

# JOPRAD – Preparation of the Programme Document

Marriot hotel, Prague  
Thursday 16<sup>th</sup> November 2017

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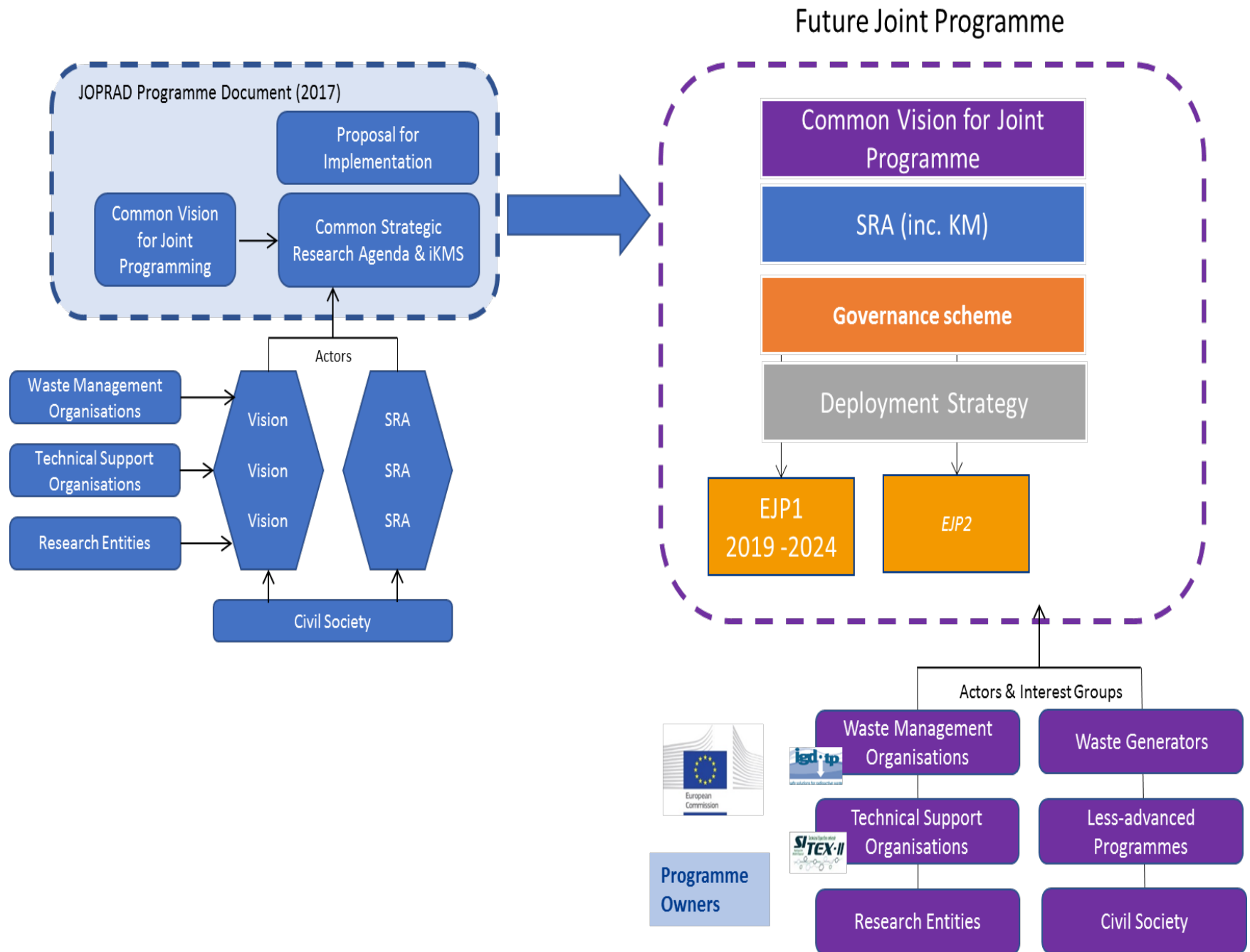


# Contents

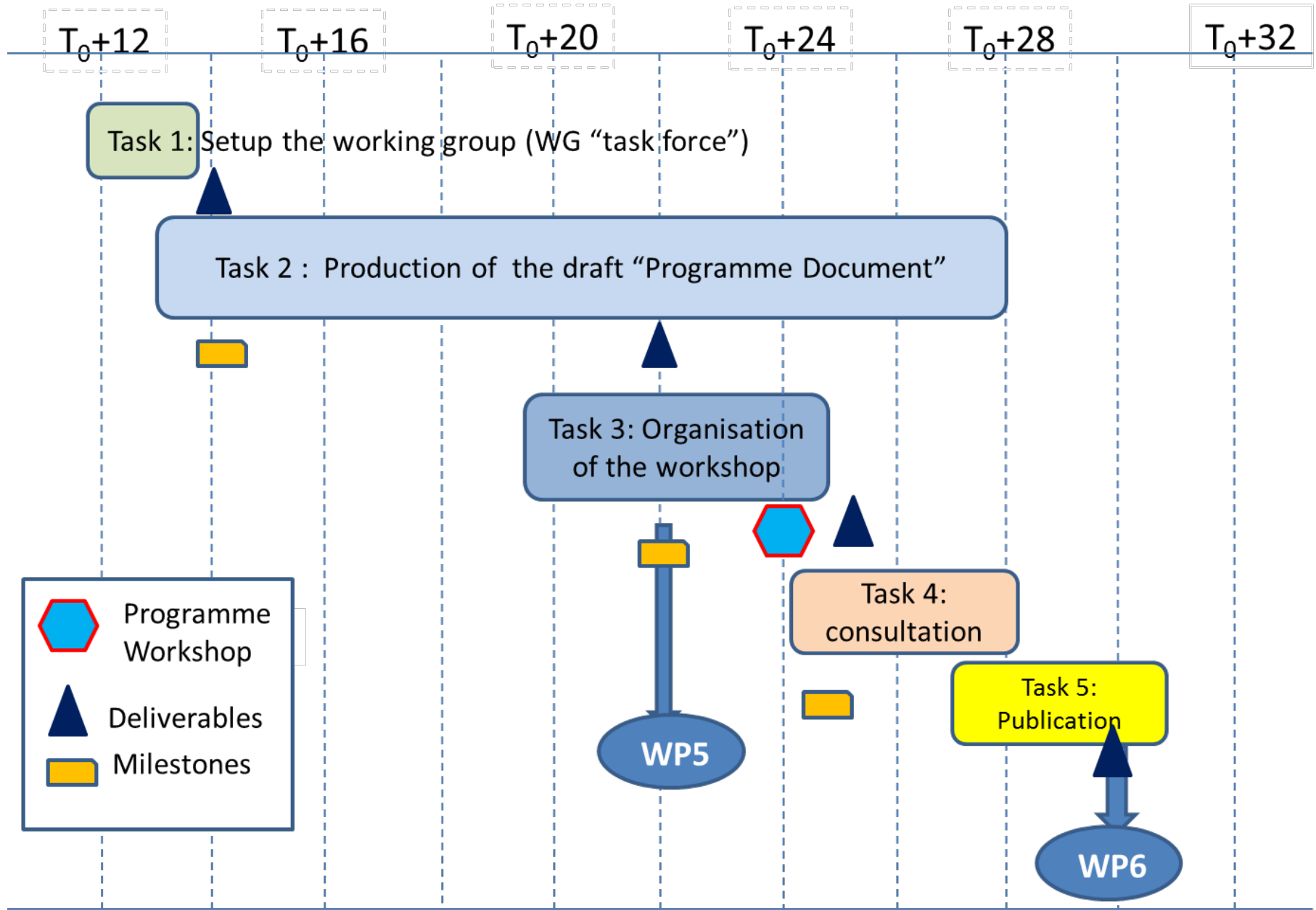
1. Aims of the Programme Document
2. Work of work package 4 (WP4) (members, Vision and boundary conditions for Joint Programming JP)
3. Identification of areas of common interest
4. Development of an initial common Strategic Research Agenda (SRA) for JP
5. Timeline of Programme Document

# Aims of Programme Document

- The “**Programme Document**” is the main outcome of the JOPRAD project.
- WMOs, TSOs, REs have identified scientific and technical activities that they have prioritised individually in their different Strategic Research Agendas (SRAs) as suitable for Joint Programming.
- Defines a joint Strategic Research Agenda which will be made available to the European Commission for its use in the preparation of a call for a Joint Programme.
- It considers the input from Civil Society and the needs of Member States with Less Advanced Programmes.
- Incorporates integrated knowledge management system (IKMS).



## WP4 "Production of the Programme Document"





# Members of WP4 Working Group

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# Developing the Joint Programme

Used step-wise process to define and prioritise the scientific and technical domains of common interest for a joint Strategic Research Agenda (SRA). Steps:

- Drafted vision and boundary conditions (April 2016).
- Drafted a first compilation of combined activities for inclusion within a potential future Joint Programme by merging suggested activities from the WMO, TSO and RE specific SRAs (April 2016).
- Elicited JOPRAD participants' opinions on their preferred activities by issuing a comprehensive questionnaire of suggested activities (sent out in September 2016 to WP4 participants).
- Screened and prioritised activities (Nov, Dec 2016).





# Vision for Joint Programming

## Derived vision for Joint Programming:

A step change in European collaboration towards safe radioactive waste disposal through a credible and sustained science and technology programme fostering mutual understanding and trust:

- A consensus programme between regulatory support organisations, implementers and researchers throughout the decades covering the development and operation of disposal facilities;
- Enhancing the understanding of the risks and uncertainties; and
- Ensuring societal visibility and transparency of research and development.







# Boundary conditions for Joint Programme

**Maintenance of Independence** - it is important that “expertise function” (TSOs and Research Entities) and the “implementing function” (WMO) use and independently interpret the results from research.

**Transparent Governance** – need a transparent, balanced and efficient mode of governance which takes into account all participants (including Civil Society).

**Balanced Programme** - different Member States have a wide variance in their National Programmes, the scope of the Joint Programme should support both advanced and less advanced programmes.

**Added Value** - ensuring that Joint Programming provides real added value (e.g. improved financial arrangements, improved stakeholder acceptance of outputs, more robust RD&D outputs, low administration costs etc.).



# Strategic Research Agendas

JOPRAD – D3.5 - Aspects of the SRA of Research Entities to be included in a JP (Final version)



Contract Number: 653951

## Deliverable n°3.5

Aspects of the SRA of Research Entities to be included in a JP  
Work Package 3

Editors: Bernd Grambow  
Date of issue of this report: 19/01/2017  
Report number of pages: 50  
Start date of project: 01/06/2015  
Duration: 30 Months

Project co-funded by the European Commission under the Euratom Research and Training Programme on Nuclear Energy within the Horizon 2020 Framework Programme		
Dissemination Level		
PU	Public	
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the partners of the JOPRAD project	
CO	Confidential, only for partners of the JOPRAD project	X

JOPRAD – D3.4 - Aspects of the SITEX SRA to be included in a JP (Final version)



Contract Number: 653951

## Deliverable n°3.4

Aspects of the SITEX SRA to be included in a JP  
Work Package 3

Editors: Lemy Frank, Janssen Pierre  
Date of issue of this report: 19/01/2017  
Report number of pages: 35  
Start date of project: 01/06/2015  
Duration: 30 Months

Project co-funded by the European Commission under the Euratom Research and Training Programme on Nuclear Energy within the Horizon 2020 Framework Programme		
Dissemination Level		
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D3.3 - "Aspects of the IGD-TP to be included in Joint Programming on Radioactive Waste Disposal"



Contract Number: 653951

## Deliverable n° 3.3

"Aspects of the IGD-TP to be included in Joint Programming on Radioactive Waste Disposal"

Work Package 3

Editors: R Kowe, E Scourse, T Beattie  
Date of issue of this report: 19/01/2017  
Report number of pages: 22  
Start date of project: 01/06/2015  
Duration: 30 Months

Project co-funded by the European Commission under the Euratom Research and Training Programme on Nuclear Energy within the Horizon 2020 Framework Programme		
Dissemination Level		
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JOPRAD

# Identification of common areas of interest



Gilles



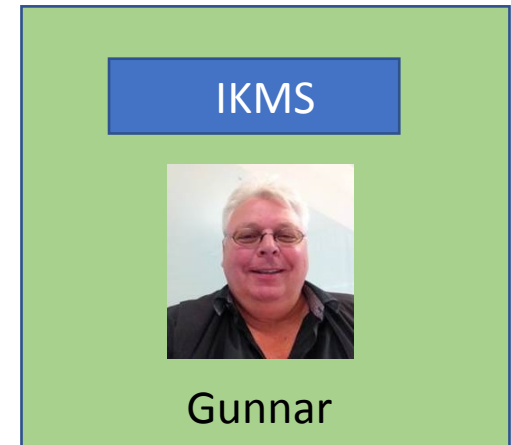
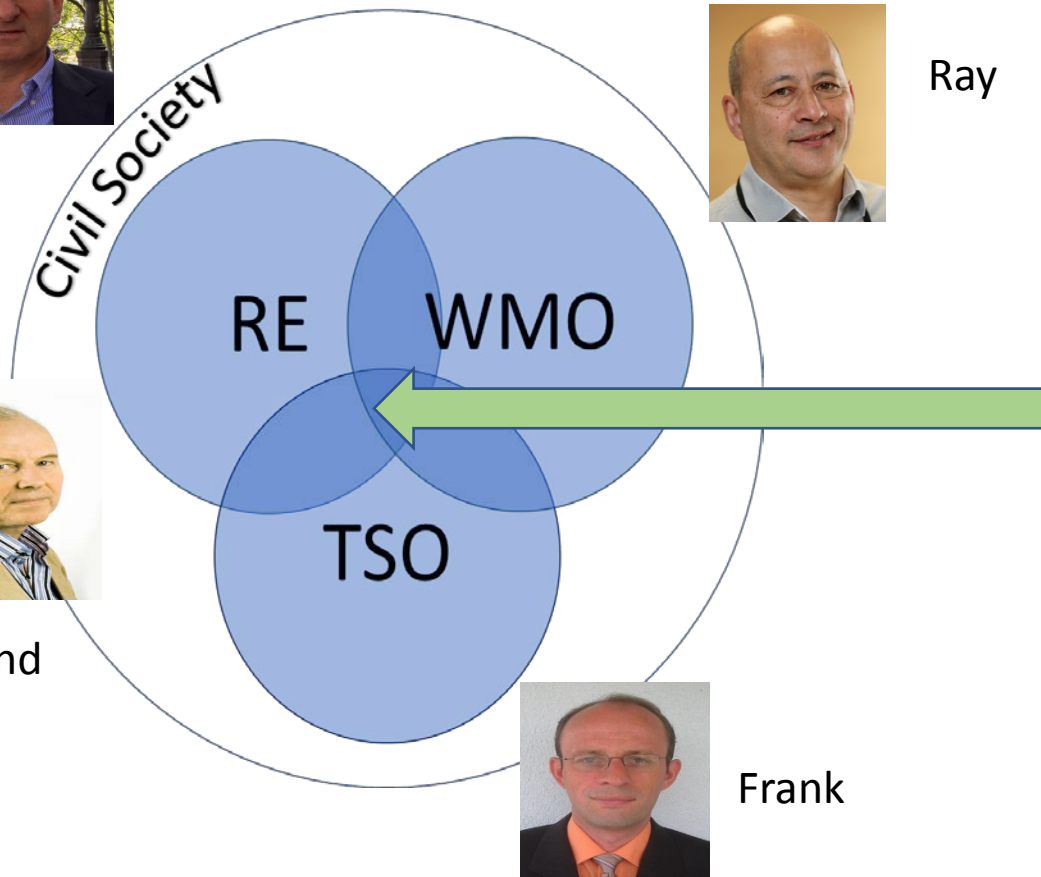
Ray



Bernd



Frank



Gunnar



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16<sup>th</sup> November 2017



# Questionnaire responders

Country	Country	WMO-Organisation	TSO-Organisation	RE-Organisation
Belgium	BE	ONDRAF/NIRAS	BelV	SCK
Czech Republic	CZ	SURAO	CVREZ	CTU
Finland	FI	POSIVA		
France	FR	ANDRA	IRSN	CEA; CNRS; UPMC; BRGM
Germany	DB	BfS; BMWi	GRS	HGF
Hungary	HU	PURAM	TSE	
Italy	IT	SOGIN		Italia (~ 4Organisations)
Lithuania	LT		CPST	LEI
Netherlands	NL	COVRA	NRG	TNO
Poland	PO			PGI
Slovakia	SK		DECOM	
Slovenia	SO	ARAO		
Spain	ESP	ENRESA	CIEMAT	CIEMAT
Sweden	SE	SKB		
Switzerland	CH	NAGRA		PSI
United Kingdom	UK	RWM		
<b>Total:</b>	<b>16</b>	<b>14</b>	<b>9</b>	<b>14</b>



## 1. Building Understanding - data, experiments, modelling, and testing:

- Inventory, Waste Form and Waste Characterisation
- Waste Package
- Consequences of Storage
- Near-Field and Engineered Barrier Systems
- Gas Generation and Transport
- Radionuclide and Chemical Species Transport
- Geosphere

STRATEGIC  
THEMES



## 2. Building Confidence - tools, assessment and demonstration:

- Safety Case
- Post-Closure Processes and Upscaling
- Numerical Tools
- Operational Safety
- Practical Implementation

DOMAINS



## 3. Integrated Knowledge Management System

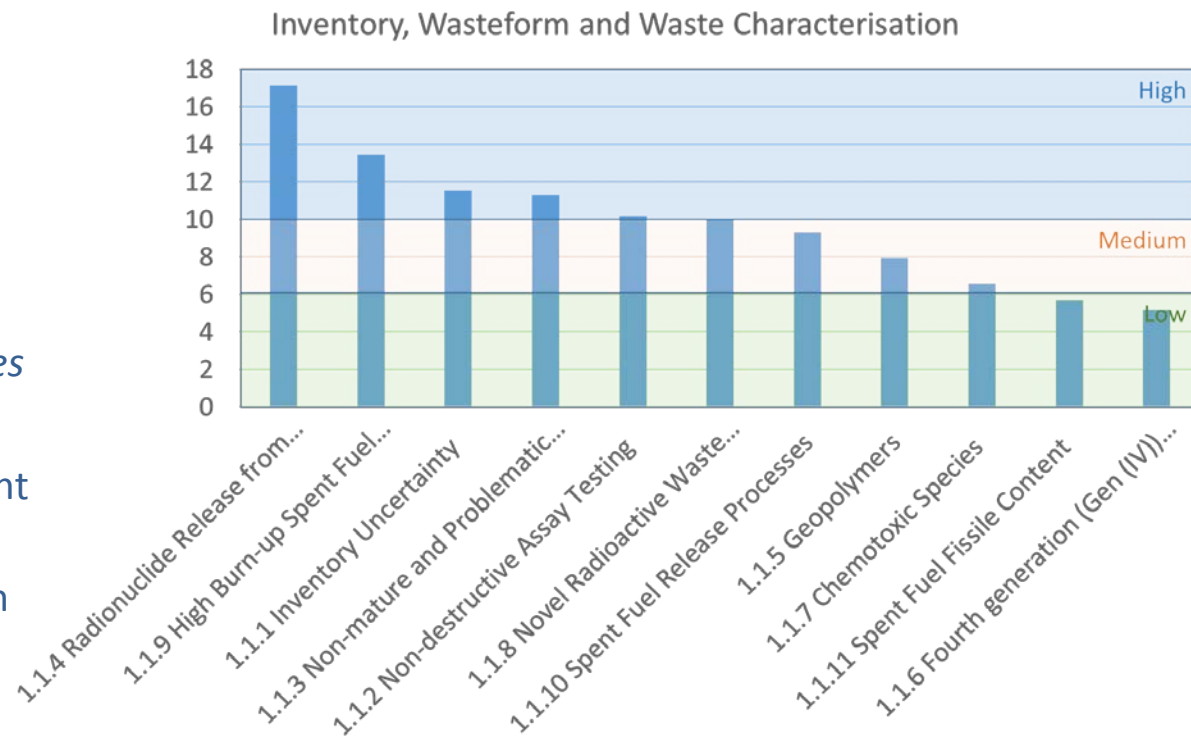


# 1<sup>st</sup> Draft SRA – Sub-Domain Overview

## Strategic Theme 1: Building Understanding

### 1.1 Inventory, Waste Form and Waste Characterisation

- 1.1.1 Inventory Uncertainty
- 1.1.2 Non-destructive Assay Testing
- 1.1.3 Non-mature and Problematic Waste Conditioning
- 1.1.4 Radionuclide Release from Wasteforms other than Spent Fuel
- 1.1.5 Geopolymers
- 1.1.6 Fourth Generation (Gen(IV)) wastes
- 1.1.7 Chemotoxic Species
- 1.1.8 Novel Radioactive Waste Treatment Techniques
- 1.1.9 High Burn-Up Spent Fuel Evolution
- 1.1.10 Spent Fuel Release Processes
- 1.1.11 Spent Fuel Fissile Content





# 1<sup>st</sup> Draft SRA – Sub-Domain Overview

## Strategic Theme 2: Building Confidence

### 2.3 Numerical Tools

2.3.1 Performance Assessment Tools

2.3.2 Open-source Performance Assessment Code

2.3.3 Long-range Transport Models

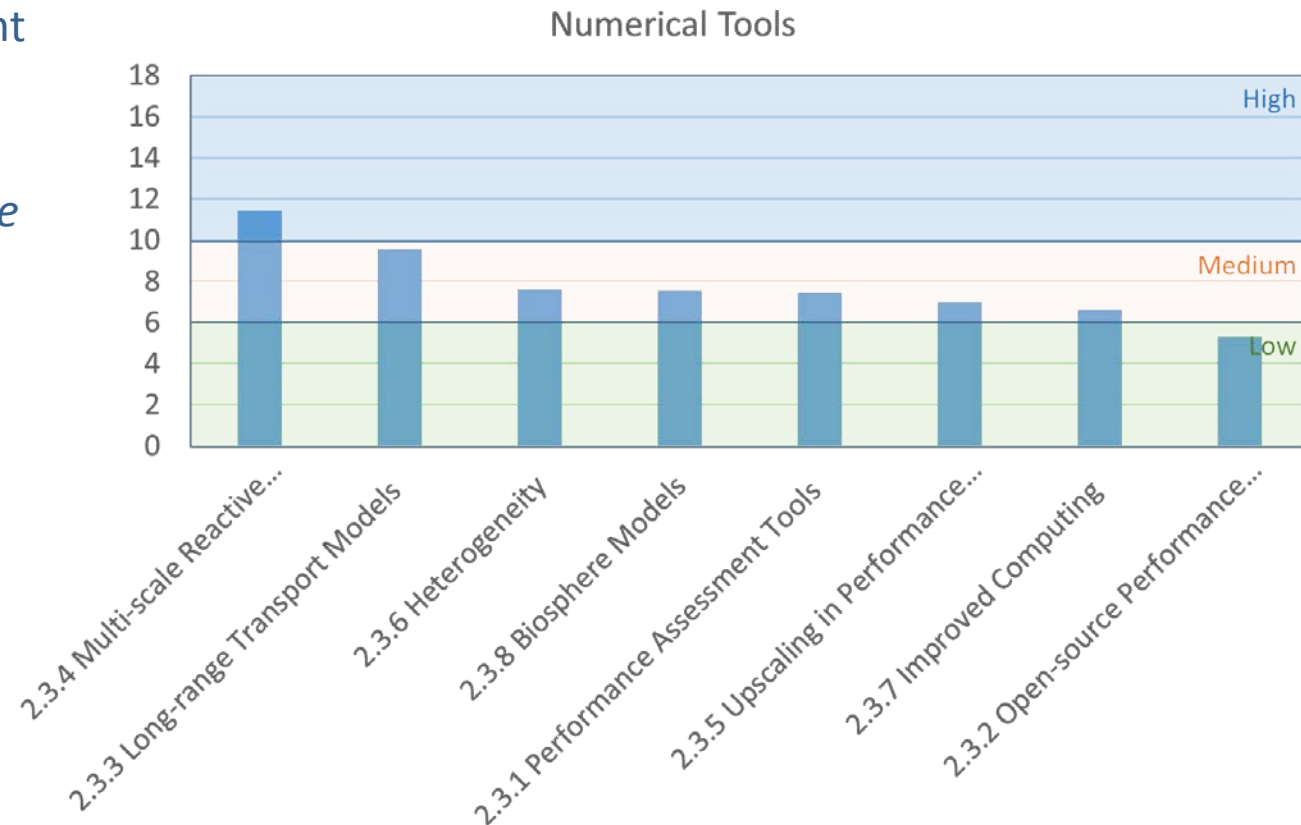
2.3.4 Multi-scale Reactive Transport Models

2.3.5 Upscaling in Performance Assessment

2.3.6 Heterogeneity

2.3.7 Improved Computing

2.3.8 Biosphere Models







# Timeline of Programme Document

- Aug 2016 - Feb 2017 significant comments received from WP4 members and Christophe Davies on the several drafts of the Programme Document.
- 13<sup>th</sup> March 2017 Prog Doc issued for consultation.
- 4<sup>th</sup> April 2017 Prog Doc workshop took place, London.
- April 30<sup>th</sup> 2017 – Consultation closed.
- April – October 2017 – Comments addressed and response to comments sent to consultees.





## Consultation progress

Additional comments received by 30<sup>th</sup> April 2017 from:

CV Rez (Czech Republic)	Uppsala Uni (Sweden)	Bel-V (Belgium)
TUS (Bulgaria)	Geological Survey (Finland)	SCK.CEN (Belgium)
ENEA (Italy)	SOGIN (Italy)	CPST (Lithuania)
EC	RMML (Multiple)	UJV Rez (Czech Republic)
ENEN (Italy)	Amphos-21 (Spain)	TNO (Netherlands)
Citon (Romania)	Madrid Uni (Spain)	Posiva (Finland)
ARAO (Slovenia)	VTT (Finland)	ERDO-WG (Multiple)
MCM (UK)	NAWG (Multiple)	BGR (Germany)
NRG (Netherlands)		

## Additions/amendments to sub-domains

Prioritisation methodology is just one option for how the sub-domains could be classified as high, medium or low 'level of common interest' .

**Sensitivity Analysis:** merged four separate French RE responses into one, to be consistent with other questionnaire responses. The highest priority was always taken.

**Consultation comments:** If a sub-domain had two or more suggestions for changes to the 'Level of Common Interest' from separate organisations, then these additional 'votes' were incorporated into the calculations.

Both changes to prioritisation resulted in minor changes to Level of Common Interest for a few sub-domains only.

# Timeline of Programme Document (continued)

- October 2017 – consultation on IKMS comments.
- November 2017 - IKMS review and themes and subdomains incorporated into Programme Document.
- End November 2017 - Final version issued to wider community.

# Thank You !



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