



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



GLOBAL CHEMICAL LEASING

Narrative Report
2019

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1. Introduction

Chemical Leasing is a performance-based circular economy business model that can effectively address the different sustainability dimensions of chemical use. It aims to simultaneously create financial, environmental and human well-being. Chemical Leasing strives for a triple win situation for both partners involved as well as for the environment. It aims to increase the efficient use of chemicals while reducing the risks of chemicals and protecting human health. It improves the overall performance of participating companies and enhances their access to new markets.

UNIDO is promoting the Chemical Leasing concept with the direct support of the Austrian, German and Swiss Governments. The basis of the model is the idea that economic success no longer depends on *the volume of chemicals sold, but on the service that the chemicals provide* or the result they deliver in the production process. Chemical consumption becomes a cost factor in the production process rather than a revenue factor. Accordingly, the business partners and the environment benefit from the co-creation of jointly developed resource-efficient and innovative solutions and fair profit-sharing.

UNIDO's Global Chemical Leasing Programme is fully in line with UNIDO's mandate to promote inclusive and sustainable industrialization at the global level and contributes to the achievement of Sustainable Development Goal 9 and all the other goals adopted by the 2030 Agenda for Sustainable Development. The Programme is UNIDO's response to the "unsustainable management of chemicals in industries and lack of cooperation among chemicals producers and users."

UNIDO, the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, and the Swiss Federal Office for the Environment signed the Joint Declaration of Intent on Chemical Leasing on 21 November 2016. Moreover, affirmed by the results in their own countries, El Salvador, Sri Lanka and Serbia signed the Declaration of Intent on Chemical Leasing during the Ceremony of the Global Chemical Leasing Award 2018, held on 6 November 2018 in Vienna.

2. Activities

In 2019, the Chemical Leasing activities focused on promotion, capacity building and the preparation for the Global Chemical Leasing Award 2020.

Output 1.1 - Platform for dialogue and knowledge sharing established

Expert group meeting

On 11 September 2019, international Chemical Leasing experts and government representatives of Austria, Germany and Switzerland met to discuss the scope of the Global Chemical Leasing Award 2020 and to start with its preparations.

During the meeting and based on the lessons learned from the previous awards, UNIDO presented suggestions, amendments and changes for the upcoming award.

It was decided to keep the brand 'Chemical Leasing', but to be more inclusive and extend the focus to other performance-based business models for sustainable chemicals management as well. This will allow for other performance-based business models related to chemicals that might be called and branded differently to be eligible for the award.

The experts also approved two additional Special Awards: "Women-led initiatives" and "Start-ups". They also agreed on replacing the Conformity Declaration (with Chemical Leasing) by "Successful participation in the award".

Expert meeting on Chemical Leasing online webinar

On 16-17 December 2019, UNIDO organized another expert meeting to prepare a webinar on the performance-based business model for sustainable chemicals management.



Vojislavka Satric, International Expert for UNIDO's ChL Programme; Branko Dunjic, Director of the NCPC Serbia; Petra Schwager, Coordinator of UNIDO's Global ChL Programme; Reinhard Joas, International Expert for UNIDO's ChL Programme and Luis Umanzor Hernandez, Project Associate on ChL

During the two-day meeting, the experts designed the content of the webinar that was to be held in January 2020. The webinar was especially tailored to train consultants, companies and students on Chemical Leasing key elements, benefits and implementation; and to inform on how to apply to the Global Chemical Leasing Award 2020. At the end of the webinar, participants are expected to have gained a better understanding of Chemical Leasing principles and to have developed skills for introducing and applying Chemical Leasing in practice.

The webinar comprised three modules with a duration of 2 to 3 hours each:

Module 1: Key elements and benefits of Chemical Leasing (a performance-based business model for chemicals management)

Target audience: NCPCs, consultants, companies and students

When: Tuesday 14 January 2020 (duration of 2 hours).

What: Participants got familiar with Chemical Leasing (key elements and successful examples of application in companies) as well as with the Global Chemical Leasing Award 2020.

Module 2: The Global Chemical Leasing Award

Target audience: NCPCs, consultants, companies and students interested in applying to the global Chemical Leasing Award 2020.

When: Tuesday 14 January 2020 (duration of 2.5 hours).

What: Participants got familiar with the Global Chemical Leasing Award, applicants' identification and the award application process.

Module 3: Implementation

Target audience: NCPCs, consultants and companies interested in applying Chemical Leasing. Students interested in how to implement the model could participate too.

When: Wednesday 15 January 2020 (duration of 3 hours).

What: Participants got familiar with the methodology of introducing Chemical Leasing at company level and learn about the specific challenges and opportunities for its specific applications. Furthermore, the participants were informed about how to apply for the Global Chemical Leasing Award 2020.

Output 1.2 - Awareness Raising and Information Dissemination

I. Events, trainings and workshops

In order to build capacity and promote Chemical Leasing, several events, trainings and workshops were conducted in different countries. Participants included representatives from government institutions, academia, and industry as well as international institutions.

Workshop: Sustainable Business Model for Chemical industry

On 24 April 2019, the Austrian Chamber of Commerce hosted the workshop "Sustainable Business Model for Chemical industry and its clients", organized by the Austrian Ministry for Sustainability and Tourism together with the Austrian Chemical Industry Association.

UNIDO and experts from industry, the Austrian government and consulting companies shared their experience in the application of Chemical Leasing in different sectors, displaying its great potential for the chemical industry. Topics related to Chemical Leasing such as Circular Economy, Water 4.0 and Chemistry 4.0 were addressed, since these are all becoming sustainability tools and business solutions for more and more companies across the globe.

Best practices for the Indian industry

The Chemical Leasing concept and success stories were presented within the 8th Greenco Summit framework, organized by the Confederation of Indian Industry (CII) and UNIDO in New Delhi, from 3 to 5 July 2019. Samantha Kumarasena, Chief Executive Officer of the National Cleaner Production Centre of Sri Lanka (NCPC Sri Lanka), delivered the presentation.

NCPC Sri Lanka is part of UNIDO's Resource Efficiency and Cleaner Production Network (RECPNet) and has several years of experience in assisting the Sri Lankan companies on Chemical Leasing, including in the area of agriculture. Cases developed by the centre highlight the advantages of the Chemical Leasing business concept. They successfully participated in the Global Chemical Leasing Award on various opportunities as well.



Chemical Leasing Conference in Switzerland

UNIDO participated in the Conference on Chemical Leasing ("Fachtagung Chemikalienleasing") hosted by the Swiss Environment Agency (BAFU) in Bern on 29 October 2019. Experts and practitioners from different countries participated and delivered presentations and speeches on the performance-based business model, as well as shared their experience with representatives from the Swiss industry and industrial associations. Companies such as Brenntag, Ecolab and



Safechem were among the guests.

UNIDO's participation consisted of delivering a presentation about challenges that the chemical industry faces today including political context, the Chemical Leasing application "Do's" and "Don'ts" and some general guidance for suppliers and users of chemicals interested in applying the model.

IOMC Workshops

UNIDO is part of the Inter-organizational Programme for the Sound Management of Chemical Substances (IOMC) that brings together the Food and Agriculture Organization of the United Nations (FAO), the International Labor Organization (ILO), the United Nations Development Program (UNDP), the United Nations Environment Program (UNEP), the United Nations Institute for Training and Research (UNITAR), the World Health Organization (WHO), the World Bank and the Organization for Economic Cooperation and Development (OECD).

Under the framework of the Programme, an "Internet-based toolbox for decision making in the management of chemical products" was created that contains different tools for the management of chemicals developed by the participating organizations. UNIDO's Chemical Leasing tool is part of the toolbox.

The IOMC toolbox is a tool aimed at countries that wish to address specific national problems related to the management of chemical products, through the identification of the most appropriate and efficient national actions to address such problems using the tools available within the toolbox. The toolbox focuses on the identification of simple and profitable solutions for the national problems of sustainable management of chemical products. See <https://iomctoolbox.oecd.org/> for more information.

UNIDO, together with six other organizations taking part in the programme, is currently in the third phase of technical work for the promotion and training on the use of the toolbox, the tools it contains and the chemical management schemes. This technical work includes activities carried out in selected countries and (sub) regions in

developing countries and countries with economies in transition throughout the world, including national and regional workshops for the promotion of the toolbox.

Regional workshop, Lima, Peru

UNIDO, with the support of the Ministry of Environment of Peru, held the Regional Workshop of the IOMC Toolbox in Lima on 30 and 31 May 2019 for the promotion of the Chemical Leasing toolkit and training on sustainable chemical management schemes including Chemical Leasing.

The workshop had 50 participants: experts from the public and private sectors and universities, consultants, representatives of industrial or training associations took part. Participants came from different countries in South America, including Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru and Uruguay. Experts from ILO, OECD, UNIO, UNITAR, WHO/PAHO as well as experts from ministries of the different countries also attended the workshop.



During the workshop, the new IOMC toolbox webpage was launched and a working group was created for better understanding of the toolbox. The UNIDO toolkits on Chemical Leasing and IOMC were presented as well as a brief training on how to use them. Other subjects such as GHS implementation; Risk Assessment, PRTR schemes and working groups were also covered. In addition, experts provided an introduction to Green Chemistry and green chemistry in plastics.

National workshop, Jakarta, Indonesia

On 7 and 8 of August 2019, UNITAR organized a national workshop on using the IOMC Toolbox for Decision Making in Chemicals Management and its tools, including the Chemical Leasing toolkit, and setting-up a Pollutant Release and Transfer Register (PRTR). UNIDO participated remotely and provided an online presentation on Chemical Leasing and a training on how to use the toolkit.

National workshop, Bogota, Colombia



On 23-24 October 2019, UNITAR organized a national workshop in Colombia on capacity building for industrial chemicals management and using the IOMC Toolbox for Decision Making in Chemicals Management and its tools, including Chemical Leasing toolkit.

UNIDO participated in the workshop providing a presentation on Chemical Leasing and the Chemical Leasing toolkit as well as on programmes for the registry of chemical substances.

II. Other outreach activities

Chemical Leasing and the empowerment of women



On 20 November 2019, the World Association of Women Entrepreneurs (FCEM) organized a congress on fostering women's economic empowerment and the circular economy in Lima, Peru. The congress illustrated the important role of women in society and business, addressed the current challenges for women and provided a space to share valuable experiences and benefits created by circular-economy thinking.

During the congress, UNIDO introduced the circular economy business model Chemical Leasing and the achievements of women in its promotion. With the support of informed women coming from different backgrounds in the industry, companies are guided towards circular-economy goals.

During the event, UNIDO signed a Joint Declaration with FCEM to globally promote circular economy business models such as Chemical Leasing.

UNIDO and Enactus signed a joint declaration

On 13 November 2019, UNIDO and Enactus signed a Joint Declaration on innovative business models. The declaration aims to promote innovative business models and related projects for sustainable chemical management.

With the declaration signed, the partners agreed on the necessity to further mainstream and up-scale innovative business models such as Chemical Leasing at the global level and with young entrepreneurs.

Enactus is the world's largest experiential learning platform dedicated to creating a better world while developing the next generation of entrepreneurial leaders and social

innovators. With 72,000 participating students on university campuses in 36 countries, Enactus teams launch projects and businesses to, among other objectives, help address the SDGs. Teams are supported by an international network of business and academic leaders.



Oliver Faber, ENACTUS Germany and Petra Schwager, Coordinator of UNIDO's Global ChL Programme UNIDO

Bilateral meetings

On 11-12 December 2019, meetings with representatives from Finnish Ministries and Authorities were held, including the Ministry of Foreign Affairs, the Ministry of Environment, the Ministry of Agriculture and Forestry, the Finnish Safety and Chemicals Agency and the European Chemicals Agency ECHA.

In the meetings, Chemical Leasing was presented as part of UNIDO's Circular Economy programme, specifically outlining it as a performance-based and circular business model. Information about the approach and the main elements of a Chemical Leasing project proposal were discussed.

The Finnish Ministry of Environment, the Ministry of Agriculture and Forestry, and the Finnish Safety and Chemicals Agency showed interest in Chemical Leasing and to support in the development of a new project.

II. Promotional/awareness raising material

Online platforms

The following online platforms were updated frequently based on the latest Chemical Leasing activities and allowed interaction and knowledge sharing at the global level:

Chemical Leasing Website

Twitter

Facebook

LinkedIn

The screenshot shows the homepage of the Chemical Leasing website. At the top, there is a navigation bar with the logo and the tagline "WHEN CHEMICALS PERFORM THE BEST!". Below this, there are several sections: "Become a winner, applying best practices!" with a call for applications for the 9th Global Chemical Leasing Award 2020, "What is Chemical Leasing?" with a video link, and "Announcement of the Global Award 2020" featuring a photo of a woman. At the bottom, there is a "News and Events" section with three items: "Chemical Leasing at the OECD Joint Meeting", "Live webinar on Chemical Leasing – a good start of the year!", and "Chemical Leasing officially recognized by the Government of Austria".

The screenshot shows a LinkedIn post by Maria Grineva, 2nd International communication and PR manager, designer, consultant for UNIDO. The post text says: "Save the date! Only two days: 14 - 15 January, UNIDO will organize several webinar sessions devoted to Chemical Leasing. Information and registration: <https://lnkd.in/dnF4SrE>". Below the text is a promotional graphic for a "LIVE WEBINAR CHEMICAL LEASING: THE PERFORMANCE-BASED BUSINESS MODEL FOR SUSTAINBLE CHEMICAL MANAGEMENT" on "14-15 JANUARY 2020". The graphic also includes the Chemical Leasing logo and the tagline "WHEN CHEMICALS PERFORM THE BEST!".

The screenshot shows the Facebook page for Chemical Leasing. The page features a cover photo with the text "GLOBAL CHEMICAL LEASING AWARD 2020" and the tagline "When chemicals perform the best!". Below the cover photo, there is a post from January 1, 2020, titled "Chemical Leasing est avec UNIDO - United Nations Industrial Development Organization". The post text says: "The Announcement of the next Global Chemical Leasing Award! The application period is open until 15 May 2020. The Award acknowledges best practices, innovative approaches and ideas related to Chemical Leasing and similar performance-based business models for sustainable chemicals management. More information on www.chemicalleasing.org". Below the post, there are several images related to the award, including a photo of a woman and icons for "INDUSTRY INNOVATION AND INFRASTRUCTURE", "DEVELOPING AND ETHICAL ECONOMY", "GENDER EQUALITY", and "CLEAN WATER AND SANITATION".

The screenshot shows the Twitter profile for Chemical Leasing. The profile header includes the name "ChemicalLeasing" and the bio "The performance-based business model for sustainable chemicals management". Below the bio, there is a tweet from January 15, 2020, by Feen Banga (@feenbanga) saying: "Big thanks to our colleagues at @unido, @ChemicalLeasing and #G4FICHEM @GawkerSteffen for the excellent webinar just delivered and for a very interesting theme #ChemicalLeasing. We invite our members to apply for the Global Chemical Leasing Award 2020. chemicalleasing.org". Below the tweet, there is a "Thank you for attending our Webinar on 'Chemical Leasing!'" graphic with logos for Fecc, SAFEREM, and Sustainal.

Chemical Leasing Website

The Chemical Leasing website contains all the important information about Chemical Leasing and UNIDO's Global Chemical Leasing Programme, news, publications, online training and important links.

The content of the website is constantly updated and is linked to all the social media channels including Facebook, Twitter and LinkedIn.

The website receives regular maintenance necessary for its correct functioning. It was decided in 2019 to update the website with a new design which will be ready by summer 2020.



For this purpose, a new “modern” logo for Chemical Leasing was designed and this will be part of the new image that the website will have. It is important to highlight that the new logo also seeks to bring attention to performance-based business models. This is part of UNIDO's strategy to promote circular economy and circular business models.

Global Chemical Leasing Award 2020

On 2 December 2019, UNIDO launched the Global Chemical Leasing Award 2020 and opened the call for submissions. The Award aims to acknowledge best practices, innovative approaches and ideas related to Chemical Leasing and similar performance-based business models for sustainable chemicals management.

The Award ceremony will take place in Bonn, Germany, from 5 to 9 October 2020 (date to be confirmed). It will be part of the Fifth Meeting of the International Conference on Chemicals Management (ICCM5).

Companies and individuals are invited to submit entries in five categories: three main categories (case studies, innovation and research) and two special awards (women-led initiatives and start-ups). In addition, a special jury recognition named “Chemical Leasing Champions” will be given to companies that demonstrate a long-standing

commitment to Chemical Leasing. Detailed information about each award category and application requirements are provided below.

The Award is co-organized by UNIDO, the governments of Austria, Germany and Switzerland, and co-sponsored by the European Association of Chemical Distributors.

The application period is open until 15 May 2020.



Chemical Leasing Book

During 2019, UNIDO together with the Austrian Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology, developed the draft of the second Chemical Leasing Book. The book titled "FUNCTION TO IMPACT, CHEMICAL LEASING: A performance-based business model for sustainable chemicals management" offers a broader perspective for both policymakers and practitioners on future sustainable chemicals management services. It analyses global policies, trends and developments, and shows how Chemical Leasing can respond to existing challenges and create new opportunities.

The book is being developed with the support of renowned experts in Chemical Leasing and various related topics that bring a fresh and innovative perspective to the model and how to bring it forward. The publication of the book is foreseen in August 2020.

The book structure is as follows:

**FUNCTION TO IMPACT
CHEMICAL LEASING:
A performance-based business model for sustainable
chemicals management**

1. ACKNOWLEDGEMENTS
2. FOREWORD
3. PREFACE
4. HOW IT ALL STARTED
5. SUMMARY AND REASONS TO READ THE BOOK
6. PART A. BUSINESS IN CHANGING GLOBAL ENVIRONMENT. DRIVING FORCES OF CHANGE AND OF CONTINUOUS IMPROVEMENT
7. PART B. THE BUSINESS CASE OF CHEMICAL LEASING (THE MODEL IN PRACTICE)
8. PART C. CHEMICAL LEASING TOOLS AND METHODOLOGY
9. PART D. GLOBAL DRIVERS
10. PART E. THE WAY FORWARD
11. REFERENCES
12. GLOSSARY

Output 1.3 - New Project Portfolio on Chemical Leasing 4.0 developed

Ongoing projects

The following two projects were developed and approved which include aspects of Chemical Leasing. Figure 2 shows a short overview of the two projects:

Title: Guidance development and case study documentation of green chemistry and technologies

Objective: To increase global awareness, and technical capacities on deployable Green Chemistry approaches for the design of products and processes that advance global environmental benefits throughout their life cycles.

Title: IOMC Toolbox for decision making in chemicals management - Phase III: From design to action

Objective: To support the sound management of chemicals at global level, through the implementation of the Strategic Approach to International Chemicals Management (SAICM) in developing countries and countries with economies in transition.

Figure 2 Projects under the Chemical Leasing 4.0

1. Guidance development and case study documentation of green chemistry and technologies



The main objective of the project is to increase the general global awareness and capacities on deployable Green Chemistry approaches for the design of products and processes that advance global environmental benefits throughout their life cycles. Chemical Leasing is considered as a business model for green chemistry. The project is based on a two-pronged approach with two project components.

Project Component 1 “Guidance document, training and awareness-raising”

In order to raise awareness and build capacity on Green Chemistry in developing countries and economies in transition, UNIDO will work in close collaboration with Yale University which is responsible for operating and leading a research (or in the following: “academic” or “expert”) consortium. The research consortium is expected to develop Green Chemistry awareness raising materials, and to design tailor-made Green Chemistry train-the-facilitator courses and university curricula. It shall also draft and finalize a Green Chemistry guiding document and technology compendium that is providing in-depth information on state-of-the-art Green Chemistry technology solutions and best practice examples applicable for a wide range of industries and processes.

Project Component 2 “Documentation of selected green chemistry case studies and up-scaling”

Under the umbrella of UNIDO’s Green Chemistry Initiative, this pilot project will be implemented in Brazil, demonstrating that Green Chemistry works for applications at large scale in the area of bio-based plastics production. In this specific case, the production of green high density polyethylene, green low density polyethylene and green linear low density polyethylene will be documented. The products will be produced in line with Green Chemistry principles by means of a formulation route that is not only new to the company but also new to the world. In addition, other case studies shall be identified that have an impact on advancing green chemistry and green engineering technology applications in developing countries and transition economies.

At the national level, this project also intends to generate more knowledge capacity on Green Chemistry concepts through the training of individuals that can be multipliers for the academia and the industrial sector. By 2020, partners shall be enabled to

identify, document and publish case studies that are best practices of Green Chemistry technologies and have significant replication potential.

2. IOMC Toolbox for decision making in chemicals management - Phase III: From design to action

The overall objective of the project is to support the sound management of chemicals at the global level through implementation of the Strategic Approach to International Chemicals Management (SAICM) in developing countries and in countries with economies in transition. This project supports the implementation of chemicals management measures to protect and to improve human health in order to promote a safer, healthier and cleaner environment for all people, including the most vulnerable populations.

After the implementation of phase I and II, the objective of Phase III is to continue improving the functionalities and broadening the scope and application of the Toolbox. In addition, Phase III includes a strong capacity building component in order to enable countries to implement the tools available in the Toolbox.

The partners include UNIDO, the WHO, FAO, OECD, ILO, UN Environment and UNITAR.

Project proposal

1. Sustainable chemical solutions through business models for services, digitalization and partnership”

The project proposal “Sustainable chemical solutions through business models for services, digitalization and partnership” was developed with a focus on agriculture, food and beverages and packaging.

The concept of sustainable chemical use has evolved dramatically over the past decades through voluntary, regulatory and technical advances. Sustainable chemical use is built on resource efficiency, reduced risks and new opportunities, but also on courage and willingness to change from current models. Change is facilitated through verifying net positive value impacts to all partners. To truly transform chemical use at an industry level, a joint focus on supporting practical change towards a service based economy of partnership is needed.

To do this, the project will build on past lessons, and existing, recognized possibilities brought by digitalization, with the aim to verify impact, thereby providing a baseline for incentives to change and will have a scoping phase followed by the 3 main project phases:

<p>0. SCOPE</p> <ul style="list-style-type: none"> • Define pilot (new or existing), stakeholders and value chain • Define impact valuation targets and SDG, define units • Pinpoint strategic potential to focus on 	<p>1. VERIFY</p> <ul style="list-style-type: none"> • Impact valuation and SDG contribution of chemical use in <ul style="list-style-type: none"> - The company - The value chain - Per product / production unit 	<p>2. ADOPT</p> <ul style="list-style-type: none"> • Baseline & barriers • Analyze of potential • Facilitated strategic decision making • Roadmap to policy 	<p>3. TRANSFORM</p> <p>For the companies, the main role lies in sharing the expertise and participating in forming policy at the national and international level</p>
<p>Kick-off</p> <p>Outcome: Detailed schedule and plan Tasks and pre-requisites. Communication channels.</p>	<p>Data supply & goals</p> <p>Outcome: Verified impact and SDG contribution</p>	<p>Workshop</p> <p>Outcome: Potential: Reviewed results of impact value of change Path to policy: What must be done in order to upscale from pilot to policy internally, with suppliers, with customers and partners</p>	<p>Collaborative participation</p> <p>Outcome: Contribute to the mainstreaming and work with potential clients, partners and patrons to move sustainability forward</p>

During 2019, the project proposal was improved and close communication was held with different donors for its potential funding.

ANNEXES

Agenda, 8th Edition of GreenCo Summit

Day : 04 Jul 2019

1125 hrs - 1230 hrs : Session 1 : Master Speaker Session

1125 hrs	Master Speaker Session	Mr Sonam Wangchuk Founding-Director SECMOL
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1230 hrs - 1330 hrs : Session 2 : Panel Discussion: National Green Agenda and Industry's Contribution

1430 hrs - 1540 hrs : Session 3 : International Perspectives on Environment Sustainability

1435 hrs	Resource Efficiency for Low Carbon Development	Mr Bas de Leeuw Managing Director World Resources Forum
1455 hrs	SDG Roadmaps by industries - International and National Perspectives	Mr Joe Phelan Director WBCSD
1515 hrs	Industrial Symbiosis for Resource Efficiency: experiences from Ulsan, Republic of Korea	Dr Jung Hoon Kim Director Ulsan EID Center
1535 hrs	Chemical Leasing- Concept and Business Experiences	Mr Samantha Kumarasena CEO Sri Lanka National Cleaner Production Centre

1610 hrs - 1710 hrs : Session 4 : Trending Sustainable Business Opportunities

1615 hrs	Cleantech Innovation for Low Carbon Industrial Development	Dr Rene Van Berkel Representative UNIDO
1655 hrs	Industry 4.0 for sustainable manufacturing	Prof Amaresh Chakrabarti Senior Professor and Chairman Centre for Product Design and Manufacturing (CPDM), Indian Institute of Science (IISc)

Day : 05 Jul 2019

1200 hrs - 1330 hrs: Session 6A, 6B, 6C (Parallel Sessions)

Solar Process Heating	Mr Pankaj Kumar National Project Manager UNIDO
Renewable Energy for Sustainable and Competitive Advantage	Mr Niranjan Naik National Sales Head Bosch Energy and Building Solutions, Bosch India
Solar Photovoltaics	Dr Rajbeer Singh Basera Rads Global
Solar Photovoltaics	Mr Aditya Aggarwal Shri Ashtavinayak Glass, Shirwal
Water Stewardship & GreenCo	Mr Srihari Balakrishnan President KG Fabriks Limited
Circularity in Manufacturing	Mr Sabyasachi Ghosh Head ? Sustainability & EHS Asian Paints
Lead Presentation on the Session?s Theme	Mr Samantha Kumarasena CEO Sri Lanka National Cleaner Production Centre

1000 hrs - 1130 hrs: Session 5A, 5B, 5C (Parallel Sessions)

Bloom box - Concepts and case studies	Mr Prateek Vyas Bloom Energy
Industrial Symbiosis for Resource Efficiency and Circularity	Dr Rene Van Berkel Representative UNIDO
Lead Presentation on the Session?s Theme	Dr Jung Hoon Kim Director Ulsan EID Center, Korea
Lead Presentation on the Session?s Theme	Mr Ulhas Parlikar Global Consultant Resource Management & Circular Economy

1430 hrs - 1600 hrs: Session 7A, 7B (Parallel Sessions)

1430 hrs	Remote data monitoring and Analytics for Resource Efficiency	Mr Rumi Engineer Sr. General Manager ? Head Energy Management and Greener Initiatives Godrej & Boyce Mfg Co Ltd
	Phytoremediation in treating industrial wastewaters	Mr Sravan Banda Blue Drop Enviro
	Design and Automation for enhanced Indoor Air Quality	Mr Girish R Visvanathan Director - Technical Earthonomic Engineers Pvt Ltd
	Remanufacturing: an industry experience	Mr Nilesh Gujar Chief Auto Business & Sustainability Mahindra Accelo (CERO)
	Product take back and remanufacturing	Mr Vinay Patwardhan NRPO Leader Cummins India

Agenda, Fachtagung Chemikalienleasing (October 29, 2019).

Programm

- 13:00 Türöffnung
- 13:30 **Begrüssung**
Martin Schiess, Bundesamt für Umwelt BAFU
- 13:40 **Chemikalienleasing – Aktivitäten der UNIDO**
Petra Schwager, UNIDO
- 14:00 **Praxiserfahrungen mit Chemikalienleasing: Dos and Don'ts**
Reinhard Joas, UNIDO
- 14:25 **Chemical Leasing – ein Geschäftsmodell vor dem Hintergrund der EU – Chemikalienpolitik**
Thomas Jakl, Bundesministerium für Nachhaltigkeit und Tourismus Österreich
- 14:45 **Chemical Leasing in der Getränkeabfüllung am Beispiel Förderband-Schmierung**
Daniel Herzog, THONHAUSER GmbH
- 15:05 **Chemikalienleasing am Beispiel der Wasseraufbereitung – ein Beitrag zur Nachhaltigkeit**
Wolfgang Haider, Borealis Polyolefine GmbH
- 15:25 Pause (15min)
- 15:40 **Erfolgreiches Chemikalienleasing im Bereich der industriellen Teilereinigung**
Steffen Säcker, SAFECHEM Europe GmbH
- 16:00 **Chemikalienleasing im Spannungsfeld einer Komponentenproduktion**
Robert Nöbauer, Magna Powertrain GmbH
- 16:20 **Vorstellung Netzwerk Ressourceneffizienz Schweiz**
Davita Steinemann, Geschäftsstelle Reffnet.ch
- 16:35 **Abschlussworte**
Josef Tresp, Bundesamt für Umwelt BAFU
- 16:45 Apéro & Gelegenheit zum bilateralen Austausch

