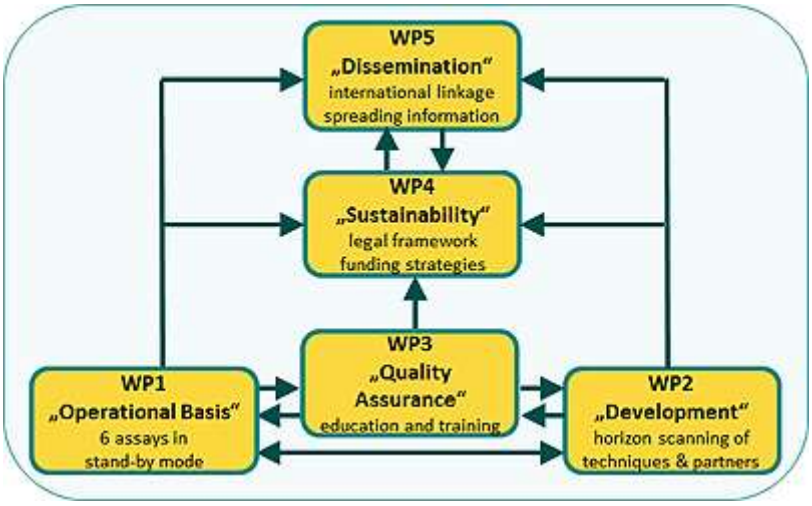
What is RENEB?

Realizing the European Network of Biodosimetry (RENEB) is a Coordination Action (CSA-CA) project founded within the 7th EU framework EURATOM Fission Programme. The RENEB project was launched on January 1st 2012, and it is planned to be carried out until the end of the year 2015. The project is coordinated by Bundesamt für Strahlenschutz, the German Radiation Protection Authority.

The concept of RENEB

Creating a sustainable network in biodosimetry that involves a large number of experienced laboratories throughout European Union (EU) will significantly improve dose assessment capacity. Provision of rapid, comprehensive and standardised methodology will improve the emergency response in case of large- scale radiological event In Europe. The goal of RENEB is to establish sustainable European network in biological dosimetry involving laboratories and organisations from 16 countries that can support in a coordinated way the response in case of major nuclear or radiological emergency in Europe. The established network can become a part of EU radiation emergency management. The 23 organisations participating in RENEB were identified by the previous activity - a Support Action Project founded by EURATOM (FP7), TENEB: Towards a European Network of Excellence in Biological Dosimetry. This goal of RENEB will be achieved through realizing following workpackages:



This goal of RENEB will be achieved through realizing following tasks:

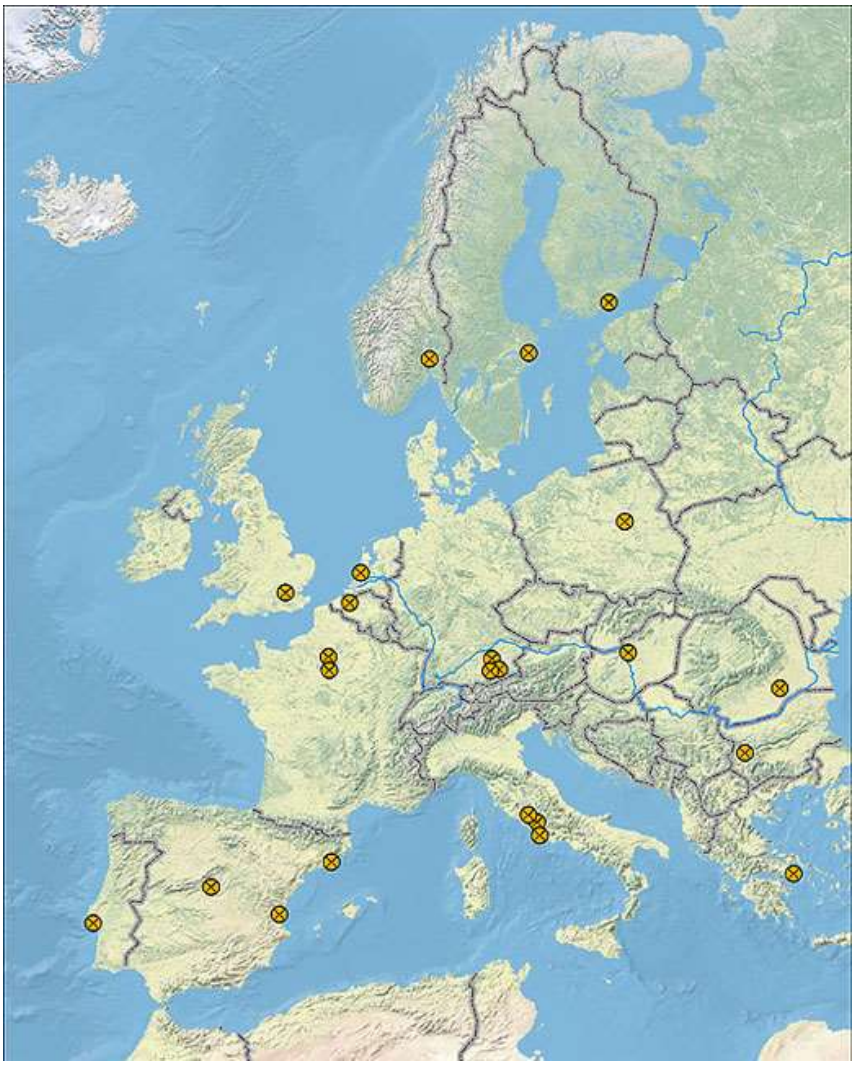
- To create an operational basis of the network based on coordination of the laboratories that perform existing reliable and proven methods in biological dosimetry.
- To provide the basis to expand and improve the network implementing appropriate new, molecular biology methods and integrating new partners.
- To assure high quality standards by education and training activities of members and interested non-members of the network with special focus on quality assurance and management (QA&QM) both regarding assays and involved laboratories.
- To develop an operational structure of the network including:
  - contacts to national first responders;
  - a well organised transnational infrastructure;
  - a long term funding strategy;

  and preparation of an agenda to transform RENEB into a legal organisation.
- To guarantee dissemination of knowledge by:

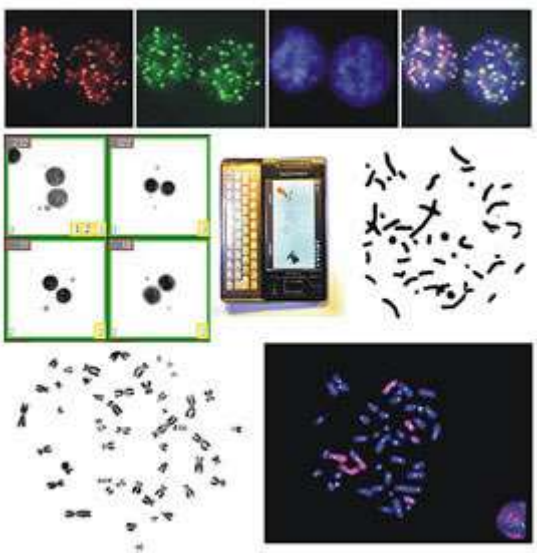
  a. providing access to internal and external communication platforms and databases:
  b. close cooperation with national and global emergency preparedness systems and organisations.

The project is organised in 6 work packages. Each work package is subdivided into several tasks.

All RENEB WPs and their tasks are linked. They will complete each other. Close interaction will be especially established between the WP 1 , 2, and 3. Tasks of WP 4 and 5 will promote achievements of WP 1-3.



Work Packages (WP) description:

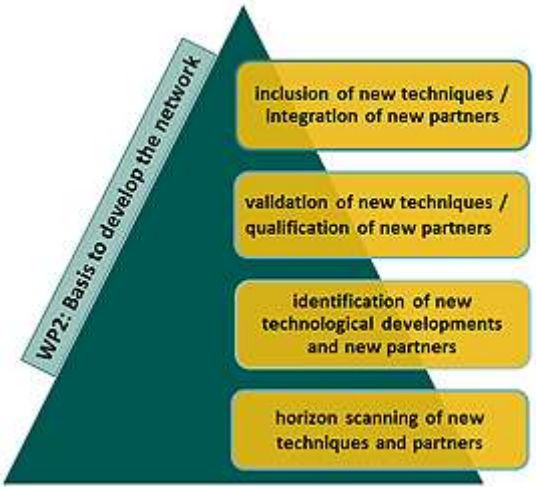


WP1: Operational Basis of the Netwok

will define and establish the operational basis of the network, based on harmonisation and standardisation of the dicentric assay, FISH assay, micronucleus assay, PCC assay, Gamma-H2AX assay and EPR/OSL assay on personal objects.
Currently, the best methods of biological dosimetry are based on the analysis of chromosomal damage (dicentric assay, micronucleus assay and translocations detecting assays) in blood cells and electron paramagnetic resonance in bone and tooth enamel. These methods have been validated in a number of small-scale radiation accidents and have been shown to be reliable tools for individual dose assessment.
A number of new biodosimetric methods have recently been introduced, such as premature chromosome condensation (PCC), fluorescence in situ hybridisation

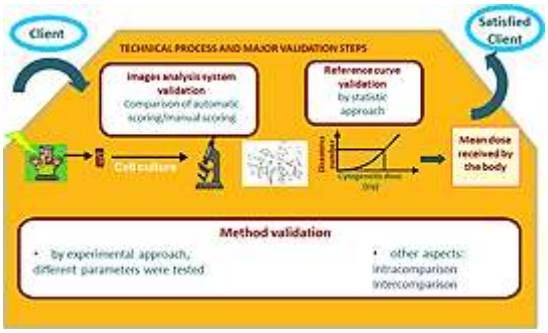
(FISH) and DNA damage detecting assay - γ-H2AX. In addition, the EPR/OSL method on personal objects (portable electronic devices, chip cards), although strictly speaking not a biodosimetric method, has been shown to have the potential to be an excellent supplementary dosimetry tool. As has been shown in TENEB survey (www.teneb.eu) one or more of these methods are established in many European laboratories, but what is lacking is formal networking, which would facilitate the standardisation of the assays. RENEB will provide a framework for regular intercomparison studies and accident exercises that will guarantee rapid response and reliable dose estimates from all partner laboratories. In this regard, RENEB will run a "ready to use" operational basis which starts with 6 established biodosimetric tools, namely the dicentric assay, the FISH assay, the micronucleus assay, the PCC assay, the γ-H2AX assay and electron paramagnetic resonance/optically stimulated luminescence - EPR/OSL. All these techniques will be compared, standardized and harmonized in the participating laboratories to guarantee the highest possible reliability and accuracy.

WP2: Basis to Develop the Network



will establish tools to identify new technological developments, showing potential for biological dose estimation in emergency situations, will prepare a roadmap to identify, validate and integrate new technologies or methodology and will provide a basis to identify, attract, and integrate new network partners.

The RENEB network is not designed to be a static or closed consortium, the sustainability will rather depend on openness and the ability to react in a flexible way towards new situations. This implies the awareness of new technological developments as well as dealing with the loss and gain of network members. Therefore it will be the aim of WP 2 to support RENEB by developing a roadmap of how to identify, verify and integrate new technologies and members into the existing network. Specific procedures for attracting new members will also be developed. This will help to assure the continuation of the network far in excess of RENEB.



WP3: Education, Training and Quality

will aim to harmonise dosimetry procedures within the network, develop regular training exercises, implement requirements of international standards and set up a quality assurance and management (QA&QM) programme within the consortium. WP 3 will establish an education & training programme for both members and non-members of the network and will develop a long-term training. The WP3 will also work for connection of the RENEB training programme to European and international training courses.

The best operational conditions result directly from the preparedness of the network before the event. Such provisions include harmonisation of procedures among the individual laboratories, retention of qualified staff, knowledge of the laboratory capacity in crisis situations and common training through implementation of periodic exercises.

A Quality Assurance & Quality Management (QA&QM) programme is also included as an essential part of WP3. It is necessary for the network that the results will be homogeneous across all associated laboratories, irrespective of the particular organisation of the laboratory. For dicentric assay ISO standards provide standardised guidance for all partners in order to perform the dicentric assay in a reproducible and accurate manner. For the EPR technique and micronucleus assay ISO standards are currently under preparation. For the assays that are among operational basis for RENEB for which standards are not yet available, parts of the existing standards will be adapted.

WP4: Establishing the Organisational Structure

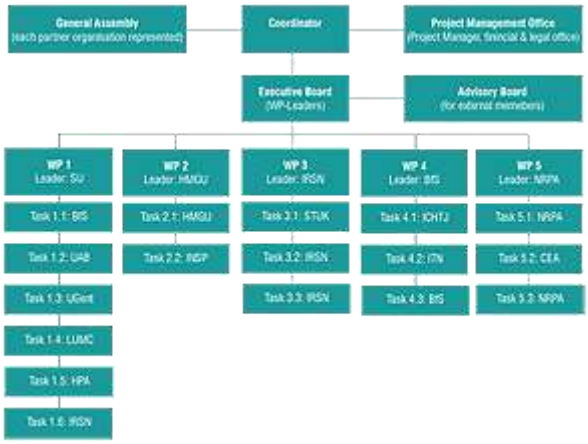
will set up the hierarchical, communicational and logistical infrastructure to establish an operational biodosimetry network in Europe, link the network to national first responder and disaster management units, provide a long-term funding strategy for the network by connecting RENEB capabilities to the European research area and by establishing links to public health organisations. Finally will WP4 attempt to establish a legal framework for the network.
(read more)

RENEB will need a formal legal status to act as an official unit. This will be based on the development of an appropriate agenda which is valid in all countries of the partner organisations and respects the intrinsic ethical standards. In addition to the legal framework

financial support is needed to keep the network alive. In this context, funding options beyond the emergency preparedness system will offer an independent source to allow active operations. A long-term funding strategy will be provided by connecting RENEB capabilities to the European research area and by establishing links to public health organisations. The network with its capability to analyse large numbers of samples can contribute to the wider field of radiation protection.

WP5: Dissemination of Knowledge

will disseminate and promote network activities. This will be done by establishing of web pages with public and restricted access and establishing an internal database for education, training and quality purposes. Moreover, WP5 will work for maintaining of the sustainability of the network by interactions with European and international organisations, European Union agencies and national bodies involved in emergency preparedness and response.



WP6: Management

will be addressing the organisational aspects of the performance of the project. Specifically, WP6 will present the project as a whole, manage and coordinate the meetings, report to the commission, monitor the overall progress in the project and disseminate the results. WP6 will be in charge of the link to the Advisory Board, and will support the organisation of workshops and meetings of the consortium WPs if needed.

RENEB Coordinator: Ulrike Kulka | E-mail