



The overall objective of RRADEW is to enhance nuclear emergency preparedness, response, and recovery (EPR&R) systems by developing methodological and technological approaches to strengthen resilience in the context of war or armed conflict disasters.

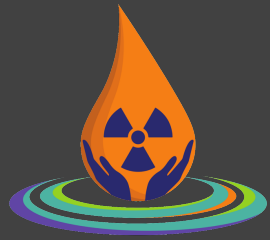
** "CAPACITY TO RESIST, ABSORB, ACCOMMODATE, ADAPT TO, TRANSFORM, AND RECOVER FROM THE EFFECTS OF A RADIATION EMERGENCY IN A TIMELY AND EFFICIENT MANNER"*



RRADEW

RESILIENCE TO **R**ADIOLOGICAL **E**VENTS*
IN **W**ARTIME

PASCAL CROÛAIL – CEPN
BUDAPEST – 06.12.2023



14 PARTNERS WHO ARE WE?

RADEW

NMBU

NORWAY - UNIVERSITY OF LIFE SCIENCES

LU

SWEDEN - LUND UNIVERSITY

UKHSA

UNITED KINGDOM - HEALTH SECURITY AGENCY

KIT

GERMANY - KARLSRUHE INSTITUTE OF TECHNOLOGY

SCK-CEN, UA

BELGIUM - NUCLEAR RESEARCH CENTER + UNIVERSITY OF ANTWERP

USB

CZECHIA - UNIVERSITY OF SOUTH BOHEMIA

ISPNNP, NRCRM

UKRAINE - INSTITUTE FOR SAFETY PROBLEMS OF NPPS + RESEARCH CENTER FOR RADIATION MEDICINE

CEPN, IRSN, ENSOSP

FRANCE - NUCLEAR PROTECTION EVALUATION CENTER + IRSN + FIRE OFFICERS ACADEMY

APA

PORTUGAL - ENVIRONMENT AGENCY

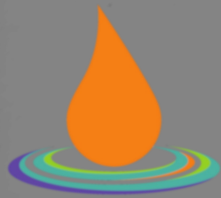
CIEMAT

SPAIN - RESEARCH CENTRE FOR ENERGY, ENVIRONMENT & TECHNOLOGY

+ **THE PROJECT STAKEHOLDER GROUP - PROSG**

+ **COLLABORATIONS TO BE ESTABLISHED WITH JAPAN & BALKANS (E.G. BOSNIA, CROATIA) (FOR CASE STUDIES/SURVEYS)**






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STARTING POINT & OBJECTIVE WHERE DO WE STAND?

- *War in Europe: nuclear facilities and contaminated sites under threat or even under attack!*
- *Existing studies and RP guidelines have not yet taken account of the context of armed conflicts, although radiation protection in such situations presents a number of notable challenges, including: the lack of a clear legal framework; a potentially limited access to affected areas; possible damages to critical infrastructures such as transport, electricity supply, water or communication; deterioration of hospitals able to deal with radiation emergencies; limited trained personnel and equipment; difficulties to assess radiation exposure; disruptions and barriers in communication; radioactive sources lost or destroyed; etc.*
- *Furthermore, the safety and well-being of affected populations may be compromised by the ongoing hostilities, making it difficult to identify and prioritise radiation protection countermeasures.*

 *There is a strong need to better understand the robustness of principles that govern radiation protection, and Emergency Preparedness, Response, and Recovery (EPR&R) strategies in a context of armed conflicts or a war, and to identify needed amendments in guidance to enhance resilience.*

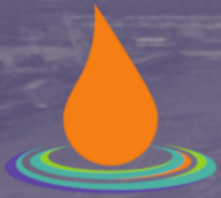


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WORK PACKAGES

WHAT DO WE WANT TO DO?

- **WPO** CEPN – **COORDINATION**, WEBSITE, DMP, COP, PROJECT STAKEHOLDER GROUP
- **WP1** ISPNPP – WAR **SCENARIOS** LEADING TO RADIOLOGICAL CONSEQUENCES
- **WP2** KIT – CHARACTERISATION (DIMENSIONS, ATTRIBUTES & INDICATORS), ANALYSIS AND ASSESMENT OF **RESILIENCE** (INCL. ANALYTICAL PLATFORM)
- **WP3** IRSN – **CASE STUDIES** ON RESILIENCE (OF FIRST LINE RESPONDERS, AUTHORITIES, NGOS, LOCAL COMMUNITIES) : UKRAINE, CZECHIA, BALKANS, JAPAN
- **WP4** NMBU – **STRATEGIES** FOR BUILDING RESILIENCE (SCENARIO EXERCISES, DESIGN OF TRAINING COURSES FOR RESPONDERS, RECOMMENDATIONS)
- **WPS** USB – **ETHICAL** CHALLENGES & OTHER CROSS-CUTTING ISSUES

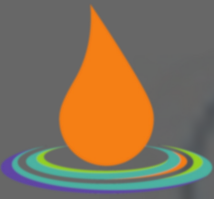


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KEY MILESTONES WHERE ARE WE GOING AND WHEN?

FROM 1 FEBRUARY 2024 TO 31 JULY 2026 (30 MONTHS)

- KICK-OFF MEETING (FRANCE - M1)
- PROJECT STAKEHOLDER GROUP CONSTITUTED (M6-M12)
- WORKSHOP ON ETHICAL CHALLENGES (CZECHIA - M8)
- SCENARIO MATRIX (M15)
- 2 DISSEMINATION WORKSHOPS (~M13, ~M22)
- 4 CASE STUDIES BASED ON ON-THE FIELD SURVEYS (M18-25)
 - **UKRAINE:** STAKEHOLDER AND PEOPLE'S BEHAVIOURS – DOSIMETRY CAPABILITIES
 - **CZECHIA:** POSSIBLE EXTENSION OF RUSSIA-UKRAINE WAR IN NEIGHBOUR COUNTRIES
 - **BALKANS:** FIRST RESPONDERS AND NGOS DURING ARMED CONFLICTS (YUGOSLAVIA WARS)
 - **JAPAN:** SIMILARITIES AND LESSONS LEARNED FROM DISRUPTIVE CATASTROPHES (MINAMISOMA CITY AFTER THE FUKUSHIMA ACCIDENT)
- TRAINING MATERIAL FOR FIRST RESPONDERS AND DECISION-MAKERS (M17-30)
- SCENARIO EXERCISES (M20-29)
- RESILIENCE ANALYSIS PLATFORM (M20-29)
- FINAL WORKSHOP (UKRAINE - M28) AND RECOMMENDATIONS (M30)



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DELIVERABLES EVEN WAR HAS AN END!

- **FINAL WORKSHOP** (EXPECTED IN UKRAINE 40Y AFTER THE CHORNOBYL ACCIDENT)
- **TOPICAL PHDS**
- **DECISION AIDING TOOLS (DSS) & TECHNIQUES AND TRAINING MATERIAL**
- **FINAL REPORT SET OF RECOMMENDATIONS COVERING:**
 - **EVACUATION-SHELTERING, ITB, RESTRICTIONS**
 - **SCENARIO BUILDING, MODELISATION, MONITORING, DOSIMETRY**
 - **RP COUNTERMEASURES AND RECOVERY STRATEGIES**
 - **STAKEHOLDER ENGAGEMENT AND ETHICS**



BETTER UNDERSTAND AND IMPROVE THE **RESILIENCE CAPACITIES IN CASE OF WAR OR ARMED CONFLICT**