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Towards resource efficient and sustainable chemistry

Parallel session 3

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Agenda

- I. UNIDO in brief
- II. UNIDO and the EU Green deal
- III. Our approach to sustainable chemicals management and some concrete examples
- IV. Conclusions and way forward





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United Nations Industrial Development Organization

Mandate: Promote inclusive and sustainable industrial development (ISID) for creating shared prosperity, advancing competitiveness while safeguarding the environment.



HQ: Vienna, Austria - 170 Member States

Since 1966 UNIDO provides:

- Technical cooperation;
- Research and analytical functions;
- Policy advice services;
- Normative quality standards;
- Knowledge transfer, industrial cooperation and networking.



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UNIDO

Mandate: Promote inclusive and **sustainable industrial development (ISID)** by creating shared prosperity, advancing economic competitiveness and **safeguarding the environment.**



EU Green deal



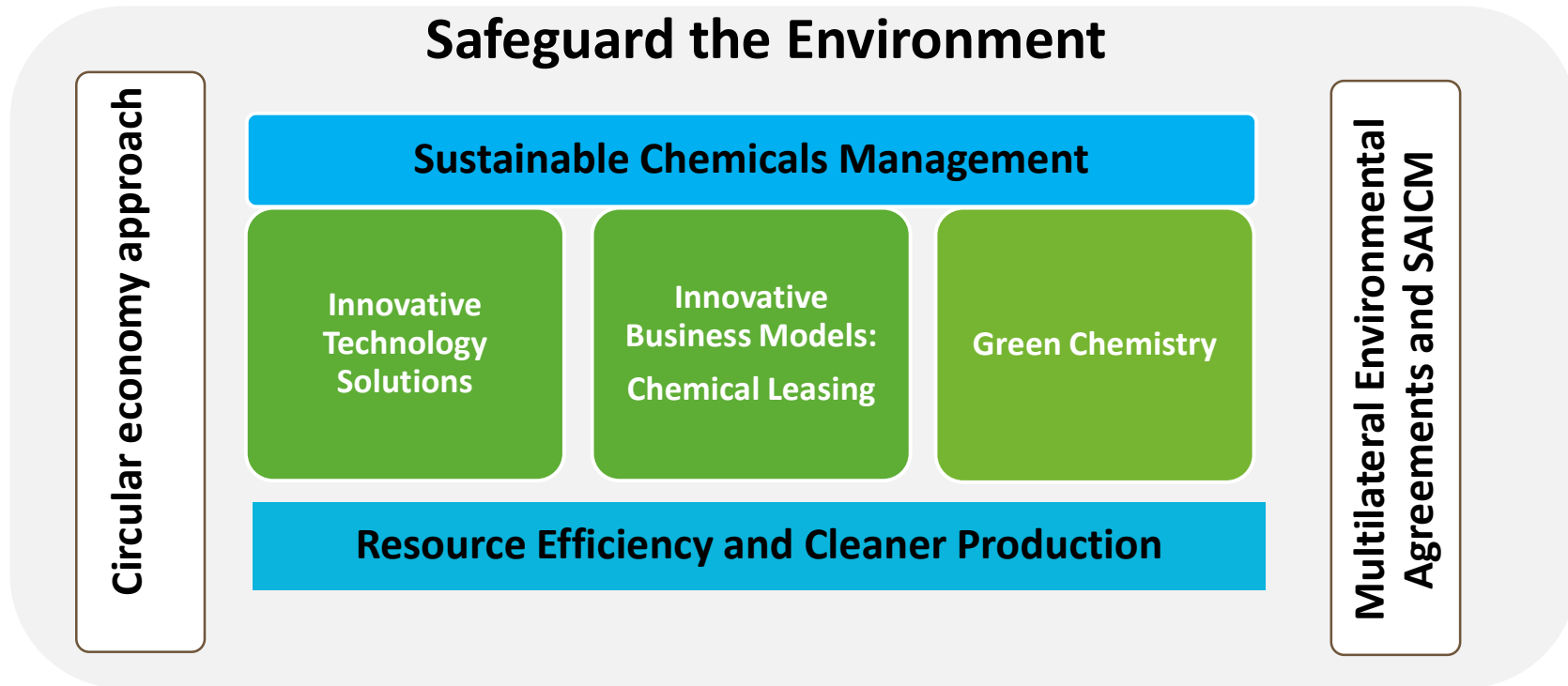
- The **chemicals strategy for sustainability.**
- **Circular Economy Action Plan** to change the consumption and production pattern.



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UNIDO's approach to sustainable chemicals management





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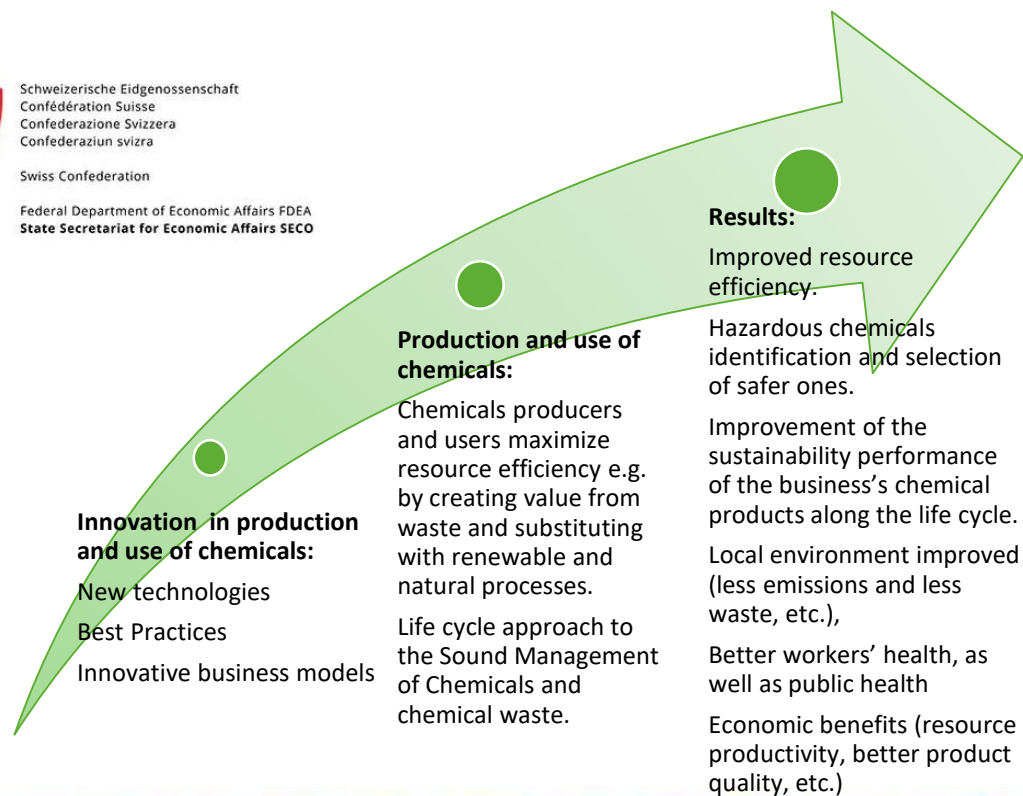
Innovative solutions for chemicals management



Schweizerische Eidgenossenschaft
Confédération Suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs FDEA
State Secretariat for Economic Affairs SECO



IAMC Project

- ✓ Methodology;
- ✓ Trainings on the methodology;
- ✓ Technical assistance to 80+ SMEs in Colombia, Egypt, El Salvador, Guatemala, Morocco and Peru;
- ✓ Toolkit for companies and consultants developed
<https://iamc-toolkit.org/>



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Innovation on chemicals management: textile industry in El Salvador



Od technology

Using the IAMC methodology, the old technology in the textile industry was identified as a hotspot.

The company replaced two dyeing machines with a Dyeing Jet.



New technology

- High steam consumption, 8.02 kg of steam per kg of dyed fabric.
- High consumption of water and chemicals, as well as high waste generation due to leaks of vapor and water.

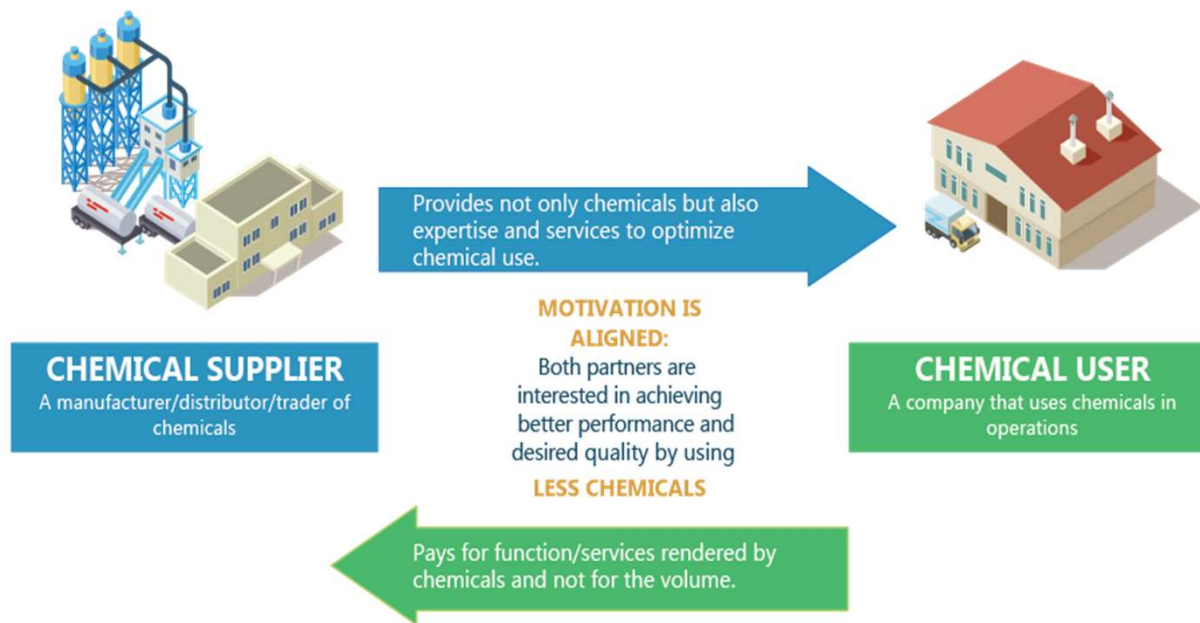
- ✓ **Production increased up to 45% full load and reduced 21% of dyeing time.**
- ✓ **Reduction of chemicals used**
- ✓ **Reduction of fuel and water consumption**
- ✓ Risks of accidents reduced > **improved working conditions**
- ✓ **Investment of US\$ 35,000, annual savings of US\$ 7,100.**



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Performance-based business model: Chemical Leasing




UNIDO's Global Chemical Leasing Programme



- Capacity building
- Technical assistance
- Promotion: **Global Chemical Leasing Award 2021**

 Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

 Federal Ministry Republic of Austria Agriculture, Regions and Tourism

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation
Federal Office for the Environment FOEN

Chemical Leasing in laundry (Croatia)



- *Incentive for change: resource consumption and production cost were high*
- *Search for technical adaptations/changes*
- Change of business model: EUR per kg or liter of chemical
→ **EUR per kg of washed laundry**

Environmental benefits	
Waste water was discharged to the sewage	✓ The waste water is filtered and recirculated inside the tunnel of the washing machine
There was no heat recovery	✓ Energy consumption reduced by 20%
High water consumption	✓ Water consumption reduced by 71%
High chemicals consumption	✓ Consumption of chemicals reduced by 41%
Economic benefits	
	✓ Total annual savings are 270,000 EUR
	✓ Long-lasting cooperation with the supplier due to mutual benefits
Social benefits	
Laundry was washed at 60 ⁰ C raising temperature of the laundry area. Workers in direct contact with chemicals due to open system and manual dosing.	✓ Working conditions, health and safety, were improved , due to lower washing temperature, lower exposure to chemicals and automatic dosing



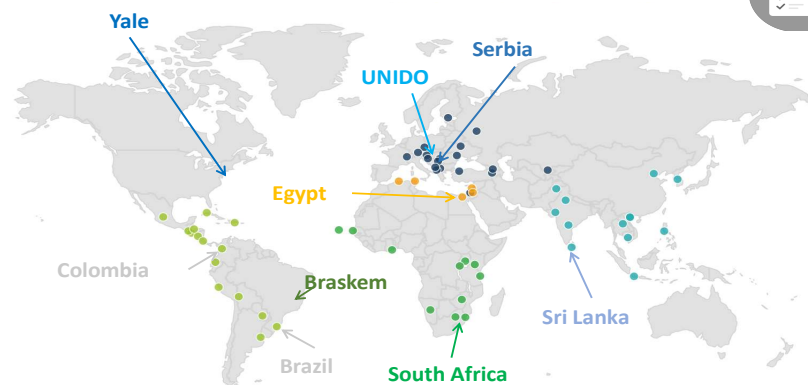
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Sustainable design of products and process: Green Chemistry

Global Green Chemistry Initiative

1. Guidance document, training and awareness-raising
2. Green chemistry case study documentation
3. Monitoring and Evaluation



GLOBAL ENVIRONMENT FACILITY



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Sale up green chemistry Global Greenchem Innovation and Network Programme

Component 1

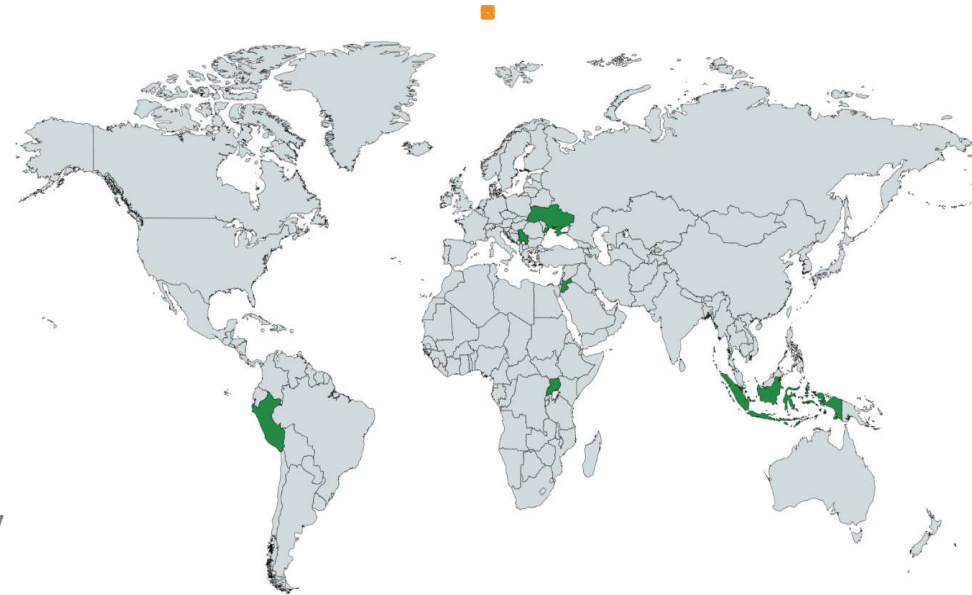
Green Chemistry Inclusion Network for
Capacity Building

Component 2

Green Chemistry Regional Accelerator
Programme for entrepreneurs and to scale
up use technologies

Component 3

Green Chemistry alternatives for POPs, mercury
and micro-plastics for replication and up-scale



GLOBAL ENVIRONMENT FACILITY

Country Partners:

Indonesia, Jordan, Peru, Serbia, Uganda and Ukraine

Conclusions

- ✓ Sustainable chemicals management ensures the efficient use of chemical products, improving industry's environmental performance and the occupational health and safety
 - ✓ Designing and using safer or non hazardous chemicals in industry also contribute to circularity of products by optimization, reuse and/or recycling.
 - ✓ Sound chemicals management and resource efficiency are both key elements of ISID
 - ✓ Both are essential for the transition to a circular economy/green economy
 - ✓ UNIDO facilitate the transition through different entry points such as:
 - ✓ Facilitating the adoption of innovative approaches in chemicals management and chemicals design
 - ✓ Transfer of cleaner and resource efficient production technologies and practices in different sectors using chemicals (e.g. textile)
-

Way forward

- Further scale up the sustainable chemistry approach
- Increase visibility of the benefits sustainable management of chemical has in facilitating the sustainable (industrial) development





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Thank you!

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