



**РОССИЙСКАЯ АКАДЕМИЯ НАУК**  
**Институт проблем безопасного развития атомной энергетики**

**RUSSIAN ACADEMY OF SCIENCES (RAS)**  
**Nuclear Safety Institute (IBRAE)**

# **Draft State Federal Legislation** **«Treatment of Radioactive Waste»**

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# Accumulation of problems in the treatment of RW

The approach practiced in the former USSR assumed that the problems of treatment of radioactive waste (RW) would be addressed on as-needed basis.

The policy of postponed decisions has led to a significant growth in accumulation of RW – the volumes of already accumulated RW and those generated annually are drastically large.

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- ❖ The necessity of legislative provisions was realized a long time ago.
  - ❖ The first draft legislation was developed in nineties, but it was not approved. That legislation addressed a number of issues including financial provisions of relevant activities on treatment of RW at the expense of utility organizations, establishing the Federal Fund, radioactive waste disposal.

# Absence of key systematic mechanisms

As of today:

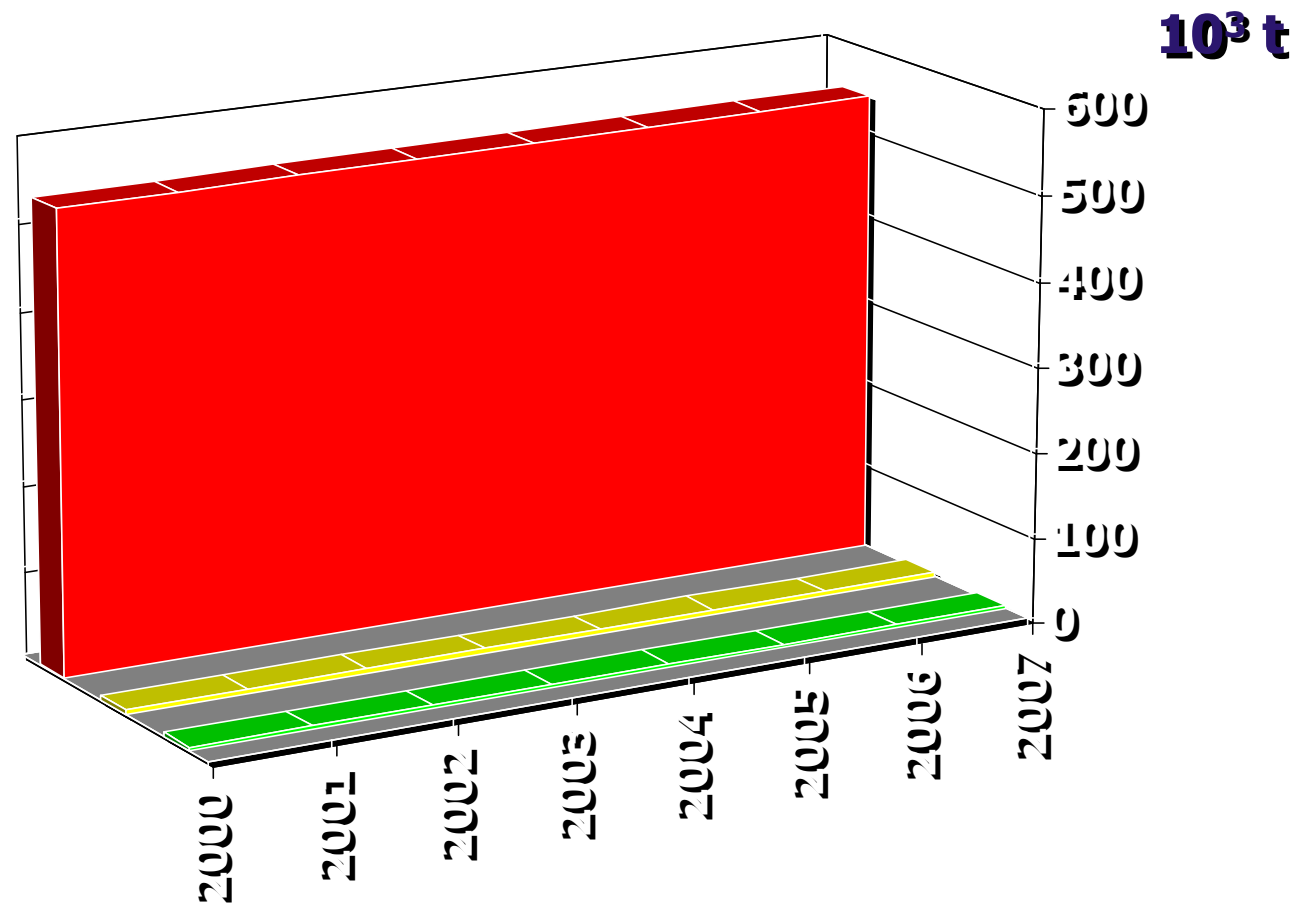
- ❖ There is no real interest of enterprises;
- ❖ There are no efficient financial mechanisms;
- ❖ There are no items of infrastructure;
- ❖ There are no effective measures of enforcing and promotion.

# Main problems associated with RW

**(liquid – 477 mln m<sup>3</sup>, solid – 77 mln t)**

- ❖ Not isolated from the environment are low- and medium-active LRW (TKV, Karachai, Old Swamp, storage pools, ...)
- ❖ Storage of RW at the sites of utility organizations contributes to further accumulation of the problems and renders obsolete technological approaches
- ❖ The ultimate stage of treatment of RW is not provided neither organizationally, nor technologically and financially
- ❖ There is no legislative-norm basis and economic mechanisms that would promote minimizing of RW production and removal of accumulated RW including the final disposal

# Generation and accumulation of RW



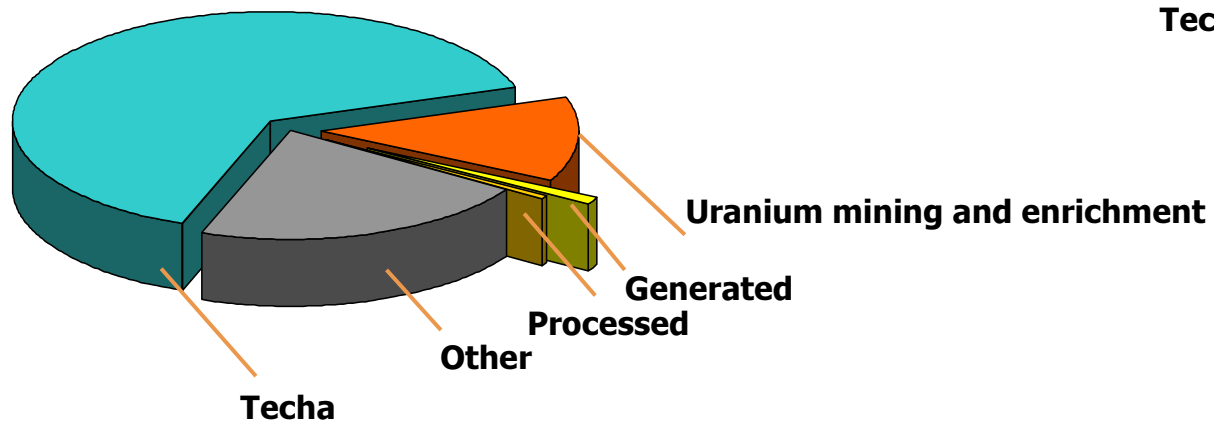
reprocessed  
■ Переработано

generated  
■ Образовалось

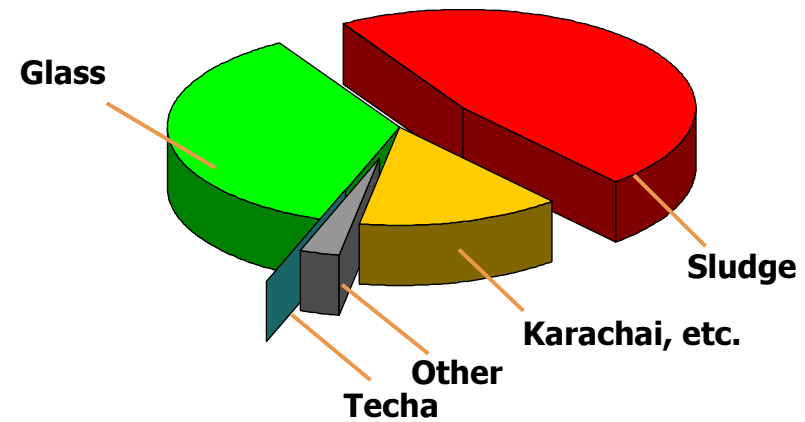
accumulated  
■ Накоплено

# Composition of accumulated RW, 2008

Amount of RW – 2008.  
(540 m t)



Activity of RW – 2008



# Development of the Legislation

The development of a new edition of the State Federal Legislation was initiated by an interdepartmental working group with participation of the scientists of RAS in 2007.

In 2008 the draft legislation was circulated for review and approval by the interested authorities.

The objective of the legislation: establishment of the legislative basis for relevant activities and regulation of relations dealing with treatment of the currently produced and already produced RW including definition of the principles, system, and the order of RW treatment.

# Draft Federal Legislation on RW

1. During the process of development of the draft legislation, the task of mitigating or simplifying the safety requirements has not been pursued.
2. The main idea of the draft legislation:
  - Creation of a clear legislative structure that would realize the principle of RW disposal;
  - Establishment of the norms obliging the producers of RW within certain terms to bring them into the form suitable for disposal, as well as to bear relevant costs;
  - Setting the responsibility of the State for the safety of RW treatment on the whole.

# Key statement of the legislation

- ❖ Treatment of RW will be realized in the framework of the Unified State System (USS RW) in accordance with the rules common for all organizations whose activities produce RW.
- ❖ Prerequisites for introducing a flexible system of categorizing RW are created.
- ❖ The activities dealing with treatment of RW will be aimed at their compulsory disposal.
- ❖ National Operator will coordinate and conduct activities dealing with RW disposal.
- ❖ The issues of ownership for RW, the places of disposal and the responsibility for providing safety are subject to regulation.
- ❖ The following is introduced: assignments to reserve funds and the fee for the services of National Operator as a mechanism of financial provisions of treatment of RW for the whole period of retaining the dangerous properties and stimulus for decreasing the volume of RW.

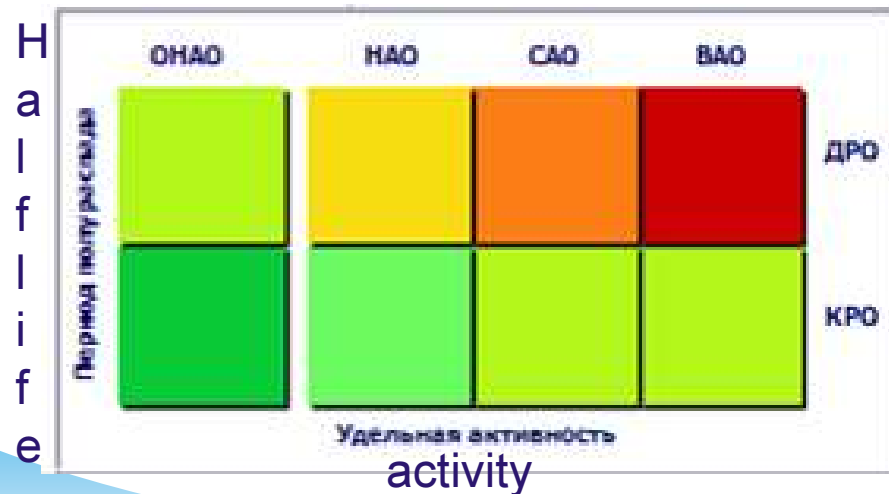
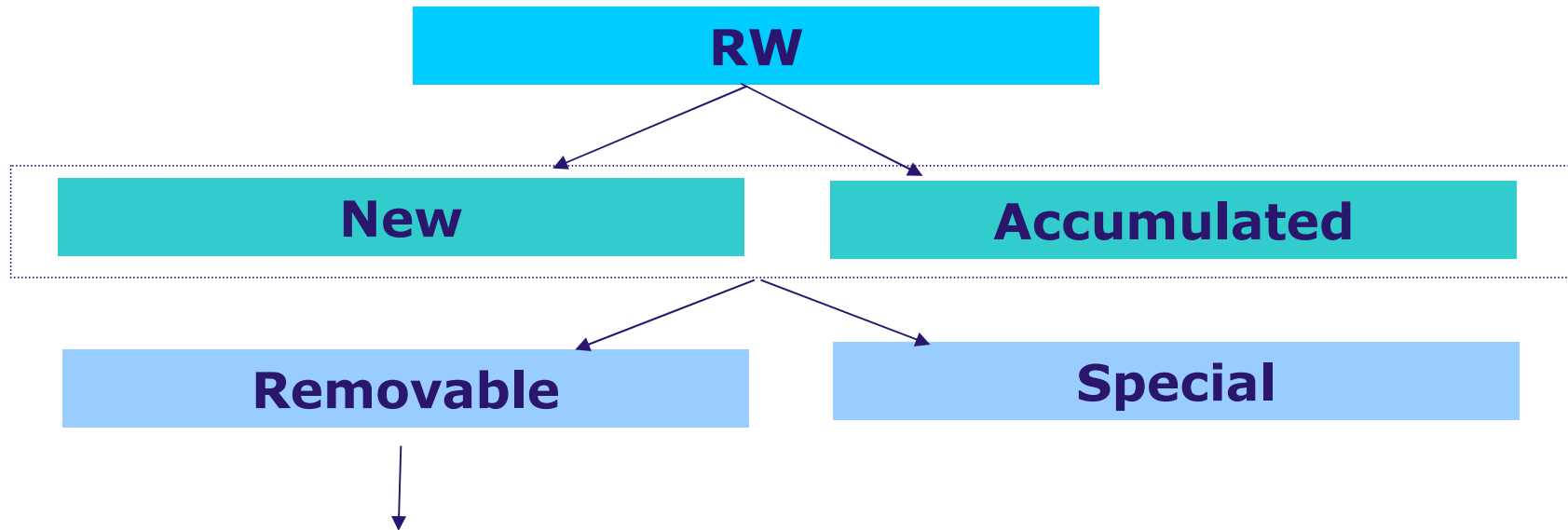
# Classification of RW

The Federal Legislation categorizes RW as the following:

1. Removable RW – RW for which radiation and other risks, as well as expenses dealing with RW extraction, consequential treatment and disposal do not exceed risks and expenses dealing with their isolation in situ;
2. Special (non-removable) RW - RW for which radiation and other risks, as well as expenses dealing with RW extraction from their location, consequential treatment and disposal exceed risks and expenses dealing with their isolation in situ.

The criteria of rating the RW as Special RW, as well as the criteria of attributing the removable RW to particular categories are specified by the Federal Norms and Rules.

# Classification of RW



# Producers of RW

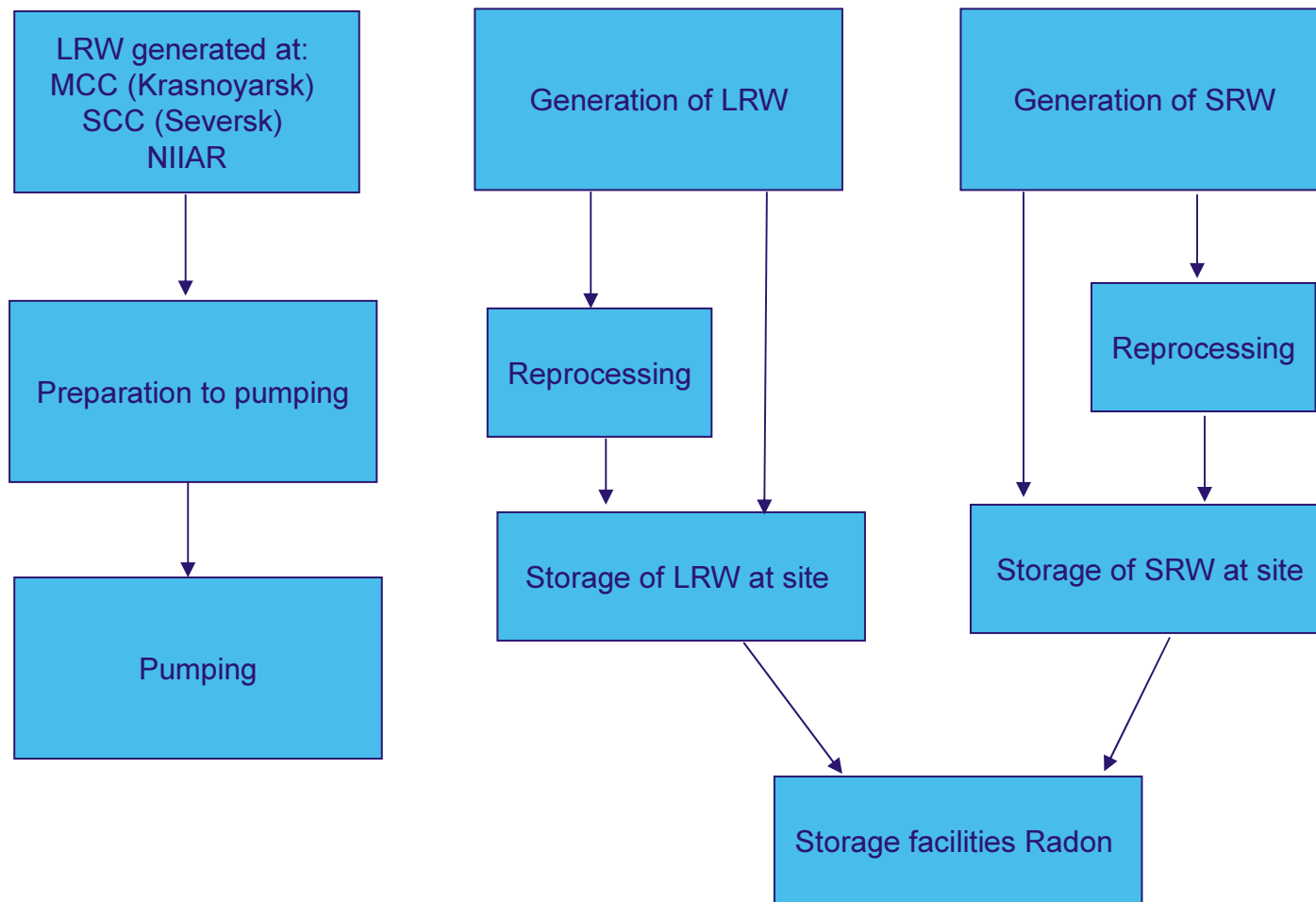
1. Organizations and enterprises that operate especially dangerous radiation and nuclear production and installations;
2. Other producers.

Mechanisms of providing payments for the services of the National Operator differ for these categories of RW producers.

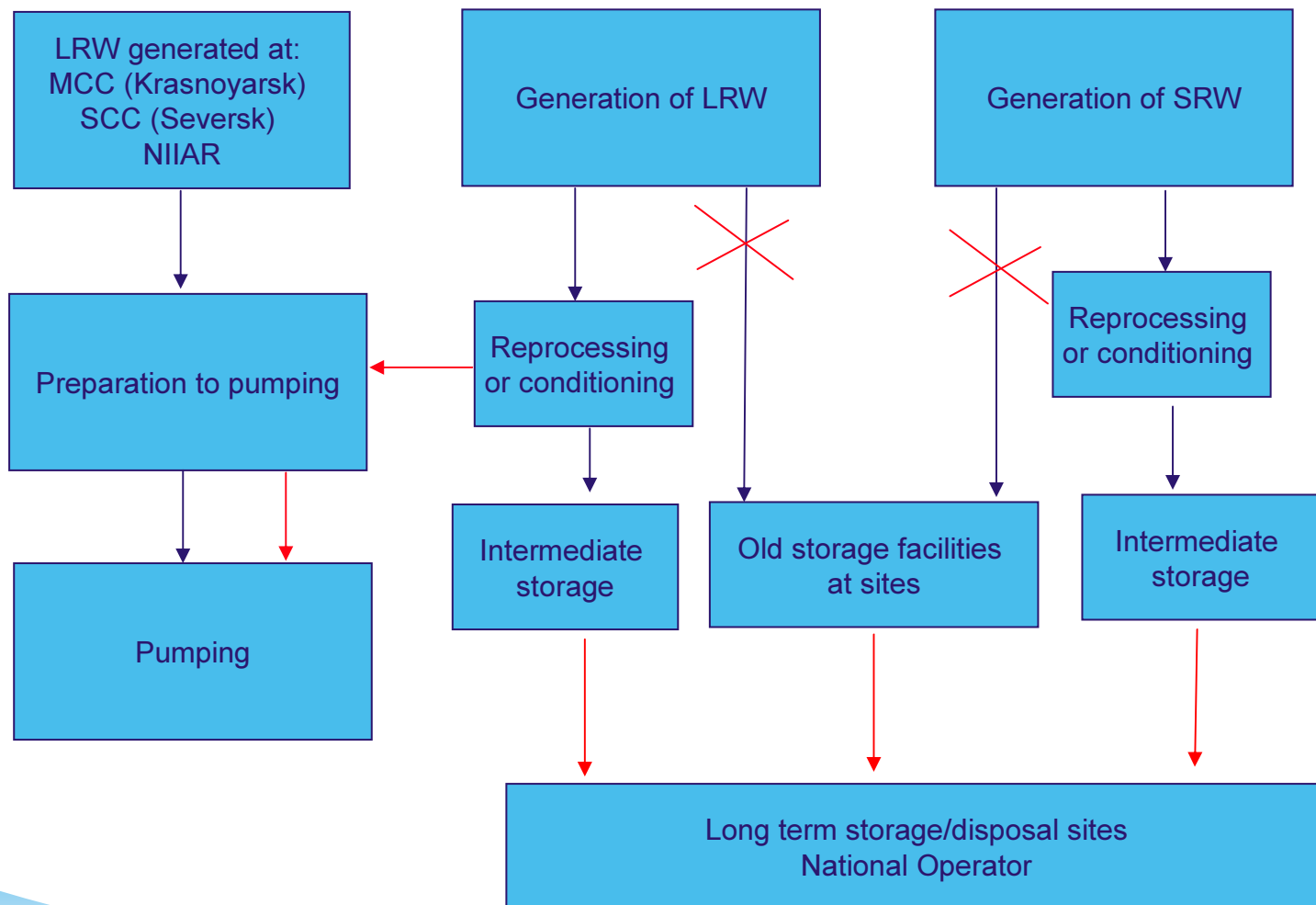
# Treatment of RAW – motivating mechanisms

- ❖ Introducing a system of budgetary assignments to the reserve funds of the State Corporation “Rosatom”
- ❖ Introducing time limits for storage of RW at the sites of RW producers
- ❖ The obligation imposed on RW producers to bring them in compliance with the acceptance criteria
- ❖ The obligation imposed on RW producers to conclude a treaty with National Operator to transfer RW for disposal

# Present scheme of RW treatment

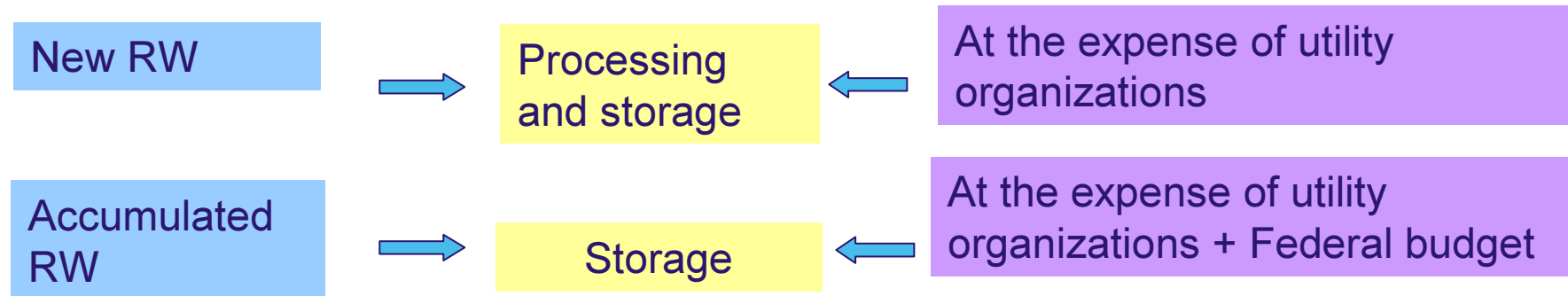


# Perspective scheme of RW treatment

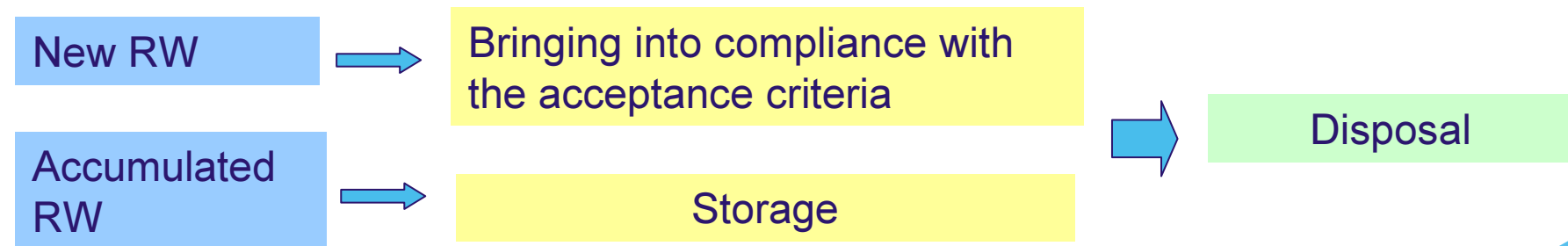


# Finance-economy unit

Present:



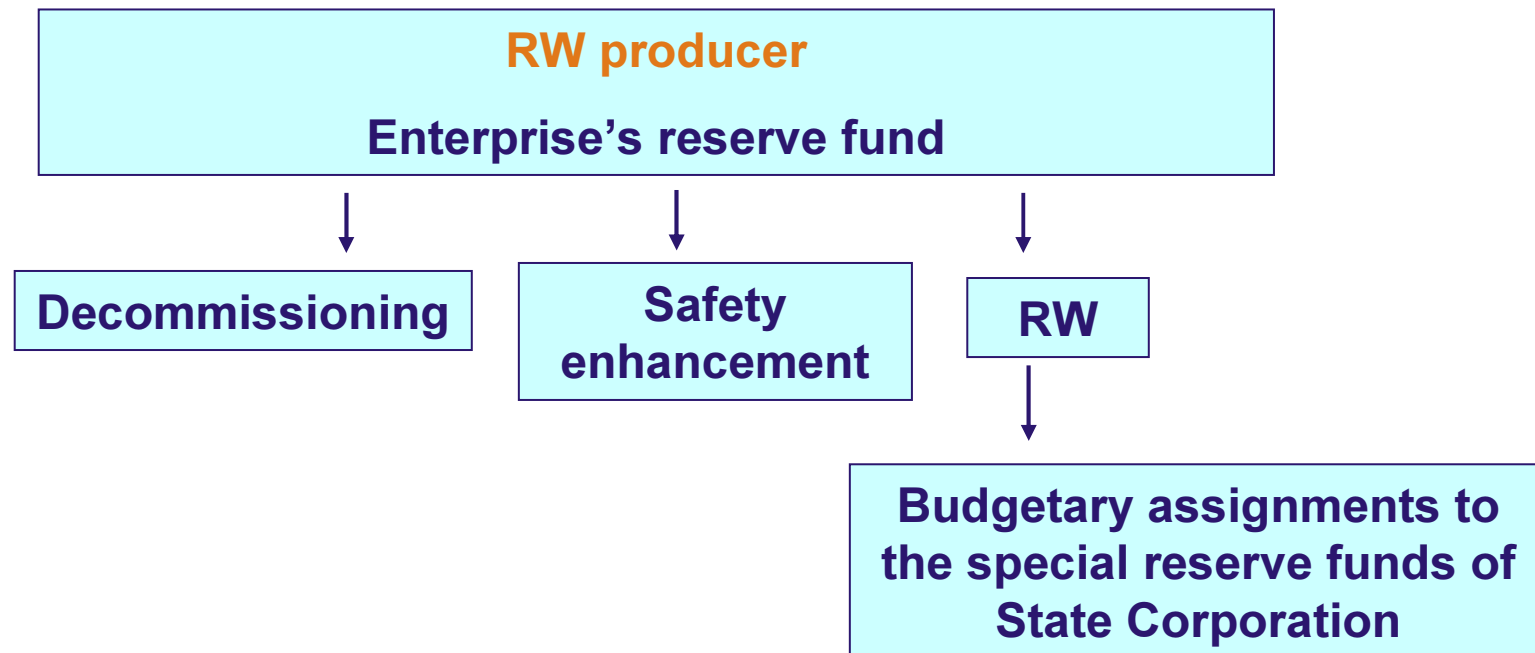
In the future, the transfer from the practice of storage to the implementation of the principle of disposal will allow to decrease the total expenses for RW treatment:



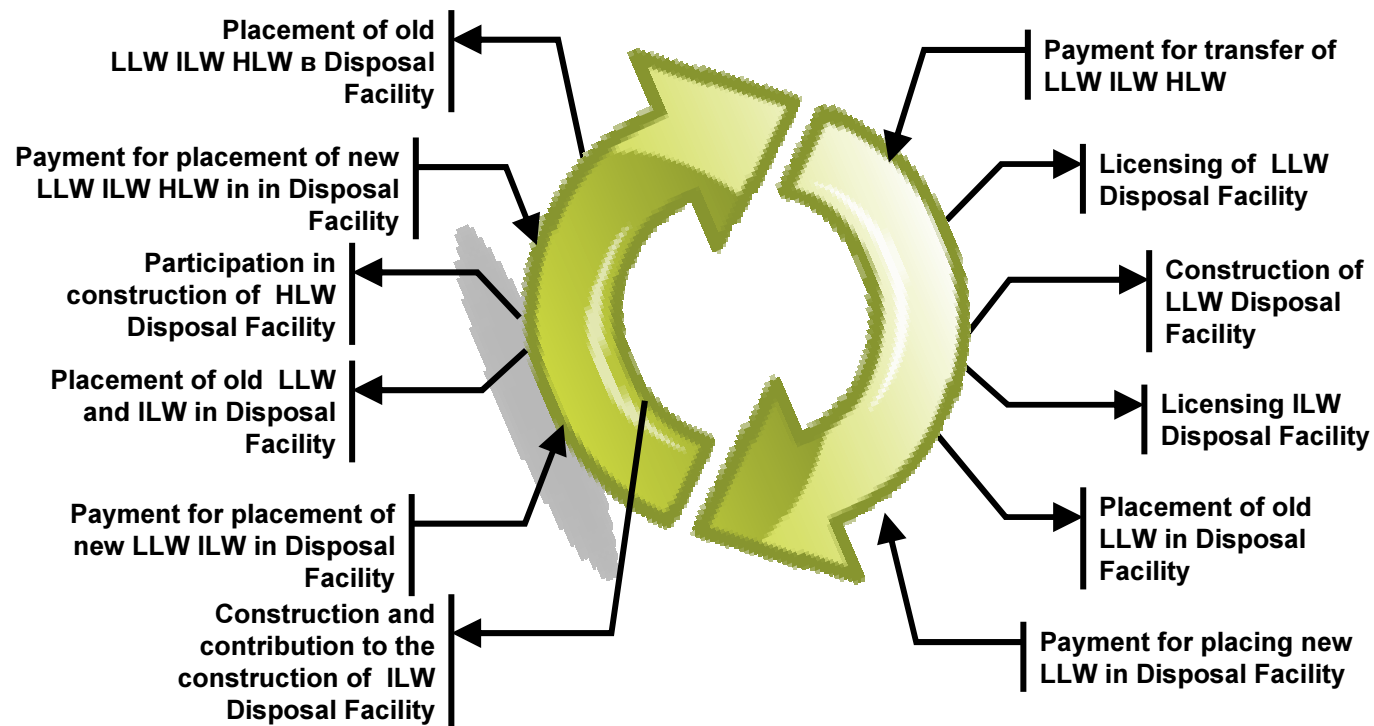
# The scheme of budgetary assignments

The creation of financial mechanisms is restricted by the existing norms – I. 64 of the Tax Code of RF and FL

“About State Corporation for nuclear energy Rosatom”



# Special Reserve Fund



# Treatment of RW generated before putting the legislation into force

- ❖ First step – compiling the inventory of all existing RW, sites and conditions of their placement
- ❖ According to the results of the inventory, the volumes and categories of the accumulated RW (removable, special) will be specified and the perspective locations of their disposal determined
- ❖ On the basis of the inventory records, the registration of the accumulated RW in the State Register of Radioactive Wastes will be performed

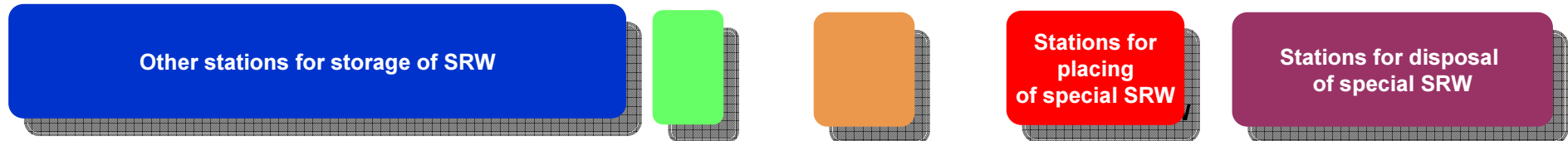
# Evolution of stations for SRW storage

## Existing stations for storage and disposal of SRW

2012

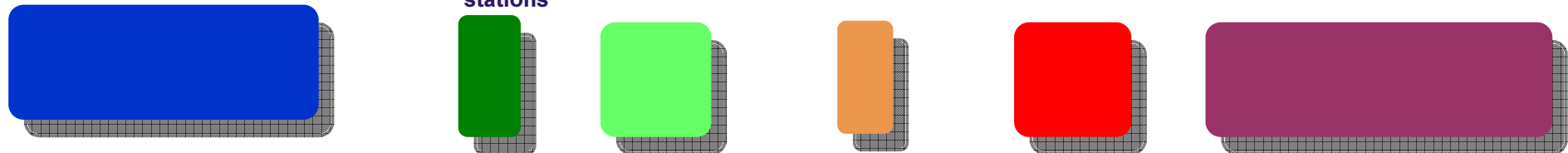
Stations for storage of conditioned SRW

Stations for long-term storage



2020

Disposal stations



2030



Stations for long-term storage of SRW

Stations for placing of special SRW

Other stations for storage of SRW

Stations for storage of conditioned SRW

Removal of RAW and decommissioning or transformation into the stations for placing the especially dangerous SRWs

Transformation into the stations for the final disposal of especially dangerous SRWs

Decreasing the number of station for temporary (technological) storage of SRWs

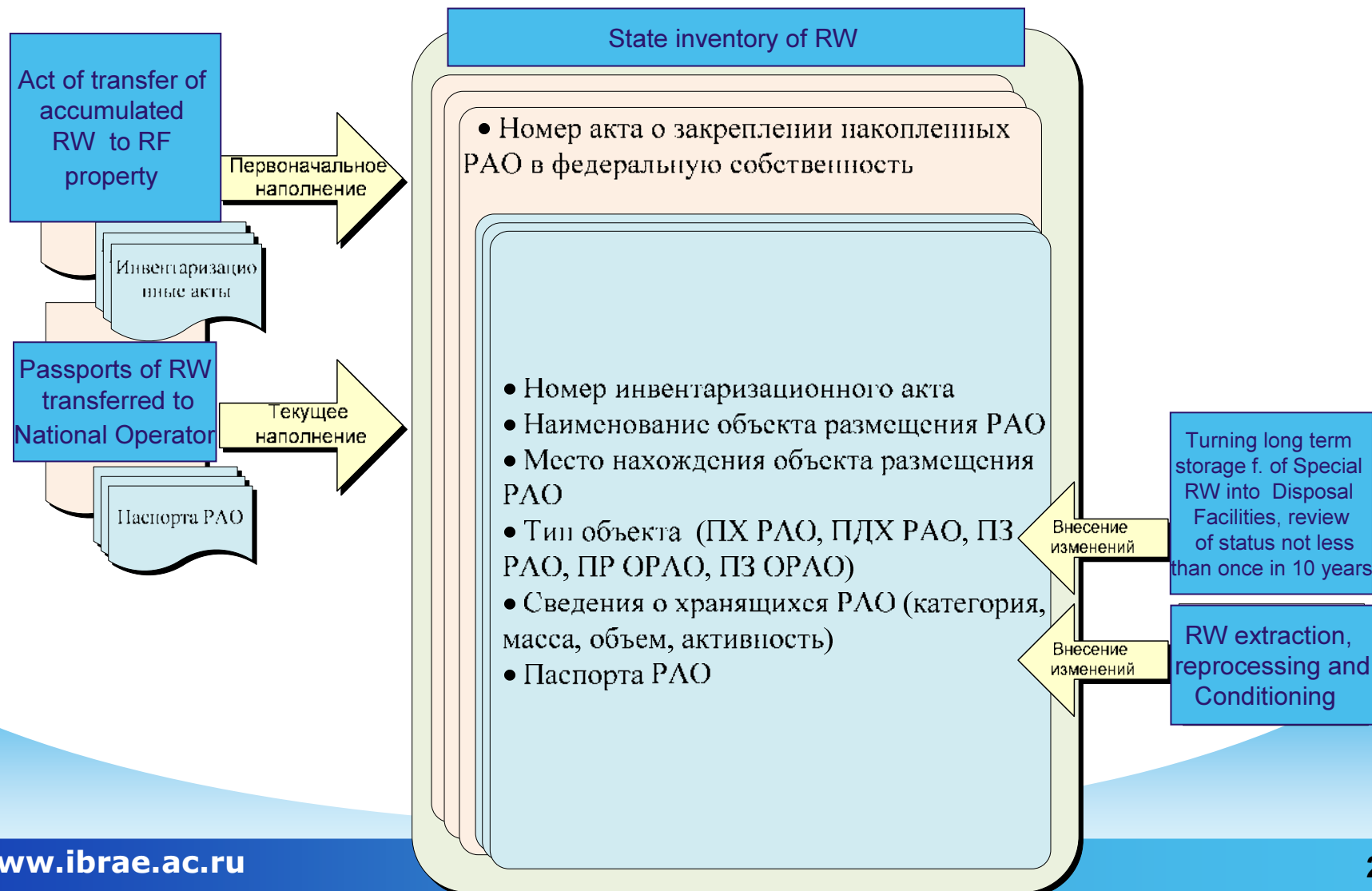
Creation of stations for storage of SRWs that have been brought in compliance with the acceptance criteria

# Requirements to management of accumulated RW

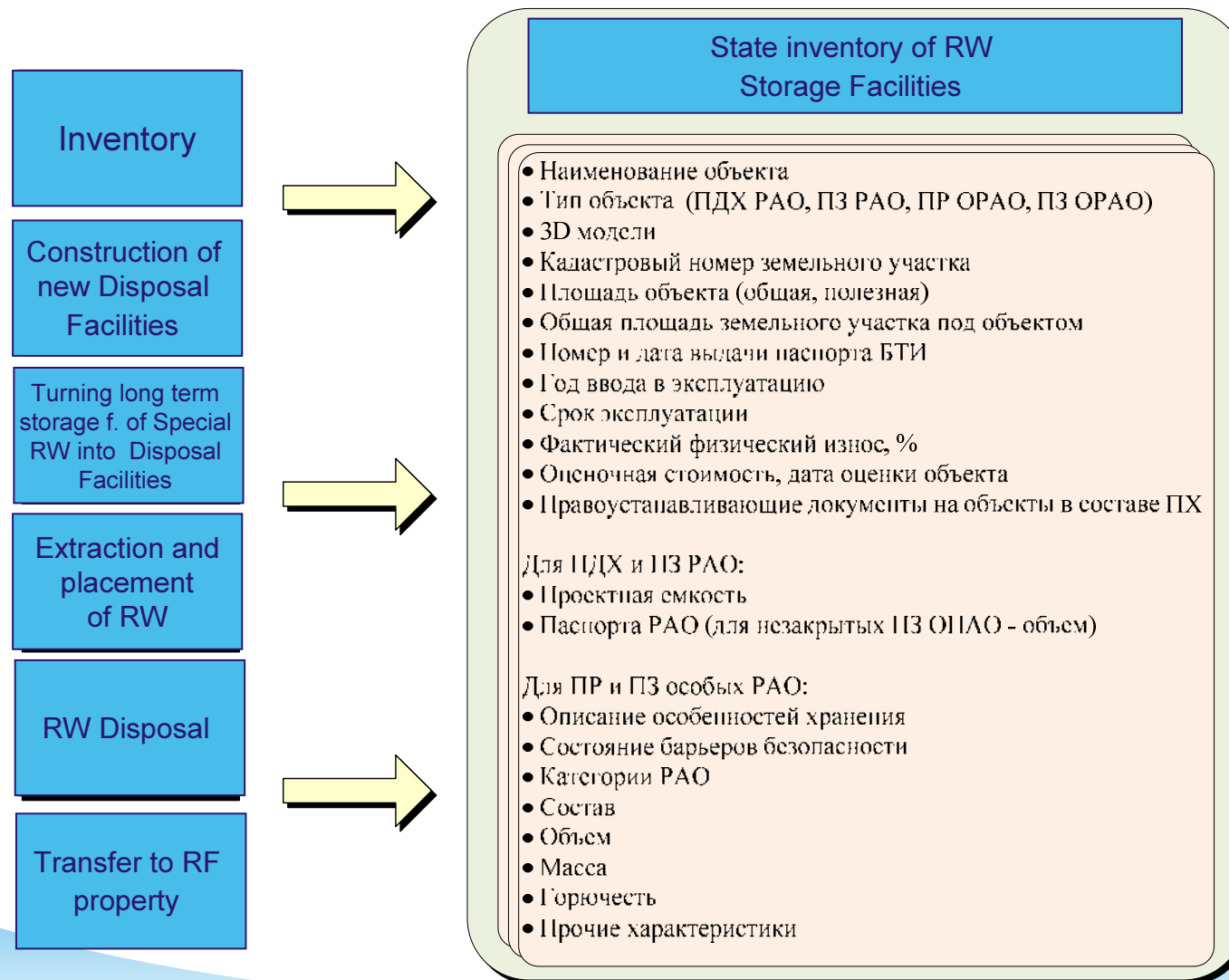
- ❖ Inventory is performed separately for each item of the stored RW.
- ❖ All accumulated removable RW must be placed into the disposal stations.
- ❖ The stations for placing the accumulated special RW must be brought into the safe state for the period till their re-location into the disposal stations.
- ❖ The decision on transformation of the station for long-term storage into the disposal station is taken by the Government of RF .
- ❖ The list of placement stations and disposal stations for special RW is re-considered at least once per 10 years.



# State register of RW



# State cadastre of stations for storage of RAWs

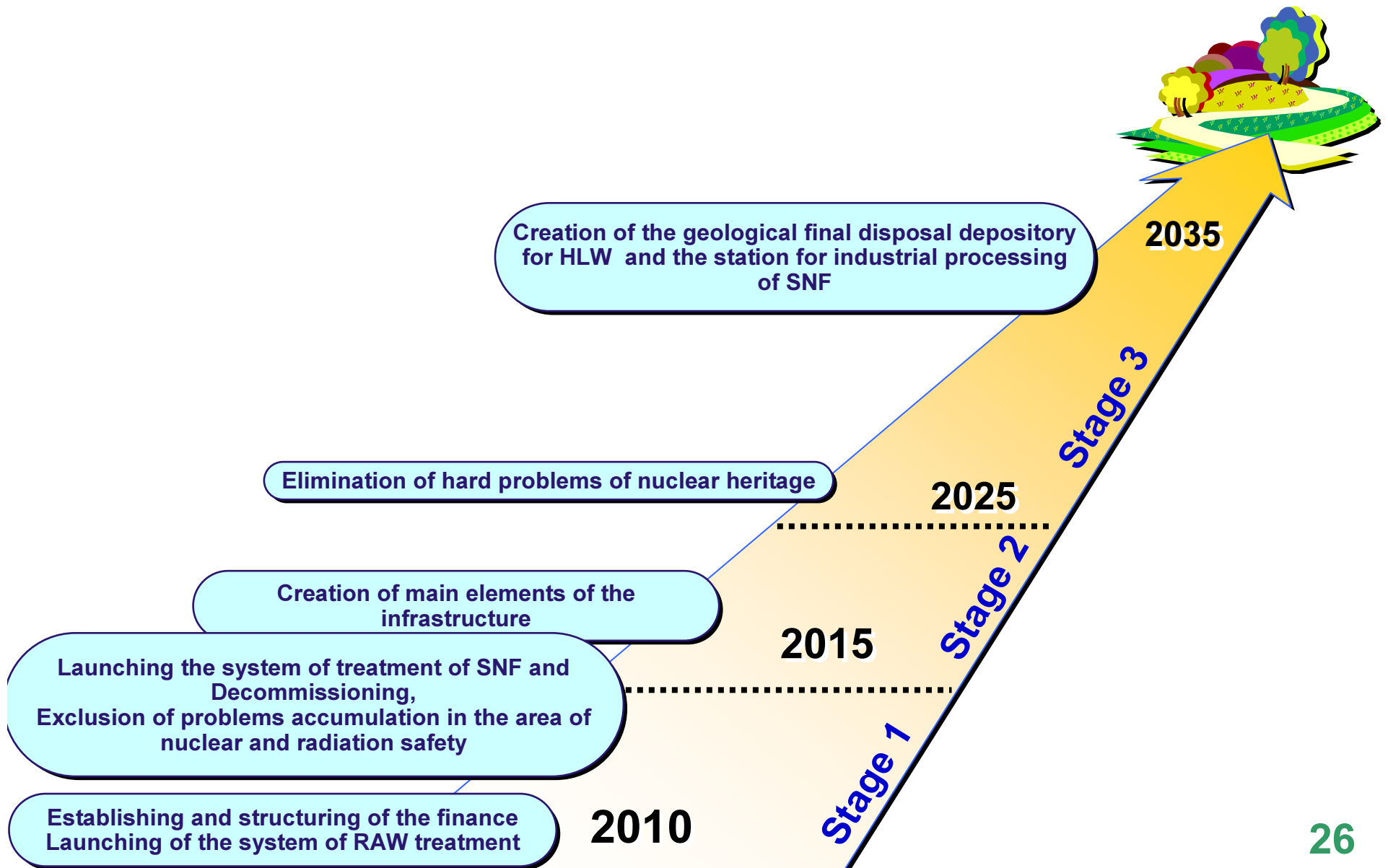


# Road map for creation of USS RW

At the start-up of the system, a number of interrelated tasks should be addressed simultaneously including::

- Development of the legislative norm documents;
- Establishing of the National Operator and specialized organizations;
- Inventorying of RW and conditions of their placements;
- Establishing of financial mechanisms – budgetary assignments to special reserve funds, development, justification, and agreement on the rates
- Creation of the unified property complex for long-term storage and disposal;
- Forming the territorial system of the disposal stations for LLW and ILW according to Federal Regions.

# Milestones and goals





**Thank you for your  
attention!**