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## ESOREX-Platform project

# A European Platform for Occupational Radiation Exposures



## Context and motivation

ESOREX: European Study on Occupational Radiation Exposure, initiated by European Commission in 1995

- Overview on national arrangements for the radiation workers monitoring, the reporting and the recording of doses
- First attempt to harmonise data collection
- Perspective also to harmonise practices in RP within Europe
  - A recommendation to develop a sustainable Platform emerged during the ESOREX Symposium in Prague, May 2010
  - Contract ENER/2012/NUCL/SI2.636456 funded by the EC
    - Contractor = IRSN, France
    - A 3-year project (Dec. 2012 – Dec. 2015)

## Main objectives of the ESOREX-Platform project

- To develop a Platform which allows representatives from national dose registries and dosimetry services to exchange experience, to assess dose trends and to discuss emerging issues
- To establish working relationships with other relevant international organizations and bodies (UNSCEAR, HERCA, IAEA...), for example with UNSCEAR for its occupational dose assessment worldwide
- To develop appropriate mechanisms and establish the appropriate infrastructure for sustainable continuation of operation of the ESOREX platform beyond the 3-year project, without further financial support from the European Commission

# Methodology and timetable of the project

Jan.  
2013

Sept.  
2013

Feb.  
2014

Sept.  
2014

Jun.  
2015

Sept.  
2015

Creation of a steering group to define the structure of the Platform and of the corresponding required data



Development of a prototype



Test of the prototype by the steering group with first collection of data



1<sup>st</sup> workshop, Paris, Sept. 2014  
All countries

Development of the final ESOREX Platform, designation of the national correspondents and collection of the global data



2<sup>nd</sup> workshop, Paris,  
30 June – 1 July 2015. All countries

Final report



The steering group



# General structure of the ESOREX-Platform

A dedicated website which includes 2 main tools

- A “**Collaborative tool**” namely a discussion forum where national experts in occupational RP can discuss and exchange information
- A “**Database**” dealing with:
  - national arrangements for occupational radiation exposure monitoring
    - national regulation, practices in worker’s monitoring, dosimetry methods used, listing of approved dosimetry services, organization of the national dose register...
  - results and trends of occupational exposure by domain/sectors of activity, for relevant occupations, in EU member states, associated states and other participating state if any

# Database of results and trends of exposure

## Data description (1/3)

- Country and year of exposure
- Field, sector or sub-sector of activity, occupation: a unique harmonized list has been defined by the steering group
  - 7 **fields of activity** (“medical field”, “industry”, “nuclear field”, “transport”, “research and education”, “natural sources”, “other fields”);
  - 40 **sectors of activity** (for example: “nuclear medicine” in medical field, “industrial radiography” in industry or “fuel fabrication” in nuclear field);
  - 6 **sub-sectors** (for example: “diagnostic unit only” or ‘therapeutic/diagnostic unit’ in nuclear medicine);
  - 23 **occupations**.

# Database of results and trends of exposure

## Data description (2/3)

- Type of dosimetric monitoring and related quantities
  - Whole body:
    - External dose: Hp(10) photon/neutron
    - Internal committed dose
    - Effective dose E
  - Skin: Hp(0.07)
  - Extremities: Hp(0.07)
  - Lens of the eye:
    - Hp(3)
    - Hp(0.07)

# Database of results and trends of exposure

## Data description (3/3)

- Reported parameters
  - Collective dose (man.Sv)
  - Average dose per caput (mSv)
    - All monitored workers
    - Measurably exposed workers (dose above the recording level)
  - Number of workers
    - Total monitored
    - Per dose bands (defined dose bands = UNSCEAR dose bands)

< RL*	[RL ; 1[ mSv	[1 ; 5[ mSv	[5 ; 10[ mSv	[10 ; 15[ mSv	[15 ; 20[ mSv	≥ 20 mSv
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\*RL : recording level (for example: 0.1 mSv)

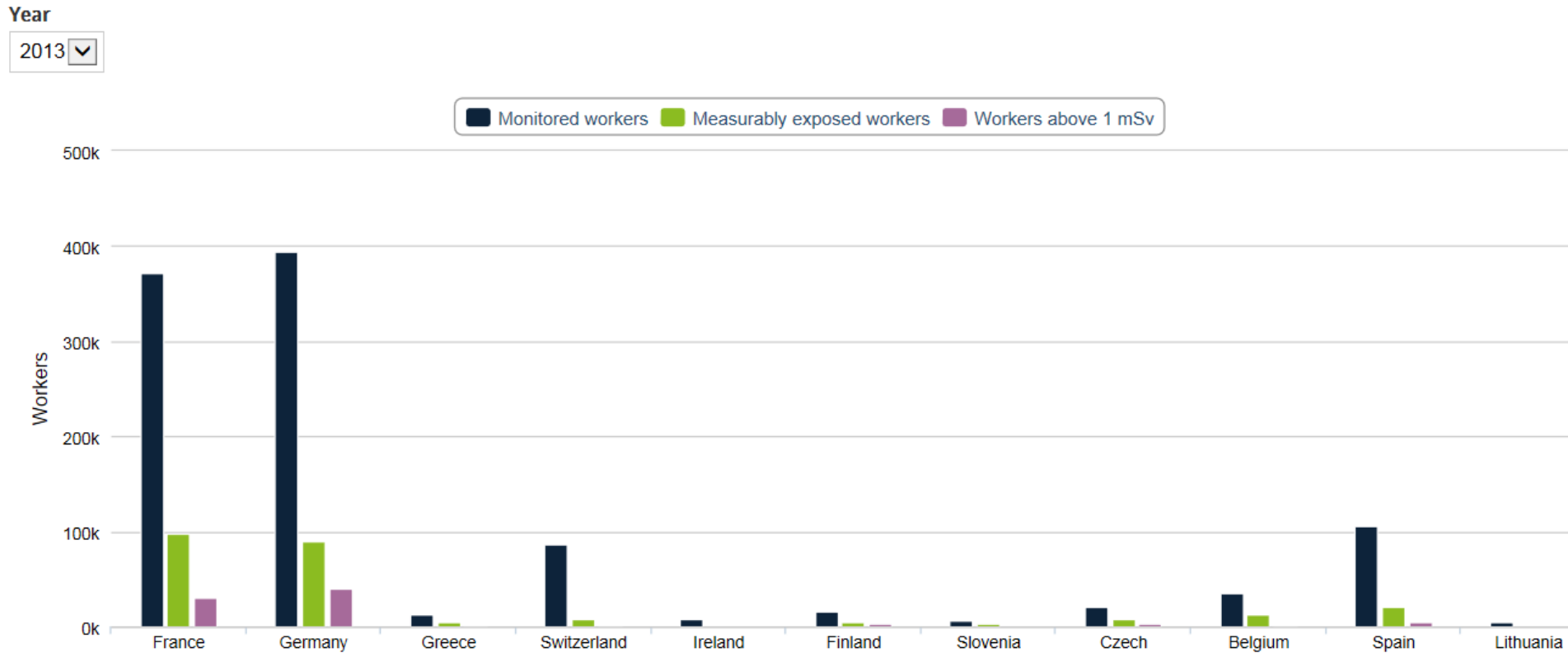


# Who can access and use the ESOREX-Platform?

- ESOREX-Platform **correspondents**
  - Responsible for entering data into the platform for their country
  - Access the results of all countries by queries in the database
- **Experts** of countries or international organizations
  - Access the results of all countries by queries in the database
  - These two profiles are designated by a national administrator in charge of the national access rights. Several different persons may be designated for each profile.
- " **Public** " = everybody
  - Access limited to predefined pages concerning:
    - Description of national arrangements
    - Some predefined charts

# Examples of charts from ESOREX-Platform (1/2)

## Monitored and measurably exposed workers per country

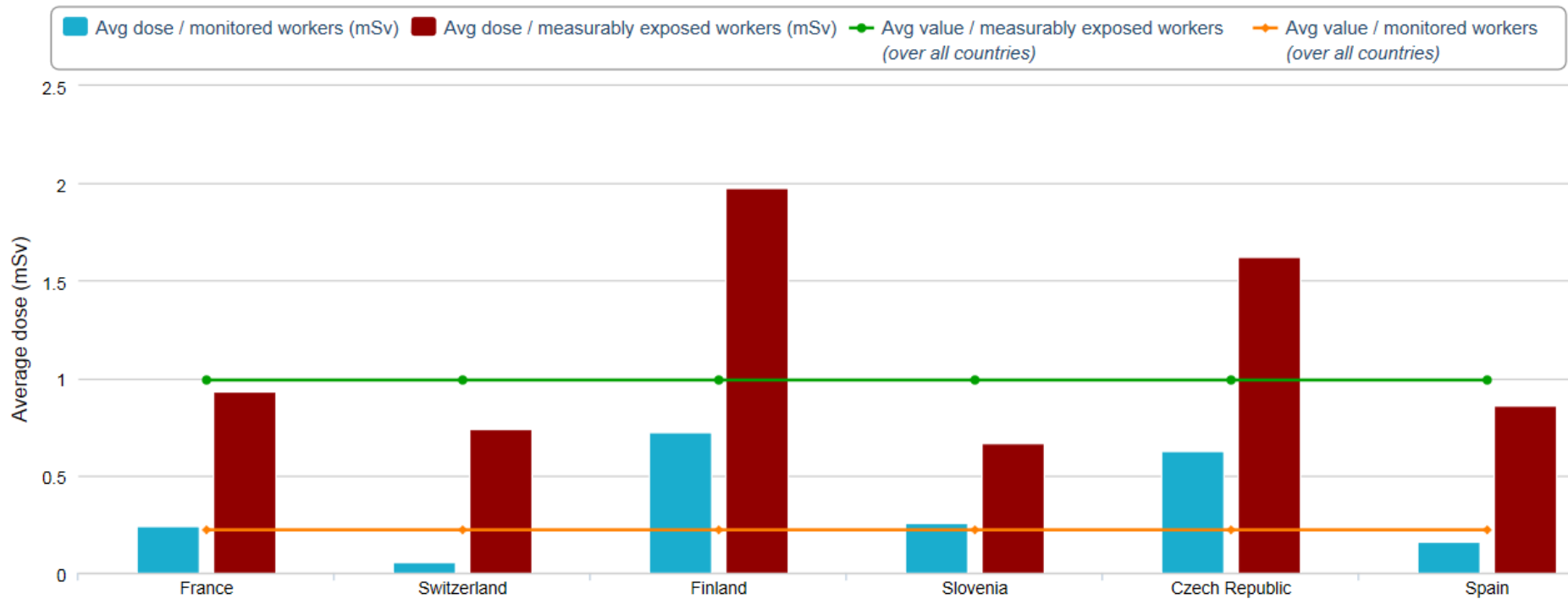


# Examples of charts from ESOREX-Platform (2/2)

Average individual dose per country and average values over all countries

Year

2014



# One example of information extracted from the ESOREX-Platform (national arrangements)

## National dose register

- Type of recorded data (12 countries)

	Passive	<u>measurements</u>	Internal <u>committed dose</u>	exposure to radon	Aircrew external dosimetry	Notional doses	Operational
Belgium	yes		yes	yes	yes	yes	yes
Bulgaria	yes		yes				
Estonia	yes						
Finland	yes	yes	yes	yes	yes		
France	yes	yes	yes	yes	yes	no	yes
Greece	yes		yes		yes	yes	
Ireland	yes				yes		
Lithuania	yes		yes				
Slovenia	yes		yes	yes	yes		
Spain	yes		yes			yes	
Sweden	yes	yes	yes				
Switzerland	yes		yes				

# Conclusion

- The ESOREX Platform is a new tool dedicated to occupational exposures:
  - a web-based competence center for national practices of occupational RP in Europe
  - a tool providing indications of the application and effectiveness of the regulatory provisions of the European Directive
- It is not only a database but also a forum for exchanges of experience: a tool which creates a network between representatives of central dose registers and more largely between experts
- Its sustainability will depend on:
  - the involvement of participating countries correspondents to enter data
  - the development of a network whose members could pay a fee, on a voluntary basis, with the support of HERCA Association (Heads of the European Radiological Protection Competent Authorities)



**HARMONIZATION OF DATA AND INFORMATION REPORTING FORMATS**

**IDENTIFICATION OF SECTORS OF INTEREST FOR OPTIMIZATION PURPOSE**

**BENCHMARKING ON OCCUPATIONAL RADIATION EXPOSURE DATA**

**ESTABLISHMENT OF WORKING RELATIONSHIPS WITH OTHER RELEVANT INTERNATIONAL ORGANIZATIONS AND BODIES**

## Main objectives of the ESOREX Platform

- establish and maintain an overview on national arrangements for occupational radiation in Europe
- allow easy information and experience exchange between experts in occupational radiation exposure
- provide the basis for the evaluation and assessments of occupational radiation exposure data

### Participating countries



“ The European Commission initiated in 1997 the European Study on Occupational Radiation Exposure (ESOREX) which objectives were:

- to provide the European Commission and the national competent radiation protection authorities with reliable information on how personal radiation monitoring, reporting and recording of dosimetric results is structured in European countries;
- to collect reliable and directly comparable data on individual (levels of individual personal radiation doses to