



# **PREDIS Gap Analysis Approach and Outcomes**

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## Introduction

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- A two-phase gap analysis was conducted for the PREDIS project to identify research and technology gaps in the predisposal management of radioactive waste:
- Phase 1 aimed to identify industry needs for research, development and demonstration and initially define the scope of the project; Phase 1 was performed during project preparation (Spring/Summer 2019),
- Phase 2 sought to further review, refine and prioritise project plans against identified needs and discern additional areas of interest; Phase 2 was carried out over the first eight months of the project (September 2020 to April 2021).



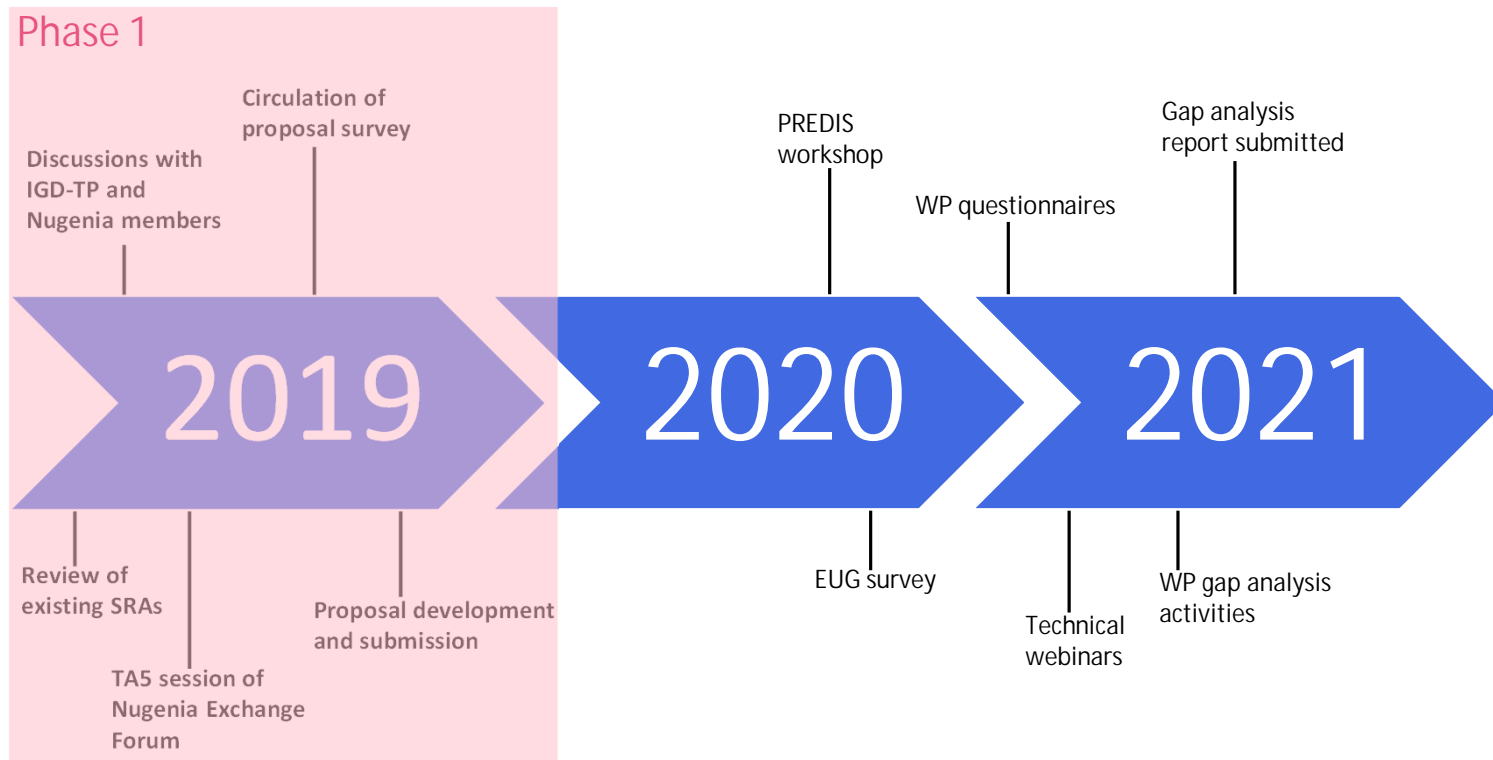
## Gap Analysis Objectives

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- Gaps of interest were those meeting the following criteria:
  - represent areas of clear and present need by many Member States (e.g., problematic wastes, wastes with large and/or increasing raw volumes),
  - represent opportunities for effective and immediate investment return (0- to 4-year horizon with an expectation of a jump in technology readiness (maturation) within that timeframe),
  - represent topics of importance to industry, with a commitment to implement (co-funding potential),
  - identified in Strategic Research Agendas of the community (i.e., EURAD, IGD-TP, SNETP/Nugenia).
- Gaps falling under the following areas were excluded:
  - represent specific decommissioning-related, disposal-related, high-level waste (spent fuel)-related technology RD&D topics sufficiently addressed elsewhere and outside the scope of the Euratom call (covered, e.g., by the EURAD and SHARE projects),
  - represent networking or coordinated action topics, for instance as handled by IAEA and OECD-NEA,
  - represent areas of limited need (few interested parties or Member State applicability).



# Timeline of Activities



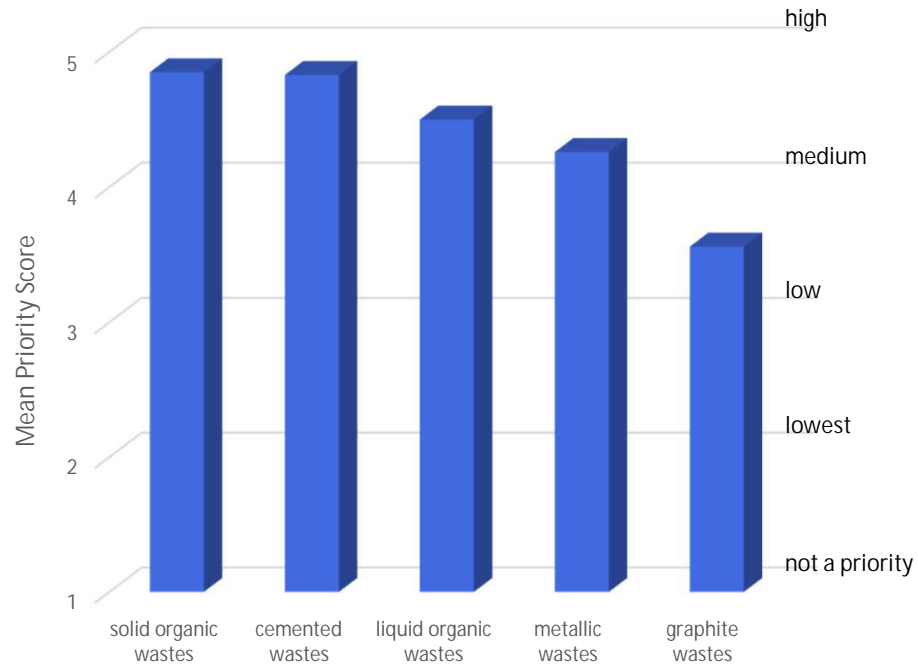
## Phase 1 Gap Analysis

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- Review of existing SRAs to consider important needs:
  - Nugenia Global Vision (Technical Area 5, 2015), JOPRAD Programme Document (Deliverable 4.2, 2018) and EURAD project founding documents (2019)
- Interactions with IGD-TP and Nugenia (now SNETP) members to get direct feedback on end user concerns:
  - inquiries, discussions, presentations
- Participation in Technical Area 5 Session of the Nugenia (now SNETP) Exchange Forum on March 15, 2019 to present potential RD&D collaboration topics:
  - openly solicited topics pitched
- IGD-TP and SNETP communities surveyed on proposed work:
  - Grouped into thematic work packages



## Which waste type should receive highest priority?



- ranking from 6 (highest) to 1 (not a priority)
- solid organic and cemented wastes most highly prioritised
- graphite wastes least prioritised



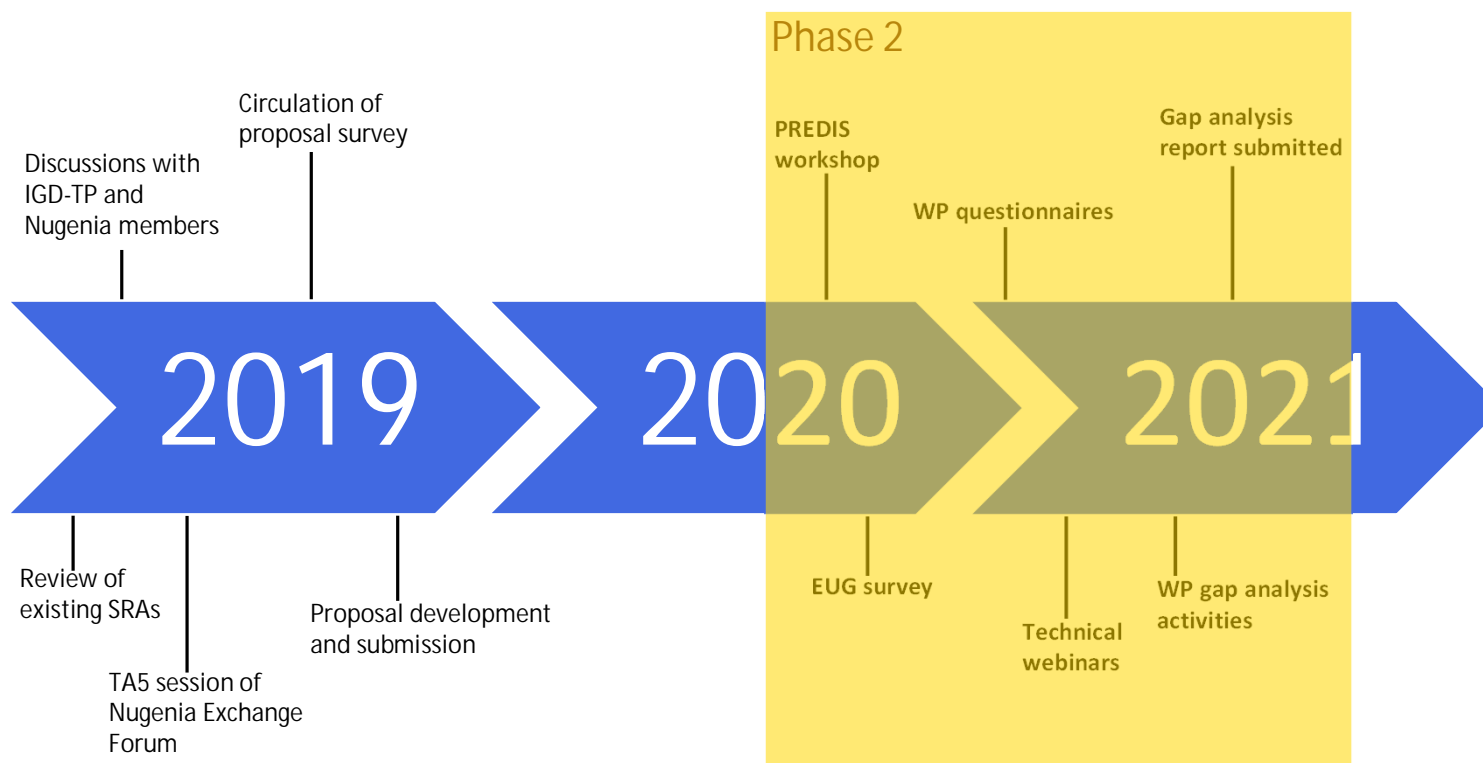
## Assessments of proposed work packages

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- Survey participants were also asked to assess the proposed work packages with respect to clarity, innovation aspect, relevance of technology development for the specific waste type and expected timeline seen for development needs.
- Survey results showed majority support for the research work packages on cemented waste, liquid organic waste, solid organic waste, metallic waste and qualification and acceptance of waste and that some topics could be left out of the proposal.
- Qualification and acceptance of waste was seen as important but could be included into the work plan as an incorporated aspect.
- Ultimately the proposal was formulated along four material waste streams with a strong emphasis on treatment and conditioning.



## Timeline of Activities





## Phase 2 Gap Analysis

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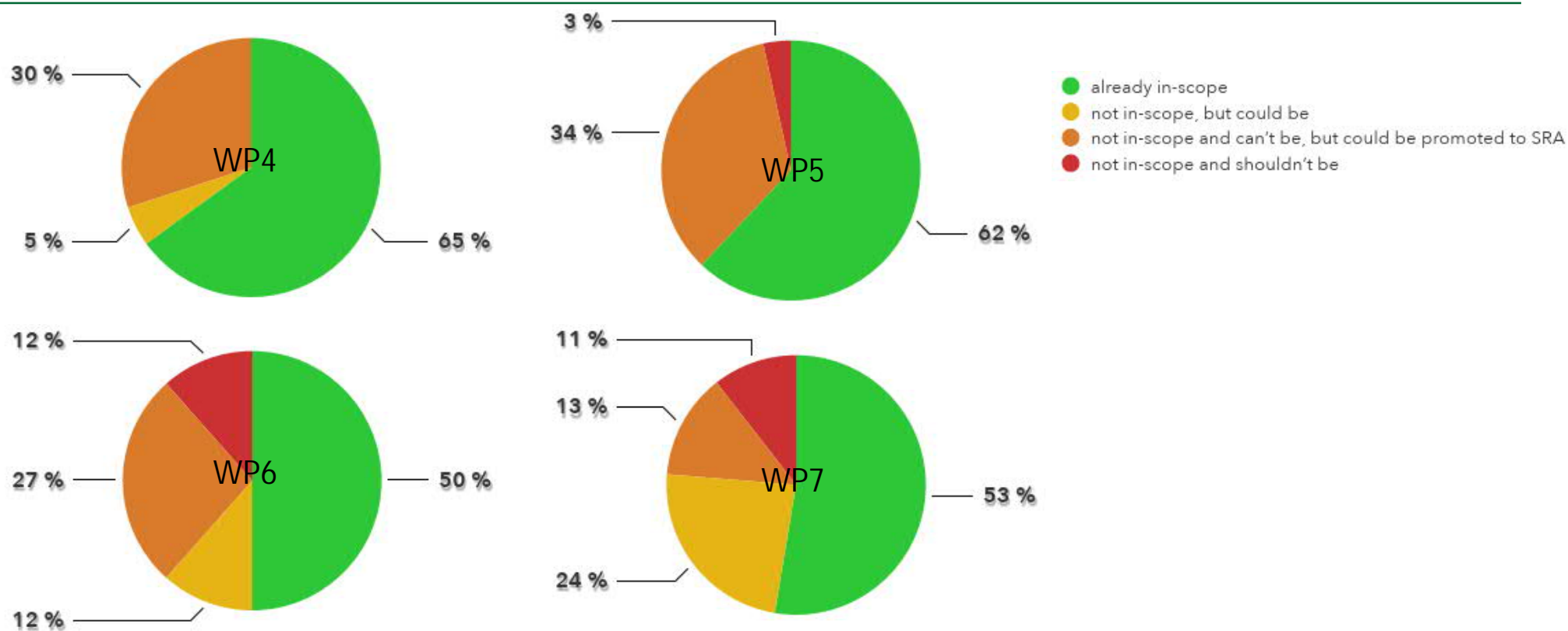
- EUG online feedback survey:
  - primary interests, challenges/needs, benefits
- EUG inventory survey WP4-6:
  - priority waste streams, quantities, physical state, characteristics
- WP7 SOTA Survey:
  - attributes, strategies, systems
- Technical Webinars
  - four public webinars corresponding to each technical WP held from January to March 2021, discussion sessions explored issues raised in presentations from invited speakers and partners, gathered information on future objectives and barriers, and solicited feedback on WP plans
- Internal WP activities:
  - literature reviews, mutual consultations with end users, specifying experimental work, etc.



- 133 topics/issues (gaps) identified by the Phase 2 gap analysis activities
  - 40 were associated with WP4 on metallic waste
  - 29 were associated with WP5 on liquid organic waste
  - 26 were associated with WP6 on solid organic waste
  - 38 were associated with WP7 on the monitoring and storage of cemented waste packages
- Categorized relative to the current scope of work in the relevant work packages, as being 1) **already in-scope**, 2) **not in-scope, but could be**, 3) **not in-scope and can't be, but could be promoted to the SRA** or 4) **not in-scope and shouldn't be**.



## Findings by WP



- Of the identified gap topics/issues:
  - 58% are already in the scope of the PREDIS technical work packages
  - 26% are consistent with PREDIS project interests but were not amenable for inclusion during the project lifetime
  - 11% are both relevant to PREDIS project interests and potentially manageable for inclusion during the project lifetime
  - 5% are outside PREDIS project interests
- The project was originally well-designed as most of the identified topics/issues are already being addressed; only 11% may lead to any readjusting



## Concluding Remarks

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- Phase 1 of the PREDIS gap analysis gathered inputs from the end user community which lead to focusing the project on four specific waste streams having the highest urgency and importance across Member States.
- Phase 2 of the gap analysis provided further insights into end user needs, challenges and priorities and widened the level of engagement and reach of the project leading to opportunities to further align the project scope for more benefit.
- Gap analysis deliverable (D2.2) was published in May 2021 and is available on the PREDIS website (<https://predis-h2020.eu/>)



## Next Steps

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- The outcomes of the Phase 2 Gap Analysis are being assessed relative to refining the scope of work for the technical WPs:
  - specifically, those topics/issues identified as being “not in-scope, but could be” are considered for incorporation into the PREDIS project
  - this consideration is the subject of the following short presentations by the WPs
- many of the topics that are flagged in the Gap Analysis can also be considered for integration into the future Strategic Research Agenda to be produced by PREDIS as public Deliverable D2.4 due at Month 44 (April 2024)

