The history of the methodology development from 2014

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  - Activities and results

Need for harmonised presenting

- Diversity of national RW classifications and RW class definitions (objectives, backgrounds, historical traditions, etc.);
- Variety of national solutions on RW/SF management strategies and disposal routes;
- Absence of harmonised presentation format for both national and international applications;
- Need to compare national SF/RW inventories within international programmes (JC, EC Directive 2011/70, Status and Trends Project) and for national strategic planning;
- Need to consider SF/RW inventories in connection with management strategies and disposal routes (EC Directive 2011/70).

EGIRM - Expert Group on Inventorying and Reporting Methodology

- RWMC survey of RW classifications in the NEA Countries (2013);
- RWMC-46 (2013) interested in working on the predisposal management of all RW, including harmonized RW/SF data interpretation for establishing global inventories;
- RWMC Bureau (Dec 2013) adopted the creation of an expert group focused on developing a universal methodology for presenting of national RW inventories in common scheme
- Expert group established at RWMC-47 (March 2014)

Creation of EGIRM: RWMC- 47

- Origin of need: “Status and Trends Project on Spent Fuel and Radioactive Waste” of OECD/NEA, IAEA and EC
- Interest for common methodology for inventory reporting?
  - Requests from IAEA: JC, NEWMDB, country profiles
  - NEA country profiles
  - EC reporting in framework of directive 2013/70/EURATOM
- Mission to develop a methodology:
  - Consistent with national inventories
  - Best achievable comparability in international programmes
- No intension to revise classification scheme’s
- No intension to organise data collection

EGIRM objectives:

1 stage 2014-2016

- Develop a universal methodological tool that allows a shared understanding, comparison and compilation of inventory data of different countries.
- Supporting with methodology NEA members in preparing their National Report for the Joint Convention and the European Directive 2011/70;
- Proposing this methodology as NEA contribution to the joint project with the IAEA on “Status and Trends” in RWM.

2nd stage 2016-2018

- Expanding the methodology to cover all national radioactive waste and spent fuel inventory data in connection with all management strategies based on the disposal routes; testing on several inventories (volunteers are appreciated); proposal to the joint project “Status and Trends” for presenting radioactive waste and spent fuel data in publications.

EGIRM structure

Chair person - Geert Volckaert /Belgium (FANC);

Vice chair - Mathews George /US (NRC) / Mario Dionisi /Italy (ISPRA);

Expert group:
- Michele Tallec/A.Leclerc /France (ANDRA);
- Mike Garamszeghy /Canada (NWMO);
- Karin Kugel /Germany (BMU);
- Sergey Deryabin /Russia (Rosatom)

Secretariat: NEA RWMC – Vladimir Lebedev

IAEA; EC – invited

Later joint:
- Bengt Hedberg (SSM, Sweden);
- Dominique Dapeil (WNA);
- Elodie Petry (ANDRA) in replacement of A. Leclerc

Requirements to methodology (I)

- **Methodology shouldn't replace GSG-1 and provide any new RW classification scheme.** It should be only the additional instrument for comparison and compilation (if necessary) of data from different countries.
- Methodology should be mostly technically oriented tool based on technical aspects of final disposal routes.
- Taking into account variety of strategies of management for the similar RW classes in different countries, methodology should be focused on decisions and strategies accepted in countries regarding each RW class.
- Methodology should present RW groups to provide clear and unambiguous understanding what RW is presented in given group and what disposal strategy is specified for it.
- Number of groups should be reasonably minimal.

Requirements to methodology (II)

- Methodology eventually should be simple, applicable to all existing national RW classification schemes, different sizes of SF/RW management problems and cover all kinds of radioactive materials considered RW. It shouldn't require significant efforts from countries' representatives for application (recalculations, complicated assessments, etc.) and should be friendly to users.
- Methodology should use universal units for all RW classes and consider the comparable forms of RW (e.g. solid, conditioned, ready for disposal). It should operate with clear and legible definitions.
- Methodology should be tested on several national RW classification schemes and then distributed between NEA countries for approval.

EGIRM I

- Main focus on spent fuel and reprocessing waste
- Overview of classification scheme's: IAEA and national
- Specific issues discussed
  - Which level of detail e.g. research reactors, NPP's, types of NPP's, types of fuel (UOX, MOX, metallic,…)?
  - How to report inventories of countries using an other countries reprocessing capacity?
  - Which units to use tHM or m^3 for spent fuel?
  - For countries providing reprocessing activities: how to report inventory of spent fuel from other countries not yet reprocessed and reprocessing waste not yet returned?
  - Definitions of different types of underground and surface repositories

EGIRM I: start of methodology

- Vary wide variety of situations in different countries
- 1° proposal of reporting with rather complex table
  - Lots of details about
    - Types of spent fuel and reprocessing waste
    - Types of reactor
    - Locations
    - …
- Gradual “simplification” of table was needed in order to be consistent and representative
  - focus on reporting implementation of strategy towards disposal and “as is” state

EGIRM I main outcomes

- Inventory reporting focussed on overview of state of implementation of a countries waste management policy towards disposal
- Development of a reporting table that shows on 1 A4 sheet the state of implementation of spent fuel management and of waste disposal
- Development of tool as aid to complete the table
- Spent fuel should be reported in tHM and only differentiated between NPP and other fuel
- Definition of 4 types of waste disposal installations: 2 underground and 2 near surface
- Testing of the methodology by countries with “complex” spent fuel and reprocessing inventories e.g. FR, US, RU, DE, IT, BE, …
- Conversion table to IAEA classification scheme GSG-1 included

Further development of EGIRM: RWMC-49

- EGIRM I report approved
- Extension of EGIRM mandate for 2 years
  - Extension to all types of radioactive waste
  - Promoting methodology among potential implementers
  - Providing proposals on harmonising in case of high added value
  - Investigate possible methods for improved quality of data
  - Study potential for web-based version of presenting tool
- Continuation with same group of countries
- Continuation of interaction with IAEA and EC, ENSREG WG2,…

EGIRM II

- Main focus: extension of methodology to other types of MLW, LLW, VLLW, NORM…
- Specific issues
  - Report waste volumes or mass
  - Report waste as is “at time of reporting” or recalculated to “as disposed”
  - Definitions of different types of other types of repositories
  - Discussion on development of “electronic” reporting tool and possible link with IAEA NEWMDB
  - Flexibility of methodology for different situations and degrees of detail
  - Flexibility of methodology for historic situations or prognosis

EGIRM II main outcomes 1/2

- Inventory reporting focussed on overview of state of implementation of a countries waste management policy towards disposal
- Methodology extended to allow for different degrees of detail but with “loss of overview”=> table can be several pages long
- Time evolution should not be included in same table but trough use of e.g. table for past, current and prediction at specified reference time
- Extension of tool as aid to complete the table
- Definition of several other waste disposal installations e.g. borehole disposal
- Testing of the methodology by countries with “complex” inventories

EGIRM II main outcomes 2/2

- Decision to organise this EGIRM workshop
- Further testing of the methodology for wide variety of situations
- Preparation of Final EGIRM report to be approved at RWMC 51 (2018)

Interaction with IAEA and EC throughout EGIRM

- IAEA and EC invited to EGIRM working meetings
- Analysis of inventory reporting requirements or interests
  - IAEA JC, NEWMDB, country profiles
  - EC directive 2011/70/EURATOM
- Efforts for harmonisation
  - Terminology
  - Understanding of data
  - Proposal to IAEA to use EGIRM terminology for "repository types" => should allow "easy" generation of EGIRM presentation of inventory data