# German Approaches to Monetary Value of Person Sievert Saved

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# US Monetary value on Person-Rem avoided

- NATC ISOE Information Sheet # 02-6: **Monetary Value of Person-Rem Avoided**

  - Background: European Regional Technical Center requested the NATC to collect data on the current monetary value used at NPPs.

# US Monetary value on Person-Rem avoided

- Discussion:

  1. Plant management utilizes a variety of consideration to evaluate capital investment budgets at NPPs.

  2. Improvements in reactor safety, efficiency and dose reductions are key considerations in evaluation of plant modification and equipment investments.

  3. Plant management approves a monetary value to be used in evaluation in dose reduction proposals.

# US Monetary value on Person-Rem avoided

- Results:
  1. The median value of dose avoided is $12,500.
  2. Average value is $14,038 per person-rem avoided.
  3. The highest was $ 40,000 per person-rem avoided.
  4. Lowest value was $5,000 per person-rem avoided.

# US Monetary value on Person-Rem avoided

- Summary:

  The monetary value per person-rem avoided allows competing modifications to be evaluated in a consistent manner.

  However, the goal of radiation protection management and the ALARA philosophy is to optimize occupational dose.

# German approach, Cost-Benefit Analysis

- Objective and constraints:
  1. Preparation of objective, well-founded decisions on taking dose-reducing measures.
  2. Practicable integration in (health physics) plant activities.
  3. Simple applicability.
  4. Quantitative optimization in consideration of legal requirements.
  5. Matching with the international state of the art.

# German approach, Cost-Benefit Analysis

- Measures within the scope of the CBA:
  - Mobile shielding
  - Stationary shielding
  - Decontamination for dose reducing purposes
  - Procurement of tools
  - Remote control of repair work
  - Mechanization/automation
  - Replacement of primary circuit materials
  - Alteration of processes and modes of operation
  - Optimization of chemical parameters in the primary circuit

# German approach, Cost-Benefit Analysis

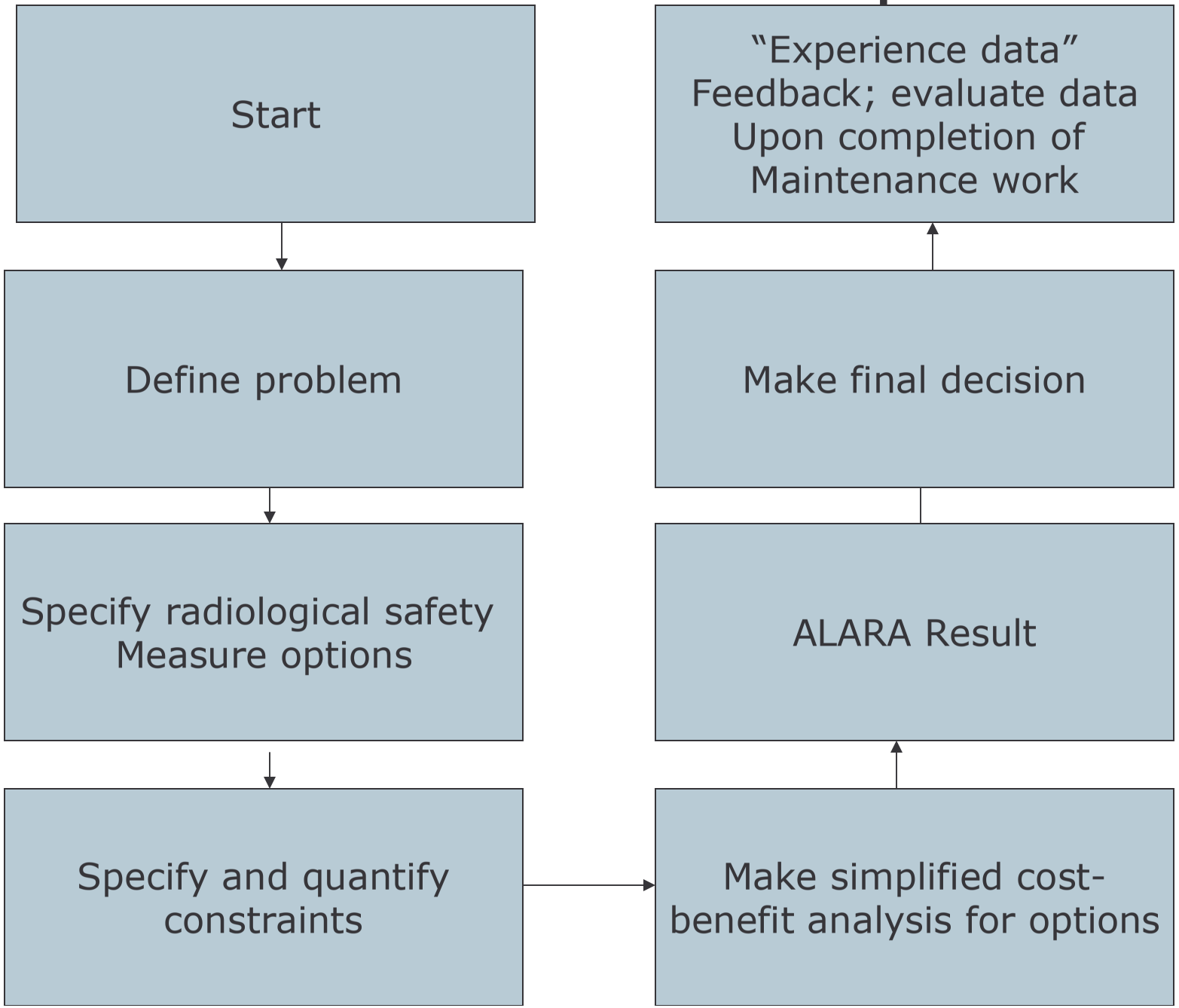
- Measures outside the scope of the CBA:
  - Exposure in the vicinity of the plant
  - Decontamination and air radioactivity control measures
  - Personal Protection equipment
  - Shielding for radiation measuring purposes
  - Measures aiming at lowering the probability of event-related radioactivity releases

# German approach, Cost-Benefit Analysis

- Simplified cost-benefit analysis :
  - α-value

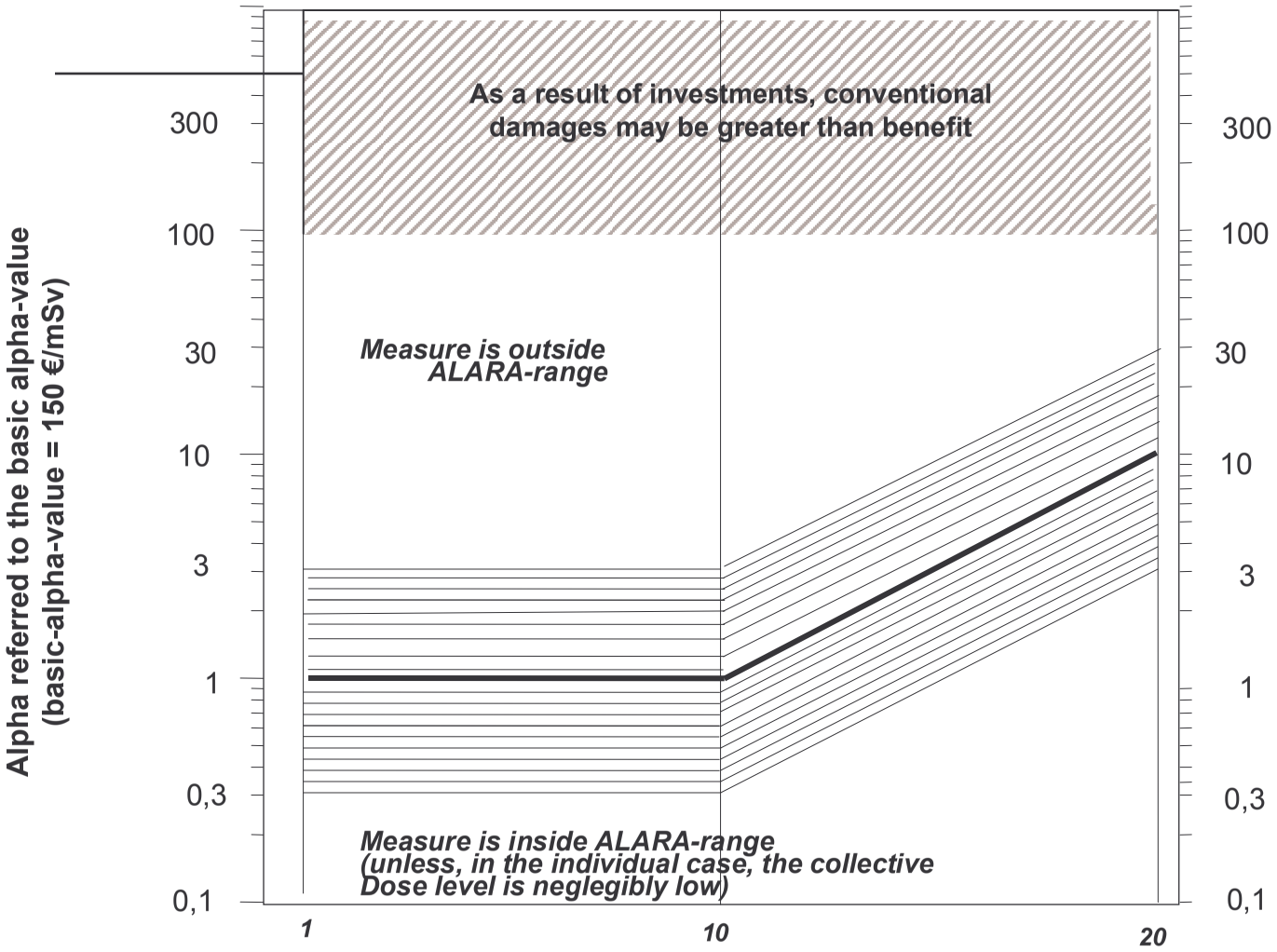
    α-value is a reference value by which the reasonability of a considered radiological safety measure is assessed.
  - Is individual verses collective dosed based

# Structured Sequence



# *Alpha-value diagram of cost -benefit analysis*

***Dependence of alpha-value on the individual dose the employees are exposed to***
***Basic alpha-value = 150 €/mSv***




*(Typical individual dose per annum for single employee groups)*

# German approach for US policy consideration

- We are being ask to:
  - Support
  - Be neutral with ICRP
  - Continue with current model