I am extremely delighted to publish this issue of IJIRA half-yearly Newsletter (Vol. 5, Issue No. 2) amidst the ongoing programmes to celebrate our Platinum Jubilee this year. The programmes are designed not only to highlight R&D achievements that IJIRA has attained, but also to strengthen our cordial bond with jute industry and academia.

Platinum Jubilee Celebrations of IJIRA will be spread throughout the year and will comprise of international seminars, several workshops and technological awareness programmes on different areas of jute product development and diversification with their associated challenges. Our long meaningful and committed association with the jute industry was obtrusively evident at the inaugural ceremony held on 12th April, 2013 at IJIRA Conference Room. The programme was presided over by the Hon’ble Jute Commissioner and attended by the Secretary, National Jute Board as the Chief Guest and other distinguished luminaries from industry, academia and research bodies. Hon’ble Jute Commissioner also inaugurated the newly-designed website of IJIRA. Two technical conferences have been successfully organized so far in association with the National Jute Board – one on 19th April, 2013 held at the Conference Hall of Bengal Chamber of Commerce & Industry, Kolkata on Jute Thermoplastic Composite for Automotive Application and the other on 24th May, 2013 at the auditorium of the Indian Chamber of Commerce, Kolkata on Recent Developments in Natural Fibre based Technical Textile.

IJIRA has successfully completed six R&D projects sponsored under the Jute Technology Mission (Mini Mission – IV, DDS 7.1) by the National Jute Board, Ministry of Textiles, Govt. of India and two more projects sponsored by the Office of the Textile Commissioner, Ministry of Textiles, Govt. of India. IJIRA has also successfully completed the project 'TQM & Productivity Improvement', sponsored by NJB under JTM/Scheme 6.3, at Howrah Jute Mill.

IJIRA has once again been entrusted with inspection and quality testing of relief materials by the Department of Disaster Management, Government of West Bengal, for the year 2013-14. On the current note, training programmes under Integrated Skill Development Scheme, Govt. of India have been continuing to generate skilled labour and artisans for the jute and allied fibres sector including North Eastern Region of India.

Dr. Prabir Ray, Director, IJIRA, director@ijira.org
**Platinum Jubilee Celebration**

IJIRA has completed a dedicated and glorious journey of 75 years in rendering services to the Indian jute industry. To mark the achievement of the organization, it has been decided to have a yearlong Platinum Jubilee Celebration. The celebration started with an Inaugural Ceremony on 12th April, 2013 at IJIRA which was inaugurated by Dr. Subrata Gupta, IAS, Hon’ble Jute Commissioner.

**Inaugural Ceremony**

The inaugural ceremony of Platinum Jubilee Celebration of IJIRA was attended by various dignitaries like Shri Arijit Banerjee, IFS, Secretary, National Jute Board, Smt. Arti Kanwar, IAS, Deputy Jute Commissioner, Shri Raghavendra Gupta, Chairman, Indian Jute Mills Association, Shri D.C. Baheti, Chairman, IJIRA, Director, NIRJAF, Dr. Prabal Roy, former Group Chief Executive (Textiles), Arvind Ltd. and many more dignitaries from industry, academia and government bodies. A keynote address was delivered by Dr. Prabal Roy on *Impact of R&D on Textile Industry*. The newly morphed IJIRA website was launched by Hon’ble Jute Commissioner.

![Lighting of the lamp by Hon'ble Jute Commissioner at the Inaugural Ceremony](image)

Speech by Shri Arijit Banerjee, Secretary, National Jute Board

Keynote speech by Dr. Prabal Roy
One Day Seminar

1. First one day seminar of Platinum Jubilee Celebration on "Jute Thermoplastic Composite for Automotive Application" was organized on 19th April, 2013 at Bengal Chamber of Commerce and Industries (BCCI), Kolkata. Shri Arijit Banerjee, IFS, Secretary, National Jute Board chaired the technical session of the seminar. Smt. Arti Kanwar, IAS, Deputy Jute Commissioner, Shri Manish Poddar, Chairman, Indian Jute Mills Association and representatives from Jute Industry Research organizations and government bodies were also present. Shri Somen Das (IJIRA) delivered a speech on "Different fabrication process of composite", followed by speech on "Recent Development of Jute-PP Granules and its Possible Application" by Shri P. B. Raman, Advisor and Shri E. Srinivasan, Executive Director of M/s Steer Engineering Pvt. Ltd. An interactive session was held between jute industries and vendors of automobile sectors.
2. Second one day seminar of Platinum Jubilee Celebration on "Recent Developments in Natural Fibre based Technical Textile" was organized on 24th May, 2013 at Indian Chamber of Commerce, Kolkata. Many stalwarts from the Jute Industry, Research Organizations and Govt. bodies also participated in the occasion. The first technical session of the program, chaired by Dr. Subrata Gupta, IAS, Jute Commissioner, comprised of three technical presentations delivered by Shri M. K. Talukdar, Shri Palash Paul (IJIIRA) and Shri A. Mayekar. In the post-lunch session, chaired by Shri Arijit Banerjee, IFS, Secretary, National Jute Board, two more presentations were delivered by Shri U. Gangopadhyay (SASMIRA) and Dr. S. Mukhopadhyay (IIT, Delhi) on various aspects of jute & natural fibre based technical textiles. Valedictory speech was given by Shri D. C. Baheti and interactive discussion was held between participants of jute industry and speakers.
**R & D Highlights**

1. **Multifunctional ceramic based nano-finishing of outdoor textiles by sol gel technique**  
   *(Sponsored by the Office of the Textile Commissioner, Ministry of Textiles, Govt. of India)*

Application of ceramic materials on textile substrate improves the performance properties of the substrate. TiO₂ and ZnO are found to be very effective compound to import multiple functional properties when applied on textile materials in the nano form. A novel aqueous based method has been developed by IJIRA for application of nano titania on fabric surface. Nano titania finished fabrics via this method on cotton, jute and their blend showed *hydrophobic property*, *UV- resistant property*, *self-cleaning property* and *anti bacterial property*. However, titania finished polyester and nylon fabric exhibited UV-protection and anti-bacterial properties only. In situ application of ZnO on fabric surface in aqueous medium also imparts antibacterial property, UV-protection property and limited hydrophobic property. Such properties imparted by nano finishes are desirable for outdoor textiles. Using nano finishing, a breathable UV-protective, water proof tent has been made, out of natural textile with expected superior thermal insulation value.

![Water repellency of Nano-Titania coated jute](image1)

![SEM micrograph of Nano-Titania coated jute](image2)

![Nano-Titania finished tent with multi-functional properties](image3)
2. Development of technology for manufacturing of Ramie based Product (Sponsored under Jute Technology Mission, MM-IV, DDS 7.1)

Ramie, the strongest bast fibre, is considered as one of the valuable textile entity. Despite its unique characteristics, ramie has received reasonably less importance specially in the Indian subcontinent due to unavailability of appropriate post harvesting and processing technologies. As a sustainable alternative, a user friendly degumming technology has been developed recently at IJIRA exploring bio-technological (enzymatic) route. Also, a suitable industrial processing system has been identified to manufacture Jute-Ramie blended fine yarns without much alteration in existing industrial jute spinning. The fabrics developed with jute-ramie blends are superior in quality compared to available blended jute fabrics and could be potentially utilized as value added home textiles. Thus ramie could make an in-road in Indian domestic textile business.

Project completion

Six projects sponsored by the National Jute Board under Jute Technology Mission, (Mini Mission IV, DDS 7.1) have been completed by IJIRA and final completion reports along with technical brochures have been submitted. Two projects sponsored by the Office of the Textile Commissioner, Ministry of Textiles, Government of India have also been completed and evaluated.

Other sponsored R&D activities

1. Jute Thermoplastic Composites for automotive and other continuous profile applications

Modified jute polypropylene granules have been produced for fabrication of automotive components for better impact strength. One of the formulations was tried for fabrication of Dash Board Centre of LCV at M/s Mutual Industries, Silvasa (first tire vendor of Ashok Leyland). Ashok Leyland has shown interest on further development.
2. Development of pre-fabricated vertical jute drain (PVJD)

National Jute Board has undertaken a project on development of PVJD in collaboration with IJIRA and University of Wollongong (UoW), Australia. IJIRA has designed and developed a PVJD and field trial of 40,000 liner meter of PVJD is currently underway in collaboration with UoW.

3. Automatic control of emulsion wastage in softener machine

Successful trials at Gourishankar Jute Mill and Naihati Jute Mill have been carried out on "Automatic emulsion control system" developed by IJIRA. Technical brochures have been distributed to all jute mills, highlighting the control of emulsion wastage and payback of the system. Ganges Jute Mill, Kamarhatty Jute Mill, Hastings Jute Mill and East India Commercial Co. Ltd. have put request to IJIRA for automatic emulsion control unit.

4. Commercial application of specially designed treated woven Jute Geo-textiles (JGT) in river bank protection

Durable Jute geotextile suitable for river bank protection has been developed by IJIRA & life prediction of specially treated woven jute geo-textiles (627 gsm, 20 kN/m), under combined soil and water ambience has been carried out. For river bank protection, commercial production and treatment of woven JGT has been carried out at Gloster Ltd. and Agarpaha Kutir Silpa Pratishthan, Kolkata. Field level evaluation of specially treated woven jute geo-textiles is in progress at the bank of the river Bhagirathi near Shantipur, West Bengal in association with National Jute Board & State Irrigation and Water Ways Department, Govt. of West Bengal.

Ongoing Activities at Jute Mills

1. Machinery compliment of Indian Jute Sector

To ascertain the present level of modernization and also the effect of various Government subsidiary schemes for technology up-gradation, productivity improvement etc., the Office of the Jute Commissioner entrusted IJIRA to carry out a detailed study on the new machinery installed in the jute industry on the basis of physical verifications at the manufacturing units. A similar study was conducted by IJIRA in the year 2000-01, after which Govt. of India initiated modernization programme for jute sector through Jute Technology Mission. It is now pertinent to review the present status of the total jute processing machinery, inclusive of modern ones, on the basis of which the imperatives for further development in this regard may be identified for making the industry technologically capable to meet indigenous and global requirements for quality and cost of jute products. Out of sixty identified jute mills, work has so far been completed in 25 mills.
2. Lubrication system for the weaving section at Naihati Jute Mill

IJIRA has initiated a study to review the lubrication system of the weaving machines in Jute sector. IJIRA carried out detailed observation regarding the type of lubricants used, lubrication schedule, procedure of material handling, equipments for lubrication, amount of lubrication, time spent for lubrication etc. at Naihati Jute Mill. Accordingly, a guideline has been provided to the mill, highlighting the correct lubrication practice to get a better machine performance with less wear and tear and effective utilisation of lubricants with minimal wastage.

**IJIRA- INDUSTRY MEET**

Under the initiative of Hon'ble Jute Commissioner, an elaborate interaction was held with distinguished personnel of jute industry at Williamson Magor Hall, Bengal Chamber of Commerce and Industries on the 19th March, 2013, organized by IJIRA in association with National Jute Board. IJIRA Scientists presented their ongoing R&D activities and future R&D initiatives. Proposal of Centre of Excellence for Jute sector and proposal for Platinum Jubilee Celebration of IJIRA had also been elaborated. Senior industry personnel put some suggestions on the proposed R&D projects and proposal of Centre of Excellence.

**Other ongoing programmes of IJIRA**

**Training programs under ISDS**

Five training programs such as (a) Jute mill workers' training in Ambica and Gloster Ltd., (b) Jute mill supervisors' training in Wellington, Hukumchand, Ambica and Kelvin Jute Mill, (c) Training program in bleaching and dyeing of cotton and silk in Ushagaram, West Bengal and in Guwahati, Assam, (d) Training program in garment manufacturing in Guwahati, Assam, (e) Training program in manufacturing of jute bags and accessories in Guwahati, Assam have been completed and a total of 618 persons have been trained during last six months under Integrated Skill Development Scheme (ISDS) of Ministry of Textiles, Govt. of India.
Buyer – Seller Meet in North Eastern Region

Two programmes of "Buyer-Seller Meet" were organized at Aizawl, Mizoram and Guwahati, Assam respectively. The program at Aizawl, was organized on 4th - 6th Feb, 2013 by PDEXCIL, Mumbai and Regional Office of the Textile Commissioner, Kolkata and supported by Powerloom Service Centre-cum-North East Regional Centre, IJIRA, Guwahati while, the program at Guwahati, was organized by Regional Office of the Textile Commissioner, Kolkata in association with Powerloom Service Centre-cum-North East Regional Centre, IJIRA, Guwahati on 22nd – 25th March, 2013.

Mr. Th. Basanta Singh, Technical Officer, IUIRA speaking at Buyer-Seller Meet at Aizawl, Mizoram
Programme under Directorate of Disaster Management

IJIRA has successfully rendered service to Directorate of Disaster Management, Government of West Bengal by testing and inspecting bulk scale relief materials (clothing and garments), for the year 2012-13. IJIRA has once again been entrusted with this quality assurance program for the year 2013-14.

Publications

International Presentation


National Papers


Special Visits


2. Twenty-five weavers from PDEXCIL, Power loom Association, Tamil Nadu, came on an exposure visit on the 30th of January, 2013 and got exposure mainly in jute weaving and processing at IJIRA pilot plant.

3. Six membered delegation from Bangladesh led by Joint Secretary, Ministry of Textiles and Jute, Government of People's Republic Bangladesh visited IJIRA on 1st February, 2013 and interacted with Scientists and Technologists of IJIRA on various issues of diversification of Jute products and green technologies developed by IJIRA for Jute sector.

4. Mr. Anjani Prasad, Global Head, Clariant, Mumbai visited IJIRA on the 28th of February, 2013 and discussed the upcoming textile finishing treatments in chemical processing of jute with IJIRA scientists.

5. Dr. Asha Khembhavi on behalf of Novozymes South Asia Private Limited, Bangalore, visited IJIRA on the 7th March, 2013 and discussed on a proposed research program on "Enzymatic Retting of Jute Ribbons/Plants", with IJIRA Scientists and senior representatives of the Office of the Jute Commissioner and Jute Corporation of India.

6. Mr. Sujoy Ghosh along with a team of Sahara India Jute Project visited IJIRA on the 11th March, 2013 and had detailed interaction with IJIRA scientists about their jute development project at Araria, Bihar and was seeking for technical assistance from IJIRA on product diversification.

7. Ninety-five students of Kerala Agricultural University paid visit to IJIRA on 1st April, 2013 and interacted with IJIRA Scientists and Technologists.

8. Shri. Arijit Banerjee, IFS, Secretary, National Jute Board visited IJIRA on the 2nd April, 2013 and interacted with IJIRA Scientists regarding ongoing R&D activities of IJIRA and its future R&D initiatives.
Obituary: Dr. Amal Kumar Mukherjee, ex-Director, IJIRA left for his heavenly abode on 2nd July, 2013. In his demise, IJIRA has lost one of its eminent Research personnel. May his soul rest in peace!