

# Webinar

## What does product sustainability mean for tomorrow's fire safety?

7 July 2021



**pinfa**

A sector group of Cefic 

**15.00-16.30 CEST**

## WELCOME & INTRODUCTION

Esther Agyeman-Budu, pinfa



Go to: [www.menti.com](http://www.menti.com)  
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## AGENDA

Welcome & Introduction

Keynote Presentations

Panel Discussion

Questions & Answers

Closing



# COMPETITION LAW CHECKLIST FOR MEETINGS



Ensure strict performance  
in areas of:

## Oversight / supervision

- Have a Cefic / Sector Group Secretariat representative at each meeting;
- Consult with appropriate counsel on all questions which might be related to competition law;
- Limit meeting discussions to agenda topics;
- Provide each attendees with a copy of this checklist, and have a copy available for reference at all meetings.

## Recordkeeping

- Have an agenda and minutes which accurately reflect the matters which occur;
- Ensure the review of agendas, minutes and other important documents by appropriate staff or counsel, in advance of distribution;
- Fully describe the purposes, structures and authorities of the groups.

## Vigilance

- Protest any discussion or meeting activities which appear to violate this checklist; ask for those activities to be stopped so that appropriate legal check can be made by counsel; disassociate yourself from any such discussion or activities and for the attendees, leave any meeting in which they continue (and have it minuted).

This checklist is for the conduct of Cefic-sponsored meetings.  
Prohibited discussion topics apply equally to social gatherings  
incidental to those meetings. The checklist is not exhaustive.

## In case of doubt or questions contact:

Nicole L. Marchal, Cefic Senior Legal Manager & Governance Officer - Tel +32 2 436 93 24 - nma@cefic.be



## Prices, including

- Individual company / industry prices, price changes, price differentials, discounts, allowances, credit terms, etc;
- Individual company data on costs, production, capacity (other than nameplates capacities), inventories, sales, etc.

## Production, including

- Plans of individual companies concerning the design, production, distribution or marketing of particular products, including proposed territories or customers;
- Changes in industry production capacity (other than nameplates capacities) or inventories, etc.

## Transportation rates

- Rates or rate policies for individual shipments, including basing point systems, zone prices, freight, etc.

## Market procedures, including

- Company bids on contracts for particular products; company procedures for responding to bid invitations;
- Matters relating to actual or potential individual suppliers or customers that might have the effect of excluding them from any market or influencing the business conduct of firms toward them, etc;
- Blacklist or boycott customers or suppliers.

Do not, in fact or appearance, discuss or exchange information not in conformity with competition law, including for example on:



European Chemical Industry Council - Cefic a.s.b.l.

Rue Belliard 10 - 1010 Brussels - Belgium | EU Transparency Register n° 61879142323-90

# WEBINAR

- ❖ Please mute your microphone
- ❖ Turn off your camera
- ❖ Please use the chat to raise your questions – Q&A is scheduled during the panel discussion. Use like icon 
- to assign priority to a question in the chat that you would like answered. No questions on pricing and production volumes
- ❖ If you have technical issues, please contact your IT support
- ❖ This Event will be recorded

## RECOMMENDATIONS

## CHAT MODERATORS



Chris Thornton  
Consultant to pinfa Communications



Esther Agyeman-Budu, Sector Group Manager



Cheryl Campbell, Cefic Assistant



Adriana Jalba  
Director Advocacy EU at ICL-IP  
Panel discussion



Thomas Futterer, Pinfa Vice-Chairman, Chemische Fabrik  
Budenheim KG  
Panel discussion

## WHO IS PINFA

The **Phosphorus, Inorganic and Nitrogen Flame Retardants Association.**

Has 28 members: **manufacturers and users** of the three major technologies of non-halogenated flame retardants.

Established in 2009 as a Sector Group within **Cefic**, the European Chemical Industry Council

**pinfa-na** (North America) and **pinfa China**, sister associations, established respectively in 2012 and 2018



## PINFA CONTACTS



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## KEYNOTE SPEAKERS





**WHAT DOES "SAFE AND  
SUSTAINABLE BY DESIGN"  
(SSBD) MEAN IN THE GREEN  
DEAL, FOR PRODUCTS,  
MATERIALS AND CHEMICALS?**

Sylvie Lemoine, Executive Director  
Cefic Product Stewardship

# EU Chemicals Strategy for Sustainability



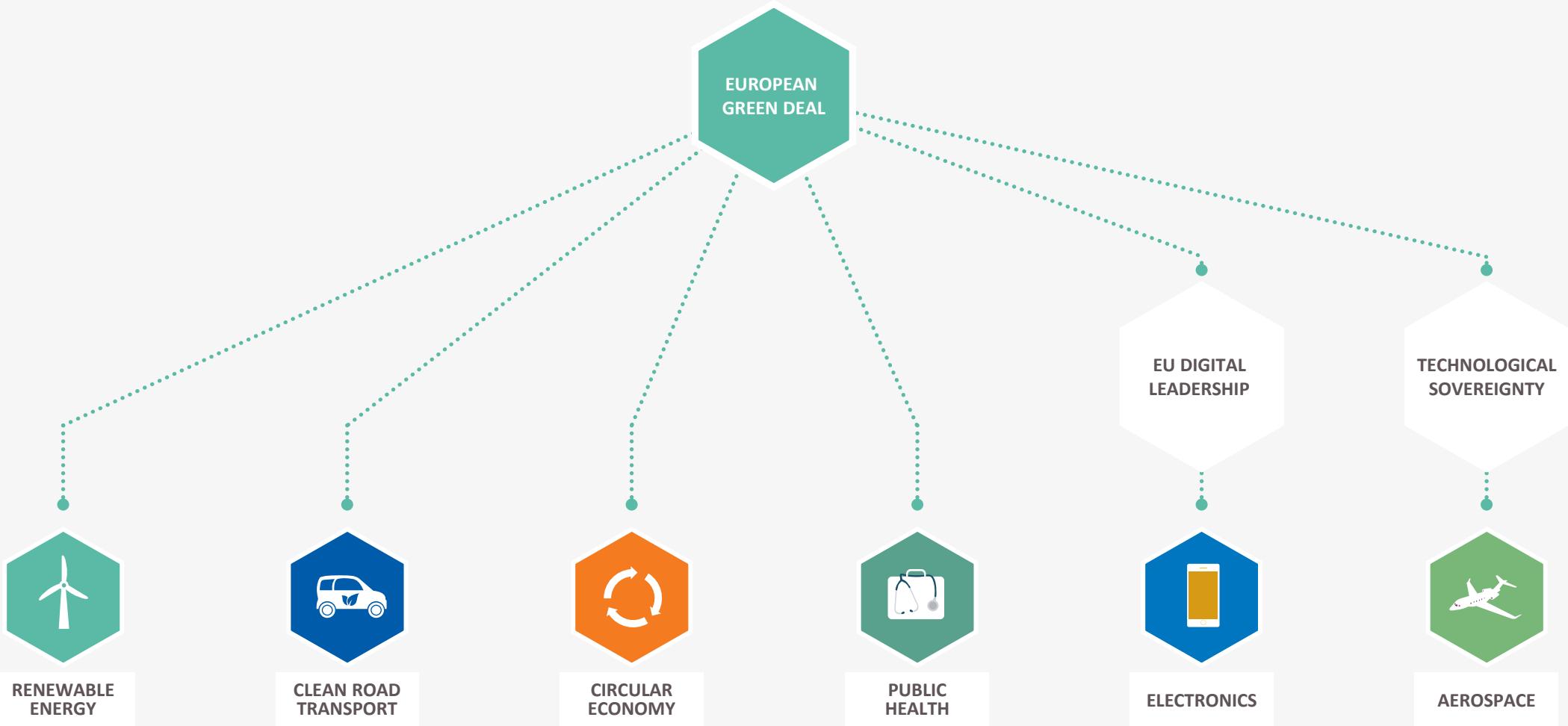
Sylvie Lemoine

7 July 2021

*PINFA Webinar:*

**What does product sustainability mean for tomorrow's fire safety?**

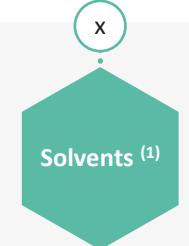
- Cefic: Representing the Industry of Industries



## RENEWABLE ENERGY



A key element of solar cells and used in 90% of solar panels because of its special chemical properties.



A key component of thin film solar panel manufacturing.

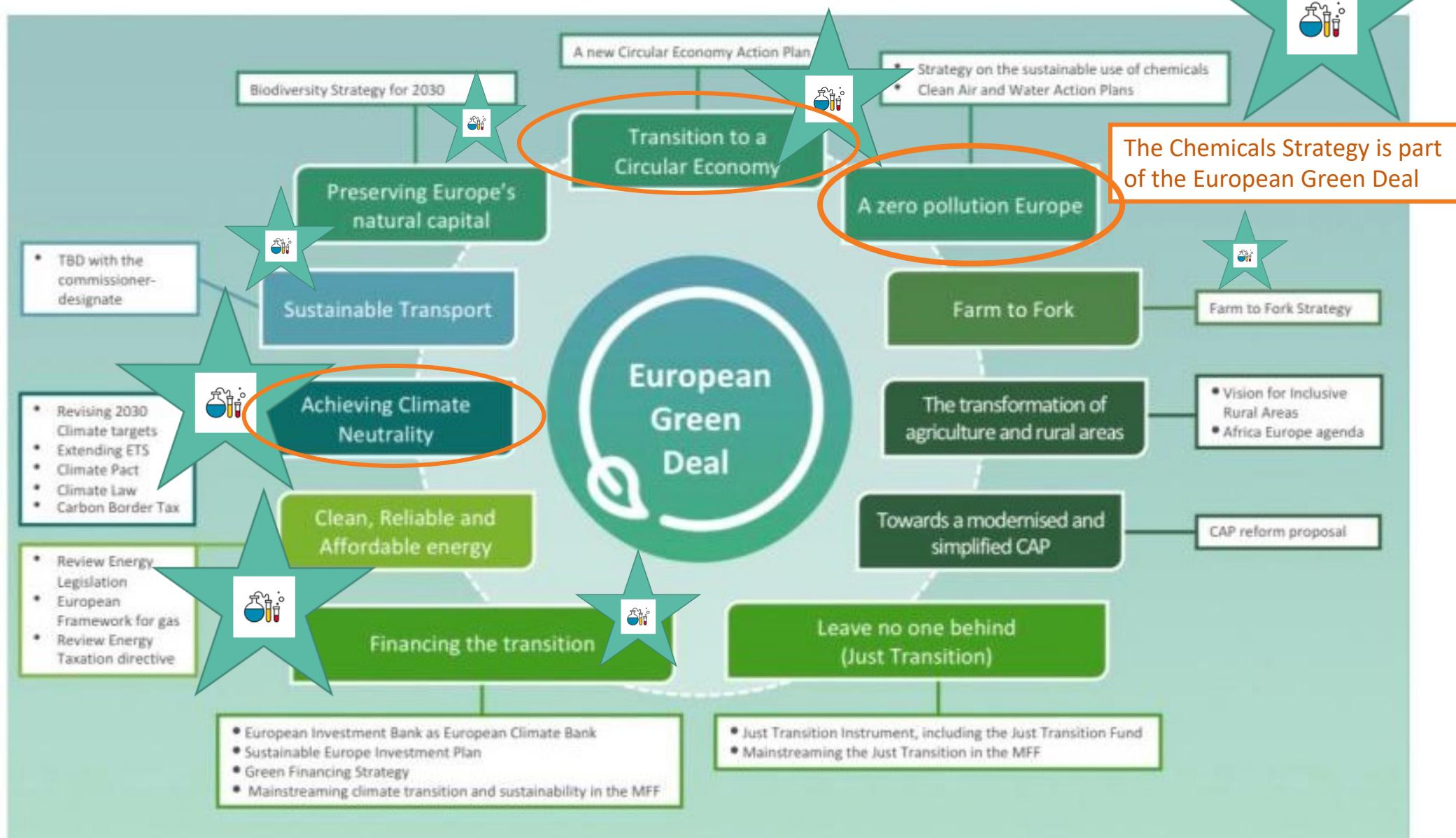


Indispensable for producing carbon fibres for wind turbine blades.

<sup>(1)</sup> Acetone, Isopropyl alcohol, Methanol, ButAc, Toluene, Xylene



# Chemistry & the European Green Deal



# What are the societal drivers?



**90%** of Europeans are worried about the impact of chemicals on the environment\*



**84%** of Europeans are worried about the impact of chemicals present in everyday products on their health\*



\* [European Barometer results, March 2020](#)

# The EU Commission's vision for chemical policy

Supported by the European Parliament and the Council (EU Member States)



Chemicals are produced/used in a way that **maximises their benefits to society** while **avoiding harm to planet & people**



Production and use of **safe and sustainable chemicals** becomes a benchmark worldwide

The Chemicals Strategy is “*an opportunity to reconcile the societal value of chemicals with human health and planetary boundaries as well as to support the EU industry in producing safe and sustainable chemicals. It is also an opportunity to respond to the legitimate aspirations of EU citizens for a high level of protection from hazardous chemicals and to promote the EU industry as a global frontrunner in the production and use of safe and sustainable chemicals.*” \*\*



[European Commission's presentation from Cefic's Chemical Convention](#)

\*\* [European Commission Communication on the Chemicals Strategy for Sustainability](#)

# What does this mean in practice?



- The Chemicals Strategy is a **major, highly-ambitious initiative** which will:
  - **Prioritise prevention and substitution**
  - **Re-define EU chemicals policy**
  - Strong move towards **generic restrictions**
- Contains **56 major actions**, most of them legislative changes, to be implemented between 2021 – 2024
- Involves ‘targeted revision’ of REACH: already the leading global chemicals legislation

## The European Commission’s Vision



# Main questions for the Chemicals Strategy? (i)



## 1. What qualifies as an essential or non-essential use?

*“phasing out the most harmful ones for non-essential societal use, in particular in consumer products.”\**

Example: water repellent consumer products contain PFAS, could these products be allowed only for personal protection function? In that case, what about tents, water-repellent jackets, mountain equipment?



## 2. What are the implications of moving away from a risk-based approach?

*“the generic approach to risk management becomes the default option, in particular as regards their use in consumer products.”\**

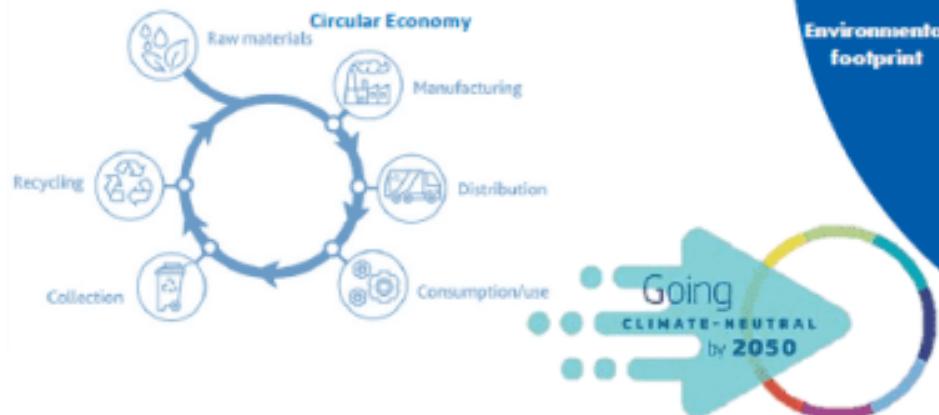
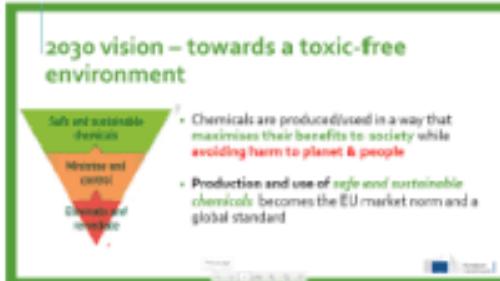
Example: Disinfectants and cleaners have hazardous properties to clean surfaces, laundry, etc. could applying a hazard-based approach lead to these products' removal from shelves or a loss in cleaning efficiency?

# Safe and Sustainable by Design – The way to go under CSS



## Towards an assessment framework

**Safe and sustainable by design:** process to bring products & technologies to the market that are safe, bring environmental, economic and social value through their applications, are accelerating the transition towards a circular economy and climate-neutral society and preventing harm to human health and the environment.





Mapping study for  
the development of

# Sustainable-by-Design criteria



Research and  
Innovation

# The plans are unfolding...

- Fulfilling Green Deal goals, the CEAP, the European Industrial Strategy
- Facilitating the transition to a safe, carbon-neutral and resource-efficient industrial ecosystem.
- Integrating safety, circularity, energy efficiency and functionality of chemicals, materials, products and processes throughout their life cycle and minimising the environmental footprint.
- Purpose:
  - Mapping < Framework < Criteria
  - SSbD as guiding principle along the entire development chain
- Next steps:
  - Methodology: which aspects of safety and sustainability are to be covered, best methods to evaluate the criteria
  - Apply method and criteria for specific sectors/applications of chemicals, materials and products.

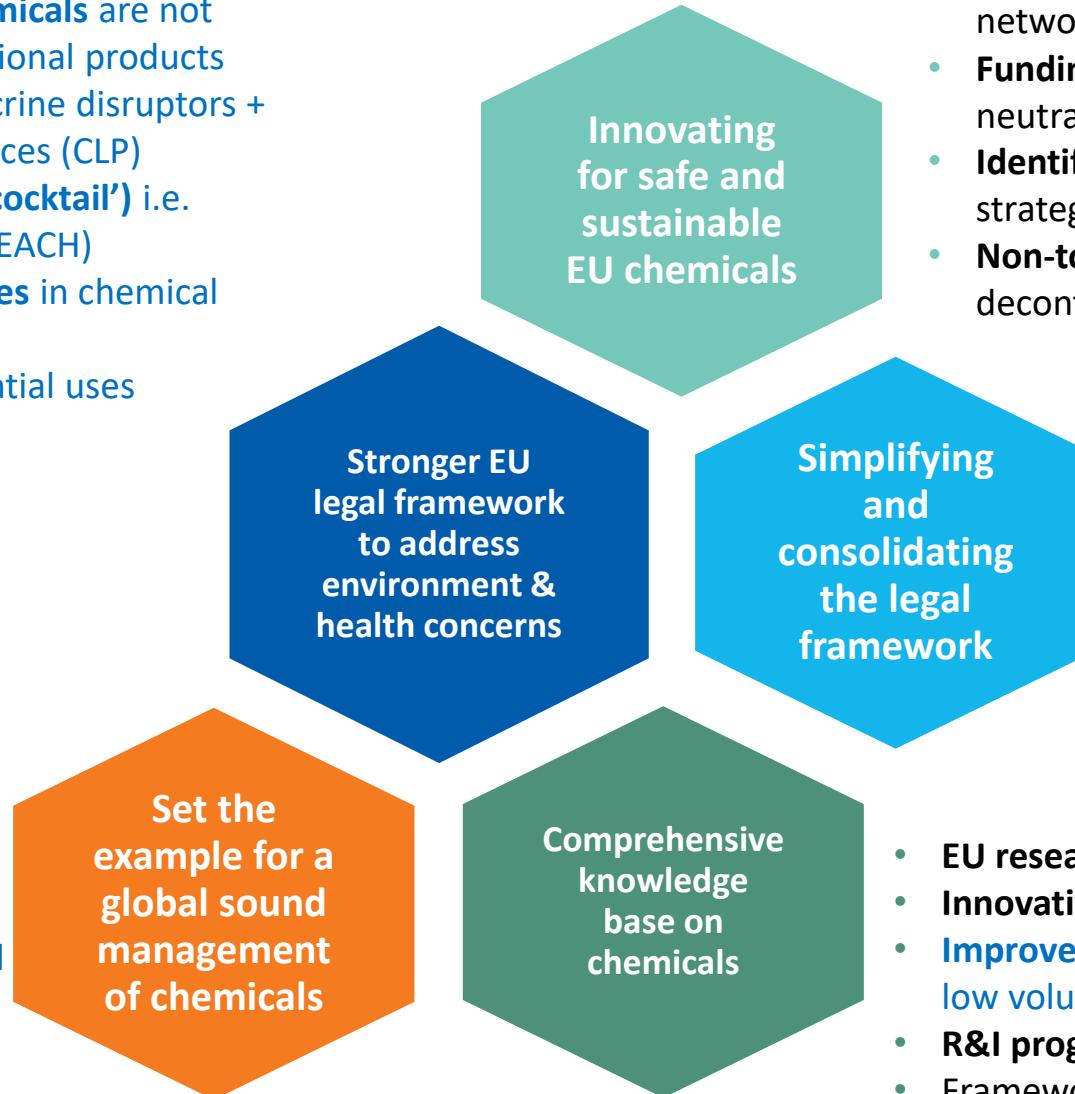
# Further insights on the regulatory agenda



# Overview of the main policy changes towards faster, stricter and more preventive regulatory action



- Ensure the **most harmful chemicals** are not used in consumer and professional products
- **New hazard classes:** on endocrine disruptors + persistent and mobile substances (CLP)
- **Address chemical mixtures ('cocktail')** i.e. Mixture Assessment Factor (REACH)
- **Apply concept of essential uses** in chemical legislation
- **PFAS:** phase out for non-essential uses



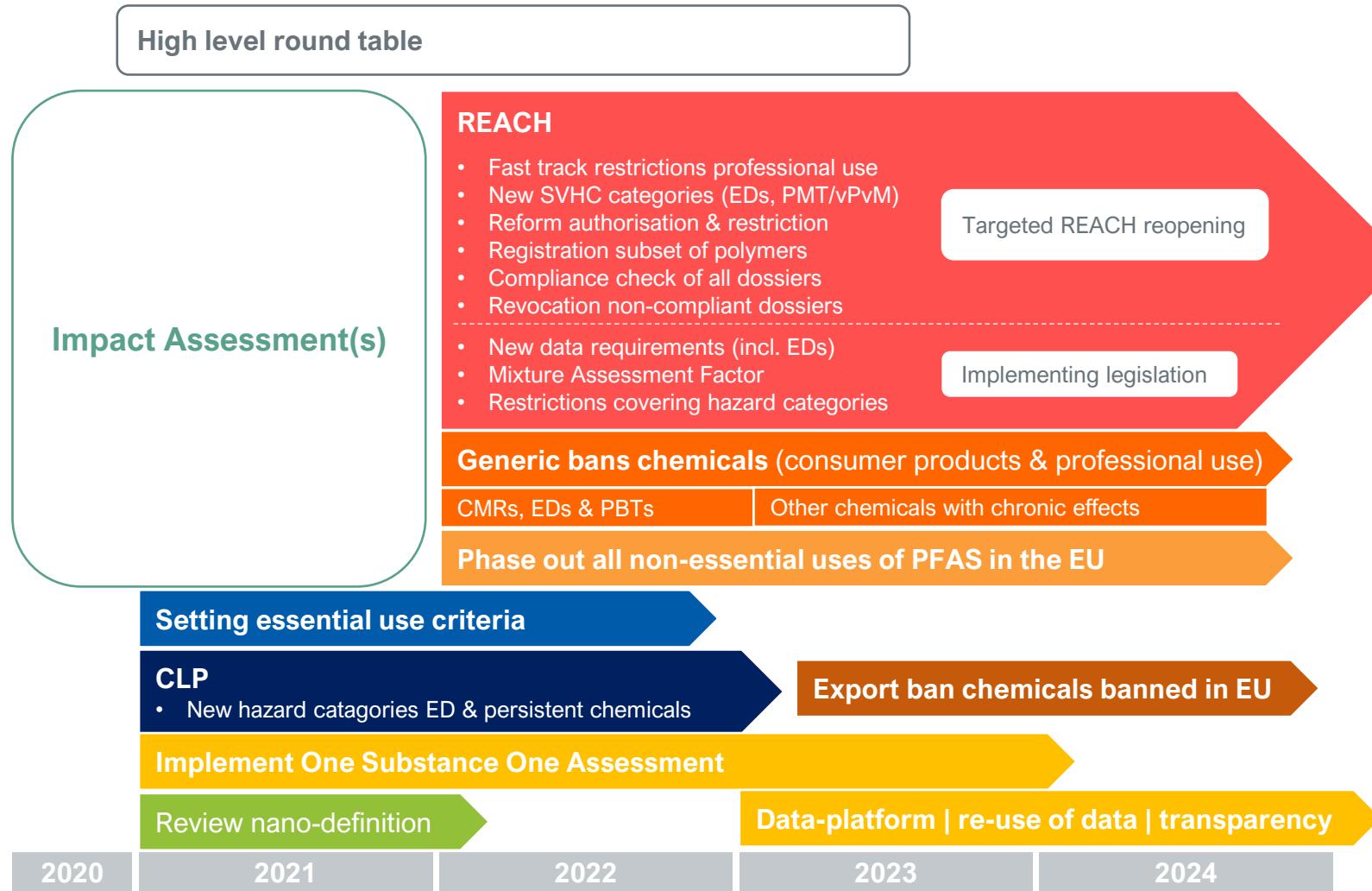
- **Global targets beyond 2020**
- **Chemicals banned in the EU not produced for export**
- **Common standards & innovative assessment tools internationally**
- **Sound chemicals management in international cooperation**

- **Safe and sustainable by design:** criteria and support network
- **Funding to support industrial innovation :** climate neutral and clean production
- **Identify key chemical value chains:** to strengthen EU's strategic autonomy
- **Non-toxic material cycles** in products and waste decontamination solutions
- **One substance, one assessment:** improve transparency, reallocation of scientific work, coordination between agencies, **data interoperability & re-use**
- **Reform Authorisation & Restriction processes (REACH)**
- **Strengthen compliance, enforcement, market surveillance**
- **EU research & innovation (R&I) agenda for chemicals**
- **Innovative testing and risk assessment methods**
- **Improve knowledge on chemical properties** (polymers, low volume, etc)
- **R&I programmes:** (bio)monitoring
- Framework of **indicators** to assess policies



# Summary of regulatory measures and timing

## Key regulatory actions



# In summary:



We want the Green Deal to be a success. Dialogue is needed



We are facing a paradigm shift and multiple regulatory changes. Every company, every customer will be impacted to some extent: support for small players is needed.



Ensure safety measures are in place: initiatives like Responsible Care, the Action Plan on REACH dossiers can support industry



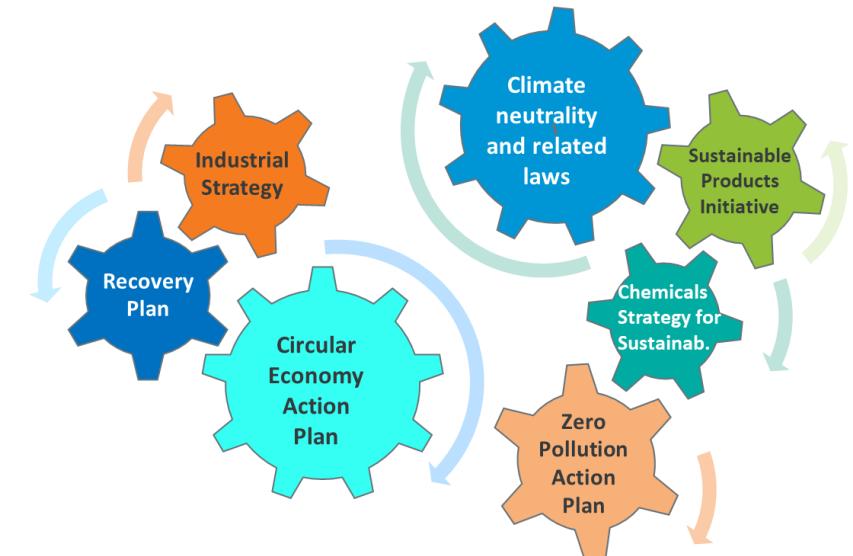
Contribute to impact assessments: Data is key. i.e. information where chemicals are being used, how exposure levels are controlled, etc



Policies need to be better joined up



Details will matter for successful implementation





## ***FIRE SAFETY CHALLENGES OF TOMORROW'S MATERIALS: AN ESSENTIAL SOCIETAL CHALLENGE***

Margaret McNamee, Professor of Fire Safety Engineering at Lund University, Sweden



# **Fire safety challenges of tomorrow's materials: an essential societal challenge**

**Professor Margaret McNamee, Fire Safety Engineering,  
Lund University**

(These slides were partially developed as part of M-Kurs funded by the Swedish Civil Contingencies Agency)





# The Fire Problem

- 180 000-300 000 burn deaths annually, vast majority in low and middle-income countries (Source: WHO)
- Europe – 3 500 killed in fires annually, at least 70 000 injured (Source: CTIF)
- Developed countries – cost of fire 1-2% GDP
- Insurance statistics indicate that fires and explosions in the built environment account for ~60% of annual business interruptions globally

# Societal Challenges

- that fire research can help address

- Population growth, urbanization and globalization
- Climate change, resiliency and sustainability
  - Sustainable fire safety key (in particular connected to new materials and technologies)

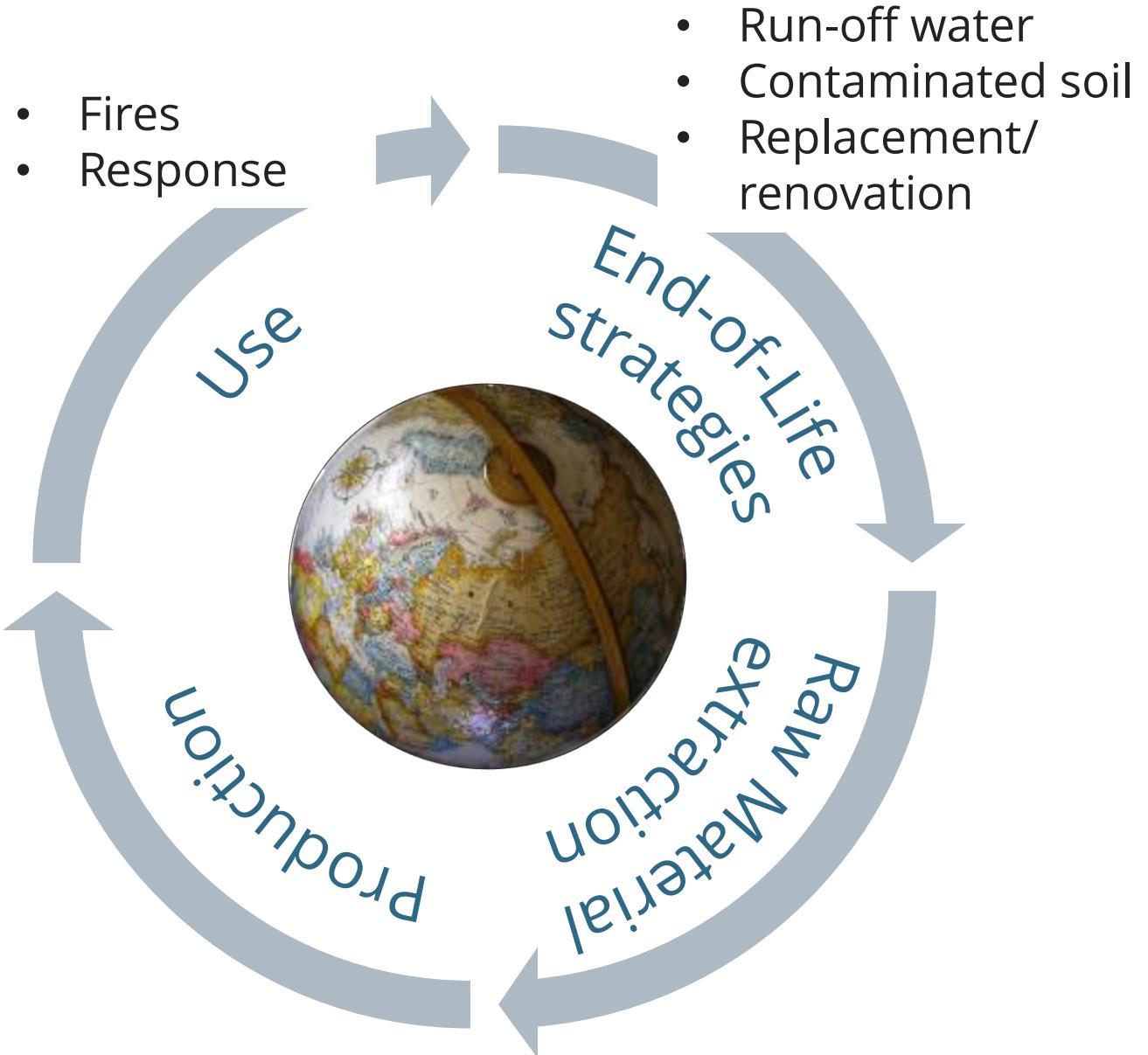


McNamee, M. et al. (2019). IAFSS Agenda 2030 for a Fire Safe World, Fire Safety Journal, 110, doi: 10.1016/j.firesaf.2019.102889.

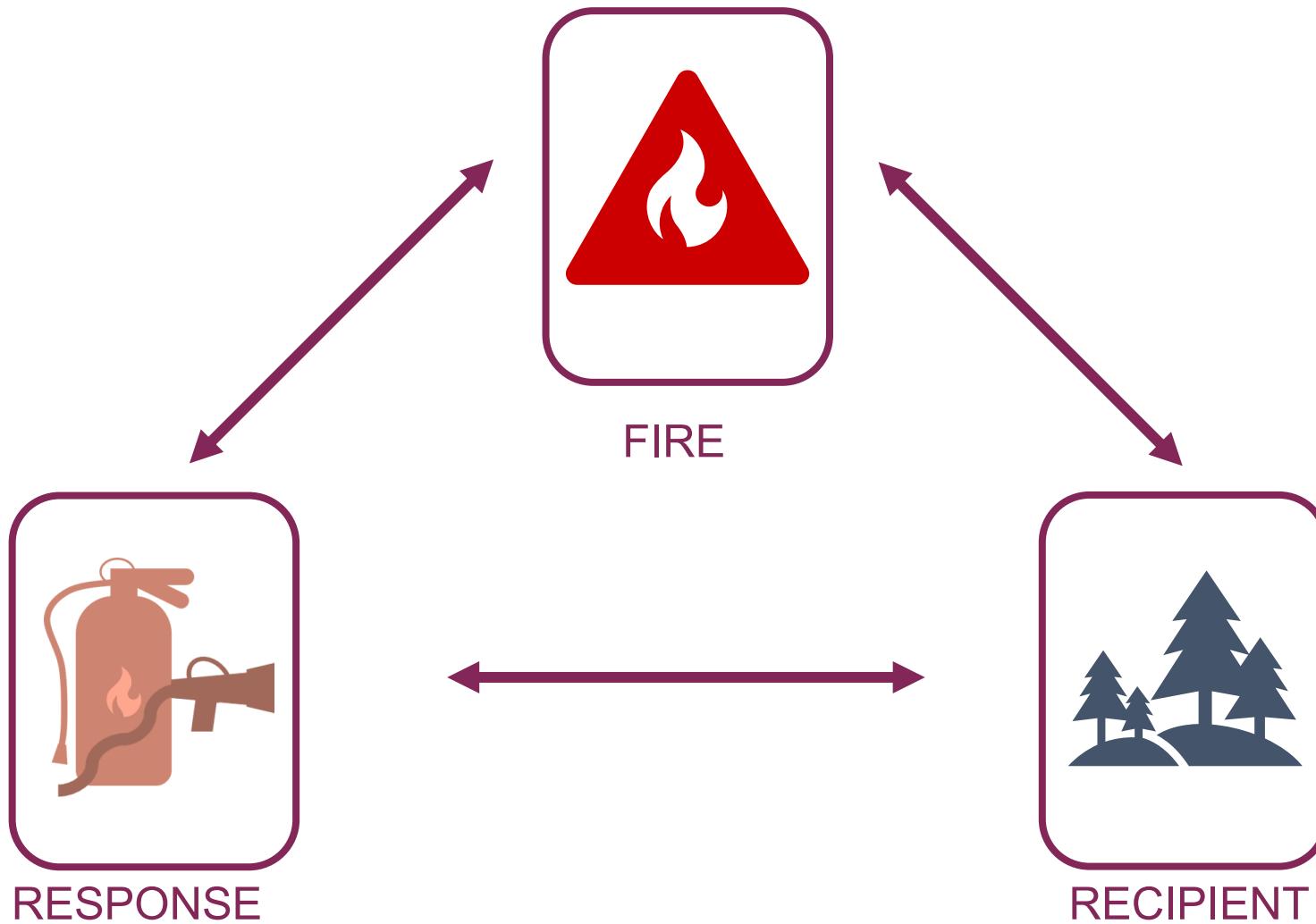
# LOCAL and GLOBAL impacts

**Local impact** concerns direct fire emissions from the fire, its interactions with the local environment (recipient) and tactical choices to suppress the fire.

**Global impact** concerns life cycle impacts from the cradle to the grave, e.g. environmental impact of the response, use of water, use of vehicles, need to remediate the site after the fire, replacement of burned products etc.



# Local – Fire Impact Triangle



A dramatic photograph of a firefighter in full protective gear, including a helmet and oxygen tank, spraying a powerful stream of water onto a burning building. Thick, billowing white smoke rises from the fire, partially obscuring the building's facade. In the background, trees with autumn-colored leaves are visible through the smoke.

## FIRE and RESPONSE

In a fire, combustion is incomplete and thousands of different species can be produced.

Which species are produced depends on the fuel and the ventilation.

In a typical year, fire produce ~1 ton of particulate matter per year in Sweden alone.

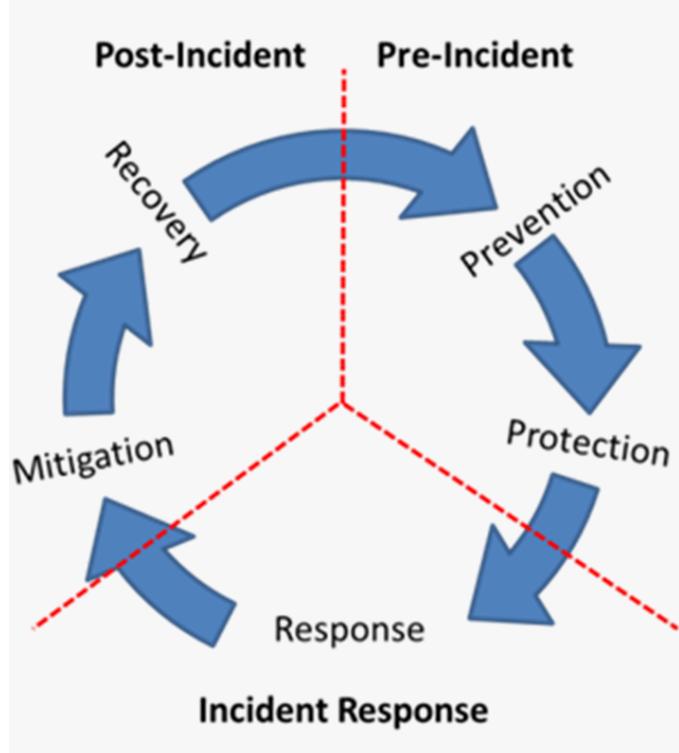
A scenic landscape featuring a lake in the foreground, a line of wooden houses along the shore, and majestic mountains with patches of snow in the background under a clear blue sky.

AIR

RECIPIENT

SOIL

WATER



McNamee, M. et al. (2019). IAFSS Agenda 2030 for a Fire Safe World, *Fire Safety Journal*, 110, doi: 10.1016/j.firesaf.2019.102889.

## Summary

Fire safety research can help understand and realise global grand challenges

Fires have both LOCAL and GLOBAL environmental impacts

- Local fire impact triangle: Fire, response and recipient
- Global life-cycle assessment: replacement of burned material and products significant

Important to think in terms of the full Emergency Management Cycle – prevention and protection; response; mitigation and recovery



Extra slides



# Emissions

Emission	Distance of greatest impact	Temporal window of greatest impact
Inorganic species (e.g. CO, HCN, acid gases, NO <sub>x</sub> , SO <sub>x</sub> ) Irritant organics (e.g. aldehydes, isocyanates)	Local	Short-term (acute toxicity)
Firefighting agents (e.g. FF-foam additives, powder)	Local/Global	Long-term
Metals and metal salts	Local/Global	Long-term
Particulates (e.g. soot)	Local/Global	Long-term
Large organic species (e.g., dioxins, polycyclic aromatic hydrocarbons (PAH), PCB, persistent organic pollutants (POPs), volatile organic compounds (VOC))	Local/Global	Long-term
Greenhouse gases (e.g., CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O)	Global	Long-term

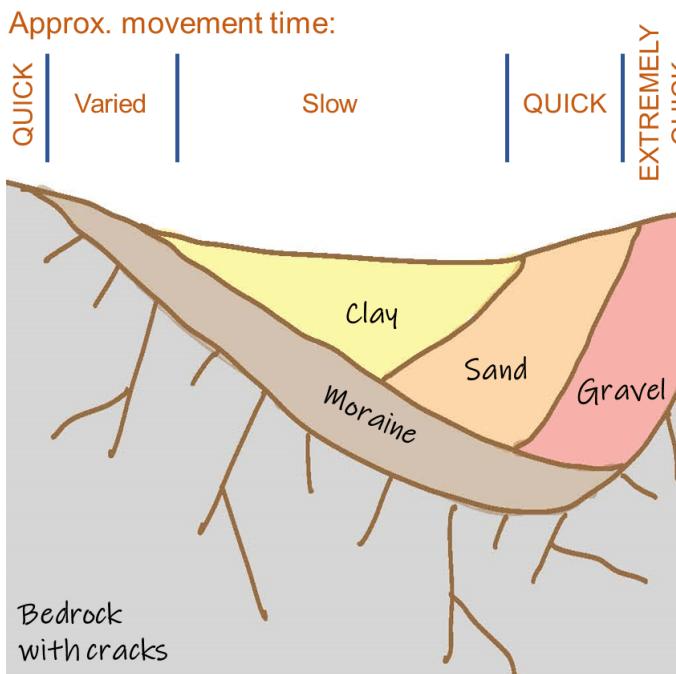
# Emissions to air

- Majority of emissions
- Distributions heavily weather dependent
- Example species:
  - Acute toxicants
  - Soot, aerosoles, particles
  - Organic species (VOC, PAH, dioxins/furans etc)



# Emissions to soil

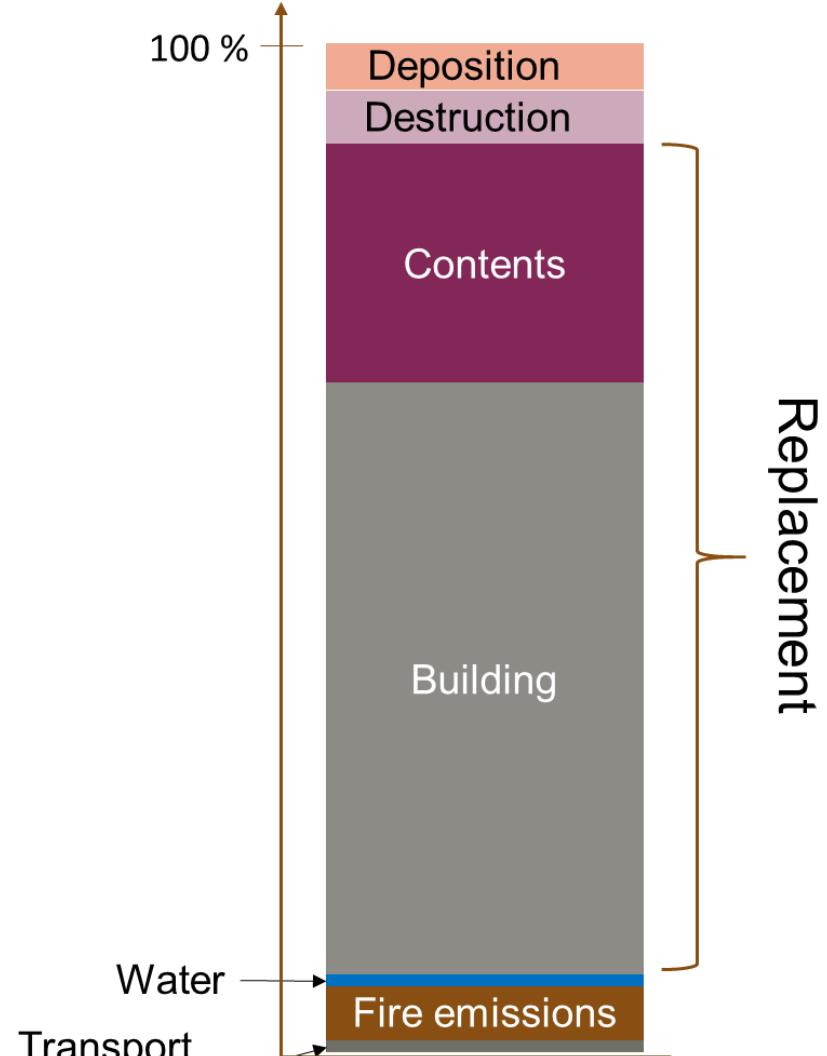
- Gaseous deposition – varying distance from seat of fire.
- Fire debris.
- Distribution depends on geology.



# Emissions to water

- Surface or sub-surface water, access due to suppression activities, transport through soil or via rain.
- Extra important to avoid water contamination.





## House fire

# Global Fire impact

- Life cycle thinking necessary
- Greatest global environmental impact is often in the remediation phase of a fire.
- NB: The exact distribution between parts of the LCA will vary between cases and response tactics.



# PANEL DISCUSSION



## MEET YOUR PANEL MODERATOR, A. BEARD

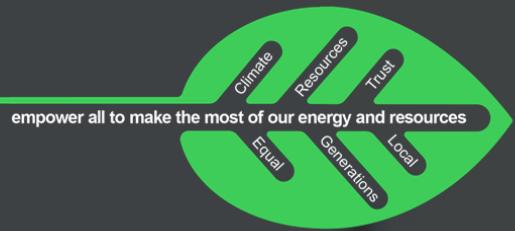


pinfa Chairman & Flame Retardants Marketing at Clariant

## MEET LAURENT



Polymer Expert at Schneider Electric



what product sustainability will mean for tomorrow's fire safety



## Eco-design

- Just enough performance (FR use only when strictly required)
- Multilayers strategy challenged for recyclability perspective
- Single FR preferred to synergists (simplification of marking, traceability, recycling)

## Safer FR

- Minimization of halogenated FR (additional risks of regulation, incineration and end of life constraints)
- Selection of greener FR (definition, assessment, ranking, CO2 impact...?)
- Harmonization of regulated FR substances lists and testing worldwide

## End of life

- Mechanical recycling: study of impact on performances, improvement of sorting...
- Chemical recycling: possibility to recover FR? (waste of dissolution process or pyrolysis)
- Stability of performance after use phase. Assessment, improvement?

## MEET MICHEL



Sustainable Use Director at PlasticsEurope

# Our purpose and strategic focus

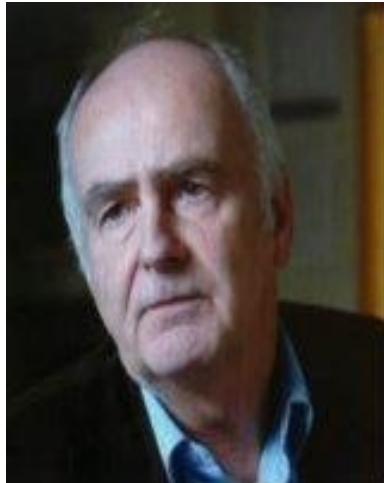
PlasticsEurope  
is a **catalyst**  
**for the plastics**  
**industry**, to deliver  
Sustainable, safe  
and circular  
solutions valued by  
society.



## Who we are:

PlasticsEurope is the pan-European organisation (with more than 100 member companies) representing the plastics manufacturers at the EU, regional and national level.

## MEET JACOB



Professor in Environmental Chemistry & Toxicology, at the Vrije Universiteit Amsterdam, Dep. Environment & Health

## MEET LAUREN



Expert in Green Chemistry & Engineering, as well as alternatives assessment at ChemForward

# Concurrent Chemical Management Strategies



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## Step 1: Eliminate highly toxic chemicals

Impact: Reduce business and regulatory risk



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## Step 2: Informed substitution

Impact: Avoid regrettable substitution



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## Step 3: Proactive “sustainable” design

Impact: Use safe and circular materials

## MEET STEFAN



Former Senior Manager of Engineering & Materials, at Daimler-Benz

## MEET JOACHIM



Marketing for Electric & Electronic Industry, in RadiciGroup High Performance Polymers

# Sustainability = Environmental assessment + ecodesign



Primary grade material  
(assessment/certification)



Separate  
collection

Waste to recycle

Recycling activities  
certification



Characterization  
formulation

Compounding

Secondary grade material  
(assessment/certification)





# THANK YOU!

Please stay in touch **@pinfa.eu**

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