

could be arrived at. It is also a matter of pride that a local jute industry has been able to tie-up a joint venture with a manufacturer of lenolium from UK by way of transferring all their technology in Bangladesh to manufacture leno fabric, required for lenolium products, so that the fabrics could be bought back by supplier of the machinery and marketed by them. The process of setting up of the machinery has already started and this will open up a new vista for further value addition for jute yarn that was being supplied by the same Company to Europe.

With the application of high technology, jute can also be converted into reasonably fine quality yarns either as 100 percent jute on blended with other fibres like cotton, viscose and polyester to produce home textile materials, to be used as curtains, bed covers, bed sheets, pillow covers, sofa covers, mattress covers, wall mats, prayer mats, dhurries, towels etc. Large quantity of such yarns have been produced by IJO with the application of a French technology and the yarn can be used both by power-loom and handloom to produce variety of products, which are comparable with cotton products, but cheaper in price for consumption by common people. Additional advantage of such technology will be that the existing jute mills will be able to take the advantage of utilising their existing back-up facilities and spin such fine yarns by introducing only a new spinning machine. With the introduction of such technology, the jute mills will be in a position to introduce a new outlet with their new products. This yarn has not only produced curtain cloths, sofa covers, bed covers etc., but has also manufacturing Jamdani cloth in combination with silk for decorative purposes. Demand for such cloth has been increasing, but we are yet to set up a manufacturing plant to supply sufficient quantity of yarn to cater to such demand. Handicrafts sector is the other area from where regular innovative and new products are coming into the market with large potential for export. We need only to exploit such opportunities with appropriate marketing efforts and earn foreign exchange on the one hand and create large-scale employment opportunities for the rural population, particularly for the women on the other.

While there are a number of other products ready for commercial exploitation, it is difficult for IJO to enter into such commercial venture without the financial support from the donor agencies or Governments or individual member countries willing to introduce such processes and technologies. It is a matter of satisfaction, that through a 3-day Investors' Forum, organised a year ago by IJO, in collaboration with the Delegation of the European Commission in Bangladesh, Ministry of Jute, Board of Investment, and Dhaka Chamber of Commerce and Industry, a large response has been received from local entrepreneurs to go for selective entrepreneurial venture for jute-based diversified products. Thirteen such projects have been short-listed and IJO has been looking for sources of finance to implement these projects as prototype for commercial exploitation. While the Delegation of the European Commission in Bangladesh itself has earmarked about US\$4.0 millions, the entrepreneurs themselves have agreed to participate with 20-25 percent of their own equity. Of the total requirement of nearly Tk.100 crores to implement these thirteen projects, more than Tk.40 crores have been mobilised this way. We are expecting the banking sector to come forward to assist with the rest of the fund to implement these projects, at the earliest possible timeframe. Needless to mention, that successful implementation of these projects will open large possibilities for replication of such projects.

Since the jute producing countries have been losing substantial amount of money both in subsidizing the farmers and in reimbursing heavy losses faced by the State sector enterprises, it will be worthwhile to consider creating a Revolving Fund with a reasonable amount of about Tk.100 crores, to extend assistance to potential entrepreneurs to venture into selective profitable jute-based diversified projects. Such financial assistance need not be given as a free grant, but could be extended as a concessional loan for the initial period to attract entrepreneurs and use the concession to overcome the initial hurdles for market development etc. It may be useful to mention, that India undertook a large UNDP project through which loan was extended to the entrepreneurs upto 80 percent at zero rate of interest for a period of seven years. The handicrafts and small-scale manufacturing sector were provided with limited amount of grant, if they could mobilize matching amount, to produce and market a variety of jute-based products. This is a time, the Government of Bangladesh should also consider similar approach at least for the initial phase of the entrepreneurship development in jute-based diversified products.

Today the IJO is launching an ambitious project to convert the entire jute/kenaf plant into paper pulp with the application of biotechnology. Successful application of biotechnology has brought in revolution in all the areas, be it in agriculture or industry. In a limited way, jute has also been using some bio-chemicals (enzyme) to soften jute cuttings, which is otherwise very hard, harsh and difficult to spin into quality yarn. With the application for such enzyme, the quality of jute cuttings has improved and the industry has been using such enzyme. The new project to be launched today at a cost of US\$1.5 million, financed partly by the Government of France, partly by the Delegation of European Commission and Government of Bangladesh, and largely by the CFC, if successfully implemented, can not only consume large volume of jute in making paper pulp, but can also make a significant savings in foreign exchange, by substituting import of pulp and paper by the jute producing countries. The experiment in making paper pulp from jute, is already on and good quality pulp and paper have also been produced by a mill in Bangladesh. Economy still remains to be a hurdle to make it a commercial success. We are hopeful, that application of biotechnological method would, help in reducing the cost of material substantially to make pulp made of jute, competitive with the soft wood pulp. Jute being an annual crop, this will again help releasing large areas of land used by pulp manufacturing unit for captive plantation.

In conclusion, IJO strategically feels that out of the total production of about 3-3.5 million tons of jute world over, nearly 2.0 million tons will continue to be used as traditional packaging material. We need to find new areas of application for the surplus quantity to bring in a structural balance in demand and supply to help stabilize price that will benefit the poor farmers. Commercial application of already developed products, processes and technologies will largely help in reducing this gap of demand and supply, while efforts should continue to develop new value added products and processes for supplementing the results already obtained. To accomplish this task, IJO needs help from its member countries, donor agencies and international funding organisations. Successful implementation of such a strategy can help jute regain its lost glory and "Golden Fibre" status.

Economic Significance of Jute



A. B. Chowdhury
Vice Chairman, Export Promotion Bureau, Ministry of Commerce

The Importance of the jute sector to the Bangladesh economy cannot be over-stated. It is a major cash crop for over three million small households, one of the largest manufacturing industry, and the most important agricultural export commodity in Bangladesh. The livelihood of almost one-fourth of the total population is dependent on jute related activities in agriculture, domestic marketing, manufacturing and trade. Even today, jute remains a major cash crop for a large number of farmers. It is also one of the largest foreign exchange earner for the country. In recent decades, demand for jute has been deteriorating in the international market due to competition from synthetic substitutes resulting in great misery for the farmers and placing the industry almost on the verge of sickness.

World production of jute, kenaf and allied fibres in 1998/99 declined sharply by 23.25% to 2.95 million tons (just below the average annual world production of 3 million tons) from 1997/98 production level of 3.84 million tons. Production has declined in the major producing countries. In India, the biggest producer of jute, production decreased to 1,530,000 tons representing a sharp decline of 21.66% from the 1997/98 level of 1,953,000 tons. In Bangladesh, the second biggest producer of jute, production in 1998/99 decreased more sharply by 31.45% to 851,900 tons from the 1997/98 level of 1,242,700 tons. Production in China dropped to 350,000 tons, a decline of 18.5%. In Thailand production decreased marginally to 101,700 tons and in Nepal production remained unchanged at 14,000 tons. India, the largest producer of jute and jute goods consumes domestically about 80% of her total production. The consumption in Bangladesh, however, is only around 20%, while 80% needs to find external market. China has become a net importer of jute/jute goods in the recent years. Similarly, Thailand does not export jute any longer, and Nepal the other minor producer of jute, also consumes the entire crop domestically. Therefore, India and Bangladesh together look for an export market of about a million tons of jute and jute goods. India does not export any raw jute and therefore, Bangladesh is the sole exporter of raw jute to various countries.

Although there has been progress both in developing new products, new process and new technologies, not much interaction has been taking place with the industries and research communities regarding the possibility of how best such new developments could be transformed into business opportunities. A whole range of new products have been developed in the last few years through a number of projects implemented by various institutions. Starting with shopping bag, the industry has come a long way and a whole range of moulded products, upholsters, curtain cloth, wood substitutes, jute reinforced thermosetting composite to produce wood substitute for furniture, windows, window frames, paneling materials, structural materials for construction activities etc., have been developed. Flexible jute bag with aluminium lining can be used in packaging tea for export and similar other products. Non-woven mat with 100% jute can replace glass fibre mats for high-tech application in the automobile sector, shoe insoles or as underlay materials. Possibility of converting the whole jute into pulp through bio-technology is very bright now and the combination of all these efforts, we believe, can bail jute sector out of the crisis that it has been facing over the last couple of decades.

Market Promotion for Jute - Role of IJO



A.K.M. Rezaul Rahman
Senior Officer(Market Promotion), IJO

In so far as market promotion activities are concerned, the IJO made all possible efforts for dissemination of information on the jute fibre and the products those are processed and manufactured from this natural fibre. It produced a number of leaflets and brochures on diversified jute products and distributed them to the end users. It participated in a number of International Trade Fairs like the DOMOTEX Trade Fair in Hannover, Germany, the TECTEXTIL Trade Fair in Frankfurt, Germany and the HEMTEXTIL Asia Floor Fair in Hong Kong and introduced the jute products to the visitors in befitting manners. A documentary film of 20 minutes duration titled "Jute and the IJO" has been produced and distributed to the member countries of the IJO with a view to giving a complete picture as to what jute is all about. In the recent past, three spots for TV advertisements have also been produced highlighting the advantages of jute over its synthetic substitutes.

The use of mineral oil based batching oil in the process of manufacturing jute bags used for packaging food grade materials has been a matter of great concern for the final consumers due to the alleged possible hydro-carbon contamination of such bags. In order to resolve the issue to the satisfaction of all concerned, the IJO organised an international workshop in February 1998 in Calcutta which was attended by the producers and buyers of the jute bags and also by end-user industries of food grade materials like Cocoa beans, Coffee beans and Shelled nuts. The workshop resulted in the elaboration of standard specifications for jute bags used in a packaging of such food grade materials, including the establishment of maximum tolerance levels for hydro-carbon residues. The standard, named 'IJO Standard 98/01' has been accepted by the International Jute Council as well as by the International Cocoa Organisation. It has since been put into a brochure and distributed to all concerned.

Biotechnological Application of Enzymes for Making Paper Pulp from Green Jute/Kenaf



Dr. G. Mohiuddin
Project Leader, IJO

The bio-pulping project has been designed incorporating the development and progress made in the different Institutes and paper mills of USA, Canada and Europe. This project will involve seven Institutes of five countries namely, BJRI and BCIC from Bangladesh, IBFC and YUANJIANG Mill from China, CPRI from India, CTP from France and ATO-DLO from the Netherlands.

There are five main components of the projects. The first component includes a set of objectives which aim at identifying and collecting microorganisms and processes currently in use and selecting suitable ones for application in jute biop-

Few Words on Diversified Jute Products Exhibition



A. Q. M. Quamrul Huda
Secretary, Ministry of Jute, Government of Bangladesh

It is a matter of great pleasure that an international exhibition on diversified jute products is being held in Dhaka from 7 to 9 October, 2000, which is being inaugurated by the Hon'ble Prime Minister, Government of Bangladesh at Hotel Sheraton, Dhaka. This exhibition bears a special significance not only for Bangladesh, but also for all other producer and consumer countries of jute and jute goods at a time when traditional jute goods are facing stiff competition from artificial fibre and synthetic products. Now time has come to change this trend through development of diversified jute products and marketing those world-wide. Development of new technologies and environmental consideration have opened up opportunities for a comeback of jute goods and diversified jute products in the global markets.

Bangladesh has taken several steps for diversification of jute products. A number of diversified jute products like geo-jute, decorative fabrics, wall covering, curtains, jute blanket, jute plastic products, jute wool, etc. are being produced and marketed both at home and abroad. The pulp and paper project of BCIC is on the verge of commercial production. On successful implementation, it will increase domestic consumption of jute in large quantity and will make huge savings of foreign exchange which is spent every year for import of pulp and paper. The increasing demand for BJMC's geo-jute in the international market is very much encouraging. Efforts are being made by BJRI for its further development.

A good number of diversified products and technologies have been identified and developed by the IJO and other concerned countries which are now ready for commercialization. A project using one such technology, namely, Bio-technological Applications of Enzymes for Making Paper Pulp from Green Jute/Kenaf will be launched on 7 October, 2000. In collaboration with IJO and EC Delegation, Dhaka, the Ministry of Jute has selected 13 new projects for investment by the private sector for diversification of jute products. Besides, potential investors from USA have shown keen interest in setting up jute fibre based composite plant in Bangladesh. I hope timely response from the entrepreneurs and effective implementation of these projects will bring more investment for diversification of jute products and will overcome the present crisis of the jute industry.

I believe, this international exhibition on diversified jute products will bring the concerned research organisations and the entrepreneurs closer for transforming research results into commercial entities. This will not only create substantial employment opportunity, but will also have positive impact on the livelihood of those related with the production of jute and jute goods in the country. I hope, the exhibition will make effective contribution to the development and promotion of diversified jute goods, and will bring a new future for jute and jute industry.

Let Us Turn The Jute Sector Into A Sunrise Industry



Shakir Uddin Ahmad
Joint Secretary, Ministry of Jute

Jute has a glorious past on account of its export demand that earned substantial foreign exchange, helping the farmers gain from this cash crop and the country from the foreign exchange earning. However, on account of the large scale use of synthetic substitutes, the market for jute both in domestic arena and in export sector has been shrinking almost everyday. The industry as such has been nick named to be a sunset industry. But it is a matter of great delight that environmental awareness is spreading across the world and has necessitated the consumer, traders and manufacturers alike to substitute products, which are not environment friendly with natural eco-friendly products. Jute being a natural annual fibre, which is biodegradable in nature and is available in substantial quantity at a relatively cheaper price, should be the most competing natural fibre amongst such substitutes for maintaining the ecology of the nature.

A number of technological development have taken place, producing new products and inventing new processes that can not only produce new range of products, but can also add substantial value for the sustainability of jute. Many such processes are now ready for commercial exploitation. Through the organization of an Investor's Forum at the IJO Secretariat, tremendous enthusiasm has been generated amongst the potential entrepreneurs for jute-based projects. Out of a large number of applications, about a dozen of them have been selected and efforts are on to ensure their entry into commercial production. One can hope, after successful implementation of these selected numbers of projects, they will be replicated in large number, to the benefit of farmers and to create new employment opportunities. Some of the technologies can be taken to the rural sector to help income generation of the people and thereby contribute to alleviation of poverty. While large number of entrepreneurs are already engaged in manufacturing a large variety of products, some emerging technologies can produce high value of products with potential for high volume consumption.

The Bangladesh Chemical Industrial Corporation (BCIC) is already using jute as a raw material for paper pulp and have fairly succeeded in achieving good quality products with reasonable yield. However, some more perfection is needed to improve upon the yield and overcome some technical hurdles, so that this could be a competitive product with the traditional raw material used for making paper pulp. It is understood that the IJO Secretariat will be undertaking a new project to apply biotechnology for converting jute into paper, which will help reduce the cost of production in comparison with other raw materials based pulp. The Bangladesh Jute Mills Corporation (BJMC) has been producing good quality jute carpet that needs aggressive marketing for creating demand all over the world. The geo-jute and the vegetable oil based food grade jute bags produced by BJMC also needs market promotion efforts for large consumption of jute.

It is a matter of satisfaction to mention that a US-based Company is seriously thinking of setting up a manufacturing plant in Bangladesh to produce jute-based composite products as structural materials to market in USA and in Europe. The target of jute consumption for this project has been placed at 100,000 MT/per year. The Government of Bangladesh will be extending all necessary facilitation to ensure smooth sailing of setting up of such kind of project. A German-Australian Company namely "Naturfaser Consulting" has already tied up with a Bangladesh entrepreneur to semi-process the jute for transferring to Europe, convert them into the moulded products and supply to a renowned automobile industry. This is a good beginning into a sector that can create large demand and high value additional to jute.

Our neighboring country India, which is also the large producer and consumer of jute, has already succeeded in producing host of high value products, like corrugated sheet to replace tin; floor board, checkered board, seat, back rest, door panel, fibre reinforced plastic assembly, fibre reinforced louver shutter, fibre reinforced glass shutter, roof sheet, decorative laminates, garden fences, shuttering ply, street lamps, gate lights, letter box, toilet doors, swings and garden accessories, pool side chairs, garden furniture, garbage collector, planters, post box, sign board, partition wall, kitchen/bath room cabinet, moulded jute-thermoplastic pellet, jute-polypropylene moulded products, resin transfer moulded products, jute and jute blended yarns, fabric bed sheets, bed covers, shoe uppers, soft luggage, felt board, jute coir veneer products and false ceiling board from jute sticks. These products will have domestic and international markets. Bangladesh should also venture into setting up such manufacturing units at the earliest, if necessary, in technical collaboration with India and technology suppliers from other European countries.

India could have such a breakthrough on account of a large UNDP assistance, amounting to US\$ 20.0 million with a matching fund from the Government of India that was launched sometime in 1992. It is time for the Government of Bangladesh to consider to create such fund with reasonable amount of seed money to associate the entrepreneurs at the initial stage to overcome the teething problem. The banks should also come forward to help such new generation of entrepreneurs, who are converting the sun set industry into a sun rise industry with introduction of such new products, processes and technologies.

The Government may also think of setting up of an industrial park for diversified jute products with introduction of all such processes that will accelerate the process of growth of the sector and facilitate generation of employment opportunities and earning of foreign exchange.

Role of IJO in Agricultural Development of Jute and Allied Fibers (JAF)



Dr. Aimin Liu
Agriculture Office, International Jute Organisation

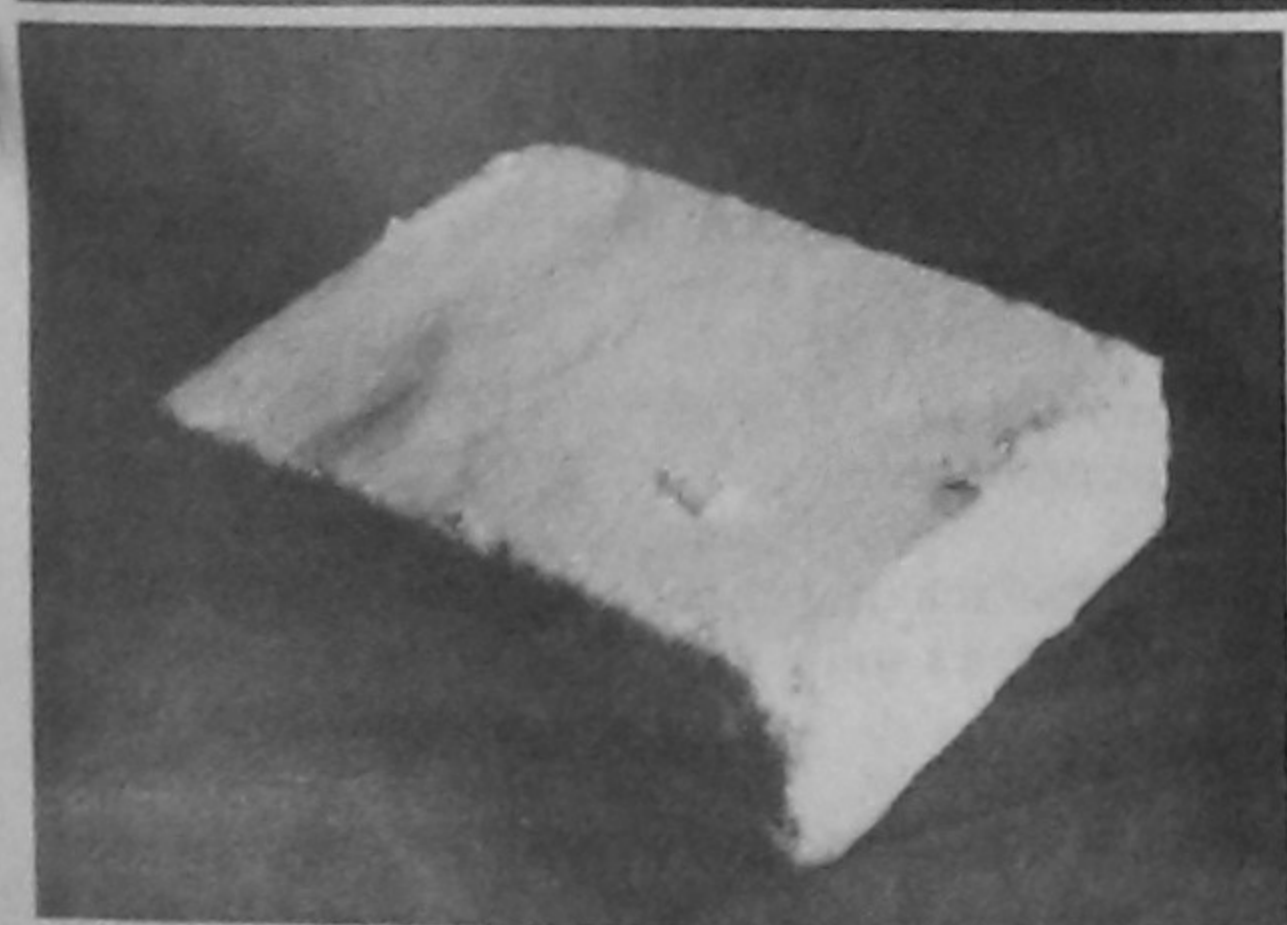
Through one and half decade's efforts, IJO has established a network of agricultural R&D among JAF producing countries involving scientists and experts from different fields of agricultural research. This network has proved to be efficient and effective in implementing the IJO-sponsored projects in the areas of improvement in production, cost reduction, application of biotechnology, environmental assessment, and harvest and post-harvest technologies.

With the largest JAF germplasm repository containing about 6,000 accessions of JAF crops, scientists have been able to develop JAF varieties with improved agronomic traits. IJO has assisted project participating countries in releasing a number of JAF varieties, which has replaced traditional varieties and are being adopted by farmers in large areas. Recently, under IJO project "Application of Biotechnology in the Improvement of Jute, Kenaf, and Allied Fibers - Phase II", scientists in Biotechnological Research Center, Chinese Academy of Agricultural Sciences, has successfully produced the first transgenic kenaf plant by transforming the nematode-resistance genes into kenaf. This breakthrough has laid foundation for biotechnology application in JAF for production improvement and revealed the potential of expanding kenaf cultivation to arid and semi-arid lands. Seed production, retting technology, and sustainable production of JAF were also among IJO's agricultural focus, which have led to the development of jute seeder and weeder, and various retting technologies. JAF agricultural development initiated and carried forward by the IJO in the past 15 years have contributed significantly to jute producing countries in terms of strengthening their research capability and facilities and training manpower.

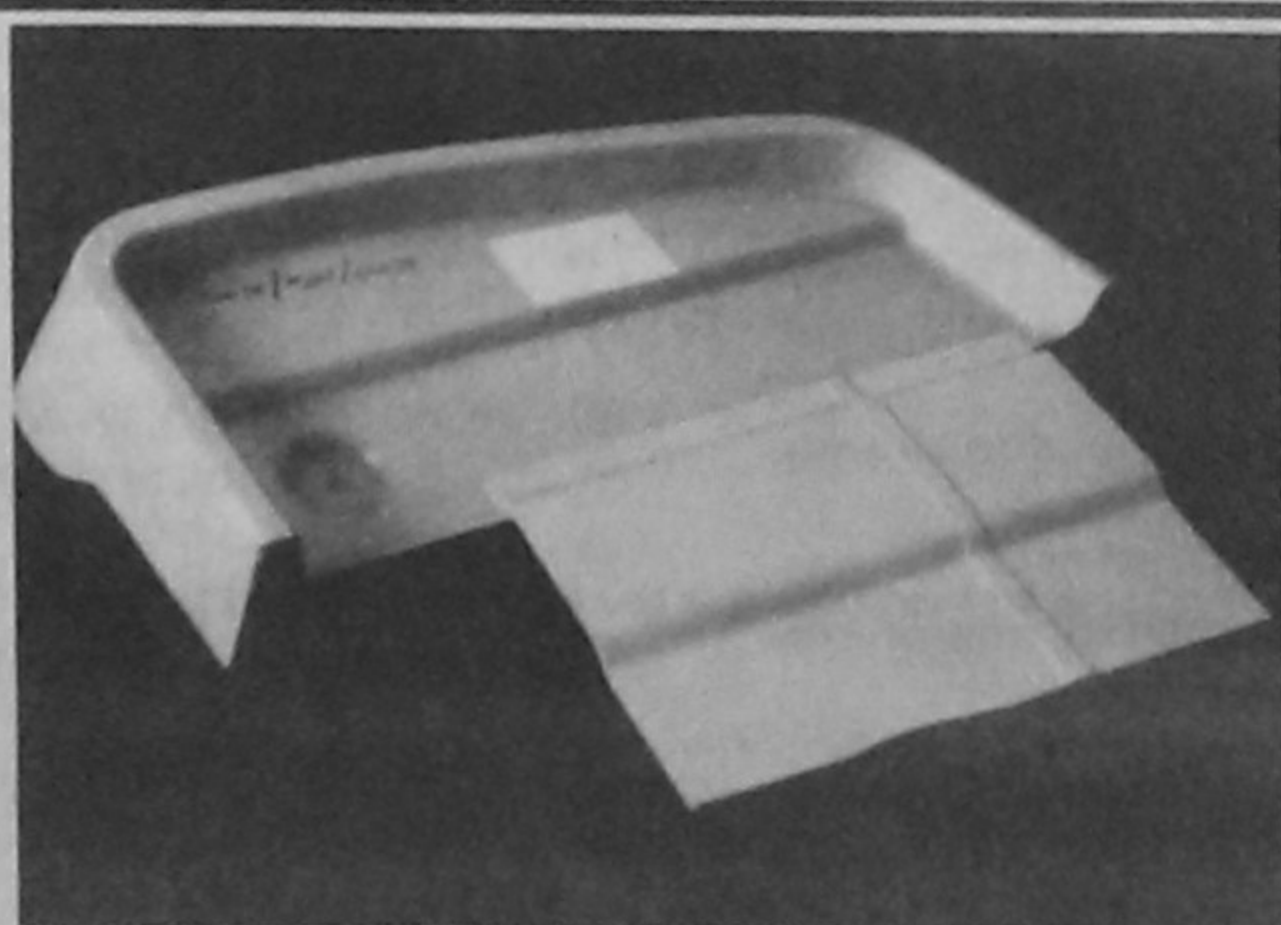
Implementation of a series of JAF agricultural projects/activities has resulted in collection and accumulation of a large quantity of research data, which has made IJO a very unique and strong authority in JAF agricultural development in the world. The IJO has made efforts to disseminate these information to IJO member countries through holding workshops, training courses and project coordination committee meetings. The printing and distribution of a number of technical reports and proceedings by the IJO have played an important role in guiding national JAF R&D programs and received positive feedback from IJO member countries.

ulping on the basis of comparative studies of different microorganisms. The second component envisages to develop most suitable enzymes for bio pulping and bio bleaching and to apply the same for preparing handsheet at Bangladesh Chemical Industries Corporation (BCIC), Agro-technological Research Institute (ATO-DLO), and Central technique du papier (CTP). The third component will be concerned with the management of black liquor produced during pulping and an effluent generated during bleaching and finds suitable methods for storage of green jute. The fourth component is large scale trial application of enzymes in different mills to determine the physical characteristics of pulp and paper and to evaluate and compare the results. Large scale production of enzymes at IJO enzyme plant and trial application at BCIC, CTP and ATO-DLO. Large-scale trials for production of pulp and paper will be carried out with the most suitable process at BCIC, CPRI and Yuangianj mill. The fifth component is the dissemination of results and completion of the project.

IJO has rightly taken the initiative to cope with the demand of present day world. We are very much hopeful that if this project is successfully completed then new vista of horizon will open up for diversified use of jute. This will not only make a break through in the jute sector but it will protect our forest resources and make environment friendly products in a cost effective way.



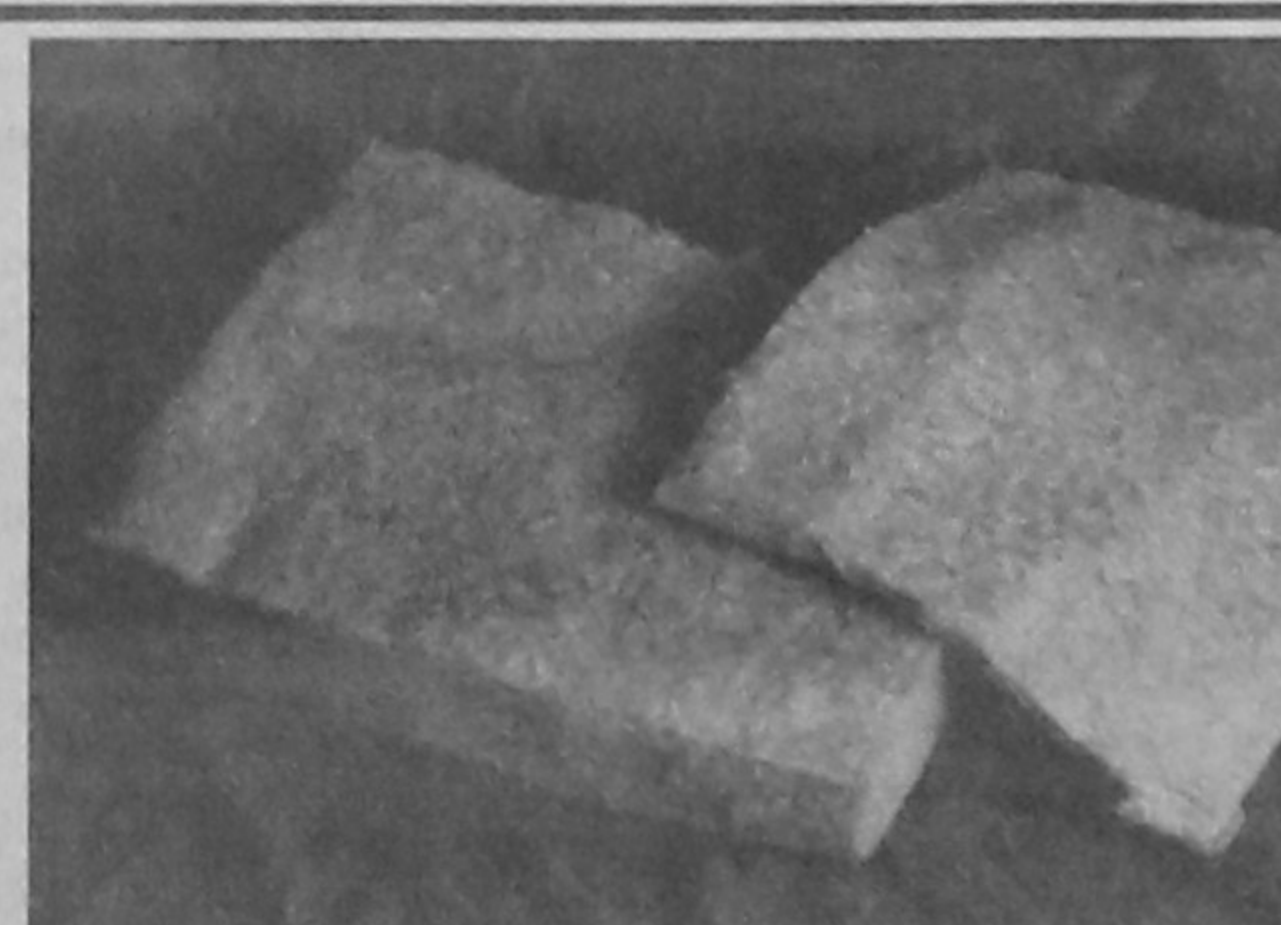
Paper Pulp made of Green Jute



Automobile Parts made of Jute



Door made of Jute



Insulation Materials from Non-Woven Jute



Garden Furniture made of Jute