Legal Framework of Nuclear Safety in Kazakhstan

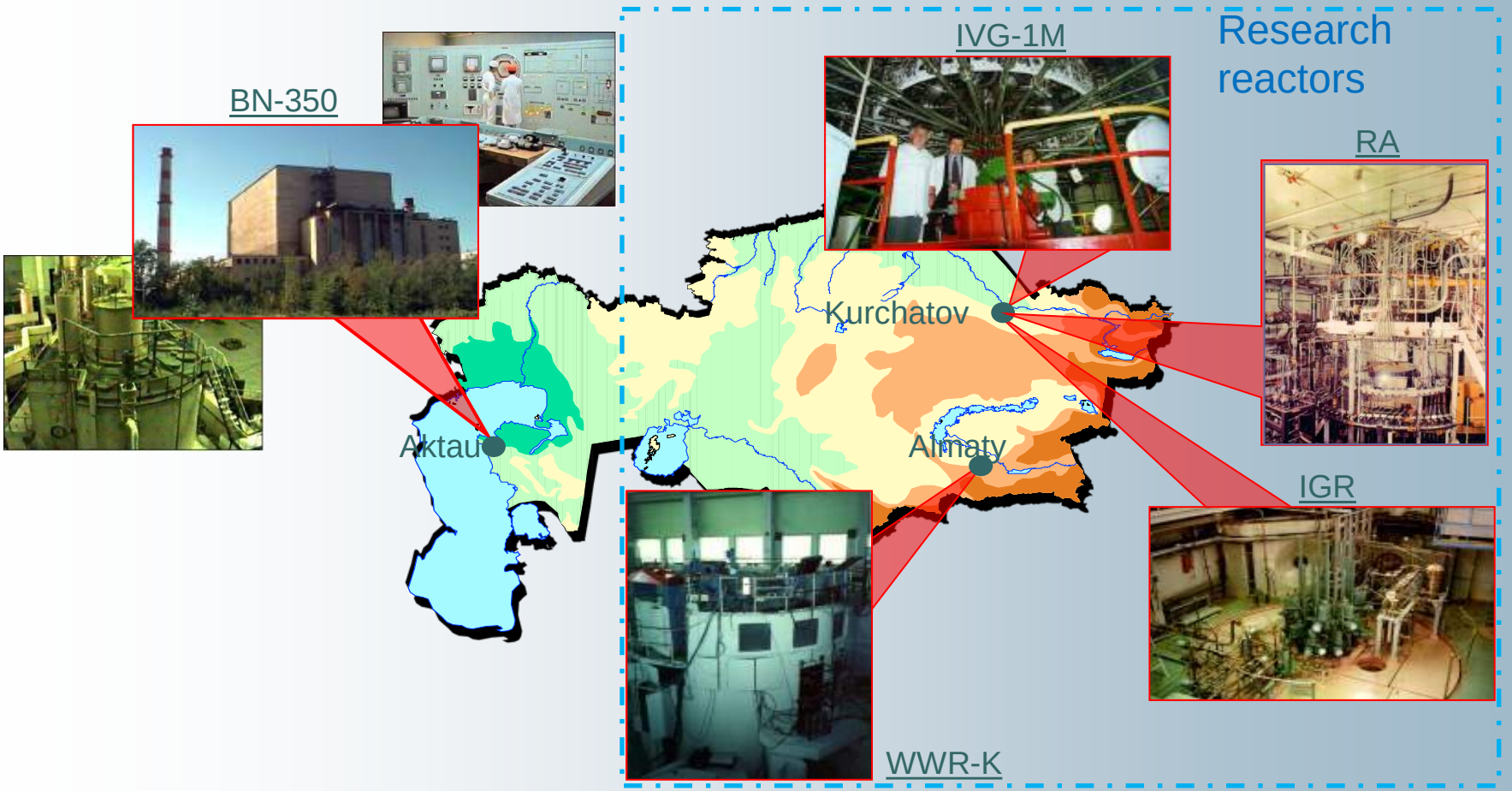
March 23, 2018, Tokyo, Japan

Presented by Alexander KLEPIKOV, Nuclear Technology Safety Center (NTSC)
Email: klepikov@ntsc.kz

Content

- Regulation area
- Legal framework of nuclear safety
- Regulator and regulatory structure
- Legal framework of public participation

Regulation area, *reactors*



Regulation area, *reactors*

	Function	Location	Type	Fuel	Status
1	WWR-K, a multi-purpose research	Alatau settlement, Almaty, INP	The pool type reactor	UAl_4, project enrichment 36%	In operation since 1967. HEU fuel, replaced by LEU (19.7%) is the fuel in the active zone. HEU fuel unloaded from the core and stored in at-reactor spent fuel storage is planned to be shipped to Russia
2	IGR, research	Kurchatov, RRC “IGR" IAE NNC RK	Uranium-graphite impulse actions without forced cooling	Graphite is impregnated with uranyl-nitrate, enrichment 90%	In operation since 1961. The fuel is loaded to the core, it was not unloaded from 1968. The spent fuel from the spent experimental devices and uranium-graphite blocks of the first active zone are located in two at-reactor spent fuel storage.
3	IVG-1M, research	Kurchatov, RRC “Baikal-1" IAE NNC RK	Water-cooled light water, upgrade of gas cooled ractor	Uranium-zirconium alloy, enrichment 90%	In operation since 1970. After the upgrade (transfer to water-cooled), since 1990, there was unloaded from the updated RC only one Assembly, that is stored in at-reactor spent fuel storage. SNF before modernization was unloaded and sent to Russia. The ability of the core to work on LEU instead of HEU is investigated
4	RA, research **Defuelled**	Kurchatov, RRC “Baikal-1" IAE NNC RK	Stand prototype of space propulsion reactor	Various options of space propulsion reactor fuel	In operation since 1987. Shutdown in 1998. The formal status is “operation", but the fuel is unloaded and sent to the Russia.
5	BN-350, experimental demonstration and power **Defuelled**	Aktau, MAEC-Kazatomprom	Breeder loop type with LMC (sodium)	UO_2, assemblies of 3 types with enrichment 17, 21 и 26%	In operation in the period 1972-1999. Shutdown, it is transferred to SAFESTORE, the fuel is unloaded and removed from the reactor site. Prior to 1991, spent nuclear fuel was sent to Russia. SNF generated since 1991 was packed and placed for the Long-Term Storage on the RRC "Baikal-1" IAE NNC RK

Regulation area, *BN-350 SF storage*

- BN-350 sealed canisters with spent fuel were loaded into dual-use casks (long-term storage/transportation).
- The casks then were transported to specially constructed Long-term spent nuclear fuel storage (LTSNFS)at the RRC ”Baikal-1” site of National Nuclear Center RK in the eastern area of RK, where it will be stored for 50 years.

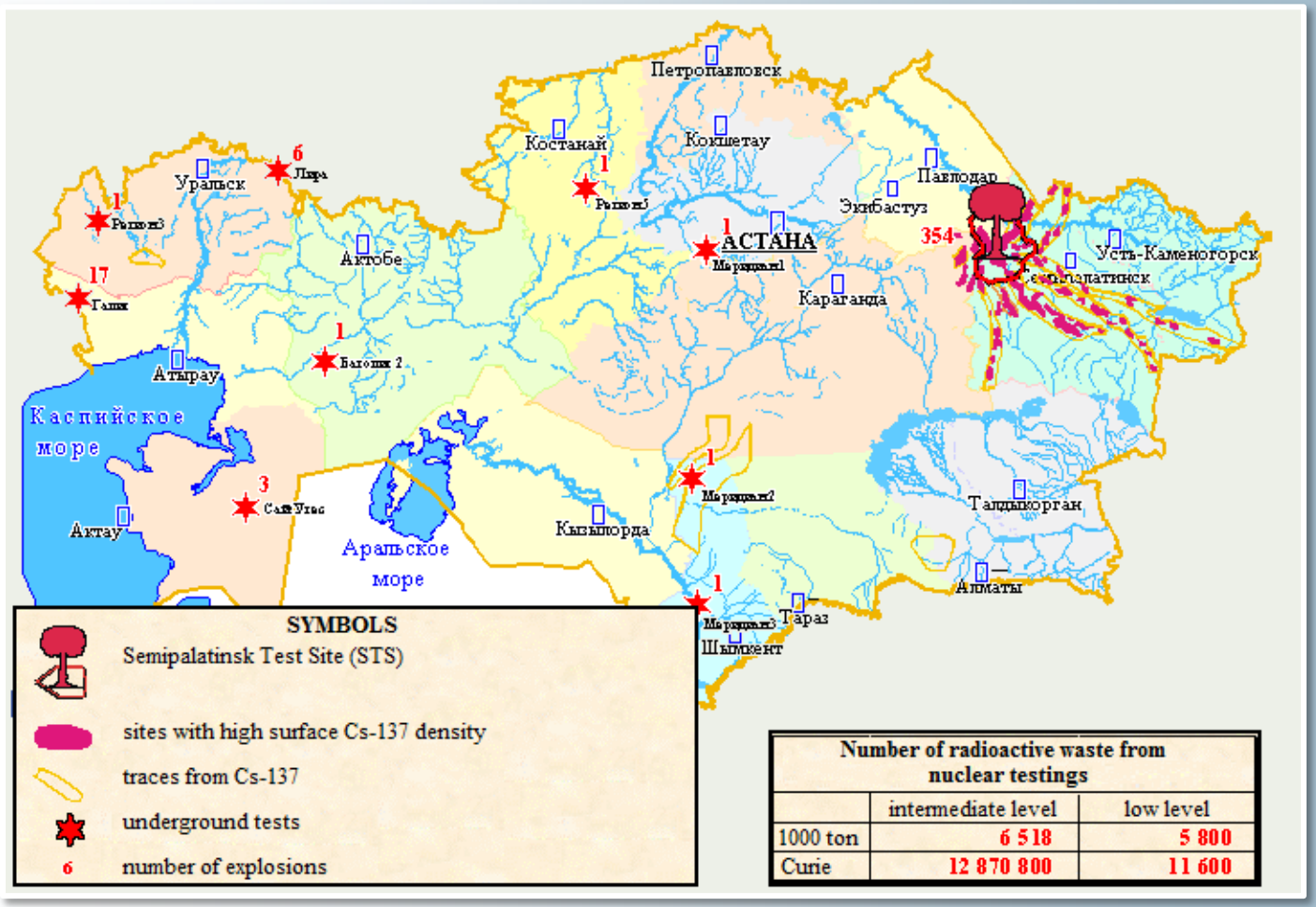
Regulation area, new *NPP*

- In 2006, in the framework of the joint statement of the Presidents of the Republic of Kazakhstan and the Russian Federation on cooperation in the field of peaceful use of atomic energy, the statement was made on the prospects for the construction of the first nuclear power plant in the western region of the Republic of Kazakhstan. During the period from 2007 to 2010 the technical specifications were developed for the reactor facility project and its main systems; feasibility report of the investment project "Construction of NPP with RF WBER-300 in Mangistau region" was developed and agreed. However, the further development of this project was not implemented.
- In 2011, the works on designing of nuclear power plant in the Republic of Kazakhstan were continued within the framework of the “Program of Atomic Industry Development in the Republic of Kazakhstan for 2011-2014 with the Prospect of Prolongation up to 2020”. The final decision on the construction of nuclear power plant in Kazakhstan is currently pending. In the beginning of 2016, the implementation of the Program was postponed on one year, till the beginning of 2017, and then till the end of 2018.

Regulation area, *LEU bank*

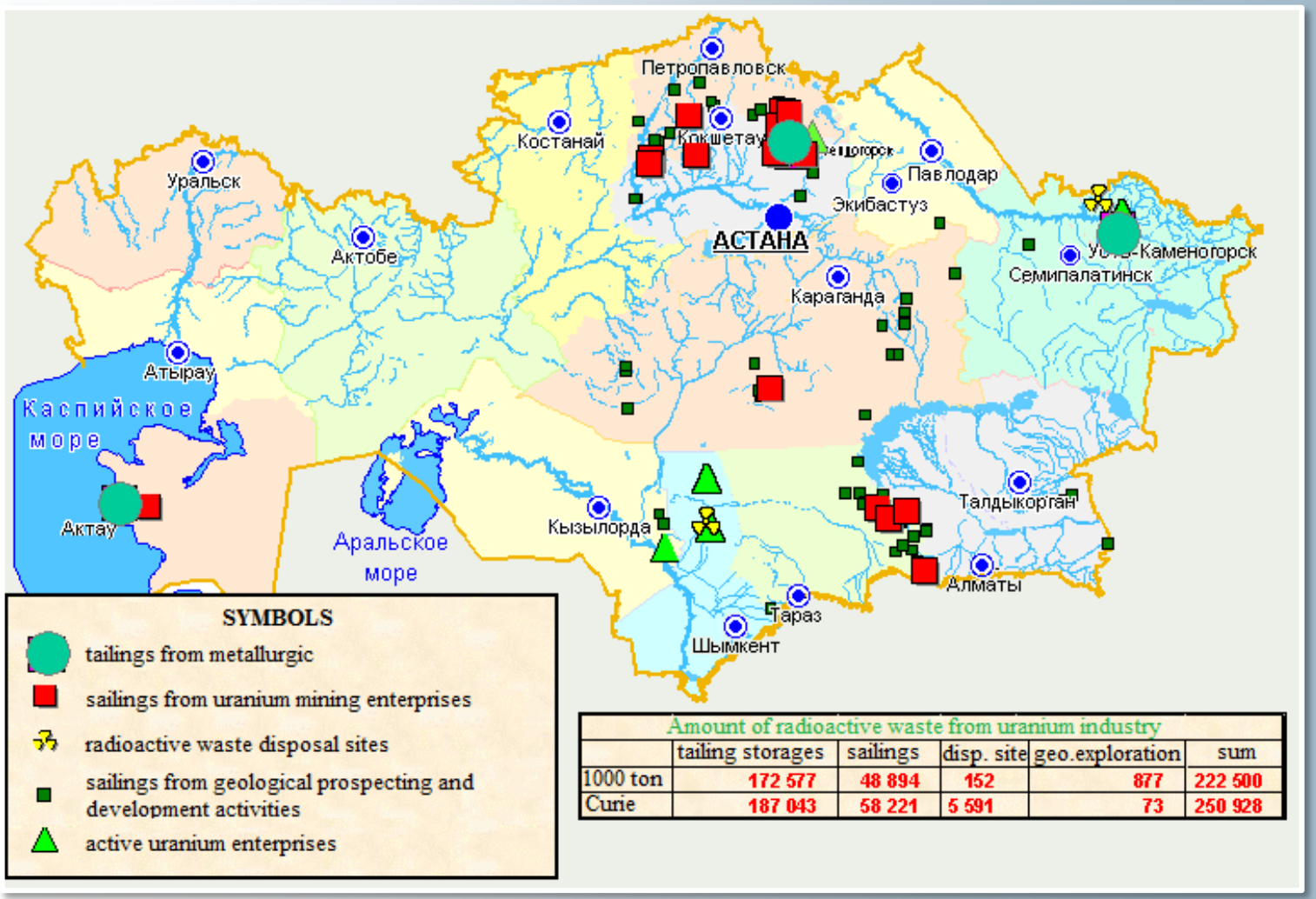
- The IAEA Low Enriched Uranium (LEU) Bank will be a physical reserve of LEU available for eligible IAEA Member States.
- The IAEA LEU Bank will be located at the Ulba Metallurgical Plant in Oskemen, Kazakhstan. It is anticipated that it will take about two years from the signature of the IAEA LEU Bank agreements to do all the necessary work to bring the IAEA LEU Bank into operation.

Regulation area, former nuclear testing sites



Number of radioactive waste from nuclear testings		
	intermediate level	low level
1000 ton	6 518	5 800
Curie	12 870 800	11 600

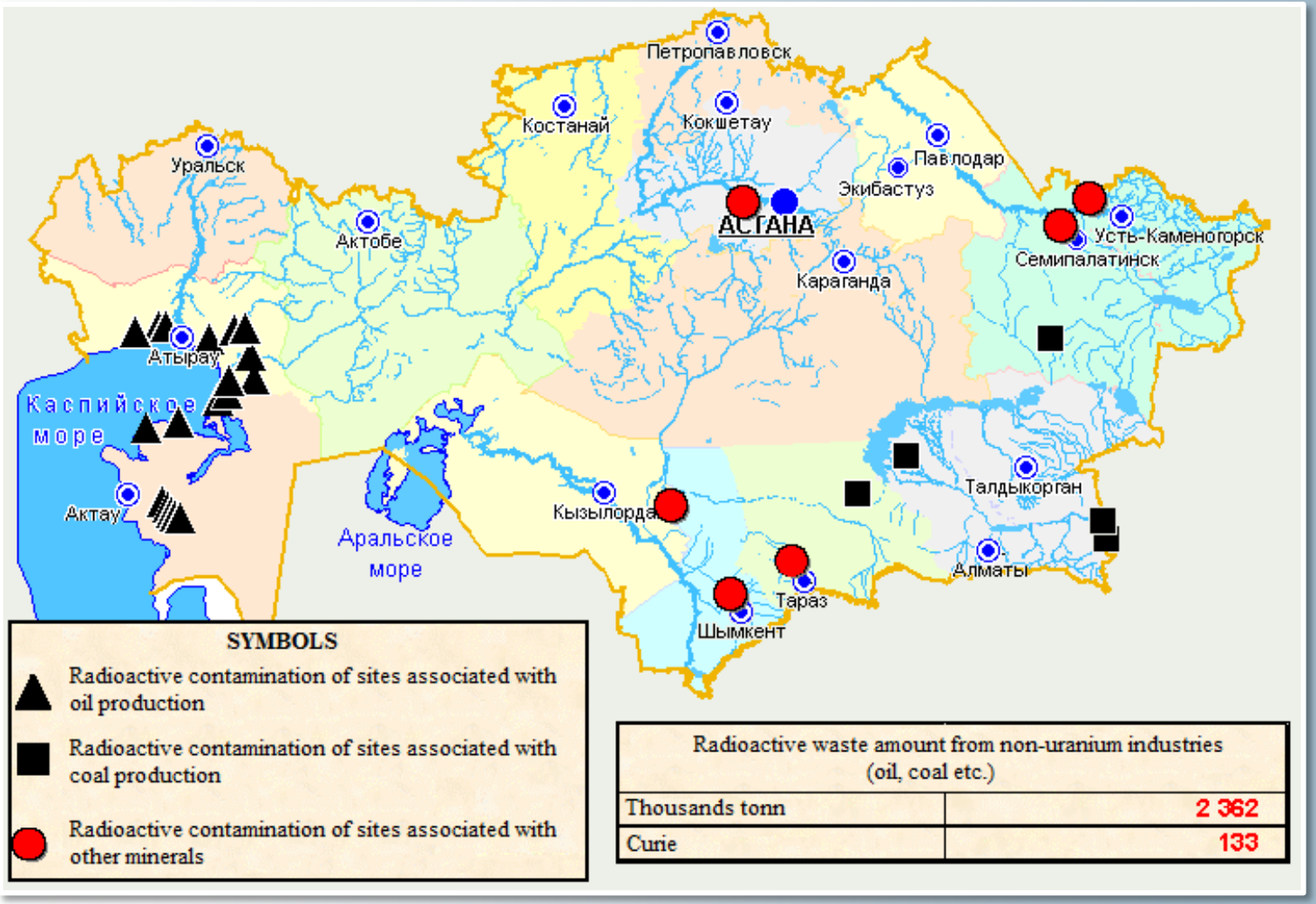
Regulation area, *uranium enterprises and related RW*



Amount of radioactive waste from uranium industry

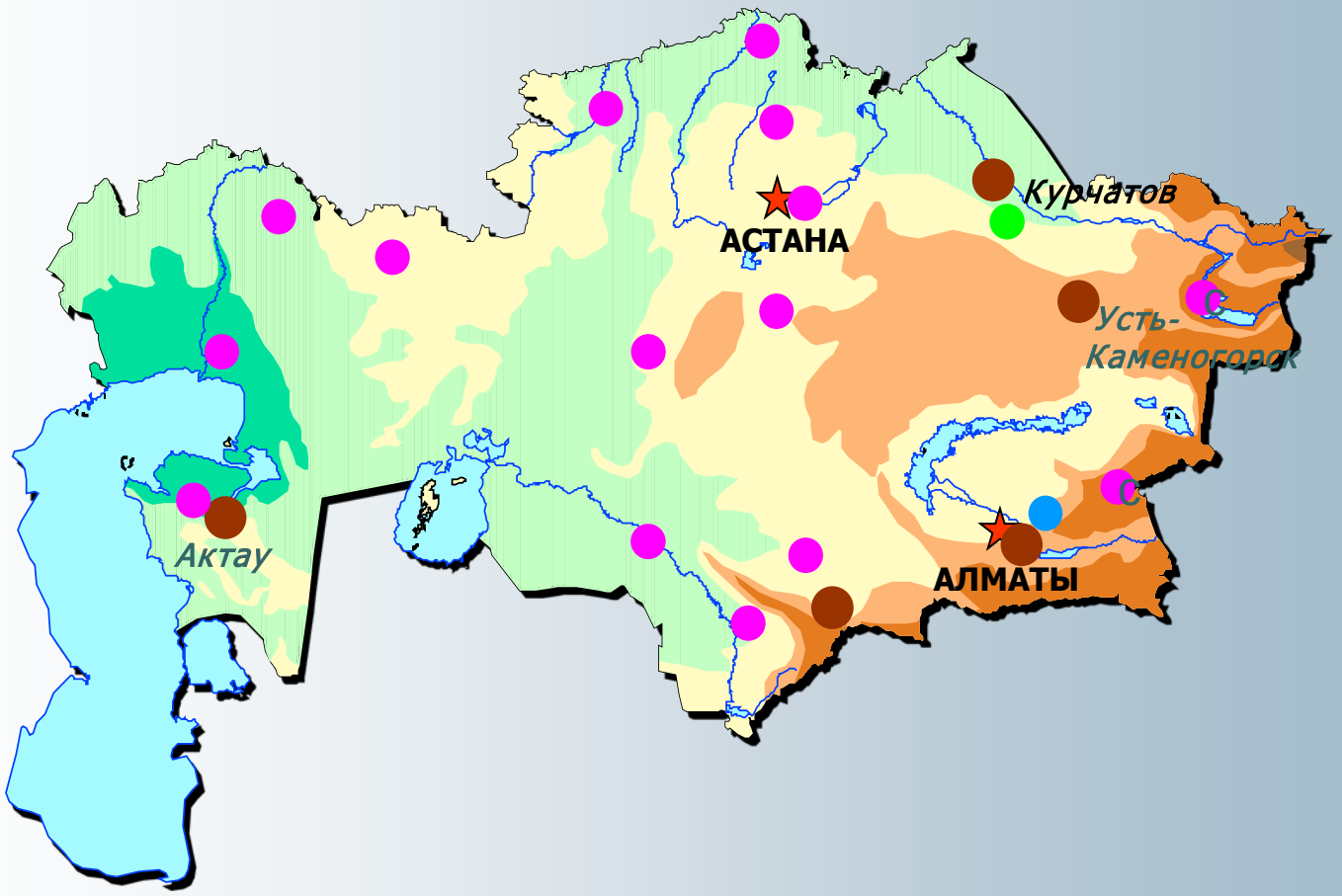
	tailing storages	sailings	disp. site	geo.exploration	sum
1000 ton	172 577	48 894	152	877	222 500
Curie	187 043	58 221	5 591	73	250 928

Regulation area, *non-uranium enterprises and related RW*



Radioactive waste amount from non-uranium industries (oil, coal etc.)	
Thousands tonn	2 362
Curie	133

Regulation area, *sealed sources*



- Radionuclide sources (Category 1-2, according to IAEA categorization)
- Special storage facilities for radionuclide sources

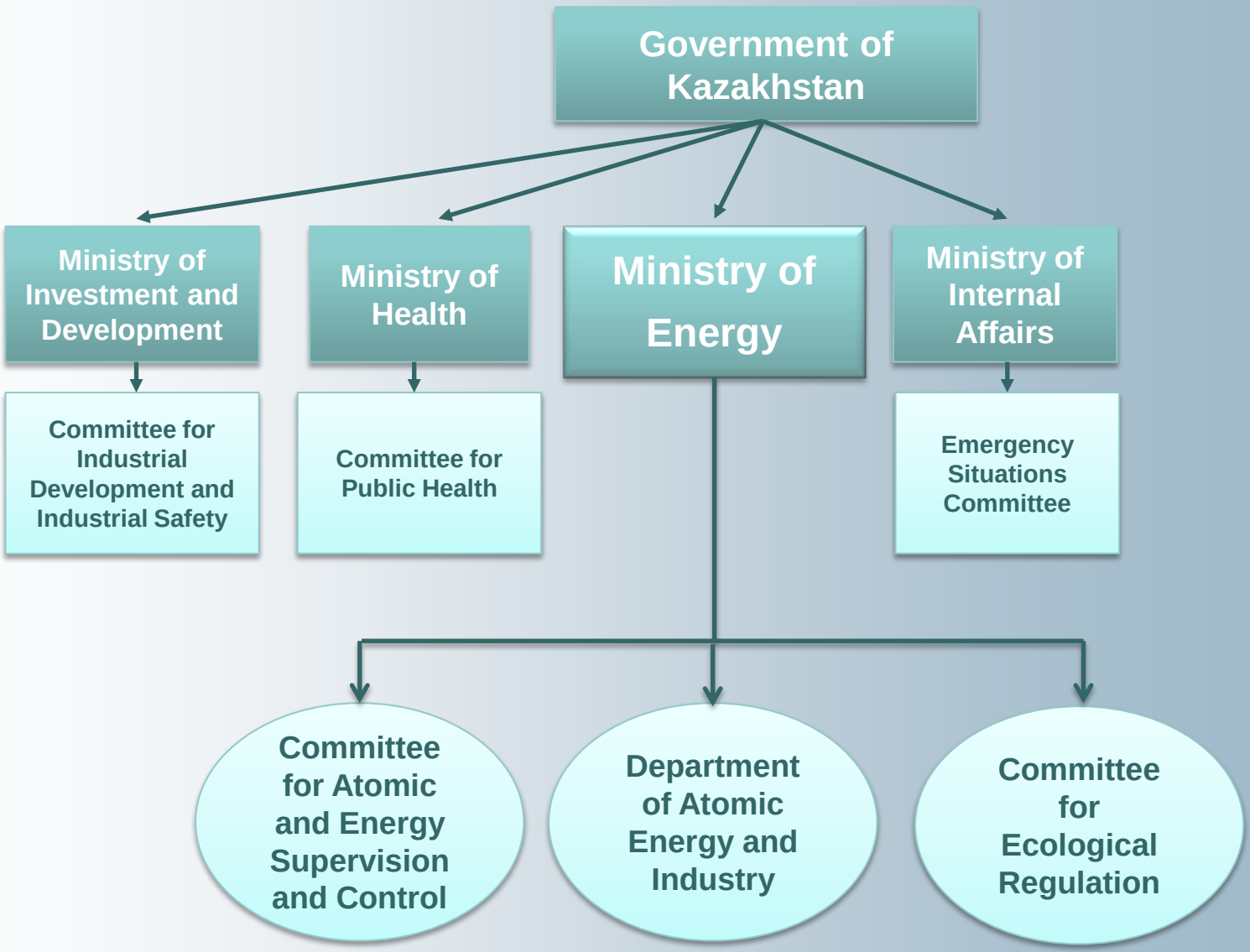
Ratified international conventions, *nuclear safety*

- Law of Republic of Kazakhstan dated on February 3, 2010, No. 244-IV **“On Ratification of Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency”**
- Law of Republic of Kazakhstan on February 3, 2010 No. 245-IV **“On Ratification of the Convention on Nuclear Safety”**
- Law of Republic of Kazakhstan dated on February 3, 2010, No. 243-IV **“On Ratification of the Convention on Early Notification of a Nuclear Accident”**
- Law of Republic of Kazakhstan on February 3, 2010 No. 246-IV **“On Ratification of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste”**
- Law of Republic of Kazakhstan on February 10, 2011 No. 405-IV “On Ratification of the Vienna Convention on Civil Liability for Nuclear Damage of 1997 (Consolidated text of the Vienna Convention on Civil Liability for Nuclear Damage of May 21, 1963, as amended by the Protocol of September 12, 1997)”

Regulator

- Functions specific to the nuclear regulator are currently assigned to the Ministry of Energy of the Republic of Kazakhstan.
- Committee for Atomic and Energy Supervision and Control of ME RK (CAESC ME RK), is the agency carrying out control and realization functions in the field of atomic energy use within the competence of the ME RK.
- Regulatory functions in the field of the use of atomic energy in the Republic of Kazakhstan are also carried out by:
  - Committee for Environmental Regulation and Control of the Ministry of Energy of the Republic of Kazakhstan, which performs the functions of environmental protection,
  - Committee of the Public Health Protection of the Ministry of Health of the Republic of Kazakhstan in the sphere of sanitary and epidemiological welfare of the population,
  - Committee for Industrial Development and Industrial Safety of the Ministry of Investment and Development of the Republic of Kazakhstan, performs control and supervision in the field of industrial safety sphere,
  - Committee of Emergency Situations of the Ministry of Internal Affairs acting for liquidation of man-caused accidents and the Ministry of Internal Affairs, carrying out permit functions and facilities physical protection.

Regulatory structure



Regulatory documents

The need for legislative regulation of the activity related to atomic energy use is caused by its potential danger, and the availability of facilities and dual-use technologies that can be potentially used not only for peaceful purposes. The modern legal and regulatory basis of the Republic of Kazakhstan in the field of atomic energy use and radiation safety is presented by four levels:

- First level - Decrees of the President of the Republic of Kazakhstan having the force of law, Codes and Laws of the Republic of Kazakhstan.
- Second level - the Decrees of the Government of the Republic of Kazakhstan on the atomic energy use and radiation safety.
- Third level - the Rules and Regulations specifying the issues of radiation safety while handling the radiation sources, prescribing the allowable radioactive contamination of the environment and exposure of workers and the public, which are approved by the central government authorities.
- Fourth level - the standards, guidelines, standard instructions for individual industries and enterprises of the industry.

Regulatory documents

- Part of regulatory documents was developed by the Republic of Kazakhstan in the framework of the national legislation in the field of atomic energy use and protection of public health (Technical regulations and Sanitary rules).
- In addition, the Republic of Kazakhstan still use some safety-related technical documents developed in USSR, which consider the issues that are not reflected in the Technical regulations and Sanitary rules.
- As part of the improvement of national legislation, it is planned to update regulatory documents in the field of nuclear and radiation safety and radwaste management.

Public participation

International conventions

- Law of Republic of Kazakhstan dated on October 21, 2000, No. 86-II “On Accession of the Republic of Kazakhstan to the Convention on Environmental Impact Assessment in a Transboundary Context”
- Law of the Republic of Kazakhstan on October 23, 2000 No. 92-II”On Ratification of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in issues related to the Environment”

Public participation, *contd*

- Law of the Republic of Kazakhstan on “Public Councils” dated of November 2, 2015 # 383-V. The law determines legal status, formation procedure and organization of activity for public councils, directed at realization of state policy on building of public reporting state, providing broad participation of non-commercial organizations and citizens in solution-making proposed by state authorities of all levels. This law is applicable for all types of activities.
- Environmental Code of the Republic of Kazakhstan dated January 9, 2007 # 212. Article 57 of the Code involves participation of public in solutions-making associated with issues on environment protection.

Thank you for attention!

Contacts:

Nuclear Technology Safety Center

Liza Chaikina 4, Almaty, Kazakhstan, 050020

1-st Phone/FAX: +7-727-2646801

2-nd Phone/FAX: +7-727-2646701

3-rd FAX/Phone: +7-727-2646803

E-mail: ntsc@ntsc.kz

Web-page: www.ntsc.kz