Almost one decade of IGD-TP (2009 – 2019)

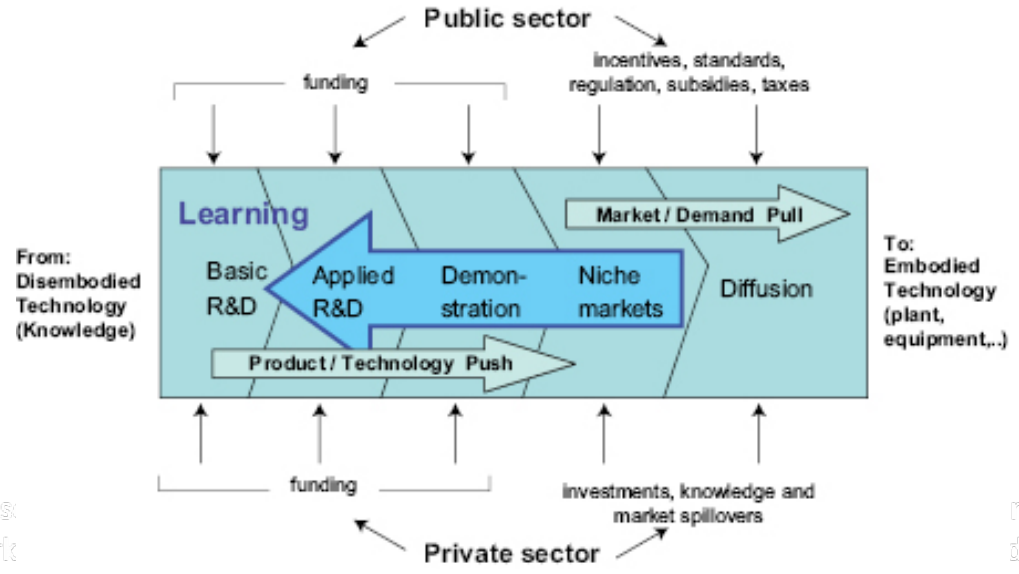
Future directions

Irina Gaus, Chair 2019 - 2020

The research leading to these results has received funding from the European Union's European Atomic Energy Community's (Euratom) Seventh Framework programme FP7 (2007-2013) under grant agreements n°249396, SecIGD, and n°323260, SecIGD2.

Which mechanisms/players define an RD&D domain

Our audience today has all actors (WMO, academia, TSO-regulators, Civil Society, private companies)



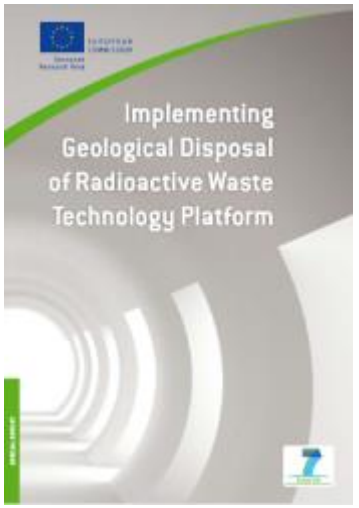
The research leading to these
Seventh Framework
nergy Community's (Euratom)
d n°323260, SecIGD2.

https://www.ipcc.ch/publications_and_data/ar4/wg3/en/fig/figure-2-3.jpeg

The vision of the IGD-TP *back in 2009*

Our vision is that by 2025, the first geological disposal facilities for spent fuel, high-level waste, and other long-lived radioactive waste will be operating safely in Europe.

- build confidence in the safety of geological disposal solutions among European citizens and decision-makers;
- encourage the establishment of waste management programmes that integrate geological disposal as the accepted option for the safe long-term management of long-lived and/or high-level waste;
- facilitate access to expertise and technology and maintain competences in the field of geological disposal for the benefit of member countries.



The research leading to these results has received funding from the European Atomic Energy Community's [illegible] Framework Programme [illegible] under grant agreements n°249396, SecIGD, and n°

The vision of the IGD-TP *in 2018*

Our vision is that by 2025, the first geological disposal facilities for spent fuel, high-level waste, and other long-lived radioactive waste will be operating safely in Europe.

- Posiva plans to submit its operation licence in 2020, operation expected to follow in the years after;
- SKB submitted its construction licence in 2011;
- Andra to follow in 2019


Courtesy of Posiva


Courtesy of Posiva

Significant progress towards realising the vision achieved

→ the vision will be amended in the next year to provide a longer term perspective for the WMO community

The research leading to these results has received funding from the European Union's European Atomic Energy Community's Seventh Framework programme FP7/2007-2011 under grant agreement n° 249681, SecIGD

Development of the IGD-TP: *2009 - 2018*

Initially established with the financial support of the European Commission, the IGD-TP is now funded by the 11 European organisations that form the Executive Group.


EF7 Cordoba


EG 22 Prague

Focus and Structure

- Technical/scientific focus on deep geological disposal (and radwaste management)
  - structured in joint research activities
- 120+ member organisations / 600+ individual members
- Led by Executive Group (EG) comprising 11 WMOs

Activities

The research leading to these results has received funding from the European Union's European Atom... 249396, SecIGD...

Exchange Forums, Newsletters, Knowledge sharing, EURATOM research involvement

IGD-TP and its connections to EURATOM

Background

- For 40+yrs, EC has funded underpinning science supporting progress towards geological disposal licensing

Steer & Financing

- Calls in radwaste typically comprised ~30M€ EC funding (60M€ total project costs) over 2+2 yr periods and across ~8 projects. Typical total project cost ~5M€.
- ~10yrs ago EC funded the establishment of the IGD-TP to help define research needs, co-ordinate project scopes and communicate to the RD&D community.

Reasons for IGD-TP involvement

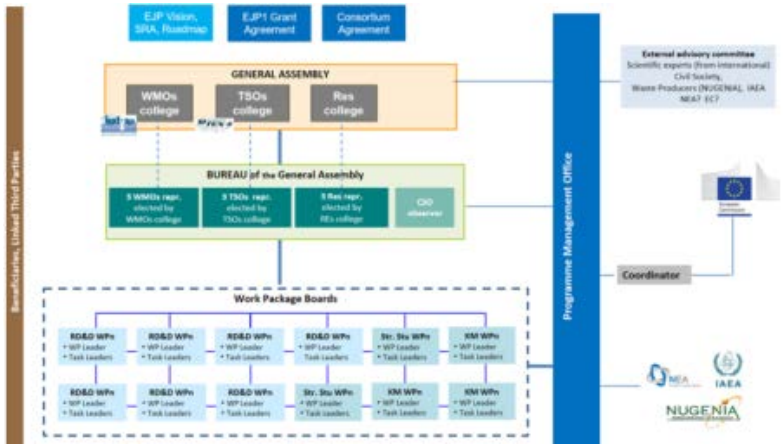
- Speak with one implementers voice
- Address existing common research needs as documented in IGD-TP SRA
- Develop capability and excellence of WMOs and individuals involved (many positive regulatory and host community statements)
- Engage international supply chain and academics in topics of WMO interest (e.g. through EF)

The research leading to these results has received funding from the European Union's European Atomic Energy Community's (Euratom)

In 2017, EURATOM European Joint Programme (EJP) in Rad Waste Management was called

Background

- EC saw the need for a ‘step change’ in RD&D cooperation
- Establish EURAD on agreed common objectives.



Steer & Financing

- EJP1 budget ~30M€ EC funding (60M€ total project costs) over 5yrs and across 7 technical, 2 strategic studies and 3 KM tasks
- WMOs are only one of a number of ‘equal actor groups’ (WMOs, TSOs, RE’s) plus CS input

→ WMOs and especially the IGD-TP EG members contributed extensively to the EURAD

→ IGD-TP is acting to represent the WMO college (presentation R. Winsley yesterday**)**

The research leading to these results has received funding from the European Union's European Atomic Energy Community's (Euratom)

EURATOM R&D

H2020 Projects (not exhaustive)

EJP EURAD

	Complete	Ongoing	Proposed	TBD scope
Spent fuel	REDUPP, FIRST-Nuclides	DisCo	SFC	
Wasteform	CAST	theramin, CHANCE		
Buffers, backfill & host rock	PEBS	Cebama, BEACON	ACED, HITEC, GAS	
RN's colloids & microbes	BELBaR	MIND	CORI, FUTURE	
Large scale demo	LUCOEX			
Moni-toring	MODERN	MODERN 2020		
Modelling tools			DONUT	
Networking studies			ROUTES, UMAN	

Shifting remit

WMO's directly establish common research needs and ensure safety case needs alignment

Now contribute towards establishment of research needs and scope alignment (along with TSO's/RE's and CSO)

?

Common SRA agreed by WMO, TSO and RE's

(but how do we appropriately influence choice of SRA topics and subsequent project scope)

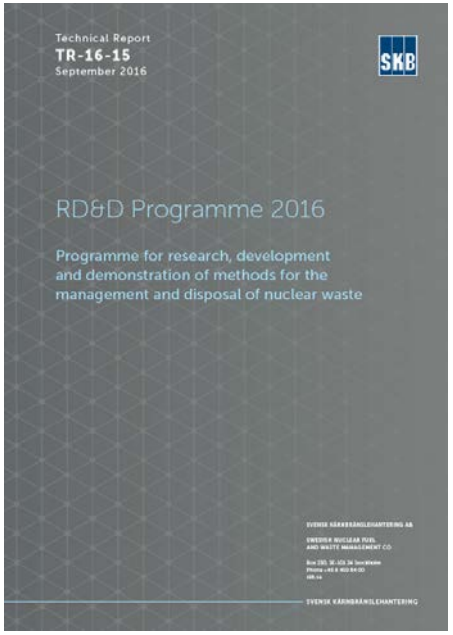
RD&D at WMOs focus on direct programme needs

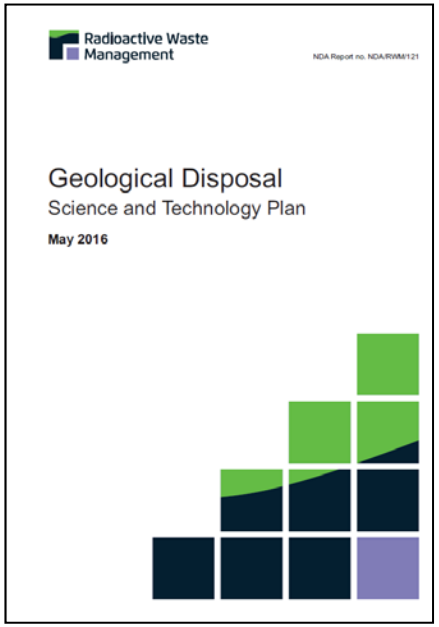
- WMOs produce RD&D programmes at regular intervals (3 - 5 years), each time a delta is established
- Activities in these programmes:
  - require a strict timeline to delivery
  - can be very specific and therefore supported by a few partners only
  - are applied topics that are interlinked with decision making
  - always have a licence driven purpose (reducing uncertainties, optimisation, robustness, stakeholder requests)

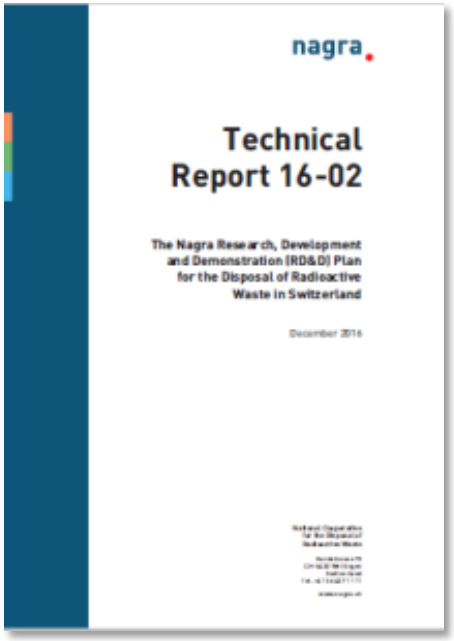
- The IGD-TP aims to coordinate aspects of these RD&D programmes where collaboration is beneficial/sensible.

The research leading to these results has received funding from the European Union's European Atomic Energy Community's (Euratom) Seventh Framework programme FP7 (2007-2013) under grant agreements n°249396, SecIGD, and n°323260, SecIGD2.

Examples of RD&D programmes



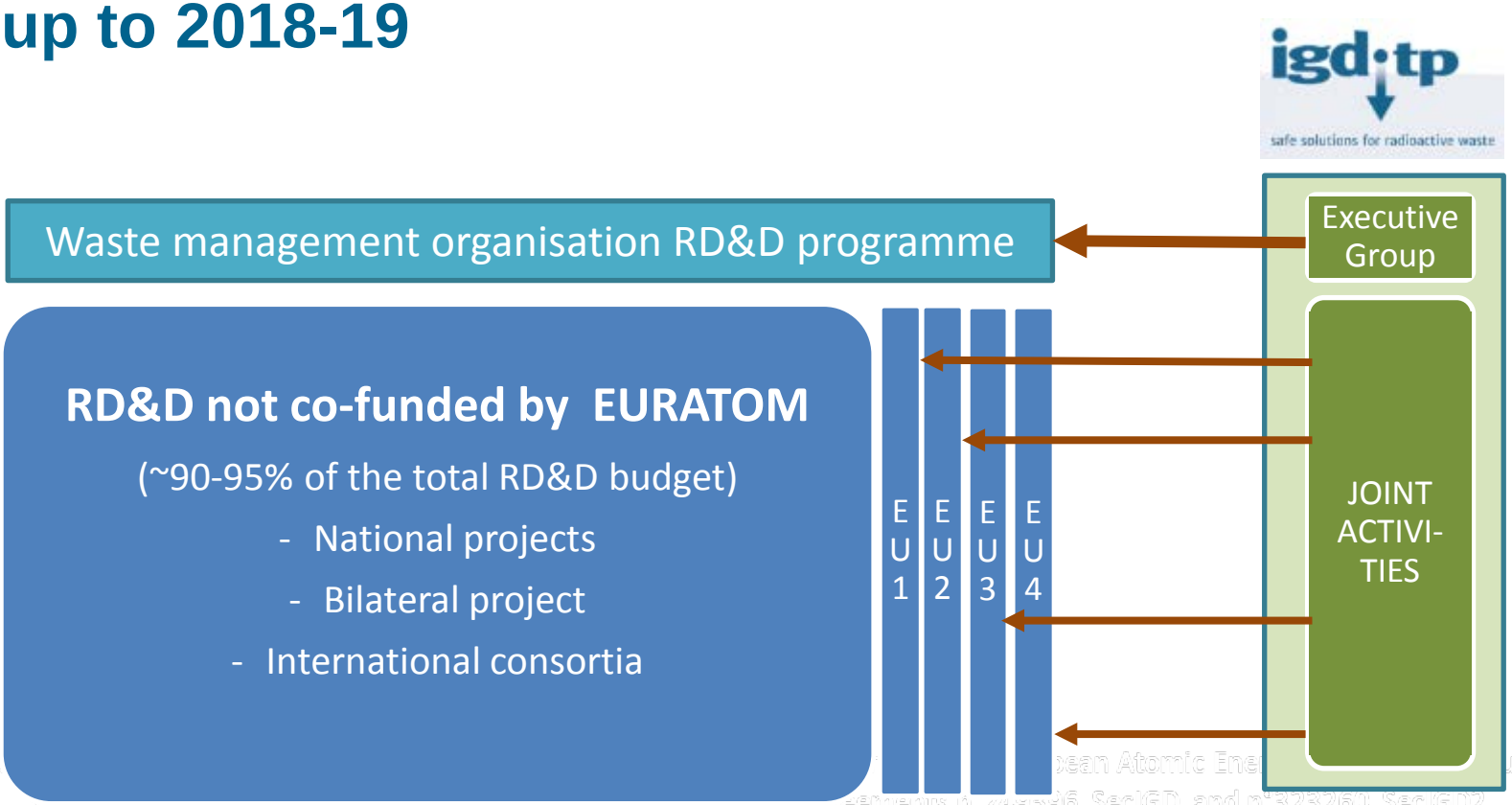




- Primarily focussed on addressing programme specific and applied issues, fundamental issues where key questions need to be answered
- More fundamental, broad based science funded elsewhere.
- Euratom can only cover a small part of the activities

The research leading to these results has received funding from the European Atomic Energy Community's (Euratom) Seventh Framework programme FP7 (2007-2013) under grant agreements n°249396, SecIGD, and n°323260, SecIGD2.

EURATOM / WMO / IGD-TP interactions: up to 2018-19



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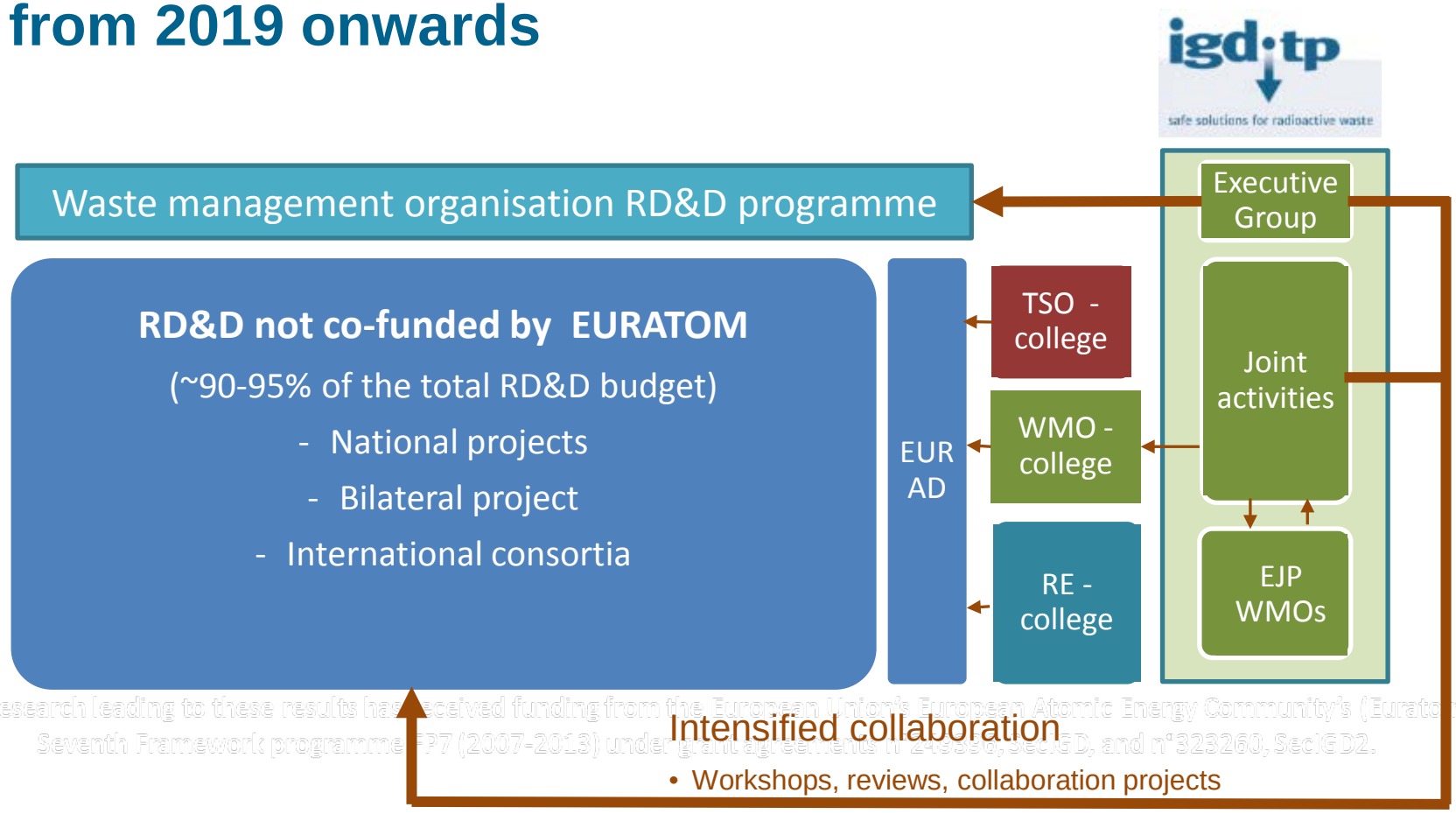
EURATOM / WMO / IGD-TP interactions: from 2019 onwards



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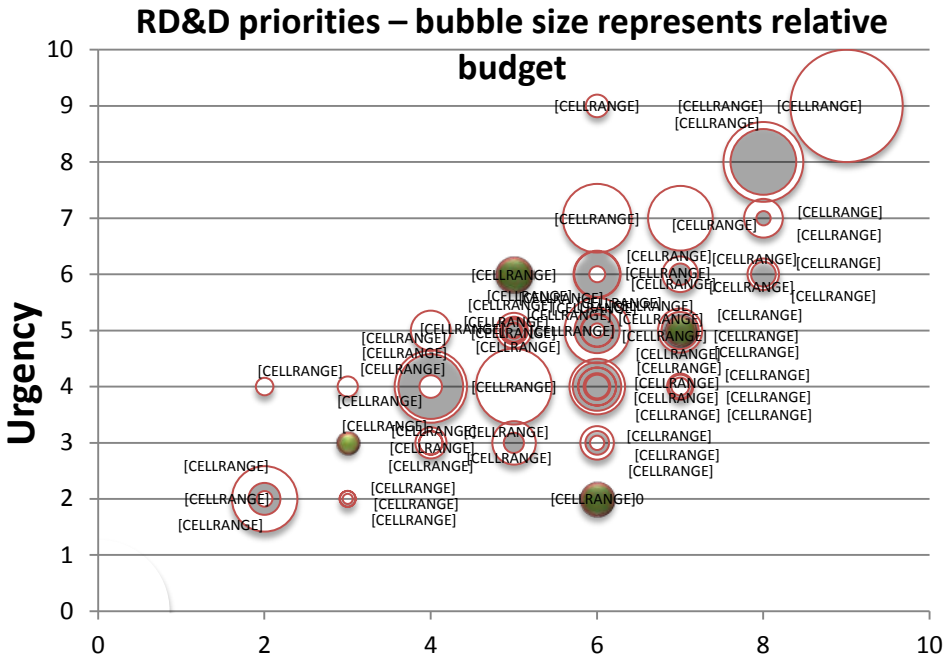
RD&D at a typical WMO – budget distribution

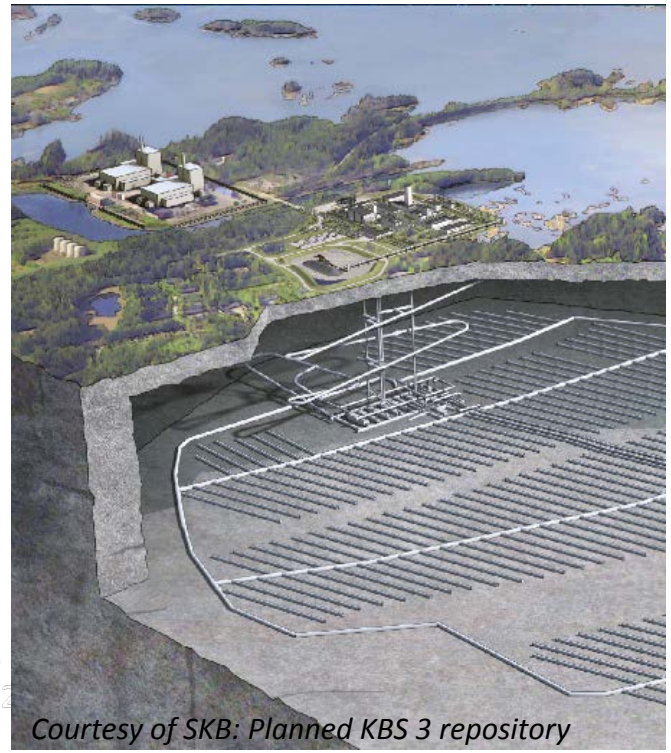
- RD&D generally follows a strong prioritization logic incorporating importance and urgency
- Low ranking priorities need to be scrutinized, sufficient budge for high ranking priorities
- Green bubbles indicate involvement of EURATOM budget,
- **Which topics? → see next talk by current Chair J. Martin**



The research leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) under grant agreements n°249396, SecIGD, and n°323260, SecIGD2.

How will the IGD-TP evolve in the coming years – main lines 1/3

- Focus remains on geological disposal; interest in treatment, minimal for surface disposal.
  - Expand the focus to accommodate also sealed sources, borehole disposal to a certain extent
- The IGD-TP vision will be amended in 2019:
  - a longer perspective than 2025 is needed
  - acknowledgement of EURAD is required
- Establish complementarity of the IGD-TP Strategic research agenda with the EURAD roadmap and strategic research agenda.



Courtesy of SKB: Planned KBS 3 repository

The research leading to these results has received funding from the European Union's Seventh Framework Programme [FP7/2007-2013] under grant agreements n°

How will the IGD-TP evolve in the coming years – main lines 2/3

The aim is the enhanced coordination of the relevant scope of implementer RD&D programmes. Focus on activities that are unlikely to be integrated in the EURAD.

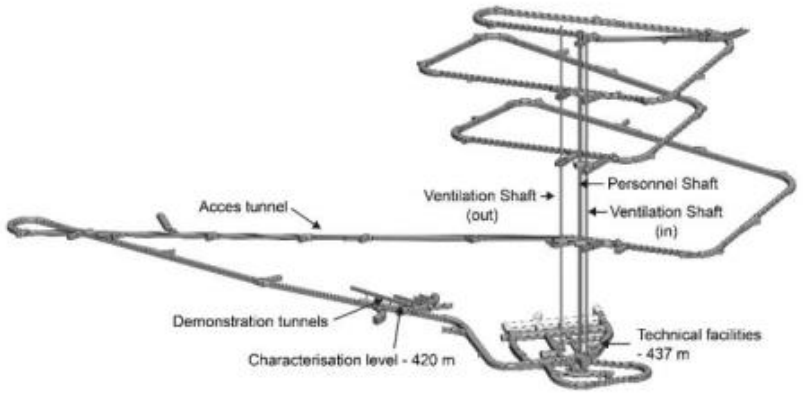
- Developing common strategies/visions on key RD&D issues including position papers
- Identify and pursue WMO multilateral/bilateral projects
- Peer review and knowledge sharing within the WMO community
- Explore the advantages/disadvantages of IGD-TP calls (e.g. similar to NUGENIA)
- Pursue highest efficiency of WMO resources

Courtesy of Andra: Artist views of the surface facilities

The research leading to these results has received funding from the European Union's Eu
Seventh Framework programme FP7 (2007-2013) under grant agreements n°24

How will the IGD-TP evolve in the coming years – main lines 3/3

- Leading the WMO college will ensure our input/steer to EURATOM funded work (EURAD)
- Keep and enhance wider IGD-TP membership to foster interest in our research needs and our viewpoints, future exchange forums are envisaged



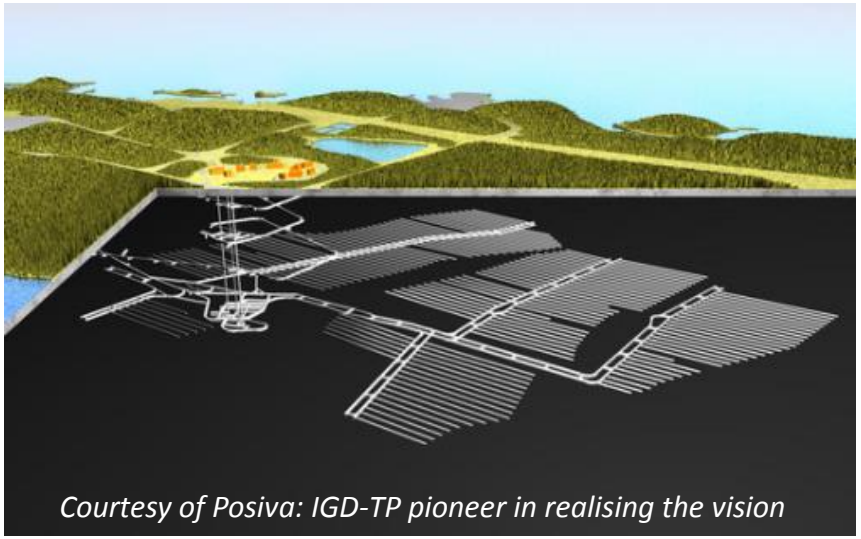
Courtesy of Posiva: IGD-TP pioneer in realising the vision

- Communicate the implementers RD&D requirements as the ultimate end-users to the society and the members (newsletter, website)
- **Focus strongly on the ultimate goal of the RD&D → realizing geological repositories to ensure highest safety**

The research leading to these results has received funding from the European Commission's
Seventh Framework programme FP7/2007-2013 under grant agreements n°249396, SecIGD, and n°323260, SecIGD2.

Immediate next steps

- The well functioning IGD-TP Executive Group will invite additional members to join
- IGD-TP offers to represent the WMO college in the EJP and develops initiatives to facilitate that
- The next IGD-TP EG will be a combined IAEA exchange in February 2019.



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Thank you.

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