SHARE

H2020 NFRP-2018 CSA: Coordination and Support Action

Grant Agreement n° 847626

D5.7: Second Workshop on Existing Best Practices

Author: Christine Georges [CEA]

With contributions from: Emilio Garcia Neri [ENRESA], Anthony Banford [NNL], Romain Tricon Duez & Pierre Joly [EI]

Reviewers: Christine Georges [CEA]

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Version history

Version	Date	Editors	Description
V1	09.12.2020	Pierre Joly [EI]	Structuration of the deliverable Introduction of the Inputs of the workshop
V2	15.12.2020	Christine Georges [CEA]	Review and finalisation
V3	17.12.2020	Pierre Joly [EI]	Finalisation of the deliverable for submission

Abstract

This deliverable presents the main elements of the second workshop, which took place 1-3 December 2020. The deliverable incudes the agenda of the workshop, the presentations given by the speakers (excluding the unpublished content and project draft data), as well as the summary of the elements discussed during the workshop.

The drawback of the COVID situation on the project was that discussions were more complicated than a face to face workshop would have been. e However we had many inputs from presentations of other EU projects and from break-out sessions with the MURAL tool. But the benefit of the virtual workshop was that more people were allowed to participate: 317 people from 37 countries all along the value chain of Decommissioning registered and globally more than 200 people attended the workshop.

Deliverable content

1. Justification of late delivery

The first workshop on best practices initially planned in June 2020 as a side event of DIGIDECOM could not take place due to the COVID-19 situation. With the evolution of pandemic, following postponement of Digidecom, we rescheduled this workshop in October and finally one on-line workshop was organized on best practices, D5.6 (due Month 13) and a second one was organised in December D5.7 (due Month16) but slightly reorganised to be a WP2 and WP3 joint workshop.

Joint Workshop WP2 & WP3 (MS6) scheduled initially Month 17 took place on-line at beginning of month 19, 1-3 December, allowing one month to benefit from feedback from October Workshop: how to find ways to benefit from a bigger audience, providing more inputs to the project: more investigation on real needs on site and more information on on-going international initiative, on-going developments, coordination with on-going initiatives in other thematic areas, etc.

Delays have been carefully analysed and today, the consortium believe they will be able to compensate and that it won't lead to a global delay, as all the needed WP3 outputs will be forwarded to WP4 on time.

2. Organisation of the workshop

2.1. Objectives of the workshop

SHARE consortium has been working since June 2019 to gather the needs of the decommissioning stakeholder's community as well as the existing solutions to answer those needs. Those actions have been carried out by the sending of a dedicated questionnaire and the review of existing literature. However, the wish of the SHARE consortium is to produce the most inclusive roadmap and strategic Research Agenda as possible. Therefore, from the beginning the SHARE consortium has been looking for community engagement. Thus, the objectives of this workshop were trifold:

1. To get feedback from the decommissioning stakeholder's community on
    a. The first results of the project: domains with needs for research, the first analysis of existing solutions and on-going developments in each domain, and initial gap identification
    b. The methodology and schedule for next steps: gap analysis, SRA, Road Map
2. To coordinate with other international initiatives
3. To share with stakeholders the investigation of needs and existing innovative solutions or on-going developments, in order to be able to conduct a gap analysis and to provide, by the end of 2021, a strategic research agenda and a road map for potential future collaborative projects (R&D-I, Methodologies, Standardisation in technical and non-technical areas).

2.2. Agenda of the workshop

To do so the SHARE consortium organised a 3-day workshop that gathered around 250 people of the decommissioning field. This workshop was shared between plenary sessions to communicate on SHARE results and on other initiatives related to decommissioning and break out session dedicated to specific thematic areas to gather the endorsement and opinion of the stakeholders. Thus, the agenda was as follows:

Tuesday, December 1st morning, Plenary session

Starting time: 9:00 am CET

I – INTRODUCTION AND PRESENTATION OF SHARE ACHIEVEMENTS AT THIS STAGE

- **Welcome & Objectives and agenda of the workshop** by *Christine Georges, Coordinator of project "SHARE-Decommissioning", CEA (10min)*
- **Introduction by EU Project Officer**, by *Roger Garbil, Head of Euratom Research Fission Sector (15min)*
- **General presentation of the project**, *by Christine Georges, Coordinator of project "SHARE-Decommissioning, CEA (15 min)*

- **Results of the Stakeholders survey on needs for Research for decommissioning**, by *Emilio Garcia Neri, ENRESA (20 min)*

- **Review of best practices and on-going developments & Objectives of breakout sessions**, by *Antony Banford NNL (20min)*

II – INVESTIGATION OF NEEDS AND ON-GOING INTERNATIONAL INITIATIVES

10:40**: GLOBAL POINT OF VIEW OF END USERS**

- **EU programs in Decommissioning** by *Gianfranco Brunetti, European Commission (10 min)*

- **IAEA networks and activities related to D&ER** by *Olena MYKOLAICHUK, IAEA (10 min)*

- **NEA/ CDLM /RWMC** by *Rebecca Tadesse, NEA (10 min)*

- **NEA/ CPD** by *Martin Macasek, JAVYS (10 min)*

11:20**: ON GOING INITIATIVES (part 1)**

- **R&D activities for decommissioning of the Fukushima Daiichi NPS**, by *Takaki Tsujimoto, NDF (10 min)*

- **SNETP (Sustainable Nuclear Energy Technology Platform)**, by *Abderrahim Al Mazouzi, EDF (10 min)*

- **WNA 'Waste Management & Decommissioning (WM&D) Working Group'**, by *Michel Pieraccini, EDF (10 min)*

- **FORATOM RWM and Decommissioning Working group**, *by Berta Picamal, FORATOM (10 min)*

12:00: Lunch break

13:00: ***ON GOING INITIATIVES (part 2)***

- **R&D-I roadmap and on-going developments at EPR**I by *Rick Reid, EPRI (10 min)*

- **R&D-I roadmap for CANDU reactors** by *Paul Dinner, Candu Owners group (10 min)*

13:20: ***EXPLANATION OF LOGISTICS FOR BREAK-OUT SESSIONS***

- **Guidance and Demonstration of MURAL " post it sessions** ", *by Samantha Ree, NNL / Romain Tricon Duez, IEIC (20 min)*

13:40**: *End of plenary session* and switch to breakout sessions**

Tuesday, December 1st afternoon, Break-out sessions Part 1

During the break-out sessions, 5 groups will address 8 thematic areas.

Each session will start with presentations by leaders of relevant, recent or current initiatives in the thematic area, followed by a presentation of results from SHARE project in this associated sub-thematic areas.

Then, 'virtual' post it sessions will be organized (using MURAL tool) where participants will be asked to investigate the needs and on-going solutions/ developments in these specific sub-thematic areas.

Details of presentations and list of sub-thematic areas addressed in the different groups are given in Annex .

		Group A	Group B	Group C	Group D	Group E
Dec. 1st	13:50 (CET) 16:50	① **Safety and Radiological Protection**	② **Project Management and costing**	④ **Characterization**	⑥ **Dismantling technologies**	⑧ **Management of Waste**

Wednesday, December 2d, Break-out sessions Part 2

		Group A	Group B	Group C	Group D	Group E
Dec. 2nd	9:00 CET 11:00	① **Safety and Radiological Protection**	② **Project Management and costing**	④ **Characterization**	⑥ **Dismantling technologies**	⑧ **Management of Waste**
	11:20 12:00	⑦ **Environmental remediation and Site Release**				
	12:00- 13 :00 : lunch break					
	13:00 15:00	⑦ **Environmental remediation and Site Release**	② **Project Management and costing**	④ **Characterization**	⑥ **Dismantling technologies**	⑧ **Management of Waste**
	15:00 16:50		③ **Human resources management**			

Thursday, December 3rd, morning, Break-out sessions Part 3

		Group A	Group B	Group C	Group D	Group E
Dec. 3rd	9 :00 CET 12:00	⑦ **Environmental remediation and Site Release**	③ **Human ressources management**	④ **Characterization**	⑤ **Site preparatory activities**	⑧ **Management of Waste**

Thursday, December 3rd, Afternoon, Plenary

13:00: RESTITUTION OF WORK DONE IN BREAK OUT SESSIONS + Q/As

15:30: NEXT STEPS FOR SHARE AND NEXT EVENTS ABOUT DECOMMISSIONING & CONCLUSION OF THE WORKSHOP

16: 00: End the Workshop

2.3. Tools used

2.3.1. Plenary sessions

During plenary sessions following tools were used :

- Microsoft Teams for
  - Web conference,
  - Sharing of presentation,
  - Questions through the chat
- Google poll to gather the inputs on potential missing thematic areas non covered by SHARE at this stage

2.3.2. Breakout sessions

During breakout sessions following tools were used :

- Microsoft Teams for
  - Web conference,
  - Sharing of presentation,
  - Questions through the chat
- Google poll to gather the inputs on missing sub-thematic areas non covered by SHARE at this stage
- Mural© to organised post-it sessions on each sub- thematic area.

2.4. Organisation

The organisation of such an on-line workshop, taking benefit of the previous on-line SHARE workshop that took place only one month ahead, was quite a challenge with:

- more than 150 attendees
- 53 presentations altogether including 43 from international presenters out of the consortium
- 5 parallels break out sections on 8 thematic areas

- Use of MURAL and TEAMS at the same time with people not familiar to these tools
- Need for all members of the consortium to agree on the methodology, to be willing to participate actively in the animation of the break-out sessions and to get trained to the use of new IT Tools

This led to several preparatory meetings within the consortium in order to test the methodology of the MURAL session, to organise and train sessions teams. The allocation of tasks within the consortium in the different sessions is given below:

2.4.1. Plenary sessions

Actions in plenary sessions (1st day and 3rd day)	Responsible
Open Teams session 15 min ahead with introductory slide and get sure all participants can connect to teams sessions	Romain Tricon (IEIC)
Introduction of presenters in plenary	Christine Georges (CEA)
Moving of slides in plenary	Romain Tricon (IEIC)
To Launch poll after Emilio's presentation in the chat	Pierre Joly (IEIC)

2.4.2. Break out Sessions

Sessions teams during break-out sessions								
Sessions	1	2	3	4	5	6	7	8
Leader	Reika IFE	Fanny-CEA	Lucas IFE	Laura JRC	Junaid KIT	Junaid KIT	Frederica SOGIN	Anthony NNL
Person N°2	Frederica SOGIN	Istvan IFE	Istvan IFE	Kurt SCK-CEN	Simone KIT	Simone KIT	Jorge ENRESA	Sam NNL
Person N°3	Ludovic CEPN	Romain IEIC	Fanny CEA	Pierre IEIC	Gintautas /Adrius LEI	Gintautas /Adrius LEI	Ludovic CEPN	Christine CEA

With the following detailed repartition of roles applied:

Actions in break-out sessions	Responsible
To open all Teams session 15 min ahead with introductory slide	Romain Tricon (IEIC)
To help people enter if nobody with a team account in sessions 3, 5 and 6	Romain Tricon (IEIC) & Christine Georges (CEA)

To introduce the session with slide showing global program for the session	Session leader
To introduce presenters	Session leader
To present SHARE results after the guests' presentations	Session leader
To introduce MURAL sessions	Session leader
To Lead the first mural sessions (switch to show his/ her mural screen in TEAMS screen)	Session leader
Looks at chat in TEAMS to transfer from TEAMS to MURAL inputs from participants who cannot connect on MURAL	Session leader or 2nd Person or 3rd Person
To put post its with text from the survey to initiate the move	Session leader or 2nd Person or 3rd Person
To show from TEAM screen all slides (his and presenter's ones, saying "next")	2nd person
To share questionnaire by putting this message on the Teams chat when you are asking missing sub-thematic areas:	3rd person
To replace one of the 2 people in case of problem and to help as needed (too many post its, answer to questions in the chat, etc.)	3rd person
Contact through email / telephone (added in the program) through the total workshop in case of any problem with presenters, need for links for attendees, etc.	Christine (CEA)

3. Participants to the workshop

In the first plenary session (Tuesday 1st December) an average of 150 people were connected, in each break out session (from Tuesday afternoon to Thursday noon) an average of 15 to 35 people attended in each (theme) session (depending of the interest of the subject), and in the last plenary session (Thursday 3rd December afternoon), around 130 people were connected.

Due to the large number of participants and the holding of several simultaneous sessions (and our software limitation), it is not possible to give the detailed list of attendees here.

Nevertheless, the split of registered people by type of stakeholders and by country and are given below:

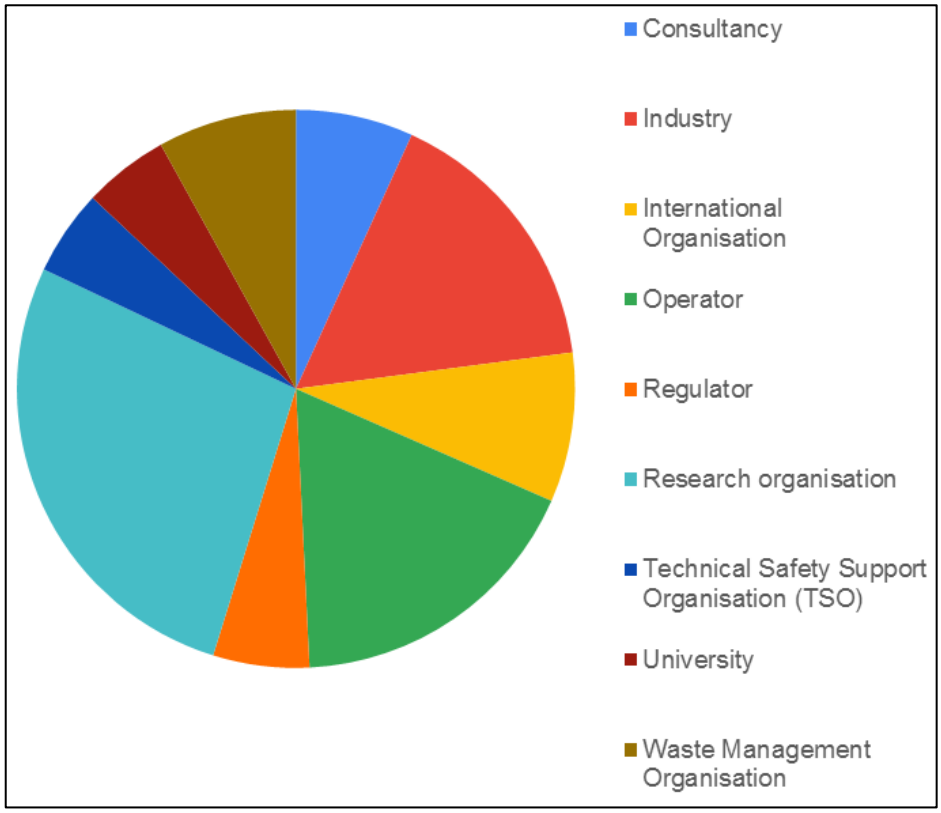

Figure 1: Stakholders repartition per type

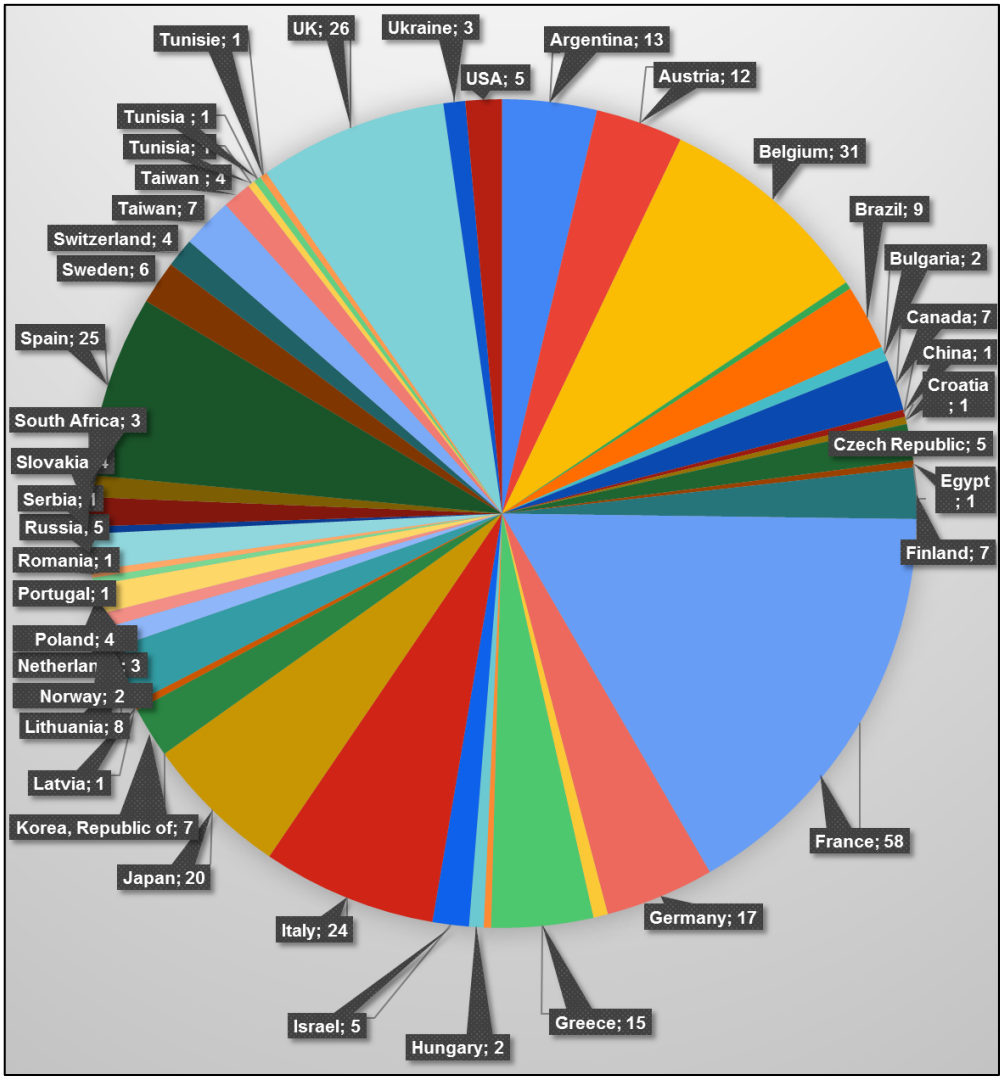

Figure 2:Stakholders repartition per country

4. Talks given

All presentations are available on SHARE web site: Link

4.1. Plenary sessions

In plenary sessions the following talks were given

- **EU programs in Decommissioning** by *Gianfranco Brunetti, European Commission (10 min)*
- **IAEA networks and activities related to D&ER** by *Olena MYKOLAICHUK, IAEA (10 min)*
- **NEA/ CDLM /RWMC** by *Rebecca Tadesse, NEA (10 min)*
- **NEA/ CPD** by *Martin Macasek, JAVYS (10 min)*
- **R&D activities for decommissioning of the Fukushima Daiichi NPS**, by *Takaki Tsujimoto, NDF (10 min)*
- **SNETP (Sustainable Nuclear Energy Technology Platform)**, by *Abderrahim Al Mazouzi, EDF (10 min)*
- **WNA 'Waste Management & Decommissioning (WM&D) Working Group'**, by *Michel Pieraccini, EDF (10 min)*
- **FORATOM RWM and Decommissioning Working group**, *by Berta Picamal, FORATOM (10 min)*
- **R&D-I roadmap and on-going developments at EPRI** by *Rick Reid, EPRI (10 min)*
- **R&D-I roadmap for CANDU reactors** by *Paul Dinner, Candu Owners group (10 min)*

4.2. In break out sessions

4.2.1. In Group 1 : Safety & Radiological Protection

- **IAEA Environet and NORM conference** *by Olena MYKOLAICHUK, IAEA (10 min)*
- **IAEA Project on Completion of Decommissioning (COMDEC),** *by Patrice François, IRSN (10min)*
- **NEA/CPD Report on Nuclear Site Remediation and Restoration during Decommissioning of Nuclear Installations,** by *Rebecca Tadesse, NEA (10 min)*

4.2.2. In Group 2 : Project Management & costing

- **Presentation of IAEA DACCORD (+ CERREX + ISDC, etc.)** *by Patrick O'Sullivan, IAEA (10min)*
- **Presentation of NEA activities relating to costing of decommissioning and legacy management** *by Niklas Bergh, Westinghouse (10min)*
- **Presentation of EU-H2020 Project PLEIADES** *by Caroline CHABAL, CEA (10min)*

4.2.3. In Group 3 : Human resources management

- **Presentation of IDN IAEA Wiki** *by Patrick O'Sullivan (10min)*
- **Presentation of EU Project ELINDER** *by Pierre Kockerols, JRC (10min)*
- **Presentation of ENEN** *by Joerg Starflinger (10min)*

4.2.4. In Group 4 : Characterization

- **Presentation of EU-H2020 Project INSIDER** *by Danièle ROUDIL, CEA (10min)*
- **Presentation of EU-H2020 Project MICADO "Measurement and Instrumentation for Cleaning And Decommissioning Operations"** *by Massimo Moricchi, CAEN (10min)*
- **Presentation of EU-H2020 Project CLEANDEM** *by Frederick Carrel, CEA (10min)*
- **Presentation of EU- EMPIR Metrodecom "Metrology for Decommissioning",** *by Ben Russell, NPL, (10min)*
- **Presentation of EU-H2020- CHANCE** *by Denise RICARD, ANDRA, (10min)*

4.2.5. In Group 5 : Site preparatory activities

- **Presentation of IAEA report on preparation of decommissioning** *by Patrick O'Sullivan (10min)*
- **Presentation of NEA Report "Preparing for Decommissioning During Operation and After Final Shutdown" (TGPFD)** *By Boris Brendebach, German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (10min)*

4.2.6. In Group 6 : Dismantling Technologies

- **Zoom on EPRI achievement et perspectives,** *by Rick Reid (10min)*

- **NEA EGRRS "Expert Group on the Application of Robotic and Remote Systems in nuclear back-end",** *by Rustam Stolkin, UK National Centre for Nuclear Robotics (10min)*
- **Presentation of EU-H2020 Project INNO4GRAPH** *by EDF (10min)*
- **Presentation of EU-H2020 Project LD-Safe** *by Pierre Daguin, ONET (10min)*
- **EU-H2020 RoMaNS** *by Rustam Stolkin (10min)*

4.2.7. In Group 7 : Environmental Remediation and Site Release

- **IAEA Environet and NORM conference** *by Olena MYKOLAICHUK, IAEA (10 min)*
- **IAEA Project on Completion of Decommissioning (COMDEC),** *by Patrice François, IRSN (10min)*
- **NEA/CPD Report on Nuclear Site Remediation and Restoration during Decommissioning of Nuclear Installations,** *by Rebecca Tadesse, NEA (10 min)*

4.2.8. In Group 8 : Management of material and radioactive waste from Decommissioning / Legacy Waste

- **IAEA IPN Achievements, on-going and future activities,** *by Rebecca Robbins, IAEA (10min)*
- **EU-H2020-ROUTE , survey on Waste with no route,** *by Elisa Léoni (10min)*
- **presentation of EU-H2020- PREDIS,** *by Erika Holt (10 min)*
- **IAEA Workshop on circular economy,** *by Vladimir Michal (10min)*
- **Presentation of NEA-CPD Task Group on Recycling and Reuse of Materials (TGRRM)** *by Bart Ooms, Belgoprocess N.V. (10min)*
- **Methodology to Manage Material and Waste from Nuclear Decommissioning- WNA,** *by Michel Pieraccini, EDF (10min)*

5. Conclusions – Outcomes of the Workshops

5.1. From WP3 leader : Antony Banford [NNL]

Work Package 3 focuses on three main activities that will feed into the development of the overall SHARE Roadmap (WP4). The tasks can be broadly described as; (i) understanding current available techniques and practices in decommissioning (internationally), (iii) identifying gaps between available techniques and the stakeholder needs, and (iii) to investigate methods of international collaboration.

This workshop allowed a large community of stakeholders to engage in these activities, and for the consortium to disseminate and share the work of the project team. The presentations form speakers with projects or communities working in decommissioning also contributed to the global understanding/sharing of ongoing activities and the experience in other projects of international collaboration.

During the thematic breakout sessions, teams of interested (and varied) stakeholders discussed a wide range of topics, facilitated by the SHARE team. These sessions were enlightening with active dialogue between participants and feeds into the needs/gap analysis tasks.

In general, one of the most reoccurring needs in the different sessions was related to the need of sharing experiences and best practices among the different organisation involved in decommissioning. This shows the relevance and importance of the SHARE project.

The data collected during the workshop will be used in WP3 activities for consolidating the knowledge about the available solutions and on-going activities (T3.1), for the following gap analysis (T3.2) and the methods of collaboration (T3.3) Each of these tasks subsequently feed into WP4 and the SHARE Roadmap.

5.2. From WP2 leader: Emilio Garcia Neri [ENRESA]

One of the added values of SHARE project is to collect the opinion of the global stakeholders decommissioning community, in order to know and understand what they see as their needs as key element to identify and prioritize the research and innovation for decommissioning. Theses opinions were initially collected through a dedicated questionnaire provided by WP2 and launched in May 2020.

This workshop gave us the opportunity to present the preliminary results from the survey to the stakeholders and to receive their feedback.

During the plenary sessions we could know the progress of other international initiatives contributing to exchange experiences related with decommissioning projects.

Finally, several post it sessions were organized considering the different thematic areas gathered on the questionnaire allowing enriching debates comparing needs, existing solutions and ongoing developments.

Information and feedback collected throughout the workshop will enhance the current analysis accomplished on the scope of WP2.

5.3. From the Coordinator : Christine Georges [CEA]

This workshop fulfilled its 3 initial objectives at best for an on-line workshop:

- We got feedback from a great panel of the decommissioning stakeholder's community on the first results of the project
- We opened the door to coordination with major international initiatives in the field of Decommissioning , including legacy waste management and environmental remediation on nuclear sites

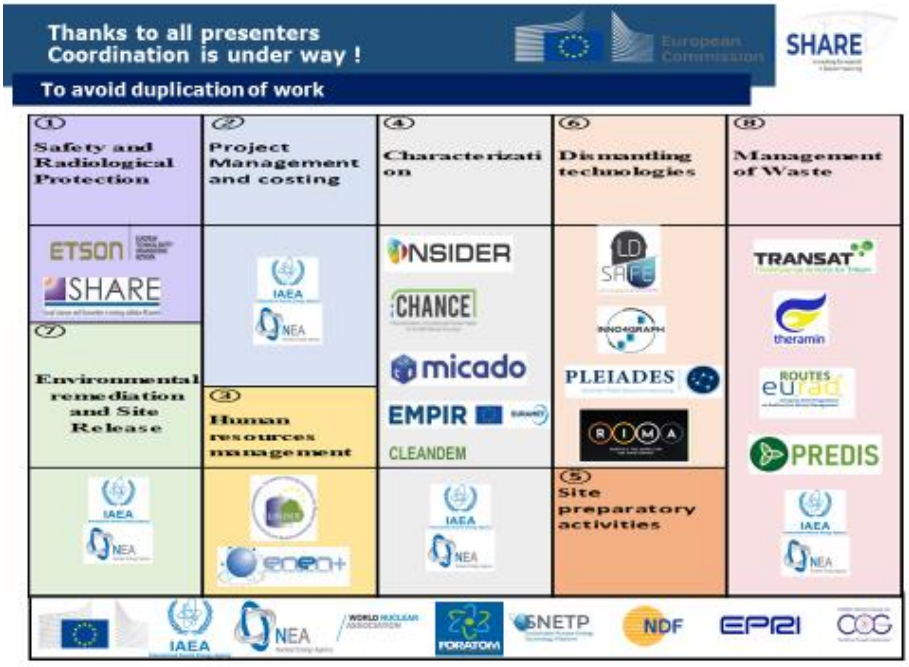

Figure 3 : Linked innitiatives

- we shared with stakeholders the investigation of needs and existing innovative solutions or on-going developments, sometimes even beginning gap analysis

In addition, we also gave them vision on our future work and future events: Ways to keep contact:

Figure 4 : Next major events

We now have to analyse all the inputs from this workshop and continue within the consortium the work started during the post it sessions to be able to conduct gap analysis and to provide, by the end of 2021, a strategic research agenda and a road map for potential future collaborative projects (R&D-I, Methodologies, Standardisation in technical and non-technical areas).

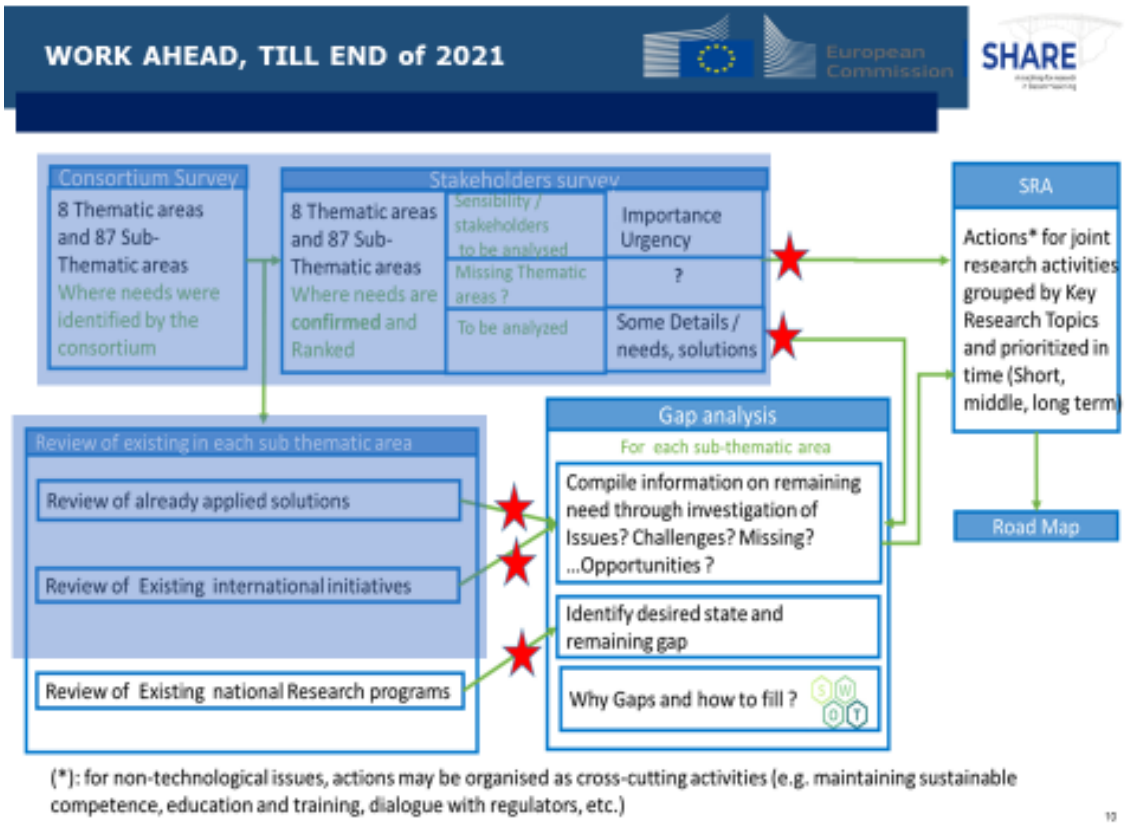

Figure 5 :Next steps

Annex 1 : Detailed list of break-out Sessions

GROUP A			
① Safety and Radiological Protection			
Dec. 1st	**9:00 CET- 13:40: Plenary session (see general program) and switch to breakout sessions**		
	International initiatives		
	13:50	1A	**Presentation of ETSON by Karine Herviou, IRSN (*10 min*)**
	14:00	1B	**Presentation of NEA Regulator forum, and /or presentation of NEA / CRPPH by Thierry Schneider , CEPN Association *(10 min)***
	14:10	1C	**Presentation of "SHARE" European Platform for Social Sciences and Humanities research relating to Ionizing Radiation, by Tanja Perko,**
	14:20	1D	Presentation of first achievements from SHARE in this area + introduction to post it session, by Reika Szoke, IFE
	14:40- 16:50 - Post it session by sub-thematic area		
		10	International harmonization of safety standards and safety
		11	Development / National regulatory guidance for Decommissioning: Preparatory activities
		12	Development / National regulatory guidance for Decommissioning: Dismantling
		15	Methods and tools for nuclear safety
Dec 2nd	**9:00 - 11:10 - Post it session by sub-thematic area**		
		13	Development / National regulatory guidance for Decommissioning: Clearance of structures and materials
		14	Development /National regulatory guidance for Decommissioning:
		17	Development of radiological protection approaches and guidance for
		16	Methods and tools for conventional industrial safety
⑦ Environmental Remediation and Site Release			
Dec 2nd	**International initiatives**		
	11 :20	7A	IAEA Environet and NORM conference by Olena MYKOLAICHUK, IAEA
	11:30	7B	IAEA Project on Completion of Decommissioning (COMDEC), by Patrice François, IRSN *(10min)*
	11:40	7C	NEA/CPD Report on Nuclear Site Remediation and Restoration during Decommissioning of Nuclear Installations, Rebecca Tadesse,
	11:50	7D	Presentation of first achievements from SHARE in this area + introduction to post it session, by Frederica Pancotti, SOGIN
	12:00- 13-00 Lunch Break		
	13:00- 16-50 Post it session by sub- thematic area		
		63	Characterization methods and technologies to identify subsurface

		64	Modelling and statistical tools to analyze contaminant transport in
		65	Soil remediation technologies (washing, bioremediation, contamination fixing)
		68	Tools for statistical analysis and management of survey data for site
Dec 3rd	**9:00- 12-00 Post it session by sub- thematic area**		
		62	Clearance of surfaces and structures (interiors and exteriors)
		66	Remediation of contaminated groundwater (radiological)
		67	Methodologies and techniques for final release survey of the Site
	12:00- 13-00 Lunch Break		
	13:00 CET - 16:00: Plenary session (see general program)		
GROUP B			
② Project Management & costing			
Dec. 1st	**9:00 CET- 13:40: Plenary session (see general program) and switch to breakout sessions**		
	International initiatives		
	13:50	2A	Presentation of IAEA DACCORD (+ CERREX + ISDC, etc.) by Patrick O'Sullivan, IAEA *(10min)*
	14:00	2B	Presentation of NEA activities relating to costing of decommissioning and legacy management by Niklas Bergh, Westinghouse *(10min)*
	14:10	2C	Presentation of EU-H2020 Project PLEIADES by Caroline CHABAL, CEA *(10min)*
	14:20	2D	Presentation of first achievements from SHARE in this area + introduction to post it session, by Fanny Fert, CEA
	14:40- 16:50 - Post it session by sub-thematic area		
		25	Methodologies and guidance for cost estimation
		28	Methods and tools for sensitivity and uncertainty analysis in cost estimation
		26	Software for cost estimation
Dec. 2nd	**9:00- 12:00 - Post it session by sub-thematic area**		
		19	Methodologies and software tools for comparison of alternative decommissioning strategies
		21	Tools for data collection in the field (e.g. for work monitoring)
		22	Digital transformation in decommissioning (big data, business intelligence)
		27	Development of mechanisms for cost benchmarking
	12h00- 13-00 Lunch Break		
	13:00- 15:00 - Post it session by sub-thematic area		
		24	Methods and tools for communication (public)

		20	Methodologies and software tools for project management and performance monitoring
		23	Supply chain management for Decommissioning
③ Human ressources management			
Dec. 2nd	**International initiatives**		
	15:10	3A	Presentation of IDN IAEA Wiki by Patrick O'Sullivan *(10min)*
	15:20	3B	Presentation of EU Project ELINDER by Pierre Kockerols, JRC *(10min)*
	15:30	3C	Presentation of ENEN by Joerg Starflinger *(10min)*
	15:40	3D	Presentation of first achievements from SHARE in this area + introduction to post it session, by Lucas Stephane, IFE
	16- 16:50: Post it session by sub-thematic area		
		32	General education for Decommissioning
Dec. 3rd	**9:00-12:00: Post it session by sub-thematic area**		
		31	Methods and software tools for knowledge management (e.g. competence preservation)
		33	Methodologies and tools for task specific training
		30	Organisation models (staff and resources)
	13:00 CET - 16:00: Plenary session (see general program)		
GROUP C			
④ Characterization			
Dec. 1st	**9:00 am CET - 13:40: Plenary session (see general program) and switch to breakout sessions**		
	International initiatives		
	13:50	4.A	Presentation of EU-H2020 Project INSIDER by Danièle ROUDIL, CEA *(10min)*
	14:00	4.B	Presentation of EU-H2020 Project MICADO "Measurement and Instrumentation for Cleaning And Decommissioning Operations" by Massimo Moricchi, CAEN *(10min)*
	14:10	4.C	Presentation of EU-H2020 Project CLEANDEM by Frederick Carrel, CEA *(10min)*
	14:20	4.D	Presentation of EU- EMPIR Metrodecom "Metrology for Decommissioning", by Ben Russell, NPL, *(10min)*
	14:30	4.E	Presentation of EU-H2020- CHANCE by Denise RICARD, ANDRA, *(10min)*
	14:40	4.F	Presentation of first achievements from SHARE in this area + introduction to post it session, by Laura ALDAVE-DE-LAS-HERAS, JRC
	15:00- 16:50: Post it session by sub-thematic area		

		36	Inventory assessment (Radiological and non-radiological)
		35	Methodology for historical site assessment
Dec. 2nd	**9:00- 12:00: Post it session by sub-thematic area**		
		37	Characterization of activated components and areas: Metal
		83	Characterization and survey of containerized radioactive waste
		39	Characterization of activated components and areas: Graphite
	12:00- 13-00: Lunch Break		
	13:00- 16:50: Post it session by sub-thematic area		
		53	In situ Radioactive Waste characterization and segregation
		40	Technologies for hard to access areas (high walls, embedded components, harsh environment…)
		42	Standards for statistical sampling
		44	Sample analysis technologies
		43	Geostatistical software applications
Dec 3rd	**9 :00- 12:00: Post it session by sub-thematic area**		
		38	Characterization of activated components and areas: Concrete
		45	Alpha and beta non-destructive measurements
		41	Development of modelling and simulation software for characterization of irradiated components
	12:00- 13-00: Lunch Break		
	13:00 CET- 16:00: Plenary session (see general program)		

GROUP D

⑥ Dismantling Technologies

Dec. 1st	**9:00 CET- 13:40: Plenary session (see general program) and switch to breakout sessions**		
	International initiatives		
	13:50	6A	Zoom on EPRI achievement et perspectives, by Rick Reid *(10min)*
	14:00	6B	NEA EGRRS "Expert Group on the Application of Robotic and Remote Systems in nuclear back-end", by Rustam Stolkin, UK National Centre for Nuclear Robotics *(10min)*
	14:10	6C	Presentation of EU-H2020 Project INNO4GRAPH by EDF *(10min)*
	14:20	6D	Presentation of EU-H2020 Project LD-Safe by Pierre Daguin, ONET ***(10min)***

	14:30	6E	EU-H2020 RoMaNS by Rustam Stolkin ***(10min)***
	14:40	6F	Presentation of first achievements from SHARE in this area + introduction to post it session, by Junaid Chaudhry, KIT
	15:00 – 16:50: Post it session by sub-thematic area		
		60	Robots and remote controlled tools for dismantling
		59	Demolition of large, reinforced concrete structures
Dec 2nd	**9:00- 12:00: Post it session by sub-thematic area**		
		58	Management (characterization, decontamination, removal) of radiological embedded elements)
		71	Mechanical Radioactive material decontamination
		72	Electrochemical Radioactive material decontamination
		57	In situ decontamination of building surface (concrete)
	12:00- 13-00: Lunch Break		
	13:00- 16:50: Post it session by sub-thematic area		
		51	Segmentation of large irradiated metallic components (reactor vessel internals, etc.)
		54	Segmentation of large surface-contaminated components
		52	Handling, segregation and loading of segmented elements and secondary waste
		55	Dismantling of surface-contaminated piping and small components
		56	Segmentation of interior concrete structures (e.g., bioshield)
Site preparatory activities			
Dec 3rd	**International initiatives**		
	9:00	5A	Presentation of IAEA report on preparation of decommissioning by Patrick O'Sullivan *(10min)*
	9:10	5B	Presentation of NEA Report "Preparing for Decommissioning During Operation and After Final Shutdown" (TGPFD) By Boris Brendebach, German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (*10min)*
	9:20	5C	Presentation of first achievements from SHARE in this area + introduction to post it session, by Junaid Chaudhry, KIT
	9:40 - 12-00 Post it session by sub- thematic area		
		49	Systems for internal decontamination
		48	Preparation of infrastructures and buildings for decommissioning (storages, capabilities for material sorting and treatment...)
		47	Adaption of auxiliary systems for decommissioning (ventilation, electrical, monitoring, etc.)

	12:00- 13-00 Lunch Break		
	13:00 - 16:00: Plenary session (see general program)		
GROUP E			
⑧ Management of material and radioactive waste from Decommissioning / Legacy Waste			
Dec 1st	**9:00 CET - 13:40: Plenary session (see general program) and switch to breakout sessions**		
	International initiatives		
	13: 50	8.A	IAEA IPN Achievements, on-going and future activities, by Rebecca Robbins, IAEA *(10min)*
	14: 00	8.B	EU-H2020-ROUTE, survey on Waste with no route, by Elisa Léoni *(10min)*
	14: 10	8.C	presentation of EU-H2020- PREDIS, by Erika Holt *(10 min)*
	14: 20	8D	IAEA Workshop on circular economy, by Vladimir Michal *(10min)*
	14: 30	8E	Presentation of NEA-CPD Task Group on Recycling and Reuse of Materials (TGRRM) by Bart Ooms, Belgoprocess N.V. *(10min)*
	14: 40	8F	Methodology to Manage Material and Waste from Nuclear Decommissioning- WNA, by Michel Pieraccini, EDF *(10min)*
	14: 50	8G	Presentation of first achievements from SHARE in this area + introduction to post it session, by Antony Banford, NNL
	15:10- 16:50: Post it session by sub-thematic area		
		70	Management routes for materials including radioactive waste streams
		76	Treatment processes for non-aqueous liquids
Dec. 2nd	**9:00 – 12:00: Post it session by sub-thematic area**		
		84	Material clearance (methodology and procedures + instrumentation and logistics)
		74	Treatment processes for concrete
		75	Treatment processes for aqueous liquids
		77	Treatment processes for organic materials
	12:00- 13-00 Lunch Break		
	13:00- 16-50: Post it session by sub- thematic area		
		86	Management of hazardous and toxic materials (asbestos, lead in paint, etc.)
		81	Radioactive waste conditioning

		82	Radioactive waste packaging and logistics
		80	Treatment processes for ILW
		78	Treatment processes for VLLW
Dec. 3rd	**9:00- 12-00: Post it session by sub- thematic area**		
		87	Conventional and cleared materials recycling (circular economy)
		73	Treatment processes for metals
		85	Material clearance (instrumentation and logistics)
		79	Treatment processes for LLW
	12:00- 13-00: Lunch Break		
	13:00 CET - 16:00: Plenary session (see general program)		

Annexe 2: Subjects addressed in each post-it session

1. In Group 1 : Safety & Radiological Protection

- International harmonization of safety standards and safety approaches / Decommissioning
- Development / National regulatory guidance for Decommissioning: Preparatory activities
- Development / National regulatory guidance for Decommissioning: Dismantling
- Methods and tools for nuclear safety
- Development / National regulatory guidance for Decommissioning: Clearance of structures and materials
- Development /National regulatory guidance for Decommissioning: Final site release
- Development of radiological protection approaches and guidance for Decommissioning
- Methods and tools for conventional industrial safety

2. In Group 2 : Project Management & costing

- Methodologies and guidance for cost estimation
- Methods and tools for sensitivity and uncertainty analysis in cost estimation
- Software for cost estimation
- Methodologies and software tools for comparison of alternative decommissioning strategies
- Tools for data collection in the field (e.g. for work monitoring)
- Digital transformation in decommissioning (big data, business intelligence)
- Development of mechanisms for cost benchmarking
- Methods and tools for communication (public)
- Methodologies and software tools for project management and performance monitoring
- Supply chain management for Decommissioning

3. In Group 3 : Human resources management

- General education for Decommissioning
- Methods and software tools for knowledge management (e.g. competence preservation)
- Methodologies and tools for task specific training
- Organisation models (staff and resources)

4. In Groupe 4 : Characterization

- Inventory assessment (Radiological and non-radiological)
- Methodology for historical site assessment
- Characterization of activated components and areas: Metal
- Characterization and survey of containerized radioactive waste

- Characterization of activated components and areas: Graphite
- In situ Radioactive Waste characterization and segregation
- Technologies for hard to access areas (high walls, embedded components, harsh environment…)
- Standards for statistical sampling
- Sample analysis technologies
- Geostatistical software applications
- Characterization of activated components and areas: Concrete
- Alpha and beta non-destructive measurements
- Development of modelling and simulation software for characterization of irradiated components

5. In Groupe 5 : Site preparatory activities

- Systems for internal decontamination
- Preparation of infrastructures and buildings for decommissioning (storages, capabilities for material sorting and treatment...)
- Adaption of auxiliary systems for decommissioning (ventilation, electrical, monitoring, etc.)

6. In Groupe 6 : Dismantling Technologies

- Robots and remote controlled tools for dismantling
- Demolition of large, reinforced concrete structures
- Management (characterization, decontamination, removal) of radiological embedded elements)
- Mechanical Radioactive material decontamination
- Electrochemical Radioactive material decontamination
- In situ decontamination of building surface (concrete)
- Segmentation of large irradiated metallic components (reactor vessel internals, etc.)
- Segmentation of large surface-contaminated components
- Handling, segregation and loading of segmented elements and secondary waste
- Dismantling of surface-contaminated piping and small components
- Segmentation of interior concrete structures (e.g., bioshield)

7. In Groupe 7 : Environmental Remediation and Site Release

- Characterization methods and technologies to identify subsurface contamination
- Modelling and statistical tools to analyze contaminant transport in subsurface soil and groundwater
- Soil remediation technologies (washing, bioremediation, contamination fixing)
- Tools for statistical analysis and management of survey data for site release

- Clearance of surfaces and structures (interiors and exteriors)
- Remediation of contaminated groundwater (radiological)
- Methodologies and techniques for final release survey of the Site

8. In Groupe 8 : Management of material and radioactive waste from Decommissioning / Legacy Waste

- Management routes for materials including radioactive waste streams
- Treatment processes for non-aqueous liquids
- Material clearance (methodology and procedures + instrumentation and logistics)
- Treatment processes for concrete
- Treatment processes for aqueous liquids
- Treatment processes for organic materials
- Management of hazardous and toxic materials (asbestos, lead in paint, etc.)
- Radioactive waste conditioning
- Radioactive waste packaging and logistics
- Treatment processes for ILW
- Treatment processes for VLLW
- Conventional and cleared materials recycling (circular economy)
- Treatment processes for metals
- Material clearance (instrumentation and logistics)
- Treatment processes for LLW