

Challenges in Planning and Implementation of Decommissioning

**Establishment of interim facilities on
site during the stabilization/cleanup
phase: Chernobyl experience**

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content

1. Establishing interim waste management facilities and supporting infrastructure on site during the stabilization/cleanup phase
2. Operation and decommissioning of interim waste management facilities
3. What are the specifics of these actions for a post-accident situation?
4. Conclusion

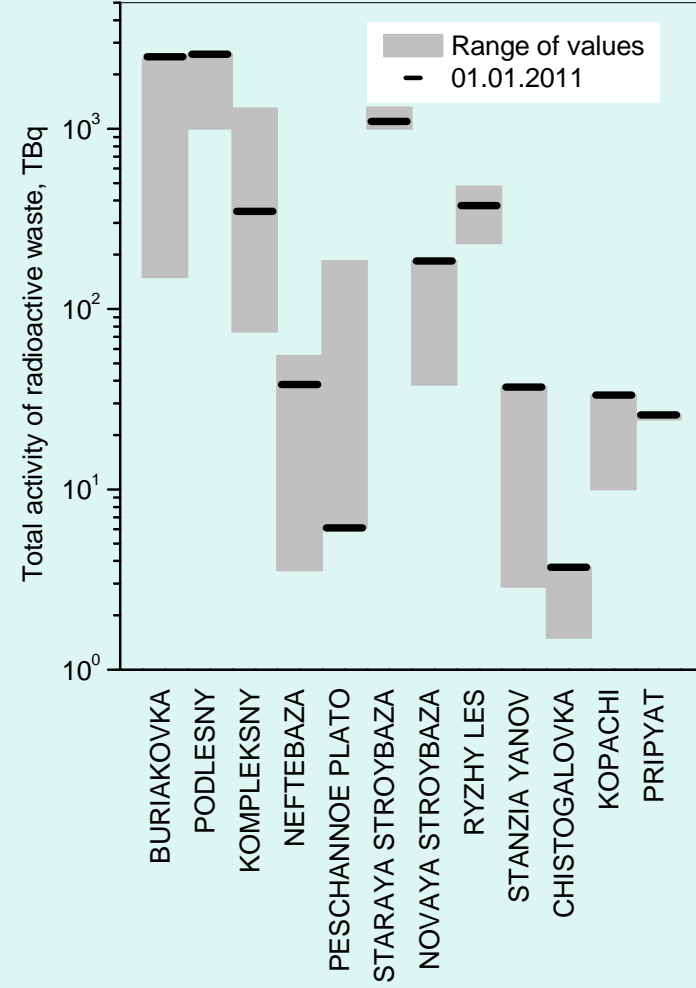
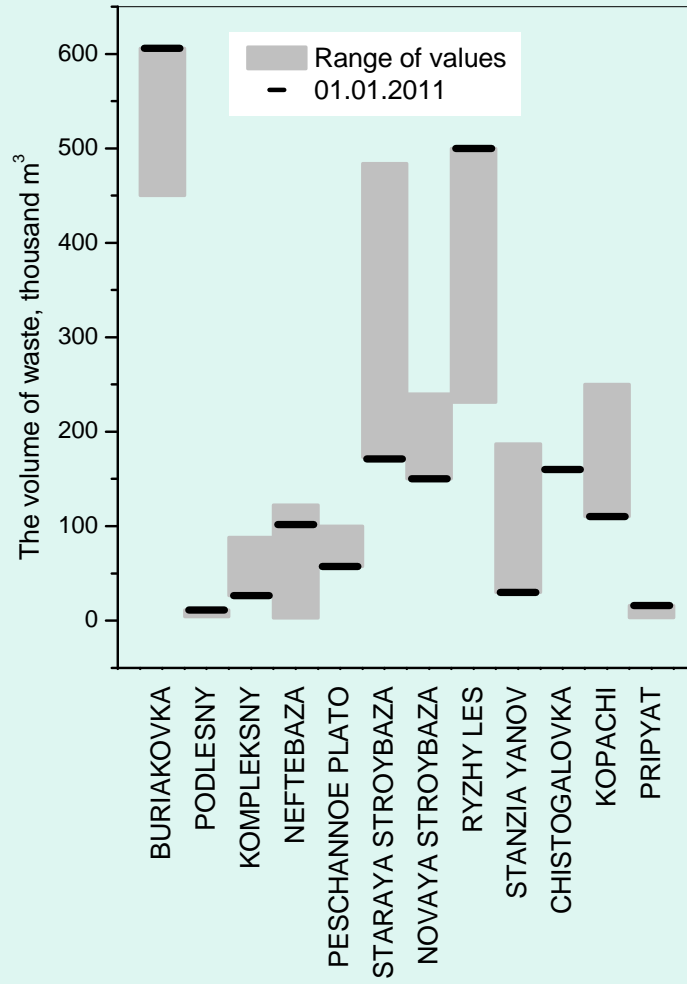
Interim waste management facilities

- **PTLRW** Point for Temporary Localization of RW
- **PDRW** Point for Disposal of RW
- **PSDW** Point for Storage of Decontamination Waste
- **PSP** Point for Special Processing
- **PPCT** Parking Point for Contaminated Techniques
- **UARW** Unauthorized accumulation of radioactive waste

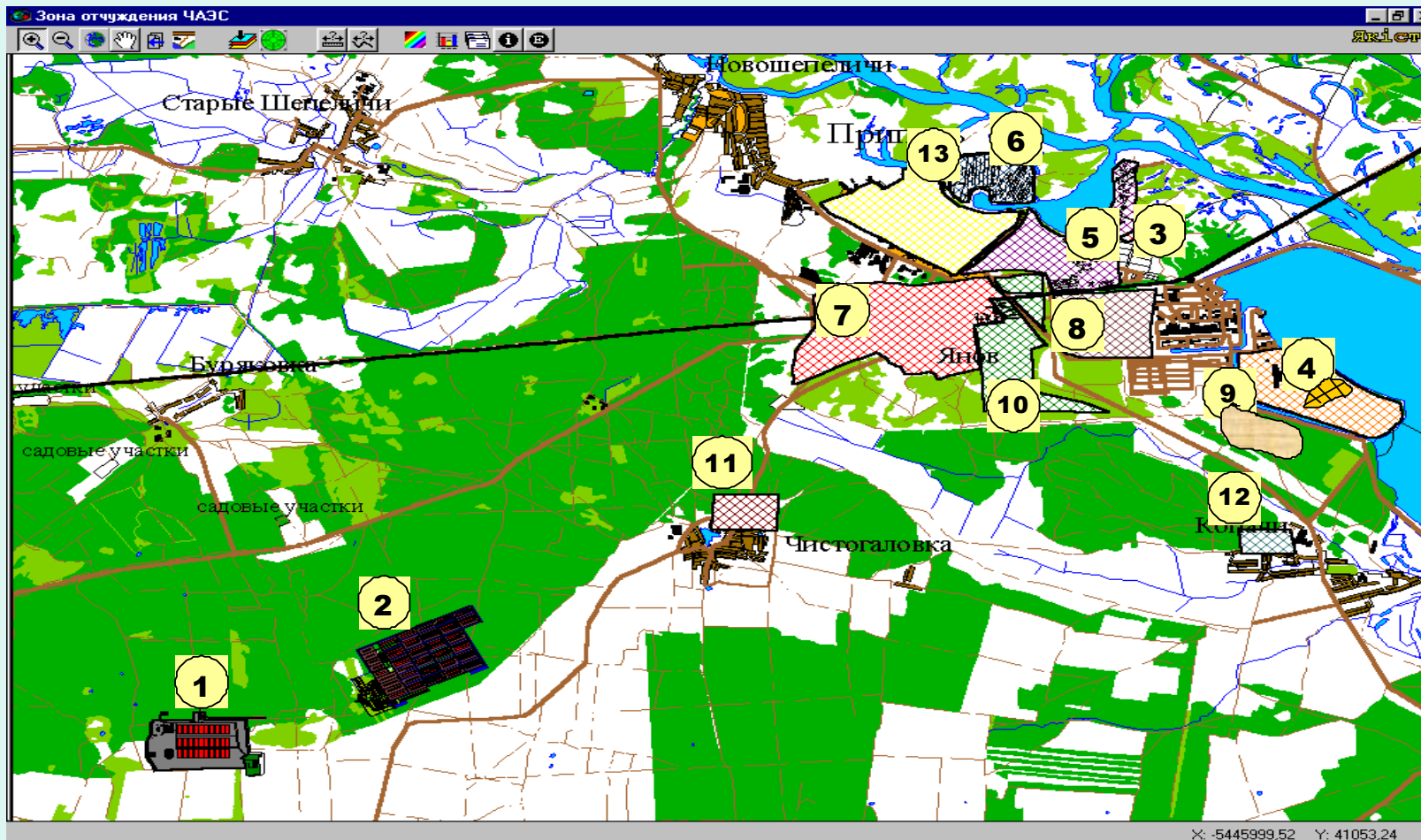
Interim waste management facilities

	Interim WM facility	Number	RW volume, $\times 10^6 \text{ m}^3$	Activity, PBq	Status	Reference
1	PSP	15*	ND	ND	ND	[2]
2	PDRW	3	0.7	5.4	RC	[3]
3	PTLRW	9	1.3	1.8	IC	[3]
4	PPCT	4*	ND	ND	ND	[2]
5	UARW	800**	2.0**	1.0**	ND	[4]
6	PSDW	48*	0.2	0.001	IC	[3]

Data on PDRW and PTLRW

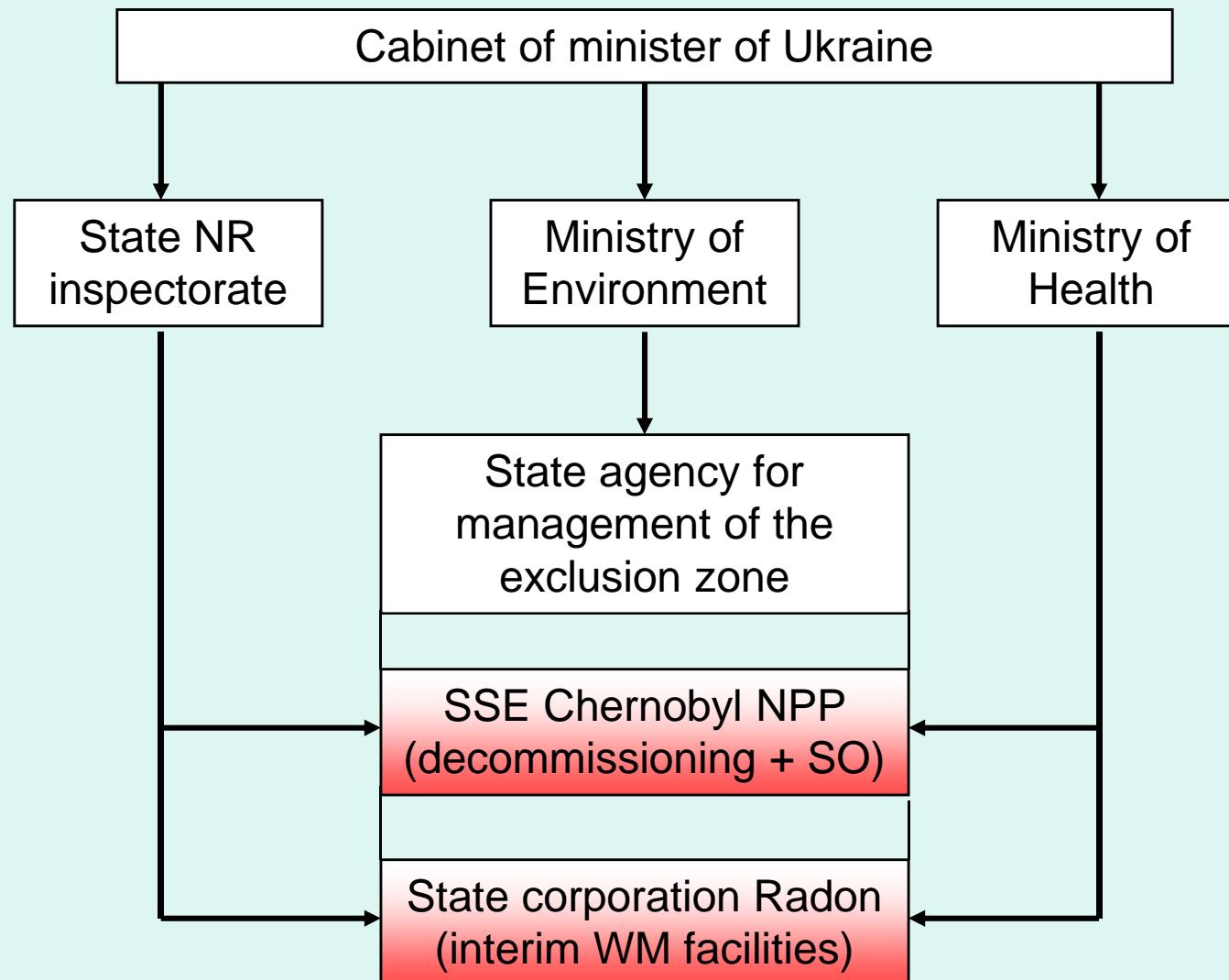


WM facilities in the Exclusion Zone



- 1- **BURIAKOVKA**; 2 - **VECTOR** 3 - **PODLESNY**; 4 - **KOMPLEKSNY**; 5 - NEFTEBAZA; 6 - PESCHANNOE PLATO; 7- STANZIA YANOV; 8 - STARAYA STROYBAZA; 9 - NOVAYA STROYBAZA; 10 - RYZHY LES; 11 - CHISTOGALOVKA; 12 - KOPACHI; 13 - PRIPYAT

Management and regulation



Operation of the interim waste management facilities

	Interim WM facility	Number	RW volume, x10 ⁶ m ³	Activity, PBq	Status	Operator (responsible)
1	PSP	15*	ND	ND	ND	Radon
2	PDRW	3	0.7	5.4	RC	Radon
3	PTLRW	9	1.3	1.8	IC	Radon
4	PPCT	4*	ND	ND	ND	Radon
5	UARW	800**	2.0**	1.0**	ND	Radon
6	PSDW	48*	0.2	0.001	IC	Radon
7	SO	1	1.8	3.7 10 ²	RC	SSE ChNPP

Decommissioning glossary

IAEA glossary

decommissioning

Administrative and technical actions taken to allow the removal of some or all of the *regulatory controls* from a *facility*. This does not apply to a *repository* or to certain *nuclear facilities* used for mining and *milling* of *radioactive materials*, for which *closure* is used.

Ukrainian glossary

decommissioning of Chernobyl NPP Unit

Complex of measures after retrieval of the nuclear fuel from the facility that disables using of the facility for designed purposes and ensures the safety of population and environment.

Decommissioning of NPP and WM facility

	Type of decommissioning	Reason of decommissioning	
		NPP	WM facility
1	Planned decommissioning	End of scheduled operation life	Radioactive decay (clearance or exemption of RW)
2	Early decommissioning	Contradiction of safety level with regulatory requirements	Contradiction of safety level with regulatory requirements
3	Emergency decommissioning	Destruction of engineering barriers	Deficiency (or lack) of engineering barriers

Decommissioning of ChNPP and interim WM facilities

Chernobyl NPP

1. Preparatory phase

- SNF storage construction
- SNF retrieval
- Radiation survey

2. Design phase

3. Deployment phase

- Cooling
- WM repository construction
- Dismantling and disposal
- Restoration

Interim WM facility

1. Preparatory phase

- Regulatory control
- Monitoring and characterization
- Repository construction

2. Design phase

3. Deployment phase

- Retrieval of waste
- WM segregation and treatment
- Disposal of RW
- Restoration

First turn of complex Vector

- Only disposal of LL&IL SL RW
- Disposals SRW-1: 16 x 10,000 cubic m
- Disposals SRW-2: 40 x 9000 cubic m
- Infrastructure
- First turn cost: 421.61 million UAH (1997)

Second turn of complex Vector

- Treatment, storage and disposal
- Technological building
- Disposals SRW-2-1: 690,000 cubic m
- Storages SRW-3: 1.272 million cubic m
- Storages SRW-4: 100,000 cubic m
- Storage for disused SRS
- Start-up cost: 518.955 million UAH (2008)

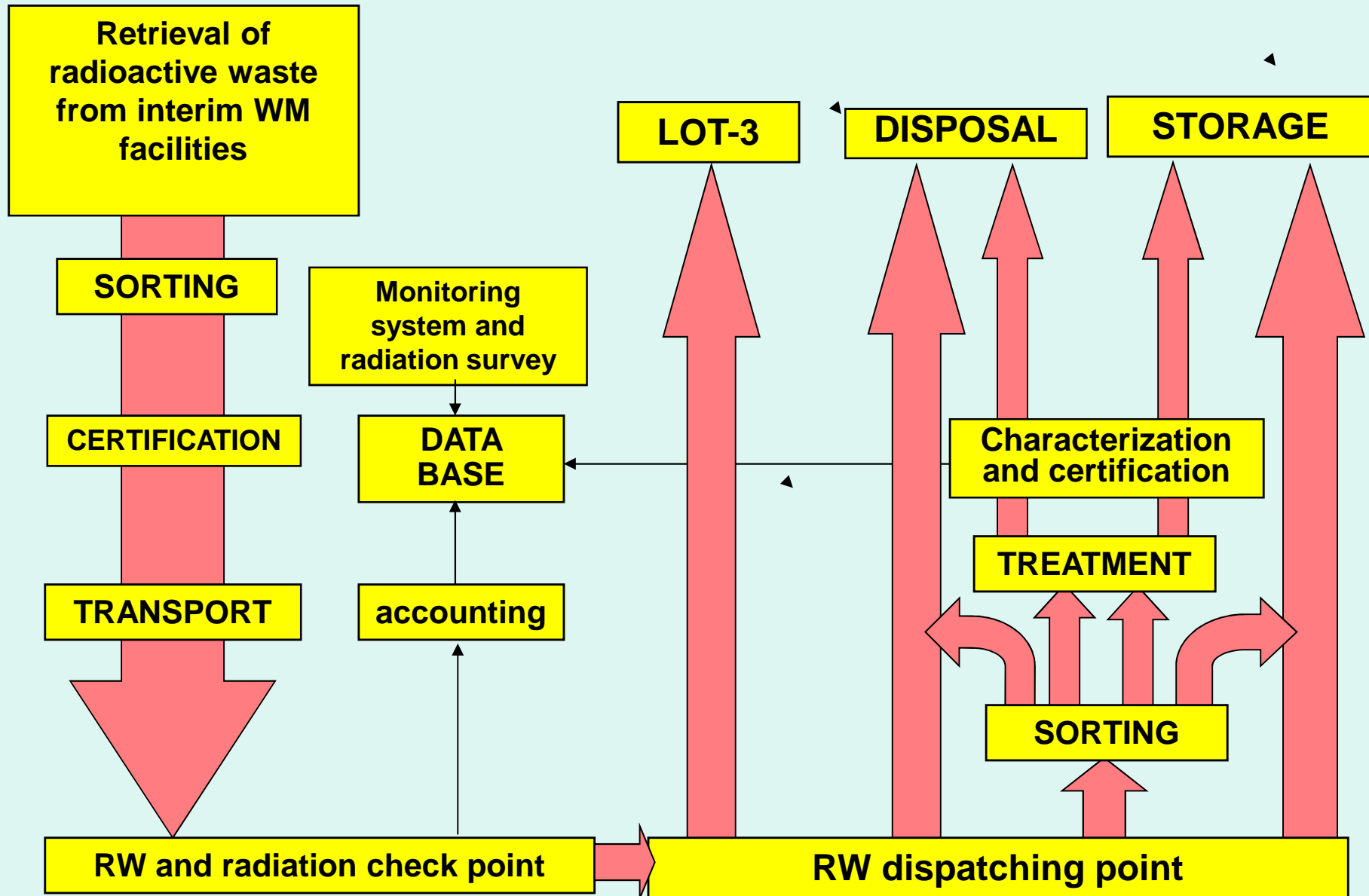
Nationwide environment-oriented program of radioactive waste management in Ukraine.

Task 4. RW, as a result of Chornobyl catastrophe

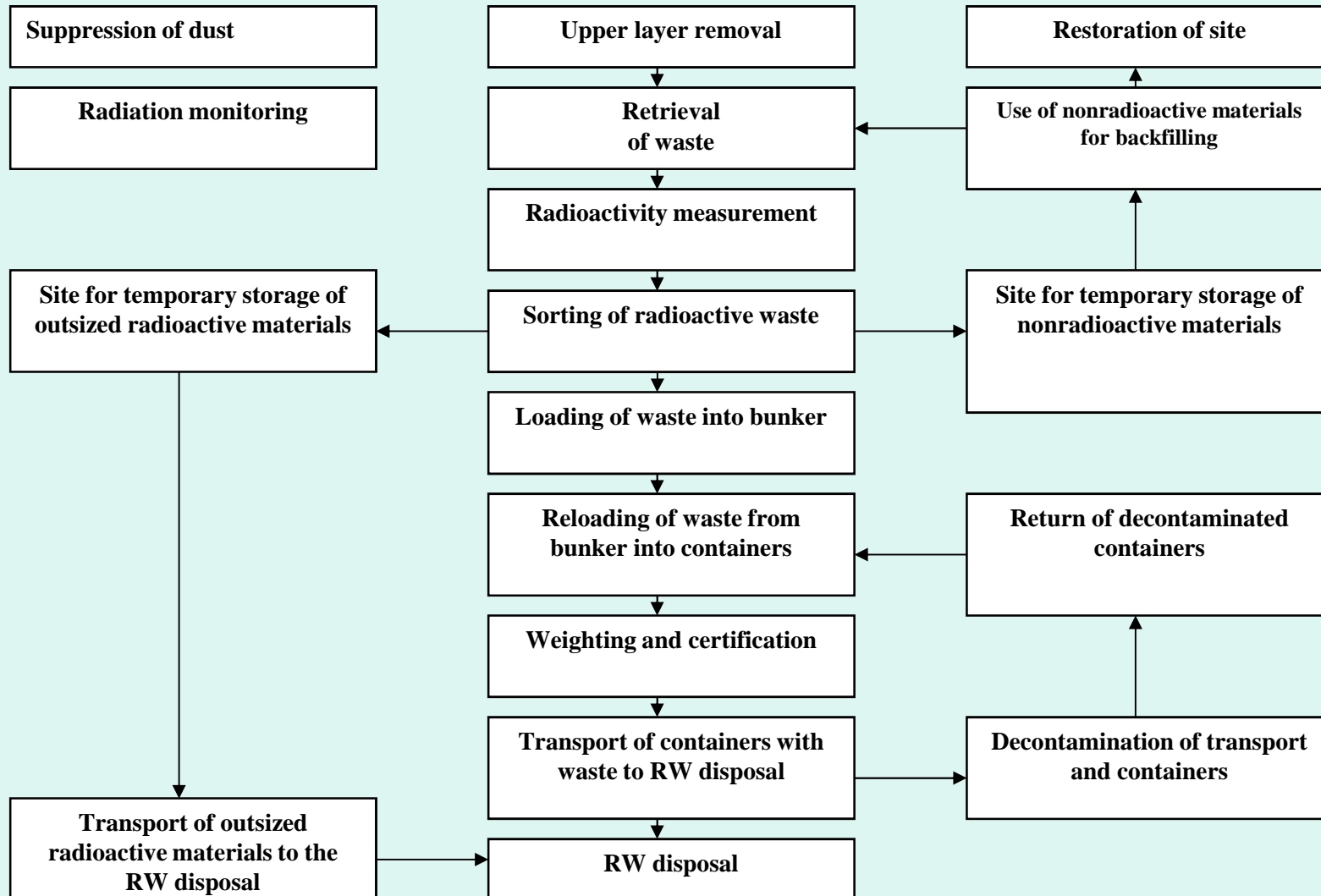
- Safety assessment
- Monitoring
- Radiation safety
- Physical protection
- Design and implementation
- RW removal
- Transport to Vector

Funding: 234.3 million UAH

VECTOR OPERATION



Retrieval of waste from temporary WM facility



First of all: preparedness

- Containers for RW
- Vehicles for RW transport
- Facilities (+mobile) for decontamination
- Facilities (+mobile) for RW treatment
- Predetermined sites for interim facilities location
- Long-term storage for RW
- RW repository

Chernobyl case: future tasks

- Comprehensive search and mapping of interim WM facilities
- Establishment of interim WM facilities cadastre
- Setting of interim WM facilities under regulatory control
- Safety analysis of interim WM facilities
- Interim WM facilities decommissioning planning

THANK YOU FOR ATTENTION