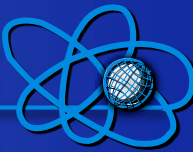


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# Public Perceptions of D&ER Activities and Development of Remediation Criteria

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# Plan of the Presentation

- Public attitudes towards nuclear energy/D&ER activities
- Remediation and its meaning to different stakeholders
- Development of remediation criteria with regard to different areas/sites

# Public Perceptions of Nuclear Energy and Nuclear Facilities In Russia

Are you supportive of the nuclear energy growth or not supportive? (closed question, one answer, %)

	1990	2016
Supportive	14	58
Not supportive	56	28
Difficult to answer	30	14

Source: <http://www.vciom.ru>

## Existing facilities



Public attitudes:

- neutral (except for certain legacy sites)

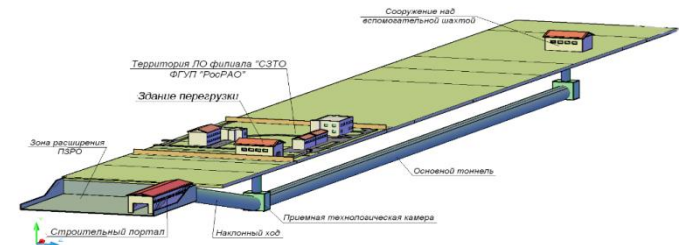
## New build



Public attitudes:

- neutral or watchful (new build at the existing sites)

## New siting



Public attitudes:

- antagonistic (especially with RW facilities)

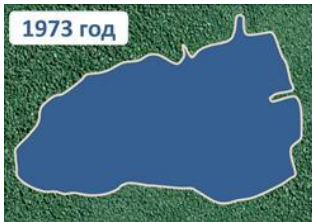
# Concerns with D&ER Activities



Decommissioning at a multi-facility site – low interest/concern (not in the vicinity, no access, regarded as part of routine operation)



Decommissioning of a research facility in Moscow – local interest/low concern (research is “good” activity vs industry, no access, many other things in the big city to bother about)



Karachai Lake (V-9 water reservoir at Mayak facility) – symbolic nuclear legacy site. High media and public interest (not in the vicinity, no access, well-known, high risk due to radioactivity capacity)



Chernobyl territories – high concern (access, visibility, everyday “contact” with a problem)

# Gaining Positive Public Response

## Example 1 – Research facility in Moscow

Moscow blogger popular for her environmentalism and criticism of the city authorities published a very sympathetic post on decommissioning of the building at VNIINM site. Key factor – open dialog and invitation to visit the site which was top secret for years and closed for the public.

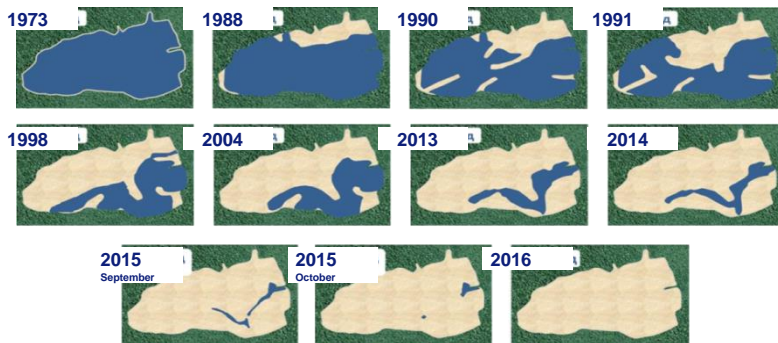


Until this Institute is in Moscow, Moscow residents may not worry for their radiation safety. Tested it myself, concludes the blogger.

<http://anna-nikolaeva.livejournal.com/448571.html>

## Example 2 – Karachai Lake (V-9 water reservoir) at Mayak facility

By November 2015 V-9 water reservoir at Mayak facility was capped (over 100 mln Ci,  $4 \cdot 10^{18}$  Bq)



According to A.Nikitin from “Bellona”, secrecy of the facility together with its negative impact on the environment are the origins of the public “aggression” towards Mayak.

Technical tour at Mayak facility, October 2016



<http://www.atomic-energy.ru/news/2016/10/19/69734>

# When D&ER Activities Trigger Public Attention

## Triggers

Recognizable facility/site/problem  
Strong association with risk

Visibility/accessibility of the site/area  
Problem/activity interferes into people's everyday life

## Most interested parties

Media, NGOs, activists

Local residents, activists

## Preferable Communication

Site visits, i.e. see by your own eyes



Face to face, i.e. listen and discuss

Interested parties, their demands and information needs are very much dependent on whether people are concerned with the problem that exists somewhere or they live with it.

# Chernobyl Areas: Remediation and/or Decontamination?



Decontamination activities in Chernobyl areas included removing topsoil and cleaning surfaces.

Other remediation activities included a broad range of agricultural techniques to reduce internal exposure and improvements of public infrastructure in the settlements (roads, pavements, water wells, etc.) to reduce external exposure.

2004 poll: “What actions, in your opinion, are most needed to improve life in contaminated areas?” “Decontamination” was the second popular answer (after “Improvements in medical service”) though contamination did not rank high among people’s concerns (economic issues prevailed).

The research revealed the different use of term by experts and the residents, the latter tended to interpret decontamination as the whole spectre of activities that brought improvement of their living conditions (renovated public buildings, repaired roads, etc.).

*Analysis of Information Needs of the Population Affected by the Chernobyl Accident. Research in Russia. - International Chernobyl Research and Information Network (ICRIN). - Moscow, 2005.*

# Legal Status of Remediation in Russia

Facility or activity	Legal framework	Other regulations	Methodological support
RW	●	●	●
SNF	●	●	●
Decommissioning	●	●	●
Remediation	●	●	●



– almost completely available



– partially available



– not available

The term “remediation” is not defined in the legislation

Remediation projects are developed and approved on case-by-case basis

The principle of optimization with regard to remediation is not widely used



Absence of common language

Remediation is perceived differently within the professional community (site operators, authorities and experts) – too wide or too narrow

Decontamination (i.e. removing radioactivity) as a way to remediate the area prevail, RW volumes and disposal routes are not fully considered

Operators/administrations may seek to obtain public funds for poorly balanced projects



# Development of Remediation Criteria

## **For nuclear sites affected by past practices (“special” RW storage facilities):**

- “Special” RW storage facilities need construction and other works to improve engineering barriers and will remain under regulatory control for decades.
- To remediate the areas within the authorized boundaries of these facilities for the purposes of radiation protection of personnel the Nuclear Safety Institute suggests 2mSv/year dose criteria (from residual contamination).
- $1 \cdot 10^{-4}$  risk level is suggested as remediation criteria for combination of chemical risks (if any) and radiation risks.
- Conceptual site model is developed (with initial risk level  $> 1 \cdot 10^{-4}$ )

## **For other areas affected by past practices:**

- Considering societal concerns it is reasonable to choose unrestricted use option for small areas within the settlements - to close the problem of contamination once and forever (even if the solution is rather expensive).
- Remediation projects for larger areas/areas not in the vicinity should consider likelihood future use scenarios and costs/effects optimization.

At present regulations are not in place, remediation criteria for areas affected by past practices are discussed among relevant organizations and experts.