



Sustainability in Jute Supply Chain



Issue Highlights

Feature	Page
Sustainability in jute supply chain	01-02
IJSG news	03
Environmental news	03, 04
Upcoming IJSG events	04
Upcoming international events	04
Jute news	03, 04
New associate members	04

In today's global 'Green' economy, the demand of sustainable products is increasing. The term 'sustainable' has been defined by many experts and organizations at different times which have different interpretation and thus has not received a universal acceptance. However, a common and generalized definition is "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland Report 1987). According to the definition of United States Environmental Protection Agency (EPA), sustainability is based on a simple principle: everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which human and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations.

Jute and its products are known as environmental friendly products compared to its synthetic alternatives. Jute plants are renewable and cultivated annually. Moreover, 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. Jute products consume less energy and are carbon negative. Disposal of jute and jute products do not pose problem like synthetic materials.

Though 'jute fibre' has many inherent eco friendly properties, the cultivation system, process

mechanism and marketing of jute and jute goods require extensive modernization to be labeled as 'Green' and stay competitive in global market. In order to meet the requirement of eco conscious consumer and capture the 'Green' market, sustainable practice should be brought into practice in the entire value chain of jute sector. Many studies have been conducted in order to identify the areas where sustainable practices could be adopted.

Farming:

Sustainable jute farming means an integrated system of plant and animal production practices having a site-specific application that will last over the long term. Reduction in energy consumption, chemical application may enhance the sustainability of jute farming. The intensive use of pesticides and chemical fertilizers are matters of serious concern; development of resistance to pesticides in pests and the presence of toxic chemical residue in agricultural and dairy products which in many cases could be carcinogenic. Growth of resistance in pests' means that a large portion of jute production is vulnerable to pests which may cause about 20- 30% of total production can be lost (Mehrotra, 1989; Alam, 2000).

Extensive use of fertilizers often deteriorates soil quality and pollutes the nearby water bodies and is often responsible for 'eutrophication'. The organic fertilizers are found to be cheaper and environment friendly. However, the organic fertilizers have slow reaction process and are not readily avail-

able thus less popular to the farmers. Measures could be taken at national and international level to popularize the organic fertilizers among the jute growers, thus taking the jute sector one step closer to sustainable cultivation practice.

Water scarcity is also a major concern to the jute growers for retting process. The conventional retting practice deteriorates the quality of water, fibre and also may spread diseases. Several retting methods have been developed by BJRI and NIRJAFT. However, farmers are using traditional retting mostly because of the cost factor. Comparative analysis of different retting technology is given in the table 1:

For a sustainable farming approach ribbon retting could be adopted. The ribbon retting process require very small amount of water, does not emit any green house gases and also healthier to the labor. The quality of jute fibre is better than the fibres acquired from conventional retting process.

Fibre processing:

Jute product manufacturers are under global compulsion to adopt modern technologies, stay competitive market and maximize profit. In order to achieve these goals jute and allied products manufacturers will have to perceive sustainable manufacturing management practices just more than a response to environmental regulatory pressures. As the demand of sustainable product is increasing, adopting 'sustainable manufacturing' is a key for the



Table 1 Comparative analysis of different retting technology

Factors	Conventional retting	Low-cost retting	Ribbon retting	NIRJAFT process retting
Time required	20-25 days	18-22 days	11-15 days	10 days
Fiber quality	Low	High	Medium	-
Labor requirement	High	High	Low	Low
Health issue	High	Moderate	Low	Low
Area requirement	Large	Large	Small	Small
Mode of process	Open	Open	Close	Close
Use of Chemical	Yes	No	Yes	Yes (But non toxic)
Water requirement	High	High	Low	Low
Emission of CH4	High	High	NA	Low
Cost	Only Labor cost	Cost of jute sack	Ribbon machine & retting tank	Cost Mechanical device

success of jute based industries.

Jute fiber is processed by petroleum base lubricant known as Jute Batching Oil (JBO) because of lingo-cellulosic characteristics of jute fibres. However, typical odor and presence of some undesired toxic chemical constituents in JBO (e.g. Poly nuclear aromatic hydrocarbons such as pyrenes, benzpyrenes, benzanthracene etc.) have posed some problems in terms of its wide acceptability. In some countries, non tariff barrier such as sanitary and phytosanitary also introduced in case of using petroleum oil. To overcome these problems many researchers suggested using vegetable oil. In recent time Indian Jute Industries Research Association (IJIRA) has introduced Rice Bran Oil (RBO) to replace JBO. Some researchers also suggested the use of Castor oil. The table 2 illustrates the comparison of these three kinds of lubricant oil. Comparison among different batching oils:

It is evident that RBO is more sustainable than other oils because its price is affordable and spinning performance is same as JBO. In addition, bleaching of jute for brightening the fibre could be combined with the softening process to attain sustainability.

Most of the jute mill machineries are very old and energy inefficient. This inefficiency not only increases the cost of production but also result in higher degree of ‘Green House Gas’ (GHG)

Table 2 Comparison among different jute batching oils

	JBO	RBO	Castor oil
Price Taka/ton	900	1,200	2,595
Unsaponifiable matters	Very high (94.8%)	Low (4%)	Low (1.03%)
Biodegradability	No	Yes	Yes
Spinning performance	Very good	Same as JBO	Lower than JBO

emission. The PwC in 2006 suggested that it is possible to reduce the energy consumption by improving the feeder and cable system of the distribution network, lighting load, and power factor correction, rearrangement of driver and maintenance of machines. A waste heat recovery boiler consumes energy from wastage heat of generators. The recovery process decreases the costs of fuel and energy consumption and reduces the thermal and air pollution dramatically. Decline in auxiliary energy consumption also reduce equipment sizes which ultimately cuts on energy consumptions on equipments like pumps, filters, fans etc. Though this energy saving approach involves initial investment, the cost benefit analysis of waste heat recovery boiler proves to be sustainable in the long run. This waste heat recovery system is popular in the world and already in operation in one of the top jute mills of Bangladesh named “Janata Jute Mills”.

It is indeed necessary to introduce Environmental Management System (EMS) and social compliance in the jute mills for promoting sustainable jute prod-

ucts in the market. The marketing of jute products suffers from some non tariff barrier, obligatory compliance requirements with regard to various standards such as health, safety, working hours, wages and benefit, freedom of associations, environmental compliances, etc. Implementation of an integrated EMS will bring benefits such as, prevention of pollution, increased operational efficiency, cost savings, improved relations with regulatory agencies, reduce insurance cost, future liabilities, constraints and create opportunity for continual improvement.

Marketing:

A smooth flow of current market information and linkage among growers, industry and buyers is crucial to attain sustainability in the entire value chain of jute products. Very often producers and exporters are not familiar with opportunities emerging from the growing market, they usually tend to hold on to the traditional markets. For those who intend to start new business or export diversified jute items, it is often difficult to get access to global market opportunities due to lack of appro-

priate market information. Eco labeling and disposal protocol of jute goods are needs to be developed and be used for marketing to reach the green market.

Conversely, development of local market is important for two aspects: a) enhancement of market size; and b) as a stepping stone for accessing global market by drawing an advantage of scale of economies and product development. Hence, development of a secured local market along with international market will lead towards sustainable development of the sector.

Jute as an environment friendly commodity has great prospects locally and internationally. A global consciousness has already developed against synthetic products, which are now being replaced by the environment-friendly jute goods. A sustainable approach in production, manufacturing, marketing and disposal of jute and jute goods would benefit the lives of millions who are directly and indirectly involved with the sector and help bring harmony between environment and development.

Authors: Rajib Jones Mitra, Secretary and A.T.M. Jahangir Alam Project Assistant, IJSG

Associate Membership Benefits of IJSG

- Exchange ideas among producer, consumer, importer
- Strategic policy initiatives
- Trade contracts with national and international government
- Participate in the global efforts to cut on carbon emission.
- Leading support to poverty alleviation in the LDCs
- Access to the technologies developed by IJSG through its project and activities



Discussion Session on “Future Strategy for Promotion of Jute, Kenaf and Allied Natural Fibres”



The IJSG Secretariat organized a discussion session with its industry associate members on 16 February 2013, at the Conference hall of IJSG Secretariat. The session was organized to discuss the present opportunities and challenges of jute industries and to prepare for future course of action for IJSG to overcome the challenges. The Secretary General-IJSG, Mr. Singh, Bangladesh Jute Mills Corporation (BJMC), Chairman, Major General Humayun Khaled, Bangladesh Jute Association (BJA) -Secretary, Mr. Abdul Quayyum and

Bangladesh Jute Research Institute (BJRI)-Director (Agri.), Mr. Mohammad Hossain were present in the meeting. Representatives from Jute Spinners Limited, Jute and Kenaf Corporation, Altu Khan Jute mills and Janata-Sadat jute mills were also present in the Session. The Secretary General-IJSG welcomed all the guests for their participation in the session and inaugurated the session. The PSCB Chairman, Major General Humayun Khaled presided over the session. The Secretary-IJSG Mr. Rajib Jones Mitra and the Executive Secretary Mr Rahman made two presentations on PSCB and on current market situation of jute and allied natural fibres respectively. The participants discussed enthusiastically on the agenda points. The discussions were mainly focused on market situation of raw jute, price volatility, and strategy for expansion of local market of jute products, sharing of information generated including technologies developed by R&D institutions on jute and jute goods and related matters. It also focused on strategy for improvement of productivity, fiber quality and modernization challenges, prospects of jute and jute goods in the global market and the need for new marketing strategies including tariffs and non-tariff barriers on jute and jute products. Labor, working environment, social and environmental compliances and overall strategy for the jute sector development were also discussed in the session.

Boat Made from Jute: A New Prospect of Golden Fibre

The first jute board of Bangladesh has commissioned Taratari Shipyard in Kalurghat in Chittagong city on 8th February 2013. In the ceremony, the Director General of Bangladesh Jute Research Institute Dr Md Kamal Uddin said that Jute, instead of wood, can be used in the country to make eco-friendly products such as boats.

“This kind of fibre boats, which do not sink easily, would help people navigate during floods”

“Jute is not only the golden fibre of the country,” he said, adding that if new technology is introduced, jute can have great economic potential. Expressing gratitude to a young French team involved in the making of

the boat. He thanked the team for its research on boat technology using jute fibre.

At the programme, French expert on boat technology Yves Marre, also director of the shipyard, extended his thanks to AK Khan Group for helping to build the boat.

Marre said he has projects to make small and big fibre boats for carrying passengers. Bangladesh is a country frequently hit by natural calamities like floods. This kind of fibre boats, which do not sink easily, would help people navigate during floods, he added. Marc Van Peteghem, a renowned French naval architect, said wood prices are increasing day by day and jute is cheaper than any other materials.

(Source: The Daily Star, February 09, 2013)

Marine Pollution by Synthetic Polymer Killed Thousands of Seabirds



Between 29 January to 6 February 2013, more than 500 seabirds, were killed or rendered helpless by a mystery substance from a pollution event off the south coast of England.

Shockingly, these deaths and injuries may have resulted from legal shipping activity. The substance was subsequently identified as a man-made synthetic polymer known as polyisobutene, or PIB. This same substance has also caused the deaths of thousands of other seabirds in recent years in the Irish and North Seas. These birds were coated with whitish or transparent, glue-like substance, so adhesive that it

stuck their wings to their bodies, and even stones and rocks to the birds themselves. The hotspot was between Chesil Bank and Portland, Dorset but smaller numbers of similarly affected birds were reported from Devon and Cornwall.

Marc Smith, Dorset Wildlife Trust, was one of the first to witness the scale of the tragedy; "It was heart-breaking seeing the birds washing up along the shore. Some were so covered in this horrible substance they were literally stuck to the beach — still alive but unable to move. Others only had a small amount on them but you could see they were in distress. Exhausted, freezing and emaciated - they were the lucky ones. For every bird rescued we knew there were many more that had perished at sea. Dead birds littered the beach. What really sticks in your throat knows this was preventable".



The End of "Paper or Plastic" in Austin



Austin's, Texas, USA Single-Use Carryout Bag Ordinance goes into effect. The ordinance does not eliminate all plastic or paper carryout bags, but it does set some requirements for the types of bags allowed. According to some esti-

mates, Austinites use 263 million plastic bags a year. Fewer bags will reduce the amount of waste Austin sends to the landfill, moving them closer to their zero-waste goal. The Austin city authority encourage the people to habituated with recyclable bag. If they don't have any reusable bags, get some from their favorite store or farmers market. It's always nice to have a small foldable bag that they can keep in their purse or pocket, so they won't have to panic if and when they forget their bags. The city also advised them to make sure that bags are washed on a regular basis for avoiding food contaminants. [Source: <http://in.gredients.com/2013/01/31/the-end-of-paper-or-plastic-in-austin/>]



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Upcoming IJSG Events

- 20th meeting between CFC and ICBs, IJSG Secretariat, Dhaka, Bangladesh on March 25, 2013
- Workshop on "sustainability and Social Compliances for jute artisans, IJSG Secretariat on March, 27, 2013
- 14th meeting of Committee on Projects (COP), IJSG Secretariat, Dhaka, Bangladesh on April 18, 2013
- Training on Design and Development of Diversified Jute Products, April 23-30, 2013 at Pondicherry, India

Upcoming International Events

- Global Commodities Forum at UNCTAD, Geneva, Switzerland, March 18-19, 2013
- 1st International Conference on natural fibres University of Minho, School of Engineering Guimarães, Portugal, June 9-11, 2013
 [Source <http://www.icnf2013.com/welcome>]

Jute Bag Export Escalates Remarkably from Bangladesh in 2012-13

Due to the increasing demand in the international markets, the golden fibre products specifically jute bags and sacks- earned a remarkable growth in the current fiscal in Bangladesh compared to the last fiscal. Jute bags and sacks export witnessed 45.35 per cent growth in the first seven months this year. However, the export of raw jute in the fiscal reduced by 5.56 per cent, declining to \$136.34 million from 144.37 million in the same period last year. Rezaul Karim, former president of Bangladesh Jute Association stated that the export earnings grew from the sector because of a growing popularity of natural fibre made products abroad. Besides, the jute handicraft enjoys the government's cash subsidy against their export earnings. Some new jute bag manufacturing units were set up in the country in private sector, mainly in Dhaka, Chittagong, Khulna and Jessore region, that increased the jute bag export, he added.

According to the Export Promotion Bureau (EPB) data, the total earning from jute and jute goods marked at \$591.88 million in July-January period against \$532.43 million during the same period last fiscal. The earning is 11.17 per cent higher this year than last year. Bangladesh earned \$ 142.75 million in the first seven months of current fiscal against \$98.21 million during the same period last fiscal, according to export figure.

[Source: <http://news.priyo.com/2013/02/25/jute-bag-export-escalates-remarkably-67799.html>]

Jute Sheets to be Tested as Base Material for Roads in Karnataka, India

The Union Government of Karnataka has decided to introduce jute sheets as base material on an experimental basis in the construction of roads to be taken up under the Prime Minister's Gram Sadak Yojana (PMGSY). Union Labour and Employment Minister M. Mallikarjun Kharge laid the foundation stone for two roads of a total length of 10 km connecting Mushi Tanda with Yergol village and Bomraldoddi with the state highway leading to Raichur district on 12th February. Based on the success and longevity of the roads laid using the new technology, the Union government will extend the use of jute as base material for laying roads under the PMGSY, elsewhere. As a precaution, only 1 km of the 4-km road from Mushi Tanda to Yergol would be taken up using jute and the remaining 3 km would be laid using traditional materials, and 3 km of the 6 km road from Bomraldoddi to the State highway leading to Raichur would be laid using jute. The new roads would be completed in nine months, and the contractor has been entrusted the responsibility of maintaining the roads for five years. The new roads would be a boon to villages and tandas in the Gurmitkal Assembly constituency and provide a link to the Taluk headquarters. [Source: The Hindu, February 13, 2013].

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