

The Waste Plan for the Long-Term Management of HLW and/of Long-Lived Waste: Objectives, Process and Conclusions



Philippe Lalieux, ONDRAF/NIRAS

Euridice Exchange Meeting, 7th December 2011

Structure of the presentation

1. Scope and objectives
2. Legal SEA procedure
3. The proposed global solution
4. Adoption and presentation to the supervising authority
5. A project involving the whole of ONDRAF/NIRAS
6. Link with Directive 2011/70/EURATOM
7. Implications for ONDRAF/NIRAS

1. Scope and objectives

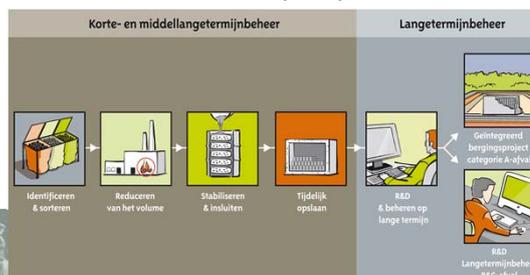
- Situation relating to the long-term management of high-level and/of long-lived waste (B&C)
 - Thirty years of research, development and demonstration (RD&D)
 - Initiated by SCK•CEN in 1974
 - Underground laboratory as an unique RD&D tool
 - Performed according to international recommendations and in co-operation with foreign countries, notably within the scope of the EU Framework Programmes
 - Encouraging and internationally acknowledged results
 - **But... absence of an institutional decision in Belgium in favour of a specific management option**

3



Necessity of a long-term management policy... today (1/4)

- **Necessity of defining a final destination for B&C waste in order to 'close' the management system**
 - Optimization of all the management phases
 - **Determination of the management costs (provisions) in order to optimally apply, as of today, the 'polluter pays principle'**
 - Orientation of RD&D by way of confirmation



4



Necessity of a long-term management policy... today (2/4)

- ONDRAF/NIRAS considers the dossier mature enough to be the object of a political decision
 - Based on the results of SAFIR 2
- Considerable implementation deadlines
 - Responsibility of current generation and current producers
- Necessity of ensuring the continuity of knowledge and RD&D
- There is, however, no urgency as far as safety is concerned (temporary storage is safe)

5



Necessity of a long-term management policy... today (3/4)

- Institutional requirement
 - OECD/NEA Peer Review of the SAFIR 2 report (2003), carried out at the government's request:
 - *"The Belgian programme should have a long-term management policy for B&C waste"*
 - Letter from ONDRAF/NIRAS' supervising authority (2004), asking
 - *"to compare various management options for high-level and long-lived waste (SEA) in order to enable decision-making on the management solution to be carried out"*
 - Joint Convention on the Safety of Radioactive Waste
 - Ratified by Belgium (law of 2nd August 2002)
 - Letter from FANC to its supervising authority after the 3rd meeting of the contracting parties (IAEA, June 2009)
 - *"ONDRAF/NIRAS is still waiting for a decision in principle on the management of high-level waste and spent fuel"*

6



Necessity of a long-term management policy... today (4/4)

- “Best practice”: countries that are in the forefront with regard to geological disposal (CA, FR, UK, FI, SE, CH,...) do rely on policy decisions and a legal framework comprising
 - the chosen management policy
 - a stepwise implementation roadmap: milestones, decisions + possibly planning of operations
 - the respective responsibilities
 - if necessary, the organization of an independent follow-up (i.e. aside from regulators) of the implementation, e.g.
 - CNE/OPECTS (FR)
 - CoRWM (UK)
 - KASAM (SE)

7



ONDRAF/NIRAS' Waste Plan – Legal framework

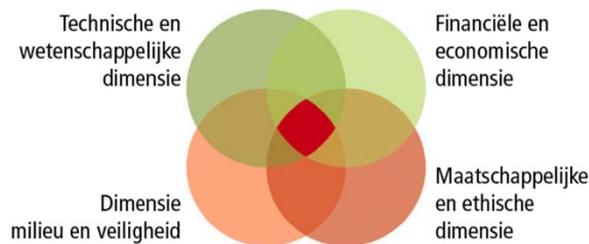
- Legal obligation for ONDRAF/NIRAS to have a *general programme for long-term radioactive waste management*
 - Art. 2, § 3, Royal Decree of 30th March 1981, as modified
- This programme requires an environmental impact assessment AND public participation
 - Law of 13th February 2006 (Art. 6, § 1) – Law *Strategic Environmental Assessment or SEA*
 - Transposing the 2001/42/EC and 2003/35/EC directives

8

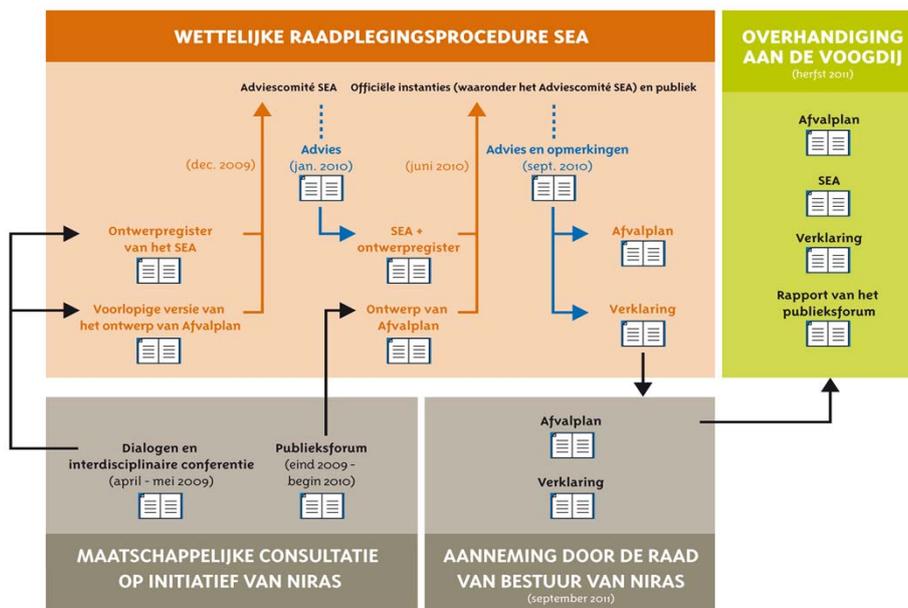


ONDRAF/NIRAS' Waste Plan – Objective

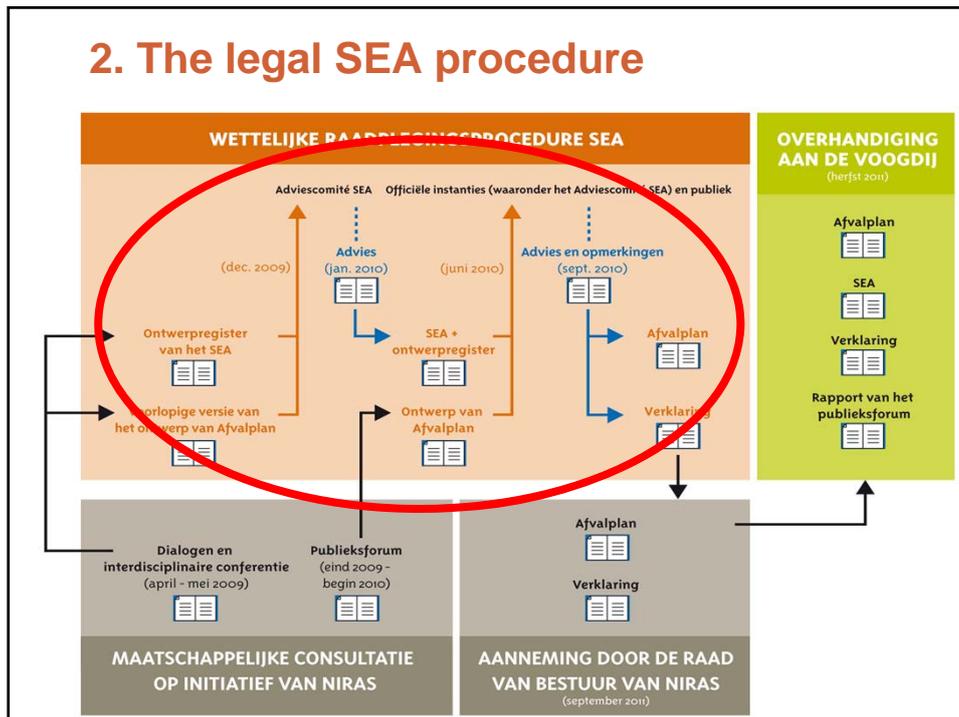
- The Waste Plan must provide all elements to enable the government to define the direction to be followed regarding long-term high-level and long-lived waste management.
- According to the view that a sustainable solution integrates the following aspects



The Waste Plan process

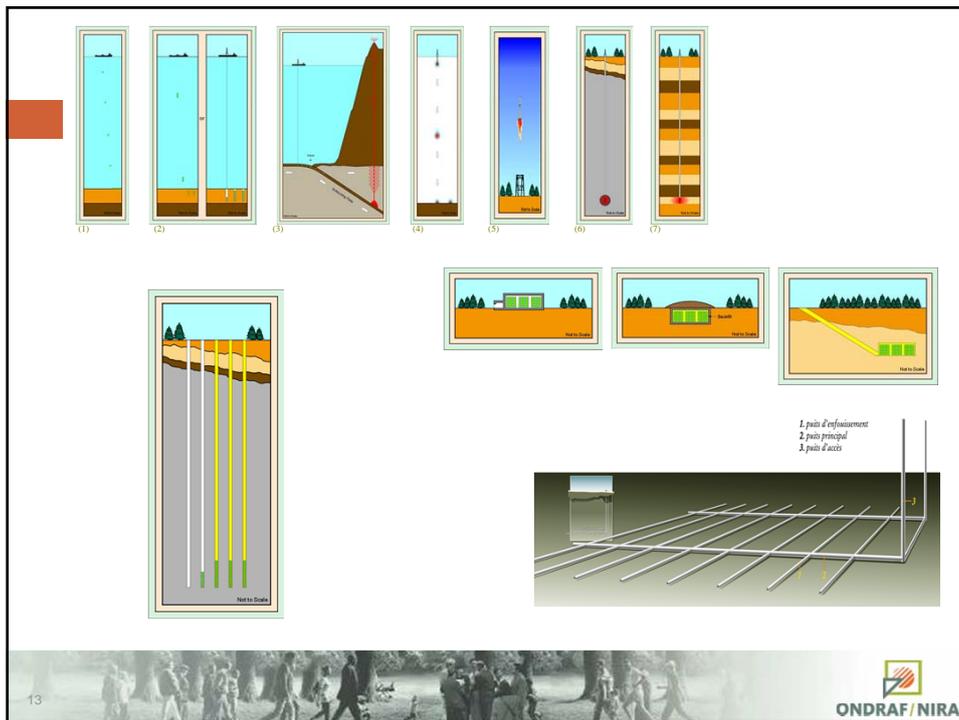


2. The legal SEA procedure

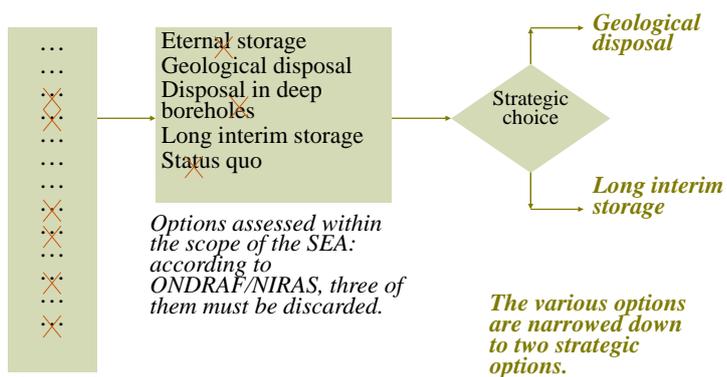


Options evaluated in the Waste Plan and the SEA

- Wide spectrum of options
 - Sea dumping, seabed disposal, space, subduction zones...
 - Disposal in deep boreholes
 - Perpetual storage ("*eternal stewardship*")
 - Common, multinational repositories
 - Advanced nuclear technologies
 - Geological disposal
 - ...
- **As far as long-term management (many thousands of years) is concerned, there is no alternative for geological disposal**
 - Only a passive system can ensure long-term safety (geological formation)
 - There are, however, differences:
 - timing of geological disposal
 - disposal conditions (surveillance, retrievability,...)
 - priority given to a national solution or waiting for a multinational solution



Filtering out of the options



*Identified options.
Some of them (sea dumping, disposal in ice sheets, disposal by direct injection, surface disposal,...) had to be rejected straight away.*

The various options are narrowed down to two strategic options.



Internationally recommended solution



15



Public consultation



Raadpleging van de bevolking

Ontwerp van het Afvalplan en milieueffectenrapport voor het beheer op lange termijn van hoogradioactief en/of langlevend afval

Van 7 juni tot en met 6 september 2010 kunnen het Ontwerp van het Afvalplan van NIRAS en het milieueffectenrapport voor het beheer op lange termijn van hoogradioactief en/of langlevend afval worden geraadpleegd door de bevolking, krachtens de wet van 13 februari 2006.

Tijdens deze raadpleging kan iedereen zijn opmerkingen kenbaar maken. Deze zullen in aanmerking worden genomen bij het opstellen van de definitieve versie van het Afvalplan dat NIRAS vóór het einde van het jaar aan de overheid zal voorleggen.

U kunt reageren:

- Online: www.niras-afvalplan.be
- Per e-mail: afvalplan@nirond.be
- Schriftelijk: NIRAS Afvalplan, Kunstlaan 14, 1210 Brussel

Voor meer informatie en om de documenten te downloaden: www.niras-afvalplan.be

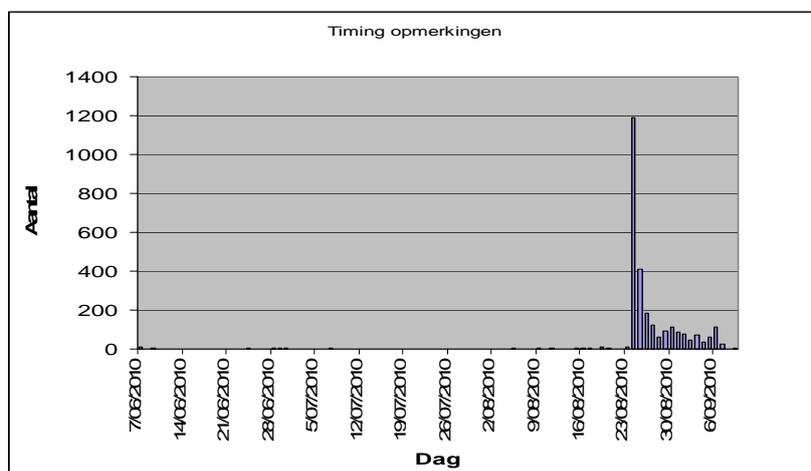
Een gedrukt exemplaar van de bovenvermelde documenten kan schriftelijk aangevraagd worden (NIRAS Afvalplan, Kunstlaan 14, 1210 Brussel of afvalplan@nirond.be).

NIRAS is de Nationale instelling voor radioactief afval en verrijkte splijtstoffen, die door de overheid belast is met het beheer van het Belgische radioactieve afval. De opdracht van de instelling bestaat erin het radioactieve afval veilig te beheren op korte en op lange termijn. De bescherming van het milieu en de veiligheid van de bevolking staan hierbij centraal.

16



2700 reactions to the legal consultation



17

Analysis of the opinions and comments received during the SEA consultation

- Opinions from three official bodies (SEA Advisory Committee, Flemish Region, FANC) + public at large
- Systematically analysed according to 40 themes in order to be taken into account during final drafting of the Waste Plan
- Results
 - Transboundary effects need not be analysed at this stage (SEA Advisory Committee)
 - Surface storage unacceptable, from the point of view of safety, as long-term management solution (AFCN/FANC)
 - Procedure duly observed (SEA Advisory Committee)
 - Clear and recurrent demands: **retrievability, controlability and knowledge continuity**
 - Necessity of a management policy for all types of potential waste

18

3. Global solution for the long-term management of existing and planned B&C waste (1/2)

■ Technical solution

- geological disposal on a single site on Belgian territory, in poorly indurated clay (Ypresian clays or Boom Clay)
- development in accordance with scientific, technical and societal progress

■ Within the scope of a decision-making process

- gradual
- adaptable
- participative
- transparent
- ensuring continuity
- ensuring integration of the technical and societal aspects

19



Global solution for the long-term management of existing and planned B&C waste (2/2)

■ The development and implementation of which are accompanied by conditions expressed during the public consultations

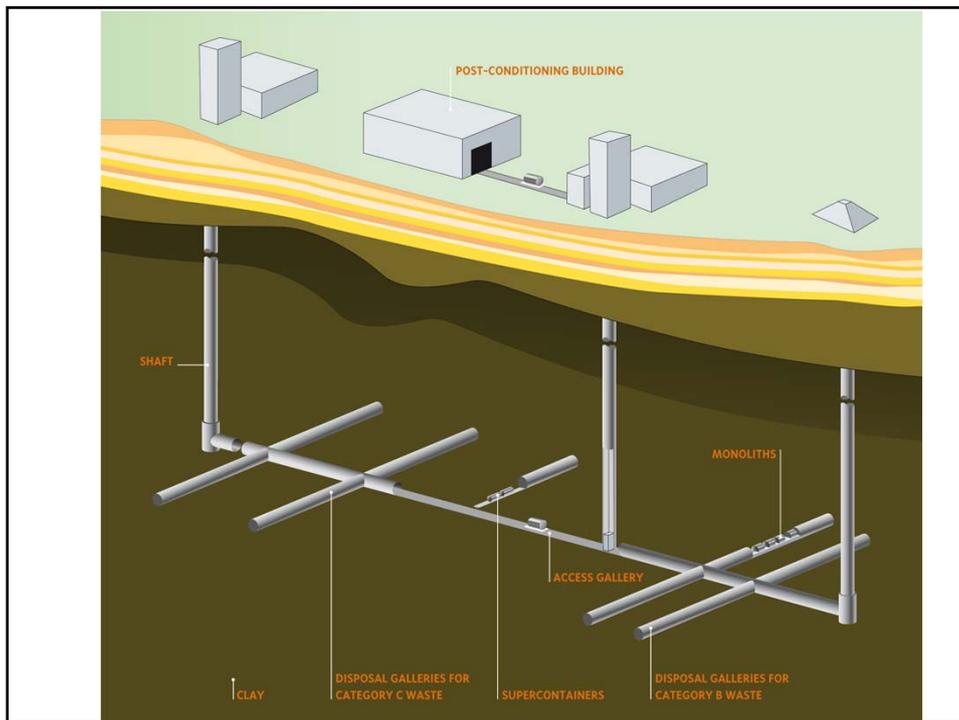
- Retrievability
- Controllability
- Knowledge maintenance and transfer

(the scope of these conditions must be clarified in consultation with the stakeholders)

- Follow-up of the developments regarding the management options that were examined in the Waste Plan but were discarded
- Independent follow-up of the decision-making process ("*guardian*")

20





Taking into account all types of potential waste

- Demands expressed during consultation
- Wish of ONDRAF/NIRAS to prepare, through specific plans, the long-term management of other types of radioactive waste it might have to take over
 - next plan: **plan on the long-term management of radium-bearing waste** in general and of important volumes of radium-bearing waste originating from former activities on the Umicore site in Olen in particular
 - In the future: NORM and TNORM waste



Interim storage facility
for Ra sources (Olen)



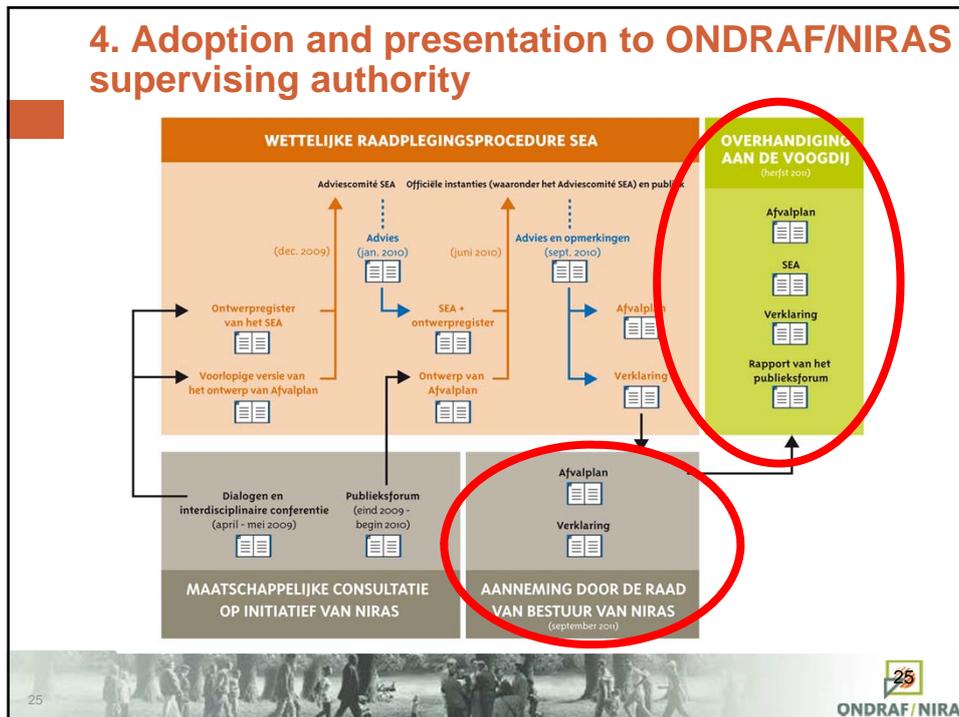
23

(Non-exhaustive) list of contracting parties

- Technical Writers/Support
 - Brigitte Cornélis
 - Véronique Pirot
 - Expert@Business
- Societal initiatives
 - Greenfacts
 - iVOX
 - Dialogue Learning Center
 - King Baudouin Foundation
 - Participant, Atanor, Kessel & Smits
 - Rapporteurs,...
 - Club of Rome EU Chapter
 - Accompanying Committees
 - > 50 invited experts
- SEA
 - Technum/Resources Analysis, Tractebel
 - SCK•CEN
- Illustrations
 - Brigitte Cornélis
 - Bailleul
 - Ann De Wolf
- Web
 - Tabeoka
 - Indigov
- Translation
 - Bureau Oneliner
 - Manfred Fickers
 - Sonia Sala (SCK•CEN)
 - ...
- Logistics
 - Printers
 - Catering
 - ...

24

4. Adoption and presentation to ONDRAF/NIRAS supervising authority



Respective responsibilities

Adoption

- The ONDRAF/NIRAS Board of Directors is empowered to adopt the Waste Plan, in accordance with the agency's functioning regulations

Decision in principle

- By analogy with and for the sake of coherence with the decisions relating to category A waste, it is up to the government to take a decision in principle on the policy to be pursued regarding the long-term management of B&C waste (notification)

- ➔ The adoption of the Waste Plan by the Board of Directors concludes the SEA procedure but prejudices neither the decision that must be taken on the policy for the long-term management of B&C waste in Belgium nor the contents of this decision

Products

■ **Waste Plan** as adopted by the ONDRAF/NIRAS Board of Directors of 23/09/2011

■ **SEA**

■ **Declaration**

- required by article 16 of the Law of 13th February 2006
- summarises the results of the analysis of the opinions and comments received during the legal consultation

In accordance with the legal provisions (article 16 of the above-mentioned Law), the declaration and the plan as adopted were

- published in extracts in the Belgian Official Journal (30th September 2011)
- published on the federal portal site
- sent to the consulted bodies

27



The screenshot shows a web browser window displaying the Belgian Official Journal (MONITEUR BELGE) page for 30.09.2011. The page is in French and Dutch. The French section is titled 'ORGANISME NATIONAL DES DECHETS RADIOACTIFS ET DES MATIERES FISSILES ENRICHIES — ONDRAF [C - 2011/18332]' and contains the text 'Déclaration relative au Plan Déchets en application de la loi du 13 février 2006...'. The Dutch section is titled 'NATIONALE INSTELLING VOOR RADIOACTIEF AFVAL EN VERRIJKTE SPLIJTSTOFFEN — NIRAS [C - 2011/18332]' and contains the text 'Verklaring betreffende het Afvalplan ter uitvoering van de wet van 13 februari 2006...'. The browser's address bar shows the URL 'http://www.ejustice.jud.fgov.be/afval/article.pl'. The Windows taskbar at the bottom shows the Start button and several open applications.

28



Response of the supervising authority to the presentation of the Waste Plan and the relating documents (1/2)

- Response of 3rd October 2011
- Decision in principle must be taken by a fully empowered government
- In the absence of a decision in principle, ONDRAF/NIRAS must implement the following recommendations in order to ensure the continuity of its public service tasks:
 1. carry on RD&D on disposal in poorly indurated clay in order to confirm and refine the scientific and technical bases of this solution and ensure its financing, at the required level, by the producers
 2. further define the decision-making process that will take place in parallel with the development and implementation of the management solution

29



Response of the supervising authority to the presentation of the Waste Plan and the relating documents(2/2)

3. draft an proposal for a normative system framing the implementation of the Waste Plan and including the creation of an independent body in charge of monitoring the decision-making process
4. develop the societal component of the B&C programme (and ensure the corresponding financing)
5. clarify, in consultation with all stakeholders, the demands expressed during the consultations regarding retrievability, surveillance, knowledge transfer
6. follow the developments regarding the management options that were examined in the Waste Plan but were discarded
 - (e.g. disposal in deep boreholes, international repository, advanced nuclear technologies,...)

These recommendations prejudge neither the decision to be taken on the policy for the long-term management of B&C waste in Belgium nor the contents of this decision.

30



6. Link with the new 2011/70/Euratom Directive dated 19th July 2011 (1/3)

- The Waste Directive establishes a Community framework for the responsible and safe management of spent fuel and radioactive waste
 - To be transposed into Belgian law by 23rd August 2013
 - Makes it mandatory to establish
 - A national policy
 - A national framework
 - Responsibilities
 - Regulations
 - Financing schemes (including availability of resources, when needed)
 - Competences
 - Transparency policy
 - Safety-driven Integrated management system
 - Public participation
 - ...

31

Link with the new 2011/70/Euratom Directive dated 19th July 2011 (2/3)

- A **national programme** covering all steps of radioactive waste management must be presented to the EC for the 1st time by 23th August 2015
 - Proposed management solutions for the various waste streams of the national inventory
 - RD&D activities needed to foster implementation
 - Cost assessments and financing schemes
 - Responsibilities
 - Implementation timeframes
 - Decision-making processes and their documentation
 - Transparency policy toward the public

32

Link with the new 2011/70/Euratom Directive dated 19th July 2011(3/3)

- The solution recommended in the Waste Plan will contribute to fulfilling several requirements of this directive:
 - Coherence with the directive's principles
 - national responsibility
 - the fact that the long-term safety of management rests on a system that passively ensures safety
 - polluter pays principle
 - principle of intergenerational equity
 - elaboration of a documented and participative decision-making process
 - It corresponds to the solution considered in the directive as "*the safest and most sustainable option as the end point of the management of high-level waste*"
 - "*The storage of radioactive waste, including long-term storage, is an interim solution, but not an alternative to disposal*"
- **The Waste Plan thus constitutes a preparatory act for the first national programme of Belgium**

33



7. Implications for ONDRAF/NIRAS

- Continuation of B&C programme is ensured, according to the 4 dimensions of a sustainable waste management solution, in particular
 - RD&D incl. environmental issues
 - Further building of the societal support for the B&C long-term management solution including also
 - Pursuit of participative initiatives
 - Transboundary aspects (esp. Netherlands)
 - Decision-making process
 - External follow up committee
- Development of an appropriate normative framework
 - EC Directive as an opportunity to foster "decision in principle" regarding long-term management for B&C waste
 - Transition between SEA Law and AFCN/FANC licensing procedure
- Management policies for all types of waste
 - Radium-bearing waste, NORM and TNORM
 - Other 'Waste Plans'
- Progressive implementation of an **Integrated Waste Management System**

34





Thank you for your attention

All documents are available on

www.ondraf-plandechets.be

www.niras-afvalplan.be

or upon request at the ONDRAF/NIRAS
communication department