

The Leather Post

CSIR-Central Leather Research Institute

News you can use



Dr K J Sreeram appointed as
'Director of CSIR-CLRI' on 28th November 2019



Dr K J Sreeram
Director, CSIR-CLRI

Dear Doyens and Members of the Indian Leather Fraternity; Colleagues from CSIR & CLRI, Friends! It gives us great pleasure in sending you our December 2019 edition of The LEATHER POST.

It is an opportunity to lead the Institute to do high quality Research. We need to work with the Industry to provide solutions for 'sustainability' for the Indian Leather Industry as well as for the Global Leather Industry. Let our research focus on these areas! Our Directors of the past were highly disciplined and pragmatic and of the tallest order.

As we have travelled, we have had projects like fast track translation that has helped in quick translation of research outputs. Most of the labs in the Institute remain modernized and I thank the former Director for the initiatives. I have also learnt a lot of lessons from Dr Santosh Kapuria to be structured and disciplined. Energy and Enthusiasm of all staff is important.

Colleagues need to work together to make the Institute young and bright to create a new CSIR-CLRI. "We have been known to do good to the people and society. Let us keep our culture growing and WOW the fraternity."

We at CSIR-CLRI will strive to make this magazine informative and interesting and welcome your feedback for improvement.

27th December 2019

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Know your Director

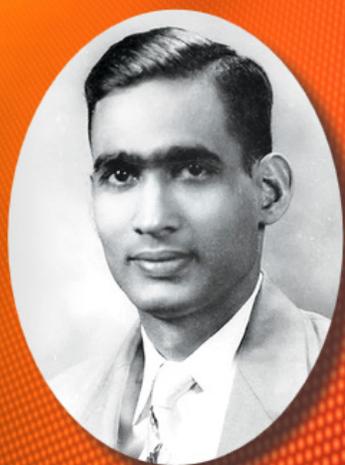


Dr KJ Sreeram is the Director and Head of the testing services of CSIR-CLRI. He has been associated with the institute as a scientist since 2002 and has been involved in research activities such as better management of chromium, development of benign leather auxiliaries, rare earth based pigments etc. His current research interests include sustainable leather manufacturing, imbibing the knowledge generated through advanced technologies such as nanotechnology.

Apart from a range of projects that he has led, Dr Sreeram is currently involved in translational research, where laboratory scale products are tuned for adoption at industrial scales. A highly committed researcher, Dr Sreeram has about 100 publications in peer reviewed journals, 19 published patents, 13 commercialized technologies to his credit. For his contributions to S&T relating to the management of chromium in chromite ore industries he was awarded the CSIR Young Scientist Award in 2004 and for his contributions to the use of functionalized nanoparticles for collagen stabilization, the IUR Research recognition by IULTCS in 2014.

He has authored the Technology Roadmap 2035 for the leather sector under the manufacturing sector roadmap brought out by TIFAC DST in 2017.

He is an elected Fellow of the Society of Leather Technologists and Chemists, UK and the Royal Society of Chemistry UK.



CSIR- CENTRAL LEATHER RESEARCH INSTITUTE
(Council of Scientific and Industrial Research)

In association with the Stakeholders of Indian Leather Sector cordially invites you to

Y NAYUDAMMA LECTURE 2020

by
Dr Soumya Swaminathan
Deputy Director-General, WHO

on
R&D Innovation and Access for Health and other SDG Goals

Dr T Ramasami
Former Secretary, MoST, Gol
has consented to Preside

Monday, 6th January 2020 at 04.00 P.M.
at

Triple Helix Auditorium, CLRI, Chennai

Current Trade scenario in the country and the need for CSIR-CLRI to provide

“Low Cost Technologies for Tanning”

at the 71st meeting of the Research Council of CSIR-CLRI held on 27 November 2019 in CSIR-CLRI



Dr Paul Ratnasamy chaired the meeting and was attended by Dr M Rafeeqe Ahmed, Shri Panaruna Aqeel Ahmed from the industry and Prof. Pradyumna Vyas from the academy. Dr Narahari Sastry, Director NEIST Jorhat and Prof. S Chandrasekaran, formerly with IISc Bangalore were invitees. The members extensively deliberated on the current trade scenario in the country and the need for CSIR-CLRI to provide low cost technologies for tanning and also benchmarking institutional technologies against commercial technologies. Dr Santosh Kapuria, then Director, CSIR-CLRI presented the performance of the institute against its business plan for the year 2019-20.



The recommendations of the Pre-Research Council Meetings held for biological, chemical, leather, shoe and product design were discussed and recommended for implementation. The council also approved the continuation of institutional projects till March 2020 and also accepted the proposals for submission to CSIR for its funding.

ACADEMY

RESEARCH

INDUSTRY

LERIG 2020

53rd Edition

Research Academy Industry for Sustainable Ecosystem (RAISE) for Leather 28-31 January 2020

Triple Helix of Leather viz. Research, Academy, Industry Get together every year during the last week of January for co-generating a plan and path forward by engaging in conversation with the government. Leather Research Get together is the program organized at CSIR – Central Leather Research Institute by, of and for the Leather sector.

LERIG 2020 is special. AC Tech of Anna University, our Academy partner is observing its Platinum Jubilee. In celebration of the Platinum Jubilee of Academy of Leather Technology, the theme for LERIG 2020 is “Research Academy Industry for Sustainable Ecosystem (RAISE) for Leather”.

Though the synergy among the three stakeholders is widely celebrated, in general they tend to work in silos. LERIG 2020, enshrines a new mode of working. Get together provides the meeting ground. Working together seamlessly and as one connected mind of three bodies is the philosophy behind RAISE for Leather.

Sustainable Ecosystem demands research academy and industry to work for the common purpose in enabling Leather Sector cogenerating values for the country through Leather Sector. Way forward for Leather 2035 is the stated goal of LERIG 2020. It is proposed to present a master plan to the Government for follow-up actions.

REGISTRATION

Delegate :

Rs. 2950 (incl GST) per person

Students :

Rs. 1770 (incl GST) per person

SPONSORSHIP

Platinum -Rs. 3 Lakhs

Gold -Rs 2 Lakhs

Silver- Rs 1 lakh

For Registration send an email with contact details to lerig2020@gmail.com;
Cheque/DD for registration/sponsorship may be drawn in favor of
“LERIG TRUST” and sent to Conveners (Dr J Raghava Rao/Dr Swarna V Kanth),
CSIR-Central Leather Research Institute, Adyar, Chennai 20,
044-2443 7188/7418/7243

E-payment details: Account Name: LERIG Trust, Account No: 37610860721
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ICONSWM is an International conference on Solid Waste Management (SWM), which is being held every year, organized by International Society of Waste Management, Air and Water (ISWMAW). This conference covers wider range of topics that includes Research, Technology & Emerging Innovations, Low Carbon SWM, Materials Development by Recycling, Policy & Support (3Rs, Circular Economy, Sustainable Development Goals), Sustainable Development (GHG, Low Carbon & Climate Change Issues in WM, CDM, Green Economy, Environmental & Health Impact).

It also includes various plenary sessions on current status & implementation of waste management technologies in a wider fields such as Solid & liquid Waste Management, Food Waste, Cattle Waste, Slaughterhouse waste, Garden Waste, Industrial Wastes, Waste Management in Mines, Railways, Steel Plant, Airport, Plastics Waste, E-Waste, Construction & Demolition, Bio-medical & Hazardous Waste, Valorisation, Best Practices, Case Studies and Community Participation, Disaster Waste Management, Marine Littering and Micro Plastics, Energy Recovery: Waste to Energy, Bio-methanation, Plasma, Biological,

Chemical & Bio-chemical Treatment, Bio-fuels and Bio-energy production, Landfills (& leachate), Composting, Recycling, Special Processes, Waste Management in smart cities; Urban and Rural Management, Waste Management in Real Estate, High Rise Building & Housing Complex. Integrated waste management, Zero Waste Management & Employment Generation, Community Involvement, Agricultural and Agro-Industry Waste Management, Biomass Supply Chain and Capacity building.

Participants from more than 20 countries including eminent speakers, researchers, industrial collaborators, speakers from institutions, government sector, municipalities and NGOs etc. were participated and presented their research and implementation works in various plenary sessions. In addition to the plenary sessions and presentation in various fields, an international research get together meet was organized to create opportunities for future collaborations among participants from Indian and other countries. Our team has participated and exchanged informations with potential partners from European countries on waste to energy, waste management and recycling concepts.



Our team made two presentations: First presentation was made by Ms. Mozhiarasi V, Senior Research Fellow, Environmental Science and Engineering Division, CSIR-CLRI, Chennai on the topic of “Kinetic modeling of biogas production from organic fractions of Municipal solid waste and projection of energy and exergy potentials” authored by Mozhiarasi V, Benish Rose P M, Elavaar Kuzhali S M, Kanyapushpanjali S, Balakumar R, Weichgrebe D, Srinivasan S V*.

This study primarily focuses on the identification of potential sites of bulk generators of organic wastes in Chennai city, which could be a better representative

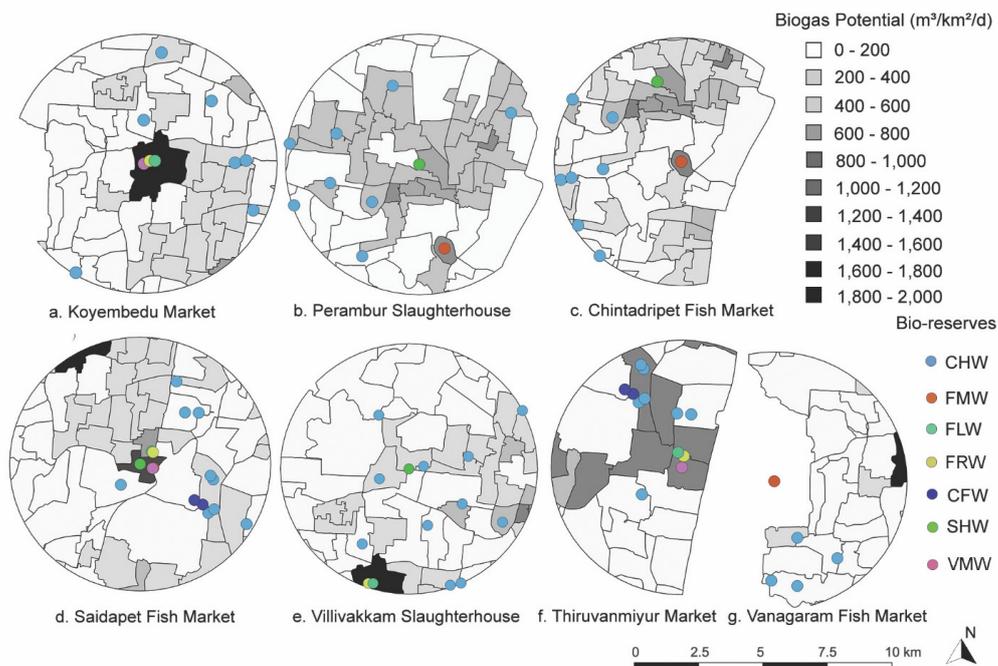
of one of the leading urban centers in India. Following the estimation of waste quantities in Chennai city, the biogas production potential of each wastes were assessed individually. Subsequently the estimation of energy and exergy potentials was carried out in addition to the kinetic modeling of biogas production. Further, GIS mapping of the waste hotspots available in Chennai city were mapped out in the city’s ward map and, a solution for the establishment of sustainable decentralized biogas plants at varying optimal locations were presented. This not only helps to improve the energy yields from biogas plants



Pictures of the conference presentation and award (ICONSWM)

but also provides a way for the stable operation of the biogas plants. For the presentation made in the bioenergy session (I) by Ms. Mozhiarasi V, the authors were received the "ICONSWM Excellence Award 2019 for the oral presentation". This way of integrated sustainable waste management through anaerobic co-treatment system could be implemented in any of the urban cities in India, where there is a huge availability of bulk generators of organic waste hotspots exists. An example of hotspot mapping of waste generation locations and its possible interlinks are presented below.

The Second presentation on the topic "Effect of extrusion on the bioenergy production from organic fractions of Municipal solid waste" authored by V. Mozhiarasi, C.J. Speier, D. Weichgrebe, S.V.Srinivasan*), was made by Dr.S.V.Srinivasan, Principal Scientist, ESED, CSIR-CLRI, Chennai in the bio-energy session (II). This primarily focuses on comparing the conventional shredding with novel extrusion pre-treatment for enhanced energy recovery from the biogas plants. The results showed synergistic effect of bio-extrusion for ligno-cellulosic biomass. Thus, extrusion as a pre-treatment prior to AD could be effectively used for increasing the methane yields from the vegetable, fruit and flower market wastes.



CHW- Chicken wastes; FMW-Fish market wastes; FLW-Flower market wastes; FRW-Fruit market wastes; CFW-Canteen food wastes; SHW-Slaughterhouse wastes; VMW-Vegetable market wastes

Wastes for BMP study & Extrusion pre-treatment



VW



FRW



FLW

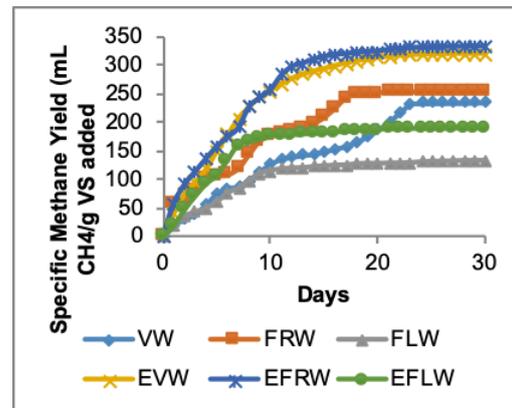
Pilot scale twin-screw Bio-Extruder



BMP Study in AMPTS reactor



Results of BMP study



VW- Vegetable wastes; FRW-Fruit wastes; FLW- Flower wastes; E- Extruded wastes

Both of these presentations are part of the works carried out under an Indo-German project titled “RESERVES - Resource and energy reliability by co-digestion of veg-market and slaughterhouse waste” funded by the German Federal Ministry of Education and Research (BMBF) and the Indian Department of Science and Technology (DST) under the Indo-German Science and Technology Centre (IGSTC) (Grant number 01DQ15007A) under the 2+2 Project.

Sustainable Waste Management

With regard to the Sustainable waste management concepts, according to the rising urbanization and industrialization rates, the waste generation can't be avoided. However, minimization could be possible to some extent although the best option is waste segregation at source, which would save tremendous cost on the subsequent treatments. Sustainability can be attained only if a business model could be created from the wastes that in turn add revenue.

India is the second populous country globally with nearly 1.3 billion populations. It was predicted that, by 2050, the world's waste generation will be around 27 billion tons per year and one-third of this will be shared

by Asian countries predominantly by China and India. So, India has enormous amounts of solid wastes, which could be seen as a resource if optimal material recovery and energy recovery feasibilities in a cost effective and sustainable ways are opted for. These technologies need to be implemented especially in Indian megacities, where the waste generation rates are drastically increasing. Because in India, especially the megacities like Delhi, Mumbai, Chennai, Calcutta, Bangalore etc. are facing a foremost critical issue in the management of Municipal Solid Waste (MSW). This is mainly due to the non-segregation, collection and disposal systems of mixed wastes. For sustainable waste management within these megacities, effective

practices such as proper waste segregation, collection, transportation, processing, recycling, treatment and disposal facilities need to be upgraded and monitored effectively.

The waste management is a major problem especially because of the lack of awareness among the people, lack of private sector involvement, lack of finance etc. Hence, sustainable MSW management can be attained by considering various aspects such as environmental impacts, public health and waste generation rates in the present and the future, and effective treatment methods.

Sustainability aims to meet the needs of the present without comprising the ability of the future generation to meet their needs. Here, the goal of sustainable waste management is to reduce the consumption of natural resources and to ensure that the materials/resources derived from nature is being reused, as many times as possible which will lessen the waste creation.

The major goals to ensure sustainability are to reduce the antagonistic impacts on water, land and air; to lessen public health impacts; to enforce proper MSW management practices such as collection, storage, segregation, transporting, and disposing of the waste, to reduce bad odor which in turn reduce the diseases and enhance the esthetic view of the facility and the city as well; to increase the public awareness about the benefits of source segregation and reduction, waste treatment, and disposal techniques; to encourage recent technologies with regard to the waste processing and disposal facilities.

In order to achieve sustainability in waste management, the first requirement is the collection of the detailed database containing the details of the quantity and sources of various waste generation, collection, storage and transportation means. This should be prepared and monitored by the concerned authorities. This will help to estimate the manpower, equipment demands etc. for effective collection, treatment and disposal. Further, the quantification and its availability help to design engineered landfill/composting yards/bio-methanation plants in the selected wards based on their waste generation and composition. Because the main drawback faced by the urban cities is the lack of implementation of the proper scientific waste management technologies. Once the technology is established, then it can be managed by the active participation of stakeholder, NGOs, public and private participation, community organization etc. with the support of public by providing segregated wastes. In addition, the Solid Waste Management Rules 2016 needs to be strongly followed in order to reduce the environmental contamination to a maximum extent possible and also to ensure recovery of resources. However, this could be possible only when a suitable technology has been designed based on the prevailing waste quantity and quality and adopting proper management and financial mechanism to operate the facility. In addition, resource recovery will lessen the

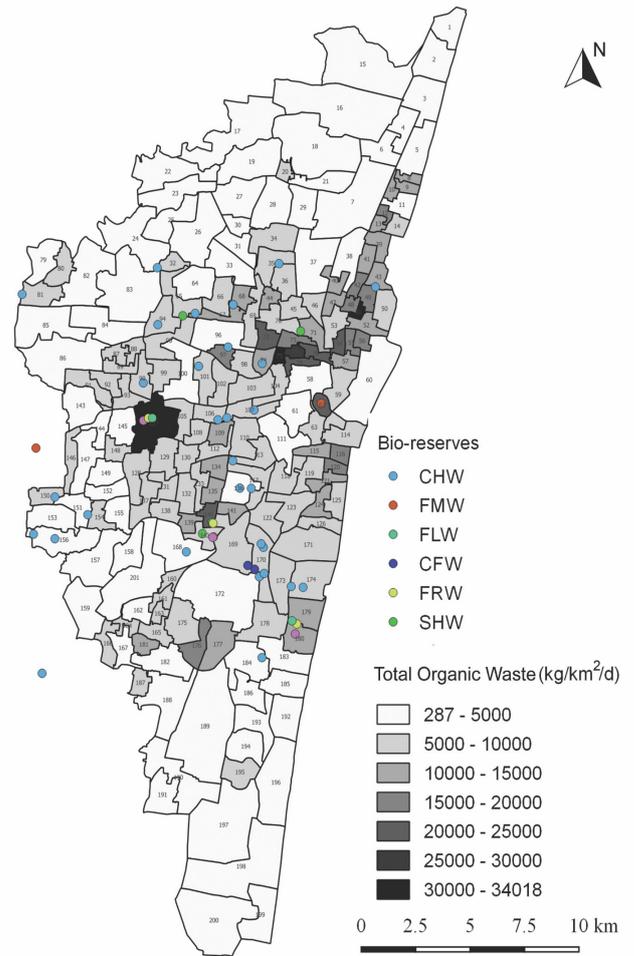
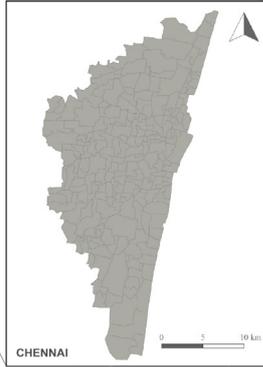
financial burden on the operation of the facility which in turn reduces the treatment and disposal cost.

Also, waste segregation at household levels should be made mandatory by the Government of India (GoI), which is the key to attain sustainability in our current scenario. In such cases, the segregated organic wastes can be treated through composting or bio-methanation plants based on the site conditions, which will yield a small business model that in turn output a revenue and sustainable waste management. The rest of the inorganic wastes can still be segregated to the next level in the city level processing plants, which will highly reduce the quantity of waste going to the concerned city's landfill.

Apart from the core concern on the sustainable waste management by ensuring waste management from household levels, the other best option especially in Indian urban centers is to look into the bulk generators of organic fractions of MSW. Because in general, all the urban centers have huge amount of centralized markets like vegetable, fruit, flower markets, slaughterhouses, fish markets etc. All these wastes are a potential source of energy generation through anaerobic digestion by means of establishing decentralized biogas plants. Further, utilization of the residue from the biogas plants as a fertilizer in the agro-fields helps to enhance the waste utilization concepts, thereby leading a way towards zero solid waste disposal concepts and recycling of nutrients back to soil.

Taking into account the industrial waste management, there exists huge options, by interlinking the organic waste generation from industry with the surrounding bulk generators of organic wastes of MSW for maximal energy recovery and utilization within the system to lead a way towards the circular economy. In addition to the resource recovery concepts from the industrial wastes, still our country needs to look into the circular economy concepts. This could be established by interlinking different industries together, thereby a waste discharge from an industry could be a raw material for the another industry. However, the location of industries and its synergistic effect on waste management to maintain a circular economy needs to be established. This could be possible by a detailed survey in existing industrial clusters so as to explore the suitable interlinking viabilities among the industries.

So, creation of a database containing the data and maps of a prevailing MSW and industrial waste generation sites, collection, transportation and disposal options needs to be created. This helps to identify the potential waste generation sites of the city, which will enable the decision makers to create a site specific plan for each city. An example of such database of the waste generation sites in Chennai city is provided below.



Once the database is created, the next step is the design of the suitable treatment system according to the prevailing local conditions and market demands. After the completion of the design, creation of a business model for the establishment of community participation is highly important to make the technology sustainable and profitable in a long run. Hence, for a sustainable environment, contribution of every citizen together with municipalities is highly required which will be possible only if there is a stringent regulation in waste segregation atleast to the level of organic waste segregation. Capacity building program is highly important in the country atleast to the ward levels in the megacities to move forward in creating a sustainable approach for the proper and sustainable waste management practices. Based on the current works being carried out and experiences, it is observed that the country could be one among the leading producers of biofuels if all the organic wastes in the country are segregated and managed effectively.

Projection of potential waste generating sites in the ward map of Chennai city

JIGYASA December-2019 (Visit of Scientists to Schools) held at Kendriya Vidyalaya No 2, Trichy



Delegation of European Research & Innovation in CLRI



“Delegation of European Research & Innovation officials, the delegation consists of the Science, Technology & Innovation counsellors, attachés and directors of institutes from European countries, headed by **Ms. Tania Friederichs**, Head of Research & Innovation, Europe Union Delegation to India, in total about 17 persons have visited CIRI on 4th December 2019”



Purpose of the visit:

To learn more about CLRI initiatives in research, innovation, Tech-Transfer and various cooperation & funding opportunities for collaborative research/innovation as well as mobility/skill development schemes in the EU research and innovation programme Horizon 2020 as well as the Startup Europe India Network scheme.

| | | |
|----|--|--|
| 1. | Ms. Tania FRIEDERICHS First Counsellor and Head of Research & Innovation | Delegation of the European Union to India, New Delhi |
| 2. | Dr. Vivek DHAM Advisor- Research & Innovation | Delegation of the European Union to India, New Delhi |
| 3. | Dr Samrat Schmiem KUMAR India Representative | EURAXESS Links India, New Delhi |
| 4. | Ms Hilda Viola FARKAS Counsellor for Science & Technology | Embassy of Hungary, New Delhi |
| 5. | Mr Massimo SPADONI Scientific Attaché | Embassy of Italy, New Delhi |
| 6. | Mr Freek Jan FRERICHS Head - Innovation | Embassy of the Netherlands, New Delhi |
| 7. | Ms Akanksha SHARMA Senior Policy Adviser - Innovation | Embassy of the Netherlands, New Delhi |
| 8. | Dr. Srinivas KAVERI Director CNRS Office in India | CNRS Office - Embassy of France in India, New Delhi |
| 9. | Mr Milan DOSTAL Commercial Economic Counsellor | Embassy of the Czech Republic, New Delhi |



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| 10. | Mr Van de Vreken MARK Consul General - Belgium - Chennai | Belgium Consulate Chennai |
| 11. | Ms Laurien JANSSENS | Embassy of the Belgium, New Delhi |
| 12. | Dr Maan Singh SIDHU Science and Technology Counsellor | Royal Norwegian Embassy, New Delhi |
| 13. | Ms Vera FRITSCH | Embassy of Austria |
| 14. | Mr Johannes WENZEL Honorary Director | DAAD Information Center Chennai German Academic Exchange Service |
| 15. | Ms Padmavathi CHANDRAMOULI Information and Office Manager | DAAD Information Center Chennai German Academic Exchange Service |
| 16. | Dr Philipp von RITTER Counsellor, Head of Science and Technology Section | Embassy of Germany, New Delhi |
| 17. | Dr Matthias KISSELBACH Director, Deutsche Forschungsgemeinschaft (DFG) | German Research Foundation (DFG), New Delhi |



Report on Baseline Survey and 11 Mini Leather Parks for LIDCAP Project

CSIR-CLRI has entered into an agreement with Leather Industries Development Corporation of Andhra Pradesh (LIDCAP) on 8th October 2018 at Amaravathi. The project mainly encompasses the key aspects for developing the entire value chain of leather and leather products in the state of Andhra Pradesh (AP) thereby leading to the holistic development of leather sector in the state. The major outcomes of the project include upgrading the leather sector in AP by means of novel initiatives, provide better avenues for fabricating and marketing leather and leather products and providing livelihood to people who are largely dependent on the leather trade for their survival by generating employment. The work packages carried out as part of the project are:

- Holistic baseline survey
- Establishment of 11 mini leather park
- Establishment of business centers
- Establishment of showrooms for leather products
- App-based mobile sale and service system for leather products



Baseline Survey Report:

As part of the work package related to baseline survey, a comprehensive survey was carried out across the state of AP to understand the availability of various resources including raw material (hides & skins), manpower, present status of the LIDCAP centers and mini leather parks, and other aspects that are connected to the leather and leather products industry in the state. Relevant data was collected on the various aspects where separate questionnaires were administered for each of the following type of respondents:

- Village Particulars - Details including basic information about the village, overall details and vital statistics of the livestock population, overall details of the workforce involved in hides and skins trading and relevant practices
- Raw hides and skins dealers - Various practices and quantitative information related to sourcing, collection, curing and sales of raw hides and skins as followed by dealers
- Markets/ Livestock Shandy - Details pertaining to facilities used/ information available for raw hides and skins trade in the particular livestock market/ shandy
- Artisans - Current status of the artisans involved in raw hides and skins trade including production and sales
- Slaughter houses (Organized) - Practices followed and livestock statistics with respect to organized slaughter houses
- Status of the existing mini-parks - Location, infrastructure, ecological and other generic details pertaining to mini-parks across the state

Supervisors and Data Collectors were deployed to carry out survey on-field interacting with various respondents in the respective villages across all the 13 districts of AP.

Expert team from CSIR-CLRI visited the various mini-parks across AP and gathered primary data pertaining to the current status of the mini-parks. The expert team also interacted with officials from LIDCAP to gather further technical details about each site.

Based on the data collected using questionnaires, a comprehensive survey report has been prepared covering the following aspects:

- Livestock population - bovine and ovine population
- Availability and distribution of raw materials (raw hides and skins) including yearly availability of hides and skins
- Methods of slaughtering, collection, methods of preservation, and trade aspects

Recovery and non-recovery of hides and skins

- Status of the existing mini leather parks
- Slaughter houses and animal shandies across

AP, conditions of slaughter houses including water supply, flooring, housing, lighting, space and cleanliness and challenges in management of slaughter houses in AP

- Number of manpower involved in the leather and leather products value chain across the state and also district-wise - including raw hides and skins dealers, personnel involved in collection of hides and skins, personnel involved in curing process, personnel involved in slaughter house activities and artisans involved in the trade
- Socio-economic and trade aspects of the traditional workers and traditional artisans
- Revenue potential of AP with respect to leather and leather products including leather goods, garments, upholstery and footwear
- Current status of the mini-parks across the state and potential improvement opportunities

Detailed Project Reports for 11 Mini Leather Parks:

There are 11 mini leather parks in the state. It is proposed to promote mini leather parks for processing of leather, manufacture of leather accessories and footwear, training center, tanneries etc. through public private partnership. CSIR-CLRI has prepared Detailed Project Report (DPR) for each of the mini-parks for establishment of the various components. Each report also encompasses alternative business model for the respective center indicating the present facilities available and the aspects covering renovation, refurbishment and operation.

A team of scientists from CSIR-CLRI related to leather sector visited each of the mini leather park. Collection of data was carried out by field visits, interviews and meetings with representatives from LIDCAP and support institutions/organizations. In addition, further information was gathered through literature search and reviews of relevant documents from authentic sources. The information obtained through personal discussions was used for augmenting the data/information collected through questionnaires. Aspects studied during this phase include - assessment of current status of leather related activities in Andhra Pradesh to arrive at quality and quantity of available raw material, trading practices, technology status and domestic market for leather and leather products, current policies, institutions and support services for the development of leather sector. Further, situational analysis was carried out as an outcome of the collected data.

The DPRs prepared also include components for establishing business centers (Incubation Centers) at Tirupati, Vijayawada and Vishakhapatnam. The business centers (Incubation Centers) will be a major source for promotion of leather and footwear sector in the State. The business center would be a single point of source with respect to information, guidance, project

profiles, various application forms and documentation and also provide handholding services to new entrepreneurs to establish their business ventures in the state.

The following aspects related to development of mini leather park were studied and included in each report:

- Suitability of the identified site in terms of location, topography, soil types, availability of water, ground water table, power, etc.
- Estimation of leather products development in the leather park based on the availability of the raw material and the probable quantity of material that can be sourced from neighboring places in the region
- Recommending types and size of the tanning/ leather product units
- The product mix suitable to raw material based on the land extension
- The capacity building and the type of production considered
- Layout of complex with various components of tannery, centers for development of footwear, leather goods and garments
- Selection of appropriate leather process

technologies including cleaner process technologies, economical utilization of waste and water conservation measures depending upon the type of units

- Selection of machinery and equipment, typical layout and cost estimate for plant and machinery for product development
- Treatment measures for the waste management, if applicable
- Recommending role of participation by the technical partner
- Marketing and promotion of leather park, pricing policy and mode of allocation to industrial units, cost sharing mechanism for common facilities and services
- Recommendation of financial model with policy inputs for promotion
- Recommendation of appropriate system for management of leather park and common facilities once the leather park becomes functional in accordance with the suggested options to ensure the Government diversification and job creation
- Recommendation of stages in divestment of Government participation

Site view and visit of CSIR-CLRI officials to different mini-leather park centres including inspection at site by CSIR-CLRI team



Report on App-based Mobile Sale and Service System

One of the work packages pertaining to the LIDCAP project is to establish app-based mobile sale and service systems in Andhra Pradesh (AP) for repair and sale of leather products. The work package involves procuring vans (by LIDCAP) and creating a mobile application for carrying out the repair and selling of leather products. This mobile service system would ensure that the Service Providers harness the benefits of technology combined with their skill. CSIR-CLRI provided the interior design for van such that it facilitates in carrying out the repair work and showcasing varied leather products. CSIR-CLRI was also involved in creating the mobile application and will help in hand holding of the entrepreneurs of the mobile van for quality and business development. CSIR-CLRI also ensured hosting of the mobile App in Play Store/ App Store appropriately. LIDCAP has identified the beneficiaries and will provide funding support of 80% of the total project cost to them. CSIR-CLRI has developed a Project Management System to monitor all the activities of the different work packages as well as the mobile service system (GPS monitored online software operation system) for leather products. CSIR-CLRI will also train the beneficiaries in operating the mobile application, technical aspects of fabrication/ servicing of leather products, marketing, procurement of leather products and business management and establish a business management system in this regard.



Fully Fabricated Prototype Van with Leather Products

This mobile service system hosts provisions for display and sale of leather products also. The entire cargo area of the vehicle has been kitted out as a mobile workshop for a Service Provider. The van interior has been crafted with a strong and rational form based on the design and technical inputs provided by CSIR-CLRI to provide a versatile and refined workspace for the Service Providers with better materials and modern tools. Aiming to provide a comfortable working space for the Service Providers, the vehicle has been Air Conditioned. This will in turn engender a sense of pride in the work they do thereby molding them into entrepreneurs.

Four components were taken care by CSIR-CLRI with respect to this work package – design of the van interior and fabrication of prototype van, procuring

service toolkits, sewing machine and raw materials to be housed in the van. CSIR-CLRI formed a dedicated team for execution of this work package comprising of Technical and Administration personnel. The team has worked meticulously to provide the required technical, design and financial inputs at every stage of execution.

The mobile service system will facilitate the Service Providers to fabricate leather products of enhanced quality using better materials, modern tools and a sophisticated work environment. The van interior is equipped with the following elements:

- (i) Sewing machine (pedal operated; does not require electric power to operate)
- (ii) Service tool kit for manufacture and repair/ restoration work of leather products
- (iii) Materials meant for manufacture of the leather articles such as sandals, shoes, hand bags, wallets, belts etc. (small leather products)

The fabrication process for the model van was carried out at CSIR-CLRI by the Institute's expert team. The fabrication of the prototype van was successful and the provisions engineered for the respective components were found to be appropriate. Achieving the envisaged output with respect to the fabrication process was an important step in ascertaining the viability of achieving a successful commercial model via this work package.



Inspection of Sewing Machine Installation and Assembly



Inspection of Toolkits

The procurement for fabrication materials of van interior was carried out by LIDCAP. Appropriate Government of India procedures were initiated and implemented by CSIR-CLRI for procurement of sewing machines, service toolkits and set of raw materials. CSIR-CLRI team visited LIDCAP office and Vijayawada to provide the needful technical support for assembly and installation of sewing machines. Service toolkits and materials were also delivered at LIDCAP office, all of which were thoroughly inspected by the CSIR-CLRI team and duly handed over to LIDCAP. CSIR-CLRI initiated the needful procurement activities and procured leather products for the vans including men's leather wallet, men's PU wallet, ladies leather wallet, ladies PU wallet, men's leather belt (formal and casual), men's leather slippers, ladies leather bags, ladies PU bags, men's leather shoes, ladies non-leather chappals/sandals and men's leather sandals. Logos and slogans as required and indicated by LIDCAP were incorporated in the exterior design of the mobile van.

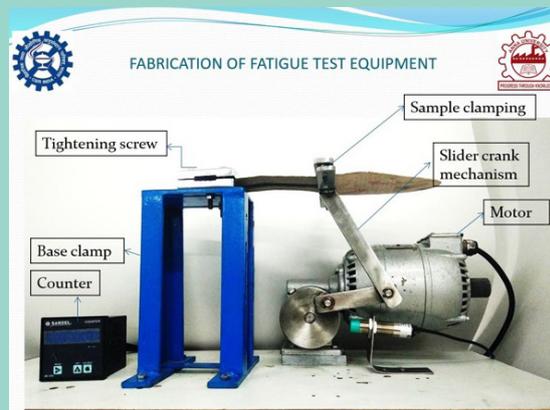


GPS Tracking Device Installation and Demonstration at Vijayawada



Mobile App Screen Shots

“CSIR-CLRI designs Test Equipment to determine fatigue resistance of steel shanks and insole back parts used in Footwear”



The advantages include a combined physical testing of both shanks and insole back part in one equipment. The equipment is designed at one fifth of the cost of a commercial test equipment that can test any one test only, said Shri R Sathiyaraj from the CSIR-CLRI Shoe & Product Design Centre as he made his M.S. thesis final presentation yesterday, 4th December 2019. Other advantages include reduced noise and vibration thus enabling ease of testing.

Physical testing of Leather wallets with seam model (Conventional Type) and without seam models (New Design)



A wallet can be termed as a small case, flat in nature which can be used to carry various personal items such as identification documents, credit/debit cards and importantly the cash. Apart from this, items like business cards and other paper documents are also kept for the purpose of safe keeping. Wallet are usually made up of leather and leather like materials, generally of pocket-sized. The type of a wallet can be of folded one or in a single piece type.

Paper Currency and the Wallet

The wallet in a day-to-day life became an unavoidable one with the use of paper currency existence around 1834. Ultimately the main purpose of carrying wallet is paper currency, the rich people are less likely to carry wallets than the middle class people. Usage of wallet in pocket has a habitually seen as inappropriate, so it also designed to merge in other personal items like belts. With all this constrains, the popularity and importance of using the wallet has raised steadily through 1800s, even flat wallet became a symbol of man personalized thing.

The Modern Wallet

In this developing technology the wallet has also occupied the place in fashion trends in aesthetic perception of the people. Carrying of various personalized items like personnel ID's, credit/debit cards, currency, etc. and in recent decade it is an indispensable habitual for the people. The material is also playing a vital role in wallet, the leather is holding

the name of prestigious material for the wallets. The various types of wallets prefer for multiple occasions and people are considering the carrying of wallet is a trend of fashion, especially for women's personal accessories.

Conventional Type wallets

Folded wallet in which the banknotes are folded over once, the documents and ID cards may be stored horizontally or vertically. The modern Bi-fold wallets with multiple card slots become standardized with the introduction of the using credit/debit cards. Because of its requirement for multiple slots, the number of components increased and stitching these various components into a wallet become increasingly complex and time consuming.

The Folded Model Wallet Without seam - New Design approach

It is a design of Men's wallet that has a new appearance and good aesthetic look, without compromising on its functionality. Because of its front stepped pocket & back top cut in single piece of component, the front pocket can be made by folding in back top itself. It reduces the work of stitching operation as well as materials consumption as leather, ornaments, thread and adhesive. It has same functional and utility wise properties like conventional model of gent's wallets. The making also similar to the conventional type wallets, except in some points of operational change in fabrication.

Difference between the Folded with seam Model wallet (Conventional Type) and The Folded Model Wallet Without seam (New Design type)

| S.No | Parameters | The Folded Model Wallet With seam (Conventional Type) | The Folded Model Wallet Without seam (New Design type) |
|------|---------------------------------|---|---|
| 1. | Design wise | Visible of seam at the edges | Front pocket included in Back top component |
| 2. | Leather Consumption (per 1 nos) | 1.04 Sq.ft | 0.97 Sq.ft |
| 3. | Lining Consumption (per 1 nos) | Almost Equal consumption | |
| 4. | Components Cutting | Seam allowance are added to the components. | 1. Front steps pocket & back top cut in single piece components. 2. Binding & trimming allowance (Front steps pockets) added in components itself. |
| 5. | Machine operation | Seam operations are included | Folding operations are included |
| 6. | Fabrication | Same materials | |
| 7. | Overall closing | Seam stitches are required at the edges | Folding edges at all the four sides |
| 8. | Time consumption | More time than the folded wallet | Less time than the folded with seam wallet |
| 9. | Utility wise | Both are Same | |



Leather wallet with seam model



Leather wallet without seam model

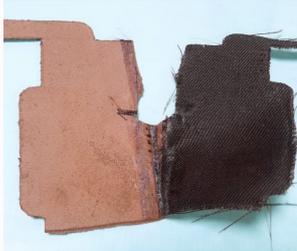


Physical testing of Leather wallets with seam model and without seam models

To ascertain the durability of the new wallet with the quality standards of wallet following tests are leather wallets with seam model and without seam model wallets submitted to CATERS departments.

1. Seam strength (SATRA TM 180) This test only are leather wallets with seam model
2. Adhesion strength (SATRA TM 408) This test only are leather wallets without seam model
3. Water spotting (SATRA TM 185)
4. Break Pipeness (SATRA TM 36)
5. Extension at break (SATRA TM 43)

Results

| S.No. | Test Name | Results | | |
|-------|---|-------------------------------|-------------------------------|---|
| | | Without Seam | With Seam | |
| 1 | Seam strength (SATRA TM 180) | N/A | 11.05 N/mm (Min < 10 N/mm) |  |
| 2 | Adhesion strength (SATRA TM 408) | 1.46 N/mm (Min < 0.3 N/mm) | N/A |  |
| 3 | Water spotting (SATRA TM 185) | No change | No change |  |
| 4 | Break Pipeness (SATRA TM 36) | Ref. scale 4 (> 3) | Ref. scale 3 (> 3) |  |
| 5 | Extension at break (SATRA TM 43) | 32% | 34% (30 to 80%) |  |

Conclusion

Overall the standard values of without seam wallet meets the requirements of the guidelines as well as the values of the wallet with seam (conventional wallet). The comparative values are given in the table, where the test results of water spotting and extension at break are similar. But in the break pipeness, test shows without seam wallet (new design) gives a better result than the 'with seam wallet'. The test break pipeness give the ability of the wallet to withstand the wrinkles formation when flexed. So the wallet without seam will have good aesthetic look and withstand the tearing because of the wrinkles as wrinkle formation is lower.



Leather Goods Design Programme (November 2019)

The ever-growing competitive International market for the manufacture of sophisticated, fashion oriented and value added leather products has necessitated the need for design and quality inputs. At this stage of development, there is a long felt need for short duration courses, preferably of part-time in nature. As required by the industry CSIR-CLRI conducts leather goods design programme with state of the art facilities to provide necessary technical expertise in pattern designing of leather goods (manual as well as Computer Aided Design) to meet the requirements of fashion and quality conscious International market.

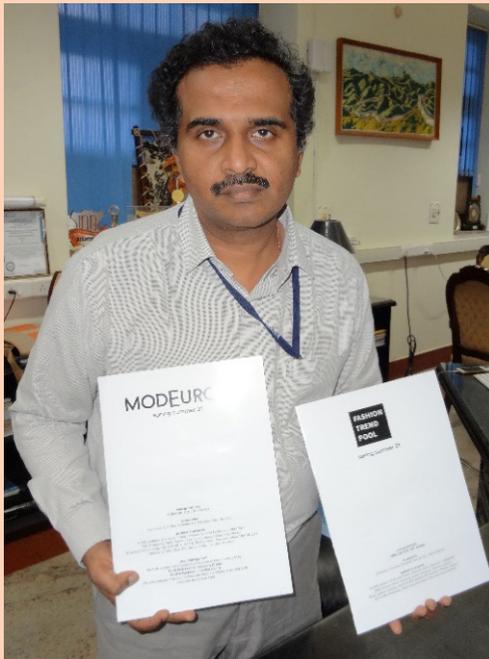
A news batch of Leather Goods Design Programme commenced on 25th November at Shoe and Product Design Centre, CSIR-CLRI and two students enrolled for the programme.

This course would enhance the capabilities of the trainees and fine tune their skills in designing of leather goods.

The course curriculum includes:

Pattern designing (Manual)
Introduction to Leather Goods
Personal leather goods for Men & Women
Clutch Bag/Shoulder Bag
Executive products, Travel/Sports Bag

CAD for Leather Goods
Introduction to CAD systems
Pattern Digitizing, Pattern construction
Nesting, Consumption Calculation and Reports



Colour Cards for Spring Summer 21

MODEUROP & FASHION TREND POOL released by Director, CSIR-CLRI on 10th December 2019

Dr KJ Sreeram, Director, CSIR-CLRI released the Colour Cards of MODEUROP and FASHION TREND POOL for the 'Spring Summer 21 season' on Tuesday, 10th December 2019. The Colour Meetings of MODEUROP and FASHION TREND POOL were held in Berlin and in Antwerp respectively during October 2019.

The MODEUROP Colour Card has 27 colours in three colour groups: Sensitive, Impulsive and Constructive; while the FASHION TREND POOL Colour Card has 24 colours in three colour groups: The Vibrant, The Sunny and The Exotic. The Indian Leather and Leather Products Industry will benefit immensely from the 'advance information' on the changing fashion trends, three seasons in advance!

Synergy Partners

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Co-Sponsors

Colourtex | Chenitan | Colourfast | Smit & Zoon | Stahl India Ltd

Partners in Progress

ALINA Leathers | ATH Leder Fabrik | Chennai Leather Fashions | CHENITAN | DRISH Shoes Limited | Forward Leather Company | Genuine Leathers | Good Leather Company | KH EXPORTS (MAKH) | PA Footwear | Pakkar Leathers | RATHNAM | Shoeberry | Stahl India Pvt Limited | Tata International Limited

Officials from **ATOMIC ENERGY REGULATORY BOARD (AERB)** met Dr KJ Sreeram, Director, CSIR-CLRI on 5th December 2019



CSIR-CLRI has successfully completed the second product making training program under CSIR-HARIT at CSIR-NEIST, Imphal center for Entrepreneurship development.
In pictures: Trainees displaying the products developed during the training session



On your Retirement
Director and Staff wish you a very happy retired life!



Smt KUPPAMMAL T
MTS, ENGINEERING SERVICES - LAB
MAINTENANCE



Shri NARINDER PAL SINGH
Sr. Technician(2),
RCED JALANDHAR



CSIR-CLRI



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