January 2014

Message from Director I/C CSTRI, Bangalore

The period under report, Jan-June 2014, has been an eventful one for CSTRI. We are delighted to bring this Vol.-3, Issue-2 which focuses on R & D carried out in CSTRI, the technologies developed and happenings in the field and its sub-units. The scientists and staff of CSTRI raise to the challenges of the industry and come out with technologies which shall bring a paradigm shift in the field. In particular, the development of hot air drier and pupae separating machine will bring in major change in the way the pupae is handled and also addresses the environmental issue. Further, process protocol of degumming of silk hank under pressurised conditions has been developed and technology filed for patenting. These technologies have been well accepted in the field. This was brought to fruition in such a short period of one year. Apart from this, technologies like application of enzymes in tasar fabric finish and tasar cocoon cooking have been initiated. The details are presented in this issue.

The fruits of R & D are taken to the field through the CDP programme and in this period, CSTRI & its sub-units have implemented 221 schemes across the country. CSTRI & its sub-units have been in the forefront in implementing the CSB’s flagship programme i.e., Integrated Skill Development Scheme (ISDS). During the period, 62 no. of different types of programmes were conducted and 1250 no. of persons were trained in enhancing their skill. This period has been very satisfying for scientists who have been selected as scientist-D and scientist C and I personally congratulate them for their selection under the FCS.

As we are in the middle of the XII five year plan period, I take the opportunity to urge the fellow scientists to raise to the task of achieving the various targets under XII plan and thereby serving the large cause of the silk industry.

We will be happy to receive your comments and suggestions. You may send your messages using our website. www.cstri.res.in

VISIT OF UNION MINISTER OF TEXTILES

Dr. K. Sambasiva Rao, the Hon’ble Union Minister of Textiles, Govt. of India visited Varanasi on 04.01.2014 and inaugurated a “District Level Event” organized by Weavers Service Centre, Varanasi. Ms. Sunaina Tomer, Joint Secretary (Textiles), Dr. B.B. Paul, Director, Weavers Service Centre (North-Zone) and Sri. M. A. Moon, Scientist-D, TTL, Varanasi, were the other principal participants who graced the event. During the event a stall was also arranged by Textile Testing Laboratory, Varanasi, wherein live demonstrations of CATD, testing facilities available at Textile Testing Laboratory, Varanasi and ongoing CDP schemes in the state were elaborately explained.

Dr. K. Sambasiva Rao, the Hon’ble Union Minister of Textiles, Govt. of India visited Varanasi on 04.01.2014

AWARDS

संघ की राजभाषा नीति के क्षेत्र नियामक के लिए तृतीय पुरस्कार
date: 10 फरवरी, 2014 को विज्ञान समितियों भवन, सी.एस.आई आर रॉयल परलूप, चेन्नई में भारत राष्ट्र सरकार 2012-13 के दौरान दिशानिर्देश के कार्यालय में संघ की राजभाषा नीति के क्षेत्र नियामक के लिए केंद्रीय राष्ट्रीय प्रशासनिक अनुसंधान संस्थान, केंद्रीय राष्ट्रीय बोर्ड, बंगलूर को राजभाषा विभाग, भारत सरकार द्वारा तृतीय पुरस्कार प्रदान किया गया।

राजभाषा समिति एवं पुरस्कार समारोह (पुरस्कार एवं दिशानिर्देश-पुरस्कार) के दौरान बुधवार नीति पौधी, भारत, सातवा, राजभाषा विभाग, सुभाष इंडिया उद्योजन, संयुक्त सत्ता, राजभाषा विभाग को गरीबांग्री उपस्थिति में मुख्य अध्यक्ष ड. रोशन, महामहिम राजस्थान,
Conclusions:
- Proto type machine has been designed and developed.
- Fine tuning of machine has been carried-out. Optimization of size coat quantitatively and qualitatively has been completed.
- Technique for applying the sizing on tasar yarn has been developed through the proto type machine.
- Fabric preparation using sized yarn is under progress.
- As per the recommendation of RAC, dissemination of technology would be taken up.

2. Title: Development of technology package for proper handling and processing pupae byproduct for effective utilisation

Objectives:
- To develop indigenous pelade waste extraction plant.
- To develop drying parameters for drying the pupae using suitable hot air drier.
- To study the working performance of the developed pupae processing package.

Conclusions:
- The fabrication of hot air drier and pupae separation machine and manufacture of boiler is completed. Beneficiary has been identified and machineries have been erected and commissioned at the premises of beneficiary and experimental mass trials were conducted. The machineries are working satisfactorily as per the requirement.
- Drying parameters for drying the pupae have been standardized.
- Working performance of pupae processing package has been studied and it was found that the performance of the pupae processing package is very good and results are as per the target.

3. Title: Studies on tasar cocoon cooking methods and development of cooking device

Objectives:
- To study the influence of different methods of cooking processes on reliability performance of tasar cocoons.
- To arrive at best cooking process amongst the above and to optimise the cooking method.
To design and develop suitable cooking device
To evaluate technical and economic viability of the cooking device and cooking methods

**Conclusions:**
- Enzymatic, chemical and permeation methods of cooking processes have been studied. tasar cocoon cooking by sodium perborate method has provided improved results.
- Traditional and peroxide methods have been evaluated. Trials using sodium perborate has been found satisfactory. Process parameters have been standardized and bulk trials have also validated better performance of perborate method.
- Permeation chamber has enhanced the effectiveness of cooking using hydrogen peroxide and Sodium Silicate. Further trials with sodium perborate method of cooking have been standardized for cooking tasar cocoons in permeation chamber.
- Techno-economic evaluations have been completed by conducting filed trials.

**New Research Projects**
The following new research project was initiated during the period.

1. **Title:** Characterisation of silk sericin for cosmetic applications
   **Objectives:**
   - To standardize a suitable technology to recover (on commercial scale) sericin from pressurized degumming liquor.
   - To characterize the sericin for cosmetic (soaps, shampoo, hair creams and as an additive for talcum powder) applications.
   - To produce different cosmetic products such as soaps, shampoo and hair creams with the extracted sericin.

**Exploratory Research Works**
The following exploratory / pilot studies were initiated by CSTRI and its sub units during the period.
- Reeling of outer, middle and inner layer of muga cocoons
- Development of improvised device for eri cocoon opening
- Design and development of improved handloom to reduce drudgery

Exploring the possibility of improving the cohesion characteristics of multibiolitine/ tasar / muga raw silk using bivoltine sericin coating in reeling process

**NEW DEVELOPMENTS**

**Machinery / Equipment development**
CSTRI has developed the following technology packages and machineries for proper handling and processing pupae byproduct for effective utilization using Pelade waste extraction and pupae separation machine.

1. Pelade waste extraction methodology for pupae of steam stilled / semi dried cocoons along with required equipments.
2. Pelade waste extraction methodology for pupae of hot air dried cocoons along with required machinery.
3. Hot air drying of the pupae using CSTRI hot air drier with hot air generator.

**PRODUCT DEVELOPMENT**
Several new products / fabrics were developed by CSTRI and its sub units viz., Chemically texurised mulberry silk fabric, tasar shawl with bulky yarn, Natural dyed eri denim - bio polishing, Natural dyed eri denimm - bouncy finish, Natural dyed eri denim - stone wash, Natural dyed eri denim - sand wash. Guided a master weaver at WCS, Birbampur in weaving a jacquard design sari.

**TECHNOLOGIES PATENTED (APPLIED)**
- A process protocol for degumming silk hank under the pressurised conditions

**RESEARCH / TECHNICAL MEETINGS**
During the period under report, following Research / technical meetings were conducted in the Main Institute to plan & review the Research and extension activities of CSTRI and its sub units:
- On 24th Feb. 2014, In-house Research Council (RC) meeting was held to plan and discuss the new research project proposals based on field requirement and Reviewed the ongoing research and exploratory works.
- On 25th Mar. 2014, the Research Advisory Council (RAC) meeting was held in CSTRI Bangalore. R&D, Training and Extension activities were briefed and reviewed. Progress of extension and training activities were also briefed. The panel of experts extended guidance and suggestions on various aspects, stressing the
need for taking up industry based research.

- On 12-13th May 2014, the Annual Action Plan progress cum review meeting was held to review the progress on R&D, Training and Extension activities of the Institute and its nested units as well as Plan of action for 2014-15.

- On 29th May 2014, Silk and Silk Products Sectional Committee, TXD 28 meeting was held at CSTRI Bangalore to formulate Indian Standards on terminology, methods of test, grading, specifications and packaging of all varieties of raw silk, degummed silk, silk byproducts and weighted Silk including handloom/powerloom fabrics.

Industry visited the exhibition. Besides there was large participation from general public, who showed keen interest in all the displayed activities of silk industry.

**DEMONSTRATIONS**

The following demonstrations were conducted on various post cocoon activities all over India:

- Dyeing and printing with natural dye (Lac and Catachu)
- Pressing disc in cooking of cocoons, Hot air drying of cocoons, Spinning on MSM, reeling technology and weaving at Premnagar, Dehradun; Hot air drying of cocoons at Haridwar and Dolwala.
- Multiend reeling at DCTSC, Dharwad
- Silk degumming and dyeing at UAS, Goa.
- Use of black cloth drying and cocoon sorting at Jammu
- Sorting of cocoons, black cloth drying & proper use of mountages at rearers dwellings of Nagrota, Bhadwar & Nadun areas of H.P.
- Pre soaking of silk skeins before twisting at Hanuman junction (AP)
- Hot air drying of cocoons at Malda.
- Cottage basin reeling at Madhughat Malda
- Tasar dry reeling on MRTM at Tantipara, Birbhum (WB).
- Tasar Reeling and Spinning at Khuntakata, Dumuridih and Andheri Dist.- Mayurbhanja, Nuagaon in Jajpur, Masinabilla and Belaposi in Keonjhar (Orissa) and at Bilsapur (Chattisgarh).
- Cocoon cooking at Hanuman junction & Chebrolu(AP)
As a part of dissemination of technology, a workshop on “CSTRI Technology package for proper handling and processing pupae byproduct for effective utilization” was organized for the field officers of DOS, Karnataka, Andhra Pradesh, Tamil Nadu & pupae merchants on 26th May 2014 at CSTRI, Bangalore. About 60 participants attended the workshop.

The workshop was inaugurated by Shri. M. K. Ghosh, Director (I/C), CSTRI, Bangalore. In his inaugural address, he informed about the environmental issues faced by the silk reeling industry and requested the participants to use the workshop for effective transfer of technology. Dr. Subhas. V. Naik, Scientist D briefed about the workshop. He informed that as per the field requirement CSTRI has developed technologies for proper handling and processing pupae and hot air drying of pupae for effective utilisation and eliminating the pollution problems.

The participants were taken to one of the Pupae processing unit at Vijayapura wherein the machineries and technologies developed were demonstrated.

WORKSHOP ON “APPLICATION OF ENZYMES IN TASAR SILK PROCESSING”

With an aim to propagate methodologies and technologies on eco-friendly processing of tasar silk using enzymes, a workshop on “Application of enzymes in tasar silk processing” was organized by Post Yarn and Vanya Silk Reeling Divisions of CSTRI on 6th June 2014.

Sri Jaganathan K, Scientist D, delivered the welcome address. Sri M.K. Ghosh, Director I/C, addressed the gathering and explained the various technologies developed by CSTRI, Bangalore for the silk industry. A technical lecture on ‘Enzyme applications in tasar silk processing’ was delivered by Sri. G.S. Nadiger, Ex-Director of Textiles Committee, Mumbai and Sri. Vishwanath, Owner of M/s. Shilpa Prints, Bangalore lighting the lamps along with Sri. M.K. Ghosh, Director I/C, CSTRI, Sri Jaganathan K, Scientist D and Dr. Uday C Javali, Scientist-D.
by Dr. Brojeswari Das, Scientist B. Dr. G.S. Nadiger appreciated the efforts of the Scientists of CSTRI, for disseminating the research outcome and taking essential steps to interact with silk processing industry. Sri. Vishwanath, proprietor of M/s. Shilpa Prints, Bangalore appreciated the present step of organizing a workshop to share the research results. Workshop ended with the valedictory address by Dr. Uday C Javali, Scientist D.

**SILK EXHIBITION**

Participated in the Krishi Mela organised by CSR & TI, Mysore on 28.01.2014. A stall was installed and demonstrated Mulberry Raw Silk Reeling Technology for the production of quality raw silk to the Farmers & Reelers.

A stall of different exhibits including CATD unit was arranged by TTL Varanasi in the Silk Expo organized by UP-DOS at Sarang Talab, Varanasi from 16.02.2014 to 19.02.2014. The Silk Expo was inaugurated by Shri Shiv Kumar Beriya the Hon’ble Textile Minister, Govt. of U.P. Shri Vishnu Swaroop Mishra, Director Silk DOS, Lucknow also paid their visit at the exhibition & took keen interest in the Testing of Silk exhibits of Central Silk Board. Sri M.A. Moon, Scientist-D, TTL, Varanasi has explained various CDP schemes & the textile testing facilities available at TTL, Varanasi.

**Awareness Programme**

An Awareness programme on 24.05.2014 on Muga cocoon reeling in muga silk reeling cluster of Dinahata Block in Coochbehar District (WB). In association with REC CSB Coochbehar. The traditional muga reelers were briefed about the improved CSTRI Technology with particular reference to two stage reeling method recently developed for tasar reeling which is equally workable in case of muga also.

An Awareness programme was organised on 20.02.2014, at Ma Mangala SHG Korodapal, district. Keonjhar (Orissa) for a total of 75 tribal weavers and rearers. The rearers were informed in detail about Reeling and spinning of tasar cocoons and the CDP scheme.

**Field Awareness Programme conducted on 20.02.2014 at Korodapal**

An Awareness programme was conducted on Post Cocoon Activities at DCTSC Dharwad to 15 nos. of Professors from various universities on 06.01.2014, Shri. M.R. Itagi, Scientist-C explained about the activities of DCTSC, Dharwad, PCT activities, CDP scheme etc. Silk reeling demonstration was conducted for the benefit of the participants.

**Shri. M.R. Itagi, Scientist-C explaining about the activities of DCTSC, Dharwad**

Two awareness programmes were conducted on various schemes and activities of post cocoon technology to the local participants in the state level exhibition organised by the Horticulture and Sericulture Department at Davangere. The event was inaugurated by the Hon’ble Karnataka State Horticulture Minister Sri. Shyamandru Shivashankarappa.

**Technology Upgradation Programme**

Women participants in TUP on “Muga silk reeling and eri spinning” organised by RSTRS, Khanapara on 5.03.2014 at Jajori, Morigaon Dist. Assam.
Technology Upgradation Programme on “Muga silk reeling and eri spinning” was conducted on 5.03.2014 at Jajori, Morigaon Dist. Assam in coordination with DOS, Morigaon Dist. Demonstration on Muga reeling and Eri spinning was conducted to stake holders comprising Reelers, weavers, Farmers, silk traders and also to local DOS staff. They were briefed about CDP schemes, quality aspects of cocoons and raw silk, Training programmes and other activities of RSTSR.

**HUMAN RESOURCE DEVELOPMENT**

Apart from the regular training programme viz. STP, Capsule, Adhoc, QEP, etc. conducted by the Main Institute and sub units, the focus during the period was training under Integrated Skill Development Scheme (ISDS). About 62 training programmes were conducted and 1250 candidates were trained under this programme by CSTR and sub units across the country in various areas of silk technology both in mulberry and vanys silk sectors as under:

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Title of the Training Programme</th>
<th>No. of Training Programmes</th>
<th>Number of persons trained</th>
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<tbody>
<tr>
<td>1</td>
<td>Integrated Training on Raw Silk Reeling Technology</td>
<td>10</td>
<td>230</td>
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<tr>
<td>2</td>
<td>Intensive Skill development Training Programme in Vastya Cocoon reeling &amp; Spinning</td>
<td>18</td>
<td>450</td>
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<tr>
<td>3</td>
<td>Silk Twisting technology</td>
<td>15</td>
<td>225</td>
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<tr>
<td>4</td>
<td>Creative Design for weaving using CAD</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Integrated Weaving Training in Power loom &amp; Rapier loom.</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>Intensive Training in Silk Dyeing , printing , colour fastness and computer colour matching</td>
<td>5</td>
<td>75</td>
</tr>
<tr>
<td>7</td>
<td>Dobby and Jacquard installation and harness building</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>8</td>
<td>Integrated Training on Handloom Silk Weaving</td>
<td>2</td>
<td>50</td>
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<tr>
<td>9</td>
<td>3-Months certificate course in Wet Processing of silk</td>
<td>1</td>
<td>25</td>
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<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>62</strong></td>
<td><strong>1250</strong></td>
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**CONFERENCE / WORKSHOP / TRAINING - ATTENDED**

1. Sri Jayanta Ghose, Scientist C attended Workshop on “Implementation of XII Plan CDP Scheme in Odisha State” at Bhubaneswar which was chaired by the Member Secretary, CSB, Bangalore on 28.04.2014.


4. Sri K. M. A. Kadhar, Scientist-D, attended the workshop on remote sensing at Agriculture University, Chennai on 03.02.14.

5. Sri M.A. Moon, Scientist-D, TTL, Varanasi attended the training under Resource Development Programme organized Lucknow on 27.02.2014.

6. Scientists of CSTRI, Main Institute and Sub-units attended Scientists Meet held at Bangalore on 21.03.2014 & 22.03.2014.

**PAPER PRESENTATION IN CONFERENCES**

The scientists of CSTRI presented papers in the National conference on sericulture for livelihood held at Chintamani during January 29-31-2014 (under lined name indicates the presenter):

1. Subhas V Naik, Prakash Y Naik, Arindam Basu “Study on quality characteristics of raw silk reeled on Automatic silk reeling technology from CSR race Bivoltine hybrid cocoons”.


3. G. Hariraj, Subhas V Naik, B.M. Mahadevaiah Arindam Basu “Characterisation of Indian multibivoltine cross breed cocoons and bivoltine hybrid cocoons”

4. G. Hariraj, B.T. Thimmarajamma, Arindam Basu “Chemical texturisation of raw silk”


**PUBLICATIONS**


BOOK PUBLISHED

1. Vijaykumar P. Kathari, "Efficient energy management for reducing firewood consumption in multi-end silk reeling Unit by adopting Ushama Shoshak unit and solar water heating system" published by CSTRI, Bangalore.

VISITORS

The following delegates from various organizations visited the Institute during the period.

1. Mr. Benjamin P Sapitula, president, DMMMSU, Philippines, Dr. (Ms) Cristeta F Gapuz, Director, Engr. Roel D sups, Planning Officer, DMMMSU-SRDI, Philippines

2. Dr. Abdul Kalam, Director, Dr. Tayan Raj Gurung, Senior Programme Specialist (NRM), SAARC Agriculture centre, Dhaka, Bangladesh.

3. Dr. Rangam Rajkhowa et. all, Deakin University, Australia

4. Mr. & Mrs. Jacques Poulenard, Intersoie, France

5. Shri. Rakesh Agarwal, IAS, Additional Chief Secretary, Department of Cottage & Rural Industries, Govt. of Madhya Pradesh

6. Dr. Asgar Hassan Samoon, IAS, Commissioner / Secretary to Govt. of J&K

7. Dr. Alagirusamy, Professor, Dept. of Textile Technology, IIT Delhi

8. Shri. S. S. Sil, Director & Shri. S. K. Das, Asst. Director, KVIC, Kolkata

9. Dr. A. K. Bera, BIS, New Delhi, Shri. Devbarmu, Textile committee & Dr. S. Bera, Sirram Institute, Bangalore

10. Students from various faculties and universities visited CSTRI.

PERSONNEL

Congratulations on your promotions

<table>
<thead>
<tr>
<th>Name of the officer</th>
<th>Place of Posting</th>
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<th>Effective date</th>
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<tr>
<td>Shri. K. Jagannathan</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
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<tr>
<td>Shri. H. H. Shambulingappa</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
</tr>
<tr>
<td>Dr. G. Harinj</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
</tr>
<tr>
<td>Dr. Uday C. Javali</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-D</td>
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<tr>
<td>Shri. G. Thimma Reddy</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-D</td>
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<tr>
<td>Shri S. A. Bipshing</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
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<tr>
<td>Dr. Janirella Kistroom</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
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<tr>
<td>Dr. C. R. Nagaraj</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
</tr>
<tr>
<td>Dr. M. A. Joseph</td>
<td>CTC, Ramnagar</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
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<tr>
<td>Shri. K. N. Mahesh</td>
<td>RFTC, Madhukut</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
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<td>Shri. S. M. Khader</td>
<td>SC: TH, Ranchi</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
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<td>Scientist-D</td>
<td>26-02-2014</td>
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<tr>
<td>Dr. N. Novajegoda</td>
<td>DCTSC, Hingnapur</td>
<td>Scientist-D</td>
<td>26-02-2014</td>
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<tr>
<td>Dr. Naveen V Padalk</td>
<td>CSTRI, Bangalore</td>
<td>Scientist-C</td>
<td>26-02-2014</td>
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Wish your new road will be full of accomplishments

Name of the official | Name of the unit | Resigned on
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<td>Dr. Arindam Basu, Director</td>
<td>CSTRI, Bangalore</td>
<td>05.03.2014</td>
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<tr>
<td>Shri T. Nagaraj, LDC</td>
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Wish you a happy retired life

Name of the official | Name of the unit | Retired on
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<tr>
<td>Shri Pradhyot Kumar Paul</td>
<td>SC: TH, Malda</td>
<td>30.04.2014</td>
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<tr>
<td>Shri Sukumar Dey</td>
<td>SC: TH, Malda</td>
<td>31.05.2014</td>
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<tr>
<td>Shri Bhaskar Ramkumar</td>
<td>SC: TH, Dharmavaram</td>
<td>01.04.2014</td>
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Obituary

The Director (I/C) and Staff of CSTRI deeply condole the death of Shri. Narasimha Murthy Staff Car Driver who expired on 27.3.2014