

Progress towards implementation of national programmes and KPIs

Technical position – ENSREG WG2

October 2023

1. Context & Objectives

The Council Directive 2011/70/Euratom (hereafter “Directive”) defines obligations on EU Member states (MSs) for a national programme (Articles 11 and 12) and for reporting to the Commission on the implementation of the Directive every three years (Article 14) (hereafter “National Report”).

The national programme is a tool or roadmap for the implementation of national policies into practical solutions (management systems, facilities, activities, ...) for spent fuel and radioactive waste management. The Directive requires a MS to regularly review and update its national programme, taking into account technical and scientific progress as appropriate, as well as recommendations, lessons learnt and good practices from peer reviews.

Since Directive 2011/70/Euratom was adopted, guidelines have been produced to assist Member States in the implementation of the Directive:

- the Guidelines issued by ENEC Working Group NAPRO on national programmes in January 2013 with suggestions on the contents and possible structure of the national programme;
- the Guidelines issued by ENSREG Working Group 2, first in May 2014¹ and revised in December 2017², on the structure and contents of the National Reports.

These Guidelines, to be read in conjunction with the text of the Directive, have no legal status, neither do they set out to conclusively interpret, modify or extend the obligations of the Directive, i.e. the text of the Directive prevails. The ENSREG Guidelines are based on a consensual understanding by ENSREG of the obligations of the Directive and their use by MSs is voluntary.

Three reporting cycles have been accomplished (National Reports 2015, 2018 and 2021). The obligation of reporting on progress made towards implementation of the national programme, as formulated in Article 12 1. g), remains a challenge for MSs, especially w.r.t. the use of KPIs. This challenge was clearly identified in the Report from the Commission to the Council and the European Parliament on progress of implementation of Council Directive 2011/70/EURATOM and an inventory of radioactive waste and spent fuel present in the Community's territory and the future prospects

(COM/2019/632 final, December 2019). It has also been the subject of the “Study on Key Performance Indicators for monitoring implementation of national programmes on safe and long-term management of spent fuel and radioactive waste” (reference ENER/2020/NUCL/SI2.827547, April 2021).

This Technical position document was developed by ENSREG WG2 to provide elements of clarification and guidance to Member States on the tools for monitoring progress achieved in the implementation of national policies through their national programme, and the role of KPIs in this respect. It is based on the shared experience of MSs, through ENSREG, with the progress towards implementation of national programmes and the use of KPIs. It also takes notice of the information, analysis and recommendations in the April 2021 Study referred above.

¹ <http://www.ensreg.eu/document/final-guidelines-ms-reports-waste-directive>

² <http://www.ensreg.eu/document/guidelines-reporting-directive-2011-70-euratom>

2. Reporting on progress on implementation

The Directive requires MSs to report every three years on the implementation of the Directive, while the periodicity to review and update the national programme is left to the discretion of a MS. The National Report has to cover all elements of implementation of the Directive, including the implementation of the national programme for the management of all types or categories of radioactive waste and spent fuel under the jurisdiction of the MS and for all stages of management from waste generation till disposal.

MSs shall notify to the Commission their national programmes (first time August 2015) and any subsequent significant changes. What should be considered a significant change is left, in first instance, to the discretion of a MS to decide, taking into account the requirement to regularly review and update its national programme as stipulated in article 11.2.

The ENSREG Guidelines on the National Report specifically address the issue of progress and reporting on progress towards implementation at several points:

- ***Article 14.1 of the Directive requires Member States to report, on a three yearly cycle, on the implementation of the Directive. In the opinion of ENSREG, Member States should demonstrate and illustrate in their reporting how they have fulfilled their obligations under the Directive for each of the requirements. They should report actual progress and that planned to be made in the future related to the requirements of the Directive, i.e. they should report progress on the responsible and safe management of spent fuel and radioactive waste to avoid imposing undue burdens on future generations. ENSREG considers the National Report to be a tool for assessing and communicating changes and progress since the previous National Report (e.g. with respect to the implementation of the national programme), while still reporting on the entirety of obligations of the Directive (i.e. standalone character of the National Report).***

(...)

- ***The National Report should give a comprehensive but concise high-level overview of how a Member State complies with the Directive, with an emphasis on major changes and progress made since the previous report. ENSREG is of the opinion that Member States National Reports should provide an account for both formal compliance (i.e. the existence of legal and regulatory elements laid down in a Member States national framework) and key examples of factual compliance (the actual application of these legal and regulatory elements in illustrative cases and situations).***
- ***ENSREG recommends that Member States consider providing key examples to illustrate or demonstrate the implementation of Directive obligations and to illustrate progress made (e.g. key steps in licensing process of disposal facilities, completed self-assessment and/or peer review). ENSREG understands that the high-level overview nature of a National Report does not allow Member States to provide comprehensive lists of examples.***

The ENSREG Guidelines state that Section B ("Recent developments") of the National Report should focus on progress since the last National Report:

Section B in the National Report should serve as a major information source on the progress made and the changes that occurred in the management of spent fuel and radioactive waste by summarising the developments since the previous National Report.

This section should focus on the achievements in implementing the national policies through the national programme and on any important changes in the national policies, national framework and national programme.

The ENSREG Guidelines emphasize the importance of focusing in the three-yearly reporting on "progress made" by the use of key examples to illustrate progress made with respect to the previous reporting cycle(s), but remain very general on the issue of monitoring progress:

In the National Report, Member States should:

- ***summarise the key elements of the national programme and the implementation timeframes and milestones envisaged, with an overall statement on the progress made; (...)***
- ***explain what measures (key performance indicators, KPIs) are implemented to monitor progress in the national programme (see Article 12.1(g));***

In the ENSREG Guidelines the "overall statement on progress made" is directly linked to the milestones and timeframes defined in the national programme, while KPIs are means to monitor progress.

Experience from three reporting cycles shows that Member States use different approaches for monitoring progress in implementation of their national Programme. Also, Member States do not make systematic use of KPIs: they also use other instruments to monitor progress made and to decide on corrective actions in case of lack of progress.

3. National programme

A common understanding of the concept of "national programme" is based on recital 28 of the Directive: ***"Member States should establish national programmes to ensure the transposition of political decisions into clear provisions for the timely implementation of all steps of spent fuel and radioactive waste management from generation to disposal. (...)."***

Article 11 of the Directive establishes the obligation for Member States to ensure the implementation of their national programmes for the management of spent fuel and radioactive waste covering all types of spent fuel and radioactive waste under their jurisdiction and all stages of management.

For the timely implementation MSs shall define the significant milestones with clear timeframes for the achievement of those milestones in light of the overarching objectives of the national programme (art 12 1. (b)).

The implementation of a national programme aims at the safe and responsible management of all radioactive waste in a MS from generation to disposal by implementing the national policies and the underlying principles (art 4 (3)). In practical terms, the ultimate goal of safe and responsible management is to have all the radioactive waste that cannot be prevented, recycled or reused, safely

disposed of, while ensuring safety of all pre-disposal management steps. Predisposal management steps are a means to this end, not a goal themselves. The steps and measures needed to reach this disposal goal are addressed in section 4.

In this respect, progress towards implementation requires that MSs take all measures, in line with national policies and the related milestones and timeframes, in order to:

- develop, make operational and operate all pre-disposal steps;
- develop and make operational the disposal capacit(y)(ies) required;
- progressively dispose of the radioactive waste.

On the level of the national programme and for all waste categories, the fraction of waste already disposed of, relative to the total fixed or evolutive national waste inventory, is a general measure of progress.

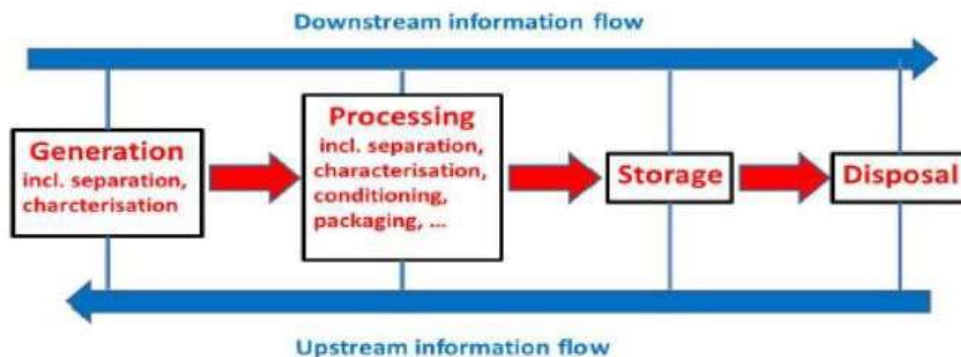
4. The national programme as the integration of plans & projects and processes

A national programme defines for the various waste categories or waste streams the successive steps of management, taking into account the interdependencies between management steps: it defines the concepts or plans and technical solutions for SF and RW management from generation to disposal (see art. 12 1. (d)).

This can take the form of **management routes** defined for the various waste categories or waste streams, with clearly defined disposal endpoints (see NAPRO guidelines on national programmes).

Management facilities are the building blocks of a management route, covering the steps of radioactive waste generation (incl. waste segregation & characterization), processing, storage and disposal. The activities within a management route are organized by :

- clearly defined responsibilities and, when and where required, transfer of responsibilities;
- tools, methods and rules to “process” the waste through a management route (e.g. waste acceptance criteria, safety cases, waste inventories, ...).



The implementation of a national programme has as a main objective to "process" waste from the point of generation towards its final destination, through a fully operational management route, ensuring safety and environmental protection at each step.

For reaching this main objective the national programme sets out:

1. how fully operational management routes are gradually put in place by developing the required management facilities (= building the system or management routes);
2. how waste is "processed" in a safe manner through all waste management steps towards disposal by operating the required management facilities in a fully or partially operational management route (= operating the system or management routes).

4.1 Putting in place operational management routes

MSs are defining and developing the waste management facilities they require for all waste categories or waste streams and for all steps of radioactive waste management, from generation to disposal. This includes the dismantling and decommissioning of management facilities at the end of the operational facility lifetime, and the management of the resulting decommissioning waste.

The development of each facility requires a series of steps and decisions to be made, from policy decisions to siting and designing the facility, licensing the facility, its construction and operation, and finally its decommissioning or closure. The number of national actors involved in the various decisions can vary, with typically less actors involved when the project phase is reached and more actors involved in national policy and siting decisions.

The national programme integrates all plans and projects for developing and making operational the required waste management facilities in line with national policies.

MSs can monitor and assess the progress of their plans and projects for the development of management facilities w.r.t objectives, milestones and timeframes defined. Project performance indicators can be defined for monitoring key elements of a project (time, resources, quality, ...).

4.2 Operating a management route

MSs are operating management routes, partially or fully operational, for the various waste categories or waste streams. A fully operational management route includes an operational disposal endpoint.

The national programme integrates the activities for "processing" waste from generation to disposal. MSs can monitor and assess the performance of an operational management route for "processing" waste from generation to disposal or to an intermediate (e.g. storage) step, when the disposal endpoint is not yet available, e.g. in terms of relative or absolute amounts of waste "processed" through a management route to its disposal endpoint (per time unit) or e.g. in terms of environmental impacts of a management route.

5. Progress towards implementation in Member States

MSs are in different situations w.r.t. the management of their radioactive waste and, if applicable, their spent fuel, and w.r.t. progress made or envisaged for the implementation of their national programme for the two aspects described in section 4: building the system and operating the system.

Progress towards implementation in the various MSs is determined by different factors or conditions, which can be very specific for a MS: waste inventory, institutional framework, policy decisions, public consultation and participation, existing facilities, roles and responsibilities of actors, development of disposal capacity, including the options for siting disposal facilities,

Although lessons can be learnt from progress in other MSs, specific national factors and conditions can or will require specific national actions and measures to make progress and to reach the milestones defined. This is obvious from the various national plans or strategies put in place for the development of disposal facilities and from the various states of progress of national disposal facilities.

Therefore, each MS has to identify and assess the factors and conditions that are important for making progress and has to define its strategy w.r.t. these key national factors and conditions. The identification of these key national factors and conditions are a basis for defining the appropriate tools to monitor progress, such as KPIs (see section 6). A uniform set of KPIs applicable to all MSS can therefore not be a goal in itself.

6. The use of KPIs to monitor progress towards implementation

KPIs are widely used in broad fields of industry, business, R&D, administration and other activities, covering both processes and projects, to inform decision making w.r.t. to the performance of an organization to reach his goals and targets. A KPI is generally defined as a tool for quantitatively measuring progress reaching set goals and objectives, and to evaluate the need to initiate steering actions (from above referred Study, April 2021). KPIs focus on projects, processes and activities of key importance for an organization and under the control of this organization for monitoring its performance and for informing its decisions. The abundant literature on KPIs and their use in the various fields mentioned above provides for clear rules for defining and using good KPIs.

Applying KPIs to national programmes as required by the EC Directive 2011/70/Euratom for monitoring progress of implementation adds the dimension of national programme and is challenging, because a national programme defines a domain of application which is broader than the domains of common use of KPIs for the following main reasons:

1. KPIs provide an efficient means of monitoring progress for actions/processes of a recurrent nature (e.g. number of waste units transferred to disposal facility per year or over several years). In contrast, progress in implementation of a national programme will often hinge on singular events (e.g. adoption of a legislation for disposal, selection of a site, etc.).
2. A national programme integrates policies, objectives, actors, plans and projects, processes and activities at a national level, while KPIs are commonly used at the level of an organization; it therefore requires an identification of national key factors and conditions for making progress;

3. Individual actors in a national programme have various levels of control on the progress towards implementation of projects and processes, as a function of their dependence on interactions with or decisions by other national actors; KPIs are typically used when and where an organization has main control of the projects, processes or activities for which it defines and uses KPIs;
4. Progress towards implementation of various key elements of a national programme (e.g. developing operational disposal endpoints) is often measured in decades and can be slowed down by the complexity of interactions between national actors (Government(s), safety and environmental protection authorities, waste management agency(ies), waste producers, public and institutional stakeholders, ...), while KPIs are typically used in dynamic systems to timely inform decision making (timeframes of month/year).

Therefore, MSs may keep in mind that defining KPIs for a national programme is different from the “classical” use of KPIs in an organization for its projects and processes.

Furthermore, the use of tools for monitoring progress in implementation of national programmes should take into account that a national programme integrates two dimensions of making progress:

- policies, plans and projects to develop and make operational managements facilities for managing the waste from generation to disposal;
- activities to operate the chain of management facilities to “process” radioactive waste from the point of generation to its disposal endpoint.

When defining KPIs MSs may consider the following elements:

- the concept of KPI as applied in the Directive to a national programme may be usefully interpreted in the broadest sense, as dealing with all tools a MS puts into place to monitor progress made and to timely inform decisions to be taken in case of lack of progress made; a too strict interpretation of KPIs for a national programme, by simply pointing to KPIs in other fields, does not take into account the specific challenges identified;
- at the level of a national programme, progress towards implementation cannot usefully be expressed in one single or a few KPIs, because a national programme integrates:
 - o various management routes;
 - o a combination of plans & projects and processes;
 - o various organisations with different impacts on progress made.

When KPIs are used for key elements of the national programme, e.g. a project or an operational management route, MSs may consider the following:

- when KPIs are used in projects to develop facilities, KPIs may take into account the fact that several actors and their interactions contribute to the progress made;
- for a (fully) operational management route, KPIs can be considered for how effectively waste is “processed” from generation to disposal or for key steps of the management route.

In general:

- MSs should regularly identify and assess the key factors and conditions that determine progress or the lack of progress for various parts of the national programme. When and where

KPIs are used, they should focus on these key factors. Key factors can be all the elements that a national programme must include (article 12 1.);

- MSs could consider defining KPIs for factors and activities that aim at creating the necessary conditions for progress (financial means available at the time required, R&D efforts to support facility development or waste processing, public consultation and participation activities to create societal support, ...);
- MSs should realistically take into account the rate of data gathering for KPI calculation, considering periodicity (monthly, annually, multi-annually) and assessments of performance and/or progress (e.g. assessments of safety, of environmental impact, of waste amounts processed or disposed; of financial coverage, ...).

MSs should also consider how they regularly assess progress w.r.t. the milestones and timeframes defined in their national programme, with the purpose to ensure that the implementation of the programme follows the planned course of actions, and, if implementation is deviating from the scheduled path, corrective actions can be defined and taken in a timely and efficient manner. This should be part of the progress statement in the three yearly national report to the Commission (see ENSREG guidelines on national reporting and section 3).

Finally, KPIs can also be used as tools to inform on trends over an extended period of time. MSs should consider to what extent KPIs can be defined to play a role for informing and reporting on trends as an information and communication tool. Such trends can be related to amounts of waste brought in storage or in disposal, environmental impacts of various managements steps or progress of projects of key importance, such as dismantling or disposal projects.