Session on International Perspectives on Advanced Materials

Advanced Materials. Any new issues for safety assessment?

Kirsten Rasmussen, JRC

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Advanced Materials. Any new issues for safety assessment??

Personal view (disclaimer)

- *The Joint Research Centre (JRC) in the European Commission*
- *Chemicals legislation and advanced materials*
- *Next step: JRC and DG RTD* virtual "Workshop on Safe and Sustainable Smart Nanomaterials", 9-10 Sep. 2020*

**DG RTD: Directorate General Research and Innovation*

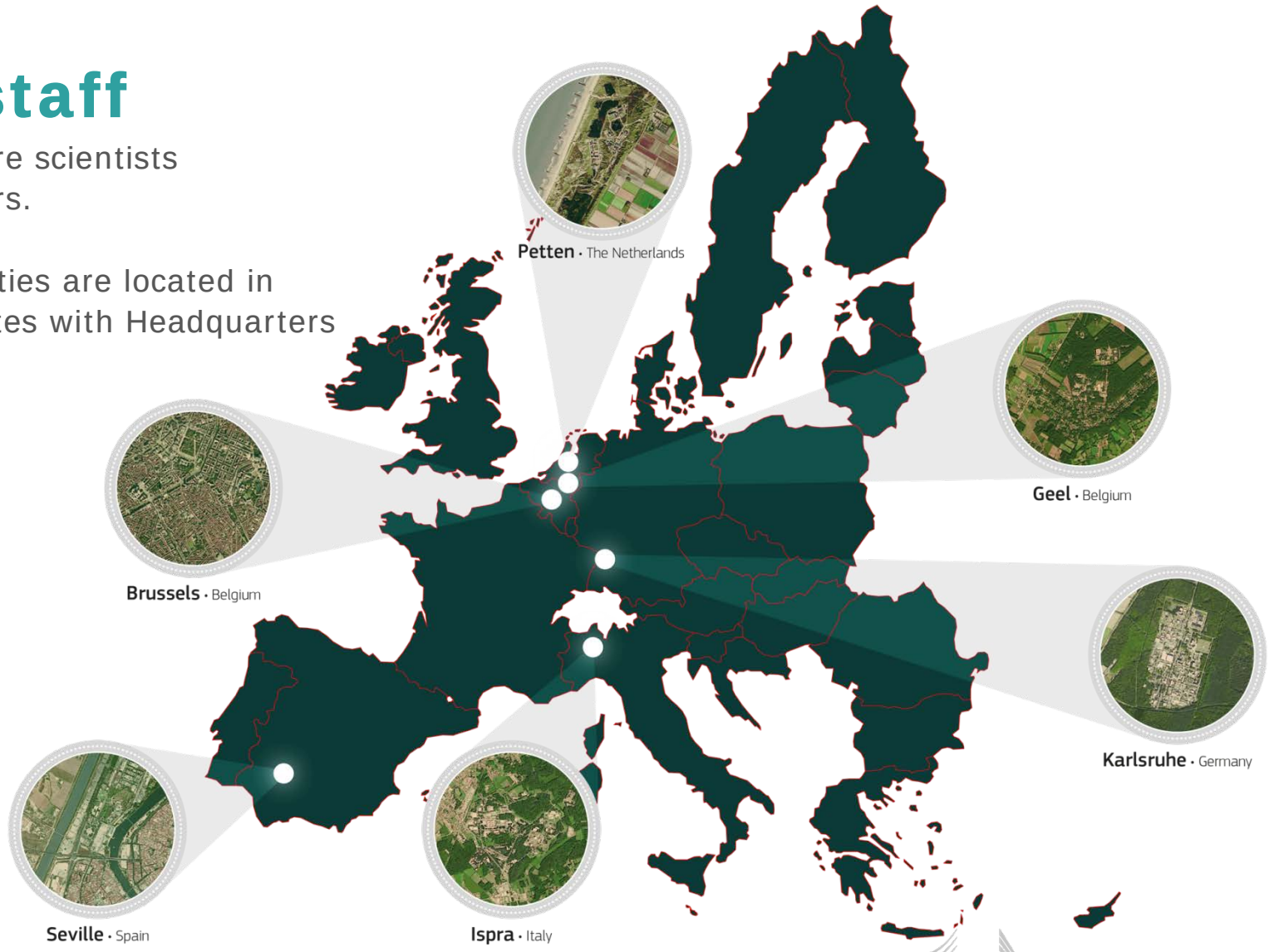
European Commission

The Joint Research Centre at a glance

3000 staff

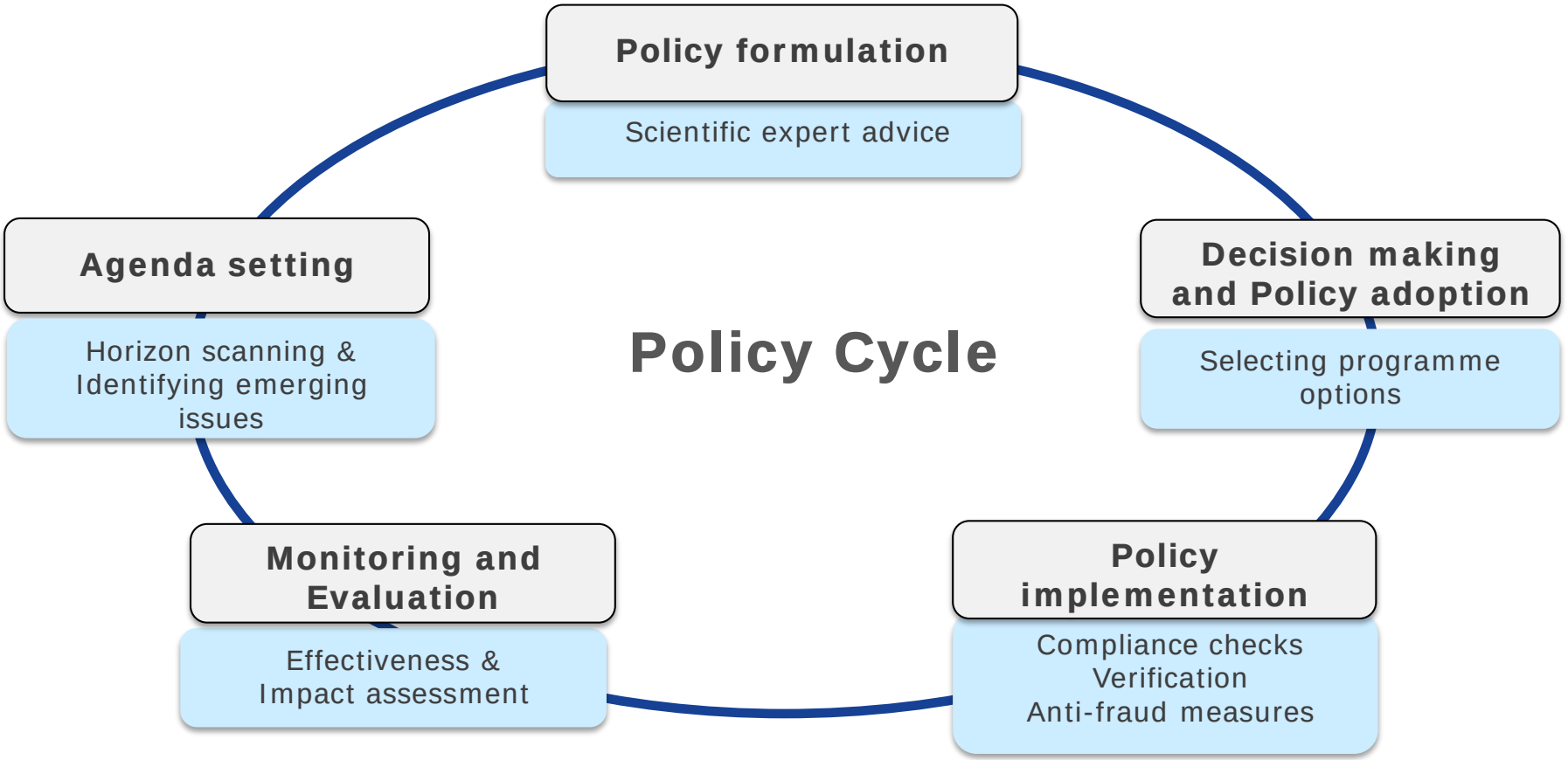
Almost 75% are scientists and researchers.

Research facilities are located in 5 Member States with Headquarters in Brussels



European Commission

The JRC in the EU Policy Cycle



Participants to the Policy Cycle: Civil Society, Cabinet, Commission, European Parliament, Council / Member States, Private Sector

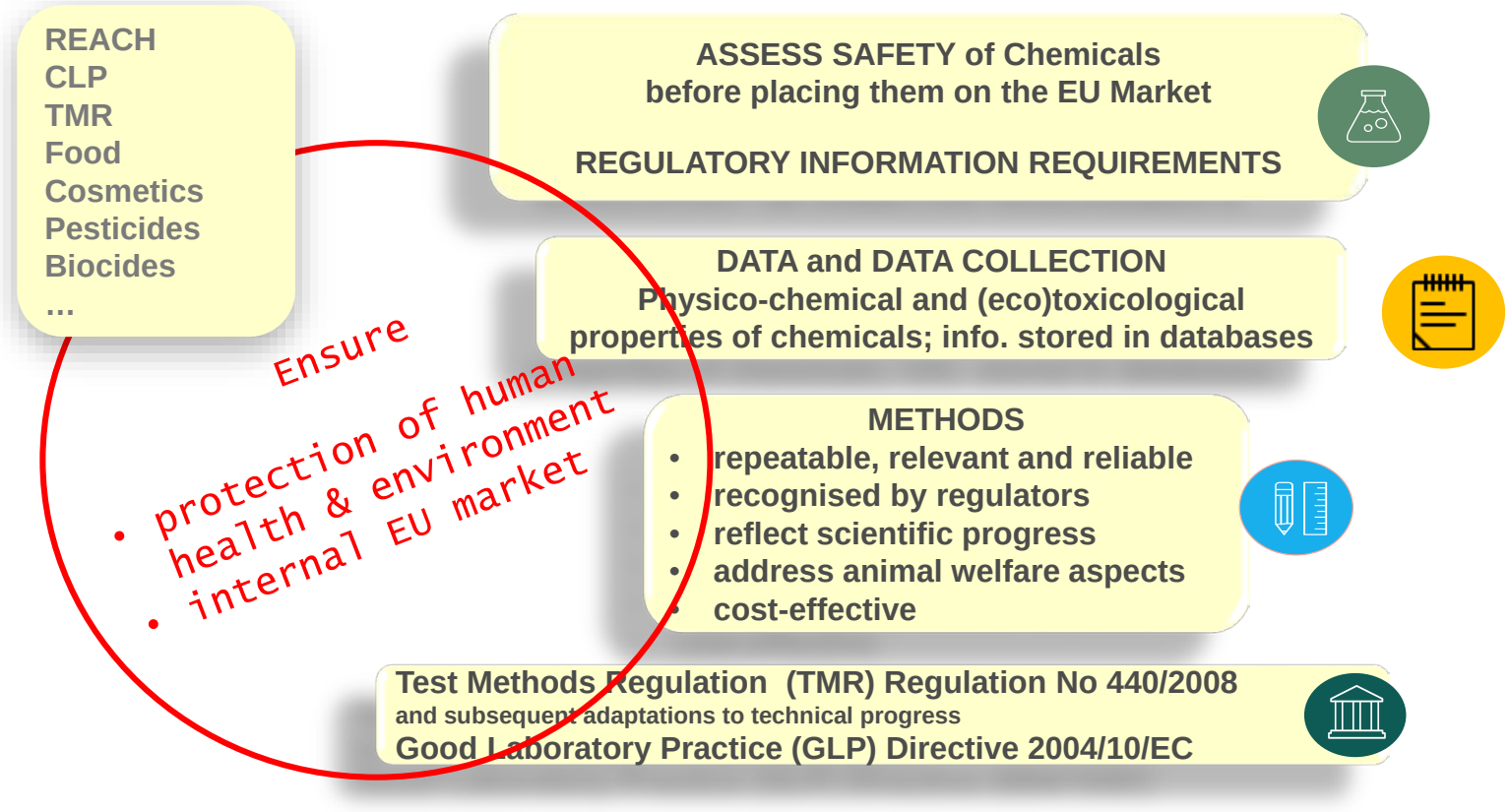
European Commission

Chemicals Policy and Advanced Materials

The **Green Deal** (Dec. 2019) aims for a climate-neutral, zero-pollution, sustainable, circular and inclusive economy. **Innovative new materials** are mentioned as they can help to reach these goals. They need to be safe and sustainable.

The upcoming new **EU chemicals strategy for sustainability** aims to better protect humans and the environment against hazardous chemicals and encourage the innovative development of safe and sustainable alternatives.

EU Regulatory Frame for Safety Assessment of Chemicals incl. Nanomaterials and Advanced Materials



Partners: DG ENV, DG GROW, DG SANTE, DG RTD.

AA with DG ENV on test methods

European Commission

EU Chemicals legislation & Advanced Materials

- **Advanced Materials** (AM) are **covered by EU legislation** on chemicals, but are **not** explicitly mentioned nor **defined** in the chemicals legislation.
- The legislation is supported by e.g. **tools** for assessing risk / safety. These tools are mostly adapted to assessing issues for one substance at a time, and **rarely deal with mixtures and synergistic/antagonistic issues or the dynamic nature of some materials.**
- **Advanced Materials** are **complicated to define** unambiguously, as they are **transient in nature** (today's AM could be tomorrow's standard material), and seem to have **no characteristic that is common to all of them**; this is a challenge for developing specific legislation.

Next Step: Workshop on Safe and Sustainable Smart Nanomaterials

- **Understand safety information needs in a new area: Smart Nanomaterials,** also known as stimuli-responsive, multifunctional or active nanomaterials. They are a specific type of so-called advanced materials.
- These nanomaterials respond to specific external stimulants, such as temperature, pH, light or enzymes, by changing their properties and functions, which is utilised in e.g. sensors and targeted delivery systems, already in use in medical products (e.g. drug delivery) and electronics. Applications in agriculture, food, packaging and cosmetics are at research and development stage, and some have already been commercialised.
- The complex and dynamic nature of smart nanomaterials may raise concern regarding their safety and sustainability and the ability of the current regulatory framework to ensure it.

Next Step: Workshop on Safe and Sustainable Smart Nanomaterials

WHO: The workshop gathers developers, scientists and regulators to discuss the design, development, safety, sustainability, and legislative aspects of smart nanomaterials as well as related research needs.

WHAT: The aim is to outline current considerations of safety and sustainability aspects in the development of smart nanomaterials, current tools and their use and adequacy, and the needs and challenges in adequately addressing the safety and sustainability of smart nanomaterials by both industry and legislation.

European Commission DGs JRC & RTD. Virtual Workshop on

Safe and Sustainable Smart Nanomaterials

Workshop agenda

Wednesday 9 September

Introduction

Session 1 – **Designing Smart Nanomaterials**

Session 2 – **From Safe-by-Design to Safe-and-Sustainable-by-Design**

Thursday 10 September

Session 3 – **Regulatory preparedness**

Session 4 – **Outlook: How to shift towards a more sustainable path?**

Wrap-up and conclusions

Next Step: Workshop on Smart Nanomaterials

- The safety of new materials can be promoted from their conception with the help of **Safe-by-Design**, an established systematic approach to assessing and ensuring the safety of a material or product as an integral part of the design process.
- In a similarly systematic approach, the evolving concept of **Sustainability-by-Design** aims to address the sustainability aspects of materials and products in development.
- **Safety and Sustainability by Design** combines both aspects.
- **Regulatory Preparedness** helps regulators to keep up with innovation in the development of new technologies, materials and products and to prepare appropriate legislation and other regulatory tools in good time for their arrival to the market.
- This is promoted by **FAIR data** (Findable, Accessible, Interoperable & Reusuable) through templates and database structures.

Next Steps

- The European Commission's chemicals priorities with a perspective on advanced materials and nanomaterials: protection from risks to human health and the environment.
- Based on the understanding gained at the workshop the intention is to evaluate the applicability of the tools, e.g. for testing, and develop tools and methods for a safe innovation approach (SIA) building on Safe-by-Design and Regulatory Preparedness, promoting FAIR (Findable, Accessible, Interoperable & Reusable) data through templates and database structures, leading in Governance for nanomaterials and advanced materials.

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