

# WP 6: Access to infrastructures

**Task 6.1. Promote the visibility of selected research infrastructures** (Lead: NMBU; Partners: IRSN, CIEMAT, CEA, ExB members)

## ***Subtask 6.1.1 Listing the infrastructures***

(Lead: IRSN; Partners: CIEMAT, CEA, ExB members; LTP: NMBU)

## ***Subtask 6.1.2 Develop and update quality criteria and lists of recommended infrastructures***

(Lead: CIEMAT; Partners: IRSN, CEA, ExB members, LTP: NMBU)

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## ***Subtask 6.1.1 Listing the infrastructures***

**(Lead: IRSN; Partners: CIEMAT, CEA, ExB members; LTP: NMBU)**

- Extend the **lists of relevant large infrastructures** generated within some European projects (DoReMi, STAR/COMET, MERIL) with information from other European Platforms (EURADOS, NERIS) and other non-EU countries.
- The list should include large infrastructures for:
  - External, internal and combined exposure.
  - Human and biological studies, including those for animal and plant experiments (both laboratory and field facilities).
  - Epidemiological cohorts
  - Biobanks
  - Databases
  - Analytical platforms (including e-infrastructures).
  - Others: e.g. monitoring in emergency situations

## ***Subtask 6.1.1 Listing the infrastructures***

**(Lead: IRSN; Partners: CIEMAT, CEA, ExB members; LTP: NMBU)**

### **Key activities during the 1<sup>st</sup> year of CONCERT:**

- Compilation of a list (with links) comprising all of the previously listed infrastructure across all research domains (**M9**)

### **Starting point for CONCERT:**

- MELODI:
  - D/M4.1 Review of infrastructures in DoReMi (Version 2) Nov 24 2011
  - List of large infrastructures
- ALLIANCE:
  - STAR D2.2 Infrastructure: databases, sample banks, methods and facilities for radioecological Research 06/07/2012 (Not public).
  - List of large radioecology infrastructures
- EURADOS
  - List of large radioecology infrastructures (needs to be updated).
- NERIS, does not have a list of relevant infrastructures for emergency and post-emergency situations.

## ***Subtask 6.1.2 Develop and update quality criteria and lists of recommended infrastructures***

***(Lead: CIEMAT; Partners: IRSN, CEA, ExB members, LTP: NMBU)***

Development and updating of quality criteria for each infrastructure type including:

- *Irradiation facilities for External Exposure.*
- *Irradiation facilities for Internal Exposure.*
- *Observatory Sites/Combined Exposures (internal and external).*
- *Existing epidemiological cohorts and biobanks for:*
  - *Modelling studies.*
  - *Molecular epidemiological studies.*
- *Prospective collections developed from already existing cohorts.*
- *Databases (STORE, ERA, JANUS, FREDERICA, radioecology databases, others?), as well as those relevant to emergency preparedness.*
- *“OMICS” platforms including: transcriptomics; epigenomics; proteomics; metabolomics and fluxomics.*
- *Biodosimetry platforms.*

## ***Subtask 6.1.2 Develop and update quality criteria and lists of recommended infrastructures***

***(Lead: CIEMAT; Partners: IRSN, CEA, ExB members, LTP: NMBU)***

Technical characteristics to be considered in each infrastructure:

- ***Irradiation facilities for External Exposure:*** characteristics of the beam, range of dose rates, typical exposure conditions, precision of dosimetry, modalities of access, types of organisms irradiated, wet lab availability, etc.
- ***Irradiation facilities for Internal Exposure:*** accessibility, activity measurement services, models, methods and software, the possibility to gather biokinetic/bioaccumulation data, types of organisms used, route of exposure, etc.
- ***Observatory Sites/Combined Exposures (internal and external):*** accessibility, type and source of radionuclides, dosimetric/exposure aspects, type and extent of remedial measures that can be implemented, models for radioecological environmental transfer, atmospheric dispersion and dose assessment (close collaboration of NERIS and ALLIANCE).

## ***Subtask 6.1.2 Develop and update quality criteria and lists of recommended infrastructures***

**(Lead: CIEMAT; Partners: IRSN, CEA, ExB members, LTP: NMBU)**

Technical characteristics to be considered in each infrastructure:

- ***Existing epidemiological cohorts and biobanks for:***
  - Modelling studies: cohort size, time of follow-up, quality of disease determination and coding, quality of individual exposure assessment, potential confounders, etc.
  - Molecular epidemiological studies: level of conservation of the biological material, assays that can be performed, accessibility to biological material and databases, number of available samples, etc.
- ***Prospective collections developed from already existing cohorts*** providing the necessary basis for biomarker research in the coming decades taking advantage of the new 'omics and NGS technologies (e.g. childhood CT studies, active nuclear workers cohorts, large national birth cohorts included in the International Consortium).

## ***Subtask 6.1.2 Develop and update quality criteria and lists of recommended infrastructures***

***(Lead: CIEMAT; Partners: IRSN, CEA, ExB members, LTP: NMBU)***

Technical characteristics to be considered in each infrastructure:

- ***Databases*** including those for archived material and data from laboratory radiobiology experiments (STORE, ERA, JANUS, etc.), for radioecology (FREDERICA and radioecological databases), and those relevant to emergency preparedness.
- ***“OMICS” platforms*** including transcriptomics; epigenomics; proteomics; metabolomics and fluxomics. *Priority will be given to those with well-defined accessibility and access to bioinformatics and statistics support and services.*
- ***Biodosimetry platforms.*** The infrastructures needed for research and harmonization in the field of dosimetry have to consider various exposure conditions and scientific domains, including: legal authorizations, fundamental concepts and quantities, epidemiology, occupational exposures, environmental monitoring, emergency preparedness, medical applications, etc.

## ***Subtask 6.1.2 Develop and update quality criteria and lists of recommended infrastructures***

**(Lead: CIEMAT; Partners: IRSN, CEA, ExB members, LTP: NMBU)**

### **Key activities during the 1<sup>st</sup> year of CONCERT:**

- Preparation of a list of quality criteria for all types of research infrastructure (**M12**).
- Application of the list of quality criteria to develop a list of recommended research (**M12**).

### **Starting point for CONCERT:**

- MELODI/DoReMi established selection criteria for:
  - Irradiation facilities for external exposure
  - Irradiation facilities for internal exposure
  - Data sharing platforms, cohorts and biobanks
  - 'omics and analytical facilities.
- EURADOS has contributed to establish selection criteria for some facilities (external and internal dosimetry; biodosimetry platforms).
- Need input from ALLIANCE and NERIS

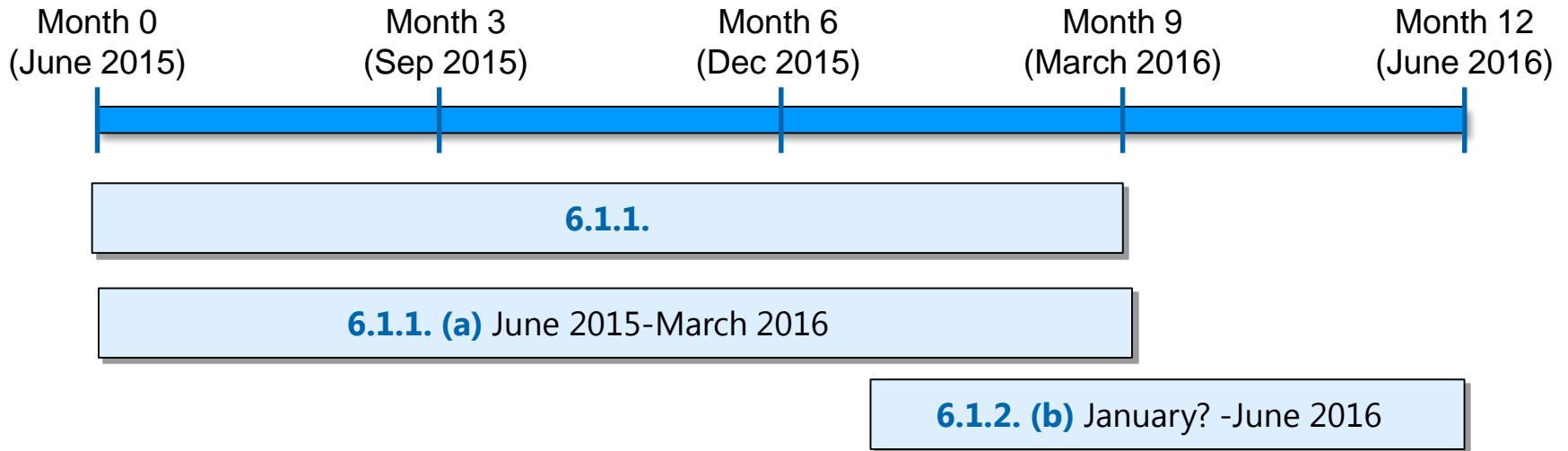


## Subtask 6.1.2 Develop and update quality criteria and lists of recommended infrastructures

(Lead: CIEMAT; Partners: IRSN, CEA, ExB members, LTP: NMBU)

Infrastructure	Selection Criteria	Example
<p><b>Irradiation platforms for external exposure</b> <i>types of infrastructures to be considered:</i></p> <ul style="list-style-type: none"><li>- <i>photons (cells and/or animals; acute/protracted exposures)</i></li><li>- <i>particles (cells and/or animals; acute/protracted exposures)</i></li></ul>	<ul style="list-style-type: none"><li>- <b>modalities of access</b> to the facility (collaboration, scientific committee, ...); support from local staff</li><li>- <b>exposure possibility</b> of cells, of animals, of both</li><li>- <b>wet-lab</b> availability (before and after exposure); availability of instrumentation for biological measurements; animal facility; health certificates for animals</li></ul>	<p>Mature facilities <i>(ready to immediate use):</i></p>

# Work plan for the 1<sup>st</sup> year of CONCERT

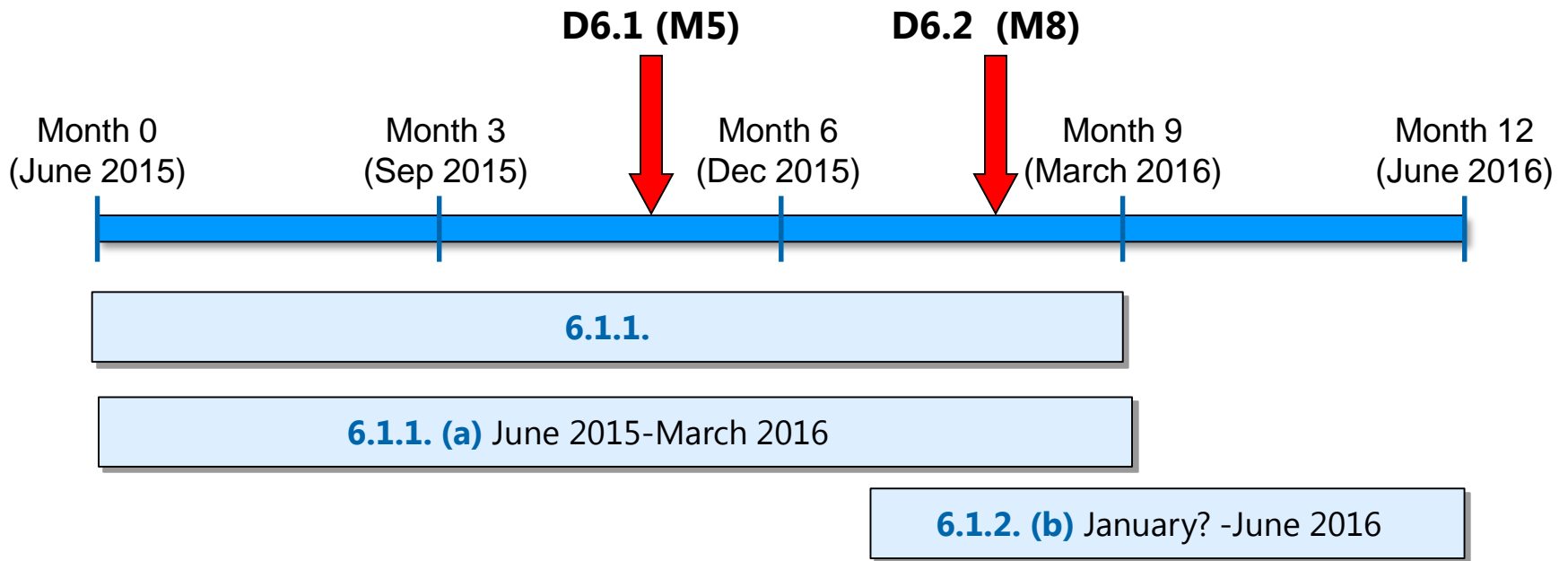


**6.1.1.** Compilation of a list (with links) comprising all of the previously listed infrastructure across all research domains (M9)

**6.1.2. (a)** Preparation of a list of quality criteria for all types of research infrastructure (M12). No need to wait for the final list of infrastructures to start the work in 6.1.2(a).

**6.1.2.(b)** Application of the list of quality criteria to develop a list of recommended research (M12).

# Work plan for the 1<sup>st</sup> year of CONCERT



**D6.1.** Recommendations for infrastructure related topics for the 1st CONCERT call and Recommendations for funding schemes to support infrastructure use for the 2nd CONCERT call input to WP3.

**D6.2** List of recommended infrastructures for radio protection research.