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THE WORLD JUTE ECONOMY

(in two volumes)

VOLUME I

HE WORLD JUTE MARKET

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South Asia Department

CURRENCY EQUIVALENTS

US $ 1.00	=	Takas (T) 7.28(official rate)
US $ 1.00		Takas (T) 7.9(floating rate as of January 1973)
T 1.00	=	US $ 0.137
T 1 million	=	US$ 137,000

INITIALS AND ACRONYMS

AEJI	-	Association of European Jute Industry
BCJC	-	Bangladesh Central Jute Committee
BCSIR	-	Bangladesh Council for Scientific and Industrial Research
BJA	-	Bangladesh Jute Association
BJMC	-	Bangladesh Jute Manufacturing Corporation
BJMC	-	Bangladesh Jute Marketing Corporation
BJPSC	-	Bangladesh Jute Price Stabilization Corporation
BJRI	-	Bangladesh Jute Research Institute
BJTC	-	Bangladesh Jute Trading Corporation
IJCS	-	Intensive Jute Cultivation Scheme
IJIRA	-	Indian Jute Industries Research Association
IJMA	-	Indian Jute Mills Association
JARI	-	Jute Agricultural Research Institute
TRL	-	Technological Research Laboratores

THE WORLD JUTE ECONOMY

VOLUME I: THE WORLD JUTE MARKET

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(This report was prepared by mission consisting of M. Lav (Chief), E. Grilli, J. Harrison, K.J. Hong, and C. Ladonne (all general economists), R. Morrison (Industrial Consultant), and M.S. Sarma (Agriculturalist, FAO/IBRD). Field work was conducted in major producing and consuming countries from November 22, 1972 to January 15, 1973.)

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THE WORLD JUTE MARKET

SUMMARY

Introduction

1. Jute has been an internationally traded commodity for more than 180 years. In 1793, the first shipment from India to Europe arrived in Dundee, where it was hoped that this newly introduced fiber could be processed into materials to replace flax and hemp products. Although jute was stronger than flax and more flexible than hemp, technological difficulties kept jute manufacturing from attaining significant commercial importance for some time. However, persistent supply problems with flax and hemp (obtained mostly from Russia) provided sufficient impetus for repeated experimentation in the U.K. with jute (which could be imported from India) and by 1833 technology had advanced sufficiently so that all-jute cloth could be woven on a commercially feasible basis. A key factor in the commercial success of the new technology was the adaptation of machines previously used for flax processing to a more efficient process based on jute. Jute also promised to provide more stable supplies at lower prices than flax or hemp.

2. The wheel has now turned almost full circle. Jute products, based on a stagnant or slowly changing technological base, are themselves now facing strong competition from products and processes which have been evolved through serious, well-financed, and long-term research and development efforts. A key element in the jute-replacing technology is the adaptation of basic processes and machines used in jute manufacturing to allow the use of synthetic substitutes. The threat is not of recent origin; the competition has been building during the last several decades as consumers became increasingly disturbed with the costs and fluctuations of the jute market.

World Production

3. Worldwide production of raw jute grew at less than 1 percent per year during the 1950's to 2 million tons at the end of the decade then increased rapidly in 1961/62 to 2.6 million tons (as India expanded output to replace declining imports from Pakistan) and has since remained at approximately that level. Bangladesh produces about one half of all raw jute, India about 40 percent, and Nepal about 2 percent with the remainder distributed among a large number of countries. Production of lower quality fibers similar to jute (especially kenaf in Thailand and China, and mesta in India), increased rapidly from 100,000 tons in 1950 to 1 million tons in 1961/62 but showed no growth thereafter. Increased production of jute, kenaf, and mesta was essentially the result of increased acreage as yields have remained almost constant. Production trends for both raw jute and jute goods are included in Table A below.

Table A: PRODUCTION OF RAW JUTE (INCLUDING RELATED FIBERS) AND JUTE GOODS
(ooo's of metric tons)

	Raw Jute				Jute Goods /a			
	India	Pakistan/b	Others	Total	India	Pakistan/b	Others	Total
1951/52	670	948	211	1829	983	1	566	1550
1961/62	1456	1304	831	3511	1096	273	1544	2913
1970/71	1116	1163	1010	3289	1042	478	1352	2922
1971/72	1231	777	1219	3227	1252	305	1293	2850

/a On a world-wide basis, jute goods production is normally less than raw jute production because: (i) village consumption is not counted and (ii) there is a wastage factor of 5-6 percent in manufacturing. In addition, changes in stock positions can cause discrepancies in any given year.

/b Pakistan, rather than Bangladesh, is used in this table since Bangladesh only became independent on December 16, 1971. When referring to events after that date, this report will refer to Bangladesh.

Source: FAO

4. The most distinctive changes in the production of jute goods have been the continuous increase in Pakistan's share over time (except for the war-induced decline of the last 2 years) and the increase in production in other countries (mainly Western Europe) in the 1950's followed by declining production in those countries in the 1960's. Production in Pakistan increased from 1951/52 to 1961/62 reflecting a large increase in capacity, then leveled off for several years, at 275,000 to 300,000 tons as no new capacity was installed. However, a large investment program in the middle of 1960's enabled production to increase by over 100 percent from 289,000 tons in 1964/65, to 587,000 tons in 1969/70. The years following 1969/70 saw production drop markedly to about 305,000 tons in 1971/72. Current trends in Bangladesh indicate a likely level of about 450,000 tons in 1972/73.

5. The output of manufactures in India stagnated over the last 20 years, with the notable exception of the last 2 years when production for export increased partly to absorb world demand resulting from the decline in exports from Pakistan. Exports from India had been declining before this, from a level of about 960,000 tons in the middle 1960's to little more than 600,000 tons in 1970. Overall demand for goods remained constant in India only because of large increases in domestic consumption.

6. Perhaps the most important element in the decline of India as an exporter of jute goods was the squeeze imposed by tariff and quota barriers in Western European markets, on the one hand, and, on the other, Pakistan's aggressive expansion of exports supported by a differential exchange rate system that provided cheap raw jute to her domestic manufacturing industry. Jute prices in Pakistan were typically about two thirds of Indian jute prices (see Volume II for an analysis of this system). The differential exchange rate system was removed by the Government of Bangladesh on January 1, 1972, and raw jute prices quickly rose by about 55 percent. India neither subsidized nor protected her jute industry, but, on the contrary, imposed export taxes on hessian, sacking and carpet-backing of varying amounts over the years, from 6-37 percent for hessian, 5-31 percent for sacking and 6-29 percent for carpet-backing. The Indian jute industry was also constrained by limited raw jute supplies, especially after 1965 when import of raw jute from Pakistan ceased.

7. The differing government policies in India and Pakistan were of crucial importance in determining market shares. Pakistan was able to underprice India in hessian and sacking, so that by the end of the 1960's Pakistan had captured about 85 percent of the combined sacking export market of the two countries and about 45 percent of the combined hessian export market. India retained most of the combined carpet-backing market, largely because Pakistan's capacity in carpet-backing increased much more slowly than in hessian and sacking. Had Pakistan invested more in carpet-backing capacity, it is quite likely that significant inroads would have been made in this market.

8. Pakistan's discrimination against raw jute exports in favor of exports of jute manufactures promoted a profitable domestic jute manufacturing industry and proved to be an important determinent of world jute trade. These policies kept domestic raw jute prices low and led to smaller jute crops,[1/] which in turn led to high world market prices for raw jute and the search for jute substitutes. In the developing countries, this encouraged the rapid growth of kenaf, mesta, and similar fibers which are combined with jute to allow production of cheaper goods. Since allied fibers such as kenaf, were typically 40 to 50 percent less expensive [2/], but are most efficiently used in a given ratio with jute in producing manufactured products, they have probably been an important factor in preserving the jute market. The limited quantities and higher prices of raw jute that resulted from Pakistan's policies also had important effects in the developed countries where, synthetics and other products were substituted for jute and where bulk handling reduced the need for packaging materials thereby diminishing the jute market.

1/ That raw jute production is price elastic has been verified in a number of studies. C.F., R. Repetto, Optimal Export Taxes in the Short and Long Run: Pakistan Policies Towards Raw Jute Exports.

2/ The current price level of kenaf is about the same as that of raw jute. This is no doubt a reflection of the recent shortage of raw jute and it is expected that the price of kenaf will soon decline.

World Demand

9. Demand for jute 1/ expanded quite rapidly in the fifties and early sixties in all the major consuming areas. In the early sixties, the development of new uses and markets sustained the growth of world jute demand even when traditional outlets such as packaging began to shrink under the impact of changes in technology and consumers' preferences. The development of the carpet-backing market in the early sixties more than offset the losses suffered in packaging and other industrial applications in developed countries. Consumption of jute in felts, padding and wall coverings also expanded considerably and new markets were found in centrally-planned countries where, especially in the USSR, jute replaced flax. Table B below gives an indication of the changing consumption patterns for jute in the decade of the sixties.

10. Since the mid-sixties, the development of suitable synthetic substitutes gave users in consuming countries the alternative of locally produced goods at prices which were stable in the short run and declining in the medium run. As against this, jute goods were imported products which were not always available and whose prices were unstable and trending upwards under the impact of supply shortages and increasing costs of production. A research and development effort of considerable proportions was undertaken by synthetics manufacturers in developed countries and progressive quality improvements made their products increasingly acceptable to consumers. Economies of scale in production allowed synthetics producers to sell at continuously lower prices. When the battle between jute and synthetic substitutes was truly joined at the beginning of the current decade, the events in the subcontinent severely disrupted supplies of raw jute and gave synthetics manufacturers another critical advantage. New massive investments in plants for the production of various types of synthetic substitutes for jute are now in the making, and synthetics producers' strategy and expectations have changed from those of penetration into jute end-markets to that of elimination of jute in all major markets.

11. Tariffs and quotas have played a major role in limiting the world jute market. When competition between jute and synthetics developed into a major factor, tariffs and quantitative restrictions on imports of goods from jute producing countries effectively precluded the consumers in Western Europe and other areas from the opportunity of purchasing jute goods at world prices and provided an umbrella under which, in recent years, the domestic industries of many European countries could carry out a comfortable transition from jute to the manufacture of synthetic substitutes. Tariff levels have been at about 20 percent ad valorem, and quotas have provided considerable protection. The Western European market was about 33 percent of the total world market in the early 1960's and declined to 27 percent of the total market in 1970. The cost of these import restrictions has indeed been great, and aid-giving countries especially should realize that the restrictions they have imposed are, in part, responsible for the large aid requirements of important jute-producing countries.

1/ The term jute in this section refers to true jute, kenaf, mesta and allied fibers.

Table B: ESTIMATED WORLD CONSUMPTION OF JUTE AND JUTE GOODS BY MAJOR CONSUMING GROUPS AND END-USES 1961-63 (AVERAGE) AND 1964-66 (AVERAGE) AND 1970

(thousand metric tons)

	1961-63 average	% of total	1964-66 average	% of total	1970	% of total
A. Developed Countries	1,331	(46)	1,411	(41)	1,314	(38)
B. Centrally Planned	494	(17)	724	(21)	834	(24)
C. Developing Countries	1,097	(37)	1,292	(38)	1,312	(38)
Total (A + B + C)	2,922	(100)	3,427	(100)	3,460	(100)
of which:						
Packaging & Industrial	2,450	(84)	2,780	(81)	2,590	(75)
Carpet Yarn & Cloth	205	(7)	300	(9)	420	(12)
Cordage	125	(4)	140	(4)	150	(4)
Felts & Padding /1	30	(1)	45	(1)	75	(2)
Others	112	(4)	162	(5)	225	(7)
		(100)		(100)		(100)

/1 In developed countries only.

Source: IBRD, Economic Analysis and Projections Department.

12. The ability of jute to survive as a viable product for consumers and as an important source of income and foreign exchange for producers depends on what will happen in the world markets during the next few years. Availability, prices, and product improvements will determine the future of jute. The options and time available to the producing countries have shrunk considerably as the result of the most recent market developments and considerable efforts will have to be made to restore the credibility of the product, to maintain existing markets, and to plan ahead for the development of new ones. The world jute demand picture which emerges from the projections can be characterized as follows: (a) world jute consumption is likely to grow very slowly throughout the seventies; (b) most of the demand growth is expected to take place in developing producing countries (particularly India and Bangladesh); (c) of all the other major consuming areas, only in Africa and in the centrally planned countries (mainly People's Republic of China) is jute demand expected to increase; and (d) utilization of jute in developed countries is foreseen to decline quite considerably, particularly in Western Europe.

13. Table C summarizes the projections for world demand. Both alternatives (I and II) assume that raw jute and jute goods prices will decline on the average by about 20 percent in the short run and will be maintained throughout the seventies at lower levels competitive with prices of synthetics. Alternative II, however, assumes (a) that reduction or elimination of tariffs and quantitative import restrictions in Western Europe will help to cushion the fall in jute consumption; (b) that the People's Republic of China will develop its own raw jute and synthetics production more slowly and import larger amounts of raw jute; and (c) that import substitution efforts in Africa will be less successful than is generally anticipated.

14. The world import demand projections reflect the fact that substantial growth in jute consumption is expected only in producing countries. The expected fall in jute utilization in Western Europe is fully reflected in the projected decrease in import demand. In centrally planned countries, the import policy of the People's Republic of China is likely to determine whether overall import demand of raw jute will decrease or increase marginally throughout the current decade. Developing countries as a whole are expected to import more raw jute but less jute goods. The net effect is very likely to be an overall stagnation of import demand. The increase in consumption projected for Africa is expected to be net of domestic production. In Latin America a stagnant overall demand and increased domestic production will likely result in a fall in import demand.

15. World imports of raw jute are projected to decrease rapidly during the seventies, while world import demand for jute goods is generally expected to remain stagnant. The most significant change in the pattern of imports is likely to take place in Western Europe, where relaxation of tariffs and other import restrictions would considerably affect the conformation of

Table C: WORLD CONSUMPTION OF JUTE AND JUTE GOODS, 1970 (ACTUAL) AND 1980 (PROJECTED)

(thousand metric tons)

	1970		1980				1970-1980	
	Quantity	% of Total	Projected (I) Quantity	% of Total	Projected (II) Quantity	% of Total	Implied Growth Rate (I)	(II)
							(percent per annum)	
A. Developed Countries								
Western Europe	553	(16)	280	(8)	330	(9)	(- 6.5)	(- 5.0)
North America	489	(14)	440	(12)	470	(12)	(- 1.1)	(- 0.4)
Other Developed	272	(8)	175	(5)	190	(5)	(- 4.3)	(- 3.6)
Total	1,314	38	895	25	990	26	- 3.8	- 2.7
B. Centrally Planned Countries								
Total	834	24	1,050	29	1,100	29	+ 2.3	+ 2.8
C. Developing Countries								
Asia	835	24	1,150	32	1,150	31	+ 3.3	+ 3.3
of which: India	(550)	(16)	(800)	(22)	(800)	(21)	(+ 3.8)	(+ 3.8)
Bangladesh	(56)	(2)	(85)	(3)	(85)	(3)	(+ 4.2)	(+ 4.2)
Thailand	(40)	(1)	(45)	(1)	(45)	(1)	(+ 1.2)	(+ 1.2)
Others	(189)	(5)	(220)	(6)	(220)	(6)	(+ 1.5)	(+ 1.5)
Africa	281	8	300	9	330	9	+ 0.7	+ 1.6
Latin America	196	6	190	5	195	5	+ 0.0	+ 0.0
Total	1,312	38	1,640	46	1,675	45	+ 2.3	+ 2.5
D. Total World (A + B + C)	3,460	100	3,585	100	3,765	100	+ 0.4	+ 0.9

Note: Alternative I assumes price reductions at about 20 percent.
Alternative II assumes in addition favorable developments for trade including:
(a) lower tariffs and few import restrictions;
(b) larger export to People's Republic of China; and
(c) less import substitution in African countries.

Source: Economic Analysis and Projections Department, IBRD.

Table D : WORLD IMPORT DEMAND FOR JUTE AND JUTE GOODS, 1970 (ACTUAL) AND 1980 (PROJECTED)

(thousand metric tons)

	1970 (Actual)			1980 (Projected)						1970-1980 (Implied Growth Rate)					
				Jute		Jute Goods		Total		Jute		Jute Goods		Total	
	Jute	Jute Goods	Total	(I)	(II)	(I)	(II)	(I)	(II)	(I)	(II)	(I)	(II)	(I)	(II)
A. Developed Countries															
North America	33	428	461	18	23	422	447	440	470						
Western Europe	447	116	563	180	85	100	245	280	330						
Other Developed	144	127	271	80	85	95	105	175	190						
Total	624	671	1,295	278	193	617	797	895	990	-7.7	-11.1	-0.8	+1.7	-3.6	-2.6
B. Centrally Planned Countries															
Total	142	77	219	125	165	75	75	200	240	-1.3	+1.5	0.0	0.0	-0.9	+0.9
C. Developing Countries															
Asia /1	65	78	143	110	110	70	70	180	180						
Africa	62	160	222	70	90	105	115	175	205						
Latin America /2	15	101	116	15	15	80	85	95	100						
Total	142	339	481	195	215	255	270	450	485	+3.2	+4.2	-2.7	-2.2	-0.6	0.0
D. Total World (A + B + C)	908	1,087	1,995	598	573	947	1,142	1,545	1,715	-4.0	-4.5	-1.4	+0.5	-2.5	-1.5

/1 Excluding producing countries.

/2 Excluding Brazil.

Source: IBRD, Economic Analysis and Projections Department.

import demand. The heavily protected domestic jute industry would progressively shrink under the impact of import liberalization and raw jute would be substituted by jute goods imports. The outcome of current and future trade liberalization efforts will largely determine the overall rate of decline of world import demand.

16. While the overall demand picture is not bright, one important factor could alter that picture considerably. Product development based on a serious research and development effort could evolve new commercially feasible uses for jute. It is also appropriate that at this juncture, the jute-producing countries themselves have taken the lead in establishing an international institution for this purpose. An Inter-governmental Conference, held in Dacca in January 1973, set in motion the machinery to establish an international jute organization. It would be premature to discuss at this point the still-evolving details of the organization. It would also be somewhat premature to incorporate the potential impact of such an organization into demand projections for jute. However, the time is long overdue to focus attention on the need for an international research, development and marketing effort to improve the jute position. The greatest need is for product development and for new techniques to lower production costs. The analysis presented in this report projects potentially severe consequences for those countries which depend on the income and foreign exchange which jute provides. Those who are concerned with these potentially severe consequences -- producer countries themselves, international aid organizations and bilateral donor countries -- should seriously consider appropriate support of this research effort.

A Projection of World Supply

17. Table E below summarizes the change in the pattern of world supply which is expected to take place between 1970 and 1980.

18. The advantage of Bangladesh over India in producing raw jute is reflected in the projected export of raw jute from Bangladesh to India. With world import demand projected to decline and with a large increase in domestic demand projected for India, it is assumed that Bangladesh will increase exports of jute goods. Most of the increment will probably be carpet-backing for the U.S. and perhaps other developed countries. It is further assumed that raw jute production in India will not increase as freer trade with Bangladesh would allow import of raw jute at lower cost than would be possible from increasing production of jute in India.

19. Although the quantity of exports of raw jute from Bangladesh is projected to increase by about 8 percent during the decade, and the quantity of manufactures by 19 percent, projected price declines suggest that export earnings may increase by smaller amounts. One factor operating against this trend is the expected increasing importance of carpet-backing in the mix of exported goods. Since carpet-backing earns about 50 percent

Table E: SUPPLY OF JUTE AND JUTE GOODS[a], 1970

(Thousands of Metric Tons)

	1970					
	JUTE			JUTE GOODS		
	India	Bangladesh	World Total	India	Bangladesh	World Total
Production	1,129	1,321	3,460	1,099	587	3,289
Domestic Consumption[b]	1,155	658	2,522	514	21	2,230
Exports	-26	625	908	549	566	1,147

	1980					
	JUTE			JUTE GOODS		
	India	Bangladesh	World Total[c]	India	Bangladesh	World Total[c]
Production	1,125	1,400	3,850	1,248	685	(3,590) (3,770)
Domestic Consumption	1,325	725	3,300	798	40	(2,643) (2,628)
Exports	-200	675	(603) (558)	450	645	(947) (1,142)

[a] Jute goods production is normally less than raw jute production because: (i) village consumption is not counted; (ii) there is a wastage factor of 5-6 percent in manufacturing. In addition, changes in stock positions can cause discrepancies in any given year.

[b] Includes stock adjustments.

[c] Upper bracketed figure refers to Alternative I while lower bracketed figure refers to Alternative II (see Table C).

Source: for 1970 data FAO, IJMA, BJMA.

more foreign exchange than sacking and 25 percent more foreign exchange than hessian, it is distinctly possible that Bangladesh may enjoy a reasonable increase in foreign exchange earnings, and that India may maintain foreign exchange earnings from jute. Since current output levels are only about one half of feasible capacity, it should be noted that projected increases in demand do not call for increased capacity, but rather for increased utilization of current capacity.

Conclusions

20. The mission is firmly convinced that the fundamental cause of the present precarious position of jute on the world market is the inadequate attention given to jute research over the past several decades. While major Western chemical companies spent tens of millions of dollars developing synthetic substitutes for jute, and foundations and aid donors spent large amounts on rice research, jute research, particularly in Bangladesh, was stagnant. Small wonder that today jute can compete neither with synthetics abroad nor rice at home. While the policies suggested in other parts of the report will help the competitive position of jute in the short- and medium-term, the mission is convinced that no improvement in the long-term competitive position of jute is possible without an innovative, vigorous, well-financed and well-staffed jute research program. The fact that at least three or four years are likely to pass before such a program could make a substantial impact is all the more reason for beginning the program immediately.

21. In the short run, there is much that can be done to improve jute's competitive position. Pricing and exchange rate policies need to be carefully reviewed, the manufacturing sector could implement programs to increase efficiency, and agricultural production could be improved by proper application of known techniques and inputs. The text of the report presents a detailed analysis of suggested reforms and the reasons why they are needed. There is every reason to believe that a vigorous attack on the problems now facing jute can yield improvements which will bring continued growth for the world jute market.

THE WORLD JUTE ECONOMY

VOLUME I: THE WORLD JUTE MARKET

I. HISTORICAL BACKGROUND

1. Jute has been grown in Bengal and other regions for centuries. It is an annual plant which grows best in hot and damp climates, and which requires considerable inputs of labor for both cultivation and processing. Fiber is obtained from the inner bark of the plant by retting (steeping) the stems in water and then separating, by hand, fiber from bark. While over 30 species are known, only two, Corchorus capsularis (white jute) Corchorus olitorius (tossa jute) are widely grown.

2. In addition to jute proper, a number of similar fibers have become increasingly important in recent years. Of particular note are kenaf, most of which is grown in Thailand, and mesta, of which India is the most important producer. These fibers, which were not produced in any quantity until the early 1950's, now account for about 30 percent of the total production (by weight) of jute and allied fibers.

3. The traditional use for jute was for making sacks for agricultural and other commodities. Until the 1800's production was confined to cottage industries in India, and consumption of jute was generally limited to areas adjacent to the regions where it was grown. In 1793, a shipment of 100 tons was sent to Dundee for experimentation in an attempt to discover whether mechanized production of jute fabrics was possible. At that time, almost all sacks in Western Europe were made either of flax, a material with little strength, high costs, and an uncertain and highly variable source of supply (Russia), or of hemp, which was strong but could not be woven finely enough to make bags suitable for most purposes. The early experiments with jute met with failure, largely because the existing technology was not easily adaptable to jute production - jute fiber was too long, too rough, and too dry. After 40 years of experimentation, in 1833, methods were found to treat jute (by applying oil) so as to make it more suitable for processing. Commercially feasible modifications of flax-processing machinery were also evolved which enabled existing machines to process jute.

4. These events had important consequences in achieving commercial feasibility of large-scale production. An important stimulus on the demand side to jute production occurred in 1838 when the Dutch Government placed a large order for coffee bags to facilitate transport of coffee from the East Indies. The Crimean War of 1854-56 cut off Russia from world markets, and jute producers quickly capitalized on the ensuing shortage of flax and hemp. Supplies of jute to Dundee from India increased markedly. The British jute industry received another boost when the American Civil War greatly diminished supplies of cotton and created a tremendous shortage of cotton bags. The jute market expanded quickly in the following years as industrialization created the need for large quantities of packaging materials, and as railroads and shipping rapidly increased trade possi-

bilities. The Franco-Prussian War of 1870-71 saw the use of large quantities of jute bags for transporting war materials, and the jute industry grew rapidly in these two countries. During this time, jute manufacturers developed the technology to produce a finer cloth called Hessian, used for a wide variety of industrial packaging purposes.

5. Concurrently, with the rapid expansion of the Western European jute industry, the Indian cottage industry suffered a rapid decline. The costs of small-scale, handloom production were simply too high, even with very low labor costs, to allow competition with large-scale industry. However, European entrepreneurs were eager to take advantage of the supply of cheap labor offered by India, and in 1856 the first jute mill was established in Calcutta. By 1885, 24 mills were established in India, and considerable over-capacity had been created. The Indian Jute Manufacturers Association, established in 1884, had as its main purpose the regulation of output and, during the next 10 years, only 2 new mills were built. By the early 1900's, demand had increased sufficiently so that many new mills were built. In 1914, 64 mills were operating and production in India exceeded production in Dundee.

6. Jute production, which had grown steadily until 1914 to 1.5 million tons, stagnated during World War I. Two important markets, Germany and Austria, were closed and trade to the United Kingdom was limited. After the war, expansion of manufacturing capacity continued in India, while the Western European industry stagnated as a result of this increased competition. However, the depression of the 1930's severely hurt the jute trade as the demand for packaging materials declined concurrently with the decline in world trade.

7. World War II saw the first serious long-term difficulties developing for the jute trade. Demand was strong, but transport difficulties combined with coal shortages in India limited supplies. Consumption stood at 80 percent of pre-war levels. These difficulties accelerated the search for jute substitutes, and gave impetus to efforts to improve bulk-handling techniques. For the world, jute consumption in 1948 was 11 percent below 1936-38 level. This, despite the fact that manufacturing of all commodities, which should have been a good indicator of the demand for jute goods, had increased by about 40 percent.

8. The partition of India in 1948 had a major impact on the jute trade. Pre-partition India accounted for over 95 percent of world raw jute production (and most of raw jute exports), had 57 percent of the world jute loomage (and exported 85 percent of her production), and supplied almost 95 percent of world import of jute goods. After partition all 108 jute mills were located in India while 71 percent of the jute growing area, including the best lands, was in Pakistan. Most marketing and financial resources were in India, and it was necessary for Pakistan to greatly expand its marketing and financial capabilities.

9. Partition signalled an expansion of raw jute production in India to replace raw jute supplies from Pakistan and an increase in manufacturing capacity in Pakistan in order to increase export earnings by processing its own raw fiber. In 1948-49, India launched a "grow-more jute" campaign which consisted, among other items, of (i) distribution of selected varieties of seeds at subsidized rates; (ii) distribution of fertilizers; (iii) establishment of seed multiplication farms; and (iv) demonstrations of line-sowing (which requires less labor and offers higher yields than traditional broadcast sowing). Pakistan's 6-Year Development Program (1951-57) drawn up in 1950 identified the jute manufacturing industry as one which would receive full support; the first mills were opened in 1954 and by 1958, 10 years after partition, Pakistan had more than 7,750 looms 1/, and processed about 1 million bales of raw jute or about 20 percent of output.

10. Partition and related events described above, while of crucial significance to the jute trade, were only some features in an era of rapid change. A number of countries besides India and Pakistan began growing jute on a large scale, and a particularly large increase occurred in the production of allied fibers. Centrally planned countries emerged as important producers and consumers of jute. A new product, carpet-backing, was established which was to be an important component of world demand. And perhaps most significant, the shift continued in the location of the jute industry from developed to developing countries. These trends will be explored in the following chapters.

1/ Adamjee Jute Mills, completed in 1955, had 3,000 looms.

II. WORLD DEMAND: STRUCTURE AND LIKELY TRENDS

Overview

11. This chapter presents an analysis of demand trends during the last 10-20 years and projects future demand to 1980 by major geographical markets and end-uses. While quantitative techniques are employed to some extent, the nature of this exercise requires a considerable number of qualitative judgments.

12. The overall picture is not bright. Traditional markets for jute goods are in almost every case under considerable competition which has increased greatly in recent years and which is likely to increase further in the future. The analysis assumes that certain important steps will be taken by major producer countries. Specifically, it is assumed that prices can and will be lowered considerably for both raw fibers and for manufactures. If these assumptions are not met, the world market for jute will almost certainly decline considerably. The assumptions made in this chapter indicate growth rates through the 1970's of one-half to one percent per year. However, since much of the growth in consumption is predicted to occur in producing countries, world trade is predicted to decline by one and one-half to two and one-half percent per year through the 1970's - this, despite a predicted price decline of 15-20 percent in many markets. Tables 15 and 16 summarize this situation.

13. One important element is not taken into account in the projections - the possible impact of a serious research and development and marketing effort. At the present, jute producing countries in concert with other countries and various international organizations have undertaken to establish an international organization for research and development. It would be premature to anticipate any specific results from this effort. It is not premature to expect that in the absence of a successful effort, the 1970's will present a crisis for the world jute market.

A. Recent Developments in World Demand - A Summary

14. Demand for jute [1/] expanded quite rapidly in the fifties and early sixties in all the major consuming areas. Since the mid-sixties, however, world consumption has somewhat stabilized at about 3.5 million metric tons, largely as a reflection of the stagnation in demand in developed countries. (See Table 1) Two major, and largely interrelated, factors were responsible for this change in the trend: stepped-up competition from synthetic substitutes in all the major end markets (bags/sacks, industrial applications and carpet-backing) and supply shortages which resulted in high and generally unstable prices for the raw fiber and finished products.

1/ Throughout the chapter, the term jute is employed so as to include true jute, kenaf, mesta and allied fibers.

Table 1: ESTIMATED WORLD CONSUMPTION OF JUTE AND JUTE GOODS, BY MAJOR COUNTRIES AND AREAS, AVERAGE FOR 1961-63, 1964-66 AND 1967-69; AND 1970

(thousand metric tons)

	Average 1961-62	Average 1964-66	Average 1967-69	1970
A. Developed Countries				
Western Europe				
EEC	298.3	302.3	329.0	315.7
United Kingdom	166.2	168.8	154.4	130.4
Others /1	115.1	116.8	121.8	107.1
Total	579.6	587.9	605.2	553.2
North America				
United States	431.4	492.9	464.0	439.6
Canada	43.0	47.3	54.6	49.4
Total	474.4	540.2	518.6	489.0
Other Developed				
Japan	70.4	77.2	115.1	106.1
Australia	96.0	101.0	92.0	73.0
South Africa	77.5	71.0	65.0	62.0
Others /2	32.9	34.0	33.3	30.6
Total	276.8	283.2	305.4	271.7
Total Developed	1,330.8	1,411.3	1,429.2	1,313.9
B. Centrally Planned Countries				
USSR	73.0	118.5	106.7	126.4
Eastern Europe	80.5	98.3	91.9	89.3
China, People's Republic of	326.0	487.0	549.0	598.0
Others /3	15.0	20.0	20.0	20.0
Total Centrally Planned	494.3	723.8	767.6	833.7
C. Developing Countries				
Asia	658.0	787.0	776.0	835.0
Africa /4	214.0	265.0	263.0	281.0
Latin America	225.0	240.0	207.0	196.0
Total Developing	1,097.0	1,292.0	1,246.0	1,312.0
D. Total World (A + B + C)	2,922.1	3,427.1	3,442.8	3,459.6

/1 Includes Greece, Turkey and Yugoslavia.

/2 Rhodesia, Israel and New Zealand.

/3 Centrally planned countries of Asia.

/4 Includes Near East.

Source: Appendix Tables 2 and 5;
and IBRD, Economic Analysis and Projections Department.

15. In developed countries in particular synthetic products rapidly penetrated all the major jute markets, introducing a new and very dynamic component into the competition process between jute and traditional substitutes (such as paper products and bulk handling techniques). The trend toward bulk handling, containerization and retail packaging, coupled to the impact of synthetic and other substitutes (i.e., paper bags) first halted the overall demand expansion and subsequently led to a decline in the utilization of jute.

16. Jute consumption expanded rapidly in developing countries from the mid-fifties to the mid-sixties. The growth of agricultural production and exports created a strong demand for jute in packaging. Competition from traditional substitutes (particularly bulk handling and paper) remained confined to Latin America, where the growth in demand for jute was far less strong than in Africa, Near East and Asia. Since the mid-sixties, however, utilization of jute continued to increase rapidly only in Asian producing countries, while near stagnation prevailed in Africa and the Near East, and Latin America registered a fall in jute consumption. Various factors exogenous to the jute market, such as foreign exchange shortages, trade disruptions because of war and political disturbances and declines in the rate of growth of exports of agricultural products, all contributed to the leveling off of jute demand in developing importing countries during the late sixties. Competition from other vegetable fibers, development of bulk handling techniques and synthetic substitutes, however, also played a role, particularly in Latin American countries where consumption of jute fell quite considerably.

17. Centrally planned countries continued to absorb increasing quantities of jute throughout the sixties, even though a certain leveling off of the expansionary trend became evident in the second part of the decade. The People's Republic of China provided the main dynamic element as jute utilization there was not affected by bulk handling or synthetic and other substitutes. In Eastern Europe and the USSR, on the contrary, signs of a considerable weakening of demand for jute packaging material became quite apparent from the mid-sixties onwards.

18. The events of 1970 and 1971 in the Subcontinent dealt a severe blow to jute and created a crisis situation from which the jute market is only now beginning to recover. Extreme scarcity of raw jute from Bangladesh and very high prices for whatever jute was available in the market caused users in Western Europe to shift quickly to readily available synthetic substitutes. Exports of jute manufactures from Bangladesh were also severely disrupted and the high prices for hessian and carpet backing cloth which prevailed in 1971 and 1972 presented synthetic cloth manufacturers in the United States and elsewhere with a golden opportunity to expand their production and sales to levels which were well beyond their best expectations only a few years ago. Available evidence clearly shows that jute suffered losses of considerable proportions during the past two years in all its major end-uses.

19. In the early sixties, the development of new uses and markets sustained the growth of world jute demand even when traditional outlets such as packaging began to shrink under the impact of technological and consumers' preference changes. The development of the carpet-backing market in the early sixties more than offset the losses suffered in packaging and other industrial applications in developed countries. Since the carpet-backing market in Eastern Europe is very small, the losses suffered by jute in industrial end-use markets were not offset there. Consumption of jute in felts, padding and wall coverings also expanded considerably and new markets were found in centrally planned and developing countries. Since the mid-sixties, however, the development of suitable synthetic substitutes gave users in consuming countries the choice between locally produced goods at prices stable in the short run and declining in the medium run, against imported products which were not always available and whose prices were unstable and trending upwards under the impact of supply shortages and increasing costs of production. A research and development effort of considerable proportions was undertaken by synthetics manufacturers in developed countries and progressive quality improvements made their products acceptable to consumers. Economies of scale in production allowed synthetics producers to sell at continuously lower prices. When the battle between jute and synthetic substitutes was truly joined at the beginning of the current decade, the events in the Subcontinent gave synthetic manufacturers another critical push. New massive investments in plants for the production of various types of synthetic substitutes for jute are now in the making, and the strategy and expectations of synthetic producers have changed from one of penetration into jute end-markets to one of elimination of jute from the packaging and carpet-backing scene in all the major geographical markets.

20. The ability of jute to survive as a viable product for consumers and as an important source of income and foreign exchange for producers depends on what will happen in the world markets during the next few years. Availability, prices and product improvements will determine the future of jute. The options available to the producing countries have shrunk considerably as the result of the most recent market developments and considerable efforts will have to be made to restore the credibility of the product, to maintain existing markets and to plan ahead for the development of new ones.

B. The Structure of World Demand

The Major Consuming Areas

21. The traditional importance of developed countries as the major consumers of jute products has steadily declined during the sixties. The share of developed countries in total world consumption of jute goods has dropped from 46 percent in 1961-63 to some 38 percent in 1970. Parallel to this fall in the relative importance of developed countries, centrally planned economies increased their share of total world jute utilization from 17 percent in 1961-63 to 24 percent in 1970. Developing countries on the whole maintained their share at some 38 percent of the total market throughout the decade . (See Table 2)

Table 2: ESTIMATED WORLD CONSUMPTION OF JUTE AND JUTE GOODS BY MAJOR CONSUMING GROUPS AND END-USES 1961-63 (AVERAGE) AND 1964-66 (AVERAGE) AND 1970

(thousand metric tons)

	1961-63 average	% of total	1964-66 average	% of total	1970	% of total
A. Developed Countries	1,331	(46)	1,411	(41)	1,314	(38)
B. Centrally Planned	494	(17)	724	(21)	834	(24)
C. Developing Countries	1,097	(37)	1,292	(38)	1,312	(38)
Total (A + B + C)	2,922	(100)	3,427	(100)	3,460	(100)
of which:						
Packaging & Industrial	2,450	(84)	2,780	(81)	2,590	(75)
Carpet Yarn & Cloth	205	(7)	300	(9)	420	(12)
Cordage	125	(4)	140	(4)	150	(4)
Felts & Padding /1	30	(1)	45	(1)	75	(2)
Others	112	(4)	162	(5)	225	(7)
		(100)		(100)		(100)

/1 In developed countries only.

Source: IBRD, Economic Analysis and Projections Department.

22. Among the developed countries the United States represents the single most important market for jute followed by the EEC, the United Kingdom, Japan and Australia. Among the centrally planned countries, the People's Republic of China is by far the largest consumer of jute. Only India, within the developing countries group, has a domestic market for jute comparable in size to those of the two single largest consumers: the United States and the People's Republic of China.

23. India and the People's Republic of China, however, are largely self-sufficient in jute. This leaves the United States as the major importer of jute goods and Western Europe as the major outlet for raw jute exports.

The Major End-uses of Jute

24. Packaging is still by far the most important end-use of jute. Sacks and bags account for more than 75 percent of world jute demand. In developed countries, in spite of the recent sharp decline, jute sacks and bags still account for almost 50 percent of total consumption. Utilization of jute as a packaging material is absolutely predominant in both developing and centrally planned countries, where jute sacks and bags account for about 90 percent of their respective total consumption.

25. Carpet yarn and carpet-backing cloth are the second most important outlet for jute. About 12 percent of all the jute consumed in the world, goes into carpet production as backing and weaving material. This end-use, although much smaller than packaging in terms of quantity and almost exclusively localized in developed countries, 1/ is particularly important since carpet-backing cloth has a high unit value and, unlike packaging, the carpet market has a considerable growth potential.

26. Cordage is an important outlet for jute in developing countries where twine and rope making absorbs about 10 percent of total jute consumption. On a world basis, cordage accounts for 4 percent of total jute utilization.

27. Felts and padding are relatively important jute end-uses in developed countries (particularly in the EEC), while their worldwide relevance as an outlet for jute is inferior to cordage (some 2 percent of total world jute consumption).

28. Other end-uses include wall covering, decorative fabrics, various industrial applications, jute mats and carpets. Their importance is relatively minor in both quantity and total value terms.

1/ Utilization of jute backing cloth and yarn for carpets accounts for about 30 percent of total consumption in developed countries.

Table 3: U.S. IMPORTS OF JUTE MANUFACTURES AND RAW JUTE, 1961-1971

(thousand metric tons)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
A. Jute Manufactures											
Jute Fabrics Less than 100"	186.7	226.0	245.0	208.5	214.3	221.6	200.1	197.2	156.7	165.0	142.1
Carpet Backing	46.8	64.6	99.5	121.0	122.2	131.6	138.1	178.9	202.1	149.1	193.3
Cotton Bale Covers /1	89.1	74.9	71.7	100.2	112.0	58.8	42.7	56.9	72.1	59.8	50.9
Jute Webbing	1.6	1.9	1.7	1.6	1.9	2.0	1.9	1.7	1.6	1.6	1.6
Yarn, roving	2.1	1.2	0.8	1.6	2.0	0.8	0.9	1.0	2.9	2.5	3.0
Jute Cordage	1.6	2.1	0.7	2.5	2.0	2.4	2.1	1.5	1.5	1.4	1.1
Jute Bags (new)	1.1	1.4	0.5	1.0	2.1	0.9	1.5	1.3	0.7	1.2	1.2
Total	329.0	372.1	419.9	436.4	456.5	418.1	387.3	438.5	437.6	380.6	393.2
B. Raw Jute & Waste											
Jute Butts & Waste	n.a.s.	n.a.s.	65.2	36.4	22.9	29.5	17.9	27.7	17.4	12.8	4.5
Jute Fiber	n.a.s.	n.a.s.	13.3	40.4	19.2	22.4	25.9	22.9	16.9	16.8	12.9
Total	22.5	79.1	78.5	76.8	42.1	51.9	43.8	50.6	34.3	29.6	17.4
C. Total Imports of Jute & Manufactures (A + B)	351.5	451.2	498.4	513.2	498.6	470.0	431.1	489.1	471.9	410.2	410.6

n.a.s. = not available separately.

/1 Converted at 0.9 kg./sq. yd.

Source: U.S. Department of Commerce, Bureau of the Census, Imports for Consumption (various issues).

C. The Major Markets for Jute: Current Situation and Prospects

The United States

Market Developments

29. The United States is the single largest market for jute in the developed countries. Unlike Western Europe and Japan, U.S. jute requirements are met almost exclusively by imports of semi-finished products (hessian, carpet backing cloth and cotton bagging). The importance of the local spinning and weaving industry is marginal: raw jute imports are small and have shown a definite tendency to decline over time.1/ (See Table 3)

30. Import demand for jute goods expanded rapidly from the mid-fifties to the mid-sixties, with India as the predominant supplier of various types of hessian cloth. Imports from Bangladesh became important only in the mid- and late-sixties. While technological innovations in transportation and handling of agricultural products, competition from paper in fertilizer and cement shipments and a shift in consumers' preference toward the prepackaging of groceries cut heavily into the market for jute packaging materials, utilization of wide fabrics by the rapidly expanding carpet industry helped to maintain the overall expansion of import demand for jute goods.

31. Since the mid-sixties, however, the expansion of the carpet-backing market became insufficient to compensate for the sharp decline in jute cloth consumption in traditional uses. Cotton production declined considerably and so did utilization of jute cotton bale covers. The huge potential market for sand bags for Vietnam was lost to the synthetics industry which rapidly developed a productive capacity that was, after 1969, redirected toward the commercial market for packaging with ominous results for the use of jute in this outlet.

32. In the late sixties, moreover, competition from synthetic substitutes (mainly polyolefins film fabrics) became quite strong in carpet-backing where suitable synthetic woven and non-woven fabrics were developed and marketed in considerable amounts at competitive prices. Polyolefins fabrics and polypropylene woven cloth in particular have become the major threat to jute in all the major end-markets.

The Major End-uses

33. The overall market for textile bags showed little expansion in the United States throughout the sixties. Technological innnovations in handling and transportation limited its growth. It was only because of the Defense Department's needs for sand bags in 1966-68 that the total market did not actually fall in total size until 1969. Burlap utilization in bags remained practically stagnant until 1967 and fell rapidly thereafter. (See Table 4) Cotton utilization in bag making declined consistently through the sixties and early seventies, from 260 million square yards in

1/ Jute butts and waste comprise about 50 percent of raw fiber imports. They are utilized in the felts/padding industry.

Table 4: U.S. TRENDS IN CONSUMPTION OF JUTE PRODUCTS BY MAIN END-USES, 1960-1971

(thousand metric tons)

	Burlap in Bags	Piece Goods	Carpet Backing Yarn	Carpet Backing /1	Cotton Bagging /2	Cordage & Twine	Webbing & Narrow Fabrics	Others /3	Total
1960	173.0	59.5	14.0 *	36.0	61.0	8.7	1.6	39.0	392.8
1961	163.5	49.5	14.0 *	40.0	72.0	8.9	1.6	39.5	389.0
1962	184.0	55.1	14.6	55.0	71.0	9.6	1.9	43.0	434.2
1963	186.5	63.3	13.7	68.0	73.0	11.0	1.7	46.0	463.2
1964	175.0	63.6	13.2	82.0	80.0	11.5	1.6	51.5	478.4
1965	166.0	67.3	11.9	102.0	79.0	12.9	1.9	53.0	494.0
1966	176.5	68.7	10.5	118.0	47.0	13.8	2.0	52.5	489.0
1967	165.0	59.5	8.8	130.0	34.0	14.0	1.9	45.5	458.7
1968	152.0	63.7	7.8	143.0	42.7	11.0	1.7	46.5	468.4
1969	130.0	57.7	7.7	150.0	54.1	9.5	1.6	45.0	455.6
1970	122.0	43.6	6.8	149.0	47.3	6.5	1.6	30.0	406.8
1971	98.0	38.6	6.5	168.0	38.2	5.0	1.6	30.5	386.4

/1 In tufted broadloom carpets only.

/2 Imports since 1968.

/3 Mainly felts and padding and other industrial uses (partly estimated).

* Estimated.

Source: Textile Bags Manufacturers Association; Carpet and Rug Institute; Carpet Backing Council; U.S. Department of Commerce, Bureau of the Census, Imports for Consumption (various issues); and U.S. Tariff Commission, TC Publications 267, 285, 311, 346 and 366.

1960 to 9.35 million square yards in 1971. Polypropylene enjoyed a considerable boom during the Vietnam war peak (250 million square yards of cloth were sold in 1968), but the subsequent reduction in military activities and the shift to acrylic bags by the Defense Department caused sales of polypropylene cloth to decline to about 70 million square yards in 1970. Sales of polyethylene film bags also slowed down in the late sixties, and only multi-wall paper sack consumption remained fairly stable throughout the period.

34. The war-based introduction of a large productive capacity for synthetic textile bags considerably sharpened competion in this market. Polypropylene fabric producers in particular became concerned after 1968 with finding an outlet for their product and entered the commercial packaging market in full strength. Burlap and cotton consumption in bags fell drastically in 1969, 1970 and 1971 (Table 4), while sales of polypropylene bags increased from 70 million square yards in 1970 to about 100 million square yards in 1971 and to an estimated 150 million square yards in 1972.

35. Repeated disruptions of burlap deliveries to the United States and steadily rising prices since 1968 reduced considerably the attractiveness and competitiveness of jute sacks and bags. While burlap prices trended upwards and reached a post Korean war peak in 1972 polypropylene cloth bag prices fell considerably and the differential between polypropylene fabrics and standard 10 oz. hessian turned heavily against the latter. Polypropylene cloth prices moved slightly upwards in 1971 and 1972 under the pull of demand, but the price differential between 10 oz. burlap and polypropylene replacements widened further. Table 5 illustrates this point.

36. Jute remained relatively more competitive only in lighter constructions where 7½ oz. hessian is utilized. This is because lighter jute fabrics requiring less jute per yard are less costly to produce than heavier jute fabrics, while synthetic replacements for different weight jute products are of more nearly the same weight, and hence, have a smaller cost differential. Woven polypropylene replacements for 7½ oz. hessian are now priced at about 12 cents per square yard against 14 cents per square yard for 7½ oz. jute, a smaller differential than for 10 oz.hessian. This explains to a large extent the greater competitiveness of jute sacks in the potato market - for which 7½ oz. hessian is used - which absorbs roughly 40 percent of all the burlap cut up for bags in the United States.

37. The relative prices of jute and polypropylene fabrics largely determine the market split between the two competing materials. Raw material (fabric) costs account for roughly 75 percent of the manufacturing cost of both jute and polypropylene bags. Any change in fabric costs is directly reflected in the selling prices of the two types of bags. Consumption of burlap in bags has become, since the entry of synthetic bags into the commercial market in 1969, highly dependent on the relative prices of jute and polypropylene bags. 1/

1/ 1969-72 (quarterly data):

$$\log Cb = 4.803 - \underset{(0.172)}{2.17^{*}} \log (Pjb/Psb) \qquad R^2 = .63$$

* significant at the 95 percent level,

where C = consumption of burlap in bags;
Pjb = retail price of jute potato bags; and
Psb = retail price of corresponding polypropylene potato bags.

Table 5: U.S. MARKET PRICES OF HESSIAN AND POLYPROPYLENE CLOTH FOR BAGS

(cents/square yard)

	Hessian 40" - 10 oz. (spot New York)	Polypropylene Cloth Replacement (delivered)
1966	15.6	n.a.
1967	14.1	20.0
1968	13.8	16.0
1969	15.2	14.5
1970	15.5	13.0
1971	18.1	13.5
1972	22.1	14.0

Source: Fiber Market News; and interview data.

38. Given the total size of the market, future consumption of burlap in bags will depend on the competitiveness of imported fabrics vis-a-vis locally produced polypropylene cloth. During the seventies the total market for textile bags is likely to shrink further under the impact of higher labor costs for bag handling and increased processing of agricultural commodities. A drop of 5-10 percent in the total size of the textile bag market is generally expected by the end of the decade. Production cost of polypropylene cloth is currently estimated at 2-3 cents per square yard below the actual selling price. Raw material (polypropylene resin) cost makes up about 25 percent of the total manufacturing cost. In the medium run polypropylene resin prices are expected to firm up, but current profit levels suggest that polypropylene cloth manufacturers will probably be able to reduce their prices by about 10 percent from current levels and maintain reasonable margins. Indian jute cloth prices could be reduced by 1.6 cent per square yard in the 7½ oz. grade and by 2.1 cents per square yard in the 10 oz. grade by eliminating the 600 Rs. per ton export duty which is now levied on them. This measure would make 7½ oz. hessian completely competitive with replacement polypropylene cloth and narrow the differential between 10 oz. hessian and replacement polypropylene cloth from the current 8 cents per square yard to 6 cents per square yard. A further price reduction of some 20 percent would be needed to make 10 oz. hessian competitive with polypropylene cloth under present circumstances.

39. Adjustments of the selling prices of hessian cloth would have to be made in the future to maintain the competitiveness of jute cloth in the U.S. bag market, should polypropylene cloth prices be lowered from the recent level. Asian jute hessian exporters have a reasonable possibility of keeping 7½ oz. burlap cloth competitive under most foreseeable circumstances. The market situation is more unfavorable for 10 oz. burlap, where a price cut of some 20 percent (after abolition of the export duty) would be necessary to redress the present imbalance.

40. Assuming that prices of hessian cloth in the United States remain reasonably competitive with polypropylene cloth prices throughout the seventies, jute can be expected to retain most of its current market for potatoes and seeds to minimize its losses in the commercial feeds market. By 1980, the total market for jute bags can be forecast at some 310 to 330 million square yards (75 to 80 thousand metric tons).

Carpet Backing

41. The phenomenal growth of the carpet market in the United States created a strong demand for jute backing cloth and consumption increased rapidly in the sixties. (See Table 3.) Jute is used in all three main areas of carpet backing: (a) primary backing for tufted and needlepunch carpets; (b) secondary backing for tufted carpets; and (c) backing for woven carpets. Tufted carpets are by far the preferred type in the United States and account for almost 90 percent of total carpet production. All tufted carpets required a primary backing, and jute enjoyed a preeminent position in this market until 1968. (See Table 6.) Needlepunch carpets are mostly

Table 6: TUFTED CARPET BACKINGS CONSUMPTION IN THE UNITED STATES

(million square yards)

Year	Primary Backings								Secondary Backings										All Tufted Carpet Backings					
	Jute	% of total	Synthetics	% of total	Other Backings /1	% of total	Total	% of total	Jute	% of total	Foam/ Rubber	% of total	Other Cushion Backings /2	% of total	Other Backings /3	% of total	Total	% of total	Jute	% of total	Others	% of total	Total	% of total
1967	295	(89)	22	(7)	13*	(4)	330	(100)	n.a.	( )	n.a.	( )	n.a.	( )	n.a.	( )	n.a.	( )	n.a.	( )	n.a.	( )	n.a.	( )
1968	315	(81)	62	(16)	13	(3)	390	(100)	247	(71)	56	(16)	9	(3)	36	(10)	348	(100)	562	(76)	176	(24)	738	(100)
1969	314	(67)	136	(29)	17	(4)	467	(100)	318	(76)	68	(16)	4	(1)	28	(7)	418	(100)	632	(71)	253	(29)	885	(100)
1970	321	(61)	186	(36)	15	(3)	522	(100)	296	(64)	123	(27)	14	(3)	29	(6)	462	(100)	617	(63)	367	(37)	984	(100)
1971																								
1st quarter	74	(59)	42	(34)	9	(7)	125	(100)	76	(65)	32	(28)	3	(3)	5	(4)	116	(100)	150	(62)	91	(38)	241	(100)
2nd quarter	84	(61)	49	(36)	4	(3)	137	(100)	85	(66)	34	(26)	3	(2)	8	(6)	130	(100)	169	(63)	98	(37)	267	(100)
3rd quarter	86	(59)	55	(38)	4	(3)	145	(100)	89	(65)	36	(26)	4	(3)	7	(6)	136	(100)	175	(62)	106	(38)	281	(100)
4th quarter	87	(58)	59	(39)	4	(3)	150	(100)	95	(66)	38	(26)	4	(3)	7	(5)	144	(100)	182	(62)	112	(38)	294	(100)
Total	331	(59)	205	(37)	21	(4)	557	(100)	345	(65)	140	(27)	14	(3)	27	(5)	526	(100)	676	(62)	407	(38)	1,083	(100)
1972																								
1st quarter	78	(48)	82	(50)	4	(2)	164	(100)	94	(63)	45	(30)	4	(3)	6	(4)	149	(100)	172	(55)	141	(45)	313	(100)
2nd quarter	82	(47)	88	(51)	4	(2)	174	(100)	101	(62)	46	(29)	6	(4)	9	(5)	162	(100)	183	(54)	153	(46)	336	(100)
3rd quarter	83	(48)	87	(51)	2	(1)	172	(100)	102	(63)	45	(28)	7	(4)	8	(5)	163	(100)	185	(55)	149	(45)	334	(100)

* Estimate.

/1 Mainly cotton.

/2 Vinyl, polyurethane, etc.

/3 Scrim, non-woven, solid vinyl, etc.

Source: U.S. Department of Commerce, Bureau of the Census, Current Industrial Reports, Series MQ-22 Q(71)-5.

indoor-outdoor carpets and require an all-synthetic backing. Secondary backing is another large use for jute cloth since about 90 percent of all tufted carpets have a secondary backing. Jute maintained a predominant position in this market until 1969. The primary and secondary backing markets for tufted carpets presently absorb about the same yardage of jute cloth, although in terms of weight the primary is more importance since a heavier jute cloth is used as backing (9 oz. as opposed to 7 oz. in the secondary). Woven carpets are a relatively small market for jute in the United States since they only represent 3.5 percent of total carpet production.

42. The carpet-backing market, with its vast size and extremely favorable growth potential, quickly attracted the attention of synthetic fabric manufacturers. Synthetic backing first appeared in the United States in 1964 and a variety of woven and non-woven fabrics has been developed since. The two most important types of primary backing which compete with jute are woven and spun-bonded polypropylene. Of the two, woven polypropylene backing constitutes the most serious threat to jute. 1/ In the secondary backing market jute has so far had to compete with foam rubber and non-woven scrims. A new type of polypropylene woven secondary backing, however, has just begun to be marketed in early 1973 by the leading polypropylene primary backing manufacturer in the United States.

43. Tufted carpet backing production in the United States more than trebled during the sixties. Jute captured most of the growth of this market until the mid-sixties. Since then the share of jute in both the primary and secondary back markets began to slip under the impact of increased competition from polypropylene and other synthetic substitutes. Official statistics of the carpet market became available in 1967, and it is therefore possible to trace with relative precision the path of competition between jute and synthetic backings.

44. In the primary backing market, the decline in the market share of jute was quite rapid from 1967 to 1970, slower in 1971, but exceptionally strong in 1972. (See Table 6.) During this period, while deliveries of jute backing became more uncertain and prices trended upwards, in the face of a rapidly expanding demand, larger quantities of polypropylene backing cloth became available at lower and stable prices. Table 7 illustrates this point.

1/ Woven polypropylene backing is cheaper than spun-bonded backing. It also directly competes with jute backing in all those carpet applications where a woven backing is sufficient. Spun-bonded and other non-woven backings are utilized for fine-gauge tufting where they have the advantage of creating no needle deflection and of requiring less needle pressure.

Table 7: U.S. MARKET PRICES OF JUTE AND POLYPROPYLENE PRIMARY BACKING, 1966-1972

(cents per square yard)

	Average selling prices of jute primary backing	Average selling prices of PP primary backing
1966	21.75	22
1967	20.50	19
1968	20.00	18
1969	22.25	18
1970	18.75	17
1971	19.50	16
1972	23.25	18

Source: Trade sources.

45. The market share of jute primary carpet backing depends to a great extent on relative prices of jute and synthetic backing. 1/ As relative prices moved against jute backing throughout most of the late sixties and sharply in 1972, jute's market share dropped accordingly from 89 percent in 1966 to an estimated 47 percent in 1972. Jute backing also suffered from lack of product development. Recent trends within the carpet industry were detrimental to jute backing because of its poor adaptability to the changing needs of the industry. The trend toward indoor-outdoor carpets considerably favored synthetic backing, since jute backing is not rot-proof. This very basic deficiency prevented utilization of jute backing for kitchen carpets. Do-it-yourself installation also grew and synthetic backing was also heavily favored because it is easier to cut than jute. Finally, the tufted carpet industry trended toward fine-gauge tufting. Here again, jute backing was put at a comparative disadvantage, since the density of the jute fabric and its irregular yarn strength cause needle deflection. Although woven polypropylene backing also tended to cause needle defelction in fine-gauge tufting, the product was continuously improved while the quality and performance of jute backing remained unchanged. 2/ Similarly no effective efforts were made to make jute backing rot-resistant.

46. In the secondary backing market jute was better able to withstand inroads from synthetic substitutes because of its lower price relative to that of foam rubber and non-woven synthetic backing and because a woven synthetic secondary backing having the same performance as jute was difficult to develop. (See Table 5.) Jute secondary backing is currently sold in the United States at 16.5 cents per square yard. The lower weight of the secondary backing cloth (7 oz. as opposed to 9 oz. generally used as primary) makes it cheaper on a per yard basis. Foam rubber is considerably more expensive than jute, but it is preferred in certain high cost carpets because it gives a more luxurious body to the carpet. Synthetic non-woven secondary backing materials (such as Loktuft Duon of Phillips) are currently selling at about 18.5 cents per square yard. It should be noted , however, that in early 1971 Loktuft Duon was selling at

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1/ 1966-1972 (annual)

$$\log (J_{cb}/T_{cb}) = \underset{(0.059)}{-0.0222} - 2.3128^{*} \log (P_{jcb}/P_{scb}) \qquad R^2 = 0.75$$

* significant at the 95 percent level,

where: J_{cb} = jute primary carpet backing consumption;
T_{cb} = total primary carpet backing consumption;
P_{jcb} = average selling price of jute primary backing; and
P_{scb} = average selling price of polypropylene primary backing.

2/ Some efforts have been made to treat jute carpet backing so as to allow its use in the fine-gauge tufted carpet market. A technically feasible process has already been developed from research sponsored by the Carpet Backing Council and the Indian Jute Mills Association, and the commercial feasibility is now being tested.

21 cents per square yard when jute secondary backing was quoted at about 19 cents per square yard. Non-woven backing producers have followed the downward trend in jute backing prices and maintained the same price differential between the two types of products. Production of non-woven backing materials is still relatively small in scale and it can be expected that prices will be further reduced as new capacity comes on stream. 1/ It is estimated, for example, that Loktuft Duon prices could come down to 16-17 cents per square yard in the very near future without a major loss of profitability to the producers.

47. The position of jute in the primary backing market is in grave danger. Jute is running the risk of becoming in a few years a residual supplier in this market. The losses suffered in 1972 would have no doubt been greater had notpolypropylene backing cloth been in tight supply. All the major manufacturers worked at near full capacity and still could not meet all the forthcoming demand. It is generally estimated that another 60 million square yards of polypropylene primary backing cloth could have been sold in 1972. Customers had to be put on allocation and other types of synthetic backing (such as spun-bonded Typar of Dupont) were both at a premium over polypropylene woven cloth.

48. With a market demand for tufted carpets growing very fast and productive capacity fully utilized, polypropylene cloth manufacturers are now in the process of finding ways and means to further expand the scale of their operation. The main difficulty that they are now facing is shortage of looms. 2/ This time delay in the implementation of expansion plans may give jute carpet backing exporters the last chance of maintaining a position of relative strength in this market. Polypropylene primary backing cloth can hardly be outsold. The cost of producing a square yard of polypropylene woven backing is estimated at about 13.5 cents. The product can be marketed at a price of 15 cents per square yard and still give a very comfortable return to the manufacturers. The point, however, is that large investments are now being considered by polypropylene cloth producers and by non-woven synthetic manufacturers. If jute backing cloth

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1/ Phillips is reported to have sold in 1972 about 70 million square yards of non-woven secondary backing.

2/ Sulzer looms are used to weave polypropylene carpet backing cloth. Demand for this type of loom has been so strong over the past two years that it has outstripped the productive capacity of the manufacturers. A delivery lag of from one to two years is said to be now posted by the manufacturers.

prices were brought and kept down to, say, 17-17.5 cents per square yard, synthetic manufacturers, confronted with the prospects of an increase in the price of polypropylene resin and tougher competition from jute, would probably revise some of their expansion plans and settle for sharing with jute some of this rapidly growing market. This strategy of containment is probably the only feasible one for jute cloth exporters under the circumstances. The urgency for action is, however, great. Similar steps taken a year from now could not achieve the same results.

49. Abolition by the Indian Government of the residual 300 Rs. per ton export duty on 9 oz. backing would automatically decrease prices to 18.8 cents per square yard.[1/] A further price reduction of 5-6 percent would, however, still be necessary to achieve a minimum of competitiveness with synthetics. The removal of the 700 Rs. per ton export duty on 8 oz. cloth, which is becoming increasingly acceptable as a primary backing in the United States, would bring its price down to 17.5 cents per square yard and considerably reinforce the position of jute in the primary backing market.

50. As for secondary backing a reduction or preferably complete removal of the 700 Rs. per ton export duty would assure the competitiveness of 7 oz. cloth and act as a powerful deterrent against further inroads from synthetic substitutes. It is of vital importance to the future of jute in the United States that what happened in the primary backing market not be repeated in the only end-market where jute's position is still fairly strong. The very recent attempts by a major U.S. manufacturer to market a woven polypropylene secondary backing cloth should be taken into very serious consideration by all the interested parties as a sign of the intentions and plans of polypropylene fabrics producers.

51. The tufted carpet backing market in the United States is projected to continue to grow rapidly throughout the seventies. Consumption of carpets is very income elastic. [2/] On the basis of income and population forecasts for the seventies, even when allowance is made for a possible future

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1/ As of June 15, 1973, the mission learned that export duties on carpet backing were reduced to 200 Rs per ton for 9 oz backing cloth and to 300 Rs per ton for both 8 oz and 7 oz cloth. This development should considerably enhance the competitiveness of jute carpet backing.

2/ 1955-1971 (annual)

$$\log C_c = -11.728 + 4.236^{*} \log Y_d$$

$$(0.176) \qquad R^2 = .97$$

* significant at the 99 percent level,

where : C_c = total carpet shipments (here taken as equal to consumption)

and Y_d = disposable personal income (in constant dollars).

decline over time of the coefficient of elasticity, 1/ it seems reasonable to project a market of 1,400 million square yards by 1980. (See Appendix Table 1.) Consumption of tufted broadloom carpets would grow slightly faster than total carpet consumption and reach, by 1980, 1,250 million square yards.

52. Assuming that jute primary carpet backing prices were brought down and maintained during the seventies at competitive level with synthetics, utilization of jute primary backing material could grow at some 1.4 to 2.0 percent per annum and jute could retain a 30-32 percent share of the total market.

53. Provided that jute secondary backing remains competitive with foam rubber, non-woven and possibly newly woven polypropylene fabrics, jute secondary backing consumption can be expected to grow at between 5.0 to 6.0 percent per annum throughout the current decade and maintain a 50 to 55 percent share of the total secondary backing market. 2/ Total utilization of jute in tufted carpet backing (including narrow width tufted carpets) is forecast to be, by 1980, between 240 and 255 thousand metric tons.

Other End-uses

54. Consumption of cotton bale covers is forecast to decline slightly from 1970-71 levels, given the fact that cotton production is very likely to remain around 10-11 million bales throughout the seventies and some inroads by polypropylene cloth can be expected into this market. Consumption of piece goods, 3/ cordage and other industrial items is projected to decline to some 3,000 metric tons by 1980. Utilization of backing yarn for woven carpets is expected to remain stationary through the seventies and felt and padding uses are expected to continue to absorb 15-20 thousand metric tons of jute waste and cuttings. Total consumption of jute and jute goods in the United States is forecast to be, by 1980, between 405 and 435 thousand metric tons. (Table 8 summarizes the projections.)

1/ Income elasticity of demand for carpets has been historically declining. Projections were therefore made using a semi-log function. Several alternative projections were examined and the function which was used for projection purposes is one which relates per capita consumption of carpets to real per capita disposable income. Consumption of tufted broadloom carpets was (a) projected separately; and (b) taken as a residual after projecting the market share of woven carpets. All projections converged within a fairly narrow range.

2/ It is generally assumed that 90 to 95 percent of tufted carpet produced in the United States during the decade will have a secondary backing.

3/ Excluding carpet backing for narrow carpets.

Table 8: UNITED STATES CONSUMPTION OF JUTE AND JUTE GOODS, 1971 (ACTUAL) AND 1980 (PROJECTED)

(thousand metric tons)

	Actual		Projected				Implied Growth Rate	
	1971	% of Total	1980 I	% of Total	1980 II	% of Total	1971-1980 I	1971-1980 II
Bags	98.0	25	75.0	19	80.0	18	-2.9	-2.2
Piece goods /1	21.5	6	17.0	4	18.0	4	-2.5	-2.0
Cotton bagging	38.0	10	38.0	9	41.0	9	0.0	+0.8
Carpet backing (broad)	168.0	43	222.0	55	239.0	55	+3.2	+4.0
of which:								
primary	(94.0)	(24)	(107.0)	(27)	(112.0)	(26)	(+1.4)	(+2.0)
secondary	(74.0)	(19)	(115.0)	(28)	(127.0)	(29)	(+5.0)	(+6.2)
Carpet backing (narrow)	17.0	4	18.0	4	18.0	4	0.0	0.0
Carpet backing yarn	6.5	2	6.5	2	6.5	2	0.0	0.0
Others	37.5	10	28.5	7	32.5	8	-3.0	-1.6
Total	386.5	100	405.0	100	435.0	100	+0.5	+1.3

/1 Excluding carpet backing cloth for narrow carpets.

Source: Table 4 (actual);
IBRD, Economic Analysis and Projections Department (projections).

Western Europe

Market developments

55. Western Europe represents another major market for jute and jute goods (16-17 percent of total world consumption). The local spinning and weaving industry traditionally, absorbed more than 50 percent of world jute exports. Difficulties, however, arose during the sixties when rising processing costs and raw material prices greatly diminished the attractiveness of jute to the local industry and encouraged the local industry to switch to various types of synthetic and other substitutes. Utilization of raw jute stagnated in the mid-sixties and subsequently declined. (See Table 9) Net imports of jute manufactures during the sixties increased only in EEC countries, while they remained fairly stagnant in the United Kingdom and actually declined in the rest of Western Europe. (See Appendix Table 2) On the whole, consumption of jute and jute goods expanded moderately from 1961-63 to 1967-69 but subsequently declined quite sharply, following roughly the same path as domestic production of jute goods.

56. Synthetics competition started somewhat later in Western Europe than in the United States (largely because of the earlier development of carpet-backing in the United States) and, with the exception of the United Kingdom did not become a major factor until 1969-70. Relatively higher prices for polypropylene and polyethylene resins and the presence of a long-established and highly protected local jute industry all contributed to the slow start of synthetics competition in most Western European countries. Since the late sixties, however, polyolefins fabrics have made strong inroads in all the major jute end-uses, except carpet yarn, and the position of jute has become quite critical. Consumption of jute declined by about 10 percent between 1968 and 1970 and apparently by more than 15 percent in 1971. (See Table 9) Consumption of textile polyolefins increased correspondingly from 32,700 tons in 1970 to 50,500 tons in 1971 and 63,200 tons in 1972. (See Appendix Table 3)

57. Paradoxically, one of the most important causes of the slow and late start of synthetics competition in Western Europe - the high degree of protection enjoyed by the local industry - has become a serious obstacle to any effective competition between jute and synthetic substitutes. This is not to say that the decline of jute consumption in Western Europe was only due to the unwillingness or inability of the local jute industry to compete with synthetics. Technological innovations and shifts in consumer preferences (i.e., bulk handling of agricultural commodities and a trend toward retail packaging of groceries) became an important factor working against jute in Western Europe as well as in the United States and in most of the developed countries, cutting down considerably the size of the market for textile packaging materials which jute had to share with synthetic and other substitutes. When competition between jute and synthetics developed into a major factor, tariffs and quantitative restrictions on imports of goods from jute producing countries effectively precluded the consumers in Western Europe from the opportunity of purchasing jute goods at world prices and provided an umbrella under which, in recent years, the domestic industries of many European countries could carry out a comfortable transition from jute to the manufactures of synthetic substitutes.

Table 9: WESTERN EUROPE: ESTIMATED UTILIZATION OF JUTE GOODS BY MAIN END-USES AND CONSUMING AREAS, 1965, 1968, 1970 & 1971

(thousand metric tons)

	1965	(% of Total)	1968	(% of Total)	1970	(% of Total)	1971
A. Bags and Sacks							
EEC	111.0		101.0		76.0		51.5
United Kingdom	37.0		29.5		20.0		15.9
Others	81.0		75.5		62.5		n.a.
Total	229.0	(39)	206.0	(33)	158.5	(28)	n.a.
B. Industrial and Other Cloth Applications							
EEC	57.5		55.5		47.5		46.0
United Kingdom	51.0		42.0		37.5		32.8
Others	14.5		16.0		14.0		n.a.
Total	123.0	(21)	113.5	(19)	99.0	(18)	n.a.
C. Carpet Backing Cloth /1							
EEC	15.5		35.5		56.0		46.5
United Kingdom	23.5		32.2		22.5		17.8
Others	6.5		9.5		13.0		n.a.
Total	45.5	(8)	77.2	(12)	91.5	(16)	n.a.
D. Carpet Yarn							
EEC	59.5		57.0		56.5		47.0
United Kingdom	48.5		45.8		43.0		41.3
Others	8.5		10.5		11.5		n.a.
Total	116.5	(20)	116.0	(19)	111.0	(20)	n.a.
E. Cordage and Cable							
EEC	27.0		24.0		22.5		17.0
United Kingdom	9.0		7.3		5.5		4.9
Others	4.5		4.5		4.0		n.a.
Total	40.5	(7)	35.8	(6)	32.0	(6)	n.a.
F. Felts							
EEC	30.0		63.0		60.0		50.0
United Kingdom	-		-		-		-
Others	3.0		4.0		6.0		n.a.
Total	33.0	(5)	67.0	(11)	66.0	(12)	n.a.
G. Total Utilization (A + B + C + D + E + F)	587.5	(100)	615.5	(100)	558.0	(100)	n.a.

/1 All carpets.

Source: IBRD, Economic Analysis and Projections Department.

Tariffs and Quantitative Restrictions on Jute Goods Trade

58. EEC countries have the highest rate of nominal and effective protection against jute manufactures imports from all sources within Western Europe. (See Appendix Table 4.) U.K. tariffs, on the contrary, are not applicable to imports from Commonwealth countries. Imports of jute goods from India and Bangladesh were, therefore not affected. The structure of protection against jute goods, however, is complicated in both the EEC and the United Kingdom by severe quantitative restrictions for non-standard or specialty products (carpet-backing, carpet yarn, light weight scrims, etc.), which are the most important items (See Table 10.)

59. The price-raising effect of the protection granted to the jute industry in Western Europe placed jute at a severe comparative disadvantage vis-a-vis synthetic substitutes.

The Major End-uses

60. Sacks and bags are still a relatively important, although declining, outlet for jute.(See Table 9.) Synthetics penetration of this market advanced more rapidly in the United Kingdom than in other Western European countries. Trade estimates indicated that in the United Kingdom consumption of polyolefins sacks increased from 1.3 thousand tons in 1968 to some 3.1 thousand tons in 1970 and 3.6 thousand tons in 1971. Jute's market share declined from 87 percent in 1968 to 65 percent in 1971. In EEC countries only the bag export market (i.e., the market in which duties on imported fabrics and bags are withdrawn when the bag is used for the export of products) has been largely immune to synthetics competition. Imports of new bags from India, Bangladesh and other Asian countries for this market have considerably increased over time. Apart from the duty rebate, the fact that bags are mostly utilized for exports to developing countries (mainly Africa), where importers still prefer jute bags because of their reuse value, also played a positive role. No precise information exists on utilization of polyolefins in packaging material for the EEC as a whole. Trade estimates, however, indicate that the market share of jute has declined considerably from some 95 percent in 1969 to about 65 percent in 1971. A study of the European packaging market conducted by a major U.S. manufacturer of polypropylene fabric indicates that for Western Europe as a whole, the market share of synthetics increased from 12 percent in 1968 to 33 percent in the 1970 and 40 percent in 1971.

61. Jute has suffered in Europe from severe price competition from lower cost, woven polypropylene cloth and bags. In the United Kingdom, for example, woven synthetic replacement for 10 oz. hessian is currently available at 5.25 pence per square yard. 1/ Indian 10 oz. hessian is

1/ Considerably lower prices - around 4 pence per square yard - are quoted for Portuguese polypropylene cloth. However, this is because, until recently, Portugal obtained extremely low cost raw materials for polypropylene cloth production from Japan, a situation which no longer obtains. In fact the import price of synthetic cloth and bags from Portugal already showed a considerable increase in early 1973.

Table 10: EEC AND U.K. IMPORT QUOTAS ON JUTE MANUFACTURES

(tons)

		1972	
		Bangladesh	India
EEC /1			
Category 4.	Jute cloth of any weight) 150 to 230 cm in width)	1,255	6,250
Category 5.	Jute cloth of any weight) over 230 cm in width)		
Category 6.	Jute yarn	3,400	(no quotas)
U.K.			
BTN 57.10	Fabrics up to 99" wide		13,700,000 sq. yds.
	Fabrics of 100" wide and over		3,500,000 sq. yds.
57.06	Yarn		500 tons
62.03	Bags/sacks /2		50 tons

/1 Category 2 goods (jute cloth weighing from 310 to 500 gr/m^2 and less than 150 cm in width + bags weighing from 310 to 500 gr/m^2); and Category 3 goods (jute cloth weighing less than 310 gr/m^2 and less than 150 cm in width + bags weighing less than 310 gr/m^2) are not subject to global EEC quotas, but are regulated by bilateral arrangements with individual member countries.

/2 Except for heavy bags and woolpacks.

Source: Indian Jute Mills Association; Bangladesh Jute Mills Association; and Commonwealth Secretariat.

quoted at 7.5 pence per square yard, while Bangladesh 10 oz. hessian is quoted at 6.4 pence per square yard. Ex-Dundee comparable hessian cloth sells at 11.6 pence per square yard. Imported 10 oz. standard hessian would have very serious difficulties competing in the U.K. market with locally produced woven polypropylene replacement. In the EEC, given the further weight of the import duty, competition seems out of the question. Competition with cheaper Portuguese woven polypropylene cloth would be even more difficult under most foreseable conditions. Tariff-free imports of lighter fabrics, on the contrary, would have a good chance to compete with woven polypropylene replacement. Bangladesh 7½ oz. hessian is quoted in the United Kingdom at 5 pence per square yard. Ex-Dundee 7½ oz. sells at about 9 pence per square yard, while comparable polypropylene woven cloth sells at 4.75 pence per square yard. In the United Kingdom, where no duties on imports of hessian from Commonwealth countries are applicable, a 10 percent reduction of current c.i.f. prices would make Indian and Bangladesh light hessians competitive with synthetics. 1/ Country analysis strongly indicates that in the absence of a fast relaxation of import tariffs and export price reduction, consumption of jute in packaging in the EEC could become negligible by 1980 (some 15 thousand tons). The overall market for packaging is not expected to shrink much below current levels, but synthetics are expected to cut heavily into the jute bag market. Should EEC tariffs be abolished and jute fabrics become more competitive, jute could probably be expected to hold its current position in the export market for bags and minimize its losses in the domestic bag market. Utilization of bags in the EEC could be tentatively put at some 35 thousand tons by the end of the seventies.

62. In the United Kingdom utilization of jute bags is expected to decline further to about 5 thousand tons by the end of the seventies. Utilization of jute bags and sacks in other Western European countries (including Southern Europe) is expected to be by 1980 around 25-30 thousand tons by the end of the seventies. Western European total consumption of jute in packaging is therefore forecast to be between 40 to 60 thousand metric tons by the end of the seventies, depending on price and trade liberalization developments.

63. Carpet backing is another important end-use of jute in Western Europe which accounted in 1970 for 16 percent of total consumption. (See Table 9.) Total production of carpets in Western Europe doubled in volume

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1/ The cost of producing woven polypropylene cloth to replace 7 oz. hessian in the United Kingdom is estimated to be around 3.9 pence per square yard. Given the advantage that U.K. polypropylene weavers have vis-a-vis weavers in other Western European countries (with the exception of Portugal) in terms of lower polypropylene resin prices and labor costs, is is conceivable to assume that if hessian were competitive in price with polypropylene cloth in the United Kingdom, it would, in the absence of import tariffs, also be generally competitive throughout Europe.

during the second half of the sixties (from 195 to 391 million square meters between 1965 and 1970). In spite of the phenomenal growth of tufted carpet production which more than trebled over this period, woven carpets still accounted in 1970 for 28 percent of the total market, a much higher percentage than in the United States. Needlefelt carpet production increased even faster than tufted production, but from a much smaller base. (See Table 11.) Tufted and needlefelt carpets accounted over this period for all the growth in output. Production of carpets, moreover, increased faster in the EEC than in the United Kingdom and other Western European countries. EEC countries accounted in 1970 for nearly 59 percent of total output (45 percent in 1965), while the U.K. share of the market fell from 48 percent in 1965 to 33 percent in 1970. The faster output growth registered in the EEC was due to the more rapid growth of tufted and needlefelt carpets which together accounted for 75 percent of EEC output in 1970 compared to 50 percent in the United Kingdom, where woven carpet production is still very important.

64. The very fast growth of tufted and needlefelt carpet production in Western Europe created, in the second half of the sixties, a strong demand for jute carpet backing. Consumption of jute carpet backing doubled in volume between 1965 and 1970. The joint production of tufted and needlefelt carpets, however, increased fourfold and jute captured only one half of this total market growth.

65. Competition from synthetic substitutes started later in Western Europe than in the United States and within Western Europe production of synthetic backings on a commercial scale was first developed in the United Kingdom. In the United Kingdom, moreover, synthetic penetration proceeded further and faster than in the United States. In 1967 synthetic penetration was below 10 percent, but by the end of 1969 the market share of synthetics had already reached 40 percent. Production of synthetic cloth remained until recently concentrated in the Dundee area and was generally carried out by the major jute processors. Polypropylene woven cloth was, since its very introduction, the most important competition in this field. In 1970 polypropylene backing alone was reported to have penetrated about 60 percent of the total market for tufted carpets.

66. In the EEC countries synthetic penetration was slow until 1969, when 91 percent of the total backing used in tufted carpets was still reported to be made out of jute. In the EEC, moreover, synthetic materials other than polypropylene began to be used in carpet backing. Woven polyesters became particularly important in Germany and various types of non-woven polypropylene and polyesters were used throughout the EEC. Competition, however, sharpened in 1970 and 1971. It is estimated that in 1971 the share of synthetics in the primary carpet backing market increased to some 57 percent. While jute still holds 74 percent of the secondary carpet backing market in the EEC (as well as in Europe in general), only 25 percent of tufted carpets have a secondary backing. Jute backing still holds about 65 percent of the needlefelt carpet market, but only 30 percent of all the needlefelt carpets produced in EEC countries have a backing of any kind.

Table 11 : WESTERN EUROPE:
OUTPUT OF CARPETS BY
MAJOR TYPES AND CONSUMING
AREAS, 1965 AND 1970

(million square meters)

	1965	%	1970	%
Tufted	56.8	(29.0)	182.1	(46.0)
Woven	113.8	(58.0)	109.1	(28.0)
Needlefelt	10.3	(5.0)	77.8	(20.0)
Others	14.3	(8.0)	22.1	(6.0)
Total	195.2	(100.0)	391.1	(100.0)
of which:				
EEC	87.4	(44.8)	230.3	(58.9)
United Kingdom	92.7	(47.5)	129.6	(33.1)
Others	15.1	(7.7)	31.2	(8.0)
		(100.0)		(100.0)

Source: A Survey of the European Carpet Industry, ITI, 1971.

67. Synthetic penetration of the carpet-backing market varies greatly between EEC countries, and it is much stronger in the Federal Republic of Germany and the Netherlands than in France and Italy. In the Federal Republic of Germany a new woven polypropylene backing plant recently set up by the leading U.S. producer of polybac practically pushed jute out of the carpet-backing field in 1972. This plant alone operates more Sulzer broad looms than are used for the same purpose in the whole Dundee area. 1/

68. Jute carpet-backing prices in Europe vary considerably from country to country. In general, however, the relationship to synthetics has been over time similar to that of the United States. Woven polypropylene cloth is the major threat to jute. Woven polyester backing is more expensive than either jute or polypropylene backing. Where this type of backing is popular (in the Federal Republic of Germany, for example) its utilization is generally justified on the basis of cost saying considerations in the tufting process.

69. Imports of jute carpet-backing are subject in both the EEC and the United Kingdom to rigid quantitative restrictions. (See Table 10.) If the cost structure of the U.K. jute industry can be taken as generally representative of the situation in Western Europe (Portugal is probably the only important exception), it is clear that protection in Western Europe is preventing jute from competing with polypropylene in the carpet-backing market. Woven polypropylene primary backing is available in the United Kingdom at 7.25 pence per square yard, jute backing at 13 pence per square yard. 2/ It is estimated that to make domestically produced jute carpet-backing competitive with woven polypropylene cloth, BWC jute (the standard grade used for carpet-backing) should be delivered to the mills at £88 per ton, which corresponds to £67 per ton f.o.b. Bangladesh. This is clearly not an achievable price under current production technologies. Without the export duty actually levied on both primary and secondary backing, the Indian jute industry is in a position to supply primary backing at 7.7 pence and secondary backing at 6.1 pence per square yard. Therefore, jute secondary backing could be placed in a secure position,while primary backing prices would still have to be cut by about 10 percent. While improvements in quality and reliability of delivery schedules of raw jute would help somewhat, the main factor is distinctly relative prices.

70. The carpet market in Western Europe is expected to increase rapidly throughout the seventies. Tufted carpets are expected to lead the growth of the overall market as consumption of tufted carpets in Europe is highly income elastic. 3/ Output projections show that the market for

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1/ About 12,000 metric tons of polypropylene carpet-backing was produced in Germany during 1972.

2/ Jute secondary backing sells at 10.5 pence per square yard.

3/ Income elasticity of demand for tufted carpets in Western Europe was bound to be very high. Time series analysis yields an income elasticity of demand of 5.9 in the EEC and 6.0 in EFTA countries (both considered as a group).

tufted carpets in Western Europe is very likely to grow at close to 9 percent per annum throughout the seventies. (See Appendix Table 1.) Independent projections for needlefelt carpet output indicate a growth of 7-8 percent per annum for the next 8-9 years.

71. In spite of this large potential market for primary backing material which is likely to materialize in the 1970's (560 million square yards in tufted carpets alone), jute primary backing consumption is projected to decline considerably throughout Western Europe. Unless tariffs and quotas are abolished in the near future, the market share of jute can be expected to fall from 43 percent in 1971 to some 10 percent in 1980. In the secondary backing market the position of jute is expected to remain relatively stronger and to maintain at least 55 percent of this market (from 74 percent in 1971). As mentioned before, however, only 25 percent of all the tufted carpet currently produced in Europe has a secondary carpet backing. In making the projections for jute consumption in secondary carpet backing it was assumed that this situation would continue to hold throughout the seventies. There is evidently a possibility of inducing a much larger utilization of secondary backing in tufted carpets. Jute promotion could be very effective in this field. Even assuming that the market split between jute and synthetic secondary backing will remain unchanged, if a consumption pattern similar to the one prevailing in the United States could be induced, jute secondary backing consumption in Western Europe could increase by the end of the current decade from a projected 15,000 to some 50,000 tons. Without such an effort, utilization of jute in tufted carpet backing (both primary and secondary) is here predicted to decline to 30-35 thousand tons by 1980. Another 10 thousand tons of jute backing is expected to be utilized in needlefelt carpets. 1/ Total consumption of jute backing in Western Europe is therefore projected to be between 40 to 45 thousand tons by the end of the current decade.

72. Carpet yarn represents a substantial outlet for jute in Western Europe (20 percent of the total market). Jute yarn is utilized to manufacture woven carpets and finds its application mainly in the weft under which the pile yarns are looped. Production of woven carpet backing declined slightly from 1965 to 1970 and so did utilization of jute yarn in this end-use. (See Table 9.) Over 40 percent of all the Western European production of woven carpets is concentrated in the U.K.-EEC countries (particularly in Belgium and the Netherlands) and accounts for most of the remainder.

73. Manufacturers of polypropylene yarns (as distinct from tapes) are now showing increasing interest in this market. Polypropylene yarn, however, still presents technical difficulties and synthetic penetration in this field has been limited. Experiments with polypropylene yarn are now being conducted and it can be foreseen that technical difficulties will be overcome and that polypropylene yarn will be utilized in increasing quantities in Western Europe.

1/ Production of needlefelt carpets in Western Europe is projected to reach 240 million square yards by 1980.

Table 12: WESTERN EUROPE: CONSUMPTION OF JUTE AND JUTE GOODS, 1970 (ACTUAL) AND 1980 (PROJECTED)

(thousand metric tons)

	Actual		Projected				Implied Growth Rate	
	1970	% of Total	1980 I	% of Total	1980 II	% of Total	1970-1980 I	1970-1980 II
Bags & Sacks	158.5	(26)	45	(16)	70	(21)	-11.8	-7.8
Industrial & Other Cloth Applications	99.0	(18)	65	(23)	70	(21)	-4.1	-3.4
Carpet Backing Cloth	91.5	(16)	40	(14)	45	(14)	-7.9	-6.8
Carpet Yarn	111.0	(20)	80	(29)	85	(26)	-3.2	-2.6
Cordage & Cable	32.0	(6)	15	(5)	20	(6)	-7.3	-4.6
Felts	66.0	(12)	35	(13)	40	(12)	-6.1	-4.9
Total	558.0	(100)	280	(100)	330	(100)	-6.6	-5.1

Source: Table 9 (actual); and IBRD, Economic Analysis and Projections Department (projections).

74. Production of woven carpet, moreover, is forecast to remain stagnant or to decline marginally throughout the seventies. If raw jute prices are decreased to some £95 per metric ton c.i.f. Europe (prices are now at about £135 per ton), jute yarn could remain competitive with synthetic and maintain a predominant share of their market. On this assumption, consumption of jute in carpet yarn is predicted to be at 80-85 thousand metric tons in 1980.

75. Industrial and other cloth applications represented, in 1970, 18 percent of the total market for jute in Western Europe. Given the variety of cloth applications included in this category, the end markets cannot be projected separately. On the basis of past trends, it seems reasonable to assume that these applications will account for some 65-70 thousand metric tons of jute in 1980. Utilization of jute in cordage and cables is also projected to decline under the impact of synthetics substitution. Continuation of recent trends would indicate a further sharp reduction of this jute end market to about 15-20 thousand metric tons by the end of the decade.

76. Consumption of jute in felts is almost exclusively concentrated in the Federal Republic of Germany where an estimated 45,000 tons of jute went into felts in 1970 (or 75 percent of total consumption of felts in Western Europe). Changes in house-building techniques are likely to decrease future jute requirements for roofing felt. Synthetics are expected to cut heavily into the market for industrial felt. Production of needlefelt carpets is projected to grow considerably during the seventies, but their jute content is likely to be considerably reduced. Consumption of jute in felts can only be expected to be around 35-40 thousand metric tons by the end of the decade.

77. Total utilization of jute in Western Europe is expected to decline considerably during the seventies. End-use projections indicate that by 1980 consumption is likely to fall to 280-330 thousand metric tons (41-50 percent below 1970 levels). Table 12 summarizes the projections.

India

78. India is the world's leading producer and exporter of jute goods. Mill consumption of jute increased by 3.6 percent per annum in the first half of the sixties, but declined quite rapidly in the second half (at an average rate of 5.2 percent per annum). Only in 1971 and 1972, when the productive capacity of Bangladesh was severely disrupted, did mill consumption of jute in India increase again. Cottage consumption, after somewhat increasing in the early sixties, remained stationary throughout the decade at an estimated level of 36 thousand metric tons a year. (See Table 13.)

79. The main reason behind the fall in jute mill consumption was the sharp decline in exports of jute goods that India experienced in the second half of the sixties. The growth in internal consumption of jute goods (at an average of 5.5 percent per annum between 1960 and 1970) only partially offset the fall in exports.

Table 13: INDIA: UTILIZATION OF RAW JUTE AND JUTE MANUFACTURES, AVERAGE FOR 1961-63 AND 1964-66; AND 1967 TO 1971

(thousand metric tons)

		Average						
		1961-63	1964-66	1967	1968	1969	1970	1971
A.	Raw Jute							
	Mill consumption	1,274.0	1,415.0	1,280.0	1,214.0	1,022.0	1,093.0	1,259.0
	Cottage consumption *	27.0	36.0	36.0	36.0	36.0	36.0	36.0
	Total consumption	1,301.0	1,451.0	1,316.0	1,250.0	1,058.0	1,129.0	1,295.0
B.	Jute Manufactures							
	Exports							
	Hessian	426.4	436.2	382.3	338.2	251.7	282.7	305.9
	Sacking	272.8	230.6	185.5	93.6	48.2	79.1	113.4
	Carpet Backing	62.5	112.7	141.6	179.8	219.3	138.3	245.5
	Others	74.5	89.3	59.1	59.8	50.7	48.8	55.7
	Total	836.2	868.8	768.5	671.4	569.9	548.9	720.5
	Domestic Utilization							
	Hessian	50.0	61.0	63.0	66.0	63.0	75.0	69.0
	Sacking	250.0	320.0	336.0	375.0	380.0	373.0	424.0
	Others	37.0	41.0	44.0	55.0	61.0	66.0	73.0
	Total	337.0	422.0	443.0	496.0	504.0	514.0	566.0
	Stocks /1							
	Hessian	26.1	41.7	48.2	47.8	17.8	43.3	30.0
	Sacking	40.6	47.8	59.1	56.1	21.2	38.1	57.8
	Carpet Backing	7.4	16.2	8.0	9.2	22.7	13.9	11.9
	Others	9.5	11.0	13.7	12.7	8.2	7.0	10.2
	Total	83.6	116.7	129.0	125.8	69.9	102.3	109.9

* Estimate.

/1 IJMA reporting mills (end-of-year stocks).

Source: Indian Jute Mills Association; IBRD, Economic Analysis and Projections Department.

80. Bags and sacks are by far the major consumption items (75 percent of total consumption in 1971). Cement bags are the largest single end-use for jute in India as they account for roughly 27 percent of the total bag market. Grain sacks represent the second largest single use and take up another 25 percent of the bag market. Fertilizer and sugar bags come next. They account jointly for another 24 percent of this market. Industrial and other packaging fabrics together with the "other goods" sector equally split among themselves in 1971 the remaining 25 percent of the total market for jute goods in India.

81. Production of cement in India is forecast to double during the seventies. Fertilizer production is expected to increase fourfold over the same period. Agricultural production is also forecast to grow during the seventies at perhaps a slightly lower rate than the one experienced in the sixties. Consumption of sacks and bags can therefore be projected to grow at an average annual rate of 4 percent per annum during the current decade (600 thousand tons of goods by 1980).

82. Future consumption of packaging and industrial fabrics is likely to be affected by increased competition from synthetics and only a marginal growth can be expected in this sector. 1/ Jute canvas, tarpaulin and cordage which make up the bulk of the "other goods" sector, are also likely to be affected by synthetics competition and overall demand can be expected to remain stagnant. Consumption in these two end-uses, taken together, is forecast to be by 1980 around 155,000 metric tons. The overall size of the domestic market for jute goods in India is projected to be around 755,000 metric tons by the end of the seventies, which implies an average annual growth rate of 3.2 percent over 1971 levels. Cottage consumption is also expected to increase by some 20 percent over the next nine years and reach 43,000 tons by 1980.

Other Producing Countries in Asia

Bangladesh

83. Bangladesh is the world's largest producer of raw jute and the second largest exporter of jute goods. While raw jute production essentially stagnated during the sixties, output and exports of jute goods strongly stimulated by government policies expanded very rapidly. Mill consumption of jute increased at an average of 10 percent per annum and overseas exports of jute goods even faster (at some 11.5 percent a year). Cottage consumption of jute apparently increased quite rapidly in the early sixties and again in the late sixties and early seventies. Domestic utilization of jute goods, on the contrary, remained fairly stagnant in the late sixties but showed a strong increase in 1971/72 when both hessian and sacking consumption apparently almost doubled over the previous three-year average. (See Table 14.)

1/ It is estimated that output of synthetic packaging material would displace 100,000 tons of jute goods by the end of the Fifth Plan (1978/79).

Table 14: BANGLADESH: UTILIZATION OF RAW JUTE AND JUTE MANUFACTURES, AVERAGE FOR 1960/61-1962/63 AND 1963/64-1965/66; AND 1966/67 TO 1971/72

(thousand metric tons)

	Average 1960/61-1962/63	Average 1963/64-1965/66	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72
A. Raw Jute								
Mill consumption	289.7	364.1	429.1	544.9	549.4	620.9	501.7	283.2
Cottage consumption /1	16.0	24.0	40.0	30.0	31.0	37.0	36.0	45.0
Total consumption	303.9	388.1	469.1	474.9	580.4	657.9	537.7	327.2
B. Jute Manufactures /2								
Exports								
Hessian	65.3	76.3	89.1	139.0	164.4	207.5	175.4	78.0
Sacking	149.2	178.9	235.7	240.4	236.9	285.7 *	148.4 *	102.1 *
Carpet Backing	-	7.1	19.3	27.0	27.9	31.0 *	38.4 *	27.0 *
Others	3.4	9.4	13.7	21.8	29.3	32.0 *	25.8 *	17.4 *
Total	217.9	271.7	357.8	428.2	458.5	506.2	388.0	224.5
Domestic Utilization								
Hessian	n.a.	n.a.	n.a.	5.7	8.0	5.9	4.3	10.0
Sacking	n.a.	n.a.	n.a.	17.3	11.2	11.1	9.8	20.4
Others	n.a.	n.a.	n.a.	3.1	3.5	3.8	4.6	3.0
Total	n.a.	n.a.	n.a.	26.1	22.7	20.8	18.7	33.4
Stocks /3								
Hessian	7.4	14.2	21.4	15.4	25.1	25.1	33.8	52.8
Sacking	21.0	39.9	36.0	54.6	32.3	32.2	29.3	48.5
Carpet Backing	-	0.6	2.4	1.8	2.6	3.4	4.9	9.1
Others	0.8	1.7	1.7	1.9	2.7	3.6	2.8	3.5 /4
Total	29.2	56.4	61.5	73.7	62.7	64.3	70.8	113.9

n.a. = not available; * partly estimated; /1 Estimate; /2 Excluding exports to Pakistan; /3 End-of-year stocks; /4 End of June 1972.

Source: Bangladesh Jute Mills Association; IBRD, Economic Analysis and Projections Department.

84. Consumption of rice bags is the single most important outlet for jute. Cordage and twine consumption are also important and so are a variety of fabrics for packing, household and agricultural applications.

85. The prospects for domestic consumption of jute goods in Bangladesh are generally favorable. Utilization of rice bags, cordage and twine, and other packaging fabrics is expected to increase along with agricultural production. The blending of jute with cotton in various textile applications (union fabrics of which jutton - a jute-cotton blend - is perhaps the best-known) could to some extent increase jute utilization. Fertilizer production is also expected to increase and create a substantial market for bags. Total utilization of jute and jute goods at the end of the seventies can be tentatively put at some 85-90 thousand tons (40-45 thousand tons for industry-produced goods and 45 thousand tons for cottage consumption).

Thailand

86. Thailand is the world's second largest exporter of raw jute. Its manufacturing capacity expanded in the sixties, but was essentially geared to the domestic market. The inferior quality of fiber (kenaf) grown in Thailand limits production of manufactured goods to sacks and bags. In the late sixties, when domestic demand began to level off, exports to neighboring countries expanded to some 16-17 thousand tons.

87. In spite of the fall in exports of rice in the late sixties, utilization of rice bags is still the largest single outlet for jute in Thailand (about 35 percent of the overall domestic market). The recent growth of sugar exports also created some demand for sugar bags. Total domestic use of jute bags, however, seems to have somewhat stagnated in the late sixties at an annual level of 40,000 tons. Consumption of cordage and twine is also estimated to have remained fairly constant at some 4,000 tons.

88. The use of jute in packaging in Thailand is expected to increase only very moderately through the seventies in spite of no foreseeable threat from synthetic substitutes. Even assuming a recovery in rice and an expansion in sugar exports, the expected decline of oilseeds and maize exports will probably lead to only a very modest growth of the domestic market for bags over the next ten years. Total domestic consumption by 1980 is therefore projected to be around 45,000 tons (42,000 tons of bags and 3 to 4 thousand tons of cordage).

Other Markets in Developing Areas

89. According to two recent reports prepared for the FAO Intergovernmental Group on Jute and Allied Fibers, 1/ it would seem that there is some need to reconsider the widely held opinion that whatever the pace of

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1/ See FAO Study Group on Jute, Kenaf and Allied Fibers Consultative Committee - Twelfth Session (Rome, September 29-October 1, 1971); Ibid Tenth Session (Rome, September 28-30, 1970).

substitution by other fibers and packaging techniques in developed countries, the developing countries will continue to offer an expanding market for jute and jute goods.

Latin America

90. Consumption of jute in Latin America is largely in the form of sacking mainly for bagging grains, coffee, fishmeal, sugar and other agricultural commodities in addition to minerals and metals (Chile, Bolivia). Consumption of jute goods in Latin America rose until the 1964-65 period reaching a peak of 240,000 tons, but has since declined to 207,000 tons in 1967-69, and to less than 200,000 tons in 1970. (See Table 1.) This occurred despite a rise of over 5 percent in the tonnage of agricultural production of the major jute consuming countries. A number of factors have been responsible for this decline in jute consumption: bulk handling deprived jute of large portions of some of its markets (grains in Argentina and Brazil, fishmeal in Peru, sugar in Guyana); the local processing of certain agricultural commodities previously exported as unprocessed goods decreased packaging requirements for export, and growing pressure from substitutes such as paper sacks and cotton bags, and more recently, woven plastic sacks.

91. Four countries in Latin America account for over 65 percent of the total jute consumption of this continent 1/ - Peru, Chile, Brazil and Argentina. Peru is growing some fiber (over 3,000 tons) and its output may double by 1975. Present manufacturing capacity is estimated at about 10,000 tons per year. At the end of the 1960's, Peru was importing some raw fiber from Pakistan and Thailand (3,000 tons average) and important quantities of finished goods (averaging 10/15,000 tons a year depending on fishmeal production). Half of the fishmeal market, however, has gradually become bulk-handled and a polypropylene plant was established in 1968. A 50 percent tariff on imported jute goods, originally intended to protect local jute growers, will be acting in favor of polypropylene and bulk handling techniques. Chances are, therefore, that the fishmeal market will be entirely lost to jute bags during the seventies. Import of jute and jute goods may well fall drastically during the seventies as the total size of the domestic market for jute goods is likely to remain around 10,000 tons (i.e., at 1970 levels), while domestic production is expected to be able to meet 60 percent total requirements.

92. Chile imports all its jute goods and no manufacturing facilities exist in the country. Imports of jute goods in 1969 were about 9,000 tons. Consumption is gradually decreasing and Brazil, and perhaps Peru, protected by high tariff walls, are likely to supply part of the Chilean jute market, which is expected to shrink further during the seventies.

1/ Cuba, with an estimated utilization of jute goods of some 40,000 tons in 1970 is included here.

93. Argentina imports all her requirements of raw fiber (9,500 tons in 1970), most of which come from Brazil. Argentina is also a major importer of hessian cloth (33,000 tons in 1970), two thirds of which normally came from Asian producers and one third from Brazil. Consumption of jute and jute goods has steadily declined from 50,000 tons (the average consumption during the first half of the 1960's) to 42,500 tons in 1970 largely as the result of progressive substitution of bulk handling techniques. Further reductions of packaging requirements can be expected in the seventies particularly for exports of grains. Bag requirements for potatoes, oilseeds and grains for the domestic market are,however, likely to increase. Total utilization of jute and jute goods is therefore expected to decrease by 1980 only marginally from 1970 levels (to some 35 thousand metric tons).

94. Brazil is the only country in South America which grows jute and other similar fibers in sufficient amounts to cover its own needs and to have a sizeable surplus of jute goods for export. Brazil produced about 30,000 tons of jute in 1970, plus another 35,000 tons of allied fibers. Manufacturing capacity is currently estimated at over 100,000 tons, but capacity utilization is thought to be about 60 percent. The bagging of agricultural commodities is the predominant end-use of domestically produced jute. Coffee, rice, raw sugar and maize for export and domestic consumption require a large quantity of jute bags, estimated at some 50,000 tons in 1970. Cotton, paper and plastic bags are in the main used for refined sugar, flour, cocoa and animal feeds. In addition to bulk handling, limited inroads by other packaging materials have taken place in the fields where jute bags are traditionally used, largely because of government regulations and partly because of consumers' preferences.

95. Brazilian agricultural production and exports are projected to increase considerably in the course of the decade and a large potential market for jute bags is likely to materialize. However, it appears that it will be difficult for Brazil to increase its production of raw jute because of land limitations, and imports are expensive because of high transport costs. Further, bulk handling will probably be extended and, even assuming the continuation of present government regulations in favor of jute sacks, no considerable deviation from the consumption trends of the past 5-6 years can be expected. Consumption of jute goods is therefore projected to grow to 75-80 thousand tons by the end of the seventies.

96. Cuba is another large consumer of jute bags, most of which used to be imported from Bangladesh and the USSR. 1/ Jute bags are mostly utilized for sugar. Bulk shipments of sugar, however, had already started in the late sixties and this trend is very likely to continue through the seventies. Heavy declines in Cuba's jute bag requirements can be expected and total consumption of jute goods will probably decrease to 40-45 thousand tons by 1980.

1/ Cuba produces some 4-5 thousand tons of kenaf a year.

97. In conclusion, therefore, consumption of jute and jute goods in Latin America is not expected to be in 1980 substantially different from current levels. The projected increase in Brazilian consumption is likely to offset the decline which is expected to take place in most of the other consuming countries.

Africa and Near East

98. African countries account for about 8 percent of all the jute and jute goods consumed in the world (an estimated 281,000 tons in 1970). Imports of raw jute are still prevalent, but a very big effort is now being made to meet the raw material requirements of the local processing industry from domestically produced fibers. Import substitution efforts are twofold: (a) more jute and allied fibers are being grown locally; and (b) other vegetable fibers (particularly hard fibers) are being used to manufacture sacks. Zaire, Nigeria, Dahomey, Nigeria and the UAR are already producing substantial amounts of jute-like fibers. Hard fiber producers (i.e., Tanzania, Kenya, Ethiopia, etc.) utilize these fibers wherever possible.

99. Jute processing capacity is expanding rapidly in Africa and local processing is expected to cover an ever-growing share of total jute goods requirements (about 60 percent by 1975). Packaging needs are expected to increase in line with agricultural production and export, but the market for jute sacks and bags is forecast to increase slowly in the course of the decade on account of (a) substitution from other vegetable fibers; and (b) an already marked shift towards use of polylefins (for example, in Morocco, Tunisia, Senegal and Madagascar and a large number of other countries).

100. The total market for jute and jute goods is forecast to grow to about 300-330 thousand metric tons by 1980, which would imply a substantial slowdown of the expanding trend of the late sixties.

The Centrally Planned Countries

101. Consumption of jute and jute goods has since the mid-sixties increased substantially in the People's Republic of China, marginally in the USSR, and has actually declined in Eastern Europe. (See Table 1.) On the whole, imports of raw jute have remained stationary since 1964-66 and imports of jute goods have fallen. Increments in production of jute and allied fibers in both the USSR and the People's Republic of China took care of the expanding requirements of the domestic markets.

102. In the USSR, production of kenaf rose during the sixties from an estimated 38 thousand tons in 1961-63 to some 45,000 in 1970. In the late sixties, however, production apparently began to level off and no great output expansion seems in the making in the near future. According to official statistics, net imports of raw jute have actually declined in the years following 1966, only to show a considerable jump in 1970. Net imports of new jute sacks increased considerably until 1965, but sharply

declined in the second half of the decade. Net imports of sacking material, however, trended upwards throughout the period. Apparent consumption of jute goods increased only marginally since 1964-65 and showed a cyclical pattern, probably connected to the cycles of agricultural production.

103. It is particularly difficult to forecast jute goods consumption in the USSR, because very little is known about bulk handling of commodities, prepackaging of goods for retail sale and, above all, production and investment policies.

104. Agricultural output is likely to increase in the seventies and cotton production in particular will probably expand further, sustaining demand for packaging material. Carpet production, currently estimated at 16.5 million square yards, is also expected to increase in the seventies and to generate a potential market for jute carpet backing cloth which could reach some 6-7 thousand tons by the end of the current decade. Demand for jute sacks, however, is particularly difficult to forecast given the basic uncertainty which surrounds bulk handling developments and the direction of plastics production and utilization. A plastics industry of considerable dimensions is being developed in the USSR and the decision of where to use plastics will probably depend not only on the prices of raw jute and jute products relative to those of polyolefins and other natural fibers used in the USSR (flax, for example), but also on political considerations.

105. In the short-run utilization of jute and jute goods is likely to increase as are imports from Asian producing countries. In the longer run, however, competition from bulk handling and synthetic substitutes can be expected to sharpen. It seems, therefore, advisable, at least for estimation purposes, to assume that by 1980 demand for jute will be only 7-10 percent above 1970 levels (i.e., 130-140 thousand metric tons).

106. The outlook for jute in Eastern Europe does not look too promising. Czechoslovakia is operating its 7-8 remaining jute mills at half of their capacities. In Poland (as well as in Czechoslovakia and in the Democratic Republic of Germany) the development of a domestic plastics industry is likely to adversely affect consumption of jute in packaging. Jute may take over some of the markets previously held by flax, but overall growth prospects appear to be poor.

107. The only somewhat more promising outlet for jute throughout Eastern Europe seems to be carpet backing, given the fact that carpet production is rising and this trend is likely to continue. It appears, however, that even under the best possible circumstances, the increase in jute carpet backing utilization will not be sufficient to compensate for expected losses in packaging. Jute consumption in Eastern Europe is one the decline and this trend is expected to continue through the seventies. Utilization of jute and jute goods in Eastern Europe is projected to decline to some 65-70 thousand tons by 1980.

108. The People's Republic of China is probably the largest single consumer of jute and jute goods and, unfortunately, the one for which information is almost totally lacking. Taking FAO and trade estimates of production, it would seem that raw jute output increased at over 7 percent per annum throughout the sixties. In spite of this very rapid growth, production did not keep pace with demand and raw jute had to be imported to complement domestic supply. Apparent consumption (estimated production plus imports) grew throughout the sixties at close to 8 percent per annum, from 326,000 tons in 1961-63 to 598,000 tons in 1970.

109. Agricultural output is generally expected to continue to grow in the seventies roughly along past trends. The widespread application of labor-intensive technologies will probably reduce to a minimum bulk handling and containerization. Demand for packaging material can therefore be expected to grow in the seventies at some 7 percent per annum. This would create an overall potential market for jute of about 950,000 tons by 1980 (assuming that demand for cordage products remains more or less stagnant in the 1970's). Production of food crops spurred by population pressures would reduce land available for jute cultivation, and it seems unlikely that domestic production of jute-like fibers will increase in the seventies as rapidly as in the sixties. Assuming a slight decline from the output growth experienced in the second half of the sixties, jute-like fiber production can be projected to increase at 3.5-4.0 percent per annum throughout the seventies and to reach 750-800 thousand tons by 1980. This would leave a gap of 150-200 thousand tons of jute which could either be filled by imports or by utilization of domestically produced polyolefins.

110. The People's Republic of China has therefore the potential of becoming a large importer of raw jute. Here again, economic as well as political considerations will play a role in determining import policies. For the purpose of our demand projections, we have assumed rather subjectively that the People's Republic of China will import some 50 to 75 thousand tons of jute by the end of the seventies. It is clear, however, that this represents only a rather crude estimate and that the variance in our calculations is quite high. Import demand could reach 100,000 tons, but it could as well be close to zero, depending on developments about which we can only conjecture.

111. Total demand for jute and jute goods in Centrally Planned Countries 1/ is, therefore, projected to increase by 1980 to about 1,050-1,110 thousand metric tons (26 to 33 percent above 1970 levels). Practically all the growth in demand, however, is expected to take place in the People's Republic of China.

1/ Demand in the Centrally Planned Countries of Asia is assumed to increase to 25 thousand tons by 1980.

D. World Demand for Jute: Projected Trends

112. When the projections for the five major consuming areas are aggregated and complemented by projections for other developed countries outside Western Europe and the United States (i.e., Japan, Australia, New Zealand, South Africa, Rhodesia, Israel and Canada), the world jute demand picture which emerges can be characterized as follows: (a) world jute consumption is likely to grow very slowly throughout the seventies; (b) most of the demand growth is expected to take place in developing producing countries (particularly India and Bangladesh); (c) of all the other major consuming areas, only in Africa and in the Centrally Planned Countries (mainly the People's Republic of China) is jute demand expected to increase; and (d) utilization of jute in developed countries is foreseen to decline quite considerably, particularly in Western Europe.

113. Table 15 summarizes the projections for world demand. Both alternatives (I and II) imply that raw jute and jute goods prices will decline in the short run and will be maintained throughout the seventies competitive with synthetics prices. Alternative II, however, assumes (a) that reduction or elimination of tariffs and other import restrictions in Western Europe will help to cushion the fall in jute consumption; (b) that the People's Republic of China will close a larger proportion of its projected demand gap with imports of raw jute; and (c) that import substitution efforts in Africa will be less successful than it is generally anticipated.

114. World import demand projections, summarized in Table 16, reflect the fact jute consumption is expected to grow substantially only in producing countries. The expected fall in jute utilization in Western Europe is fully reflected in the projected decrease in import demand. In Centrally Planned Countries, the import policy of the People's Republic of China is likely to determine whether overall import demand of raw jute will decrease or increase marginally throughout the current decade. Developing countries as a whole are expected to import more raw jute but less jute goods. The net effect is very likely to be an overall stagnation of import demand. The increase in consumption projected for Africa is expected to be met by domestic production, while in Latin America a stagnant overall demand and increased domestic production will likely result in a fall in import demand.

115. World imports of raw jute are projected to decrease rapidly during the seventies, while world import demand for jute goods is generally expected to remain stagnant. The most significant change in the pattern of imports is likely to take place in Western Europe, where relaxation of tariffs and other import restrictions would considerably affect the conformation of import demand. The heavily protected domestic jute industry would progressively shrink under the impact of import liberalization and raw jute would be substituted by jute goods imports. (See Alternatives I and II for raw jute and jute goods in Table 16.) The outcome of current and future trade liberalization efforts will largely determine the overall rate of decline of world import demand.

Table 15: WORLD CONSUMPTION OF JUTE AND JUTE GOODS, 1970 (ACTUAL) AND 1980 (PROJECTED)

(thousand metric tons)

	1970		1980				1970-1980	
	Quantity	% of Total	Projected (I) Quantity	% of Total	Projected (II) Quantity	% of Total	Implied Growth Rate (I)	(II)
							(percent per annum)	
A. Developed Countries								
Western Europe	553	(16)	280	(8)	330	(9)	(- 6.5)	(- 5.0)
North America	489	(14)	440	(12)	470	(12)	(- 1.1)	(- 0.4)
Other Developed	272	(8)	175	(5)	190	(5)	(- 4.3)	(- 3.6)
Total	1,314	38	895	25	990	26	- 3.8	- 2.7
B. Centrally Planned Countries								
Total	834	24	1,050	29	1,100	29	+ 2.3	+ 2.8
C. Developing Countries								
Asia	835	24	1,150	32	1,150	31	+ 3.3	+ 3.3
of which: India	(550)	(16)	(800)	(22)	(800)	(21)	(+ 3.8)	(+ 3.8)
Bangladesh	(56)	(2)	(85)	(3)	(85)	(3)	(+ 4.2)	(+ 4.2)
Thailand	(40)	(1)	(45)	(1)	(45)	(1)	(+ 1.2)	(+ 1.2)
Others	(189)	(5)	(220)	(6)	(220)	(6)	(+ 1.5)	(+ 1.5)
Africa	281	8	300	9	330	9	+ 0.7	+ 1.6
Latin America	196	6	190	5	195	5	+ 0.0	+ 0.0
Total	1,312	38	1,640	46	1,675	45	+ 2.3	+ 2.5
D. Total World (A + B + C)	3,460	100	3,585	100	3,765	100	+ 0.4	+ 0.9

Note: Alternative I assumes price reductions at about 20 percent.
Alternative II assumes in addition favorable developments for trade including:
(a) lower tariffs and few import restrictions;
(b) larger export to People's Republic of China; and
(c) less import substitution in African countries.

Source: Economic Analysis and Projections Department, IBRD.

Table 16: WORLD IMPORT DEMAND FOR JUTE AND JUTE GOODS, 1970 (ACTUAL) AND 1980 (PROJECTED)

(thousand metric tons)

	1970 (Actual)			1980 (Projected)						1970-1980 (Implied Growth Rate)					
		Jute		Jute		Jute Goods		Total		Jute		Jute Goods		Total	
	Jute	Goods	Total	(I)	(II)	(I)	(II)	(I)	(II)	(I)	(II)	(I)	(II)	(I)	(II)
A. Developed Countries															
North America	33	428	461	18	23	422	447	440	470						
Western Europe	447	116	563	180	85	100	245	280	330						
Other Developed	144	127	271	80	85	95	105	175	190						
Total	624	671	1,295	278	193	617	797	895	990	-7.7	-11.1	-0.8	+1.7	-3.6	-2.6
B. Centrally Planned Countries Total	142	77	219	125	165	75	75	200	240	-1.3	+1.5	0.0	0.0	-0.9	+0.9
C. Developing Countries															
Asia /1	65	78	143	110	110	70	70	180	180						
Africa	62	160	222	70	90	105	115	175	205						
Latin America /2	15	101	116	15	15	80	85	95	100						
Total	142	339	481	195	215	255	270	450	485	+3.2	+4.2	-2.7	-2.2	-0.6	0.0
D. Total World (A + B + C)	908	1,087	1,995	598	573	947	1,142	1,545	1,715	-4.0	-4.5	-1.4	+0.5	-2.5*	-1.5

/1 Excluding producing countries.

/2 Excluding Brazil.

Source: IBRD, Economic Analysis and Projections Department.

116. The future of jute, however, is by no means predetermined. This chapter has stressed the importance of achieving and maintaining price competitiveness with synthetic substitutes. This represents the necessary condition for the survival of jute in the short run. In the longer run the market for jute might well be improved by exogenous factors such as the energy crisis and the consequent likely increase in the prices of synthetic products which are derived from oil. An additional factor of potential impact is ecology. Synthetic materials, are treated to prevent disintegration, but once so treated there is no efficient way to dispose of them. Increasing use of synthetics for a variety of products will, at some point, become a serious burden to the environment unless appropriate disposal techniques are developed. It is possible, and would be economically efficient, to require synthetics manufacturers to bear this burden. The implied increase in the financial cost of synthetics to reflect economic costs would improve the competitive position of jute.

117. While the overall demand picture is not bright, one important factor could alter that picture considerably. Product development based on a serious research and development effort could evolve new commercially feasible uses for jute. The history of jute has, indeed, depended on product development. The spinners and weavers of Dundee, in the early 1800's, developed products - jute bags and sacks - which caused a tremendous increase in the demand for jute. Hessian cloths, developed in Europe during the second half of the 19th century, provided another large outlet for jute. When these markets began to lose ground in the middle of the 20th century, carpet backing developed a a major end-use, largely through research and development efforts in the United States. Now, when the future of jute looks so uncertain, it is clearly appropriate to embark on a serious research, development and marketing effort to improve traditional products and to find new markets for jute.

118. It is also appropriate that at this juncture, the jute-producing countries themselves have taken the lead in establishing an international institution for this purpose. The Intergovernmental Conference in Dacca, which was held in January 1973, set in motion the machinery to establish an international jute organization. It would be premature to discuss at this point the still-evolving details of the organization. It would also be somewhat premature to incorporate the potential impact of such an organization into demand projections for jute. However, the time is long overdue to focus attention on the need for an international research, development and marketing effort to improve jute's position. The analysis presented in this chapter predicts potentially severe consequences for those countries which depend on the income and foreign exchange which jute provides. Those who are concerned with these potentially severe consequences - producer countries themselves, international aid organizations and bilateral donor countries - cannot afford not to support this effort.

Table 1: PRODUCTION OF TUFTED CARPETS IN WESTERN EUROPE AND NORTH AMERICA, 1964 TO 1971 AND PROJECTIONS FOR 1980

(million square yards)

	Actual								Projections	
	1964	1965	1966	1967	1968	1969	1970	1971	1980	(% p.a.)
A. Western Europe										
EEC	18.3	25.6	36.0	52.0	71.0	95.4	122.8	154.3	330.0	8.8
Other Europe	36.5	43.3	50.2	63.0	74.3	84.9	97.1	110.0	230.0	8.5
(of which U.K.)	(33.1)	(38.4)	(42.7)	(52.7)	(59.5)	(63.3)	(72.6)	(84.5)	(140.0)	(5.7)
Total Western Europe	54.8	68.9	86.2	115.0	145.3	180.3	219.9	264.3	560.0	8.7
B. North America										
United States	318.9	375.8	407.7	432.2	511.0	562.7	604.0	681.0	1,400.0	8.3
(of which broadlooms)	(219.7)	(259.9)	(288.7)	(328.6)	(394.7)	(455.3)	(502.3)	(558.5)	(1,250.0)	(9.3)
Canada /1	9.3	11.2	15.6	15.8	20.5	23.6	25.8	28.9	60.0	8.5
Total North America	328.3	387.0	423.3	448.0	531.5	586.3	629.8	709.9	1,460.0	8.3

/1 Broadlooms only.

Source: National Production Statistics (actual data); and IBRD, Economic Analysis and Projections Department (projections).

Table 2: NET IMPORTS OF JUTE GOODS, AVERAGE FOR 1961-63, 1964-66 AND 1967-69; AND 1970

(thousand metric tons)

	Average 1961-63	Average 1964-66	Average 1967-69	1970	
A. Developed Countries					
Western Europe					
EEC	14.2	23.3	38.0	51.7	
United Kingdom	38.5	40.5	43.6	36.3	
Others /1	42.4	30.2	35.9	27.9	
Total	95.1	94.9	117.5	115.9	
North America					
United States	373.6	437.0	421.1	380.6	
Canada	42.0	45.0	52.0	47.0	
Total	415.6	482.0	473.1	427.6	
Other Developed					
Australia	88.0	94.0	84.0	63.0	
South Africa	45.0	40.0	35.0	32.0	
Japan	- 2.8	- 7.4	5.1	3.9	
Others /2	30.1	31.1	28.8	28.1	
Total	160.3	157.7	152.9	127.0	
Total Developed	671.0	734.6	743.5	670.5	
B. Centrally Planned Countries					
USSR	18.0	54.0	36.0	45.0	
Eastern Europe	25.0	36.8	33.9	31.8	
China, People's Republic of	1.0	4.0	1.0	n.a.	
Total Centrally Planned	44.0	94.8	70.9	76.8	
C. Developing Countries					
Asia /3	114.5	98.3	62.5	77.5	*
Africa and Near East	158.0	208.0	177.0	160.0	*
Latin America	152.0	160.0	119.0	101.0	
Total Developing	424.5	466.3	358.5	338.5	
D. Total World (A + B + C)	1,139.5	1,295.7	1,199.9	1,085.8	

* Estimate.

/1 Other Western European countries, plus Greece, Turkey and Yugoslavia.

/2 Consisting of New Zealand, Rhodesia and Israel.

/3 Includes Pakistan.

Source: National Trade Statistics (wherever available) complemented by: European Association of Jute Industries, Statistical Yearbook (Annual); FAO, Monthly Bulletin of Agricultural Economics and Statistics, February 1971; Commonwealth Secretariat, Wool Intelligence, Fiber Supplement (various issues).

Table 3: ESTIMATED CONSUMPTION OF WOVEN TEXTILE POLYOLEFINS IN WESTERN EUROPE, 1969-1972

(thousand metric tons)

	1969	1970	1971	1972
EEC				
Polypropylene	5.0	7.9	18.4	24.8
Polyethylene	0.8	2.1	3.3	5.3
Total	5.8	10.0	21.7	30.1
United Kingdom				
Polypropylene	7.5	11.0	13.0	14.0
Polyethylene	-	-	-	-
Total	7.5	11.0	13.0	14.0
Other Europe				
Polypropylene	8.1	10.9	15.3	18.4
Polyethylene	0.2	0.2	0.5	0.7
Total	8.3	11.1	15.8	19.1
Total Consumption	21.6	32.1	50.5	63.2
of which:				
Polypropylene	20.6	29.8	46.7	57.2
Polyethylene	1.0	2.3	3.8	6.0

Source: European Association for Textile Polyolefins (confidential); and trade estimates.

Table 4: TARIFFS ON JUTE AND JUTE MANUFACTURES IN MAIN DEVELOPED CONSUMING COUNTRIES

(percent ad valorem)

	United States	United Kingdom /1	EEC	Japan	Australia
Raw jute	0	0	0	0	0
Jute yarn	0	10-15	8	5	30
Jute fabrics	0 /2	20	15-22	10 /3	0
Jute sacks/bags (new)	1.5 /4	20	15-20	10 /3	10 /5

/1 Imports from Commonwealth countries are duty-free.

/2 0.2 ¢/lb. specific duty + 2.5% ad valorem on bleached, colored or flame-resistant fabrics.

/3 A ceiling on imports exists at 21,000 metric tons.

/4 Plus specific duty of 0.2¢/lb.

/5 Except for corn sacks which are admitted duty-free.

Source: U.S. Tariff Commission; Commonwealth Secretariat; and UNCTAD Secretariat.

Table 5: NET IMPORTS OF RAW JUTE AND ALLIED FIBERS
AVERAGE FOR 1961-63, 1964-66 AND 1967-69
AND 1970

(thousand metric tons)

	Average 1961-63	Average 1964-66	Average 1967-69	1970
A. Developed Countries				
Western Europe				
EEC	289.6	284.1	295.5	273.3
United Kingdom	137.8	128.3	110.8	94.1
Other /1	72.7	86.6	85.9	79.2
Total	500.1	499.0	492.2	446.6
North America				
United States	57.8	55.9	42.9	29.6
Canada	2.0	2.7	3.0	3.0
Total	59.8	58.6	45.9	32.6
Other Developed				
Japan	74.2	86.3	112.3	104.0
Australia	8.0	7.0	8.0	10.0
South Africa	30.5	29.0 *	28.0 *	28.0 *
Others /2	2.8	2.9	4.5	2.5
Total	115.5	125.2	152.8	144.5
Total Developed	675.4	682.8	690.9	623.7
B. Centrally Planned Countries				
USSR	17.5	24.5	24.7	36.4
Eastern Europe	55.5	61.5	58.0	57.5
China, Peoples' Republic	9.7	56.2	56.3	47.5
Total Centrally Planned Countries	82.7	142.2	139.0	141.4
C. Developing Countries				
India	48.8	117.1	90.5	- 25.6
Other Asia /3	58.0	52.0	51.0	65.0
Africa/Near East	42.0	44.5	65.0	61.5
Latin America	11.5	14.5	14.0	15.0
Total Developing Countries	160.3	228.1	220.5	115.9
D. Total World (A + B + C)	918.4	1,053.1	1,050.4	881.0

* Estimate based on exports from producing countries.

/1 Other Western European countries plus Greece, Turkey and Yugoslavia.
/2 Consists of New Zealand, Rhodesia and Israel.
/3 Includes Pakistan.

Source: National Trade Statistics (wherever available) complemented by: European Association of Jute Industries, Statistical Yearbook (Annual); Indian Jute Mills Association, Annual Summary of Jute and Gunny Statistics (various issues); Bangladesh Jute Board, The Jute Season, 1968/69 and 1969/70; Commonwealth Secretariat, Industrial Fibers (various issues); and FAO, Trade Yearbook (various issues).

III. WORLD SUPPLY: STRUCTURE AND TRENDS

A. Historical Perspective

119. The world supply of jute and jute goods has undergone important changes in the last two decades. In general terms, the 1950's saw a large increase in the production of raw jute and allied fibers, 1/ while the 1960's saw important changes in the location of manufacturing activity.

Table 17: PRODUCTION OF RAW JUTE AND JUTE GOODS /a

(000's metric tons)

	Raw Jute				Jute Goods			
	India	Pakistan	Others	Total	India	Pakistan	Others	Total
1951/52	670	948	211	1829	983	1	566	1550
1961/62	1456	1304	831	3591	1096	273	1544	2913
1970/71	1116	1163	1010	3289	1092	478	1352	2922
1971/72	1231	777	1219	3227	1252	305	1293	2850

/a At least three possible factors cause jute goods production to differ from raw jute production in any given years. These are: (i) changes in stock positions including carryovers from one year to the next; (ii) village consumption; and (iii) a wastage factor of 5-6 percent in manufacturing.

Source: IJMA, BJMA, AEJI, and FAO.

120. Production of jute and allied fibers increased rapidly during the 1950's doubling from 1.8 million tons in 1951 to 3.6 million tons in 1961, a growth rate of about 7.5 percent per year. Production in Pakistan, which accounted for about 50 percent of total output in the early 1950's, grew at only 3 percent per year to reach 1.3 million tons in 1961/62 thereby declining to 36 percent of the total. In fact, 1961/62 was a particularly good year in Pakistan because of favorable weather conditions, and the average crop for the decade was about 1 million tons with no discernable trend. Production in India increased from about 670,000 tons to 1.5 million tons (about one-third of the

1/ Including mesta (produced mainly in India) and kenaf (produced mainly in Thailand and China).

increment being mesta) as the result of an extensive program to expand jute acreage in order to supply domestically jute previously imported from Pakistan. Production in Thailand increased from almost nil to about 300,000 tons (almost all of which is kenaf), while production in the USSR and mainland China increased by 265,000 tons to 365,000 tons, of which about two-thirds is kenaf. The most important structural changes during the 1950's were the decline in the share of Pakistan in total world production and the increasing importance of allied fibers which had accounted for only 8 percent of output in 1951/52 but which increased to about one-quarter of the total by the end of the decade. Since allied fibers are low-cost, low-quality substitute for jute, the development was important as a measure of the potential market lost to jute because of an inability to increase yields and lower production costs.

121. In the main, the 1960's have been a decade of stagnancy for the production of raw jute and allied fibers. There have been fairly large yearly fluctuations based largely on varying climatic conditions. However, output has averaged about 3.5 million tons per year or roughly the same as in 1961, with 77 percent accounted for by jute. The main fluctuations have been in jute production in India which have been counterbalanced by the fairly sensitive supply response of Thai kenaf. Bangladesh and India now each supply about one-third of total world production and the USSR and mainland China about 15 percent, with Thailand, Nepal, and other countries in Asia, Africa, and Latin America accounting for the remainder.

122. Political considerations were the key factor causing trade between India and Pakistan to diminish in the early 1960's and to cease in 1965. 1/ Thus, India could no longer import raw fiber from Pakistan, a situation for which India had started to prepare soon after partition with a "grow-more-jute" campaign. 1/ By 1966, India had expanded jute and especially mesta output considerably, and only relatively small imports of Thai kenaf (about 15 percent of Indian consumption) were required. Thailand maintained an essentially laissez-faire attitude both towards world trade and domestic production. Since kenaf is grown on marginal land with few alternative uses, the supply response to world price fluctuations is fairly sensitive. In practice, this meant that a poor Indian crop one year was followed by a large Thai crop the following year, an important element in replacing drawn-down buffer stocks.

123. The most distinctive changes in the production of jute goods have been the continuous increase in Pakistan's share over time (except for the war-induced decline of the last 2 years) and the increase in production in other countries (mainly Western Europe) in the 1950's followed by declining production in those countries in the 1960's.

1/ See Chapter I for a brief description of the campaign. Of course, there was considerable informal border trade - perhaps on the order of 100,000 tons per year.

124. Production in Pakistan increased from 1951/52 to 1961/62 reflecting a large increase in capacity, then leveled off for several years, at 275 to 300,000 tons as no new capacity was installed. However, a large investment program in the middle 1960's enabled production to increase from 289,000 tons in 1964/65, to 587,000 tons to 1969/70, or by over 100 percent. The years following 1969/70 saw production drop markedly at about 305,000 tons in 1971/72. Current trends in Bangladesh indicate a likely level of about 480-500,000 tons in 1972/73 (see Volume II for a more detailed discussion).

125. India, on the other hand, allowed output of manufactures to stagnate over the last 20 years, with the notable exception of the last 2 years when production for export increased to partly absorb world demand resulting from the declines in exports from Pakistan. Exports from India had been declining before this, from a level of about 960,000 tons in the middle 1960's to little more than 600,000 tons in 1970 (see Table 35). Overall demand for goods remained constant only because of large increases in domestic consumption.

126. Perhaps the most important element in the decline of India as an exporter of jute goods was the squeeze imposed by tariff and quota barriers in Western European markets on the one hand, and Pakistan's aggressive expansion of exports supported by a differential exchange rate system that provided cheap raw jute to her domestic manufacturing industry. Jute prices in Pakistan were typically about one-half Indian jute prices (see Volume II for an analysis of this system). The differential exchange rate system was, of course, removed by the Government of Bangladesh on January 1, 1972, and raw jute prices quickly rose by about 50 percent.

Table 18: TAXES ON INDIA'S EXPORTS OF JUTE MANUFACTURES

	Unit Value/a (Rs. per ton)	Export Duty
Hessian		
June 1966	2,406	900
May 1967	3,359 /b	750
Feb. 1968	2,777	500
March 1969	3,557	200
Dec. 1971	4,152	600
Sacking		
June 1966	1,918	600
May 1967	2,570 /b	450
Feb. 1968	2,001	250
March 1969	2,527	150
Dec. 1971	2,960	150
Carpet-Backing		
June 1966	3,057	900
May 1967	4,638 /b	600
Dec. 1969	5,080	300
Dec. 1971	4,488	700

/a For the month closer to the date of the change in export duty.
/b June 1966-March 1967 (average).

Source: Monthly Statistics of Foreign Trade of India, and IJMA, Annual Summary of Jute and Gunny Statistics 1971/72.

127. Quite apart from subsidizing or protecting her jute industry, India has imposed export taxes on hessian, sacking and carpet backing of varying amounts over the years, but amounting to about 6-37 percent for hessian, 5-31 percent for sacking and 6-29 percent for carpet backing.

128. The differing government policies in India and Pakistan were of crucial importance in determining market shares. Pakistan was able to underprice India in hessian and sacking, and by the end of the 1960's had captured about 85 percent of the combined sacking export market of the two countries and about 45 percent of the combined hessian export market. India retained most of the combined carpet backing market, largely because Pakistan's capacity in carpet backing increased much more slowly than in hessian and sacking.

129. The fact that Pakistan discriminated against raw jute exports in favor of exports of jute manufactures thereby promoting a profitable domestic jute manufacturing industry proved to be an important determinant of the world jute trade. The smaller jute crops implied by lower domestic raw jute prices encouraged the growth of substitutes for jute. In the developing countries, this encouraged the rapid growth of kenaf, mesta, and similar fibers which are combined with jute to allow production of cheaper goods. Since allied fibers such as kenaf were typically 40 to 50 percent less expensive, 1/ but can only be used in a given ratio in most production, this was probably an important factor in preserving the jute market. In the developed countries, synthetics and other products were substituted for jute thereby diminishing the jute market situation. It would appear that a wiser policy would have been a lesser degree of discrimination against raw jute exports thereby preserving jute markets in Western Europe until the time when they could have been supplied with goods from Pakistan. The degree of substitution is discussed in Chapter II.

130. The data on manufacturing output over time suggest that a considerable shift has occurred in the location of manufacturing capacity, and such a shift has indeed taken place.

131. Aside from the apparent (rather than real) decline in the number of Indian looms, the table below portrays the two basic features of structural change in manufacturing capacity over time - the rapid increase in capacity in Pakistan and the equally rapid decline of capacity in Western Europe. The increase in capacity in Pakistan, discussed in detail in Volume II, was part of the Government's program to increase foreign exchange earnings and industrial employment among other considerations.

1/ The current price level of kenaf is about the same as that of raw jute. This is no doubt a reflection of the recent shortage of raw jute and it is expected that kenaf price will soon decline to previous levels.

Table 19: NUMBER OF LOOMS BY COUNTRY

	1952	1960	1966	1970
India	68,557	72,125	75,265	41,032 /a
Pakistan	2,087	8,092	14,342	21,508
Western Europe	35,609	28,349	24,658	12,908
Of which:				
United Kingdom	(8,140)	(6,588)	(5,834)	(3,384)
France	(6,477)	(3,953)	(2,851)	(2,183)
Germany (Federal Rep.)	(5,084)	(3,873)	(3,690)	(2,291)
Belgium	(3,718)	(3,310)	(3,174)	(1,218)
Rest of World	15,923	22,060	25,331	27,000
Total	122,176	130,626	139,596	102,448 /a

/a The entries for India for 1952, 1960, and 1966 consist of all looms previously registered with the IJMA and represent, in part, a number of looms which were inactive or which no longer existed. Since 1968 is the first year for which the number of active looms only is available, it is not possible to give an estimate of looms in use for the earlier years. However, a comparison of data for 1966 and 1968 indicates that the earlier figures contain a sizeable upward bias of about 25,000 looms.

Sources: AEJI Statistical Yearbook, IJMA, BJMA, and FAO. The rest of World entry for 1970 is a mission estimate.

132. The rapid decline of manufacturing capacity in Western Europe is directly related to decreased consumption, as tariff barriers and quotas effectively prohibited the import of manufactured items. The key characteristic of this decline is that it has been progressive and monotonic for some decades, and that it has occurred in almost every major jute-using country in the region. The most precipitous decline has occurred in the United Kingdom, which, by 1971, had only 2,054 operating looms, only 25 percent of the 1952 level, and less than 5 percent of India's current capacity. The

only countries which are exceptions to this precipitous decline are Portugal, where loomage increased from 558 in 1952 to 951 in 1971, and Spain, where loomage has been declining very gradually. The analysis of Chapter II of this volume discussed trends in Western Europe in detail.

133. The research effort expended during these years will be discussed at the end of this chapter, but it is worth mentioning at this point that, while some institutions were established which evolved useful results, jute technology on the whole has remained stagnant. Agricultural production, and yields in particular, have remained unchanged, as has the basis methods of converting fiber to manufactured goods. This stagnant technological base combined with the pricing policies mentioned above clearly invited a strong research and development effort for synthetic substitutes on the part of large companies in developed countries. The results of that effort began to pay off in the middle 1960's, although jute-producing countries did not respond for more than half a decade afterwards.

B. Importance of Jute to Producing and Exporting Countries

134. Jute and allied fibers are of significant importance to at least four developing countries, and of varying degrees of importance to a number of others. Bangladesh is quite clearly the country most dependent on jute. Exports of raw jute and jute manufactures have accounted for over 60 percent of foreign exchange earnings in recent years, and are expected to account for over 80 percent of foreign exchange earnings in 1972/73.

Table 20: EXPORTS OF JUTE AND JUTE GOODS FROM BANGLADESH

(millions of US dollars)

	1969/70		1970/71		1971/72		1972/73		
	Value	%	Value	%	Value	%	Value	%	(Est.)
Raw Jute	160	30	105	24	100	32	130	35	
Jute Manufactures	193	36	160	37	123	40	185	49	
Other	189	34	167	39	85	28	60	16	
Total	542	100	432	100	308	100	375	100	

Source: Bangladesh Planning Commission.

Volume II examines the importance of jute to Bangladesh in greater detail.

135. The importance of jute to India is greater than suggested by percentages of national figures because production is localized in Bengal, and other important areas where alternative sources of income are quite limited. However, even in terms of percentages of foreign exchange earnings, jute manufactures are the most important single item, accounting for about 15 percent of total earnings.

Table 21 : EXPORTS OF JUTE GOODS FROM INDIA

(millions of US dollars)

	1968/69		1969/70		1970/71	
	Value	%	Value	%	Value	%
Jute Goods	291	16	276	15	254	12
Other	1,522	84	1,608	85	1,793	88
Total	1,813	100	1,884	100	2,047	100

Source: Ministry of Foreign Trade.

136. Nepal has produced about 30-40,000 tons of raw jute, or a little over 1 percent of the world's total. Despite this low share, jute exports are extremely important as they account for over two-thirds of that country's foreign exchange earnings.

137. Thailand has been an important supplier of raw fiber (kenaf) to India, Japan, and other countries. While Thailand accounts for about 10 percent of world production, it is of distinct importance as a supplier as Thai production has often made up for shortfalls in India and Bangladesh (since it is often subject to different climatic conditions), thereby helping to keep world prices stable. Since 1965, kenaf exports have accounted for between 5 and 15 percent of foreign exchange earnings.

C. Relative Costs and Prices

138. Raw jute costs and prices have shown significant differentials among various producer countries. Indian costs and prices have, in the past, been considerably above levels in Pakistan, partly because of Pakistan's differential exchange rate system which suppressed the domestic price of raw jute, but also because productivity in Pakistan was higher and relative costs lower. In addition, Indian jute is, in general, of lower quality. The price differentials existed over time because of a ban from 1965 to liberation on trade between the two countries. There has, of course, been a considerable amount of smuggling in response to the price differential, perhaps on the order of 100,000 tons per year.

139. The following table indicates the relative cost of raw jute in sacking and hessian production in India and Pakistan in 1968. The differential for sacking was about $44/ton, and raw jute costs to Indian mills were one-third higher in sacking production. The differential in hessian was estimated at $23/ton, indicating that raw jute costs to Indian mills were some 10-15 percent higher than raw jute costs to Pakistani mills. No cost figures were available for carpet-backing, but it may be surmized that the cost differential was greatest in that activity as carpet-backing requires high-quality fiber, in short supply in India but relatively plentiful in Pakistan.

140. Conversion costs, on the other hand, were lower in India than in Pakistan, reflecting the greater relative efficiency of the Indian industry. This comparison is, of course, made at the then prevailing official exchange rates of 4.76 Rupees/dollar for Pakistan and 7.28 Rupees/dollar for India. Nevertheless, it will be seen later in paragraph that India's relative conversion cost advantage persists today with identical exchange rates in the two countries. Conversion costs in the Indian industry were 38 percent below those in Pakistan for hessian production and 54 percent below for sacking production.

Table 22: COMPARATIVE COST OF JUTE GOODS IN INDIA AND PAKISTAN: 1968

(per ton)

	HESSIAN				SACKING			
	Pakistan		India		Pakistan		India	
	Pak. Rs.	US$	Ind. Rs.	US$	Pak. Rs.	US$	Ind. Rs.	US$
1. Jute Cost	868	182	1540	205	608	128	1288	172
2. Conversion Cost	953	200	925	123	692	145	597	79
3. Manufacturing Cost	1821	382	2465	328	1300	273	1885	251
4. (a) Deduct Bonus at 45% Price for Pakistan	783	164			568	119		
(b) Add Export Duty for India	—	—	508	68	—	—	254	34
5. Net Price	1038	218	2973	396	732	154	2139	283
6. F.A.S. Selling Price Plus Export duty for India on 4.7.68	1741	366	2770	369	1262	265	2029	270
7. Profit (+)/Loss (-) = 6-5	+703	+148	-230	-27	+530	+111	-110	-15
8. Pakistan's advantage over India								
In $				+178		+131		
In Indian Rs.				+1335		+983		
9. Average Batch Cost Rs./Md	31		55		23		46	

Source: IJMA.

141. It would, of course, be dangerous to accept such cost figures as precise estimates of relative costs and efficiency. Precise estimates simply do not seem to be available. For example, raw jute costs may be significantly overstated. Nevertheless, the estimates are probably good indications of the direction of relative costs and efficiency, and seem to conform to generally accepted if not always quantified estimates.

142. The overall cost advantage of Pakistan's industry over India's industry which existed despite a disadvantage in conversion costs and was based solely on less expensive raw jute, is consistent with estimates that Pakistani mill owners were earning 10-15 percent profits on sales while underbidding Indian exporters thereby increasing Pakistan's market share.

143. After the creation of Bangladesh and the introduction of a uniform exchange rate, raw jute prices in Bangladesh rose considerably. Devaluation was not the only factor as food shortages caused rice prices to rise considerably. Since jute competes with rice for productive resources including land, this no doubt was of considerable importance in raising raw jute prices in Bangladesh by about 60 percent.

144. The mission estimated current manufacturing costs in India and Bangladesh. The basis for these estimates is, for India, IJMA data and mission estimates, and for Bangladesh, a sample survey of 12 mills combined with BJMA data.

Table 23: COMPARATIVE COSTS OF PRODUCTION IN INDIA AND BANGLADESH, 1972

	HESSIAN				SACKING				CARPET BACKING			
	India		Bangladesh		India		Bangladesh		India		Bangladesh	
	Rs/Ton	%	Tk/ton	%	Rs/ton	%	Tk/ton	%	Rs/ton	%	Rs/ton	%
Raw Materials	1900	55	1750	44	1600	58	1396	54	2600	56	2176	45
Conversion Costs	1598	45	2247	56	1152	42	1213	46	2018	44	2632	55
Of which:												
Wage & Salaries	(976)	(28)	(1024)	(26)	(749)	(27)	(564)	(21)	(1244)	(27)	(969)	20
Stores	(62)	(2)	(193)	(5)	(37)	(1)	(100)	(4)	(263)	(6)	(320)	7
Interest	(68)	(2)	(245)	(6)	(51)	(2)	(118)	(4)	(103)	(2)	401	8
Depreciation	(58)	(2)	(238)	(6)	(38)	(1)	(135)	(5)	(144)	(3)	350	7
Others	(374)	(1)	(547)	(13)	(277)	(10)	(296)	(12)	(264)	(6)	592	13
TOTAL	3438	100	3997	100	2752	100	2609	100	4618	100	4808	100
Selling Price /1	3560		3700		2600		2600		4550		4600	

/1 For India, F.A.S. (cost of factory) for Bangladesh, F.O.B.

Source: Mission estimates based on: (1) IJMA data for India, (2) mission sample survey for Bangladesh.

For purposes of analysis, it is also helpful to present cost ratio based on the above table.

Table 24: RELATIVE COSTS OF PRODUCTION IN INDIA AND BANGLADESH, 1972

	Raw Materials	Labor	Non-Labor Conversion Costs	Total Conversion Costs	Total
Hessian					
Bangladesh Costs / Indian Costs	.92	1.05	2.18	1.46	1.16
Sacking					
Bangladesh Costs / Indian Costs	.87	.75	1.61	1.05	.94
Carpet Backing					
Bangladesh Costs / Indian Costs	.84	.78	2.15	1.30	1.04

Note: Computed rate of 1 Taka = 1 Rupee.

Source: Table 23.

145. It is, of course, difficult to verify such estimates. They are, however, consistent with estimates given previously, with the notable exception that raw materials costs in Bangladesh are now much higher as a result of the devaluation and resulting high domestic prices for raw fiber. If the cost estimates are correct, 1/ the profit position for both India and Bangladesh is apparently extremely weak, which is verified by budgetary indications in Bangladesh.

146. Raw materials are generally less expensive in Bangladesh than in India, by from 8 percent by hessian to 16 percent for carpet-backing. Since the cost differential for carpet-backing raw materials (394 Takas or 20 £ per ton) about the same as shipping costs from Bangladesh to Western Europe, it seems obvious that raw jute exports from Bangladesh to India would benefit both countries. The reason why the raw materials differential between India and Bangladesh shows up most strongly in carpet-backing is that this product

1/ Perhaps the weakest area in such estimates in the costs of raw jute, many mills purchase jute from trading companies that they own and there is some reason to believe that raw jute may be over-invoiced in such situations.

requires high quality fiber which is scarce in India but much more plentiful in Bangladesh. However, the differentials in hessian and sacking raw materials costs also appear great enough to make exports of raw jute to India profitable for both countries.

147. Conversion costs in Bangladesh appear higher than in India, despite generally lower labor costs as non-labor conversion costs in Bangladesh are estimated at almost twice Indian levels. Capital is more costly. This in part reflects the newer capital stock in Bangladesh and higher depreciation charges. However, interest on capital is an important item and this largely reflects the large amounts of working capital borrowed from the banking system in turn caused largely by a build-up of inventories as well as the need to cover expenses (largely wages) during the war when production was low. Stores are an extremely costly item in Bangladesh. These and other aspects of industrial costs in Bangladesh are discussed in Chapter IV.

148. It is, of course, important to note that the above comparisons are made on the basis of the official exchange rates for India and Bangladesh, and that there are indications that such a basis of comparison may reflect a financial rather than economic advantage in India.

149. It would surely be worth considerable effort to increase productivity per loom both in Bangladesh (which is about 75 percent of 1969/70 levels) and in India, which also has excess capacity, before investing in new plant and equipment. Output levels in both countries are less than 50 percent of feasible capacity. The need to more fully utilize existing capacity before considering any expansion is especially relevant today since machinery costs during the past several years have been increasing because of increase in costs of productive on the one hand, and a strong demand on the other. New equipment is being installed in Africa and several Asian countries especially Indonesia, which to date have mostly imported finished products.

150. The mission attempted to compare production costs in India and Bangladesh with those in Western Europe. The following table gives mission estimates (based on industry interview) for production costs of carpet-backing in the United Kingdom.

Table 25: CARPET BACKING PRODUCTION COSTS IN THE UNITED KINGDOM, 1972

(U.S. Dollars per ton)

	9 oz. Carpet Backing	7 oz. Carpet Backing
Raw Material	348	360
Yarn production	307	312
Weaving	221	228
Total	876	900

Note: Converted at $2.40 to the pound.

Source: Mission estimates.

151. These costs are about 70 percent above production costs in India and Bangladesh. If accurate, they provide a strong rationale for the rapid demise of the jute carpet-backing industry in the United Kingdom.

D. Pricing Policies

152. Pricing, especially in terms of foreign exchange, has probably been the most important policy variable used by governments to influence jute production. In view of these projections of world demand given in Chapter II, pricing is once again a key policy variable, although in the longer run, changing the cost level and structure of production combined with improved marketing techniques are also of great importance.

153. One of the key decisions in the past was that of Pakistan to employ a differential exchange rate for exports of raw jute and jute manufactures, a decision which had the effect of imposing a tax on raw jute of about 50 percent in the late 1960's. (See Volume II, pages 2 to 5 for a more detailed explanation and discussion.) The essential feature of the differential exchange rate was, therefore, to protect Pakistan's domestic jute manufacturing industry by raising the international price of raw jute while keeping domestic raw jute prices low.

154. The differential exchange rate system gave up to 8.6 Rupees per dollar for exports of jute manufactures but only 4.76 to 5.6 Rupees per dollar for exports of raw jute.

Table 26: EFFECTIVE EXCHANGE RATES FOR RAW JUTE AND JUTE MANUFACTURES

	Jute Manufactures Effective Exchange Rates (Rs /dollar)	Raw Jute Effective Exchange Rates (Rs /dollar
1961/62	5.68	4.28
1962/63	5.72	4.24
1963/64	5.60	4.22
1964/65	5.60	4.55
1965/66	5.58	4.52
1966/67	5.82	4.56
1967/68	7.30	4.76
1968/69	7.66	4.76
1969/70	8.19	4.76
1970/71	8.19	5.62

155. The differential exchange rates lead, of course, to a serious misallocation of resources a situation that was corrected with the introduction of a unitary exchange rate in Bangladesh of about 7.8 Takas per dollar. In terms of maximizing foreign exchange earnings, however, it is not clear that a unitary foreign exchange system is superior to a differential foreign exchange rate system, although it is clear that exchange rate levels of the past were distinctly overvalued. In terms of maximizing earnings, pricing policy should reflect marginal revenue considerations, and, specifically relative elasticities of demand and market shares.

156. It appears quite likely that the elasticity of demand for raw jute was and is lower than the elasticity of demand for jute manufactures. This likelihood is based on the theory of derived demand and is in agreement with commercial attitudes. Since raw jute comprises only about 50 percent of the costs of jute manufactures and since it must, of course, be used in a fixed proportion to output, a given percentage change in the price of raw jute will probably change the amount demanded by only one-half as much 1/ as the same percentage price change in jute manufactures.

157. Market share considerations would have also suggested that raw jute exports from Pakistan faced a less elastic demand curve than did exports of jute manufactures. Pakistan in 1951/52 supplied about one-half of the world output of raw jute, but much less than one percent of the output of jute manufactures. In 1961/62, the ratios had changed to about one-third for raw jute and about 10 percent for jute manufactures, and in the late 1960's jute manufactures in Pakistan for almost 20 percent of world production. It could therefore be argued that, to the extent that the conditions described in this and the preceding paragraph hold true today, there is some reason to consider the merits of a differential exchange rate.

158. In any event, it is apparent from the analysis of Chapter II that demand elasticities for both goods and raw jute are quite high, especially in the long run, and that prices of raw jute and jute goods need to be reduced. Indeed, the problem with considerations such as market shares, is precisely that they tend to suppress the most important aspect of market demand, namely, the competition with synthetics. It is of overriding importance that world prices of raw jute and jute goods be lowered if there is to be a long run for jute. The most feasible short-run solution to this problem would be an exchange rate adjustment. A more complete description of pricing mechanisms in Bangladesh is given in Volume II.

1/ More formally, the elasticity of derived demand for raw jute, given fixed factor proportions in which the assumption that raw jute comprises 50 percent of costs can be computed from the following:

$$n_r = \frac{\frac{1}{2} en}{\frac{1}{2} n + e}$$

where n_r is the elasticity of demand for raw jute
n is the elasticity of demand for jute goods
e is the elasticity of supply of other factor

159. While this discussion has so far dealt with Pakistan and Bangladesh, India has, of course, also varied the effective exchange rate for exports of manufactures by imposing an export tax, discussed in paragraph The effect of this tax has been to increase the cost of jute goods significantly, especially at crucial times such as the last two years, when a long-term policy would have indicated lower prices for jute goods to diminish expansion of capacity and output of synthetic substitutes.

160. Thailand and many other producers of raw fiber have adopted essentially a laissez-faire policy towards pricing. This has allowed market forces to govern output though, of course, with some lags in supply response. The result has been an important stabilization of world supplies.

E. Trade and Trade Prospects

161. Exports of jute goods from India and Bangladesh taken together have remained roughly constant through the 1960's, with India's share declining somewhat and Bangladesh's increasing (see Table 34). The total amounted to over 1 million tons until 1970/71, but the last two years saw a decline largely due to war and competition from synthetics.

162. India's exports of jute goods are highly concentrated among a few countries. The U.S., which accounted for one third of the total in the early 1960's, increased its share progressively to 44 percent for the year 1969/70 - 1971/72. All of this increase was on account of carpet-backing. The U.S.S.R., which accounted for only 3 percent of exports in the early 1960's, now accounts for 14 percent, almost all of which is hessian and sacking. Canada and Australia account for about 5 percent each, with a large number of other countries importing small amounts.

163. Bangladesh's exports of jute goods increased rapidly until 1969/70, reaching over 500,000 tons in 1969/70, with civil disturbances and war causing a decline thereafter. About 90 percent of exports are hessian and sacking. The U.S. accounts for one-fourth of total exports. Exports to East Africa are for a similar amount.

164. Exports of raw jute from Bangladesh go to a wide variety of countries (see Table 37). The EEC countries currently absorb about one third of the total, with other Western European countries accounting for another one-third. India, which accounted for about 10 percent of exports in the early 1960's, received no raw jute between 1964/65 and 1972/73. However, on March 28, 1972, the Government of Bangladesh and India agreed to include 75 million takas of raw jute in a barter arrangement, under which sales were to be finalized at current market rates. This could amount to trade in the order of 30 to 40,000 tons. In view of the existing raw jute cost differentials, there seemsto be ample scope for increasing such arrangements. The superior quality of Bangladesh jute is also an important consideration, especially since much of India's research effort is directed towards producing Indian fiber of similar quality.

165. There would also appear to be scope for raw jute trade between Bangladesh and Thailand. With a normal ratio of kenaf to jute prices of about 60 percent, blending kenaf with jute could lower production costs considerably. This would be especially true for Bangladesh mills in Chittagong area, which is the major port and which also face high jute prices because of the distance from jute-growing areas in Bangladesh. There is also some small scope for exporting jute from Bangladesh to Thailand which has several small mills. Mixing small quantities of Bangladesh jute with kenaf, say in a ratio of 1 to 10, would considerably improve the quality of sacks made in Thailand. Because the profitability of such trading arrangements turns on improvements in transportation facilities, it is not possible at present to offer precise quantitative prescription at this time.

166. The supply of jute and jute goods in the 1970's will be subject to a variety of political and other factors which are difficult to predict. However, basic economic forces suggest certain general trends. It is likely that the geographic center of the jute trade will continue to shift towards Asia and away from the developed world. The markets for jute products will probably be found in regions closer to producing regions in the absence of a vigorous program of marketing and research and development. If such a trend develops, it will have important adverse implications for the hard-currency foreign exchange earnings of a significant portion of the developing world.

167. The current supply position of the world jute trade is summarized in the table below. India and Bangladesh play predominant roles in raw fiber production, each accounting for about one third of the total. Demand in India absorbs enough production so that exports of jute goods from India and Bangladesh are roughly equal.

Table 27: SUPPLY OF JUTE AND JUTE GOODS/a, 1970
(Thousands of metric tons)

	JUTE			JUTE GOODS		
	India	Bangladesh	World Total	India	Bangladesh	World Total
Production	1,129	1,321	3,460	1,099	587	3,289
Domestic Consumption/b	1,155	658	2,522	514	21	2,230
Exports	-26	625	908	549	566	1,147

/a Jute goods production is normally less than raw jute production because: (i) village consumption is not counted; (ii) there is a wastage factor of 5-6 percent in manufacturing. In addition, changes in stock positions can cause discrepancies in any given year.

/b Includes stock adjustments.

Source: FAO, IJMA, BJMA.

168. A projection of trade to 1980, with all the uncertainty which necessarily inherent in it, is useful to help understand current trends. These are a few basic inputs to the projection. The demand

Table 28: SUPPLY PROJECTIONS FOR JUTE AND JUTE GOODS /a IN 1980
(Thousand of metric tons)

	JUTE			JUTE GOODS		
	India	Bangladesh	World Total /b	India	Bangladesh	World Total /b
Production	1,125	1,400	(3,850)	1,248	685	(3,590)
						(3,770)
Domestic Consumption	1,325	725	3,300	798	40	(2,643)
						(2,628)
Exports	-200	675	(603)	450	645	(947)
			(558)			(1,142)

/a Jute goods production is normally less than raw jute production because: (i) village consumption is not counted; (ii) there is a wastage factor of 5-6 percent in manufacturing. In addition, changes in stock positions can cause discrepancies in any given year.

/b Upper bracketed figure refers to Alternative I while lower bracketed figure refers to Alternative II (see Tables 3 & 4).

analysis presented in Chapter II has been taken as a key against which the supply considerations of this chapter have been matched. Thus, Tables 15 and 16 of Chapter II are summarized in Table 28 above. The advantage of Bangladesh over India in producing raw jute is reflected in the projected export of raw jute to India. Production of raw jute in India is not expected to increase. With world import demand projected to remain roughly constant, and with a large increase in domestic demand projected for India, it is assumed that Bangladesh will increase exports of jute goods. Most of the increment will probably be carpet backing for the U.S. and perhaps other developed countries.

169. Although the quantity of exports of raw jute from Bangladesh is predicted to increase by about 8 percent during the decade, and the quantity of manufactures by 19 percent, predicted price declines suggest that export earnings may increase by smaller amounts. One factor operating against this trend is the expected increasing importance of carpet-backing in the mix of exported goods. Since carpet-backing earns about 50 percent more foreign exchange than sacking and 25 percent more foreign exchange than hessian, it is distinctly possible that Bangladesh may enjoy a reasonable increase in foreign exchange earnings, and that India may maintain foreign exchange earnings from jute. Since current output levels are only about one-half of feasible capacity, it should be noted that projected increases in demand do not call for increased capacity, but rather for increased utilization of current capacity. Further, with almost 25 percent of total costs in Bangladesh now incurred on account of interest, depreciation, and other essentially fixed costs, an increase in capacity utilization to 75 percent of feasible capacity could lower unit costs by 5 to 10 percent immediately. It would surely be worth considerable effort to increase

productivity per loom both in Bangladesh (which is about 75 percent of 1969/70 levels) and in India (both countries operate at less than 50 percent of feasible capacity) before investing in new plant and equipment. This is especially true since machinery costs during the past several years have been increasing because of increase in costs of production on the one hand, and a strong demand on the other. New equipment is being installed in Africa and several Asian countries especially indonesia, which to dates have mostly imported finished products.

170. It is important to note that production costs in India and, especially Bangladesh, are higher than they need be, costs relative to producers in Western Europe are low, largely because labor costs in Western Europe are far higher. However, as emphasized in Chapter II, the main competition is with synthetics, and unless costs are reduced, the future position of jute will be weak indeed.

171. Market-sharing arrangements, especially between India and Bangladesh, should be carefully explored. Given the prospects for slow growth of jute goods exports from producing countries, efficiency in capital investments allocation would call for a joint production planning exercise between India and Bangladesh for which a market-sharing arrangement would be an important corollary. The area of direct competition in the export markets between jute goods produced in India and Bangladesh is in fact quite narrow. India has a large and growing domestic market for sacking and is only a residual supplier in world markets now largely supplied by Bangladesh. Production and export of hessian goods from India is much more diversified (in terms of quality composition) than those from Bangladesh, and competition is largely limited to standard hessian products. The two countries compete in carpet-backing, but this market has potentially good growth prospects which, other things being equal, would make market-sharing arrangements easier. An overall agreement on production and external marketing is technically feasible. One example of a market-sharing arrangement (offered solely for illustrative purposes) might be that India produce the non-standard hessian items in exchange for assuring a part of the carpet-backing market to Bangladesh. Bangladesh might agree to the sale of specific quantities of raw jute to India as part of a market-sharing agreement. The danger inherent in such an overall agreement lies, of course, in the possibility that jute might then be priced less competitively vis-a-vis synthetics, so that a necessary precondition for any successful market-sharing arrangement would be a far greater degree of awareness of and responsiveness to world market conditions than has been demonstrated in the past.

F. Buffer Stocks

172. Since one of the crucial differences between jute and its competitors is variability in supplies, the creation of buffer stocks of jute and/or jute products has been frequently as an important element in increasing (or maintaining) jute's market. There are already sizeable buffer stocks of both jute goods and raw jute throughout the world. These are, for the most part, in private hands, and most buffer stock proposals seem to be aimed at increasing the existing stocks with cost borne by producing governments.

173. Government and semi-public buffer stocks already exist, of course, but these are largely the result of domestic considerations rather than world market considerations. In Bangladesh, the growth of public sector marketing corporation has been considerable and is detailed in Volume II. In India, the first attempt to create a buffer stock was through the Jute Buffer Stock Agency (JBSA) which was operated by the jute mills. The JBSA was unsuccessful, however, and its activities were taken over by the State Trading Corporation (STC). However, the STC soon encountered the same difficulties previously faced by the JBSA, namely, an inability to acquire large enough stocks to effectively counter variations in crop size. During the 1971/72 season, a Jute Corporation of India was set up to attempt to conduct sizeable stabilization operations. Domestic considerations are important, but a world market orientation might well lead to a different kind of operation than would a domestic consideration.

174. Ideally, one would want a buffer stock of jute goods maintained in consuming countries as the surest safeguard against fluctuations in supply. Other possibilities include stocks of jute goods in producing countries, stocks of raw jute in consuming countries with productive capacity (i.e., not the U.S.), and stocks of raw jute in producing countries.

175. As the simplest proposal to explore, one might consider buffer stocks of raw jute in Bangladesh. Over the last decade, production has averaged 6.4 million bales, with a standard deviation of about .9 million bales. It turns out that a buffer stock about 1 million bales could have eliminated all fluctuations, one of 500,000 bales would have left only 2 years with shortfalls (of 20,000 bales in 1968/69 and 300,000 bales in 1964/65) while a stock of 250,000 bales would have left 3 years with shortfalls (the 2 above plus 1963/64 with a shortfall of 15,000 bales, although then the shortfall in 1964/65 would have been 775,000 bales). A 250,000 bale or, say, 50,000 ton, buffer stock would have required about $15 million in capital. (These and the figures below refer to capital costs of the buffer stock itself and exclude warehousing and other storage costs.) The cost to the Government on an annual basis would have consisted of (i) interest on capital tied up; (ii) plus reduced sales in "surplus" years; (iii) minus increased sales in "deficit" years. For the 1960's, the costs would have come to about $3-4 million in interest charges (at 10 percent interest) minus say $1 million on account of items (ii) and (iii). Therefore, the annual cost of a buffer stock would probably not have been great but capital requirements, and, more specifically, access to capital in surplus years to accumulate stocks, might have posed a serious problem.

176. On a worldwide scale, the above numbers should be multiplied by a factor of about 3, so a capital requirement of about $40-50 million is indicated. The requirement of the more optimal solution of a buffer stock of jute goods might easily reach $55-65 million.

177. The operations of a buffer stock would pose many problems. If the buffer stock were of jute goods, sophisticated decisions would need to be made regarding the exact composition of goods purchased and sold, and these requirements plus the impact of buffer stock movements on profitability of current manufacturing seem to preclude any possibility of establishing such

a buffer stock. Stocks of raw jute would be simpler to operate and could rely on relatively automatic rules known to everyone. However, it would still need to be a sophisticated operation for an industry in which producing countries have difficulty (i) in ascertaining current market information (ii) in operating existing enterprises (iii) in raising capital. Therefore, it would seem best not to encourage creation of a buffer stock at present, but to reserve the option for a later date when (and if) a well-functioning international center might sponsor such activities.

G. Research and Development [1/]

Agricultural Research

178. Most of the agricultural research on jute is carried out in India and Bangladesh, while research on kenaf is mainly conducted in Thailand. Agricultural research work on jute in Nepal is still embryonic and current efforts are principally directed toward basic improvements of production techniques.

179. Jute agricultural research in India is largely conducted by the Jute Agricultural Research Institute (JARI) and the Technological Research Laboratories (TRL) which are controlled and financed by the Indian Council of Agricultural Research. In 1969-70 the allocation to the JARI was around $241,000 and that to the TRL around $228,000. The research effort of the two organizations is mainly directed towards selection and breeding of better strains of jute giving higher yields. Evolution of new strains is obtained both by selection and crossing and also by induced mutation. Demonstration to the farmers of better methods of cultivation by increased use of proper fertilizers, line sowing, proper spacing of the plants, better control of pests and diseases, improvements in the retting and extraction of the fiber is another important part of the work carried out by the two organizations. According to recent information, India's research effort to improve yields per acre has produced two new mutants - evolved from hybrid crossing - which would be released in 1973/74.

180. Some agricultural research work is also carried out by the Indian Jute Industries Research Association (IJIRA) which is jointly financed and managed by the Indian jute industry and the Indian Council of Scientific and Industrial Research. In 1969/70 the ICSIR was providing $148,000 to the budget of the IJIRA, while the contribution of the industry was $182,000. The main purpose of the IJIRA, however, is industrial research.

181. Agricultural research in Bangladesh is largely the province of the Jute Research Institute of the Bangladesh Central Jute Committee. The Committee was first organized in 1951. The Jute Research Institute is organized into six scientific disciplines - Botany, Agronomy, Soil Science, Plant Pathology, Entomology, and Microbiology. A small statistics unit is attached to the Institute. There are five research sub-stations - Kishoreganj, Rangpur, Chandina, Faridpur and Jessore and one out-station, Tarabo, which are being used by the JRI to conduct location tests on varieties, fertilizer

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1/ The Report of the UNDP Jute Fact Finding Mission of 1970-71 contains a useful description and analysis of this topic.

requirements, etc. Two Foundation Seed Farms, one at Chetla (400 acres) another at Nasipur (800 acres) are equipped to supply Foundation Seed (mother seed) to the registered seed growers. Besides the activity mentioned, the JRI also conducts simple field trials in 24 subvention centers. It plans to add about 24 more centers.

182. The development of the capital at Dacca substantially reduced the area of the research farm of the Central Institute at Tejgaon and proposals have been made for setting up a new experimental farm of 85 to 100 acres about 10 miles away.

183. The JRI has submitted to the government development plans estimated to cost Tk. 28.53 million during 1972/73 to 1976/77, or about $750,000 per year. Included in the program submitted are proposals for augmenting professional and support staff in all the scientific disciplines, sub-stations and the proposed regional stations, purchase of laboratory and agricultural equipment, training of technical personnel from various fields abroad, development of all the research and foundation seed farms and enlargement of field research facility at the central station by the addition of a 100-acre experimental farm 10 miles away.

184. The JRI has also been made responsible for production of the bulk of improved seed for use by the jute farmers of Bangladesh. A scheme for production of improved seed during the fourth plan period through registered growers at a net cost of Tk. 23.98 million is under consideration by the Government.

185. Research on kenaf in Thailand is mainly on the applied, practical side: spacing of the plants in the field, improvement of seeds and improvements of cultural practices. Research is carried out under a Cooperative Research Program which embraces a number of disciplines and organizations but the center of research is based at the Applied Scientific Research Corporation of Thailand (ASRCT).

186. Agricultural jute research in Nepal is carried out by the Biratnagar (Tarahara) Agricultural Station which operates under the Department of Agricultural Education and Research. The work of the Station does not include any fundamental research. It has been concentrated to date on seed improvement and multiplication, use of fertilizers and insecticides and general improvement of cultural practices. A sum of $100,000 has been allocated to the Station for the purchase of equipment and strengthening of research under an Asian Development Bank loan directed to the modernization of the Nepalese jute manufacturing industry, but little, if any, progress has so far been made.

Technical Research and Product Development

187. Jute technical research and product development are almost exclusively concentrated in the two major producing countries. Very little work is currently being done outside India and Bangladesh. Thailand has extensive laboratory facilities, but the work there is almost exclusively concentrated on kenaf fiber. No research and development work is conducted in Nepal.

The British Jute Trade Research Association Laboratories have recently stopped research on jute products and aside from the specific research project on jute carpet-backing conducted at the Georgia Technical University under the sponsorship of the U.S. Jute Carpet-Backing Council, no research and development work is carried out in developed countries.

188. The most important research and development effort is currently being pushed forward in India where the JARI, the JTL and the IJIRA have three separate research and development laboratories. While technical research is only a relatively small portion of the activities of the JARI, both the government-financed JTL and the government-industry-financed IJIRA conduct a fairly extensive program of technical research and product development. In addition to that, the Government of India, through the Market Development Fund, makes a number of ad hoc grants to assist export-oriented projects. One of the most successful areas of work of these laboratories has been the introduction of extensive quality control schemes throughout the industry. Applied technical research has concentrated on: the upgrading of fiber properties, the mechanism of degradation and chemical-biological methods of prevention, investigation into batching oil and moisture application and yarn treatment. According to recent information during the past year about 50,000 tons of upgraded jute fiber were converted into better quality carpet-backing and clean hessian.

189. Product development efforts have been attempted in several directions: decorative fabrics and wall covering, needle-deflection-free carpet backing cloth, utilization of jute sticks for wall boards, utilization of jute in plastics reinforcement and fire retardancy. In spite of some promising results in each of these fields, no real breakthrough has yet been achieved. In machine technology research is being carried out for improving carding techniques, modernizing drawing frames to produce a more even yarn and converting existing machines to improve spinning efficiency.

190. In Bangladesh, technical research and product development is conducted by the Technological Wing of the Jute Research Institute, which was established in 1967. The Bangladesh Council for Scientific and Industrial Research (BCSIR) also conducts lectures, research and product development and is controlled by the Ministry of Agriculture. The BCSIR has been working on the development of jutton, a fiber made of cotton and jute that may find use as a replacement for cotton cloth. However, further work needs to be done on establishing commercially feasible production processes.

191. Outside the two main producing countries, research and development efforts are virtually nil, except for the research project being conducted by the U.S. Jute Carpet-Backing Council in collaboration with Georgia Tech. University and IJIRA for the development of deflection-free carpet-backing cloth. These efforts have met a considerable degree of success and this new backing-cloth has been successfully tested on narrow gauge tufting machines in the Deering Milliken plant in the United States.

Jute International

192. At the time this report is being written, a new organization, called Jute International (JI) is being formed. JI was formulated at a conference held in Dacca from January 15 - 19, 1973. While it is still too early to specify details of JI, the basic structure will include a sizeable research and development component as well as a marketing and technical services component. The Board of Directors will include representatives from the 4 or 5 major producing countries in addition to several other officials.

193. The establishment of JI is certainly a most welcome event. Concerted and coordinated action in research and development and marketing is long overdue, especially since local efforts in research and development have in large part needlessly duplicated efforts in other countries, and since marketing and customer relative activities have, with only a few exceptions, been less than adequate. JI deserves the strong support not only of producer countries but also other countries and organizations that have any interest in a growing world jute market.

Table 29: INDIA - NUMBER OF LOOMS

	1968/1	1970/1	1972/1
Hessian	28,641	21,186	22,701
Sacking	14,454	11,475	12,134
Carpet-Backing	3,113	6,287	6,227
Other	2,579	1,662	1,938
TOTAL	48,787	40,610	43,045
(One make looms)	176	152/2	-
GRAND TOTAL	48,963	41,032	43,045

/1 January first of year shown.

/2 Add 270 looms for which classification was not available.

Table 30: WESTERN EUROPE: NUMBER OF LOOMS

	1968	1970	1971
Germany	2,441	2,291	2,125
Belgium	2,822	1,218	1,208
France	2,476	2,183	1,871
Italy	2,337	1,432	958
Netherlands	762	708	422
Austria	254	192	110
Denmark	-	-	-
Spain	2,934	2,728	2,624
Ireland	n.a.	n.a.	n.a.
Norway	-	-	-
Portugal	987	1,005	951
U.K.	5,298	3,384	2,054
Sweden	92	58	54
Switzerland	-	-	-
TOTAL	20,403	12,908	12,377

Table 31 : EXPORT OF SACKING FROM INDIA AND PAKISTAN

(000 tons)

Year	India (1)	Pakistan /1 (2)	Total (1)+(2) (3)	Indian share (1)/(3) (4) in %
1957	429.7	60.4	490.1	87
1958	345.8	78.5	424.3	81
1959	354.6	135.7	490.3	72
1960	312.9	123.8	436.7	71
1961	283.7	140.2	423.9	67
1962	292.2	164.5	456.7	64
1963	242.6	157.5	400.1	60
1964	234.9	157.6	392.5	60
1965	283.5	181.1	464.6	61
1966	173.3	234.6	407.9	42
1967	185.5	232.9	418.4	43
1968	93.6	242.7	336.3	28
1969	48.2	248.2	296.4	16
1970	79.4	140.3	219.7	36
1971	115.3	73.6	188.9	61

/1 Refers to Jute Year (July-June).

Sources: DCI&S - Calcutta, IJMA.
Pakistan Jute Mills Association.

Table 32 : EXPORT OF HESSIAN FROM INDIA AND PAKISTAN

(000 tons)

Year	India (1)	Pakistan /1 (2)	Total (1)+(2) (3)	Indian share (1)/(3) (4) in %
1957	399.1	29.7	428.8	93
1958	399.4	36.9	436.3	91
1959	430.5	50.7	481.2	89
1960	391.4	61.9	453.3	86
1961	357.9	61.4	419.3	85
1962	457.4	65.7	523.1	87
1963	463.8	71.4	535.2	86
1964	487.8	66.8	554.6	88
1965	448.1	79.5	527.6	85
1966	372.8	95.9	468.7	79
1967	382.3	103.0	485.3	78
1968	338.2	155.2	493.4	68
1969	251.7	195.2	446.9	56
1970	282.6	188.1	470.7	60
1971	309.4	90.2	399.6	77

/1 Refers to Jute Year (July-June).

Sources: DCI&S - Calcutta, IJMA.
Pakistan Jute Mills Association.

Table 33 : EXPORTS OF CARPET BACKINGS FROM INDIA AND PAKISTAN

(000 tons)

Year	India (1)	Pakistan /1 (2)	Total (1)+(2) (3)	Indian Share (1)/(3) (4) in %
1957	8.0	neg	8.0	100
1958	19.2	"	19.2	100
1959	30.1	"	30.1	100
1960	35.3	"	35.3	100
1961	41.6	"	41.6	100
1962	57.7	"	57.7	100
1963	88.3	"	88.3	100
1964	106.6	1.2	107.8	99
1965	100.0	6.5	106.5	94
1966	131.5	13.2	144.7	90
1967	141.6	19.4	161.0	87
1968	179.8	25.0	204.8	87
1969	219.3	29.2	248.5	88
1970	138.6	39.2	177.8	80
1971	251.3	4.3	255.6	98

/1 Except for 1969, refers to the jute year (July-June).

Sources: DCI&S - Calcutta, IJMA.
Pakistan Jute Mills Association.

Table 34 : EXPORTS OF JUTE GOODS FROM INDIA AND PAKISTAN

(000 tons)

Year	India (1)	Pakistan /1 (2)	Total (1)+(2) (3)	Indian Share (1)/(3) (4) in %
1957	873.5	90.4	963.9	90
1958	806.2	115.8	922.0	87
1959	874.0	188.4	1062.4	82
1960	810.4	190.7	1001.1	81
1961	759.8	204.9	964.7	79
1962	874.4	233.1	1107.5	79
1963	874.6	234.2	1108.8	79
1964	931.2	234.2	1165.4	80
1965	929.2	282.4	1211.6	77
1966	746.1	361.8	1107.9	67
1967	768.5	370.7	1139.2	67
1968	671.4	454.0	1125.4	59
1969	569.9	484.9	1054.8	54
1970	500.6	386.7	887.3	56
1971	676.0	192.1	868.1	78

/1 Except for 1969, refers to the jute year (July-June).

Sources: DCI&S - Calcutta, IJMA.
Pakistan Jute Mills Association.

Table 35: DISTRIBUTION OF EXPORTS OF JUTE MANUFACTURES FROM INDIA
(000 metric tons)

Country	1960/61-1962/63 Av.	% of Total	1963/64-1965/66 Av.	% of Total	1969/70-1968/69 Av.	% of Total	1969/70-1971/72 Av.	% of Total
United States	276.3	33.0	345.0	35.7	306.8	43.9	271.3	43.9
USSR	26.0	3.1	110.7	11.4	106.7	15.3	86.2	13.9
Canada	42.7	5.1	48.7	5.0	44.0	6.3	35.9	5.8
Australia	61.3	7.3	57.3	5.9	40.1	5.7	25.9	4.2
United Kingdom	43.0	5.1	43.3	4.5	24.6	3.5	12.4	2.0
Egypt	20.7	2.5	45.0	4.7	13.9	2.0	n.a.s.	n.a.s.
New Zealand	16.0	1.9	17.8	1.8	10.6	1.6	11.2	1.8
Belgium	8.7	1.0	5.7	0.6	8.2	1.2	n.a.s.	n.a.s.
Netherlands	5.7	0.7	5.3	0.5	6.1	0.9	n.a.s.	n.a.s.
Indonesia	20.0	2.4	6.0	0.6	5.9	0.8	n.a.s.	n.a.s.
West Germany	13.0	1.6	7.7	0.8	5.2	0.7	n.a.s.	n.a.s.
Peru	6.7	0.8	5.0	0.5	3.9	0.6	n.a.s.	n.a.s.
Argentina	32.0	3.8	41.0	4.2	2.8	0.4	6.6	1.1
Nigeria	21.3	2.5	7.0	0.7	2.0	0.3	n.a.s.	n.a.s.
Cuba	38.3	4.6	16.0	1.7	-	-	n.a.s.	n.a.s.
Others	205.6	24.6	205.8	21.3	118.3	16.9	168.5	27.3
Total	847.3	100.0	967.3	100.0	699.1	100.0	618.0	100.0

n.a.s. = not available separately (included in others).

Source: CEC, Industrial Fibres, various issues.
Indian Jute Mills Association, Summary of Jute and Gunny Statistics (various issues).

Table 36: DISTRIBUTION OF EXPORTS*OF JUTE MANUFACTURES FROM BANGLADESH
(000 metric tons)

Country/Region	1961/62-1963/64 Av.	% of Total	1964/65-1966/67 Av.	% of Total	1967/68-1969/70 Av.	% of Total	1970/71	% of Total	1971/72	% of Total
United States	30.3	12.8	46.2	15.1	95.2	20.5	113.9	29.3	59.1	26.7
East Africa	23.0	9.7	50.0	16.4	83.7	18.0	51.1	13.2	54.8	24.8
Australia	38.7	16.3	37.0	12.1	48.4	10.4	25.6	6.6	4.5	2.0
West Africa	20.3	8.6	43.6	14.3	32.5	7.0	22.3	5.7	4.5	2.0
United Kingdom	9.0	3.8	11.0	3.6	26.2	5.6	22.1	5.7	12.7	5.7
Netherlands	3.7	1.5	4.3	1.4	15.0	3.2	12.6	3.2	6.9	3.1
Argentina	5.7	2.4	10.4	3.4	14.6	3.1	23.1	6.0	13.3	6.0
Turkey	0.1	0.3	10.1	3.3	14.0	3.0	8.0	2.1	3.5	1.6
New Zealand	1.5	0.6	2.4	0.8	11.7	2.5	9.3	2.4	5.7	2.6
Chile	5.0	2.1	6.4	2.1	9.3	2.0	9.5	2.4	5.7	2.6
Canada	5.0	2.1	3.8	1.2	9.2	2.0	10.8	2.8	4.5	2.0
Belgium	0.9	0.4	1.3	0.4	8.7	1.9	10.0	2.6	9.8	4.4
Peru	8.3	3.5	6.2	2.0	6.5	1.4	5.1	1.3	4.0	1.8
Burma	14.3	6.0	16.8	5.5	-	-	-	-	8.7	3.9
Cuba	9.7	4.1	-	-	-	-	-	-	-	-
South Africa	33.7	14.2	-	-	-	-	-	-	-	-
Others	27.2	11.5	55.9	18.3	89.4	19.3	64.7	16.7	23.3	10.5
Total	237.0	100.0	305.4	100.0	464.4	100.0	388.1	100.0	221.0	100.0

*Excluding interwing trade.

Source: BJMA, Monthly Summary of Jute Goods Statistics, various issues.

Table 37: EXPORT OF RAW JUTE FROM BANGLADESH TO FOREIGN COUNTRIES OTHER THAN PAKISTAN (BY DESTINATION)

(Figures in '000' tons)

Countries	Period									
	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72
1	2	3	4	5	6	7	8	9	10	11
1. European Economic Community										
West Germany	49.9	30.0	33.9	56.1	38.8	59.7	49.4	64.0	23.0	27.5
France	65.3	63.7	42.2	58.3	29.6	36.7	28.7	34.5	17.1	5.2
Italy	38.1	29.0	11.3	24.0	18.8	20.4	12.0	14.9	6.4	7.2
Belgium	90.6	72.7	65.9	122.2	56.4	87.3	70.1	55.7	34.8	69.4
Netherlands	14.9	16.4	14.8	20.8	16.2	26.8	21.9	19.2	9.5	5.6
2. Other West Europe										
United Kingdom	142.4	128.7	104.4	131.8	84.5	105.9	82.8	84.3	51.4	59.7
Ireland (Eire)	8.2	5.8	6.7	9.0	5.9	6.1	7.0	4.9	1.8	--
Portugal	17.4	18.7	14.7	17.7	14.3	19.6	17.9	20.1	18.5	12.3
Sweden	5.7	3.9	4.3	4.0	1.5	4.5	2.9	3.9	5.0	1.9
Greece	4.6	3.9	3.7	5.0	3.1	31.4	1.4	2.4	1.8	--
Austria	2.3	3.6	2.0	4.2	2.3	1.8	9.7	1.4	0.1	2.3
Spain	23.9	23.7	18.2	27.1	25.8	26.4	0.8	17.8	11.0	22.9
3. USSR and East Europe										
USSR	17.5	8.3	6.5	13.3	11.5	9.1	16.4	18.4	6.6	17.6
Poland	15.6	19.4	16.2	19.5	19.4	16.4	15.9	19.7	17.2	10.5
Czechoslovakia	12.3	17.0	8.0	13.8	15.6	17.5	11.1	14.9	11.5	8.1
Yugoslavia	9.3	16.6	8.0	13.3	10.4	5.8	7.8	9.1	6.2	6.2
Rumania	1.9	3.3	3.0	3.0	3.6	3.7	4.9	5.6	4.5	3.9
4. North America										
Canada	5.4	8.0	1.5	10.1	2.7	8.8	2.2	4.1	1.4	0.7
USA	45.0	60.4	22.9	43.0	18.8	36.6	18.0	14.5	9.5	7.3
Mexico	0.5	0.2	0.3	0.5	--	--	0.6	0.1	0.1	0.5
5. Latin America										
Argentina	2.0	5.1	2.4	1.7	1.9	1.6	2.6	2.8	4.8	0.6
6. Asia										
India	52.7	72.0	--	--	--	--	--	--	--	--
Burma	7.5	10.9	18.8	8.7	9.1	4.9	0.1	--	--	--
Japan	39.2	39.7	28.8	30.4	21.1	28.4	22.7	26.2	17.4	15.4
Mainland China	13.4	30.4	74.0	52.8	69.6	44.7	30.4	77.6	51.7	8.0
7. Africa										
South Africa	21.9	30.2	--	--	--	--	--	--	--	--
West Africa	4.8	5.2	--	--	--	--	--	--	--	--
East Africa	5.1	6.0	--	--	--	--	--	--	--	--
Morocco	4.8	4.2	3.6	5.8	4.2	4.7	4.7	5.3	--	3.3
UAR	24.3	22.4	17.5	12.0	13.1	16.3	18.4	22.0	51.7	8.0
8. Australia New Zealand										
New Zealand	0.6	0.8	0.8	0.7	0.7	0.9	1.0	1.0	0.5	0.8
Australia	5.8	4.6	5.1	4.2	5.1	4.6	4.5	4.4	6.2	2.2
9. Other Unspecified Countries	23.6	33.2	51.3	54.4	96.6	52.9	114.7	66.3	64.7	47.2
TOTAL	774.2	794.4	597.1	772.5	608.4	662.8	578.7	521.4	397.7	353.5

Source: Bangladesh Jute Association, Narayanganj, Dacca.

South Asia/Bangladesh Division
March 8, 1973

Table 38: THAILAND - DIRECTION OF RAW JUTE EXPORTS

(In percentages)

	Thailand/1
United Kingdom	4
Belgium	7
Germany	3
France	4
United States	2
Japan	20
Netherlands	1
Spain	2
Italy	5
Portugal	3
Poland	1
Egypt	1
India	36
Others	11
TOTAL	100

/1 Average of seasons ended 1966-69.

Source: UNCTAD.