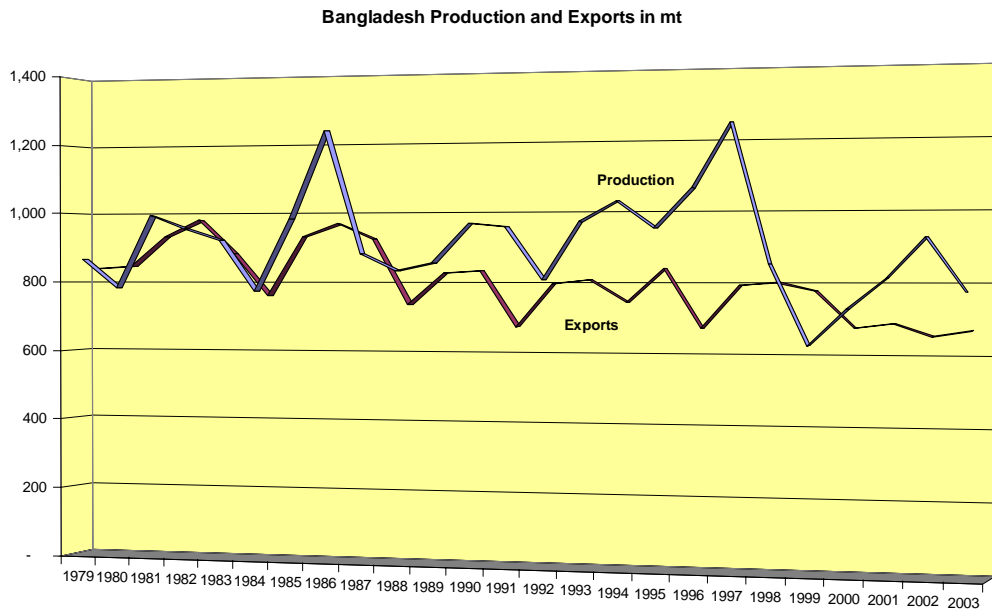


Chart 19 – Source FAO

Others

China and Thailand have largely moved out of jute production although China has become a large importer in recent years.

Projected Imports by China

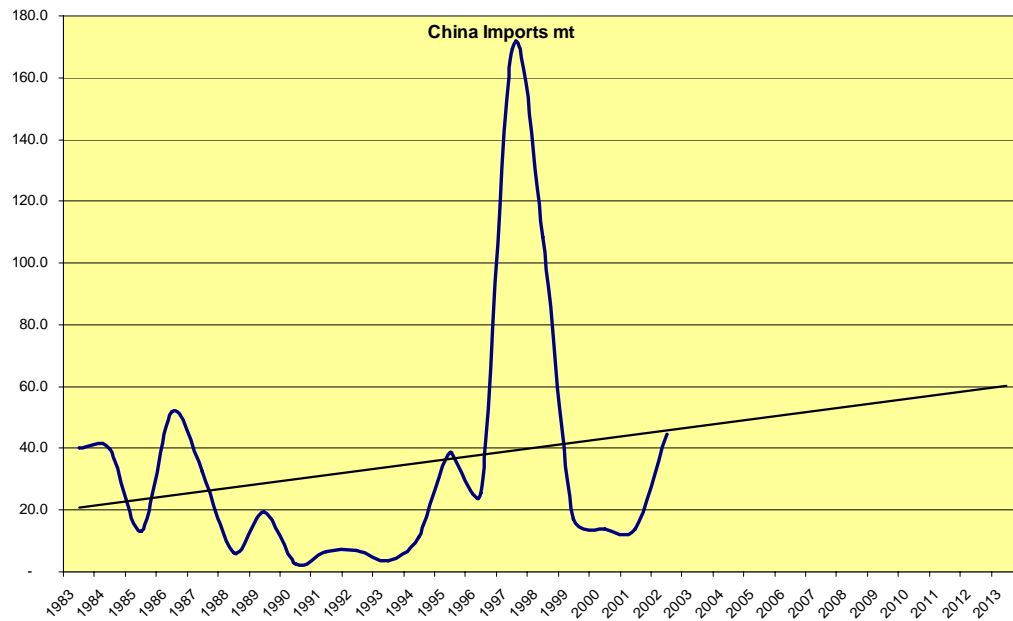


Chart 20 – based on FAO data

There is a question mark over how much of the Chinese market will be lost during this transition from producer to importer. Exporters need to promote continued use of jute in China. There is a slight recovery in production according to latest figures which when considered together with increased imports implies that some processors and suppliers of jute products to the domestic market are returning to jute. How far this process goes or how permanent it is an unknown factor.

China could well use another 200,000 tons of jute imports if the markets lost in recent years were recovered. A more conservative assessment based on trendline would be 20,000 tons additional imports over the next ten years (as in chart 20) leading to 60,000 tons per annum. However, regulatory policy could probably encourage this trend further.

The same development appears also be true for Thailand with signs that production is not going to end entirely and that there is continuing need for jute products.

3.2 *Export Markets*

3.2.1 Traditional Markets

The world market for jute has altered fundamentally over the last quarter of a Century. It was formerly the traditional material for packaging, particularly for commodities, for construction and for some technical uses. After the Second World War it also became the base fabric for a rapid expansion of the global carpet industry. The post war recovery boosted demand for jute.

The buoyant trend came to an end in the mid 1970s although there were already forces at work that would bring about the reversal. The main developments were a revolution in the petroleum industry which was due to generate a continuing series of plastic substitutes for jute and the second was the strongest period of global economic growth ever experienced that would increase markets beyond the ability of jute to supply. If prices paid for jute had greatly increased it is possible that the inevitable would have been delayed with increased production. As it was when faced with impending competition the reaction of the commodity trade was to call for decreases in price. The battle between jute and synthetics was ostensibly fought in terms of prices and the result was inevitable as technical advances and economies of scale took the benchmarks beyond the reach of jute in end-use after end-use.

The jute industry in the producing countries was seeking better returns, not for the farmers but rather for the mills and the traders. There was a major shift from processing in consuming markets to processing in producing countries. The former producers in consuming countries shifted to trading in jute but this was obviously only going to be a temporary development since it was inevitable that those now processing would want the trading margins.

The first substitutes were neither obvious nor cheaper. Instead the rationale for change came from pressure on supply of jute to meet the increased demand. In the mid 1970s when faced with a shortage, supplies to the rapidly growing carpet industry were squeezed and the carpet manufacturers in the USA felt betrayed as they felt their interests were not taken into account. The carpet industry felt that that they could not rely on jute deliveries in the long term and so turned to the synthetic industry to supply them. The latter were able to do that and undercut jute prices substantially at the same time.

Technical inhibitions were tossed aside by the carpet industry and the synthetic manufacturers readily improved their products as well as offering cost reductions that matched the needs of the

carpet manufacturers in producing far larger volumes for a price conscious market. Security of supply and then price and then technical improvements lost jute the primary carpet backing market in the USA and then eroded the secondary backing market. Exports to America went into a decline from which they have not recovered.

At the same time there was an increased trade in commodities that began to use plastic sacks that were far cheaper to buy than jute sacks. Moreover, the major ports started a process of bulk handling that is still in motion. Silos and pneumatic handling were the beginning and today we have containerised handling not requiring sacks. Cargo does not have to be in holds in sacks but instead is in containers that are far easier to load and offload.

The reaction of the jute industry was to cut costs through improved productivity at the farm and processing levels on the one hand. On the other hand, there were efforts to represent producing countries through national agencies in major export markets and a 20 year long campaign through the International Trade Centre to promote the fibre on a generic basis. The squeeze on costs led to state intervention to protect farmers and processors and established a dependent relationship that still exists today. Having Government representatives represent jute in export markets in place of the former trading companies in consuming markets did not prove adequate to the task. There was no road map for jute, just immediate reactions to a deteriorating situation. The ITC campaign bought time at best but it is difficult to promote a material that is incorporated and not very conspicuous in final products at the point at which the consumer makes his decisions. There were also a number of studies on developing non traditional uses which in the late 1970s covered: wiping cloths, carpets, substrate for lamination and rubberising, shopping bags soft luggage. Reference to the list from the late 1970s indicates that not that much changed and the ideas did not lead to any substantial developments.

The main consuming countries in 2002 were India (1.536), followed by China (164) and Bangladesh (143), but excluding jute producing countries for the moment, Chart 19 covers the leading importer consuming countries. If EC were treated as one importer, their position would be the leading importer with 138,000 tons.

The Near East markets including Iran, Syria, Turkey and Pakistan are mostly importing yarn and are likely to continue to do so although not much growth is expected except perhaps for Pakistan which imports yarn for sacking rather than for carpets and could use more although this will depend in part on competition from synthetic sacks in the market.

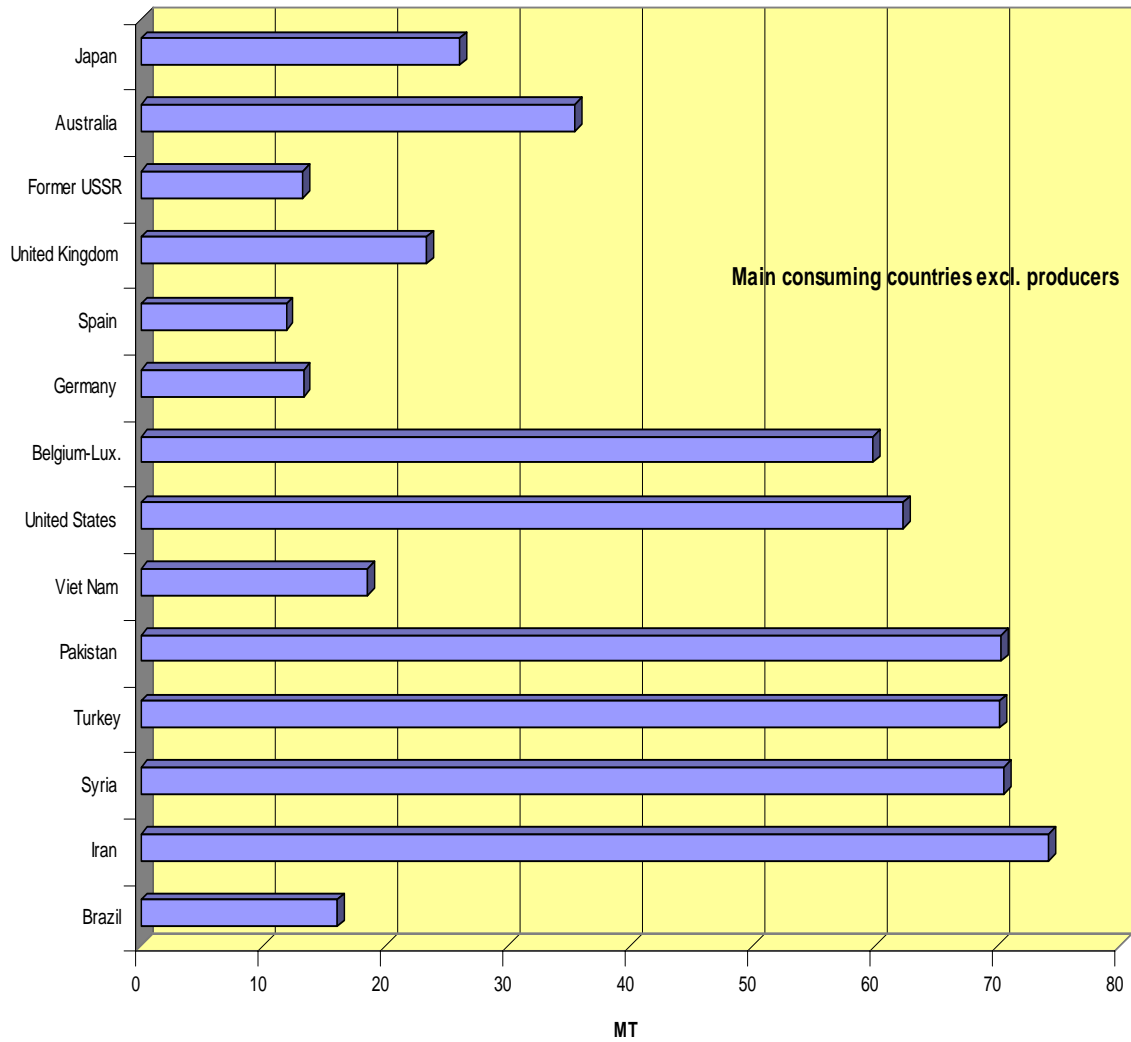


Chart 21 – Source FAO

The deterioration in jute’s position as a leading commercial and industrial fibre which it certainly was at one time is illustrated most clearly by the fact that today Iran, Syria and Turkey are more important importers than the former USSR, Japan, USA, UK, or Belgium. The leading imports today mainly import yarn and secondary carpet backing.

As for the products that are being produced, as illustrated in Chart 20, taking only Bangladesh and Indian production into account, India absorbed nearly 1.9 millions tons, Bangladesh 115,000 tons and export markets nearly 900,000 tons.

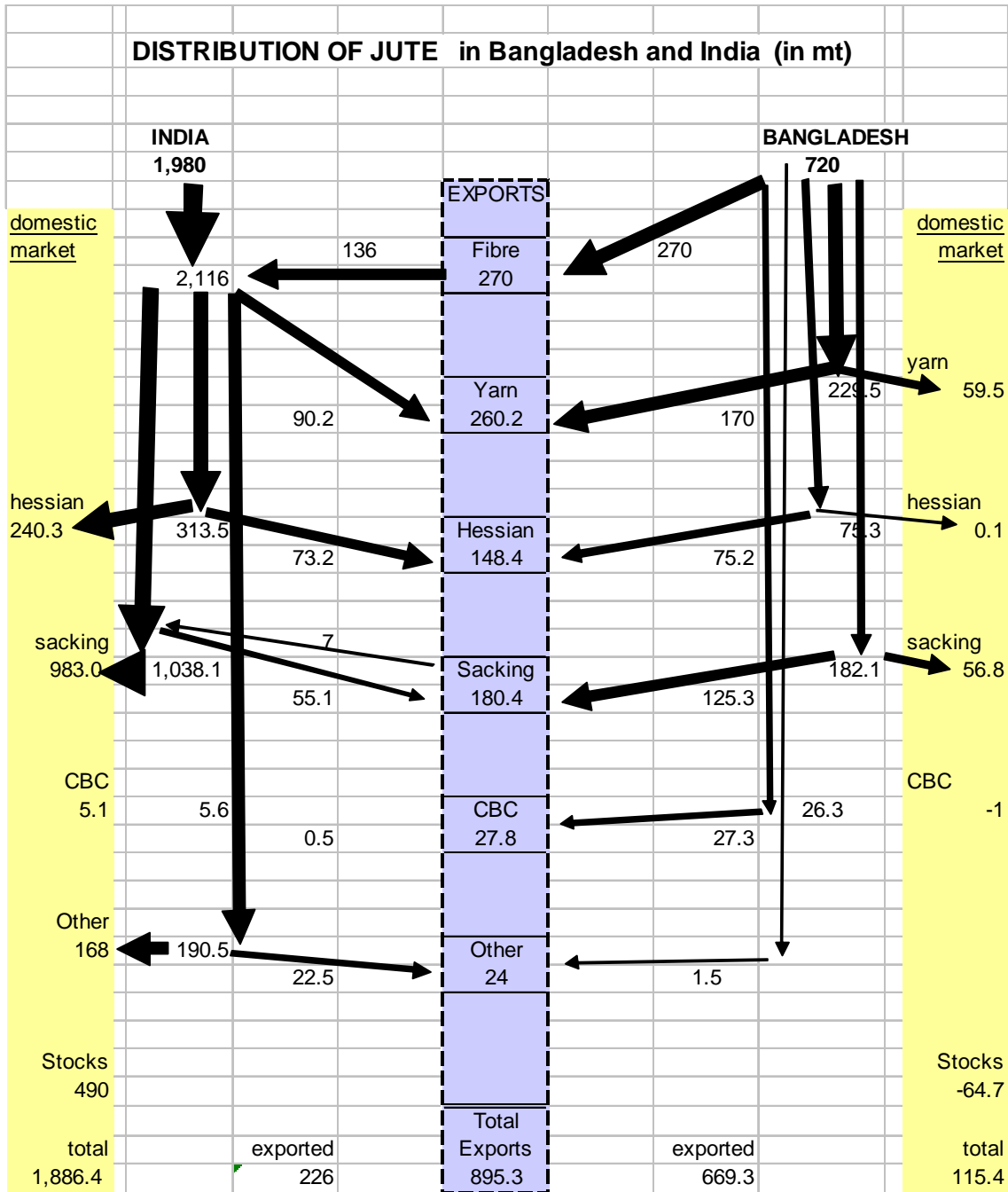


Chart 22 – Source VCA estimates based on various sources

The breakdown of forms in which jute is consumed is illustrated in Chart 21. The others category is mainly yarn. Sacking is by far the most important form in which jute is used even if 81% of it is in India.

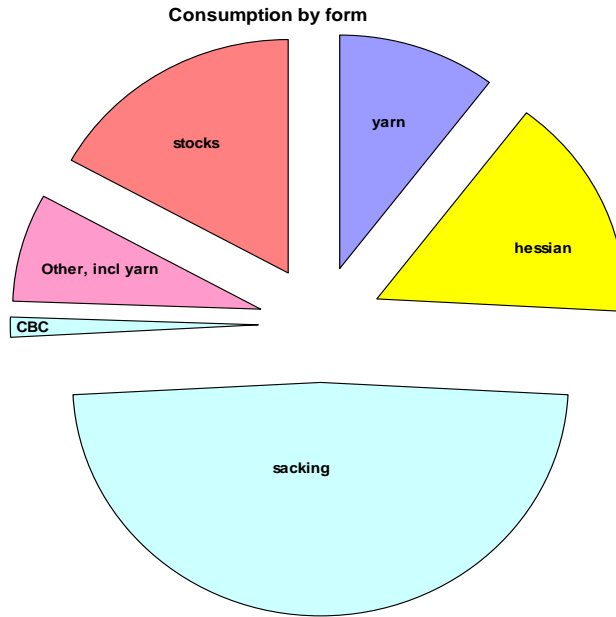


Chart 23 – VCA based on chart 20

The forms of consumption in export markets was as in Chart 24, with yarn being the most important form of consumption today, followed by sacking, Hessian, CBC and other. The other category includes some yarn. Sacking has been displaced from its leading form of consumption and CBC is a pale shadow of its former status. Current market signals suggest that this pattern could be further re-enforced with yarn and Hessian export markets the least at risk and further decline in use as sacking likely. However, it does increase the dependence of jute on markets for yarn mainly for use in woven carpets being produced in Iran, Syria and Turkey. That exposes jute exports to the twin dangers of end-use sub-sector and geographic and political concentration.

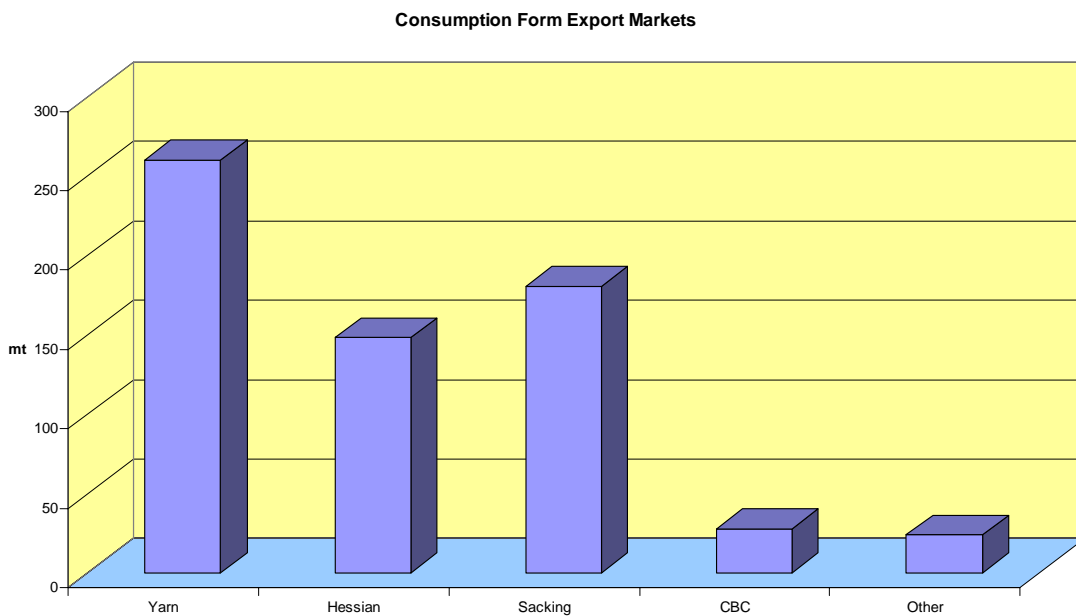


Chart 24 – VCA based on chart 20

There has already been reference to long standing efforts to diversify jute markets and there has been some success.

Arguments for environmental and ecological awareness have gone from strength to strength during the last two decades. Protagonists started off by being considered eccentric, moved to radical, then trendy and are now becoming mainstream. University courses have been launched on new subjects and departments set up to cater to them. Regulatory authorities everywhere are flexing their muscles in developing a new code of practice that conforms to 'green' norms. Even if there is a high level of concern, consumers have only backed it with buying decisions in few areas so far. There is every reason that these areas will grow as they have done for organic foods. Also that corporate awareness of 'green' issues will develop. Yet, such changes in buying behaviour take time and must be encouraged.

In theory the argument for jute and against synthetic substitutes is strong. The fibre is ecologically and environmentally friendly and sustainable while synthetics are not. Consumers are given choice in a small number of cases such as carrier bags, carpets and luggage. In other cases choice is 'hidden from view': it is at the back of carpets, materials used to carry commodities, base fabric for coated fabrics used for weather protection and wrapping, and buried under ground as geotextiles. For the consumer to take the trouble to intervene or to pay a higher amount for shopping bags, requires concern that is backed by action.

Instead, jute continues to be substituted by bulk handling, synthetics but also other materials such as paper, whenever substitutes are cheaper. For purposes for which there are cheaper substitutes available jute has been and is being phased out. Even when there are niche markets that command premiums, there is a preference to use it only when the consumer is going to notice.

That makes it tempting to demand regulatory measures on environmental considerations such as cost of disposal. Recycling is now being widely promoted for automobiles. Arguments that plastic bags clog drainage are very popular in India and Bangladesh at present with a demand that plastic shopping bags be banned. However, what consumers will think of that when good quality plastic bags become abundantly available is more open to doubt. In any case, action on these grounds is unlikely in most consuming countries in the near future.

Some headway is being made as is the case for food grade sacks that are to be used for coffee and cocoa. The trade associations are trying to get members to conform to these requirements that were imposed due to sound technical reasons. There are other areas for which the same argument applies, in the way of illustration, plastic sacks are used to carry lump rubber and contamination leads to a lowering of value, jute sacks, particularly when of food grade would not harm the rubber quality. More such gains are likely particularly if jute producers ensure that they process the material in conformity with environmental considerations.

3.2.2 New Uses

For more than two decades there has been a search for new applications that would take over from low value commodity usage. Interestingly there have been few developments beyond categories under consideration in 1975 The main areas being investigated were:

- Jute substrate for coating or reinforcement
- Barrier fabrics
- Carpets and rugs
- Laminates

- Composites
- Wallcoverings

Most of the above were to prove relatively unsuccessful. Jute substrates found growth only for backing for linolenium. There has been recent investment in Bangladesh to produce cloth for the purpose and this a relatively high value added value development. Barrier fabrics continue to be used mainly for inner spring upholstery for which jute is still favoured. Carpets and rugs were produced in limited quantities in export markets particularly in Finland and Spain but the Bangladesh woven products were not seriously promoted. In recent years there has been a measure of success for high quality carpets being produced in India and production of rugs continues in the USA. Laminate use never really took off and neither did composites at the time. Wallcoverings proved a passing fashion with the high quality European products losing ground eventually to a very low point.

Today, attention has shifted to:

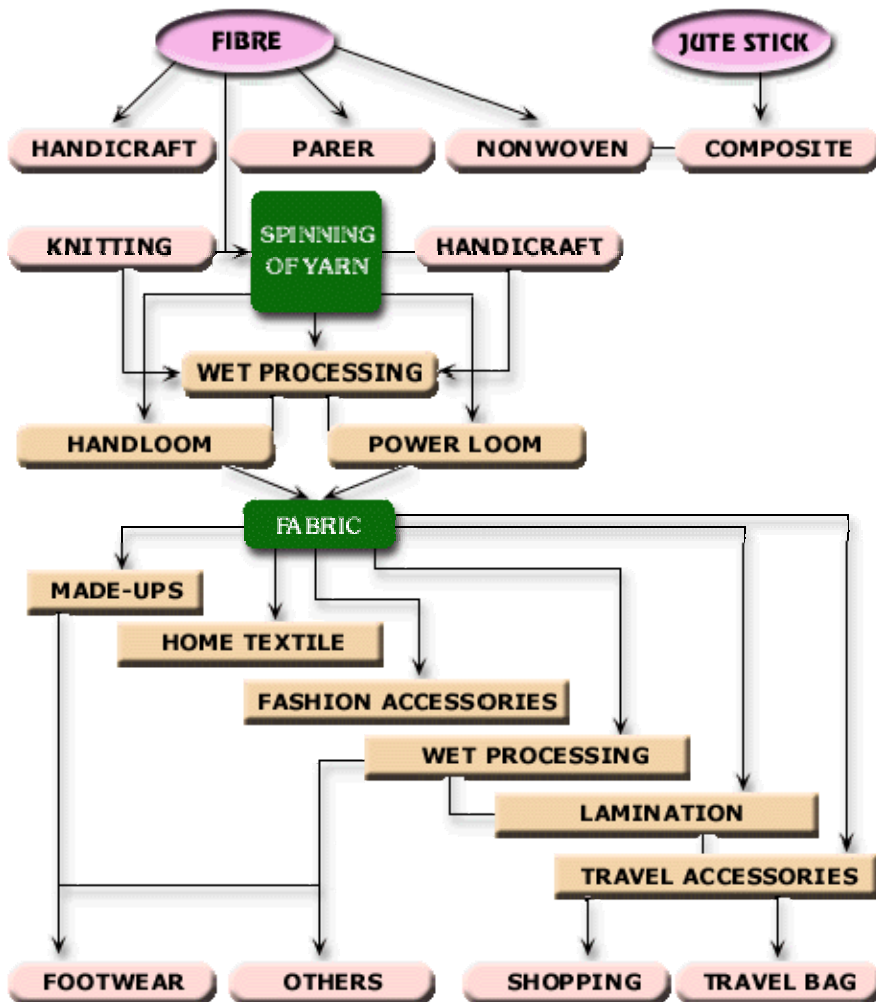
- Geotextiles
- Nurseries
- Garden Centres
- Composites
- Non Wovens
- Pulp
- Home Furnishings
- Textiles

However, there has been considerable refinement of options. Investigation must pay sufficient attention on commercially significant volumes and values. Jute needs to find new or under-used applications that are able to absorb significant volumes if the losses from traditional markets are to be adequately counteracted.

The Indian diversification project is concentrating on the following:

Fine quality of yarn
 Jute yarn with other superior yarn
 Shopping bags, Designer bags
 Jute pulp like paper
 Jute particles boards
 Jute non-woven products
 Jute geo-textile
 Handicraft products

Possible Jute Diversified Industries



Source: National Centre for Jute Diversification, India

With the plethora of directions for jute diversification being advocated, it is important to set criteria by which their implications can be measured. One obvious criteria is the scope for the development application being put forward. That is not to suggest that niche markets, often of high value, should be ignored. Only that efforts have to commensurate with market development scope. The second criterion that appears to have strong merits is the marketability of the resulting products. The latter can be influenced by product development but there are competitive arguments that need to be taken into account.

Some schemes have attracted all those concerned with hard fibres and jute and they include: fibre boards, softening, composites, cutting costs, bleaching, and dyeing. These have entailed giving jute some of the characteristics associated with other materials and fibres in particular. While the approach promises good development scope in the case of household furnishings, clothing and decoratives, a lot depends on viability since it is not much use developing new characteristics at a cost that makes them uncompetitive.

Applying the criteria of market scope, the volumes that can be absorbed by particular market segments is decisive. There are some that offer great potential scope and these include: pulp; geotextiles; garden products; composites; home furnishings; clothing and mixed fibres. Fibre boards could be added to the list and may well be worth considering for jute sticks and waste but efforts over decades with jute, coir and sisal have not led to success. It is a worthwhile market to pursue but only if the resulting product is marketable. In the way of illustration, in 1987 there was already a heat bonding process for coir boards in the building materials technology park in the Philippines which used husks with some silica but the resulting products could not be marketed. This experiment has since been forgotten and the exercise is now being repeated.

There are some areas that where jute has been applied and one of them is geotextiles. The efforts date back to the early 1970s and at one stage with the sub-sector developing rapidly led to early success but marketing and promotion efforts tailed off as market growth became last fast, and the result is that jute share of the end use has not changed much for a decade. Moreover, the sub-sector appears today to be growing at a far lower rate of growth.

Other new end uses that have found their way to production include products, mainly household furnishing and shopping bags, based on mixed fibres resulting from the UNDP project in India. There are a large number of mainly small but some large firms offering the products but they have lacked resources, product development and marketing to enable a significant growth in exports.

Geotextiles

The use of jute for geotextiles is not new. In the latter 1970s it was promoted as soil saver nets which are still being used and a fairly well known product. Initial promotion was by German traders who developed sales of 5,000 tons in the American market by the end of the decade. It grew slowly with others also supplying soil savers and at its peak probably accounted for over 10,000 tons in the USA alone. However, a recent CFC study is pessimistic about the use of jute for geotextiles but we do not agree with their market analysis. It is difficult to quantify sales of jute soil savers and the CFC report appears to estimate current USA consumption at 2,000 tons. However, 4,400 tons of soil saver, the leading product, is reported as being exported by India. Nevertheless, there is considerable scope for misreporting use as geotextiles; our estimate based on market interviews is relatively higher.

A report by ITC in 2002 estimated the total global geotextiles market at 1,500 msqm The CFC Report cites 250,000 tons of synthetics being used but our own estimates are higher with the market sector estimated as being 500,000 tons and 800,000 tons in jute material equivalent. Some reports suggest that only 55,000 tons of natural materials are being used shared by straw, fibrous waste, coir, jute and a very minor part of sisal. The global use of jute for geotextiles is probably in the region of 10,000 tons. Statistics on the matter are confused partly because exports of soil savers mainly from India are only one form in which geotextiles reach the market. Hessian cloth and needlefelt are also being used.

Jute Geotextiles comes in two varieties -woven and non-woven fabrics.

The distinguishing features that make it more eco-friendly are e:

- High moisture absorption capacity
- Bio-degradability
- Flexibility

- Drainage properties

GeoJute finds Applications in:

- Erosion control
- Landscaping
- Separation, filtration and drainage in civil engineering works
- Agricultural uses

Various technical criteria are applied in choice of materials including the rate of biodegradability; tensile strength; sheer resistance; affect of wind and water; moisture absorbency; cost; ease of installation; and cost. Different materials are more useful for specific applications than others. For natural materials a great depends on the degree of environmental consciousness of specifiers and buyers. Fortunately, there are many who do pay attention to these criteria but equally many who don't. Jute is particularly favoured by landscape designers and for civil construction.

Following a period of relatively high degree of awareness of biodegradability as important criteria, there appears to be less awareness today in the USA and in any case the market has reached a plateau where growth is at a lower rate than recent years. As a result, jute is being sold into a more price conscious market where it is at a disadvantage when compared to straw or fibrous waste.

Two seminars in London and Geneva last year brought together key jute producers with invited researchers, environmental consultants, suppliers, contractors and specifying authorities. Specifications were agreed which jute geotextiles would need to meet to satisfy environmental and geotechnical engineers. The obvious uses in erosion control were generally known, but it was interesting to note that composite products involving jute in combination with synthetics, or jute together with coir, can offer optimum solutions in other areas. In the way of illustration, jute netting is used often in Germany as backing for coir stitched blankets. Jute yarn can also be used instead of cotton for the products. Some applications are clearly suited to jute, but the material characteristics need more elaboration. Other applications are more easily satisfied by the other types of geotextiles.

It is difficult to project future demand but the Consultant would estimate that another 20,000 tons of jute could be sold to the sub-sector globally over the next 5-10 years depending on the marketing input although caution is necessitated by the pessimistic conclusions of the Consultants who undertook the CFC study.

Home Garden Centres

The market for home garden centres is believed to be comparable in value terms to that of geotextiles although there is more limited scope for using jute. Among products already being sold are twine and plant liners.

One part of this sub-sector that is already being developed is for wrapping around fruit trees in nurseries and a 7 oz 20" x 44" Hessian sheet is being used with a potential demand for 1.5 million pieces in southern California alone.

A 8.9 oz Hessian sheet of 80"x80" is being retailed for grass clippings. The sheets are reused and have proved to be very popular and there is scope for developing this product.

There are very substantial potential markets for products to be sold to consumers but product development work is required together with convincing large outlet chains such as Wall Mart who would then place orders to established suppliers. A possible direction would be to promote jute as a material to ease replanting of ornamentals which generally come in plastic or terracotta containers and have to be taken out for replanting with attendant soil loss in the process. Consumers are satisfied with that system but there is no harm in embellishing higher value products with jute straps or light wrapping to ease the replanting operation. One such product if developed and retailed on a large scale would have significant potential.

The Consultants estimate that around 2,000-4,000 tons of jute are being used by the sub-sector and with adequate product and market development inputs there is no reason why this could not be increased to twice that volume with a ten years target of 10,000 tons per annum.

3.2.3 Current Market Developments

Yarn

The market for yarns, the most significant form in which jute is exported, is considered by trade sources contacted to be relatively free of risk in the foreseeable future. Jute is considered the ideal material for weft in woven carpets and efforts to use substitutes have not been successful. This end use will depend largely on the popularity of woven carpets as well as use for face yarn in rugs.

There is an element of risk, however, in that the main markets are Turkey, Iran and Syria, countries that vary in degree of political stability in a volatile region. Even temporary loss of any of these markets for any reason could threaten demand for yarn in the short to medium terms although that will not affect substantially the demand for woven carpets.

Sacking

As already noted, jute sacking is more expensive to buy than polypropylene by a factor of 2-6. In addition, the increasing popularity of bulk handling continues to erode jute use. Trade sources in USA were opined that use of jute is set for further falls. In part, this process is inevitable and irreversible. One incidental effect is that more importers are now content to import finished products rather than undertaking it themselves.

There are some uses which look safe in the near future such as cocoa, coffee, edible nuts and other food products particularly with food grade sacks being used. It is important to safeguard the reputation of jute by avoiding contamination during processing and care should be taken to avoid arsenic contaminated water in Bangladesh and West Bengal. Competitors would use any failing to do so with dire consequences.

However, many uses are being lost without a struggle. Not only does jute and, in particular food grade sacks, have many characteristics that favour its use, but also the sacks if reused are not as uncompetitive with synthetics as the up front purchase price would suggest. Some sub-sectors as is the case for sand bags are switching to synthetics even when jute has superior technical qualities. In flood control, jute is distinctly superior but requires the advantages to be promoted. The same can be said for emergency food aid which even when sent to jute producing countries is in pp sacks. There is a good reason

for this in that when required there is a very short delivery time and tender procedures favour those materials that are produced in purchasing countries and available at call.

In particular, the loss of markets over recent years in South America and Africa has been pronounced. Bulk handling, particularly in Africa, is no where near as advanced as in Europe or USA and there is scope for targeting these markets with better distribution and aggressive marketing. Additional sales of 10,000 tons to Africa and 20,000 tons to South America would only recover markets lost in recent years and are realistic targets.

More significant gains are possible by promoting use of jute sacks where there are particular problems such as contamination of lump rubber. The Consultants estimate that 50 million 20 kg sacks equivalent are being used for the purpose and a target of over 25,000 tons of jute sacking could be absorbed over a 5-10 year time scale. Indonesia is by far the leading producer of lump rubber but is also produced in most rubber producing countries.

Even protected markets such as India are under threat. Every argument on availability due to labour unrest or poor harvests is used by the synthetic lobby to exempt protected uses. Although India has increasing demand for packaging and jute is a known well distributed product, production of synthetic bags is growing and the lobby is getting stronger particularly as the latter are now being exported. To some degree, it is also important to promote the markets in China which are coming under similar pressure.

Hessian

Hessian has a wide variety of uses and no study has provided disaggregated data. Hessian is a general purpose material for which many uses are found in the market place. A great deal of spontaneous product development takes place under such conditions. It should be possible to undertake a detailed study but would require that to be a specific objective of a study. Something that does need to be undertaken in order to be able to promote this sub-sector.

We do know that one of the main uses is for packaging. Rolls of textiles are often wrapped with jute. It has more extensive application for packaging as a general purpose packaging material. Jute is also used in the construction industry for keeping concrete moist while setting. It is by far the most favoured material as a barrier fabric used to cover spring structures in upholstery and with the popularity of inner spring constructions, use is not under threat. Jute webbing is also used as a substitute for springs in furniture.

Minor uses for Hessian also include as geotextiles, plant liners, nurseries and some is still sewn as sacks for specific uses.

Carpet Backing Cloth

One of the biggest reversals for jute over time is its declining use as carpet backing cloth. It was replaced almost entirely as a primary backing and has lost most of its market share as secondary backing. India has all but stopped producing it and Bangladesh exports have fallen to around 25,000 tons in a market that is over 400,000 tons in the USA alone and globally probably over 800,000 tons. During the period of decline all sorts of explanations have been cited, many

shrouded in technical terms. However, jute is an excellent material for secondary backing and that fact has not changed. Neither is it impossible to win back some market share.

The main reason why jute began its decline was that of unreliable supplies and price volatility. It then became more expensive than synthetic substitutes but is today around comparable levels if not often cheaper. Price was a factor in the decline but the industry does not probably even know the share of carpet backing as a cost with any accuracy and some consumers are aware of buying natural fibres thus providing a good promotional factor.

A window of opportunity is provided by the fact that the producers of synthetic carpet backing and geotextiles are themselves in trouble. Production has become a commodity and margins are very tight. One of the largest producers, synthetic Industries, is for sale and believed to be in financial straits. The other is believed by trade sources to be open for offer from its existing owners, Amoco. Those producing synthetic substitutes to jute thus find themselves in a crisis.

Others

- Jute continues to be favoured for tarpaulins and India is reportedly producing 86,000 tons of tarpaulin cloth.
- Some 10,000 tons is estimated by the Consultants as being sold as geotextiles.
- A growing volume, estimated in excess of 2,000 tons is being sold to garden centres as plant liners and for use in nurseries.
- Doormats of coir and jute are of increasing popularity.
- Daimler Benz uses jute felts for padding in their cars, some of which is believed to be supplied from India. Other manufacturers could follow suit but not many have the same degree of insulation as Daimler.
- An all jute carpet is being produced in Kerala and it is believed that after reaching 4,000 tons of exports it does not appear to have continued to increase production by any significant amount. This may well be a strategic rather than market limitation.
- Wiping cloths of jute are used and this could be developed further by preparing them in a more convenient form for dispensing.
- Jute cloth for linolenium backing is now being produced in Bangladesh as well as India and in export markets.
- Technical end uses appear to be continuing.
- A finer yarn and superior lighter fabric from Bangladesh has led to limited sales in the high price end furnishings market.

- Soft luggage is fashion driven and it is important to undertake product development that is consumer oriented.
- There are healthy sales of shopping bags but being promoted mostly by relatively small producers in an ad hoc fashion. The range of products has grown.
- Indian manufacturers of blended fibre products are trying to promote their products but more product development needs to be undertaken and sales efforts are under funded.

Market Development Scope

This particular study is a global stock taking assessment with selected field work in USA mainly and some in Europe. It is not a market research study and coverage and budgets were strictly limited. However, at the request of SEDF some very general indicative estimates are given below. There would have to be targeted comprehensive market research to take these figures beyond what they are, merely indicative based on this study and other work undertaken over the years.

Estimated global scope for jute					
in tons					
Annual				5 years	5-10 years
Item	USA	Global	Jute	Trend	Potential Jute
Sacking	1,000,000	4,000,000	1,500,000	- 150,000	1,600,000
CBC secondary backing	429,293	858,586	25,000	- 1,000	70,000
Yarn-jute relevant	400,000	1,200,000	322,000	2,000	340,000
Hessian	300,000	900,000	483,000	5,000	490,000
Carpets - jute relevant	50,000	100,000	10,000	- 2,000	20,000
Geotextiles	171,429	428,571	10,000	-	25,000
Felt	100,000	300,000	2,000	1,000	6,000
Tarpaulin			38,000	- 1,000	60,000
Canvas			50,000	- 1,000	55,000
Decoratives			5,000	2,000	12,000
Webbing			600	-	2,000
Twine			100,000	10,000	120,000
Market Garden Products	15,000	45,000	3,000	1,000	10,000
Total			2,548,600	- 134,000	2,810,000

The trend is what is likely if no counter measures are taken. The potential column is what could be achieved through product and market development. The resultant is that the Consultants expect the market for jute products to decline by 134,000 tons over the next 5 years but are of the opinion that this could be more than compensated for by timely action and an annual increase in sales of 270,000 could be achieved over a 5-10 year period.

4 SWOT

4.1. *Strengths*

1. Jute is a natural fibre, biodegradable and sustainable. Its production has been long established and although there has been a decline in production over a fairly long period of time, it would be possible to increase production in a relatively short period of time.
2. The fibre has well known and tested attributes of tensile strength, resistance to shearing, high moisture absorbency, inertness, allows air to pass through, stability and non toxicity.
3. Although less well known than it used to be, it remains a leading material in sacking, yarns, carpet backing, upholstery, shopping bags, cordage, twines, construction, packaging, geotextiles and a whole host of technical uses such as filters, insulation, rubber coating, belts, cable wrapping, tarpaulin, linoleum backing, and less well known applications.
4. Processing has shifted to a large degree to producing countries bringing much needed added value and employment.
5. Jute enjoys large established domestic markets that assure its continuing use.
6. Enjoys price support and protection in its main markets.
7. Remained a low cost material in real terms.

4.2 *Weaknesses*

1. Some of the traditional end-uses are no longer required in some market segments such as in packaging where bulk handling has displaced sacking.
2. For over two decades synthetic substitutes were developed that had less weight, more strength and were far cheaper leading to increased competition in end uses such as sacking and carpet backing.
3. The industry is fragmented and individual exporters and those representing them lack the resources to match competing material suppliers for product and market development and promotion.
4. The main response to the challenge of competition was to try to cut costs which proved disastrous when a lighter weight secondary carpet backing was promoted and cut the margins of growers and processors often to below viable levels.
5. Price volatility.
6. A reputation for less than totally reliable delivery.

7. Unease in consuming countries about business relationships with suppliers.
8. There was a lot of talk, money and research on diversification that has not been translated into sold products.
9. Very little is known about developments and possibilities in some markets including those in Africa, South America, South-East Asia and China. Market studies have been undertaken on restricted budgets and have tended to focus on USA, Europe and Japan with no serious market studies at all for over five years except for the CFC Geotextile study..
10. There has been a lack of direction, focus and resources in developing new end-uses.
11. The shift of processing to producing countries also led to former traders reducing their interest in jute.

4.3 Opportunities

1. The synthetic industry has gone through its period of treating substitutes to jute as marginal cost contributors and tries to earn profits.
2. Synthetic substitutes to jute have also been commoditised with low rates of return and production is being moved to lower wage countries. As a result, the industry particularly in USA is in the midst of a crisis with the leading production facilities up for sale.
3. There is no decisive technical reason why the American carpet industry could not increase its use of jute secondary backing.
4. While the richest industrialised countries are switching away from sacking to bulk handling, there are very many countries that can not switch to bulk handling in the near or medium future.
5. There are new end uses that offer good prospects for developing, some of which could absorb substantial quantities of jute.
6. Technical developments have led to blending of finer jute yarns with others in union and intimate blends.
7. These same technical developments also allow for production of household furnishings, apparel and decoratives.

4.4 Threats

1. The substantial export sacking market accounting for over 180,000 tons annually is under pressure from bulk handling.

2. Some leading medium sized jute importers in USA have ceased operation for reasons unconnected with problems facing jute and this is likely to lead to a reduction in imports of sacks in particular.
3. Reduction of jute exports is leading to a reduced level of material consciousness in some markets.
4. Reductions in some former markets may soon approach loss of critical mass if allowed to continue unabated.
5. The Indian market depends on regulatory protection to a large degree and this cannot be taken for granted.
6. A record of falling world markets and low margins are leading to some jute processors being closed and others to diversify away from jute.

5 CONCLUSIONS

The main conclusions reached are as follows:

1. World production of jute has declined 500,000 tons from 1979 to today, averaging 20,000 tons per annum. But the decline was particularly marked from 1995 during this period. The decline trend in production has been mitigated by increased consumption within the Indian market. Indian production over the period has actually risen from 1.2 to 2.0 million tons with the in Bangladesh falling from 1.2 to 0.8 million tons.
2. Jute production must be considered in light of how jute/rice based farming systems are reacting to market and price developments. India tends to give a higher margin of support today to jute than to rice and this has had a positive impact on increased productivity through fertiliser application and improved seeds while Bangladesh gives a larger degree of support to rice than to jute leading to a reduction in area planted to jute and production.
3. Chinese production has declined from a peak of 765,000 in 1984/85 to 146,000 today and that of Thailand from a peak of 495,000 in 1973/74 to 57,000 today. Myanmar production from 75,000 to 42,000 tons from 1980 and Nepal from 59,000 to 18,000 tons over the same period.
4. Imports have halved during 1978-2003 from 1.8 million to 0.9 million tons. The most pronounced development for jute therefore, has been the 800,000 ton decline from 1978 in quantities traded. The decline was most pronounced for developed countries whose imports fell during the period by 700,000 tons, compensated by an increase in imports by developing countries until 1986 to 853,000 from when they have reverted to 630,000 tons. The collapse of the former USSR and the

consequent decline in jute imports during 1978-2003 from 190,000 to 13,000 tons mainly during the 1990s worsened the situation.

5. Decline in jute markets in America came first with the sharpest decline during 1978-88 and it particularly affected demand for carpet backing cloth. The former USSR market also declined over this period but the sharpest falls were after it collapsed in 1990. Western Europe came next with the biggest decline coming after 1995 partly due to a restructuring of the carpet industry with some production moved out of Europe and mostly due to synthetics and bulk handling affecting demand for jute sacks.
6. The decline of jute in world markets has been mainly at the expense of competition from synthetic substitutes but also from bulk handling which have slashed the export of sacking and all but eliminated the role of jute as carpet backing in the USA and to a lesser degree in Western Europe.
7. Jute sacks cost more than twice, sometimes six times what polypropylene sacks cost but carpet backing was initially lost through inability to supply or maintain price stability. Synthetics were not only available on demand but for some time were cheaper, quality was improved and the materials promoted.
8. Production of Hessian has fluctuated over the years but has remained relatively stable at around 400,000 tons, in peak years having climbed to over 600,000 tons. Production of sacking has grown continuously from 800,000 tons in the 80s to today when it stands at 1,200,000 tons with the domestic Indian market more than compensating for decline in export markets. Carpet backing cloth production reached a peak in 1973 with production of over the 234,000 tons produced in Bangladesh and India and has fallen to the current level of 25,000 tons. Yarn production has grown to the current level of 260,000 tons.
9. In the face of the decline in markets, producing countries concentrated on cutting costs through increased productivity and processing labour costs and state intervention in the form of regulation of prices and central procurement schemes, market development and promotion and a search for new end uses.
10. Costs could not be reduced enough, higher yielding seeds led to deterioration of quality of fibres, market development and promotion bought time but did not reverse trends and new uses did not account to anything substantial. The state intervention helped but with rising indebtedness and idle capacity at Bangladesh jute mills and greatly increased consumption in the protected Indian market.
11. The export markets for Hessian and yarn are holding firm, that for carpet backing cloth has declined to a low level and some new markets were penetrated, particularly geotextiles.

12. India benefited from a \$23 million UNDP project designed to modernise plants and diversify. It led to supply of felt to the Daimler Benz, use of jute for up to 10% of materials in jeans, jute carpet production and finer yarns making possible blending with other fibres. However, the many small enterprises that have resulted lack the means to mount product and market development.
13. In Bangladesh the NORAD project led to a fine yarn and a new lighter softer, less hairy fabric which has resulted in a trickle of exports of high quality furnishings, bags and plant liners but needs capital investment to allow it to reach critical mass and blending of fibres for a larger market.
14. The search for new applications has attracted more attention. The CFC study was meant to look at the relative attractiveness of using jute, sisal and coir for geotextiles but has resulted in rather pessimistic conclusions of potential for jute. Our findings and those of ITC differ with the CFC study and are more positive of potential but limited by the fact that the market is now growing at a decreased rate of growth.
15. It is possible to look again at some of the old areas previously examined such as wiping cloths, padding for cars, soft luggage, and at new areas such as use for plant liners and similar applications for garden centres. But none of these offer anything substantial in volume terms.
16. For substantial impact, it is necessary to look at traditional areas such as sacking particularly for developing countries where distribution and market intelligence would have to be enhanced. There also appears to be a window of opportunity to recapture lost market share in the way of secondary carpet backing that are worth considering.
17. As far as new applications are concerned, three areas offer substantial scope, namely, blended fibres, composites and jute sticks and fibre for pulp. They have been long debated and considerable research undertaken. It should now be possible to look at the commercial viability of the three propositions. Viability is conditioned by the fact that for composites and pulp cost is going to be a decisive factor since jute would have to compete with many alternatives that can be used. Of the two, paper appears to offer greater scope and there is active interest among traders while potential buyers for jute composites remain more ambiguous.
18. Blended fibres are technically viable. Many particularly small imaginative producers have demonstrated commitment, confidence and enthusiasm rather than marketing finesse. Not enough has been done about exploring markets and identifying product and market development work required. There is a big gap between what producers think consumers will be prepared to buy and what they are indeed willing to buy. Most importantly, no producer has the ability to develop the markets by themselves.

19. The most serious obstacle is that many consider jute a 'sunset industry'. One body of trade opinion, it includes one of the largest jute importers to the USA, feels that the markets lost are irretrievable and were and are so mainly due to technical reasons and price. Unfortunately, many in the industry in producing countries and officials share this perspective. All efforts to change the situation become doomed to failure. A situation made more serious by the fact that those holding this view are often in the driving seat as far as industry development is concerned.
 20. Another body of trade opinion, and it includes a leading importer to the USA as well as one of the leading Consultants to the carpet industry, is convinced that nothing fundamental has changed except for bulk handling and that it is possible given adequate arrangements to recapture part of the secondary carpet backing market as well as expanding sales for garden centre products, sacking to developing countries and to develop application for pulp and paper. We belong to this body of thought. We would add blended fibres to the list above.
 21. It is very important to look at the two bodies of thought above and to take appropriate action according to the view endorsed. There has never been a road map for jute and it is about time there was one.
- Parallel to this stock taking of the situation with a field emphasis on USA, the International Jute study Group has funds to commission a study on the European market as part of preparation for just such a road map. They are in the process of commissioning ITC to undertake the study. If the current exercise is used as a feed in the process and further research is authorised to investigate areas of uncertainty, including re-examining the markets for geotextiles, garden markets and nurseries, a road map could well be developed. The International Erosion Control Association is raising funds to undertake a long due detailed market study on geotextiles and results will be important in framing a strategy for jute.

6 RECOMMENDATIONS

Recommendations depend greatly on which of the two broad bodies of opinion referred to above and copied below are accepted:

1. The most serious obstacle is that many consider jute a 'sunset industry'. One body of trade opinion, it includes one of the largest jute importers to the USA, feels that the markets lost are irretrievable and were and are so mainly due to technical reasons and price. Unfortunately, many in the industry in producing countries and officials share this perspective. All efforts to change the situation become doomed to failure. A situation made more serious by the fact that those holding this view are often in the driving seat as far as industry development is concerned.
2. Another body of trade opinion, and it includes a leading importer to the USA as well as one of the leading Consultants to the carpet industry, is convinced that nothing fundamental has changed except for bulk handling and that it is possible given adequate arrangements to recapture part of the secondary carpet backing market as well as expanding sales for garden centre products, sacking to developing countries and to develop application for pulp and paper.

1 Sunset Industry Perspective

Global jute production is declining and can be allowed to continue the decline as a natural market adjustment process. New industries have risen in prominence in India and Bangladesh and the substantial gas deposits in Bangladesh can be used as basis for developing new materials that could replace part of the jute market.

The perspective is based on conclusions that:

- jute sacking cannot compete with synthetic sacks because up front cost is more important as an argument than reuse,
- bulk handling is any case the favoured direction of growth except in small niche markets.
- the market for carpet backing cloth is irretrievably lost due to the technical and price superiority of synthetic substitutes and it is not possible to switch back,
- too much hype has exaggerated potential in geotextiles.
- composites and pulp rely on the cheapest possible source of feed and jute will not be able to match alternatives.

The former body of thought would require producing countries to look carefully at the farming systems based on jute and rice to assess the implications for farmer returns of changing the balance of incentives to reduce areas planted to jute over a period of time. As in the case for Bangladesh this would probably lead to continued decreased area and production of jute.

The second implication that flows from this view is that the processing industry should be scaled down as quickly as possible. The World Bank project designed to do this and never implemented was correctly targeted but did not sufficiently take into account the political collateral of an accelerated closure. The gradual policy now being implemented would have to be taken further in the face of serious political opposition.

Within this framework, higher value end use applications should be given priority over volume low value ones. Production of finer yarn, blended fibres, and lino backing cloth, furnishings and mixed fibre products such as carpets, rugs and door mats would be lines to be explored in any case.

2 Marketing Oriented perspective

Materials and particularly commodities compete for markets and this is a natural state of affairs. Markets are dynamic and there are few irreversible developments in the process. There are constant processing, product and marketing adjustments that need to be made in the face of market forces.

Jute is a natural sustainable fibre of remarkable characteristics that enriches soil and is eco friendly. It has played a positive role in the development of the world economy and there is no powerful logical reason to regard it as a 'sunset industry'.

The fibre was used for carpet backing for sound technical and economic reasons. Those reasons have not changed. What happened is that suppliers responded in a customer insensitive fashion when supply was short and this led to the industry in the USA in particular to turn to the synthetic industry which could supply just in time, low cost and technically improving products. Most of all there was a loss of business confidence and this is something that can be changed. There is no great technical argument that rules jute out.

Its use as sacking has been substituted by synthetics mainly and now increasingly by bulk handling. But there is plenty of room for jute sacks in the world markets. It is necessary to study leading developing country markets to identify viable distribution strategies.

The demand for yarn and Hessian remains solid and is likely to persist in the foreseeable future.

If jute and jute sticks could be used for pulp for paper a major new end-use would become established but everything depends on costs and commercial viability should be urgently explored. Care has to be taken in that jute sticks are now an important source of revenue for farmers.

Use of jute for composites keeps being raised but the Consultants are dubious that the price would be attractive for the jute industry except perhaps for jute waste. Proponents of this development have never detailed precisely what would be the target market and appear to want Bangladesh to pay for the initial product development costs that would be high.

Blended fibres offer the third possible route that would account for a major use of jute and the technical viability of union and intimate blends has already been established. What is required is product and market development and this should be undertaken as soon as possible. It is not enough to leave it to small to medium producers who lack the resources for doing so.

Another idea often promoted is use of hard fibres and jute for heat bonded boards for the construction industry. In the early 1980s, a full scale plant to do so with coconut husks was established in the Philippines with German funding but were not able to market the resulting boards. The experiment is now being repeated with CFC funding for coir. Sisal producers are anxious for it to be undertaken for their fibre. It is important to be wary of exploring the same costly experiment for jute without emphasis on commercial aspects.

Jute is the ideal material in some landscaping and erosion control applications. It is being used for these and the market is growing at a slower rate than it did initially.

Nurseries and market garden centres present an opportunity that some in export markets and a few in producing countries have been developing. The task here is to come up with product applications which have to be consumer and retail oriented rather than directed at traders.

There are a host of minor in volume terms applications such as felt for padding in automobiles, household furnishings like cushion covers, jute carpets of a higher quality mainly for the contract market and soft luggage. Despite being minor in volume terms, some of these uses are of high value.

Then there are potential applications that could be developed such as use of jute for apparel and clothing. A great deal of product development work is required before this application reaches commercial viability but could amount to fairly substantial diversification.

The Consultants are inclined to the second perspective but what matters is the perspective that the jute producers and their governments ascribe to. There is a sharp divide amongst

Consultants on the question and both perspectives have evidence they can cite to substantiate their respective positions. What is required to be done flows naturally from which understanding is accepted. The former leads essentially to a defensive strategy while the latter requires positive action.

The Consultants strongly believe that it is a product and market development problem rather than one requiring reduction in costs and dependency on traders or buyers which is the traditional commodity approach.

7 ACTION PLAN

1. A road map is certainly needed, will depend on which perspective is adopted, but will not come without focus and care. This stock taking exercise presents avenues that should be explored. The International Jute Study Group exercise in Europe hopefully later this year may provide further food for thought.

The Jute Study Group exercise includes market research in Europe and in this study there has been some field research in USA albeit of a limited nature. By combining the two we will have a sufficient idea of developments and possibilities but not all components to sketch a road map for exports.

Another component in the proposed IJSG study is local markets and production. This could usefully include consideration of jute farming systems, incentives and disincentives currently on offer and those that could be put in place.

The IJSC includes India and the Bangladesh Government needs to consider how best to include India in the preparation of a road map.

All this assumes that the proposed study does indeed go ahead and is of a high order. SEDF could usefully discuss these matters with the Study Group.

2. There is an urgent proposal on the table that needs a decision before the window of opportunity it refers to closes, namely, the prospect of re-capturing some of the lost secondary carpet backing market in the USA. The Consultants believe that it should be pursued urgently but this will depend on Bangladesh and SEDF priorities and resources.

The nature of the opportunity requires that it be pursued by parties other than national or exporters. The Consultants propose a 4 man team including a representative of the leading USA importer, a long standing adviser and confidant of the carpet industry, a machinery specialist and a Marketing Consultant. The machinery specialist would survey the leading plants in Bangladesh to assess their capacity to meet the USA specifications if results of initial discussions in USA are favourable while the other three would hold initial discussions in the USA to assess reaction from the prospective buyer/s.

Depending on the results of the USA discussions, the technical survey can take place and the Bangladesh Government can decide whether the proposition should be explored further. At this point the proposal would become a proposition and suitable follow up action taken.

3. Market Research should be undertaken specific to the needs of the rubber industry to assess the possibility of targeting lump rubber for jute sacking. This should consist of discussions with International Rubber Representatives in Thailand and Malaysia.
4. Market Research of the situation in Africa and South America is long overdue. It should concentrate on product application scope and distribution in main markets to reach targeted end users. The Research could be organised by ITC but would require financing by CFC or SEDF.
5. A Feasibility Study on possible use of jute for pulp should be undertaken to ascertain the commercial viability of the application. CFC is a possible source of funding for this perhaps to be implemented by SEDF.
6. The World Bank loan for restructuring and rationalising the Bangladesh Mill sector was never utilised. Perhaps a more palatable approach would be to combine the need for a phased restructure with the need to update some plants to meet market specifications and positive action to develop markets. This should be taken up with the World Bank by the Bangladesh Government.
7. A Bangladesh version of the India UNDP Project would seek to upgrade plants, develop mixed fibre products as in the case of India and other applications being developed in Bangladesh. Such a project could be combined with the suggested World Bank restructuring assistance or could stand alone. But in either case, it should heed the lesson learnt in India and be far more marketing oriented than was the case in India.