LIST OF PUBLICATIONS OF DR. SWAPAN KUMAR GHOSH, ASSO. PROF.

(A) Books and Manuals Authored / Co- Authored /Complied by Dr. Swapan Kumar Ghosh

1. Training Manual/Book on ***"Short Course on Handloom Weaving and Woven Design of Jute and Jute Diversified Products"*** By Ghosh .S.K. & Ray. S. C. This Manual/ Book brought out by IJT in July, 1994, in its UNDP-GOI sponsored project on HRD for Jute Sector, 1993-1998**.**

2. Co- author of ***Training Manual on "Awareness and Jute Product Manufacturing Processes"*****,** at IJT, with other faculty for the four Modules of Training Programme for the staff of the Office of Jute Commissioner office on December 1997.

3. Co-author of Training Manual on ***Jute Processing for Workers of Jute Mills***: Volume – B (Part – B1 to B4): Factory side (jute winding to jute sack sewing & finishing). Published by IJT on August, 2002.

4. Co-author of ***Technical Handbook on Jute Processing Part-2*** (Factory Side), for jute mills Supervisors published by IJT on August, **2002.**

5. Author of training manual for "***Weaving Line Sardars' "*** of Jute Mills (Bengali & English& Hindi). Part – D1: IJT has published English version in March, 2003, Bengali version in August, 2003, and Hindi version in October, 2003**.**

6. **Compiled & Edited/Co-Edited Five Books of Papers as follows** :

   (a) National Convention of Textile Engineers and All India Seminar on **"*Sustainable Developments of Jute and Textile Industry*"**, held at Kolkata, on 26-27th March, 2004.

   (b) National Seminar on **"*Innovative and Diversified jute products*"** held on 16-17th March, 2005.

   (c) All India Seminar on **"*Exportable Jute and Textile Products*"**, on 29th March, 2006.

   (d) All India Seminar on **"*Technical Textiles in Civil Engineering*"** held on 13-14th Sept, 2007.

   (e) All India Seminar on **"*Challenges in Technology and Market Development for Jute and Other Natural Fibre Industry*"** held on 13-14th November, 2009.

   All the above seminars were organized by Textile Engg. Division, WBSC, IE (I).

7. Co-author of Book of Lecture Note on **"*Testing and Inspection*"** for training for the staff of the Jute Commissioner Office, 2004. This Book of Lecture brought out by IJT in June, 2004 in its UNDP-GOI – CCF-1sponsored project on HRD for Jute Sector, 2000-2005**.**

8. Co- author of **Training Manual on "*Maintenance for Factory Side Machinery of Jute Mills*"** (jute winding to jute sack sewing & finishing) Part-C2 (in English), published by IJT on April, 2006.

(B) Research Publications/Seminar and Conference Paper etc. of Dr. Swapan Kumar Ghosh

1. Ghosh, S.K., Samanta, A.K., Sur. D, Chattopadhay, D.P., and Mondal, S.N. ***"Some studies on mechanical properties and atmospheric dyeing of solvent pretreated polyester multifilament yarn",*** Indian Journal of Fibre and Textile Research.Vol.20, March,1995, Pp.-23-26

2. Ray, P. and Ghosh, S.K. ***"Winding of Jute Yarns",*** Book on Yarn Winding Published by "Nodal Centre for Upgradation of Textile Education", I.I.T, Delhi on March 25. 1999, Pp.-122-127

3. Ghosh, S.K. and Samanta , A.K. "***Productivity Improvement in Loom Shed***", Proceedings of International Workshop on Productivity Improvement of Jute Industry, Organized by International Jute Study Group, Dhaka, Bangladesh, held on 6-7th December, at IJSG-Auditorium, Dhaka.2003, Pp. - 1-33.

4. Bhattacharyay, S., Ghosh, S.K. and Samanta, A. K. "***Scope of Product Specific Applications of Jute in Diversified Sector***". Proceedings of the 5th All India People's Technology Congress held at Science City Auditorium, Kolkata, on 19-20th Feb. 2005, Pp. - 33-40.

5. Ghosh, S.K., Samanta, A. K ., and Bhattacharyay, S. "***High Potential Jute Diversified Products in Rural Sector : Product Specific Applications***", Proceedings of 18th National Convention of Textile Engineers and National Seminar on Innovative and Diversified Jute Products, held at Sir R N Mookerjee Hall, WBSC, IE (I), on 16-19th March.2005, Pp.-1-7.

6. Ray, S.C. and Ghosh, S.K. "***Production of Jute Diversified Fabrics in Handlooms and Power looms***", Proceedings of 18th National Convention of Textile Engineers and National Seminar on Innovative and Diversified Jute Products, held at Sir R. N. Mookerjee Hall, WBSC, IE (I), on 16-19th March, 2005, Pp.-15-20.

7. Bhattacharya ,B. and Ghosh, S.K. "***Design and Analysis of Geosynthetics: A Case study for geotextile encapsulated fly ash method for shore protection***", Proceedings of All India Seminar on Exportable Jute and Textile Products held at Sir R N Mookerjee Hall, WBSC, IE (I), on 29-30th March, 2006, Pp.-29-30.

8. Bhattacharyay, S., Ghosh, S.K. and Chatterjee, S.M. "***Ready Reckoner of an Export Oriented Spinning Unit through a complete Software Package***", Proceedings of All India Seminar on Exportable Jute and Textile Products held at Sir R N Mookerjee Hall, WBSC, IE (I), on 29-30th March, 2006, Pp. -11-15

9. Ghosh, S.K. and Dutta, M. "***Geosynthetics – Its functional properties and potential applications***", Journal of The Institution of Engineers (India)-Textile Engineering Division, Vol.-87, Pp.-8-9, August, 2006.

10. Ghosh, S.K. and Samanta , A.K "***An investigation of productivity in few jute mills of India and Bangladesh and suggested measures for productivity improvement in weaving section***", Journal of The Man – Made Textiles in India, Pp- 382 – 402, October, 2006

11. Ghosh, S.K., Choudhury, P.K. and Bhattacharyay, S. "***Seam Performance of Jute Bags made from Jute Fabrics with Non – conventional Selvedge Produced in Shuttleless Looms***", Journal of The Institution of Engineers (India)-Textile Engineering Division, Vol. – 87, Pp.- 16 – 22, 26th February, 2007.
12. Ghosh, S.K., Choudhury, P.K. and Sanyal, T. "***Jute Geotextile –Its Properties and Comparative Evaluation***", Proceedings of Workshop on Application of Geotextiles- Present and Future, Organized by Central Board of Irrigation and Power (CBIP), Govt. of India, Pp.-100-110, 20-21st September, Gujarat, 2007.

13. Ghosh, S.K ., Bose, G., Roy, A. N. and. Bhattacharyya, S. K "***Construction of Unpaved Rural Road Using Jute-Synthetic Blended Woven Geotextile Fabric- A Case Study***", Proc. of Workshop on Application of Geotextiles- Present and Future, Organized by Central Board of Irrigation and Power (CBIP), Govt. of India , Pp.-122-137, 20-21st September, Gujarat, 2007.

14. Ghosh, S.K., Bose, G., Roy, A.N. and. Bhattacharyya, S.K "***Development and Manufacturing of Jute – Synthetic Union blended Geotextiles fabric for river bank protection***", Proc. of All India Seminar on Technical Textiles in Civil Engineering, Organized by W. B. State Centre of The Institution of Engineers (India), Pp.-44-45, 13–14th September, Kolkata, 2007.

15. Ghosh, S.K. and Bhattacharya, B. "***Application and Scope of Geosynthetic and Geojute Tubes***" Proc. of All India Seminar on Technical Textiles in Civil Engineering, Organized by W. B. State Centre of The Institution of Engineers (India), 2007, Pp.-66-69, 13–14th September, Kolkata, 2007.

16. Ghosh , S.K., Ray, P. and Mukherjee , A. "***A Critical Review on Quality Control and Testing of Jute Geotextiles***", Proc. of Int. Workshop on Jute Geotextiles - Technical Potential & Commercial Prospects, Organized by International Jute Study Group (IJSG), Dhaka, Bangladesh, Pp.-120-137, 5–6th April, Kolkata, 2008.

17. Ghosh S.K. and Ray, P. "***Potential Application of Jute Geotextile (JGT): Its Testing and Quality Assessment***", Proc. of All India Seminar on "Challenges in Technology and Market Development for Jute and Other Natural Fibre Industry" held on 13-14th November, 2009, Organized by W. B. State Centre of The Institution of Engineers (India), 2009, Pp. – 12 – 13, 13-14th November, Kolkata, 2009.

18. Bose, G., Ghosh, S.K., Roy, A.N. and Bhattacharyya, S.K. "***Construction of Unpaved Rural Road Using Jute-Synthetic Blended Woven Geotextile Fabric- A Case Study***", Accepted on 14th March, 2009 by the journal of Geotextiles and Geomembranes and published on 7th August 2009 / J. Geotextiles & Geomembranes /.2009.03.004, An 'Elsevier' publication, USA. Pp. - 503 – 512, 7th August 2009 / 27 (2009), 506 -512.

19. Ghosh, S.K, Ray, P., Sahu, R.B. and Mandal, S. "***Studies on Effects of Process and Machine Parameters for Dimensional and Functional Properties of Low Performance Jute Based Needlepunched Nonwoven Geotextiles and their Optimization***", Journal of The Institution of Engineers (India) - Textile Engineering, October, 2010. (Communicated)

20. Ghosh, S.K, Ray, P., Sahu, R.B. and Mandal, S. "***Studies on Effects of Process and Machine Parameters for Dimensional and Functional Properties of Medium Performance Jute Based Needlepunched Nonwoven Geotextiles and their Optimization for Civil Engineering Application***", Indian J. Fibre Text. Res. 2010. (Communicated)

21. Ghosh, S.K, Ray, P., Sahu, R.B. and Mandal, S. "***Recent Developments in Design of High Performance Jute Based Needlepunched Nonwoven Geotextiles for Civil Engineering Application***", Man - Made Textiles in India, SASMIRA, Mumbai, 2011. (Communicated)

22. Ghosh, S. K., Sanyal, T., Mondal, M.M. and Bhattacharyya, R. "***Testing of Jute Geotextiles – Issues and Suggestion***" Proc. of National Seminar on "Geo-techniques for Construction Design and Performance of Structures" held on 9-10th September, 2011. Organized by, Indian Geotechnical Society, Kolkata Chapter, Pp 47-51.

23. Ghosh, S. K., Sanyal, T.,.Mondal, M.M. and Bhattacharyya, R, "***Design and Development of Woven Jute Geotextiles for Applications in Road Construction"***, Proc. of Annual Convention of 26th Indian Engineering Congress, Bangalore, held on 15-18th December 2011. Organised by The Institution of Engineers (India).

(C) Research and Other Projects Carried Out By Dr. Swapan Kumar Ghosh

As a Chief Project Co-ordinator/ Principal Investigator/Project Co-ordinator

Sl. No	Name of the Project	Name of the Funding Agency	Sanctioned fund	Duration	Remarks
01.	Studies on Nonwoven Jute Geotextile to be used for Asphalt Overlays on Unpaved and Paved Roads	All India Council for Technical Education (AICTE). Govt. of India.	15.50 lakhs	2 Years (2003-2005)	This project is completed. An innovative bituminized nonwoven jute geotextile was developed. Apart from this, A new geotextile testing Laboratory has been developed and a good amount of revenue is being generated by testing services.
02.	Engineering Suitable Overlay Fabrics to Serve as Cheaper Substitute of Bitumen Mastic	Under National Programme of Jute Technology Mission, through NJB (JMDC) , MOT, Govt. of India	65.00 lakhs	4 years (2008-2012)	Research work is under progress in collaboration with CRRI, New Delhi to develop suitable jute based paving geotextile / paving fabric to be used as a substitute of bituminized mastic for road construction.
03.	Development and Application of Potentially Important Jute Geotextiles	Under Common Fund for Commodities (CFC), Netherlands, to be implemented by National Jute Board, MOT, GOI, & Dept. of Jute & Fibre Technology , IJT, Calcutta University, & BESUS, & IJIRA in India along with BJRI , BUET at Bangladesh	14.40 lakhs	5 years (2010 – 2014)	Research work is under progress in collaboration with NJB & BESUS to develop suitable jute geotextile products for different field applications and simultaneously different trials to be started very soon.
04.	ISDS Projec	Ministry of Textiles, Govt. of India	26.50. Cr.	5 years (2011 – 2016	Training programme for workers of Jute Mills has been started in two centers apart from this starting of training programme for workers of Jute Mills in other ten centers are in Progress. Training programme for Junior Level Supervisors of Jute Mills will start at the Department from 9th Jan. 2012.

Current Status of Ongoing R&D Project Work:

01. JTM R&D Project No. 14 entitled **"Engineering Suitable Overlay Fabric to Serve as a Cheaper Substitute of Bitumen Mastic"**

Objectives:

- Development of an innovative and cost effective Grey Jute Paving Fabric (GJPF) with a suitable combination of woven and nonwoven jute fabric.
- Preparation of final Bitumen impregnated Jute Paving Fabric (BJPF) with developed Grey Jute Paving Fabric (GJPF) as a cheaper substitute of mastic asphalt which is nowadays used in roads.
- Assessment of the functional performance of the developed BJPF in a recognized laboratory [Central Road Research Institute (CRRI), New Delhi] before field trials under suitable conditions that can withstand the moving loads expected on different categories of roads (e.g. State Highways, Major District Roads and Rural Roads etc.) and standardization of the same.
- Undertaking field trials on operational roads with different traffic intensity for assessment of the end – use performance of the BJPF as per existing National and International Standards in association with Central Road Research Institute, New Delhi.
- Dissemination and transfer of technology (Industry Personnel, Researchers, Students and End - users) on development and application of BJPF in roads.

Deliverables:

- Development of different optimized suitable Grey Jute Paving Fabric (a combination of Woven and Nonwoven Jute Fabric) for use in roads (State Highways, District Roads, Municipality and Corporation Roads along with Rural Roads etc.) as an effective surface overlay fabric.
- Standardization and optimization of process parameters along with machine parameters for bulk production of Grey Jute Paving Fabric.
- Identification of the most suitable type and grade of bitumen for application on the developed Grey Jute Paving Fabric.
- Optimization of the most effective and suitable bituminized jute paving fabrics to be used as an overlay fabric in roads.
- Optimization and Standardization of process and machine parameters for bitumen application on Grey Jute Paving Fabric.
- Cost analysis of the bituminized paving fabric and comparison with mastic asphalt to assess the techno-economic viability of the developed Bituminized Jute Paving Fabric.
- Identification of the most convenient size and shape of the developed fabric (easy to handle and install).
- Standardization of installation and application procedure of the developed BJPF in the roads.
- Field trials in roads (District Roads and Rural Roads as per DPR) for performance evaluation and standardization of the developed BJPF.

Achievements so far:

As per work plan, initially ten (10) numbers of Grey Jute Paving Fabric (GJPF), which is a combination of different layers of Woven and Nonwoven Fabric, have been developed. Out of which, five numbers (05) of GJPF have been selected by optimizing the dimensional and functional geotechnical properties. These five (5) numbers of GJPF samples were sent to CRRI, New Delhi, for application of bitumen and subsequent laboratory testing of the BJPF related to geotechnical property parameters as well as laboratory simulation testing regarding application of the same as suitable overlay fabric to serve as a cheaper substitute of bitumen mastic which is nowadays used in roads. After carrying out several type of testing of the BJPF like Ductility Test, Softening Point Test, Asphalt Retention Test, Marshall Mix Design, Beam Fatigue Test and Wheel Tracking Test and critically reviewed by comparing the performance during laboratory simulation testing, CRRI scientists have recommended 1033 gsm GJPF as base fabric for application of selected bitumen PMB – 40 out of different grades and types of industrial bitumen which are generally used for road constructions to develop final Bituminized Jute Paving Fabric (BJPF).

02. CFC/IJSG/21 R&D Project entitled **"Development and Application of Potentially Important Jute Geotextiles".**

Objective:

The overall objective of the project is to determine and demonstrate the effectiveness of Jute Geotextile (JGT) in the two pre identified promising applications (soil erosion control and rural road construction) and to demonstrate their competitiveness vis-à-vis synthetic materials currently in use. An important consideration is that no sufficiently documentated and accepted test and field trial results are available which are satisfactory to decision makers in the relevant certification agencies. This certification on performance of the different materials are seen as an overriding requirement for a larger uptake of jute as geotextile material.

Deliverables:

1. Selection of suitable JGT for rural road construction as well as soil erosion control (river bank and hill slope protection)
2. Site selection for application of Jute Geotextile (JGT) fabric in rural road construction (07 sites in India and five sites in Bangladesh) as well as for soil erosion control(06 sites for river bank and three sites for hill slope protection in India, and 03 sites for river bank and 02 sites for hill slope protection in Bangladesh).

3. Field application of the suitable Jute Geotextiles in the selected sites both in India and Bangladesh.

4. Monitoring of field application procedures and performance evaluation of the JGT fabrics.

5. Optimization and standardization of the JGT fabrics as per field performance report.

Achievements so far:

1. Primarily Double Warp Plain Weave JGT fabrics have been characterized and selected for rural road construction and open weave JGT fabrics have also been selected and characterized for soil erosion control (river bank and hill slope protection)

2. For rural road construction three sites in India and four sites in Bangladesh have been selected. For soil erosion control four sites for river bank, three sites for hill slope protection in India and Three sites for river bank and two sites for hill slope protection in Bangladesh have been selected.

3. Field applications are in progress.

03. ISDS Project: As per approved DPR, a Nodal Training Center for Integrated Skill Development Scheme (ISDS) Project will be created at IJT for training of new entrant Workers and Junior Supervisors of Jute Mills and Artisans /Weavers / Dyers/ Printers / Stitchers Designers of decentralized Jute Sector by creating a new building space and laboratories and appointing Contractual Faculty/ Resource Persons/ Trainers/ Training Assistants or Project Assistant/ Visiting Faculty / Project Accountant and Accounts Assistants etc.

Two faculty members (Prof. A. K. Samanta, Professor and Dr. S. K. Ghosh, Associated Professor of this department) are deputed as administrative In-Charge of this project as Project Co-coordinator /PI.