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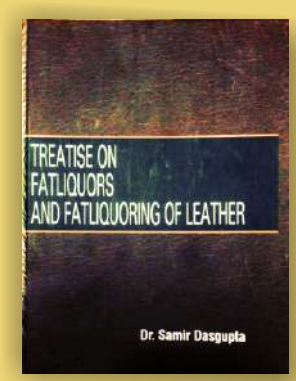

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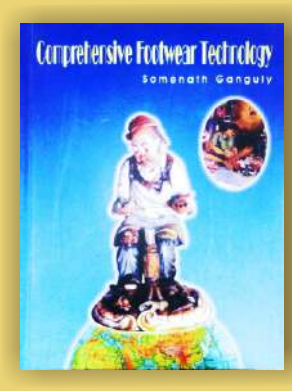

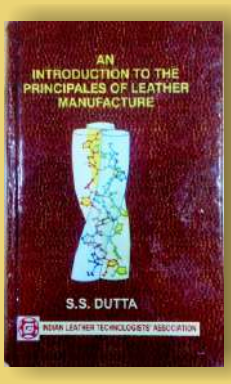

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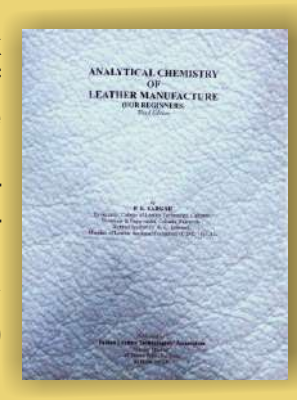

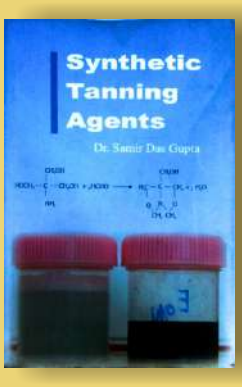

Title of the Book
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Author
Dr. Samir Dasgupta

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Title of the Book
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Author
Prof. B. M. Das

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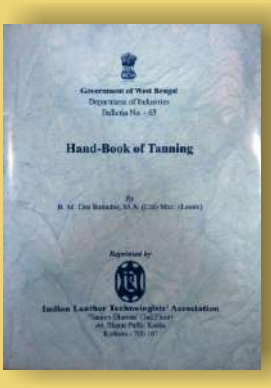

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Indian Leather Technologists' Association
[A Member Society of International Union of Leather Technologists' and Chemists Societies]

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JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

Indian Leather Technologists' Association is a premier organisation of its kind in India was established in 1950 by Late Prof. B.M.Das. It is a Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS).

The Journal of Indian Leather Technologists' Association (JILTA) is a monthly publication which encapsulates latest state of the art in processing technology of leather and its products, commerce and economics, research & development, news & views of the industry etc. It reaches to the Leather / Footwear Technologists and the decision makers all over the country and overseas.

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Transition to La Nina from El Nino - Effect on Economy

The El Niño and La Niña phenomena are complex climate patterns that occur in the Pacific Ocean and can have significant impacts on weather around the world. El Niño is characterized by warmer-than-average sea surface temperatures in the central and eastern Pacific, while La Niña is characterized by cooler-than-average sea surface temperatures in the same region.

La Nina has the following effects on the climatic matrix on India :

1. Increased Rainfall in Southern India : La Niña tends to bring above-average rainfall to southern parts of India, including regions like Kerala, Tamil Nadu, and Karnataka. This can result in flooding in some areas but can also benefit agriculture.

2. Below-average Rainfall in Northern India : Conversely, La Niña often leads to below-average rainfall in northern parts of India, including states like Rajasthan, Punjab, Haryana, and Uttar Pradesh. This can result in drought conditions and negatively impact agriculture in these regions.

3. Impact on Monsoon : La Niña can affect the Indian monsoon, influencing its strength and distribution. Typically, it strengthens the monsoon, leading to increased rainfall in some areas and delayed withdrawal in others.

4. Temperature Patterns : La Niña tends to bring cooler temperatures to parts of northern India during the winter months, while southern India may experience warmer temperatures.

It's important to note that while La Niña can influence weather patterns, other factors also play a role in India's weather, and the specific impacts can vary from one La Niña event to another. For the most accurate and up-to-date forecast information, it's best to consult official meteorological agencies such as the India Meteorological Department (IMD).

El Nino has the following effects on the climatic matrix on India :

El Niño is a climatic phenomenon characterized by the warming of sea surface temperatures in the central and eastern tropical Pacific Ocean. It has significant effects on weather patterns across the globe, including the Indian climate. The impact of El Niño on the Indian climate is most notably observed in its influence on the monsoon season. Here are some of the key effects :

1. Weakened Monsoon Rains : El Niño is often associated with weaker monsoons in India. The warming of the Pacific Ocean can lead to a shift in atmospheric circulation patterns, which in turn can weaken the monsoon winds that bring moisture-laden air to India. This can result in reduced rainfall during the monsoon season, impacting water supply for agriculture, drinking, and power generation.

2. Droughts : Reduced rainfall due to a weakened monsoon can lead to drought conditions in various parts of India. Droughts can have severe implications for agriculture, leading to crop failures, loss of livelihood for farmers, and food shortages. India, being an agrarian economy with a significant portion of its population dependent on agriculture, can face economic challenges during El Niño years.

3. Heat waves : El Niño can also contribute to higher temperatures in India. Increased sea surface temperatures and altered atmospheric patterns can lead to hotter and drier conditions, increasing the likelihood of heat waves. These conditions can have adverse health impacts, particularly on vulnerable populations, and can also increase demand for electricity for cooling, stressing power grids.

4. Impact on Agriculture and Economy : Agriculture in India heavily depends on the monsoon rains. Insufficient rainfall due to El Niño can reduce crop yields, affecting food production and prices. This can have ripple effects on the

broader economy, including inflation, reduced economic growth, and increased financial strain on rural households.

5. Regional Variability : The impact of El Niño on Indian climate can vary regionally. While the overall trend is towards reduced rainfall and warmer temperatures, some regions may experience different effects based on local topography and climatic conditions.

It is important to note that not every El Niño event will have the same impact on India's climate. The strength and duration of the El Niño event, as well as other climatic factors, can influence the extent of its effects. Additionally, the Indian Ocean Dipole (IOD) and other climatic phenomena can interact with El Niño, modulating its impacts.

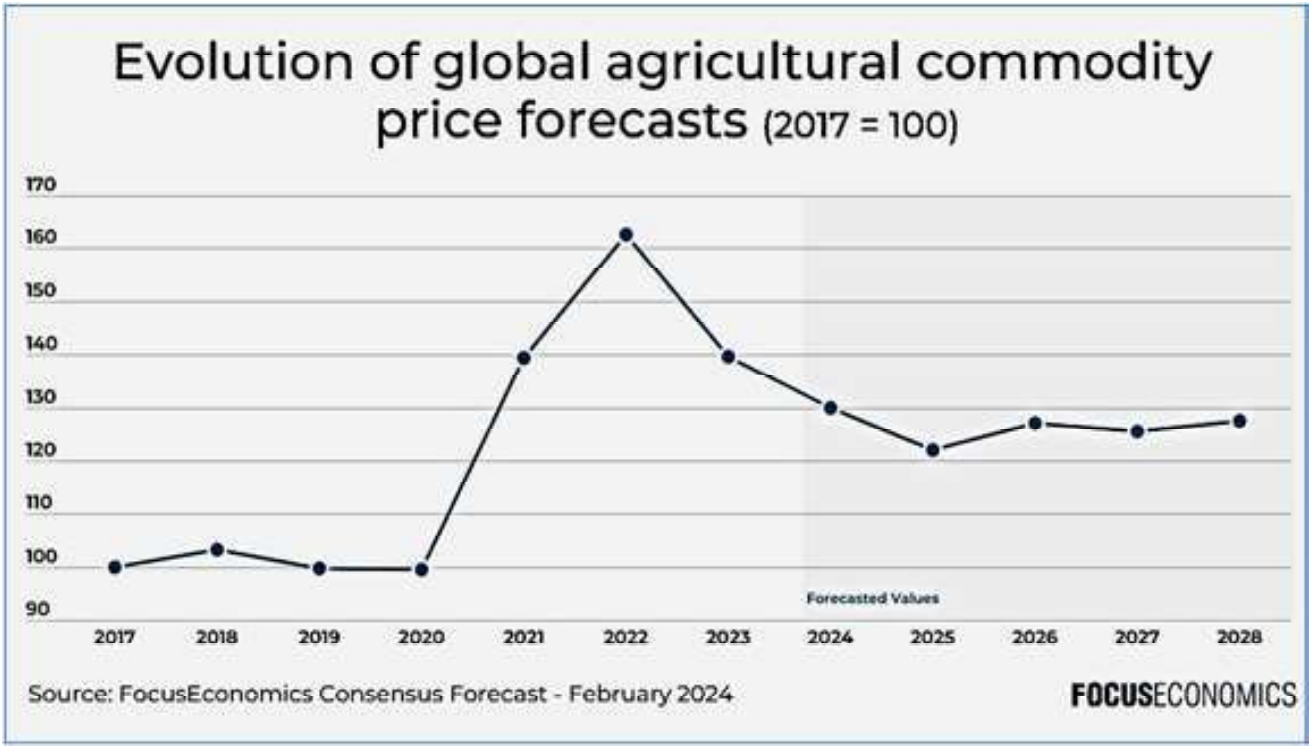
To mitigate the adverse effects of El Niño, the Indian government and various organizations implement measures such as improved weather forecasting, water conservation practices, and agricultural advisories to help farmers adapt to the anticipated changes in weather patterns.

If 2024 is transitioning from El Niño to La Niña, it would mean that sea surface temperatures in the central and eastern Pacific are cooling, signalling the onset of La Niña conditions. This transition could have various effects on weather patterns globally, including increased rainfall in some regions, droughts in others, and changes in temperature patterns.

It's important to note that the impacts of El Niño and La Niña can vary depending on the strength and duration of these events, as well as other atmospheric and oceanic factors. Additionally, while El Niño and La Niña events can influence weather patterns, they are not the sole determinant of weather conditions in any given year.

The ongoing El Niño weather pattern is set to restrain agricultural output in 2024, as it did last year, despite being less strong than initially feared. In addition, La Niña—the "inverse" of El Niño—has a 55% likelihood of developing in June–August, according to the U.S. weather service, further dampening primary sector production. This insight piece explores the evolution of commodity price forecasts given changing weather conditions.

Last year, the price of "soft" agricultural commodities, such as coffee, cocoa, sugar, corn, soybeans and more—rose 12.3% from the prior year, according to the Dow Jones-UBS index. This led global inflation to decrease less sharply last year, after spiking in 2022 due to disruption to commodity supply amid Russia's invasion of Ukraine. In turn, this has slowed central banks' moves to lower interest rates.



In Latin America, Brazil's primary sector has been particularly badly affected by extreme weather. In Asia, 2023's monsoon was the driest in five years in India, dampening the output of key crops such as rice and leading to the imposition of several export restrictions. In Africa, the Ivory Coast saw an over 35% year-on-year fall in delivery of cocoa to the nation's ports in October–January.

There is a 79% probability that the El Niño weather pattern will end by April–June, according to the U.S. weather service, suggesting that the world economy has weathered the worst of the climate phenomenon already. That said, the economic impact of El Niño will likely be seen even after its end as crops are harvested; over the last six months, our panellists have raised their Q4 2024 commodity price forecasts for sugar, cocoa, coffee, palm oil and rice.

La Niña is sometimes known as the "anti-El Niño" and occurs when trade winds strengthen and push warm water toward Asia and cold water toward the west coast of the Americas. If there is a strong La Niña later this year, the output of wheat and corn in the U.S., as well as soybean and corn output in Latin America, are likely to be affected. That said, a moderate La Niña could slightly boost agricultural output and lower commodity price forecasts.

On the outlook for coffee and cocoa prices, analysts at the EIU said :

"Prices for food, feedstuffs and beverages (FFB) will rise over the course of 2024, driven primarily by beverages, as El Niño will hit production and therefore prices for coffee and cocoa will increase. Some relief is in sight, with the US National Oceanic and Atmospheric Administration (NOAA) giving a 72% chance that El Niño will come to an end by mid-year. But the damage to this season's harvests will already be done by then, with coffee and cocoa production forecast to fall by 9% and 13% respectively in the 2023/24 crop season."

Analysts at Fitch Solutions commented on India's export restrictions :

"In September 2022, India introduced a ban on broken rice exports, which was then followed by the July 2023 introduction of a ban on non-basmati white rice exports and the August 2023 introduction of a 20% duty on parboiled rice exports and introduction of a minimum price for basmati rice exports. As a result, India, which is the largest world exporter by a considerable margin […] saw 80-90% of its rice exports subject to export restrictions with 40-50% subject to an outright export ban […]. Concerns as to export flows have also been compounded by the current El Niño, which is associated with below-average rainfall across much of Southeast Asia as well as reduced monsoon rainfall in India."

As of the last update in April 2023, predicting the specific effects of La Niña on the Indian economy in 2024 involves a certain degree of speculation. However, understanding the general impacts of La Niña on India's climate can provide insights into its potential economic implications. La Niña is characterized by cooler than average sea surface temperatures in the central and eastern tropical Pacific Ocean, which can influence weather patterns globally, including in India.

Positive Effects on Agriculture :

1. Enhanced Monsoon Rains : La Niña events are typically associated with stronger and more regular monsoon rains in India. Enhanced rainfall can significantly benefit the agricultural sector by improving crop yields, especially in rain-fed areas that depend heavily on monsoon rains. This can lead to an increase in agricultural productivity and potentially lower food prices, positively impacting food security.

2. Groundwater Recharge : Increased rainfall can help in replenishing groundwater levels, which is crucial for both agriculture and drinking water supplies in many parts of India.

Economic Prospects :

1. Agricultural Output and GDP : Given the large share of agriculture in India's GDP and employment, a robust monsoon induced by La Niña can boost economic growth by increasing agricultural outputs. This can also have a cascading effect on related industries such as agro-processing, transportation, and retail.

2. Inflation : A good monsoon typically leads to lower food prices, which can help in controlling inflation. This is particularly important for India, where food inflation can significantly impact the overall inflationary trend due to the weight of food items in the consumer price index.

3. Rural Economy and Consumption : Improved agricultural prospects can enhance the income of farmers and rural households, leading to increased rural consumption. This can be a significant boost for the economy, especially for sectors like FMCG (Fast Moving Consumer Goods), two-wheelers, and rural-focused services.

Potential Challenges :

1. Risk of Floods : While La Niña can bring beneficial rains, excessive rainfall can also lead to flooding in some regions, potentially causing damage to crops, infrastructure, and property. This could offset some of the positive economic impacts.

2. Sectoral Imbalances : While agriculture might flourish, excessive rainfall can disrupt mining, construction, and other economic activities, leading to a mixed impact on the broader economy.

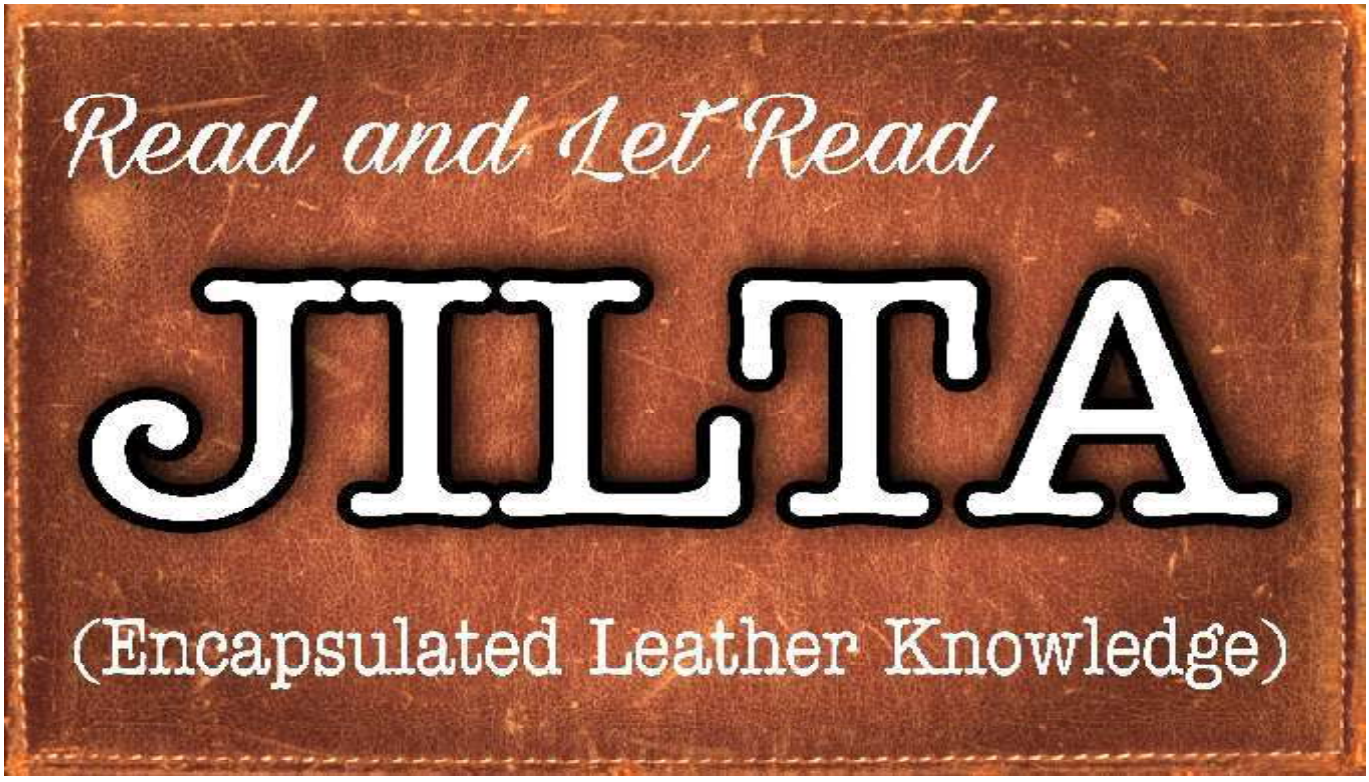
Preparedness and Adaptation

The Indian government and businesses often use forecasts related to La Niña to prepare and adapt strategies. For instance, anticipating a good monsoon, agricultural planning can include choices of crops that may yield better results. Similarly, government policies on water management, flood control, and disaster preparedness can mitigate the adverse effects while maximizing the benefits.

In conclusion, La Niña can have a generally positive impact on the Indian economy, particularly through its effects on agriculture. However, the overall impact on India's economic prospects in 2024 would depend on the strength and duration of the La Niña event, the sectors of the economy in question, and the preparedness and adaptability of the economy to leverage the favourable conditions while mitigating potential adverse effects.

Goutam Mukherjee

Dr. Goutam Mukherjee
Hony. Editor, JILTA



Stahl Leather solutions

Stahl is proud to launch the renewed Stahl Neo® range: a future-proof portfolio of low-impact solutions covering the entire wet-end and finishing stages of leather production.

With growing awareness of environmental and health and safety impacts, the Stahl Neo® portfolio has been extensively reviewed and tested to help customers meet today's fast-evolving certification and compliance landscape for leather chemicals. This includes the recently updated Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substance List (MRSL) 3.1.

Following a rigorous internal review and testing programme, all products in the Stahl Neo® portfolio are in compliance with the following three criteria:

1. ZDHC: All Stahl Neo® products are compliant with Version 3.1 of the ZDHC MRSL for leather manufacture.

2. EU CMR: Stahl Neo® products are certified free from carcinogenic, mutagenic or reprotoxic (CMR) substances as per EU criteria.

3. EU REACH SVHC: Stahl Neo® products meet EU REACH criteria for substances of very high concern (SVHC) (less than 0.1% concentration).

As a result, Stahl is now able to offer tanners the most comprehensive range of future-proof solutions on the market – providing peace of mind for stakeholders across the leather article value chain.

Scan the QR code to download the Stahl Neo® brochures and discover the specific benefits of each product in our portfolio.

www.stahl.com

Stahl is a world leader in speciality coatings and treatments for flexible materials. Around the world, nearly 2,000 Stahl colleagues are driven by a clear purpose:
Touching lives, for a better world.

Our diverse teams work on creative and innovative surface solutions that enable our customers to make fantastic products. Our coatings are found on everyday materials in the automotive, luxury goods, packaging, apparel and home furniture market, among others. When consumers touch everyday products, we touch their lives.

Being a world leader means we are dedicated to contributing to a better world together with our value chain partners. At Stahl, we aim to impact the market through innovation and sharing knowledge and by reducing our own operational footprint. Our approach is underpinned by our robust ESG strategy and our strong sense of social responsibility, a characteristic shared by leading global companies.

We promote:

- Teamwork
- Initiative
- Personal development
- Innovation
- Creativity

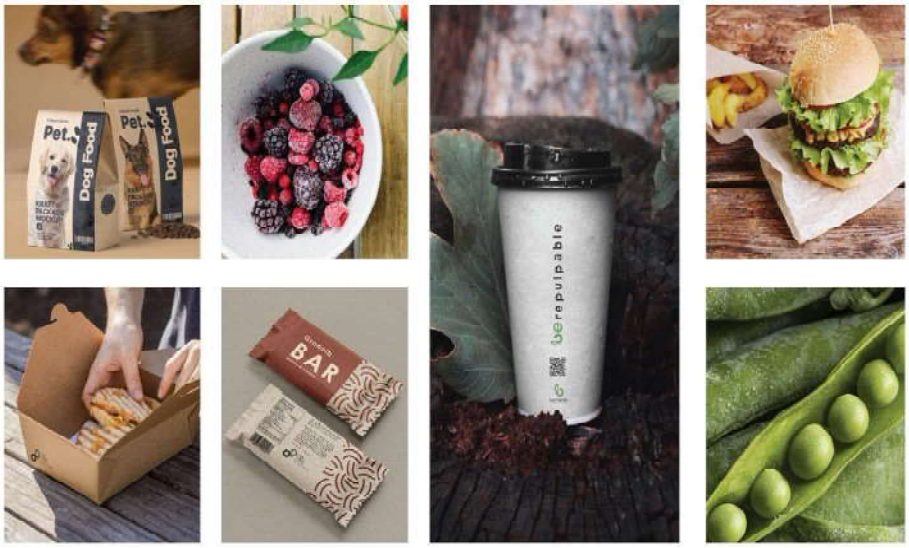
Working at Stahl, means being part of a versatile, ambitious team that is committed to working on innovative, high-quality coating solutions for our customers while making the world a better place. You will also be joining a diverse global community: headquartered in Waalwijk, the Netherlands, Stahl operates a network of 16 production sites and 37 application laboratories, supported by sales offices in 22 countries.

stahl.com

Stahl

STAHL STRENGTHENS SUSTAINABLE PACKAGING COATINGS OFFERING WITH BARRIERTEC LICENSING AGREEMENT

Stahl, the world leader in speciality coatings and treatments for flexible substrates, has signed an exclusive licensing agreement with Barriertec, a provider of sustainable high-performance barrier solutions for paper and cardboard packaging.



The licensing agreement gives Stahl exclusive rights to sell Barriertec's sustainable barrier coatings product to the packaging market under the Stahl brand. The products will also carry the Barriertec and Be Repulpable label.

Barriertec's solution enables the application of sustainable barrier coatings onto paper, providing excellent barrier properties for oxygen, water, oil and grease to packaging and supporting the recycling and reuse of paper fibers in new packaging solutions. The sustainable barrier coatings offer significant benefits to food packaging manufacturers, in particular, supporting the industry's transition to fully recyclable paper-based packaging.

Paolo Bavaj, Chief Innovation and Development Officer at Stahl, said :

'Sustainability is a key pillar at Stahl as we embrace new technologies that can help our customers increase the recyclability of their products and manage their environmental footprint. Supported by our in-house R&D capabilities, our aim is to scale this technology and expand our toolbox of tailored packaging coatings solutions for customers. This exciting partnership with Barriertec supports our sustainability ambitions and strengthens Stahl's position as a market leader in speciality coatings for flexible substrates.'

Paul Grzebielucha, Global Director Packaging Coatings at Stahl, said :

"We at Stahl take our role of being a leading and responsible supplier in the food and packaging chain as a serious quest. We feel this partnership with Barriertec and Francois Dandenault helps us take a major step at saving fibres, reducing waste and making a step change improvement that allows single coated substrates to replace difficult to recycle multilayer materials. This new line of repulpable, enhanced properties, thin film coatings, with our ability to supply them worldwide, will take a huge step at supporting a sustainable packaging lifecycle for our customers worldwide.

Francois Dandenault, Owner & CEO Barriertec Packaging & Group Research I.D., said :

"Barriertec's mission is to find better, greener options like developing new coating technologies that help introduce renewable and bio-sourced components. Our unique approach enables us to lead the market with our technology while remaining competitive, thanks to our innovative processes. Based on industry needs, we have defined the technological requirements for repulpable packaging coatings. It's essential to surround ourselves with the best, with those who share our vision, so it was only natural for us to partner with Stahl. Barriertec's technology is now part of a worldwide

network offering one of the world's most effective barrier solutions: repulpable packaging made from renewable fibres. So, take the green step, be the change! Be Repulpable!"

The agreement with Barriertec is the latest step in Stahl's strategy to strengthen its packaging coatings offering, with a focus on providing high-quality, sustainable solutions to printing and packaging customers. In March 2023, Stahl expanded its market share in packaging coatings with the acquisition of ICP Industrial Solutions Group (ISG), a leading supplier of high-performance coatings for packaging and labelling applications.

(Stahl News – 14/03/2024)

SUSTAINABLE PACKAGING COATINGS : SOLVING THE GREAT COFFEE-CUP CHALLENGE

Question of the day : How do you maintain the much-needed barrier properties of essentialflpaper food and beverage packagingflwhile meeting the growing demand for recyclable solutions? At Stahl, we're working hard to answer this challenge as we addflBarriertec's sustainable barrier coating technologyflto our growing portfolio offlpackaging coatings. Read on to find out more about this innovative development – and what it means in a rapidly changing industry landscape.

The problem with fossil-based coatings

The environmental footprint of paper and cardboard packaging is a growing concern in many industries, particularly in the food and beverage value chain. It's estimated that aroundfl500 billion disposable paper cups are produced every year. Of these, less than 2% are recyclable or recoverable. It's why, around the world, approximatelyfl1 million single-use coffee cups end up in landfillsflevery minute.

Much of the problem lies in the thick, fibre-based barrier used in many of today's packaging products. Most paper-based cups, for example, are coated with a transparent layer of PE, which means they cannot be recycled with standard paper and cardboard. Other common packaging coating materials include polyethylene and aluminium oxide. These traditional materials make cups and other everyday applications more difficult to recycle, adding to a growing global packaging waste problem. And, being fossil-based, they also increase the carbon footprint of packaging applications over the product's lifecycle.

New demands, new solutions

But the tide is turning. A combination of new legislation and growing consumer awareness is prompting manufacturers and brands to explore new, less environmentally damaging alternatives for food and beverage packaging.

In January 2024, the Netherlands introduced a ban on single-use cups at coffee machines in locations such as offices and sports canteens. This is part of a wider EU-wide drive to reduce the amount of plastic waste produced in the trading bloc.

Meanwhile, around the world, leading food and beverage brands have set out their ambitions to move towards more sustainable packaging, prompting packaging manufacturers to invest in the development of new, lower-impact solutions.

Against this backdrop, the market for sustainable barrier coatings is expected to grow by around 10% annually over the next few years, reaching USD 2 billion globally by 2030. Coatings manufacturers like Stahl have the opportunity to be part of this important area of innovation.

Future-proofing our offering

Indeed, we're expanding our portfolio of packaging coatings to meet this growing market need.flIn March 2024, we signed a licensing agreement with Barriertec, a provider of high-performance barrier solutions for paper and cardboard packaging. The agreement gives us exclusive rights to sell the company's sustainable barrier coatings under the Stahl brand (co-branded with Barriertech) as part of our packaging coatings portfolio.

Barriertech's sustainable barrier coating solution enables the application of sustainable barrier coatings to paper, providing packaging with excellent barrier properties against oxygen, water, oil and grease. Importantly, the coating results in packaging that is fully repulpable and recyclable, meaning that treated packaging can be recycled alongside untreated paper and board to make new products.

The solution is FDA-approved, PFAS-free and can be used to treat a wide range of fibre-based food contact packaging, including paper cups for hot and cold drinks, sandwich wrappers, fast food containers, frozen food bags, ice cream tubs and salt sachets. It provides excellent barrier properties for a wide range of substances, from gases such as water vapour, oxygen and carbon dioxide, to liquids such as oil and grease.

Going forward, we plan to leverage Stahl's extensive R&D capabilities to scale up Barriertec's technology and develop opportunities for new segments and customers within the packaging ecosystem. In this way, we can significantly expand our toolbox of customised packaging coating solutions providing customers with tailor-made, sustainable offerings. And end-users with low-impact products – like paper coffee cups – that touch lives without harming the planet.

(Stahl News – 14/03/2024)

FLAME RETARDANTS TAILORED FOR SPECIFIC PRODUCT APPLICATION

When fire safety is a priority, the right flame retardant technology can make all the difference in product safety. When fires do start, they slow down the spread and increase valuable escape time. Our flame-retardant portfolio is suitable for different substrates in a variety of industries, tailored to meet precise product requirements and fireproof norms. We develop performance coatings, additives and polymer dispersions that ensure flame-retardant environments and settings.

REDUCE FIRE HAZARD RISK, WITHOUT COMPROMISE ON QUALITY

Flame retardant chemistry ensures end products that, in all their style and substance, slow the rate of fire and decrease the generation of burn and smoke. Stahl's flame-retardant solutions are applicable to a variety of substrates, like leather, technical textiles, high-performance fabrics or nonwovens and synthetics. They are used as is or as a component in coating formulation. Achieving precise performance standards in accordance with strict fire safety regulations without affecting other properties is a major challenge. That's why we work side-by-side with you as customer, to provide you with the technology that meets your needs in performance, legislative compliance and environmental standards.

VERSATILE IN APPLICATION, RELIABLE IN SAFETY

Stahl's flame retardants are used in the mobility, interior design, outdoor applications, safety equipment and many other industries. Stahl technology and solutions can be found throughout a variety of construction applications. They give flame-retardant properties to flooring, tents and awnings at outdoor festivals, but that also give a fire-safe coating to less visible elements you might not think about, like construction insulation material, heat shields, roofing and other construction material, be it non-woven, foam or membrane: in the invisible background they can all play their flame-retardant part with the right Stahl coating.

KEY BENEFITS OF STAHL FLAME RETARDANTS

Our full life cycle of flame-retardant solutions has been evaluated from initial production through recycling at the end of consumer product life. Stahl's flame-retardant solutions have been deemed safe for continued use, making them the durable and reliable choice. They are designed using the latest technologies, testing and prototyping equipment in order to guarantee the best and most up-to-date application possible for end products. A large portion of our portfolio contains water-based technologies. This enables the same safety standards, with a smaller ecological footprint.

Key benefits:

- Safe for continuous use
- Meeting the most rigorous standards
- In line with environmental and legislative requirements
- Highly customizable to product needs
- Services available for tailor-made solutions

FR PORTFOLIO PRODUCT OVERVIEW

Stahl offers a broad range of flame-retardant building blocks, varying from water-based performance coatings, to polymer dispersions, binders and additives. Below you find a number of our available technologies. Read more about it on our Stahl Integra ® page.

(www.stahl.com/performance-coatings/flame-retardants)

Stahl

From the desk of General Secretary

13TH MONI BANERJEE MEMORIAL LECTURE

The event was organized at 03.00 PM (Registration begins at 02.30 PM) on Friday the 15th March, 2024 at Seminar Hall – 19A, The Science City, J B S Haldane Avenue, Kolkata – 700 046.

After delivering the introductory speech, Mr. Susanta Mallick, General Secretary, ILTA, invited the following to garland the portrait of Late Prof. Moni Banerjee.

1. Mr. Arnab Kumar Jha, President, ILTA
2. Mr. Pradip Kumar Nath, Life Member, ILTA
3. Mr. Satya Narayan Maitra, Hon'ble Speaker of the day
4. Mr. Gopal Chatterjee, Son-in-Law of Late Prof. Moni Banerjee
5. Dr. Sathish, Representative from CLRI
6. Mrs. Maitreyee Chatterjee & Mrs. Chandana Banerjee, both daughter of Late Prof. Moni Banerjee
7. Miss Dabolina Ghara, Award Winner from CFTC, Budge Budge
8. Mr. Tapas Choudhury, Senior Member of ILTA
9. Mr. Ramesh Chandra Sahoo, Representative from FDDI
10. Dr. Samir Mondal, Representative from GCELT
11. Mr. Vivek Kumar, Award Winner from CFTI, Agra

After garlanding session, Mr. Arnab Jha, President, ILTA and Mr. Satya Narayan Maitra, Business Director, Leather Division INDIA, Cromogenia Units, Barcelona, Spain, were requested to take their seats on the dais and Mr. Jha was requested to deliver the Welcome Address. Mr. Jha in his address briefly recalled the life history and achievements of Late Prof. Moni Banerjee and welcomed all the participants.

Name of the recipients of Moni Banerjee Memorial Medals then declared and medals & certificates were handed over to them as stated below: -

1) Mr. Vivek Kumar, Topper, Diploma in Footwear Manufacture & Designer Course Examination, 2023, Central Footwear Training Institute, Agra, U.P. received the medal & certificate from Mr. Arnab Jha.

2) Ms. Ritu Gupta, Topper, B. Des. in Footwear Design & Production Examination, 2023, Footwear Design & Development Institute, Kolkata Campus, was unable to attend. On her behalf, Mr. Ramesh Chandra Sahoo, Sr. Faculty & HOD, Footwear Dept., FDDI, received the Medal & Certificate from Mr. Satya Narayan Maitra.

3) Ms. Anchita Ghosh, Topper, B. Des. in Leather Goods & Accessories Design Examination, 2023, Footwear Design & Development Institute, Kolkata Campus, received the Medal & Certificate from Mr. Arnab Jha.

4) Ms. Anushka Banerjee, Topper, B. Des. in Fashion Designing Examination, 2023, Footwear Design & Development Institute, Kolkata Campus, was unable to attend. On her behalf, Mr. Ramesh Chandra Sahoo, Sr. Faculty & HOD, Footwear Dept., FDDI, received the Medal & Certificate from Mr. Arnab Jha.

5) Mr. Prosenjit Mondal, Topper, Diploma in Footwear Technology Examination, 2023, Central Footwear Training Centre, Budge Budge, West Bengal, received the Medal & Certificate from Mr. Satya Narayan Maitra.

6) Ms. Dabolina Ghara, Topper, Diploma in Leather Goods Technology Examination, 2023, Central Footwear Training Centre, Budge Budge, West Bengal, received the Medal & Certificate from Mr. Satya Narayan Maitra.

7) From the year 2023 a Scholarship in the name of late Prof. Moni Banerjee has been introduced. A selection committee consisting of three members with Prof. (Dr.) Sanjoy Chakraborty, Principal, GCELT, Mr. Gopal Chatterjee, Son-In-Law of late Prof. Moni Banerjee and Mr. Susanta Mallick, General Secretary, ILTA was formed for the purpose.

   Mr. Ankan Maity, Student of B.Tech., Leather Technology stream of Govt. College of Engineering & Leather Technology, Kolkata, was nominated as the recipient the Prof. Moni Banerjee Scholarship, 2023-24. He received the award from Dr. Chandana Banerjee (Sarkar) & Mr. Arnab Jha.

Thereafter, Mr. Ankan Maity spoke a few words about his ongoing project.

Mr. Mallick thereafter requested Mr. Arnab Jha and Mr. Asit Baran Kanungo, Vice President, ILTA to greet Mr. Satya Narayan Maitra, Speaker of the day with a flower bouquet & shawl.

Mr. Jha then introduced Mr. Satya Narayan Maitra to the gathering and requested him to deliver the 13th Prof. Moni Banerjee Memorial Lecture titled "***Challenges of the Tanners in the Changing Socio-Economic Environment***". On conclusion of the lecture, Mr. Maitra was presented a Memento and Citation by Mr. Susanta Mallick & Mr. Arnab Kumar Jha.

Mr. Susanta Mallick then proposed the Vote of Thanks to the Speaker, Members, Faculties and Students of GCELT, CFTC, CFTI & FDDI and dignitaries from the industry. He also paid heartfelt thanks to the family members of Late Prof. Moni Banerjee for their kind presence and participation in the event and also the Science City authority for their kind support to organize the event in their Seminar Hall as the Venue. Wishing a bright future to the award winners, Mr. Mallick requested all present to proceed to outside of seminar hall for tea & refreshments.

Near about 100 participants joined the program.

The whole program would be available on the YouTube Channel, Facebook Page and website of ILTA soon.

HEALTH CARE BENEFIT FOR ILTA MEMBERS

As per decision taken in the 562nd Meeting of the Executive Committee, ILTA has launch a Health Care Benefit Scheme for all the Members of the Association in collaboration with M/s Narayana Health w.e.f. 1st April, 2024. Initially the scheme has been launched for the members of the Eastern Region as a Pilot Project.

This is an initiative of the HRD Committee of ILTA.

For benefits and other details of this project may kindly follow the HRD Corner (Page No. 41).

DIGITALIZATION OF ILTA PUBLICATIONS

As per decision taken in the 562nd Meeting of the Executive Committee, ILTA is going to launch a digital platform for availing all its publications including Leather Text Books, JILTA and different articles from renowned authors of Leather Fraternity online.

This is also an initiative of the HRD Committee of ILTA.

Work on this project is under proc\ess. The details of the same will be published very soon.

WEBINAR ON COMPREHENSIVE CANCER CARE

ILTA in collaboration with M/s Narayana Health and in association with GCELT, Kolkata & Alumni Association of GCELT is going to organize an Webinar on Comprehensive Cancer Care at 03.00 PM (Registration from 02.30 PM) on 18th April, 2024 on the digital platform of Zoom.

Dr. Dipanjan Majumder, MD, DNB, Consultant Radiation Oncology, has kindly consented to deliver a lecture titled **"Awareness and Prevention of Cancer"**.

This is an initiative of the HRD Committee of ILTA.

Formal invitation will be sent to all through email within a day or two and also may please follow Page No. 42 .

(Susanta Mallick)
General Secretary

Snapshots of Prof. Moni Banerjee Memorial Lecture

YOUTUBE CHANNEL & FACEBOOK PAGE OF ILTA

An official **YouTube Channel** namely **ILTA Online** and a **Face Book Page** namely **Indian Leather Technologists' Association** has been launched for sharing the activities of our Association since November' 2020 and July' 2021 respectively.

You may find all the Lives / Video recordings of different Seminar, Symposiums & Webinars on both of these social medias along with our website **www.iltaonleather.org** time to time.

You are requested to kindly do **Like** & **Subscribe** the YouTube Channel and **''Follow**' the FaceBook Page to get regular updates on the activities of our Association.

PUBLISH YOUR TECHNICAL ARTICLE

Faculties, Research Scholars and students of various Leather Institutes may wish to publish their Research / Project papers in an Article form in this monthly technical journal, JILTA.

Interested author may sent their paper (in MS Word format) along with a PP Photograph and Contact details like Email, Mobile etc. to our email IDs : admin@iltaonleather.org / jiltaeditor@gmail.com

Members are requested to :-

a) Kindly inform us your '**E-Mail ID**', '**Mobile No**', '**Land Line No**', through E-Mail ID: admin@iltaonleather.org or over Telephone Nos. : 24413429 / 3459. This will help us to communicate you directly without help of any outsiders like Postal Department / Courier etc.

b) Kindly mention your **Membership No.** (If any) against your each and every communication, so that we can locate you easily in our record.

RECEIVING PRINTED COPY OF JILTA EVERY MONTH

We have started to post Printed copy of JILTA from April' 2022 to members and all concerned as it was before Covid period. Simultaneously we have been sending the e-copy of JILTA through email also to all the concerned receivers.

If you are not receiving JILTA by Post or through email, may please verify your Postal Address and/or Email Id with our office at the earliest.

General Secretary and the Members of the Executive Committee are available to interact with members at 18.30 hrs, at our Registered Office on every Thursday

Solidaridad

switchasia

PROJECT PARTNERS

PISIE

CLC TANNERS ASSOCIATION
(We Care for the Environment)

dugros

Stahl

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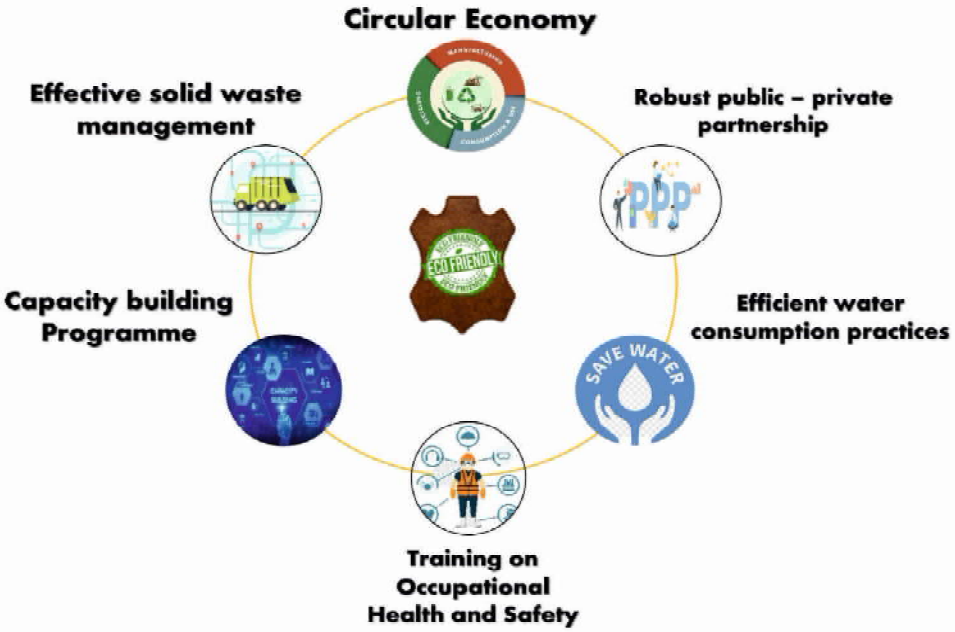
GRANTS PROGRAMME

Solidaridad

switchasia GRANTS PROGRAMME

EFFECTIVE WASTE MANAGEMENT AND SUSTAINABLE DEVELOPMENT OF MSME TANNING COMPANIES IN KOLKATA LEATHER CLUSTER (BANTALA)

2022-2023



PROJECT PARTNERS IN ASIA

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Solidaridad

switchasia GRANTS PROGRAMME

REDUCING EMISSIONS, IMPROVING CONSERVATION AND LIVELIHOODS IN THE AMAZON : YEAR 1 OF AMAZONIA CONNECT

In its first year of implementation, Amazonia Connect laid the groundwork to scale up low-emission commodity production that builds community resilience and conservation. Over the next four years, the initiative will dramatically increase efforts to connect a wide variety of actors across three Amazon basin countries.

Down a winding road outside Moyobamba, Peru, the coffee plot of Diomedes Santos Huamán is perched on a steep hillside. Farmers and visitors gather around as Diomedes and a trainer from Solidaridad stir up a concoction to be spread on coffee plants across the parcel. The mixture of fresh manure, leaves and microorganisms is an effective natural fertilizer that utilizes waste water from the coffee washing process and costs a lot less than chemical fertilizers.

A technician from Solidaridad Peru demonstrates how to create homemade fertilizers using waste water from the coffee washing process

During the tour, participants observed different approaches to composting and coffee farming that can help farmers improve their productivity and lessen pressure on local forests. Practices like these are part of the suite of low-carbon agriculture practices being implemented across the Amazon region as part of Amazonia Connect, a five-year program to scale up low-emission commodity production to improve biodiversity conservation. The program works in coffee, livestock and palm oil supply chains in Peru, Brazil and Colombia.

Amazonia Connectfl– a partnership between USAID, Solidaridad, Earth Innovation Institute, the National Wildlife Federation and University of Wisconsin-Madison – recently concluded its first year of implementation. Teams set baselines and deepened relationships with producers, regional and local governments, private sector partners and other stakeholders. Important progress included:

- 1,343 producers received technical assistance (20% women)
- Low-carbon agriculture practices implemented on 32,550 ha
- Improved forest and biodiversity monitoring tools covering an area of 8.2 million ha

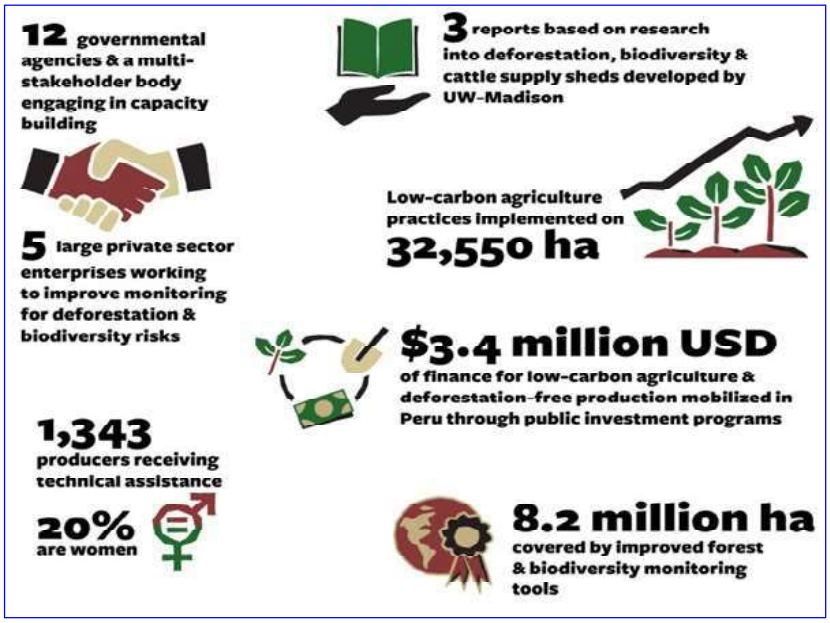
Solidaridad

switchasia GRANTS PROGRAMME

- 5 private sector enterprises engaged to improve monitoring for deforestation and biodiversity risks (2 in Colombia, 2 in Brazil, 1 in Peru)
- 12 governmental agencies & 1 multi-stakeholder body engaged in capacity building to implement local and regional strategies that support sustainable livelihoods and low-emission rural development.
- $3.4 million USD of finance for low-carbon agriculture and deforestation-free production mobilized in Peru through public investment programsfl
- 3 reports based on research into deforestation, biodiversity & cattle supply sheds developed

Implementing Low-Carbon Practices in Livestock Value Chains in Brazil

In Brazil, Amazonia Connect works with small & medium-sized cattle ranchers to implementfllow-carbon agricultural practicesfl(LCA) and produce more in a smaller area and with a lower impact on the land. In the first year, we worked with over 700 cattle producers to implement these practices on a total of nearly 24,000 hectares. Further up the supply chain, Amazonia Connect improved and integrated additional datasets into Visipec, a supply chain monitoring and traceability tool, and began supporting companies to comply with zero-deforestation agreements when sourcing beef.



Amazonia Connect partners also worked with regional and local governments in Mato Grosso and Pará to build their capacity for entering carbon markets, and analysed the possibility of developing incentive programmes for farmers adopting LCA practices. Reducing deforestation and building sustainable value chains will require the support of financial institutions and investor groups. Amazonia Connect worked to educate these groups on the importance of reducing cattle-driven deforestation and investing in monitored supply chains.

Understanding Coffee and Dairy Value Chains in Colombia

In Colombia, the team conducted assessments with dairy and coffee producers to understand their perspectives and priorities. They also worked with Nestle to support dairy farmers in their supply chain as they implemented LCA practices to achieve a regenerative agriculture certification, which can lead to higher incomes.

Similar to Brazil, monitoring and traceability tools are indispensable to understanding the socio-environmental risks in livestock value chains. Amazonia Connect partners integrated datasets covering biodiversity, deforestation and supply chain infrastructure into Visiprast, a supply chain monitoring and traceability tool. A number of companies in the region are engaged with Amazonia Connect to begin using the tool.

Building Inclusive Palm and Coffee Sectors in Peru

Palm oil and coffee value chains are the focus of work in Peru.fl In the palm sector, the team signed cooperation agreements with three oil palm mills and conducted trainings on LCA and sustainable palm oil production. Over 269

palm producers were trained (32% women) with low-carbon practices implemented on 1,565 ha. Training on inclusive technical assistance helped prepare field staff to ensure that lessons are accessible to all in the communities where the teams work. In palm oil, in particular,fla gender and social inclusion assessment will inform our practices going forward. Teams also worked to adapt the Visiprast monitoring and traceability tool to the specific needs of the palm sector.

In coffee, the team laid the groundwork to expand payments for ecosystem services to coffee farmers in San Martín viaflthe ACORN Platform, an initiative that incentivizes agroforestry practices that sequester carbon. Amazonia Connect also worked with regional governments in San Martín and Ucyali to mobilize US $3.4 million to scale up LCA and deforestation-free production through public investment programs. On-farm monitoring will be critical to these efforts, and a monitoring methodology for primary and secondary forests on coffee farms was validated in Peru to support companies as they integrate tools into their practices (see the report in Spanish).

Focusing on Connection Across the Amazon Basin

The overall goal of Amazonia Connect is to create scalable solutions that can reduce commodity-driven deforestation and habitat loss, support resilient livelihoods, and contribute to global efforts to avoid the worst effects of climate change. Partners work across public and private sectors to find linkages that lead to systemic changes across the region.

Amazonia Connect works across four thematic areas, including:

- **Promotion of low-carbon production practices**– Low-carbon agriculture reorients farming systems to ensure farm viability and conservation. Adoption of these practices is critical for reducing pressure on sensitive ecosystems and carbon emissions.

- **Engagement with market actors**– Due diligence and legislation on deforestation are pushing the private sector to better understand risks in their supply chains. Amazonia Connect engages private sector partners to adopt monitoring tools to ensure compliance with zero-deforestation agreements.

- **Expansion of finance for sustainable production**– Lack of access to financing often hinders the adoption of better practices, which can result in further encroachment on sensitive areas. Finance for improvements and incentives for ecosystem services can increase adoption of low-carbon practices.

- **Application of research and learning**– Policy briefs, scientific papers and other products improve the understanding of supply chains. They also inform how jurisdictional approaches, traceability and low-carbon practices can support deforestation-free production and biodiversity conservation.

(Solidaridad News - 11/03/2024)

CONFERENCE ON: MANDATORY DUE DILIGENCE IN THE SUPPLY CHAIN

Leveraging EU legislation to make a positive impact for small scale producers.

We are pleased to announce that we will be organizing an event on the topic of "**Mandatory Due Diligence in the supply chain – leveraging EU legislation to make a positive impact for small scale producers"**. The event will

take place on **25 April 2024 from 2 – 6 pm in Düsseldorf**, with a networking reception until 7.30 pm to conclude the event together. We would be delighted to welcome you there.

We believe that due diligence is not just a legal obligation, but the key to a sustainable and fair supply chain. Therefore, we are organizing this unique opportunity for an open dialogue between different stakeholders and their perspectives and needs. We invite various stakeholders to discuss the challenges and opportunities related to the EU legislation on mandatory due diligence in global supply chains during this event.

The event is aimed at:

- Companies that are interested in the inclusion of small-scale producers and for whom EU regulations have more purpose than ticking boxes
- Public donors who want to sustainably improve the living conditions of small-scale producers and support the effective implementation of due diligence obligations
- (Political) decision-makers from the private and public sector
- Representatives of civil society organizations
- We would be delightedflif you choose to register for the conference here.flA detailed agenda including the announcement of the speakers will follow in the coming weeks.

INTERNATIONAL UNION OF LEATHER TECHNOLOGISTS AND CHEMISTS SOCIETIES
(www.iultcs.org)

IULTCS FOCUSED ON THE 38TH CONGRESS TO BE HELD IN LYON, FRANCE IN 2025

IULTCS, the 126-year-old International Union of Leather Technologists and Chemists Societies, holds a world congress every 2 years. It set targets for the steps to be followed by the tanning industry in the 2024-2025 period and for the 38th Congress to be held in Lyon, France in September 2025.

Founded in London in 1897, IULTCS, the International Union of Leather Technologists and Chemists Societies, currently represents approximately 3000 individual members and 19 member associations worldwide. It is a scientific institution formed by leather engineering in the academy that determines strategies and produces solutions for the global leather industry. The union organization, which organizes international congresses in various countries every two years and enables the production of modern technologies and the development of chemical methods in leather production, has determined its strategies for the 2024-2025 period.

INTERNATIONAL UNION OF LEATHER TECHNOLOGISTS AND CHEMISTS SOCIETIES
(www.iultcs.org)

Its unique structure consisting of collagen fibers made by nature and providing extraordinary properties, which has ensured its compatibility with the high demands of leather quality requirements and within the framework of sustainable and environmentally friendly processes, is an inimitable science. Focusing on the congress it will organize in 2025, IULTCS has set principles for its sustainability goals for this unique craft since the existence of humanity:

Empowering the role of the IULTCS Commissions: to boost the effectiveness of our existing commissions and to explore the establishment of a new commission for sustainability to address the emerging challenges and to drive positive change within the industry:

- Communicating leather as an irreplaceable material:flpushing back against the falsehoods widely shared on social media, with facts and scientific arguments.

- Global collaboration for Research and Innovationflbetween international research institutions and industry partners to promote continuous innovation in leather technology and measurable impact in processing.

- Education and skill developmentflwithin the leather sector. Support programs that enhance the knowledge and capabilities of professionals, ensuring a skilled workforce for the future.

- Youth Engagement and Mentorship: cultivating the next generation of leather scientists and professionals by promoting youth engagement initiatives such as the YLSG. Collaboration between our experienced members and the emerging talent to ensure as seamless a transfer of knowledge as possible.

- Environmental stewardship and responsible practicesflalong the leather value chain.

(magazineleather.com – 06/04/2024)

INTERNATIONAL UNION OF LEATHER TECHNOLOGISTS AND CHEMISTS SOCIETIES

Valorisation of Invasive Species - For Leather, Fur, Bristle, Meat and By - Products

(Part -15)

Southern Water Snake and its Congener the Northern Water Snake

Subrata Das, M.Tech (Leather Technology) Freelance Leather Technologist & Consultant, Chennai

Southern Water Snake

Northern Water Snake

The first recorded sighting, in California, of the southern water snake (also called the banded Water Snake), was at Lyon's Pond, Folsom in 1992, following which 8 adult colubrid were caught and removed by personnel from California Department of Fish and Game (CDFG). In the very next year two more were nabbed. Thereafter, until 1999, no further endeavour was made to capture any more numbers.

It was subsequently discovered that not only had the snakes not been contained or extirpated in 1993, but had in the six years elapsed, considerably increased their numbers, distribution and range. One hundred snakes were caught between 1999 -2004

The existence of southern water snakes, at Mittry Lake in Arizona, on the Lower Colorado River, and downstream at Laguna Dam, was established by US scientists for the first time in October 2015. In all likelihood, the possible pathway of the species to its non-native locations, is presumed to be through deliberate or unintentional releases of pet reptiles, or their escape from vivaria.

Indigenous to south-eastern United States - the range and scale of their original habitation is a vast swathe from south-eastern Missouri and southern Illinois in the north to Texas in the west and from Florida in the south to coastal plains of North Carolina.

A sizable population of the ophidians have also been found in Machado Lake in Harbour City, California and Cameron County, Texas. They have likely been established there, since before the 1950s.

Biologists from the United States Geological Survey and California Department of Fish and Wildlife, with authorization from the Los Angeles Dept. of Parks and Recreation, trapped and removed approximately 300 southern water snakes from

Corresponding author E-mail : katasraj@rediffmail.com

Machado Lake (Harbour Park Lake) in Harbour City, Los Angeles County in 2010. Scientists contended that the lake would have to be drained for at least a year in order to get rid of the source of food for the water snakes, which would be the only sure way to get rid of the snakes. However, the plan remains indefinitely in abeyance.

Presently, in California, southern water snakes are established in Yolo, Los Angeles and in Sacramento, counties. The invasive species have stabilised and are thriving in and around Lake Natoma, a man-made marsh in Folsom county and in the Rio Sacramento watershed.

Biologists in the Golden State have been baffled by the burgeoning numbers of water snakes in California. With Raleigh, North Carolina - 2540 miles from Los Angeles and Miami, even further at 3045 miles from San Francisco, the migration pathway of the serpents, from the east to the west coast, is yet unclear.

“Battling the Invasion of water snakes”, an interesting feature, with other similar ones in a publication, by the US Fish and Wildlife Service, elaborated the precedence of brown tree snakes, arriving in the US territory of Guam, from their home range in the South Pacific, either by remaining concealed from view, in the landing gear of military aircraft or as cargo ship stowaways. Exploring the transmission path of the colubrid, the article, gave reasons and cited evidence in support of the theory, that the water snakes had been inadvertently transported in US army equipment or vehicles travelling to a western army base from one in the east.

The scientist who located the southern water snake populations in the Yuma basin, recalled having seen on occasions, Louisianan tanker trucks and Floridian dredgers in action in the Multi-Species Conservation Project in San Diego County, which he believed to be the source of the introduction.

The third and most plausible reason could be due to pet water snakes, discarded discreetly by irresponsible owners.

A fourth widely held view is that unsecured banded water snakes of a Texas snake dealer, slithered away to freedom, from their enclosures, compromised by a hurricane, leading to an established population in the Lone Star State. (1)(2)(3)(4)(5)

Southern water snakes, also known as banded water snakes are generalist feeders and devour any amphibian or fish they can overpower. They can survive in various kinds of perennial freshwaters such as swamps, slow moving streams and rivers, lakes, marshes, wet lands, canals and ponds, slithering overland, if necessary, for a mile or more in search for food. These snakes, at times, inhabit areas of brackish water, at the edge of mangrove swamps, withdrawing into burrows or leaf litter for shelter.

The aquatic snakes have set up self-sustaining breeding populations in a number of places in California. Conservationists are apprehensive that the fast-diffusing reptile has already entered into the waters of the Central valley, imperilling already endangered native giant garter snakes, which has one of its strongest concentrations within 12 miles of a common water snake habitation near Roseville. The giant garter snake is reliant upon wetland habitat and native worms, crustaceans, fish and amphibians for food.

The very same diet, combined with high reproductive rate, ability to disperse overland, site tenacity, propensity to establish extralimital populations than other genera of snakes by hybridizing with different species of water snakes in every available aquatic microhabitat, surface and benthic feeding ability under diurnal, crepuscular or nocturnal conditions, high fecundity and viviparous capability(70% of reproductively-sized females gravid), tolerance for brackish water and adaptability to a variety of freshwater habitats, empowers southern water snakes to outperform native creatures for resources and space.

In addition, the principally diurnally active snake is able to conform to a crepuscular or noctural hunting schedule, as daytime temperature increased in peak summer. Although the banded water snakes are harmless to humans, they constitute a threat to native aquatic species- salamanders, frogs and snakes. They outcompete the native reptiles and amphibians for identical food source or directly prey on native species such as mole salamanders. Other aquatic dwellers, such as the California giant salamander, the California tiger salamander and the foothill yellow-legged frog are also endangered by the presence of the invasive snakes, owing to overlapping of their habitats.

Banded water snakes abound extensively in eastern and southern United States, with recorded presence in Arkansas, the Carolinas, Mississippi, Georgia, Alabama and Florida. Significant numbers have been observed in recent years in Western US and the Midwest -Iowa and California and Illinois.

Southern water snakes are easily irritable and quick to aggression, biting and hissing, at times even when approached. Novice or untrained herpers opting for one as a companion, have been known to release the troublesome and temperamental reptiles in the wild, once care giving becomes difficult.

When agitated or frightened, the snakes secrete an odoriferous and offensive goo called musk, from a gland near their tails. They are also known to vomit or defecate when agitated.

New research has established that some species of water snake create, in their saliva, specific proteins, of similar chemical composition as venom, one among which is an anti-coagulant, that leads to profuse bleeding. Should its prey get away, the ophidian can follow the blood trail, from the punctured wound of the bite and grab the fish or amphibian, once it begins to tire. These proteinaceous chemicals demonstrate a major threat to smaller aquatic, benthic as well as surface species.

The mostly solitary and diurnal species are ovoviviparous - the eggs incubate inside the abdomen of the female which can breed and annually deliver a den of up to twenty snakelets - independent immediate upon exiting their mother's cloaca. (6)(7)(8)(9)(10)(11)

The northern water snake (also called Midland water snake) is a non-venomous aquatic snake that lives in lakes, swamps, streams and other waterways throughout the Chesapeake Bay watershed.

The Chesapeake Bay drainage basin is watered by as many as five rivers, of which The Rappahannock, James, Potomac, Susquehanna and York are the largest. Meandering through this watershed are more than a hundred thousand creeks, streams and rivers, linking parts of six states - Virginia, West Virginia, New York, Delaware, Maryland and Pennsylvania, spanning upwards of 64,000 square miles.

The largest among all coastal water body of the world, the land-to-water ratio of the Chesapeake Bay is 14:1. It is this aquatic paradise, that the northern water snake is indigenous to. (12)(13)

The keeled, heavy-bodied water snake has established itself as an invasive species in Roseville in Placer County, California. Inhabiting emergent wetlands and foraging on aquatic crustaceans, amphibians and fish, places the colubrid in direct competition against endangered giant garter snakes, listed as threatened under both California's state legislation and the United States Endangered Species Act.

Together with undesirable and unequal competitive engagement with native species, the invasive northern water snakes constitute a grave danger to a multitude of California's salmonids, smaller amphibians and fish, killing and eating the aqua fauna as prey, thereby posing a formidable new problem for the distressed fresh-and brackish-water ecosystems of the Golden State.

There is mounting anxiety that the wider establishment of actively reproducing and well-established populations of the Northern water snake in California, which is now free from water snakes of other species, strengthened by the generalist habit and diet of this introduced invasive, seems to denote that northern water snakes could become wide spread throughout California's lowlands, as the area is climatically suitable for the reptiles.

The capture of a number of gravid females bearing fertilized embryos and unfertilized ova indicated that the water snakes were breeding prolifically. this was substantiated by the gravid females on average containing 20.5 embryos each.

The arrival and spread of both the northern and southern water snakes in California present an ecological turmoil for many endemic and native species. Local amphibians have registered precipitous slump primarily due to because of habitat loss coupled with shrinking food source. Predation from the aquatic reptiles have further diminished or imperilled native species such as a majority of native freshwater fish, the Foothills Yellow-legged frog, the California Tiger Salamander and the California Red-legged frog.

Researchers found that both northern and Southern water snake population growth is mostly hastened by one year old snakes. By selectively targeting these with aquatic funnel traps, the eco-warriors have achieved a modicum of success in California.

The traps are allowed to accumulate fish and tadpoles to serve as potential bait to entice the colubrid. Sometimes adult bullfrogs or crayfish are used for the purpose.

Aquatic funnel trapping of the snakes in the early 1-year-old life stage" to impact the population, has been effective in

wetlands and shallow water levels but larger wetlands with deeper water has seen less success.

There are no statistics available, for the total number of southern and northern water snakes, captured, removed or euthanised in California, since the "serpentine" challenge first surfaced.

Though both the northern and the southern water snakes are regularly captured and removed from their established invasive range and habitat, there are no indicative figures to the exact numbers. Most of these are humanely euthanised (with a few subjects to necropsies) and the balance sent to landfills. There is no serious attempt or will to commercially harness the skins of these aquatic snakes.

Males of the Northern water snake species grow up to 2 feet three inches with the females, longer by half a foot. Its southern congener is markedly smaller, growing to an average size of 2-3.5. (14)(15)(16)(17)

There exists an exciting potential to use the skins of the two invasive species to make exotic leather accessories for fashion -forward clientele. This is keeping in view that the reptile leather industry, has in the distant and recent past been extensively serviced by the skins of Karung or Javanese water snake, which inhabits a similar bioregion as the Northern (Midland) and southern (banded) water snakes of California, the salient difference being in their sizes, with the Karung growing up to a maximum of 2m in length from snout to vent.

Both congeners have thin leather yielding substance but very smooth grain surface; therefore, they are suitable for processing into plain-coloured smooth leather and also for transfer foil to gold and silver leather, suitable for use as watch straps, iPhone cases, Air Tags and key fobs hat bands, collars, cuffs, lapels, belts, pockets, pocket squares, bandanas and jewellery, not only in providing the user a unique opportunity to engage with his personal accessory intimately, but also in making a statement about his personal taste and preference to the world at large. (19)(20)

In addition, properties such as friction buffer capability and drag resistance, a complex and soft optic comprised of distinctive scale patterns, rich texture and visual luxuriance radiating its haptic attribute could serve to make leather from the invasive banded and common water snakes popular to millennial and Gen-next clients.

The initiative will lie squarely with the California Department of Fish and Wildlife, to invite and engage, interested and committed stakeholders, to energise this market, and assiduously explore opportunities to market and popularise water snake skins.

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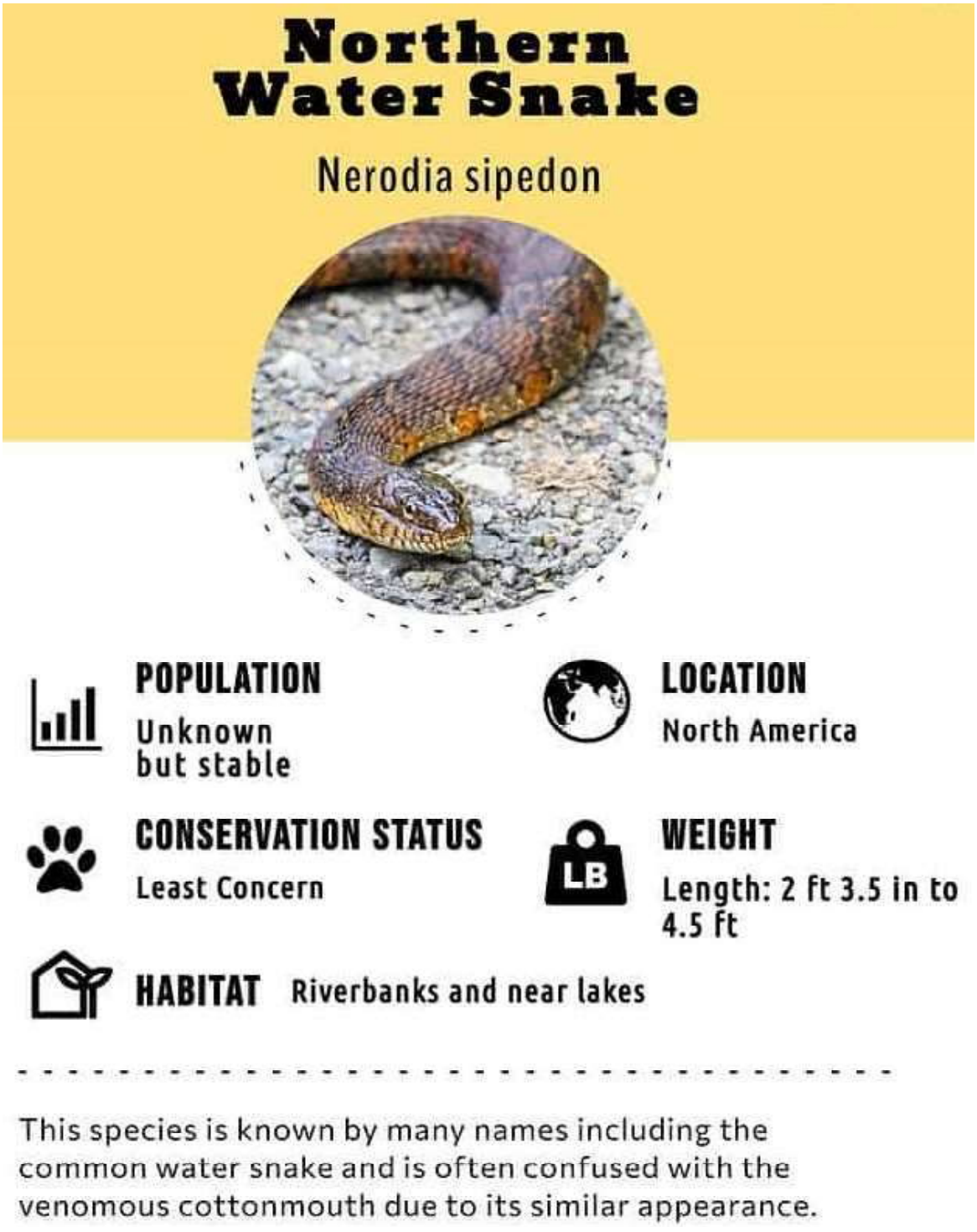


C F T I, EC - KOLKATA INTRODUCES A COURSE TITLED "ADVANCE CERTIFICATE IN FOOTWEAR DESIGN AND PRODUCT DEVELOPMENT (ACFDPD)"

Central Footwear Training Institute was established in the year 1963 at Agra, Uttar Pradesh. This is a pioneer Institute, one of its kind, functioning as a Govt. of India Society under the Ministry of Micro, Small & Medium Enterprise (MSME),Govt. of India.It is primarily involved in human resource development for footwear and allied industries through various long term, short term, specialized training programs and design & development of footwear. Beside this, the Institute focuses on various Entrepreneurship Development Programs for promoting self-employment. The Institute has now occupied a significant position for producing Techno-Managers for the Indian Footwear Industry. The students of the institute are well recognized and employed in different capacitiesin the industry. Many ex-students of this esteemed institute are now successful entrepreneurs.

From the year 2022, CFTI has started their extension centre in Kolkata, at MSME, DFO, 111 and 112 B.T. Road, Kolkata – 700108 with one-year course named ''**ADVANCE CERTIFICATE IN FOOTWEAR DESIGN AND PRODUCT DEVELOPMENT'' (ACFDPD)**. The current intake capacity is 20 students only. The selection process is on merit basis. Minimum qualification is 12thpass and age 17 years and above. In the session 2022-2023, eleven students were admitted. One candidate left before the course started as she got offer for a government job in West Bengal. Another could not complete the course due to family issues. Nine students completed the course and got placed in different companies viz. M/S India Shoe (Chennai), M/s Superbond Adhesive (Mumbai), M/s Mochiko Sports (Noida) and M/s Mallcom India Ltd. (Kolkata).

With an objective to provide practical oriented training to the students, we have specially designed the course "Advance Certificate in Footwear Design and Product Development" where a student can learn everything about shoe making within a year.

Since this is a vocational course, we have designed it towards teaching each and every student how to make a pair of shoes by their own hands. These are some of the things we teach:

How to

1. Make shoe designing on a shoe last
2. Cut paper pattern components
3. Make upper components
4. Make closed upper of shoes
5. Drafting & lasting of shoes on last
6. Preparation of PVC/PU shoe unit sole
7. Apply adhesive on sole & lasted upper
8. Attach sole on lasted upper
9. Complete a shoe & unlasting of last from shoe.
10. Insertion of socks.

In the curriculum every student has to make atleast 20+4 pairs of shoes within one year of the course.

Beside practical shoe making students are taught technical subjects as well as sufficient management related subjects in their theoretical classes.

Apart from the 1-year ACFDPD course we are also conducting 6 months certificate course in Footwear Design & Production and another 3-month certificate course in Computer Aided Designing (CAD) for shoe making.

Job Work for the shoe industry : We are having a standard facility for computerised shoe designing and pattern grading. We conduct job work for pattern grading. We are also offering pattern making for new shoe companies. Few companies like Shiba footwear, Oxford Tanners, Kin Enterprise, Vikash Udyog & Zeeshan Exim are getting their pattern grading from CFTI Kolkata. New sample development, range building, grading, sole development is also being done here. We have a good connection with the Agra shoe industry as such we can arrange for anything required for sole and mould making.

The Extension Centre in Kolkata is running under the leadership of Sri S.N. Ganguly, Technical Advisor, who was the Director of CFTI Agra (1997 -2009). After retirement he is now heading the

Institute in Kolkata. He has an elaborate network of connections in the industries, where many of his former students are working in pertinent positions. He has also written books on Footwear Technology in English, Bengali and Hindi, which are very beneficial to budding Footwear Technologists.

Sri Shome Nath Ganguly, Technical Advisor, CFTI EC Kolkata
Sri Subodh Kumar Ghosh, Coordinator, CFTI EC Kolkata
Sri Subhodeep Mitra, Sr. Faculty, CFTI EC Kolkata.

(Email from Sri S. N. Ganguly, Technical Advisor – 21/03/2024)

Snapshots of the Training Programe

LEATHER WORKING GROUP AND ZDHC FOUNDATION ANNOUNCE COLLABORATION TO ADVANCE SUSTAINABLE CHEMICAL MANAGE-MENT IN LEATHER MANUFACTURING

Leather Working Group and ZDHC Foundation Announce Collaboration to Advance Sustainable Chemical Management in Leather Manufacturing

In a significant step forward for sustainable leather manufacturing, the Leather Working Group (LWG) and the ZDHC Foundation today announced a landmark collaboration. By connecting the ZDHC Roadmap to Zero Programme and the LWG audit standard, the two organisations aim to streamline sustainable chemical management implementation for leather manufacturers.

The collaboration focuses on harmonising standards between the programmes, specifically on impact areas such as the ZDHC Manufacturing Restricted Substances List (MRSL), wastewater, and air emissions. Implementation of the programmes will also be a core focus of the collaboration, concentrating on the LWG Audit Standard and ZDHC Supplier to Zero and InCheck Solutions.

"Through this powerful synergy with LWG that transcends our industries, we pave the way for a sustainable future," said Janne Koopmans, Collaborations Director at ZDHC. "When joining hands, we not only lighten the load on manufacturers but also create a seismic shift towards positive change in responsible practices."

The collaboration aims to ease the burden on leather manufacturers to comply with multiple standards while still upholding responsible chemical management. Key audiences, including brands and industry media, are critical to spread awareness of this harmonised approach.

"We're thrilled to unite with ZDHC to enhance efficiency and amplify impact," said Stuart Cranfield, Director of Standards and Assurance, LWG. "Together, we stride towards a more sustainable leather manufacturing industry worldwide."

This collaboration serves as a model for how industry organisations can work together to drive progress on critical sustainability issues. ZDHC urges other organisations to consider similar partnerships that unite around shared goals while reducing inefficiencies. Together, we can redefine business as usual and prove cooperation paves the path to a responsible, sustainable future.

(leatherworkinggroup.com – 15/02/2024)

LEATHER WORKING GROUP AT THE OECD FORUM : DUE DILIGENCE IN THE GARMENT & FOOTWEAR SECTOR

Leather Working Group was pleased to both attend and contribute to the recent OECD Forum on due diligence in the garment and footwear sector. Read Director of Sustainability, Christina Trautmann's summary and insights from the two days and watch the session on deforestation risks associated with the leather supply chain.

Day One

Day one of the OECD forum on due diligence in the garment and footwear sector was inspiring. These are some of the key take aways:

- Fashion is becoming a regulated industry

- Binding, mandatory frameworks create a level playing field where everyone has to work towards the same goal and meet minimum standards
- Collective action helps to provide the leverage needed to affect change
- Investment is preferred and encouraged over divestment, as you lose your leverage to influence change once you step away
- Transparency is an essential enabling factor in due diligence
- Standardised approaches provide the necessary clarity and consistency across different asks
- We need to look beyond auditing to ensure we're driving meaningful change
- Voluntary agreements need to have teeth

Day Two

An interesting session on the role of certifications in due diligence provided varied perspectives on auditing and certification. The overall message was that there is a role for audits and certification to support due diligence, but there are several activities that the company responsible needs to carry out themselves. Roles and responsibilities between different actors need to be better understood and, a balance needs to be found between national laws and adequate enforcement of those laws; established relationship between a brand and their suppliers; and certifications with a robust assurance process.

Very relevant for leather, deforestation risks associated with leather production were also discussed, with Leather Working Group taking part in the final session of the day, deforestation risks associated with the leather supply chain.

The scene was set well, with a clear explanation of the roles and drivers – cattle rearing is associated with deforestation due to its role in land use change and its transition for agricultural purposes, while leather is a by-product of the meat industry and is even further removed from this. As such, many challenges exist in meeting DCF aims or enabling companies to comply with the EU Deforestation Regulation.
These were the key takeaways :

- there needs to be a focus on communication and helping to improve the understanding of all actors in the value chain
- there is an opportunity for collaboration and working together to have greater leverage and share learnings
- there remains a question over who will pay for the traceability and due diligence required, with the need to not lose sight of the purpose behind this effort to stop deforestation

The session is available to watch, (requires registration) on the OECD website here.

(leatherworkinggroup.com – 29/02/2024)

THE LONG TREK BACK TO "NORMAL"

Since the pandemic, the footwear supply chain has struggled to return to "normal", perhaps more than many other retail sectors. For the leather and hide industry, this has meant poor demand from footwear customers, declining hide prices and lots of uncertainty.

"Footwear is a very resilient industry and is often recession-proof, but it still has its soft spots," says Matt Priest, president & CEO of the Footwear Distributors and Retailers of America (FDRA), the largest footwear association in the US. And, despite all the plastic, textiles and other materials used in footwear manufacturing, "leather is critically important for the footwear industry", Priest says. The two have been synonymous since the beginning of time, he points out.

These disruptions to the footwear chain have reverberated through the hide and leather industry. Demand for hides that are typically used for shoes – in the US that's side-branded material like branded steers and heavy Texas steers – has been diminished since the end of 2021. More importantly, it has yet to recover.

The lack of demand for these hides stretches back to the pandemic when huge swings in consumer preferences and

supply chain difficulties created overwhelming inventories for brands and stores across the globe. Since then, some footwear brands have done well in clearing their backlogs of inventory while some others are still chipping away at stock in warehouses.

In the first months of 2024 as the footwear earnings reports came out, none of the brands were painting a very positive outlook for the year. Sources say that's not necessarily because of bad business, but because of the many global uncertainties. Inflation, the Red Sea conflict disrupting shipping, elections in many countries, and whatever else may crop up during the year could easily derail the footwear market's improvement.

On the tannery side, footwear sources say that December and January saw a nice pick-up in business. In fact, footwear manufacturer Yue Yuen reported 12.5% growth in manufacturing revenue for January 2024 – the company's best month in more than a year. Its China retail business was quite another story, however: revenues were down by 25.8% in RMB terms. The decline is linked to the country's domestic economic problems and the lack of consumer spending.

The dearth of domestic Chinese footwear sales is a significant problem for the hide industry because it heavily depends on business from large Chinese tanners. While China has been consistently purchasing plenty of hides, the tanners all have sizeable inventories. That means that even when orders pick up, it will take them some time to work through the stocks. Consequently, they won't be pressed to purchase if prices are higher than they were before the Lunar New Year.

Declining exports everywhere

US hide sellers and footwear companies are not the only ones contending with poor demand and low exports. In 2023, Brazilian footwear exports were down significantly – by 16.6% in volume and 10.8% in revenue compared with 2022. Much of the drop was attributed to global economic difficulties. Even in January 2024, Brazil exported 10.3 million pairs of shoes, for $90.75m. It was a decline in volume of 29.7% and in revenue of 23% compared with the same month in 2022.

European leather hubs like Italy are in much the same situation for not only the footwear sector but also leather goods, says Andrea Guolo, Hidenet's European reporter. In Florence, 2024 started with 4,000 people on the redundancy fund in the luxury leather goods sector alone. The forecasts were also negative, triggering a crisis plan to support the restart.

In the footwear industry, things are not going well at all. In some Italian districts, particularly in the Naples area, companies are at a standstill with critical issues looming that could lead to possible company closures. This is a complete turnaround from the previous two years, which were positive for the partners of the top brands. In January-September 2023, Italian footwear exports to EU countries were down by 6.1% in volume while non-EU destinations saw an even bigger drop of 13.4%.

In general, all regions saw footwear exports plummet: Bangladesh's footwear exports fell by 45% in the first nine months of 2023. India's footwear exports to the US alone in January- September 2023 fell by 39.24%. Countries such as Portugal also saw volumes decline, even though value increased, driven entirely by inflation.

"European leather hubs like Italy are in much the same situation for not only the footwear sector but also leather goods." - *Andrea Guolo, Hidenet*

US imports

Issues with excess inventory stem from import numbers, which have plummeted, creating a challenge for brands. The footwear industry is making progress with inventory backlogs and the trend is in the right direction, but levels are still at historic highs, Priest explains. The real challenge comes when consumers are looking for freshness and are weary of seeing the same old "legacy" styles for sale. At the recent New York Shoe Show FFANY, the crowd was bullish on the need for novelties but was buying at just 70% of the usual level. Activity for autumn was better, however, perhaps signalling improvement.

US footwear imports hit a 19-year low in 2020 at around 1.9 billion pairs, rebounding to almost 2.75 billion pairs in 2022. Full-year data for 2023, just released, indicates that the value of US footwear imports dropped by about 27%. Even though imports are down again in 2023, China still plays an outsized role, accounting for 60% of the footwear coming into the US. And, despite the bulk of the imports being made from cheaper materials, leather shoes are still present.

While the decrease in imports accounts for some of the decline in leather demand, Priest says there has been a movement away from leather. "We're much more casual as a society," hence fewer leather dress shoes, Priest explains. Nonetheless, the tide may be shifting back toward shoes that traditionally use more leather.

Athletic and outdoor styles dominated the pandemic and post-pandemic market but now those segments are struggling. For some brands, dress shoes are doing better than athletic styles, he says.Part of the issue is also consumer spending. In China, it's the poor domestic economy, while in Europe, inflation is making shoppers think twice before making a purchase. In the US, "people's closets are full", Priest notes. At its height, US footwear consumption hit 8.3 pairs per person – that's a lot of shoes, he adds. The more typical number is 7.3 to 7.5 per person.

The second half of 2024 is expected to usher in an improvement when it comes to demand for footwear leather. Hide prices have been stuck at low levels for months with no upside on the horizon. Recently, an uptick in purchasing by major international brands has been noted as possible indicating that the tide will soon turn and hide prices will rise from their very low levels.

(Leather International – 02/04/2024)

LABOURER DIES WHILE CLEANING TANNERY TANK AT KANPUR

A 50-year-old labourer died after inhaling toxic gas while cleaning a waste tank at a tannery unit in Jajmau area of the city on Wednesday.Police reached the spot and sent the body for post-mortem examination.

At the same time, the family members created a ruckus in the police station accusing the tannery authorities of negligence.

The incident took place in the morning hours when three workers had gone to clean the waste tank of Zeenat Tannery in Jajmau.

While cleaning the tank, Suresh of Kazikheda, Sanjay Kumar of Om Purwa and Rakesh of Lal Kurti fell and were trapped inside the tank. The factory workers somehow pulled them out and took them to a private hospital in Jajmau, where doctors declared Suresh dead. The two others are undergoing treatment.

The deceased is survived by his wife Lakshmi, sons Nikhil, Lucky and daughter Riya. Local sources said, "The labourers while cleaning the waste tank inhaled toxic gas and fell inside it. The factory workers rescued the trapped labourers and rushed them to the private hospital."

The family members of the deceased alleged that Suresh died due to the negligence of the factory management. They further alleged that the factory authorities did not provide safety kits to the workers to clean the 10 feet deep tannery waste tank filled with poisonous gas. Jajmau police station in-charge Jai Prakash Mishra said the investigations are underway.

"The allegations of the family members of the deceased and the circumstances under which the labourer died will be investigated," he said further.

(Times of India – 28/03/2024)

LEATHER CHEMICALS MARKET SHARE FORECAST BETWEEN 2022 – 2030

The Leather Chemicals Market plays a vital role in the leather industry, offering advanced solutions for transforming animal hides into durable, high-quality leather products. With a projected value of USD 14.8 billion by 2030, this market is witnessing significant growth driven by the increasing demand for leather items in various sectors.

Download Sample Report Copy Of This Report From Here: www.amecoresearch.com/sample/276859

Key Points and Statistical Data:

- The global leather chemicals market is expected to grow at a CAGR of 7.6%, reaching USD 14.8 billion by 2030.
- Leather chemicals are indispensable in various stages of leather manufacturing, enhancing attributes such as appearance, softness, and durability.
- The market is attracting more competitors due to expanding fashion industries, rising disposable incomes, and evolving consumer preferences.
- Prominent players include BASF SE, Bayer AG, Clariant International Ltd., Dystar Singapore Pte Ltd., and Lanxess AG.

Market Overview and Analysis:

Leather chemicals are integral to the leather-making process, driving innovation in industries from fashion to automotive. They improve leather quality and physical attributes, reflecting changing consumer preferences and sustainability concerns.

The market is focusing on eco-friendly solutions to reduce environmental impact.

Latest Market Trends and Innovations:

- Emphasis on sustainability: Innovations include biodegradable chemicals, water-saving techniques, and enhanced waste management methods to meet consumer demand for sustainable leather products.
- Increased demand for biodegradable chemicals: Consumers prefer environmentally friendly leather products, driving the demand for biodegradable chemicals that reduce environmental impact.
- Water-saving techniques: New methods aim to reduce water usage in the water-intensive tanning process, addressing sustainability concerns.
- Improved waste management: Innovations focus on reducing the environmental footprint of leather processing waste.

Major Growth Drivers:

- Rising demand for leather products: Growing sectors such as fashion, luxury, and automotive are driving demand for leather products globally.
- Need for efficient and sustainable processing: Manufacturers are seeking innovative solutions to enhance operational efficiency and sustainability in leather processing.

Key Challenges:

- Stringent environmental regulations: Environmental regulations are pushing the industry to develop eco-friendly solutions to reduce environmental impact.
- Consumer demand for sustainability: Changing consumer preferences are driving the need for sustainable leather products, challenging the industry to meet these demands.
- Continuous innovation: To stay competitive, manufacturers must continually innovate to meet evolving market needs.

ANNOUNCEMENT

ILTA LAUNCHED HEALTH CARE BENEFIT SCHEME FOR ITS MEMBERS

Indian Leather Technologists' Association (ILTA), has now tied up itself with the renowned health care organization of the country M/s Narayana Health for rendering Indoor, Outdoor & Medical testing services to all of its registered members (both Life and Ordinary) at concessional rates.

As the Pilot Project, the scheme has been launched on 1st April, 2024, initially for rendering services to its members dwelling in Eastern Region.

Offers & Discounts:

1. **OPD Service:** 10% discount on Doctor's Consultation, Prevailing Health Check-ups available at hospital, day care procedures, Investigations except outsourced tests.
2. **IPD:** 5% on total IPD billing as per prevailing hospital tariff excluding medicine / consumable / implant / outsource & blood bank services. (Not applicable on insurance cases/ Govt scheme / ESIC and any other schemes & promotional package or offers & discounts).
3. **Ambulance:** As per Availability & as per Narayana Health ambulance policy & charges.
4. **Payment Terms:** Payment should be only in Cash Mode, Debit Card, Credit Card, NEFT/RTGS/ IMPS. No cheques shall be accepted.

These facilities will be extended to the existing members (both Life & Ordinary) only. Six family members including spouse, two children (below 25 years) and dependent parents will be entitled to avail these facilities under the scheme. For further details, members may contact Mr. Bibhas Chandra Paul, OSD, ILTA (Mob. No. 9432553949) and / or Mr. Subha Paul, Assistant Manager - Payor Relation, Narayana Health (Mob. No. 8334847000).

ILTA will issue a Health Card in favour of each entitled members. The prescribed Application format will be forwarded to the entitled members of the Eastern Region through Indian Post within a short while. If any member not received the said application format, he/she may collect it from ILTA office or by e-mail. They have to submit the duly filled up application format to ILTA office by hand or by email as soon as possible.

UPCOMING HEALTH CARE PROGRAMS

Sl. No.	Date	Health Day	Speciality	Activity Type
1	18.04.2024	-	Onco	Webinar
2	26.04.2024	-	Cardiac, Pulmo, BMD	Health Camp
3	19.05.2024	World Hepatitis Day	Gastro	Health Talk
4	24.05.2024	-	BLS	Health Talk and Demonstration
5	08.06.2024	World Brain Tumor Day	Neuro	Webinar
6	28.06.2024	-	Cardiac, Pulmo, BMD	Health Camp

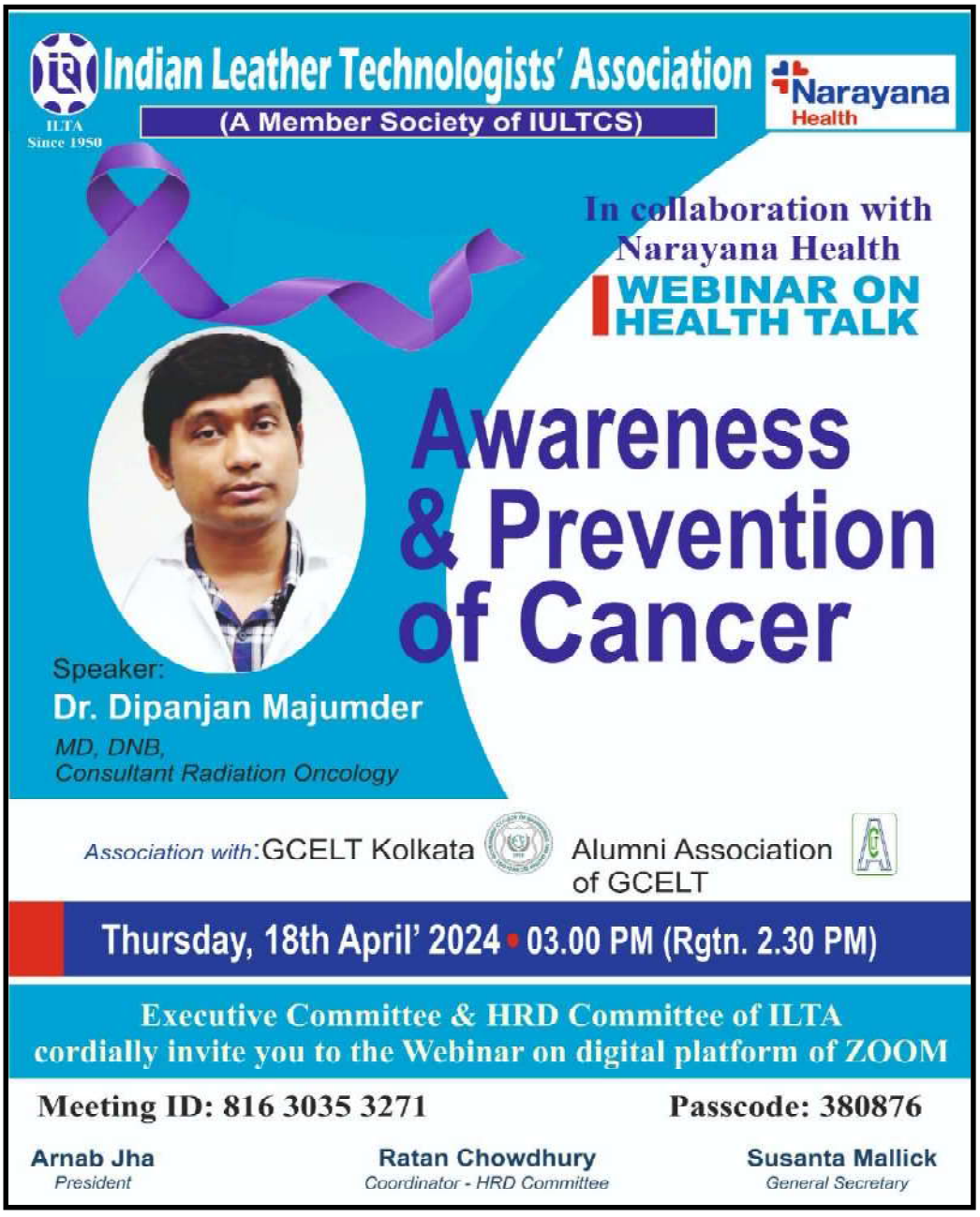
**Note : *Date of the above programs are subject to be changed under special circumstances.*

ILTA IS NOW ON DIGITAL PLATFORM

Indian Leather Technologists' Association is now set for digitalization of its all publications. The members and non-members alike are eligible for this facility. The association has been publishing number of books on leather & footwear technology since inception. Also, the Association has a great collection of number of articles from renowned personalities, scientists and research scholars of leather fraternity worldwide those have been publishing in the association's only technical journal namely "Journal of Indian Leather Technologists' Association (JILTA)".

All of these are now to be available on your fingertip and all interested people can avail this facility on digital platform through the official website of the Association very soon.

WEBINAR ON COMPREHENSIVE CANCER CARE



A Macroscopic Journey : Reflecting 2023 and Envisioning 2024

Dr. Goutam Mukherjee

Professor, Govt. College of Engineering & Leather Technology, Kolkata

Introduction :

As we have embarked upon 2024, it is imperative to reflect on the events that unfolded in 2023, examining their impact on the global economy, politics, and society at large. The year 2023 was a year marked by a series of transformative events, from economic recoveries to geopolitical tensions, climate crises to technological advancements. As we gaze into the horizon of 2024, it is essential to assess the lessons learned and chart a course for the challenges and opportunities that lie ahead.

India, with its rich cultural heritage, diverse population, and rapidly growing economy, stands at the crossroads of history as a nation with immense potential and promise. In recent years, India has emerged as a key player on the global stage, navigating a complex geopolitical landscape while striving to address internal challenges and capitalize on opportunities for growth and development. In recent years, India has been increasingly assertive in expanding its diplomatic footprint beyond its immediate neighborhood, with a particular focus on the strategic Red Sea region. Leveraging its maritime prowess, particularly through the Indian Navy, India's "Red Sea Diplomacy" aims to foster economic partnerships, enhance security cooperation, and promote regional stability. This article delves into the prospective of India's Red Sea diplomacy, emphasizing the pivotal role played by the Indian Navy in this endeavor.

Discussion :

Economic Landscape :

The year 2023 witnessed a mixed bag of economic fortunes across the globe. Following the tumultuous period of the COVID-19 pandemic, many nations experienced robust recoveries, buoyed by massive stimulus packages and vaccination campaigns. However, this resurgence was not uniform, with disparities evident between developed and developing economies. Inflation emerged as a dominant theme, fueled by supply chain disruptions, pent-up consumer demand, and fiscal stimulus measures. Central banks grappled with the delicate task of balancing price stability and economic growth, navigating through the complexities of monetary policy. The labor market also underwent significant transformations, as remote work became the new norm for many industries, prompting a reevaluation of traditional work arrangements and sparking debates around labor rights and income inequality.

Geopolitical Dynamics :

Geopolitical tensions simmered throughout 2023, reshaping the global order and challenging diplomatic relations. Strategic rivalries between superpowers, geopolitical flashpoints, and regional conflicts underscored the fragility of international stability. The rise of populism and nationalism in various parts of the world fueled political polarization and strained multilateral institutions. Climate change emerged as a defining issue, with nations grappling with the imperative of collective action to mitigate its far-reaching impacts.

Technological Innovations :

Advancements in technology continued to accelerate in 2023, shaping the way we live, work, and interact. Breakthroughs in artificial intelligence block chain, biotechnology, and renewable energy offered glimpses into a future defined by innovation and disruption. However, these technological leaps also raised concerns about data privacy, cybersecurity, and the ethical implications of emerging technologies. The quest for technological supremacy intensified, amplifying debates around digital sovereignty and regulatory frameworks.

Outlook for 2024 :

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As we peer into the horizon of 2024, several key themes are poised to shape the global landscape. The trajectory of the post-pandemic recovery remains uncertain, contingent upon factors such as vaccine distribution, inflation dynamics, and geopolitical developments. In an era defined by interconnectedness, collaboration will be paramount in addressing shared challenges, from climate change to public health crises. Multilateralism and diplomacy will play pivotal roles in forging consensus and fostering cooperation on the global stage. Technological innovation will continue to drive transformation across sectors, presenting both opportunities and challenges. Embracing the potential of emerging technologies while safeguarding against their risks will require proactive governance and ethical stewardship.

Perspective to India :

Economic Resilience :

Indian economy, one of the fastest growing in the world, has shown remarkable resilience despite facing headwinds such as the COVID-19 pandemic and global economic slowdowns. With a burgeoning middle class and a youthful demographic dividend, India presents a fertile ground for investment and innovation. The government's ambitious reform agenda, including initiatives to improve ease of doing business, attract foreign direct investment, and bolster infrastructure development, underscores India's commitment to fostering economic growth and prosperity. However, challenges such as income inequality, agrarian distress, and bureaucratic red tape continue to hinder India's full economic potential. Addressing these issues will be crucial in ensuring inclusive and sustainable development for all segments of society.

Geopolitical Significance :

India's strategic location in South Asia, coupled with its growing military capabilities and diplomatic outreach, positions it as a key player in shaping regional and global dynamics. As tensions simmer in the Indo-Pacific region and beyond, India's role as a stabilizing force and advocate for peace and security becomes increasingly vital. Strategic partnerships with countries such as the United States, Japan, and Australia, as well as active engagement with multilateral forums like the United Nations and G20, underscore India's commitment to upholding a rules-based international order and fostering cooperation on pressing global challenges. However, India's relationships with neighboring countries, particularly Pakistan and China, remain complex and fraught with geopolitical tensions. Efforts to de-escalate conflicts and pursue dialogue and cooperation will be essential in building trust and promoting regional stability.

Cultural Diplomacy :

India's soft power, rooted in its vibrant culture, traditions, and values, serves as a powerful tool for diplomacy and outreach on the global stage. From Bollywood films to yoga, Indian cuisine to traditional arts and crafts, India's cultural influence resonates everywhere, fostering goodwill and understanding across borders. Initiatives such as the International Day of Yoga and the Indian Council for Cultural Relations (ICCR) scholarships showcase India's commitment to promoting cultural exchange and fostering people-to-people ties with nations around the world.

Technological Innovation :

At the forefront of the global technological revolution, India's vibrant startup ecosystem and prowess in IT and digital technologies have earned it a reputation as a global innovation hub. From pioneering advances in artificial intelligence and biotechnology to spearheading renewable energy initiatives, India is driving transformative change and shaping the contours of the Fourth Industrial Revolution.

Commitment to Sustainability :

As the world grapples with pressing environmental challenges, India has emerged as a champion of sustainability and climate action. With ambitious targets for renewable energy deployment and initiatives to combat climate change, India is leading by example and demonstrating its commitment to building a greener, more sustainable future for generations to come.

Strategic Significance of the recent happenings in the Red Sea :

The Red Sea, linking the Indian Ocean to the Mediterranean Sea via the Suez Canal, holds immense strategic importance due to its vital maritime trade routes and geopolitical significance. For India, securing access to the Red Sea is crucial for ensuring energy security, facilitating trade flows, and projecting influence in the wider Indo-Pacific region.

India's Naval Outreach: The Indian Navy, with its growing fleet of modern warships and maritime capabilities, serves as a linchpin of India's strategic outreach in the Red Sea. Through regular deployments, joint exercises, and port visits, the Indian Navy has been actively engaging with littoral states in the region, fostering closer defense ties and enhancing maritime security cooperation.

Humanitarian Assistance and Disaster Relief (HADR) :

India's naval presence in the Red Sea extends beyond traditional security concerns to encompass humanitarian assistance and disaster relief efforts. The Indian Navy has been at the forefront of providing timely assistance during natural disasters and humanitarian crises, earning accolades for its swift response and effective coordination with regional partners.

Economic Engagement :

In addition to security cooperation, India's Red Sea diplomacy seeks to bolster economic partnerships and promote maritime trade and connectivity. Initiatives such as the Indian Ocean Rim Association (IORA) and the Asia-Africa Growth Corridor (AAGC) underscore India's commitment to fostering inclusive development and economic integration in the region.

Challenges and Opportunities :

Despite India's proactive engagement, the Red Sea region poses several challenges, including geopolitical rivalries, maritime piracy, and instability in neighboring countries. Navigating these complexities requires a nuanced approach, balancing strategic interests with respect for sovereignty and regional sensitivities.

Conclusion :

As India charts its course on the global stage, it must navigate a complex web of opportunities and challenges with foresight and determination. By leveraging its economic potential, strengthening strategic partnerships, and harnessing the power of cultural diplomacy, India can continue to play a transformative role in shaping a more peaceful, prosperous, and interconnected world. As the world looks towards India with anticipation, the nation has the opportunity to emerge as a beacon of hope and progress, inspiring generations to come.

As India continues to deepen its engagement in the Red Sea region, the Indian Navy will play a central role in shaping the trajectory of India's maritime diplomacy. By leveraging its maritime capabilities, fostering defense cooperation, and promoting shared prosperity, India has the opportunity to emerge as a key stakeholder in shaping the future of the Red Sea and the wider Indo-Pacific region. As the strategic landscape evolves, India's Red Sea diplomacy represents a testament to its commitment to upholding peace, security, and stability in one of the world's most critical maritime domains.

India's unwavering resolve, unprecedented visionary leadership and unwavering commitment to progress and prosperity characterize the august journey of the nation India towards her mission of global leadership. As India continues to stride confidently onto the world stage, it brings with it a message of hope, opportunity, and inclusivity, inspiring nations to join hands in shaping a brighter tomorrow for all humanity. India's time to shine as a global leader is not a matter of if, but when, and the world eagerly awaits the dawn of India's golden age.

As India embarks on its journey towards global leadership, it draws inspiration from the timeless teachings of Swami Vivekananda, whose luminous legacy continues to guide and inspire. With spiritual resilience, mission of universal brotherhood, empowerment through education, service to humanity, and a vision for global outreach and leadership, India shines brightly as a beacon of hope, progress, and enlightenment. In the words of Swami Vivekananda, "Arise, awake, and stop not till the goal is reached." India's radiant future beckons, illuminated by the eternal light of Swami Vivekananda's teachings.

As we have bid farewell to the complexities of 2023 and embrace the promise of 2024, let us remain vigilant yet optimistic in confronting the myriad challenges and opportunities that lie ahead. By drawing upon the lessons of the past and harnessing the power of collective action, we can navigate the uncertainties of the future with resilience, innovation, and solidarity.

References :

❖ World Bank: The World Bank regularly publishes reports on global economic trends and the role of emerging economies like India.

- International Monetary Fund (IMF): The IMF provides assessments of global economic outlooks and often includes analyses of India's economic growth and its implications for global leadership.
- United Nations: Reports from various UN agencies, such as the UNDP or UNCTAD, may include assessments of India's progress towards global leadership across different sectors.
- Brookings Institution: The Brookings Institution frequently publishes research on India's economic development, foreign policy, and global leadership aspirations.
- Carnegie Endowment for International Peace: Carnegie's research on India covers a wide range of topics, including geopolitics, security, and economic growth.
- Observer Research Foundation (ORF): ORF offers insights into India's foreign policy, economic strategies, and its evolving role on the global stage.
- Ministry of External Affairs, Government of India: The Ministry's publications and reports provide official perspectives on India's foreign policy objectives, diplomatic initiatives, and efforts towards global leadership.
- NITI Aayog: NITI Aayog's reports and policy papers often analyze India's economic growth trajectory and its potential impact on global affairs.
- Journals such as *Foreign Affairs*, *International Affairs*, and *The Journal of International Relations* often feature articles and research papers on India's rise as a global leader.
- Reputable news sources like *The Hindu*, *The Indian Express*, *The Economic Times*, and *Reuters* frequently cover India's economic growth and its implications for global leadership.
- Books authored by scholars and experts on Indian politics, economics, and foreign policy can offer comprehensive insights into India's journey towards global leadership. Some noteworthy authors include Shashi Tharoor, C. Raja Mohan, and Ramachandra Guha.

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Manipulation Of Chemical Reactivities Of Transistion Metal Complexes For Further Understanding Of Mechanistic Features And Industrial Applications

RAMASAMI AND CO-WORKERS

(A Research overview)

PLAN OF WORK

The survey of the literature and the expertise available in the area indicate that there is a vast scope and a need to not only study inorganic reaction mechanisms but also to manipulate reactivities of transition metal ions such that unusual compounds (in any yield) and usual compounds in increased yields may be made. Therefore the proposed work shall consist of the following phases which themselves shall comprise of many specific projects :

(a) Synthesis and characterization of inorganic complexes of Cr, Mo, Zr, W, V, Ti, Co and Cu in prechosen and special ligand environments and gain access to the chemistry of unusual oxidation states such as Cr(IV), mononuclear Mo(IV), Zr(III), Ti(II) etc. and study also the influence of binding of persulphido, super-sulphido, supeoxo and peroxo ligands etc. on the ground and transition state properties of metal complexes;

(b) Investigate the substitution and electron transfer reactivities of characterized inorganic complexes and search for structure reactivity relations and look for possible general patterns in the reaction mechanisms as functions of (i) d- electronic configurations in the ground and transition state, (ii) ligand environments after taking into account the ranges and limitations of the various criteria normally being employed for the assignment of mechanisms of d- block elements ;

(c) Investigate the photo physics and the photochemical aspects of some transition metal ions with potential applications and search for Structure-Reactivity Relations in the chemistry of electronically excited states ;

(d) Search for the experimental evidence for many postulates existing in the chemistry of electron transfer proteins, (to be specific prolyl hydroxylase, superoxide dismutase, tyrosine oxygenase, nitrogenase and the enzymes involved in the sulphur cycle) as well as in the structure and function of Cr(III) in glucose metabolism by means of both selective cleavage and biomimetic approaches on the chemistry of diomolecules ;

(e) In the long term, address to some of the fundamental concerns (such as competitive

nature of I_a and I_d mechanisms in substitution electronic and nuclear constraints to electron transfer activity) in theories and models being used for treating both substitution and electron transfer reactions of metal complexes and metallo-proteins ;

(f) Tailor make industrially relevant transition metal compounds which have applications in leather industry ; and

(g) Investigate the interaction of transition metal ions like Cr(III) with proteins like collagen at a molecular level and seek a fundamental definition to tanning.

1.0 BACKGROUND AND SCOPE OF WORK

1.1 Oxidation State Ambiguities of Metal Catalysis

The involvement of transition metal complexes in several catalytic phenomena associated with biological and industrial processes has rendered studies on the aqueous chemistry of metal complexes an ever growing area. The recognition that catalytic processes of transition metal complexes arise from their substitutional and redox behaviour, which show remarkable dependences on ground state and transition state structures has made search for structure-activity relations a sophisticated area of study. It is now evident that even after many decades of effort, the aqueous chemistry of many metal ions in all possible oxidation states is yet unknown. This is particularly a troublesome feature since some of the catalytic processes have been attributed to the aqueous chemistry of relatively unknown (or inaccessible) metal complexes. Typically for example, little is known about the aqueous (but not non-aqueous) chemistry of molybdenum(V) in mononuclear complexes, although it is believed that some enzymes may in fact use such intermediates for catalytic activities (1-3). In the absense of the precise knowledge of either the oxidation state or the coordination environment of Mo centres in even in the restive states of several enzymes, model studies are often used to examine some of the existing speculations in the chemistry of molybdoenxymes (4-6). Of particular, relevance to molybdoenzymes is the suggested importance of metal-sulphur bonding as in Xanthine oxidase where metal-persulphide bonding has been assigned specific roles (7-9). Although four different oxidation states of Mo have been suggested to be involved in catalysis, neither the oxidation state nor the colordination geometry of active centres in molybdenum enzymes has been resolved (10-12).

1.2 Metal ions in Biology : How they act ?

Another important aspect of the aqueous chemistry of metal ions arises from their involvement in the control of nutrition related and other similar disorders. However, the exact manner in which metal ions participate in the control of some of those disorders is yet unknown. For example, many clinical studies have been reported which seem to indicate that Cr(III) may be associated with Glucose Tolerance Factor (GTF) and is useful in the control of diabetes (13-16). Since Cr(III) is known as a substitutionally inert metal ion, it has raised the question of lag-phase (i.e. the time delay between the administration of Cr(III) salts and the bio-response in glucose meta-bolism). Studies to

date have shown that the nature of the ligand invironment of Cr(III) influences dramatically its lag-phases (15-17). A Cr(III) -polypeptide complex isolated from Baker's yeast has been reported to be extremely active with respect to glucose tolerance activity with negligible lag-phase (17). Although it has been speculated that Cr(III) may serve to assemblex insulin and the receptor units through Cr(III) persulphide-hydrosulphide bonding, it is not clear as to (a) how Cr(III) is stabilised against hydrolysis and polymerisation at body pH values (b) how the activation barrier for a d^3 substitution is lowered sufficiently to permit high turn-overs, (c) what is the precise function and mode of operation of Cr(III) in glucose metabolism, and (d) whether Cr(III) in its bio-ctive form resists conversion to higher valent and toxic forms at high pH values and in the presence of oxidase.

The last question is of special importance in view of (a) the established toxicity of Cr(VI), (b) the suggestion of Cr(III) and Cr(IV) may have similar geometries and there is little reorganisational barrier for the interconversion of Cr(III) and Cr(IV) and (c) and suggested use of Cr(III) salts in the control of diabetes (18-21).

1.3 Need for structure—activity relations and model studies

There are many reasons as to why the answers to many of the above questions are not easily obtained by means of **in vivo** studies at present. Therefore, the importance of model studies and structure-activity relations in simple inorganic complexes of biologically relevant metal ions in various possible oxidation states is quite obvious. Since catalytic reactivities of many bio-molecules depend not only on the redox and substitution behaviour of metal ions but also on those of co-ordinated ligands, typically for example oxygen, a need for efforts on both substitutional and redox mechanisms as functions of metal-ligand environments is evident. There have been many systematic studies in this direction by various groups (judging from several reviews in this area) and the ones of which the present investigator have formed part in the last decade.

2.0 Substitutions in Metal Complexes : Present Status and Gaps in Understanding

The state of art in the study of substitutional mechanisms of transition metal ions, in spite of vast effort, has, in general remained one of phenomenological and due to the lack of interplay of suitable theories and models, general conclusions have been difficult to make. Nevertheless, studies do point out that the activation barrier for ligand substitutions may be dramatically altered by the (ground state) ligand environments and geometries as well as transition state stabilisation (22-24) Taking the example of what is generally classified as inert metal ion viz. Cr(III), it has now been shown by the investigator (along with other co-workers) that

(a) Cr(III)-S^{2-}-bonding in $Cr(H_2O)_5SH_2^{3+}$ and $Cr(H_2O)_5SH^{2+}$ alters the ease of aquo ligand substitutions dramatically by three to six orders of magnitude when associative pathways may operate (Inor-

ganic Chemistry, 1976, **15**, 1010) ;

(b) Even when associative pathways operate such as in the chelation of **cis-** $Cr(NH_3)_5X(C_2O_4H)^+$, thermodynamic strength of the leaving ligand is an important criterion and the generalisations such as an anion does not displace another directly by means of a front side attack needs further qualification (Inorganic Chemistry, 1986, 4032)

(c) Both the substitutional mechanism and the ease may be influenced by the ligand environments as is evident from the increasing dissociative character of Cr(III) in $Cr(NH_3)_5(H_2O)^{3+}$ as against $Cr(H_2O)_6^{3+}$ (ref : J. Chem. Commun. 1976, 378, Inorganic Chemistry, 1976, **15**, 2318, Inorganic Chemisty, 1976, **15**, 2885) ;

(d) Cr(III)-Substitutions are sensitive to neighbouring group effects (Inorganic Chemistry, 1975, **14**, 359 and J. Chem. Soc. Dalton Trans. 1977, 71) ;

(e) Ground state distortions of Cr(III) structures in Cr(III) Schiff base complexes give rise to high aquo ligand substitution rates **ca.** 0.5 s^{-1} (ref : Inorganic Chemistry, 1980, **19**, 3181, Inorganic Chemistry, 1982, **21**, 850, D. Rajendra Prasad, Ph. D. Thesis, Sri Venkateswara University, India 1981) ; and

(f) When bonded to persulphido ligands, (substitutionally inert ;) Cr(III) may be replaced by (labile ;) Fe(II) or (III) quite readily (Inorganic Chemistry, 1977, 16, 1931, J. Chem. Soc. Chem. Commun., 1976, 383)

2.1 Critique on the Assignments of Substitution Mechanisms

These results along with numerous other studies by other active workers in the field of substitution do point out the dangers associated with rigidly classifying metal ions as inert or labile regardless of other ligands or concluding that a particular metal ion chooses a particular mechanism (dissociative or associative). Although distinctions between Dissociative (D) or Associative (A) pathways are relatively easily made, for an interchange (I) process, distinctions between I_a and I_c are not that easily made. While searching for general mechanistic patterns in the substitution chemistry of all 'd-block elements' in the absence of convincing theories and clear cut models, firm assigments for the borderline cases such as Cr(III), in our opinion, have to await many detailed studies before concluding that Cr(III) undergoes I. substitution universally, as is being done by some authors (25-28).

2.2 The Deficiencies of physical Models for Substitution Mechanisms and Gap in the Literature.

The operational nature of interchange mechanism already points out that differences in the activation barrier for either dissociative or associative mode of activation are not large and therefore, both inner- and outer- sphere mechanisms are known to operate simultaneously [for example in the self exchange reactions of Fe(II)-(III) reactions and some others (29-30)]. It seems to be the practice of substitution chemists to assign either I_a or I_c and not consider the relative advantages of both processes quantitavtively. Should I_a and I_c processes have similar

activation barriers, the criteria employed to distinguish between them need to be more carefully assessed. It is evident from the most recent literature that the sign and magnitudes of volumes of activation and the ratios of reactivities such as k(NCS)/k(Cl) in thermal reactions form the basis for assigning mechanisms for all substitution reactions(31). The view that the simple electrostatic picture of outer-sphere association may not give a complete picture (32), does raise ambiguities in using bimolecular rate ratios in borderline cases such as $Cr(NH_3)_5H_2O^{3+}$ or $Rh(NH_3)_5H_2O^{3+}$. The present state is disconcerting particularly in view of the statements existing in the literature (to quote Swaddle and Stranks from ref : 28) "..., although the plot of log k Vs P does show a curvature (concave upwards), which persisted despite the duplication of all the data points and for which **the only explanation would be that I_d and I_a mechanisms operate competitively in this case, the former predominating at high and the latter at low pressures".**

2.3 Volumes of Activation based Mechanistic Assignments : Need for Re-examination

As long as the concept of outer-sphere association and nature of ion-pairs such as contact or solvent separated when charged species are involved are not well defined, it does seem, in our opinion, difficult to resolve the question as to whether the same conclusion will be reached on the basis of different criteria employed for assiging mechanisms for even the same complex not to speak of the metal ion in any ligand environment. Since meaningful interpretation of volumes of activation is closely related to the assumption of contact ion-pairs alone existing in solution, it is indeed necessary that the solvent separated ion pairs shown by Eigen (33, 34) with Mg^{2+} and SO_4^{2-} does not complicate the mechanistic assignments using ΔV. This is true of rate ratio variations also, espcially when there is a compensation of ΔH and ΔS and an iso-kinetic temperature is observed close to ambient temperature. The present state of knowledge in the substitution mechanism of even a metal ion like Cr(III) is, to say the least, less clear cut. Whereas $Cr(H_2O)_6^{3+}$ is presumed to undergo I_d substitution, $Cr(H_2O)_5OH^{2+}$, which shows <2 kcal kinetic advantage (for NCS) is assigned an I_a mechanism on the basis of both ΔV and k (NCS)/k(Cl) ratios, although ΔH for various anations shows wide variations.

2.4 Scope for work on substitution mechanisms

In spite of all these ambiguities, all the present criteria being generally employed do show that the reactivities and the mechanistic patterns of closely related series of compounds do change as functions of ligand environments as for example in $Cr(H_2O)_6^{3+}$, $Cr(NH_3)_5H_2O^{3+}$ and $Cr(H_2O)_5OH^{2+}$ (31 and Inorganic Chemistry, 1976, **15** 2885). It does seem more rewarding to discuss mechanisms in term of increasing I_d or I_a characters with respect to a reference compound. In the meanwhile a search for suitable model for an interchange process as well as the development of adequate theo-

retical concepts to design new and testing experiments are needed. Constrasting features of electron transfer and substitution chemistry with respect to interplay of theory and experiment has already been recognized and articulated by various workers (see for discussion by J. Malin in the ACS symposium series, 198 edited by D. Rorabacher and J.F. Endicott pl 47, 1932). There is, therefore, a need to design experiments to examine.

(a) whether I_a and I_d can operate simultaneously and if they do, how to apportion the two components ?

(b) the possibility of defining all the possible factors contributing to outer-sphere complexation, and

(c) semi quantitative (if not quantitative) relationship of the ground state structural parameters with the activation barrier in energy quantities. A critical review on the subject highlighting the scope of work in the area is under preparation. (T. Ramasami, Balachandran Unni Nair and R. Vasantha. Proceedings of National Academy of Sciences)

An exercise to calculate the the strain energies involved in the ligand substitution using the structural parameters by both I_a and I_d pathways may be rewarding to clarify at least the fundamental issues. Similar efforts have already been made to estimate the activation barrier for the outer-sphere redox reactions with some limited success (35-37).

3.0 FRANCK-CONDON MODELS FOR ELECTRON TRANSFER : SCOPE FOR STABILIZATION OF UNUSUAL OXIDATION STATES OF METAL IONS

The importance of nuclear positioning prior to electron transfer (38) and the free-energy dependence of outer-sphere electron transfer reactions have been amply demonstrated by Marcus theory and Franck Condon analysis has, in general, wide success. In fact, such successes have led to the speculation of the structures and the stabilities of many normally inaccessible oxidation states of some metal ions using rate variations as the criterion. For example, in the redox chemistry of Cr(III), it is believed that Cr((IV) is structurally related to Cr(III) and Cr(V) is tetrahedral rendering thereby the interconversion and Cr(VI) and Cr(V) as the rate limiting step ((39-41).

3.1 Need for studies on unusual oxidation states of chromium

It must be borne in mind that there are very few complexes of Cr(IV) and Cr(V) known and practically little is known about the aqueous chemistry of the metal ion in these oxidation states. Yet discussion regarding reorganisational barriers and the structures of Cr(IV) and Cr(V) are being made (39-41). These factors are of relevance to the biological applications of Cr(III) claimed (13-16) (because very little is known regarding the toxicity or utility of Cr(IV) in biochemical pathways), if it were easily formed under some biological conditions. Therefore, the present investigator was involved in an experimental verification of the hypotheses existing in the aqueous chemistry of Cr(IV).

3.2 Chemistry of chromium (IV) : Recent contributions

Equatorial coordination of macrocyclic ligands to the

central metal ion would be expected to increase the reorganisational barrier, if Cr (IV) and Cr(V) were indeed octahedral and tetrahedral respectively, as suggested by various workers (39-41). In other words, Cr(IV) would be expected to be stabilised with respect to Cr(V) by way of equatorial coordination of macrocyclic ligands. Since it has been previously argued (42, 43) that the intra-ligand ring size of 14-membered macrocyles is too small to accommodate Cr(III) ion and because Cr(IV) being higher in oxidation state, would be expected to be smaller than Cr(III) synthesis and oxidation reactions of Cr(III)-(14-membered) macrocycles seem an interesting way to stabilise Cr(IV).

Number of Cr(III) macrocycles with varying degrees of unsaturation in the ligand have been successfully prepared and characterised (ref : Polyhedron **1983**, 2, 103 Leather Science, 1982, 28, Inorganic Chemistry 1986, 25, 51, Inorg. Chim. Acta, **1986**, 118, L27, Inorg. Chim. Acta, **1987**, 000 using spectroscopic techniques. The Ce(IV) oxidation of Cr(III) macrocyclic complexes with equatorial coordination of the macrocyclic ligand were investigated with a view to

(a) examine the hypothesis regarding the reorganisational barrier for Cr(IV)-(V) conversion ; and

(b) stabilise a Cr(IV) complex in aqueous systems. Int. J. Chem. Kinetics **1987**, 000

While efforts were being made to stabilise Cr(IV) in aqueous systems, the substitutional and redox chemistry of two well charaterised (by means of X-ray structure) complexes of Cr(IV) (44, 45), **viz.**

$Cr^{IV}(O_2)_2$ en(H_2O) and $Cr^{IV}(O_2)_2$ dien

were investigated. These complexes provide an example of the metal ion in unusual oxidation state, unusual geometry and the unusual combination of a two electron reductant (or oxidant) viz. O_2^{2-} coordinated directly to a single electron oxidant (or reductant) Cr(IV). These systems have potential use in the understanding of the chemistry of O_2^- in aqueous systems.

Not only these seven coordinate complexes in pentagonal bipyramid geometry undergo substitution by way of six-coordinate intermediates (ref : Inorg. Chim. Acta, 1979, **36**, L433), but also evidence were collected to show the outer sphere reduction by Fe^{2+} as well as by VO_2^{2+} proceeded through 6-Coordinate intermediates (C.K. Ranganathan, **et.al.** Inorg. Chem. 1987, **26**, 000 and Inorg. Chem. accepted). Further in the (internal) redox decomposition of Cr(IV)-O_2^{2-}, evidence has been collected for the formation of O_2H (or conjugate acid of o_2^-) intermediates through chemical scavenging by tetranitromethane (Inorg. Chem. 1986, **25**, 915), kinetic experiments as well as (inefficient) hydroxylation of organic molecules such as proline and phenol.

The observation that O_2(IV)-O_2^{2-} complexes could indeed hydroxylate proline and phenol (ref : Leather Science, 1981, **28**, 284) raises the question of whether the suggested implication of o_2^- in biological hydrxylations (of proline in to hydroxypdoline in the extracellular (46) process in the biosynthesis of structure forming proteins and of phenols in plant metabolism) can be tested using such complexes as models. However, it

must be borne in mind that model systems do differ form biological systems in several ways, chief of which is the distance separation between reacting centres.

4.0 ELECTRON TRANSPORT PHENOMENA : THEORIES AND MODELS

Marcus (47) treatment has been amazingly successful in predicting outer-sphere electron transfer rates (within factors of 10^2) of simple inorganic complexes, wherein the contact to the activation barrier. Unlike nuclear components, the electronic terms may be believed to be energy gap independent. One of the classical approaches to estimate quantitatively the electronic and Franck-Condon or nuclear components is to compute the Franck-Condon contribution from ground state structural parameters and attribute the differences (if any) compared to the observed activation barrier for electron transfer to electronic effects (53, 54). The substantial contribution of Franck-Condon component to the observed activation barrier along with the uncertainties in the ground state structural parameters do not seem to permit firm conclusions regarding the role and the magnitude of electronic effects (ref : Inorganic Chemistry 1983, 22, 3754.

4.1 Non-adiabatic Electron Transfer

Recently the nominee was involved in the development of an experimental probe for detecting non-adiabatic components in simple electron transfer (outer-sphere) reaction. Since electronic effects are assumed to arise from poor donor-acceptor overlaps (resulting from either larger donor-acceptor separation or other potential energy surface crossing considerations) one postulate is that charge transfer perturbations arising from solute solvent and ion-pair interactions may influence the electronic component. This postulate has now been verified experimentally and indeed evidence has been obtained to show that ion-pair (or anion) catalysis may be used to detect non-adiabaticity in Co(III)-polypyridyl-$Co(Sep)^{2+}$ reactions (ref : J. Am. Chem. Soc. 1982, **104**, 5252).

distance is close enongh and electronic frequency is *much greater than the promoting* nuclear frequencies and the reaction is adiabatic. On the other hand, tunnelling (48, 49) mechanisms have been discussed by Hopfield and others for the reactions of biomolecules with larger donor-acceptor distance separations. There are several biomolecules in which ground state structures reveal donor-acceptor separations are of 25-30 A. This is particularly interesting in view of the semi-classical and quantum mechanical theories (50, 51) being developed for electron transfer reactivity in which direct (metal) orbital overlaps are invoked which show that the probability for the (non-radiative) electronic transition within the collision complex decreases exponentially with the donor-acceptor separation distance. With electron transfer proteins, a dynamic conformational isomerism with lower donor-acceptor separation to render the molecules more redox active cannot be ruled out. However, even for simple molecules such as $Ru(bpy)_3^{3+2+}$ and Fe^{3+2+} semi-classical and quantum mechanical theories predict non-adiabatic beha-

viour, if Van der Waal's contact radii are used in the computation of donor-acceptor separation distance (52) when Fermi-Golden rule is used.

According to the present status of knowledge of outer-sphere electron transfer reaction theories, it should be possible to separate the electronic (non-adiabatic) and nuclear components

4.2 Various Contributions to Non-adiabaticity of Electron Transfer

Elaboration of this concept has shown that ion-pair or charge transfer catalysis may be used as a semi-quantitative tool to estimate the non-adiabatic component to outer-sphere electron transfer reactions (ref : J. Am. Chem. Soc. 1983, **105**, 5301, and Inorganic Chemistry 1984, **23**, 3324). It has been postulated that charge transfer perturbations due to Co(III),X⁻ (where x=I⁻ No, ascorbate etc.) may polarise the metal orbital to increase the effective radius of the d-orbital depending on the charge transfer energy. Search for other suitable methods diagnostic of electronic/non-adiabatic effects in bimolecular reactions led to the finding that rate ratios may also be used, when the ratios were analysed carefully (re : J. Am. Chem. Soc. 1985, 107, 389 and Inorganic Chem. 1984, **23**, 2917). The rate ratios, though were used by earlier workers in a qualitative manner to treat the 'selectivity' in redox reactions, it has now been shown by us (ref : J. Am. Chem. Soc. 1985, **107**, 389) that they provide semi-quantitative information with respect to deviations from the adiabatic models such as that proposed by Marcus. Employing rate ratio as the criterion, it has now been shown that not only ligand metal charge transfer states such as in Co(III), X— but also metal to ligand charge transfer interactions as in M(III)L-M(II) participate in relatively non-adiabatic reactions by exchange mechanisms. Thus, for example, cis-$Co(en)_2Cl$ (nitroaniline) reacts with Co $(sep)^{2+}$ more adiabatically than cis-$Co(en)_2$ Cl(aniline). The nitro substituent is believed to make low energy metal ligond charge transfer states available (ref : Inorg. Chemistry, 1984, **23**, 2917). Apart from charge transfer interactions, other factors that may contribute to the electronic matrix elements pertinent to the electron transfer reactivity were also assessed. A notable finding in our study (ref : J. Am. Chem. Soc. 1985, **107**, 389) is that the electronic similarity between the reacting partners (in systems involving spin changes) do give rise to greater level of adiabaticity. The finding of our recent studies suggest that self-exchange reactions may be relatively more adiabatic than the cross reactions.

The recent work of the author has addressed, thus, to the following key issues, **viz.** 1. Is there non-adiabaticity in electron transfer (bimolecular processes), 2. If there is, are there methods to evaluate the contribution of electronic factors to the total activation barrier and 3. the identification of the various contributions to the electronic matrix element such as resonance exchange, MLCT, LMCT etc. (ref : J. Phys. Chem. 1986, **87** 3940). Our recent studies, through a total of 10 publications in the area illustrate nicely that electronic factors may contribute to the transmission coefficients of the order of 10^{-2} in some simple systems even.

5.0 ENERGY TRANSFER PATHWAYS : NEED FOR INVESTIGATION AND DEVELOPMENT

The observation that electronic factors arising from poor donor-acceptor overlap are relevant in electron transfer processes raised also the importance or orbital overlaps in energy transfer processes. Whereas it is readily realized that in photosynthetic pathways, the roles of excited state reactivities and their lifetimes are of vital importance, there are several unanswered questions on the mechanism of photosynthetic reactions. The reactivities of photo excited states and their photophysical aspacts are being studied with great interest. The author, for his part, was involved in the photophysics pertaining to some Cr(III) hexamine complexes (ref : J. Phys. Chem. 1983, **87,** 5057 and J. Phys. Chem. in Press) and in reviewing the photochemical aspects of transition metal complexes in general (ref : Coord. Chem. Rev. 1987 in Press). These studies indicate that symmetry, electronic selection rules, enemy separations between various excited states and adiabatic surface crossing considerations may influence the lifetimes of excited states. It seems now that structure-reactivity relations of excited state reactions are also possible. One of the significant findings is that bimolecular quenching rates are influence by the donor-acceptor separation distance and that the charge transfer states may aid in the energy transfer.

Through our studies (Kanthimathi et.al.) a chromium-aluminium syntan which makes use of the principle that energy transfer quenching can be advantageously used in photo-stabilizing organic resins has been developed (process released to Messers. Balmer Lawrie & Co.).

6.0 BIOINORGANIC CHEM. : FUNDAMENTAL ISSUES

In the light of our recent findings that both electron and energy transfer reactions are influenced by charge transfer processes, a question may now be raised as to whether the biomolecules having a door-acceptor separation of 25-30 A in fact use such ion pair effects for their electron transfer reactions. Similar questions have been raised with respect to Hemerythrin, an o_2 carrying protein in marine worms. The nominee, recently was involved in demonstrating the importance of stereochemical changes and the Franck-Condon factors in controlling the reactivities of Hemerythrin (Chem. Comm. JCS. 1934, 1017 and Inorg. Chem. 1985, **24,** 3230). If on the other hand, biomolecules do use charge transfer effects in their electron transfer reactivity, the questions such as how do the biomolecules choose their reaction partners, for CT activity, optimum donor-acceptor separation distance, stereo-specificities etc. are many aspects that need detailed studies, calling for both structural and mechanistic investigations.

6.1 Active Site Structure and Chemistry

There are ambiguities in the active site structure and reactivities of several metallo enzymes such as lysyloxidase, nitrogenase etc. The Madras group has initiated research on the active site chemistry of

lysyloxidase (ref : J. Inorg. Biochem. 1987, in Press). Lysyloxidase being an enzyme responsible for the crosslinking in collagen, underctanding of the active site structure and chemistry of the enzyme is vital to solving problems associated with skin disorders. Further work in the area is therefore much needed.

6.2 Metal-Protein Interactions

Tanning being a process in which the stabilization of protein is achieved through the interaction of tanning agents and collagen, molecular level understanding of the phenomenon will be forthcoming only if metal-protein interactions are better defined. The protein conformation being an important theme, it is not clear as to how tanning agents like Cr(III) would alter the structure of collagen in a manner in which collagenase loses the activity on the tanned substrate. Ion-pair and charge interactions in collagenous substrates also have vital importance. Although the time averaged X-ray structure of Type-I collagen is known (55), now it is established that there are a total of eleven types of collagen which vary in amino acid sequence and composition and therefore conformational variations are highly likely. Attempts to synthesise appropriate collegen model peptides and investigate Cr(III) interaction with such peptides are worthwhile. Further, molecular mechanics calculations on the peptide metal complexes are also valuable and such efforts have not yet been made. Work in such frontier areas have now been initiated in the group of the nominee.

7.0 FUTURE PLANS

The nominee after identifying the scope of work, has plans to

(a) unravel aqueous chem. of metal ions in normally inaccessible and catalytically active oxidation states ;

(b) systematically analyse the influence of coordinated ligands, geometry and ground state structural parameters on both substitution and electron transfer reactivities of chosen metal ions ;

(c) assess the role of metal-ligand interaction on the activation of molecules and ions like O_2, O_2^-, O_2^{2-}, S^{2-}, S_2^-, S_2^{2-}, H_2, MH, CO, $CH_2=CH_2$ etc. and relate them to the biological systems which make use of their chemistry very often ;

(d) search for semi-empirical theories and more appropriate models for Interchange substitution mechanismsx including a better understanding of the contributing factors to the ion-pair formation and their nature ;

(e) to systematically study the mechanisms of the complex reactions such as biological hydroxylations using biomimetic approach ;

(f) assess the importance (or otherwise) of electronic or non-adiabatic effects of electron transfer in the electron transport proteins and unravel as to how exactly Nature circumvents the problems of large donor-acceptor separations ; and

(g) synthesise model peptides for collagen and define Cr(III) interactions with the protein more clearly through both experimental approaches and theoretical calculations.

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UNEMPLOYMENT CRISIS: 83% OF JOBLESS INDIANS ARE YOUTH, SAYS INTERNATIONAL LABOUR ORGANISATION REPORT

As per the ILO report, the proportion of educated youth (with at least secondary education), who are unemployed, has nearly doubled to 65.7 percent in 2022 from 35.2 percent in 2000 and still gradually increasing in present.

India's youth continue to grapple with soaring unemployment rates, with nearly 83 percent of the jobless population belonging to this demographic, as per the India Employment Report 2024 jointly published by the International Labour Organisation (ILO) and the Institute of Human Development (IHD).

The report underscores a concerning trend where the proportion of educated young people, possessing at least secondary education, among the total unemployed youth has nearly doubled from 35.2 percent in 2000 to 65.7 percent in 2022. Dropout rates after secondary education remain high, particularly in poorer states and among marginalised groups. Despite rising enrolment in higher education, quality concerns persist, with significant learning deficits observed across school and higher education levels, as per the report.

Rising Unemployment Among Educated Youth

According to the study, youth employment and underemployment surged between 2000 and 2019 but saw a decline during the COVID-19 pandemic years. Educated youths, however, experienced significantly higher levels of joblessness during this period.

Further, the Labour Force Participation Rate (LFPR), Worker Population Ratio (WPR), and the Unemployment Rate (UR) witnessed a sustained decline between 2000 and 2018, only to show signs of improvement post-2019, the report highlights.

However, the authors of the report caution that this improvement needs careful interpretation, especially given the questions raised about the drivers of these changes.

Wages have largely remained stagnant or declined, with real wages for regular workers and self-employed individuals showing a negative trend after 2019. A substantial portion of unskilled casual workers did not receive the mandated minimum wages in 2022.

Significant variations in employment outcomes exist across states, with certain states consistently ranking lower in employment indicators. States like Bihar, Uttar Pradesh, Odisha, Madhya Pradesh, Jharkhand, and Chhattisgarh have struggled with poor employment outcomes over the years, reflecting the influence of regional policies.

Challenge of Youth Employment in India

India is at a crucial juncture concerning youth employment as it holds the potential to harness its demographic advantage. With a significant portion of the population falling within the working age bracket, India stands to benefit from what is termed a "demographic dividend."

However, this advantage is facing challenges as the youth population, which constituted 27 per cent of the total population in 2021, is projected to decrease to 23 per cent by 2036. The COVID-19 pandemic exacerbated challenges in the youth labour market, leading to temporary worsening of indicators during peak periods. Although there were some recovery post-lockdowns, it was accompanied by an increase in poor-quality work, particularly in self-employment and unpaid family work.

Technological advancements have also affected the demand for skills and types of employment, with young people being better represented in high- and medium-skill jobs and the gig economy. However, job insecurity remains a concern in these sectors.

And, regional disparities exist in youth employment outcomes across Indian states, with states at different stages of demographic transition experiencing varying employment outcomes. While some states show promising outcomes, others, particularly in the northern and eastern regions, face challenges in youth employment.

Paradoxical Labour Market Dynamics, Informal Sector and Livelihood Insecurities

Recent years have seen paradoxical shifts in key labour market indicators, reflecting a blend of improvements and setbacks. While the labour force participation rate, workforce participation rate, and unemployment rate experienced a prolonged decline from 2000 to 2019, there was a subsequent improvement, coinciding with periods of economic strain, including the COVID-19 pandemic, except for two peak pandemic quarters.

The trend in overall labour market indicators is echoed more prominently in the female labour market. After a notable decline in previous years, the female labour market participation rate displayed a swifter upward trajectory from 2019 onwards, particularly in rural areas.

There has also been a gradual enhancement in employment conditions over the years, as indicated by the employment condition index. Between 2005 and 2022, there was a steady rise in values, denoting better employment conditions. However, this trend was interrupted and even reversed after 2019, coinciding with the onset of the COVID-19 pandemic, highlighting persistent challenges in employment conditions.

The slow transition away from agricultural employment witnessed a reversal after 2019, with a notable rise in agricultural employment and a decline in non-farm employment, especially in manufacturing. The construction and services sectors absorbed the increase in non-farm employment.

Notably, the increase in employment post-2019 was largely driven by self-employed workers, with a significant portion comprised of unpaid family workers, predominantly women. Informal employment consists of nearly 90 percent of workers engaged, the report notes. Additionally, the share of regular employment, which saw a steady rise post-2000, witnessed a decline after 2018.

The report underscores widespread livelihood insecurities, especially among those not covered by social protection measures. Urbanisation and migration rates are forecasted to increase, with projections suggesting a migration rate of around 40 percent by 2030 and a substantial urban population growth driven by migration, particularly from eastern and central regions to southern, western, and northern regions.

Skill Deficit, Gender Disparities Hinders Youth Employment

Despite India's youthful demographic, there's a concerning lack of necessary skills among the workforce. The report highlights that a significant portion of the youth lacks basic digital literacy skills, hindering their employability. It noted that 90 percent of Indian youth are unable to put a mathematical formula into a spreadsheet, 60 percent cannot copy and paste files, and at least 75 percent of youth are unable to send emails with attachments.

The report also sheds light on the widening gender gap in the labour market, with low rates of female labour force participation. Young women, particularly those with higher education, face substantial challenges in securing employment.

Social inequalities also persist despite affirmative action and targeted policies, with Scheduled Castes and Scheduled Tribes facing barriers to accessing better job opportunities. Although educational attainment has improved across all groups, social hierarchies persist, exacerbating the employment disparity.

(www.livemint.com – 27/03/2024)

WORLD BANK PROJECTS INDIAN ECONOMY TO GROW AT 7.5% IN 2024

The Indian economy is projected to grow at 7.5 per cent in 2024, the World Bank has said, revising its earlier projections for the same period by 1.2 per cent. Overall, growth in South Asia is expected to be strong at 6.0 per cent in 2024, driven mainly by robust growth in India and recoveries in Pakistan and Sri Lanka, the World Bank said in its latest South Asia Development Update on Tuesday.

According to the report, South Asia is expected to remain the fastest-growing region in the world for the next two years, with growth projected to be 6.1 per cent in 2025.

"In India, which accounts for the bulk of the region's economy, output growth is expected to reach 7.5 per cent in FY 23-24 before returning to 6.6 per cent over the medium term, with activity in services and industry expected to remain robust," the bank said in its report. In Bangladesh, output is expected to rise by 5.7 per cent in FY24/25, with high inflation and restrictions on trade and foreign exchange constraining economic activity.

Following the contraction in FY 22-23, Pakistan's economy is expected to grow by 2.3 per cent in FY 24-25 as business confidence improves. In Sri Lanka, output growth is expected to strengthen to 2.5 per cent in 2025, with modest recoveries in reserves, remittances, and tourism.

"South Asia's growth prospects remain bright in the short run, but fragile fiscal positions and increasing climate shocks are dark clouds on the horizon," said Martin Raiser, World Bank Vice President for South Asia. "To make growth more resilient, countries need to adopt policies to boost private investment and strengthen employment growth," he said.

"South Asia is failing right now to fully capitalize on its demographic dividend. This is a missed opportunity," said Franziska Ohnsorge, World Bank Chief Economist for South Asia.

If the region employed as large a share of the working-age population as other emerging markets and developing economies, its output could be 16 per cent higher, Ohnsorge said.

In India, the World Bank said, economic activity surprised on the upside in 2023Q4, with growth of 8.4 per cent from a year ago. "The expansion was supported by rapid increases in investment and government consumption. More recent survey data point to continued strong performance," it said.

In February, India's composite purchasing managers index (PMI) stood at 60.6, well above the global average of 52.1 (a value above 50 indicates expansion). Growth in FY2023/24 is estimated to have exceeded earlier forecasts, it said.

According to the report, in India, inflation has remained within the Reserve Bank of India's 2–6 per cent target range since a spike in mid-2023, and the policy rate has remained unchanged since February 2023. Food price inflation has been elevated, partly reflecting a weak harvest due to El Niño, it said. Financial conditions in India have remained accommodative. Domestic credit issuance to the commercial sector (including public and private borrowers) grew by 14 per cent (year-on-year) in December 2023, the fastest pace since 2013. Financial soundness indicators continued to improve. The nonperforming-loan ratio fell to 3.2 per cent last year, well below its recent peak, in March 2018, of about 11 per cent. Regulatory capital totalled 17 per cent of bank assets in the second quarter of 2023, surpassing both regulatory requirements and peer averages. FDI as a share of GDP fell in 2023, but a rebound in foreign portfolio investment inflows in FY2023/24 contributed to foreign reserves rising 8 per cent in the year to January 2024, reaching a level sufficient to cover about 11 months of imports, the World Bank report said.

"In India, output growth is projected to reach 7.5 per cent in FY2023/24 on the back of robust growth in Q3 of FY2023/24. Growth is expected to moderate to 6.6 per cent in FY2024/25 before picking up in subsequent years as a decade of robust public investment yields growth dividends," the bank said.

The expected slowdown in growth between FY2023/24 and FY2024/25 mainly reflects a deceleration in investment from its elevated pace in the previous year, it said. "Growth in services and industry is expected to remain robust, the latter aided by strong construction and real estate activity. Inflationary pressures are expected to subside, creating more policy space for easing financial conditions," it said. "Over the medium term, the fiscal deficit and government debt are projected to decline, supported by robust output growth and consolidation efforts by the Central government," the report said.

(www.thehindubusinessline.com – 03/04/2024)

HOW TO FILE TDS RETURN ONLINE? HERE'S STEP-BY-STEP PROCESS FOR MSMES

Tax deducted at source (TDS) is the income tax deducted from the payment made including salaries, professional fees, commission, rent, interest earned, etc., by a person or a company and paid to the government. Even as the recipient has to pay income tax to the government, the government provides for a tax deduction in advance from the payments the recipient receives through TDS.

For instance, a small business will deduct TDS from let's say Rs 1 lakh rent for the premises it operates from to its owner. If the TDS is 10 per cent, the small business will deduct Rs 10,000 as TDS and pay Rs 90,000 to the owner of the premises. The TDS deducted will be paid to the government.

The tax deductor should deposit the amount by the 7th day of the next month. For example, TDS deducted in April needs to be deposited by 7th May except for the March deduction which can be paid till April 30th. With respect to TDS return, the person or company deducting TDS needs to file for the same by the end of the month following the quarter end. For example, 31st July for the June quarter and 31st October for the September quarter. However, for the March quarter, the last date for TDS return is 31st May.

- To file TDS return, the deductor needs to log in to incometaxindiaefiling.gov.in with the TAN number which is registered for e-filing.
- Then click e-File>Income Tax Forms>File Income Tax Forms.
- Under 'Persons with Business/Professional Income', proceed to 'Upload TDS Form' and then click on 'Let's Get Started'
- Select the respective TDS form filled, financial year and quarter and upload the TDS form filled and click on 'Proceed to E-Verify'
- Verify using the OTP shared on your mobile number.
- A text message on successful completion of filing will be shared

The TDS rate for deduction on rent in respect of any land or building is 10 per cent, 2 per cent on rent on plant and machinery, 5 per cent on commission or brokerage, 10 per cent on the fee for professional services and 2 per cent on the fee for technical services, 1 per cent on the amount paid for the sale of products or services by e-commerce platforms below Rs 5 lakh (5 per cent in cases without PAN), 0.10 per cent on payment for the purchase of goods less than Rs 50 lakh, etc. Importantly, TDS on payment of rent in respect of any land or building, furniture or fittings or plant and machinery is not required provided the amount paid does not exceed Rs 2.4 lakh.

Likewise, TDS is exempted on salaries to individuals if net taxable income is under Rs 2.5 lakh, on commission or brokerage not exceeding Rs 15,000, on the fee for professional or technical services less than Rs 30,000, on the amount paid for the sale of products or services by e-commerce platforms below Rs 5 lakh, on payment for the purchase of goods less than Rs 50 lakh, etc.

(Financial Express – 02/04/2024)

IMF DISTANCES ITSELF FROM SUBRAMANIAN'S 8% INDIA GROWTH PREDICTION

The recent remarks of Krishnamurthy Subramanian, Executive Director at the International Monetary Fund, about India's growth figures do not represent the views of the IMF and were in his role as India's representative at the global body, the IMF has said."The views conveyed ...by Mr. Subramanian were in his role as India's representative at the IMF," Julie Kozack, IMF spokesperson, told reporters here on Thursday. She was responding to a question on recent remarks by Subramanian, in which he projected a growth rate of 8% for India, which is different from the last growth rate projections by the IMF.

Subramanian, at an event in New Delhi on March 28, had said the Indian economy could grow at 8% till 2047, if the country redoubles the good policies that it has implemented over the last 10 years and accelerates reforms. "So, the basic idea is that with the kind of growth that India has registered in the last 10 years, if we can redouble the good policies that we have implemented over the last 10 years and accelerate the reforms, then India can grow at 8% from here on till 2047," he had said.

The IMF spokesperson clarified, "We do have an Executive Board. That Executive Board is made up of executive directors who are representatives of countries or groups of countries, and they make up the Executive Board of the IMF. And that's distinct, of course, from the work of the IMF staff." The IMF will be updating its World Economic Outlook in the next couple of weeks. "But our growth projections as of January were for medium term growth of 6.5%, and that was a slight upward revision relative to October. Again, we will be presenting the latest forecast in just a couple of weeks," Kozack said.

RECONSTITUTION OF EXECUTIVE COMMITTEE OF ILTA FOR THE TERM 2024 - 2026

ELECTION SCHEDULE

Sl. No.	Events	Date	Day
1	Mailing of Nomination papers & Voters' List on or before	02.05.2024	Thursday
2	Last date for receipt of Nomination Papers	24.05.2024	Friday
3	Last date for receipt of Consent	13.06.2024	Thursday
4	Last date for withdrawal of candidature	17.06.2024	Monday
5	Mailing of ballot papers on or before	06.07.2024	Saturday
6	Last date for receipt of ballot papers from voters residing outside KMDA area & 24-Pgs (N & S)	03.08.2024	Saturday
7	Casting of votes by voters residing in KMDA & 24 - Pgs (N & S) Area at ILTA Administrative Office from 10-00 to 17-00 hrs.	02.08.2024 & 03.08.2024	Friday & Saturday
	LUNCH BREAK : 1-30 to 2-30 PM		
8	Counting of votes at ILTA Administrative Office from 11-00 hrs. onwards	05.08.2024	Monday

-: JILTA : -

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History and Activities of Indian Leather Technologists' Association #1

The Indian Leather Technologists' Association (ILTA) was founded by Late Prof. B. M. Das, the originator of Das-Stiasny theory and father of Indian Leather Science on 14th August' 1950. ILTA is the Member Society of IULTCS (International Union of Leather Technologists & Chemists Societies) representing India.

The primary objectives of the oldest Leather Technologists' Association which celebrated its Diamond Jubilee year in 2010, are :

- To bring all concerned with the broad spectrum of the leather industry under one umbrella.
- To organize seminar, symposium, workshop in order to create information, knowledge and latest development for the benefit of all concerned. To offer a common platform for all to interact with each other in order to understand each other's problems and prospects.
- To publish monthly journal as a supplement to those above objectives. The monthly journal of ILTA is known as journal of Indian Leather Technologists' Association and is the most widely circulated technical journal concerning leather technology.
- To publish text books for the benefit of students at various levels of study, for the researchers and industry.
- To have interface between urban and rural sector.
- To assist various Government Institutions, Ministry and autonomous bodies to formulate appropriate policies acceptable and adoptable to the industry.
- To organize practical training and to provide skilled manpower and to motivate good students for study.
- To conduct activities related to the growth of the export of leather and leather goods from India.

ILTA also organizes Prof. B. M. Das Memorial Lecture every year during the Foundation Day Celebrations on 14th August, Sanjoy Sen Memorial Lecture on 14th January, the birthday of our late President for several decades, Prof. Moni Banerjee Memorial Lecture on 15th March, the birthday of our late Founder-General Secretary of our Association and Prof. S. S. Dutta Memorial Lecture on 2nd February every year during IILF at Chennai. Many reputed scientists, industrialists and educationists have delivered these prestigious lectures. Foreign dignitaries during their visits to India have addressed the members of ILTA at various times.

ILTA have published the following books :

1. An Introduction to the Principles of Physical Testing of Leather by Prof. S.S. Dutta
2. Practical Aspects of Manufacture of Upper Leathers by J. M. Dey
3. An Introduction to the Principles of Leather Manufacture by Prof. S .S .Dutta
4. Analytical Chemistry of Leather Manufacture by P. K. Sarkar
5. Comprehensive Footwear Technology by Mr. Somnath Ganguly
6. Treatise on Fatliquors and Fatliquoring of Leather by Dr. Samir Dasgupta
7. Synthetic Tanning Agents by Dr. Samir Dasgupta
8. Hand Book of Tanning by Prof. B. M. Das

ILTA presents awards in the name of Prof. B. M. Das Memorial, Sanjoy Sen Memorial, Prof. J. M. Dey Memorial, Prof. Moni Banerjee Memorial and Prof. S. S. Dutta Memorial Medals to the top rankers at the University Graduate and post graduate levels. Prof. J. Sinha Roy Memorial Award for the author of the best contribution for the entire year published in the monthly Journal of the Indian Leather Technologists' Association (JILTA). From the year 2023, ILTA has started to present a Scholarship namely Prof. Moni Banerjee Memorial Scholarship to a student of B.Tech / M.Tech in Leather Technology who is meritorious but financially crippled.

contd.

History and Activities of Indian Leather Technologists' Association #2

Registration No. KOL RMS/074/2022-24

The International Congress of IULTCS used to held in different locations of the world once in two years. In its 125 years long history, for the first time the Congress was held in January 1999 outside the developed countries and that too in India at CLRI, Chennai. Indian Leather Technologists' Association organized the Congress under the able leadership and guidance of Late Sanjoy Sen, the then President of ILTA and IULTCS and Dr. T. Ramasami, the then Vice-President of ILTA and Director, CLRI, Chennai. In 2017 IULTCS Congress was successfully held again at Chennai, India for the second time.

In order to promote and provide marketing facilities, to keep pace with the latest design and technology, to have better interaction with the domestic buyers, ILTA has been organizing LEXPO fairs at Kolkata from 1977, Siliguri from 1992 and Durgapur from 2010. To help the tiny, cottage and small-scale sectors industries in marketing, LEXPO fairs give the exposure for their products. Apart from Kolkata, Siliguri and Durgapur, ILTA have organized LEXPO at Bhubaneswar, Gangtok, Guwahati, Jamshedpur and Ranchi. It commensurate with the time, demand and new perspective of the modern-day leather users. ILTA has started to organize LEXPO at Kolkata from 2022 in a new shape with the Manufacturers and Exporters of Leather Goods from all over India.

ILTA celebrated its Golden Jubilee with a year long programme from 14th August' 2000 to 13th August' 2011 along with the first conference of South East Asian Countries at Netaji Indoor Stadium, Kolkata.

The Association's present (as on 31.03.2024) strength of members is around 550 from all over India and abroad. Primarily the members are leather technologists passed out from Govt. College of Engineering & Leather Technology, Kolkata, Anna University, Chennai, Scientists from Central Leather Research Institute (CLRI), Harcourt Butler Technical University, Kanpur, Govt. Institute of Leather Technology, Jalandhar, Central Footwear Training Institute, Agra, Central Footwear Training Centre, Budge Budge, Footwear Design & Development Institute, Kolkata, National Institute of Fashion Technology, Kolkata etc.

In order to strengthen its activities, ILTA have constructed its own six storied building at 44, Shanti Pally, Kasba, Kolkata – 700107 and have named it "Sanjoy Bhavan".

This Association is managed by an Executive Committee duly elected by the members of the Association. It is absolutely a voluntary organization working for the betterment of the Leather Industry. None of the Executive Committee members gets any remuneration for the services rendered but they get the satisfaction of being a part of this esteemed organization.

ILTA
Since 1950

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