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Full Length Research Paper

World Production of Jute: A Comparative Analysis of Bangladesh

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The worldwide awareness on environment is the reason for the opportunities of Jute, due to environment-friendly characteristics. The research aim is to analysis the comparative development and growth of jute production of Bangladesh with other major jute producing countries to avail the opportunity of jute's growing demand in the world market. It is taken the data of Production, Area, and Yield of Jute for 19 years from the year 1991-92 to 2009-10 of Major Jute producing countries such as India, Bangladesh, China, Myanmar, Nepal, and Thailand for analysis. The study has used percentage, mean, growth, and hypothesis test etc. for analysis of data and drawing inferences. This scenario tells that world jute production and area of production are decreasing with fluctuating trend. Bangladesh is in second position in relation with total production, area and yield in the world. The total production of Jute and yield are increasing with fluctuating trend. The area of jute production of Bangladesh is slightly decreasing with fluctuating trend. The recommended issues are to use the scientific method of cultivation, to make available of market information, to develop the diversified products, to implement the law for using jute rather synthetic, to make jute policy etc. for development of jute production.

Key word: Jute, Production, Yield, Area, Products

1. INTRODUCTION

Jute, as a natural fiber, has many inherent advantages like luster, high tensile strength, low extensibility, moderate heat and fire resistance and long staple lengths. It is a biodegradable and eco-friendly. It has much advantage over synthetics and protects the environment and maintains the ecological balance. Jute *(Corchorus capsularis & Corchorus olitorius)*, Kenaf *(Hibiscus cannabinus)* and Roselle *(H. sabdariffa var Altissima)* are vegetable fiber plants next to cotton in importance. In the trade there are usually two names of jute, White and Tossa. *Corchorus capsularis* is called White Jute and *Corchorus olitorius* is called Tossa Jute. In India & Bangladesh Roselle is usually called Mesta. Jute fibers are finer and stronger than Mesta and are, therefore, better in quality. *(International Jute Study Group, 2011).*The fiber finds its use in the producing as well as in consuming countries in the agricultural, industrial, commercial and domestic fields. Sacking and Hessians (Burlap) constitute the bulk of the production

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manufactured products. Sacking is commonly used as packaging material for various agricultural commodities viz., rice, wheat, vegetables, corn, coffee beans etc. Sacking and Hessian Cloth are also used as packing materials in the cement and fertilizer manufacturing industries (New J.H. 1993). Fine Hessian is used as carpet backing and often made into big bags for packaging other fibers viz. cotton and wool. The usages of jute are not only traditional uses, but also on the production of other value –added products such as, pulp and paper, geo-textiles, composites and home textiles. Jute is an annually renewable energy source with high a biomass production per unit land area. After a lot of debate, there seems to be an agreement that White Jute originated in the Indo-Burma region and Tossa Jute in Africa. Kenaf originated in Angola in Africa and Roselle originated in Sudan of Africa (Singh, D.P. 1983). China is also considered as one of the places of origin of Jute. According to some scholars, some provinces of the southern parts of China are the secondary centres of origin of' Tossa and White Jute. (Peikun Huang 1992). India, Bangladesh, China, Myanmar, Nepal and Thailand are at present the major producers of Jute, Kenaf and Roselle fibers. India, Bangladesh and China are the large producers. The jute sector was a significant source of foreign exchange earnings with higher value additions for Bangladesh. The sector provided employment opportunity to a large number of people in different regions of the country and in some rural areas where employment opportunities in the manufacturing sector were limited. Among the countries India, Bangladesh, Thailand, China, Myanmar, Nepal and Pakistan, Bangladesh holds the second position in term of production volume (Sadi, 2007). Once upon a time jute was the 17th export item for India in 1970s according to importance, where as, in Bangladesh its position was in the top (Mohammad, 2007).

2. LITERATURE REVIEW

Rahman and Bala (2009) have studied on *Ecological and Environmental Sustainability of Jute Production Systems in Bangladesh: Life Cycle Assessment.* Two important studies on jute production systems were conducted through field experimentations for the two consecutive jute growing seasons in 2006 and 2007 to enumerate the ecological sustainability and the environmental consistency indicators of the system. Life Cycle Assessment (LCA) is one of the methods to assess the environmental consistency and ecological health indicators affected by the systems.

M. H. A. Miah(2010) has studied on why the Performance of the Jute Industry in Bangladesh has been declining gradually? This study was incorporate Khulna, Jessore, Satkhira and Bagherhat districts in Bangladesh in defining the 'South-west region' of Bangladesh whereas out of 17 nationalized jute mills only two of them (Platinum Jubilee Jute Mills and Crescent Jute Mills) are currently in operation. A better quality raw jute procurement on time, sufficient financing, technological up gradation, improvement of working environment, domestic demand creation and adaptation of appropriate marketing policy are the key issues need to be addressed for improving the performance of the jute industry in the south-west region.

Aimin Liu (2000) has studied on World Production and Potential Utilization of Jute, Kenaf, and Allied Fibers. Jute, kenaf, and other allied fibers (JAF) are the second most important natural fibers next to cotton. JAF are cash crops of great socio-economic importance in countries like, Bangladesh, China, India, Nepal, and Thailand, because they provide sustenance to more than 12 million small and marginal farm families for their livelihood. World production of JAF, however, has shown a declining trend. Jute production in Bangladesh and India decreased by 49 % and 19%, respectively, and kenaf production in China and Thailand decreased by 59% and 47%, respectively during the same period. Noticeable efforts are being made to promote the traditional JAF products in order to retain their existing markets.

Moazzem and Rahman, (2009) have studied on the titled "Jute Manufacturing Sector of Bangladesh: Challenges, Opportunities and Policy Options". The study has been conducted as part of CPD's *Independent Review of Bangladesh's Development (IRBD)* programme. The major objective of the study is to assess the viability of jute and jute sector of Bangladesh, and to come up with a long term strategy for development of this sector. The focus of the present paper is on economic, technological and worker related issues of jute mills, opportunities and challenges faced by the jute manufacturing industry, and possible policy options with a view to develop a viable and an efficient jute manufacturing sector in the country.

Sarkar (1986) has conducted study on The Fading Fabrics: I: Raw Jute Scenario. The continuing jute imbroglio and the renewed state concern for it have naturally focused attention on this traditional agro-based industry which has a dominant bearing on the economy of the eastern region of the country employing as it does around two lakh workers in mills and supporting about four million families dependent on cultivation of jute which is the most important commercial crop in the region.

3. PROBLEM STATEMENT

Jute and allied fibers are the second most important natural fibers next to cotton. The jute sector is a significant source of foreign exchange earnings with higher value additions for Bangladesh. This sector provided employment opportunity to large number of people in different regions both urban and rural areas in the country. The worldwide awareness on environment is the reason for the opportunities of Jute, due to environment-friendly characteristics. Jute, a natural fiber that can be used in many different areas, supplementing or replacing synthetics, has been receiving increasing attention from the industry. The usages of jute are not only traditional but also on the production of other value –added products such as, pulp and paper, geo-textiles, composites and home textiles. Jute is an annually renewable energy source with high a biomass production per unit land area. It is biodegradable and its products can be easily disposed without causing environmental hazards. The roots of jute plants play a vital role in increasing the fertility of the soil. Jute plants have carbon dioxide assimilation rate and it clean the air by consuming large quantities of carbon dioxide. *(International Jute Study Group, 2011).*

Presently the jute is earning 5.4 percent of total export value. *(Bangladesh Bank Export Receipt 2010-11)*. More over, Jute is the main export crop of Bangladesh. The awareness and demand of jute products is increasing in both international and domestic market which creates the opportunity for jute again.

From the literature review, it is observed that the overall scenario of jute production is described but the comparative position of Bangladesh and recent state of jute production is not clearly mentioned. So, to fill up this research gap, this study is undertaken. The research aim is to analysis the comparative development and growth of jute production of Bangladesh with other major jute producing countries to avail the opportunity of jute's growing demand in the world market. The growth rate of production, area and production efficiency of Bangladesh with world producers is considered for study to asses the position of Bangladesh and the policy implications are recommended for development.

4. OBJECTIVES

The principal objective of this study is to evaluate the growth of production of Jute. To accomplish this basic objective, following specific objectives are set:

i. To analyze the growth and development of jute production in the world
ii. To conduct the comparative analysis of Production, Area, Yield of Jute of Bangladesh with major Jute producing countries.
iii. To provide the recommendations for growth and development of jute production efficiency of Bangladesh.

5. METHODOLOGY

Source of data

This paper is an analytical one. The secondary data are used to study. Secondary data were collected from the following Sources: International Jute Study Group, Bangladesh Jute Mills Association, Bangladesh Bureau of Statistics, Bangladesh Economic Review, Books and Journal, Internet Website.

Sample design

It is taken the data of Production, Area, and Yield of Jute for 19 years from the year 1991-92 to 2009-10 of major Jute producing countries such as India, Bangladesh, China, Myanmar, Nepal, Thailand for analysis.

Analysis of data

The data have been analyzed with the help of different statistical techniques. The study has used percentage, mean, growth, and hypothesis test etc. for analysis of data and drawing inferences.

Hypothesis test

I. Ho: There is no significant difference of growth of Jute and allied fibers production of Bangladesh with Major jute and allied fiber producing countries.
II. Ho: There is no significant difference of growth of yield of Jute production of Bangladesh with Major jute producing countries.

6. ANALYSIS AND RESULT

6.1 Growth of World Production of Jute

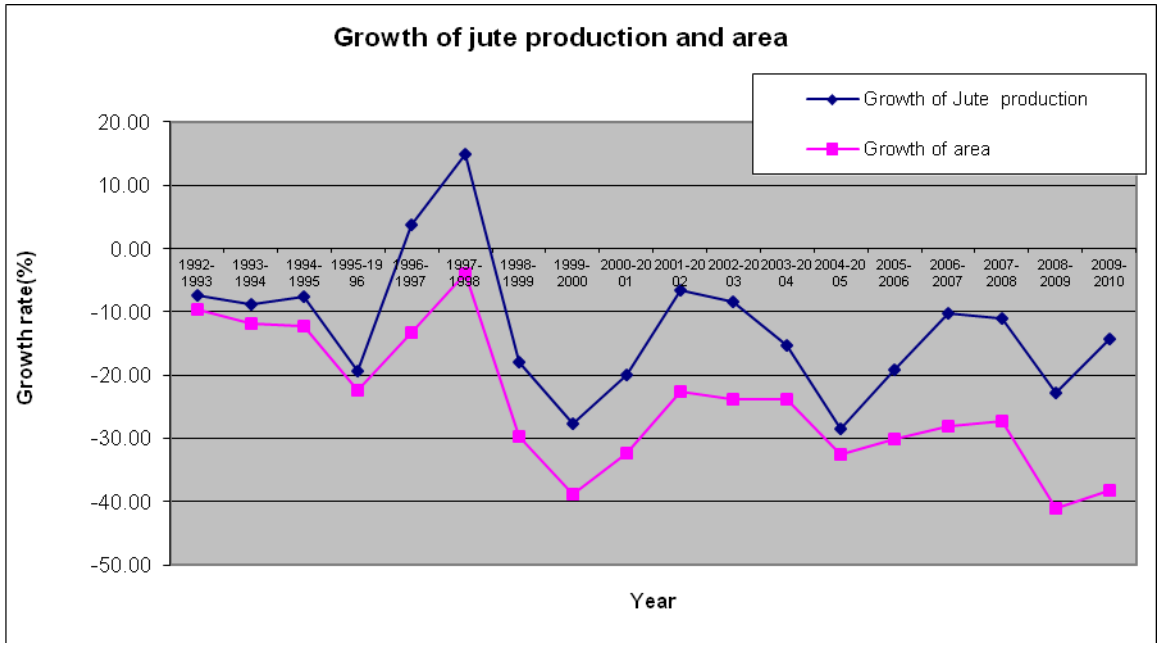

Figure1. Growth of Jute production and area of the world

The world production of Jute and allied fibers are the second most important natural fibers next to cotton. The jute sector is a significant source of foreign exchange earnings with higher value additions for Bangladesh. The awareness of environment friendly fiber is increasing day by day.

From the appendix-1 and 2, the figure-1 is drawn and it is seen that total production of jute and allied fiber are 3367.7 thousand tone , 3495.2 thousand tone , 3144.9 thousand tone ,2724.1 thousand tone, 2883.9 thousand tone in the year 1991-92, 1996-97, 2001-02, 2005-06 and 2009-10 respectively. It is depicted from the figure- 1, that the growth rates are -7.46 percent ,11.86 percent ,-27.6 percent, -6.62 percent, -28.6 percent,-10.3 percent, -22.9 percent, -14.4 percent in 1992-93,1997-98, 1999-00,2001-02,2004-05,2006-07, 2008-09, 2009-10 respectively (base year 1991-92). This scenario tells that total world production is decreasing with fluctuating trend.

Now, we shall see the area of jute production over the year. It is seen from the appendix-2 that the areas are 2121.90 thousand hectare, 1839.50 thousand hectare, 1641.6 thousand hectare, 1527.7 thousand hectare, 1311.50 in the year 1991-92, 1996-97, 2001-02,2006-07,2009-10 respectively. It represents that the area of Jute production is reducing day by day. From the figure-1, it is depicted that the growth rates are -9.52 percent, -22.33percent, -4.03 percent, -38.91 percent, -23.79 percent, -28.00 percent , -38.19 percent in the year 1992-93, 1995-96, 1999-00, 2003-04, 2006-07, 2009-10 respectively. So, the growth of area of production is decreasing with fluctuating trend.

6.2. Comparative Growth of production of Jute of Bangladesh

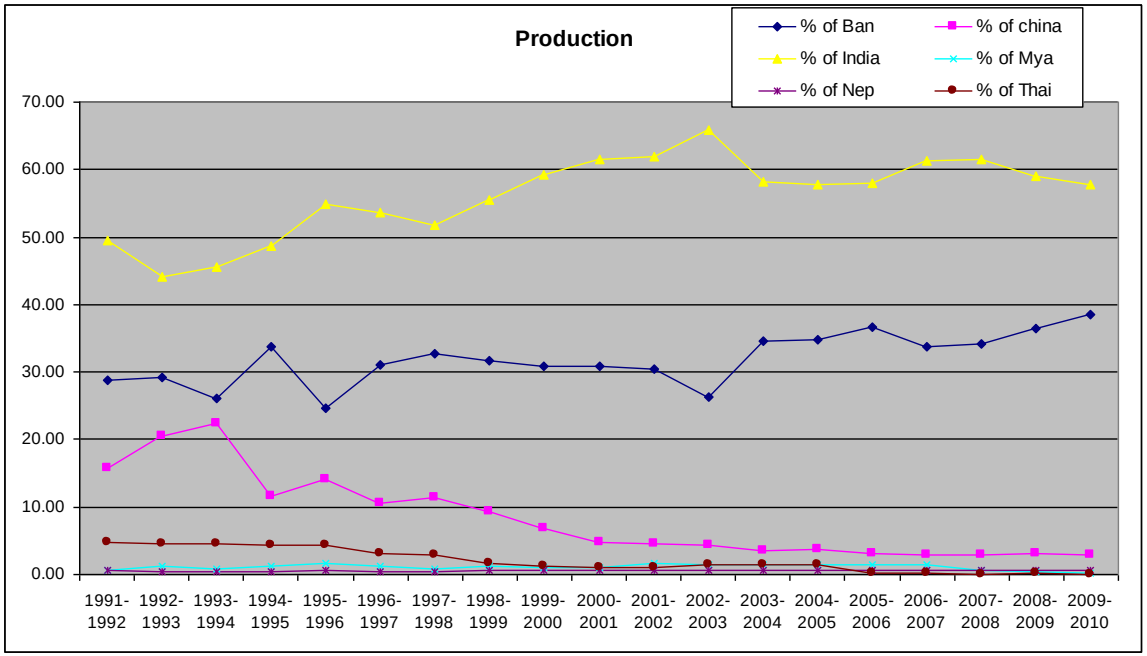

Figure 2. Comparative Percentage of jute production

From the Appendix-1, the figure-2 is drawn. It is seen that the average production of jute and allied fibers are 56.09 percent, 31.86 percent, 8.33 percent, 2.05 percent, 1.13 percent, and 0.55 percent of India, Bangladesh, China, Thailand, Myanmar, and Nepal respectively. Bangladesh is in second position for producing Jute. Now we shall see in detail of production. The production of Bangladesh are 945100 tones (28.06%), 924700 tones (29.40%), 1080000 tones (37.45%) in the year 1991-92, 2001-02, 2009-10 respectively. So, the total production of Jute is increasing with fluctuating trend and the percentage of jute production of Bangladesh of world jute production is increasing day by day.

The production of jute of India are 1620000 tones (48.10%), 1890000 tones (60.1%), 1620000tones (56.17%) in the year 1991-92, 2001-02, 2009-10 respectively. So, the total production is steady with fluctuating trend. The percentage of jute production of India of total world production is steady over last decade.

The production of jute of China are 513000 tones (15.23%), 136000 tones (4.67%), 80000tones (2.77%) in the year 1991-92, 2001-02, 2009-10 respectively. So, the total production and percentage of total world production of China is seriously reducing. The production of jute of Myanmar are 22600 tones(0.67%), 50800 tones(1.03.1%), 8000 tones(0.28%) in the year 1991-92, 2001-02, 2009-10 respectively. So, the total production and percentage of world production of Myanmar was steady but recent years, it is seriously declined. The production of jute of Thailand are 157200 tones (4.67%), 29500 tones (1.10%), 1800 tones (0.06%) in the year 1991-92, 2001-02, 2009-10 respectively. So, the total production and percentage of total world production of Thailand is seriously decreasing. The production of jute of Nepal are 19100 tones (0.57%), 16400 tones (0.52%), 17000 tones(0.59%) in the year 1991-92, 2001-02, 2009-10 respectively. So, the total production and percentage of total world production of Nepal is steady over the period.

Table 1. Hypothesis test of growth of jute production

		Paired Differences					t	df
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper		
Pair 1	Growth rate of production of Bangladesh - Growth rate of total production	9.46640	10.95265	2.58157	4.01978	14.91303	3.667	17
Pair 2	Growth rate of production of Bangladesh - Growth rate of production of China	51.19889	40.75500	9.60605	30.93190	71.46587	5.330	17
Pair 3	Growth rate of production of Bangladesh - Growth rate of production of India	-2.59056	14.01319	3.30294	-9.55915	4.37804	-.784	17
Pair 4	Growth rate of production of Bangladesh - Growth rate of production of Myanmar	-48.87500	53.55238	12.62242	-75.50597	-22.24403	-3.872	17
Pair 5	Growth rate of production of Bangladesh - Growth rate of production of Nepal	15.48722	18.19324	4.28819	6.43993	24.53451	3.612	17
Pair 6	Growth rate of production of Bangladesh - Growth rate of production of Thailand	61.00889	36.70752	8.65205	42.75467	79.26311	7.051	17

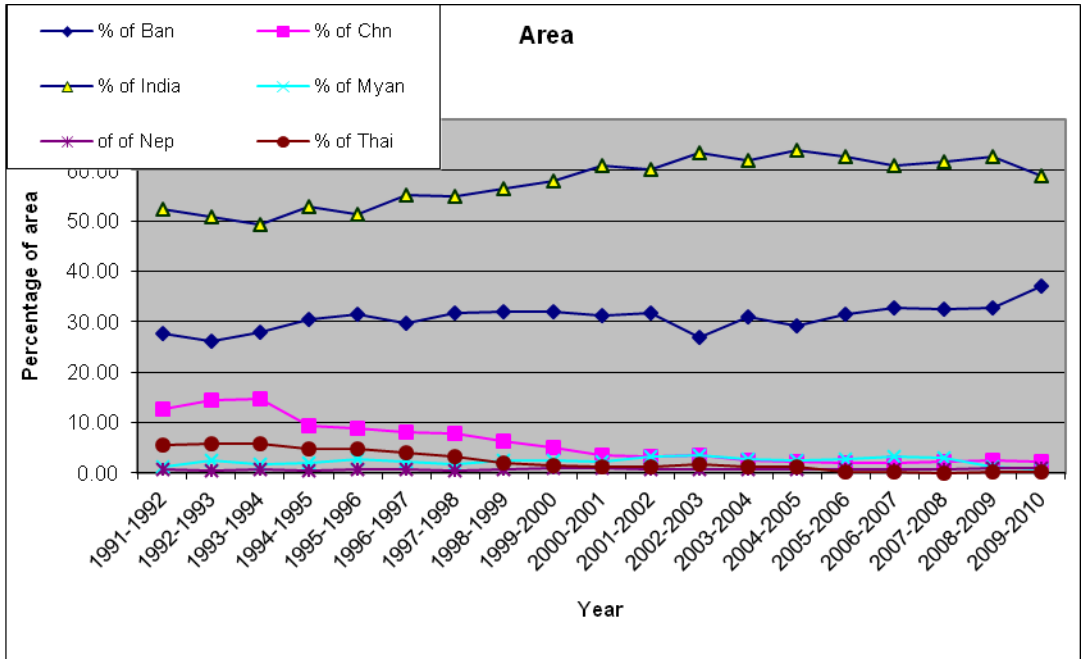

Figure 3. Comparative percentage of Area of Jute production

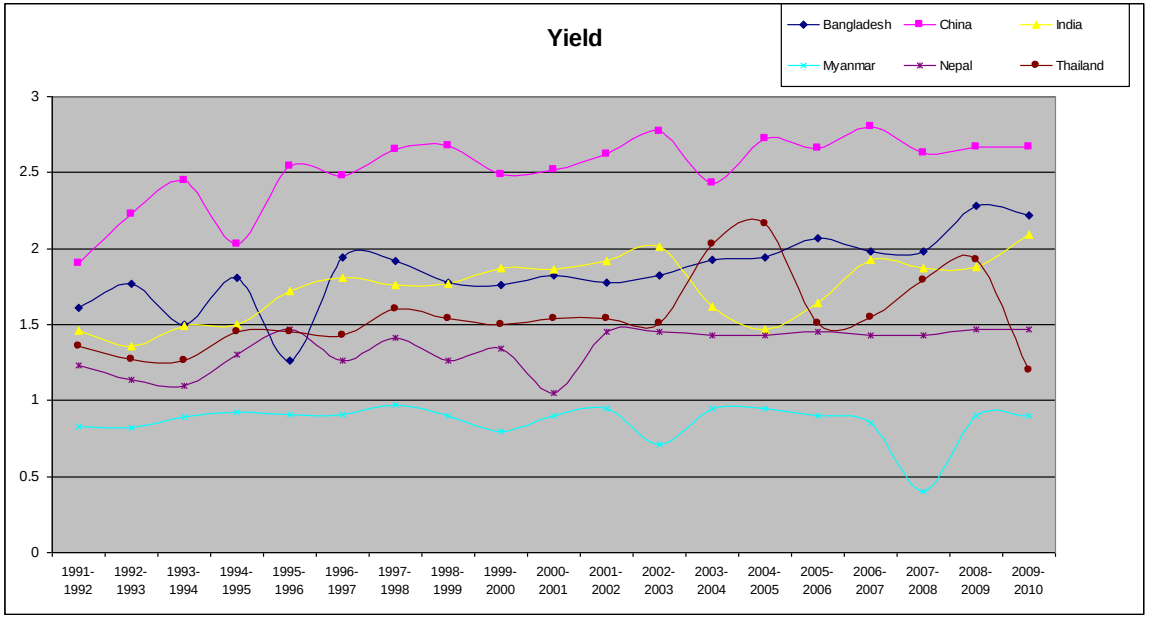

Figure 4. Comparative Yield of Jute production

Finally, it is observed that the production of Jute and allied fibers of Bangladesh is positively increasing and production of India and Nepal is steady state. But the jute and allied fiber production of other countries (China, Myanmar, and Thailand) is seriously decreasing in recent years. So, Bangladesh is in good position for producing jute. Now we shall see the comparative growth rate of jute and allied fibers production of Bangladesh with hypothesis test to confirm the above findings.

I. Ho: There is no significant difference of growth of Jute and allied fibers production of Bangladesh with Major jute and allied fiber producing countries. From the table-1, It is analyzed that the growth of jute production of Bangladesh comparison to total world production, the calculated value of't' is 3.667 and the table value of't' is 1.74 (one tailed). So, the calculated't' value is fallen outside the critical region. The alternative hypothesis is accepted that the growth rate jute and allied fiber production of Bangladesh is more than the growth rate of world production. Similarly, from the table-1, it is seen that the calculated't' values with China, Nepal and Thailand are 5.33, 3.6, and 7.05 respectively which infers more growth of Bangladesh than China, Nepal, and Thailand. The calculated value of Bangladesh with India and Myanmar are -.784, -3.872 respectively which indicate that the growth rate of jute production Bangladesh is same as India but less to Myanmar.

6.3 Comparative Growth of Area of Jute production of Bangladesh From the Appendix-2, the figure-3 is drawn. It is seen that the average area of production of jute and allied fibers are 57.78 percent, 30.81 percent, 5.96 percent, 2.37 percent, 2.35 percent, and 0.74 percent of India, Bangladesh, China, Thailand, Myanmar, and Nepal respectively. Bangladesh is in second position for considering area of production. The area of jute production of Bangladesh are 586800 hectare (27.65%), 519000 hectare (31.65%), 485800 hectare (37.04%) in the year 1991-92, 2001-02, 2009-10 respectively. So, the total area of jute production of Bangladesh is slightly decreasing with fluctuating trend and the percentage of area of jute production of Bangladesh of the world jute production area is increasing day by day.

Table 2. Hypothesis test of comparative yield of jute production of Bangladesh

		Paired Differences					t	df
					95% Confidence Interval of the Difference			
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper		
Pair 1	yield of Bangladesh - yield of China	-.67211	.26074	.05982	-.79778	-.54643	-11.236	18
Pair 2	yield of Bangladesh - yield of India	.11263	.24299	.05575	-.00448	.22975	2.020	18
Pair 3	yield of Bangladesh - yield of Myanmar	.99000	.27203	.06241	.85889	1.12111	15.863	18
Pair 4	yield of Bangladesh - yield of Nepal	.50526	.22124	.05076	.39863	.61190	9.955	18
Pair 5	yield of Bangladesh - yield of Thailand	.29211	.27792	.06376	.15815	.42606	4.581	18

The areas of jute production of India are 1107000 hectare (52.17%), 986000 hectare (60.06%), and 7737000 hectare (58.99%) in the year 1991-92, 2001-02, and 2009-10 respectively. So, the total area of jute production is decreasing with fluctuating trend. The percentage of production area of total world area of production of India is steady over last decade.

The areas of jute of China (269700 hectare in 1991-92, 52000 hectare in 2001-02, 30000 hectare in 2009-10), Myanmar((27200 hectare in 1991-92, 31000 hectare in 2000-01, 8900 hectare in 2009-10), Thailand(115700 hectare in 1991-92, 19200 hectare in 2001-02, 1500 hectare in 2009-10), are seriously reducing and the area of Nepal is remain steady.

6.4 Comparative production efficiency of Jute production of Bangladesh

From the appendix-3, it is observed that the average yields of production of jute are 1.85, 2.52, 1.74, 0.86, 1.35, and 1.56 in Bangladesh, China, India, Myanmar, Nepal, and Thailand respectively. The yields of Bangladesh (1.61 in 1991-92, 1.78 in 2001-02, 2.22 in 2009-10), China (1.91 in 1991-92, 2.62 in 2001-02, 2.67 in 2009-10), and India((1.46 in 1991-92, 1.92 in 2001-02, 2.09 in 2009-10) are increasing while the yield of Myanmar(0.83 in 1991-92, 0.95 in 2001-02, 0.9 in 2009-10), Nepal((1.23 in 1991-92, 1.45 in 2001-02, 1.47 in 2009-10)are steady over the periods. and Thailand(1.36 in 1991-92, 1.54 in 2001-02, 1.2 in 2009-10) is in fluctuating trend.

Now we shall see the comparative growth of yield of Bangladesh with major jute producing countries with the hypothesis test.

II. Ho: There is no significant difference of growth of yield of Jute production of Bangladesh with Major jute producing countries.

From the table-2, it is observed that the calculated 't' value of the growth of yield of jute production of Bangladesh comparison to China, India, Myanmar, Nepal, Thailand are -11.236, 2.02,15.86,9.95,4.58 respectively and the table value of 't' is 1.734(one tailed). So, the calculated't' value is fallen outside the critical region. It is inferred that the growth of yield of Bangladesh is more than the India, Myanmar, Nepal, and Thailand but lower than the China.

7. RECOMMENDATIONS

1. To gain the opportunity of jute in the world market: The prospect of jute sector at the global level is promising because of increasing demand of environment friendly products. Bangladesh should attempt to expand its share in the global market by supplying more quality goods.

2. To develop the jute policy: The "Jute Policy" needs to be reviewed and revised, and in this context the government's initiative to design a new jute policy is a well-timed initiative. A vertically integrated production chain needs to be considered for jute and the jute manufacturing sector of Bangladesh. The idea of an independent "Jute Board" may be considered in this regard, where there will be representation of major stakeholders.

3. To use the bio-technology: The inherent negative surface characteristics of jute fibers like itching problem, comfort characteristics, etc, can be modified through bio-technology and scientific techniques.

4. To enhance the application area of jute: The application area of jute need to be enlarged, ie, jute should be used in new areas like agro-textile, geo-textile, technical textile as well as home textile.
5. To develop the marketing strategy in both domestic and global market: Marketing and promotion of jute has been a major problem, and so the government and industry should come forward and take adequate steps in this direction like highlighting its eco-friendly and biodegradable characteristics.
6. To solve the labor problem in industry: Government and industry should device a tri-party agreement between government, mill owners and the trade unions, so as to overcome loss of work by strikes, lockouts, law off, closure of mill, etc.
7. To develop the research and training institutions: Jute Research Association such as JTRL, IJIRA, and Institute of Jute Technology should come forward for better utilization of resources like jute raw material, manpower and machinery and equipment for the betterment of jute industry. The farmers should be trained to adapt the modern scientific system.
8. To ensure Law for using jute: Government rules on restriction of manufacturing and marketing of polythene products should be strictly maintained.

9. To develop the jute products: Diversified Jute products should be developed and to familiar to people is required.

10. To make available the market information: Market information about demand, price needs to available to all stakeholders especially to the grower level.

11. To make availability of quality seed to farmer for better production

12. To introduce the scientific cultivation methods rather than traditional method to get the high yield and preservation system should be increased.

8. CONCLUDING REMARKS

The jute was the golden fibers of Bangladesh. The worldwide awareness on environment is the reason for the opportunities of Jute, due to environment-friendly characteristics. So, the latest demand of jute causes the motivation for conducting the research which will be the benefits to the nations. The growth of total world area and production of jute is decreasing with fluctuating trend. Bangladesh is in second position for producing Jute. So, the total production of Jute of Bangladesh is increasing with fluctuating trend and the percentage of jute production of Bangladesh of world production is increasing day by day. The production of Jute and allied fibers of Bangladesh is positively increasing and production of jute of India and Nepal is steady state. But the jute and allied fiber production of other countries (China, Myanmar, and Thailand) is seriously decreasing in recent years. So, Bangladesh is in good position for producing jute. The total area of jute production of Bangladesh is slightly decreasing with fluctuating trend and the percentage of area of jute production of Bangladesh of the world jute production area is increasing day by day. The percentage of production area of total world area of production of India was steady over last decade. It is observed that the growth of yield of Bangladesh is more than the India, Myanmar, Nepal, and Thailand but lower than the China. There are lots of scopes for future research in this promising economic field.

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Appendix 1. Production of Jute, Kenaf and Allied Fibres in Major producing Countries in '000 Tonnes (1 tonne = 1000 Kg)

	PRODUCTION *(in '000 tonnes)*							Percentage of Production						Growth of Production						
Year	Bangladesh	China	India	Myanmar	Nepal	Thailand	Total production	% of Ban	% of china	% of India	% of Myanmar	% of Nepal	% of Thailand	Bangladesh	China	India	Myanmar	Nepal	Thailand	Growth Total rate
1991-1992	945.1	513	1620	22.6	19.1	157.2	3367.7	28.06	15.23	48.10	0.67	0.57	4.67							
1992-1993	885.4	619	1332	38.8	10	140.3	3116.6	28.41	19.86	42.74	1.24	0.32	4.50	-6.32	20.66	-17.78	71.68	-47.64	-10.75	-7.67
1993-1994	782.3	672	1374.1	27.3	14.4	139	3069.6	25.49	21.89	44.76	0.89	0.47	4.53	-17.23	30.99	-15.18	20.80	-24.61	-11.58	-0.54
1994-1995	1027.4	354.9	1476	34.6	11.7	130.3	3109.7	33.04	11.41	47.46	1.11	0.38	4.19	8.71	-30.82	-8.89	53.10	-38.74	-17.11	0.86
1995-1996	652.7	371.2	1458	43	14.9	114.9	2714.5	24.04	13.67	53.71	1.58	0.55	4.23	-30.94	-27.64	-10.00	90.27	-21.99	-26.91	-12.53
1996-1997	1062.2	364.9	1836	39.5	14	109.3	3495.2	30.39	10.44	52.53	1.13	0.40	3.13	12.39	-28.87	13.33	74.78	-26.70	-30.47	29.05
1997-1998	1242.7	429.5	1964	33.1	15.5	106.4	3868.1	32.13	11.10	50.77	0.86	0.40	2.75	31.49	-16.28	21.23	46.46	-18.85	-32.32	10.66
1998-1999	851.9	248	1491.7	33.5	15.5	47.2	2765	30.81	8.97	53.95	1.21	0.56	1.71	-9.86	-51.66	-7.92	48.23	-18.85	-69.97	-29.10
1999-2000	731.5	164	1404	26.5	15.7	29.7	2436.9	30.02	6.73	57.61	1.09	0.64	1.22	-22.60	-68.03	-13.33	17.26	-17.80	-81.11	-11.77
2000-2001	814.7	125.9	1620	27.8	15.2	29.7	2698.3	30.19	4.67	60.04	1.03	0.56	1.10	-13.80	-75.46	0.00	23.01	-20.42	-81.11	11.04
2001-2002	924.7	136	1890	50.8	16.4	29.5	3144.9	29.40	4.32	60.10	1.62	0.52	0.94	-2.16	-73.49	16.67	124.78	-14.14	-81.23	15.73
2002-2003	793.4	130	1980	41.9	17	46.4	3084.4	25.72	4.21	64.19	1.36	0.55	1.50	-16.05	-74.66	22.22	85.40	-10.99	-70.48	-1.27
2003-2004	963	99.8	1620	42	17	41.3	2852.3	33.76	3.50	56.80	1.47	0.60	1.45	1.89	-80.55	0.00	85.84	-10.99	-73.73	-7.50
2004-2005	810	86.9	1350	33.6	16.9	35.7	2406	33.67	3.61	56.11	1.40	0.70	1.48	-14.29	-83.06	-16.67	48.67	-11.52	-77.29	-16.17
2005-2006	965	82.8	1530	36.9	17.7	4.6	2724.1	35.42	3.04	56.17	1.35	0.65	0.17	2.11	-83.86	-5.56	63.27	-7.33	-97.07	13.03
2006-2007	990	86.8	1800	43.6	17.1	3.6	3021.1	32.77	2.87	59.58	1.44	0.57	0.12	4.75	-83.08	11.11	92.92	-10.47	-97.71	11.53
2007-2008	990	86	1782	19.1	16.8	2.2	2997.3	33.03	2.87	59.45	0.64	0.56	0.07	4.75	-83.24	10.00	-15.49	-12.04	-98.60	-1.53
2008-2009	913	80	1476	12.9	17	2.9	2596.6	35.16	3.08	56.84	0.50	0.65	0.11	-3.40	-84.41	-8.89	-42.92	-10.99	-98.16	-13.61
2009-2010	1080	80	1620	8	17	1.8	2883.9	37.45	2.77	56.17	0.28	0.59	0.06	14.27	-84.41	0.00	-64.60	-10.99	-98.85	12.19

Source: Food and Agriculture Organization (FAO)

Appendix 2. Area of Jute, Kenaf and Allied Fibres in Major producing Countries (1 Hectare = 2.471 Acre)

AREA *(in 000 Ha)*							Percentage of Area							Growth of Area						
Year	**Bangladesh**	**China**	**India**	**Myanmar**	**Nepal**	**Thailand**	**Total Area**	**% of Ban**	**% of China**	**% of India**	**% of Myanmar**	**% of Nepal**	**% of Thailand**	Bangladesh	China	India	Myanmar	Nepal	Thailand	T total Growth rate
1991-1992	586.8	269.7	1107	27.2	15.5	115.7	2121.90	27.65	12.71	52.17	1.28	0.73	5.45							
1992-1993	500.2	277.2	976	47.6	8.8	110.1	1919.90	26.05	14.44	50.84	2.48	0.46	5.73	-14.76	2.78	-11.83	75.00	-43.23	-4.84	-9.52
1993-1994	521.3	274	920	30.8	13.1	110.6	1869.80	27.88	14.65	49.20	1.65	0.70	5.92	-11.16	1.59	-16.89	13.24	-15.48	-4.41	-11.88
1994-1995	567.8	175	982	37.5	9	89.7	1861.00	30.51	9.40	52.77	2.02	0.48	4.82	-3.24	-35.11	-11.29	37.87	-41.94	-22.47	-12.30
1995-1996	519.2	146	846	47.3	10.2	79.3	1648.00	31.50	8.86	51.33	2.87	0.62	4.81	-11.52	-45.87	-23.58	73.90	-34.19	-31.46	-22.33
1996-1997	547.6	147	1014	43.2	11.2	76.5	1839.50	29.77	7.99	55.12	2.35	0.61	4.16	-6.68	-45.49	-8.40	58.82	-27.74	-33.88	-13.31
1997-1998	647.5	162.1	1115	34.1	11	66.6	2036.30	31.80	7.96	54.76	1.67	0.54	3.27	10.34	-39.90	0.72	25.37	-29.03	-42.44	-4.03
1998-1999	477.5	92.7	841	37.3	12.3	30.7	1491.50	32.01	6.22	56.39	2.50	0.82	2.06	-18.63	-65.63	-24.03	37.13	-20.65	-73.47	-29.71
1999-2000	414.8	65.8	751	33	11.7	19.9	1296.20	32.00	5.08	57.94	2.55	0.90	1.54	-29.31	-75.60	-32.16	21.32	-24.52	-82.80	-38.91
2000-2001	448	50	873	31	14.5	19.2	1435.70	31.20	3.48	60.81	2.16	1.01	1.34	-23.65	-81.46	-21.14	13.97	-6.45	-83.41	-32.34
2001-2002	519.6	52	986	53.5	11.3	19.2	1641.60	31.65	3.17	60.06	3.26	0.69	1.17	-11.45	-80.72	-10.93	96.69	-27.10	-83.41	-22.64
2002-2003	436.2	56	1025	58.7	11.7	27.2	1614.80	27.01	3.47	63.48	3.64	0.72	1.68	-25.66	-79.24	-7.41	115.81	-24.52	-76.49	-23.90
2003-2004	499.8	41	1000	44.1	11.9	20.4	1617.20	30.91	2.54	61.84	2.73	0.74	1.26	-14.83	-84.80	-9.67	62.13	-23.23	-82.37	-23.79
2004-2005	418	32	916	35.4	11.8	16.6	1429.80	29.23	2.24	64.06	2.48	0.83	1.16	-28.77	-88.13	-17.25	30.15	-23.87	-85.65	-32.62
2005-2006	466	31.1	931	41	12.2	3.1	1484.40	31.39	2.10	62.72	2.76	0.82	0.21	-20.59	-88.47	-15.90	50.74	-21.29	-97.32	-30.04
2006-2007	500	31	931	51.4	12	2.3	1527.70	32.73	2.03	60.94	3.36	0.79	0.15	-14.79	-88.51	-15.90	88.97	-22.58	-98.01	-28.00
2007-2008	500	33	952	47.2	11.7	1.2	1545.10	32.36	2.14	61.61	3.05	0.76	0.08	-14.79	-87.76	-14.00	73.53	-24.52	-98.96	-27.18
2008-2009	408.1	30	785.6	14.3	11.6	1.5	1251.10	32.62	2.40	62.79	1.14	0.93	0.12	-30.45	-88.88	-29.03	-47.43	-25.16	-98.70	-41.04
2009-2010	485.8	30	773.7	8.9	11.6	1.5	1311.50	37.04	2.29	58.99	0.68	0.88	0.11	-17.21	-88.88	-30.11	-67.28	-25.16	-98.70	-38.19

Source: Food and Agriculture Organization (FAO)

Appendix 3. Yield of Jute, Kenaf and Allied Fibres in Major producing Countries

Note: 1 Tonne = 1000 Kg

1 Hectare = 2.471 Acre

	YIELD *(Tonne/Ha)*						Growth of Yield					
Year	**Bangladesh**	**China**	**India**	**Myanmar**	**Nepal**	**Thailand**	**Bangladesh**	**China**	**India**	**Myanmar**	**Nepal**	**Thailand**
1991-1992	1.61	1.9	1.46	0.83	1.23	1.36						
1992-1993	1.77	2.23	1.36	0.82	1.14	1.27	9.94	17.37	-6.85	-1.20	-7.32	-6.62
1993-1994	1.5	2.45	1.49	0.89	1.1	1.26	-6.83	28.95	2.05	7.23	-10.57	-7.35
1994-1995	1.81	2.03	1.5	0.92	1.3	1.45	12.42	6.84	2.74	10.84	5.69	6.62
1995-1996	1.26	2.54	1.72	0.91	1.47	1.45	-21.74	33.68	17.81	9.64	19.51	6.62
1996-1997	1.94	2.48	1.81	0.91	1.26	1.43	20.50	30.53	23.97	9.64	2.44	5.15
1997-1998	1.92	2.65	1.76	0.97	1.41	1.6	19.25	39.47	20.55	16.87	14.63	17.65
1998-1999	1.78	2.68	1.77	0.9	1.26	1.54	10.56	41.05	21.23	8.43	2.44	13.24
1999-2000	1.76	2.49	1.87	0.8	1.34	1.5	9.32	31.05	28.08	-3.61	8.94	10.29
2000-2001	1.82	2.52	1.86	0.9	1.05	1.54	13.04	32.63	27.40	8.43	-14.63	13.24
2001-2002	1.78	2.62	1.92	0.95	1.45	1.54	10.56	37.89	31.51	14.46	17.89	13.24
2002-2003	1.82	2.77	2.01	0.71	1.45	1.51	13.04	45.79	37.67	-14.46	17.89	11.03
2003-2004	1.93	2.43	1.62	0.95	1.43	2.03	19.88	27.89	10.96	14.46	16.26	49.26
2004-2005	1.94	2.72	1.47	0.95	1.43	2.16	20.50	43.16	0.68	14.46	16.26	58.82
2005-2006	2.07	2.66	1.64	0.9	1.45	1.51	28.57	40.00	12.33	8.43	17.89	11.03
2006-2007	1.98	2.8	1.93	0.85	1.43	1.55	22.98	47.37	32.19	2.41	16.26	13.97
2007-2008	1.98	2.63	1.87	0.4	1.43	1.79	22.98	38.42	28.08	-51.81	16.26	31.62
2008-2009	2.28	2.67	1.88	0.9	1.47	1.93	41.61	40.53	28.77	8.43	19.51	41.91
2009-2010	2.22	2.67	2.09	0.9	1.47	1.2	37.89	40.53	43.15	8.43	19.51	-11.76

Source: Food and Agriculture Organization (FAO)