The features of the technological development of the sector of water supply and sanitation in Russia

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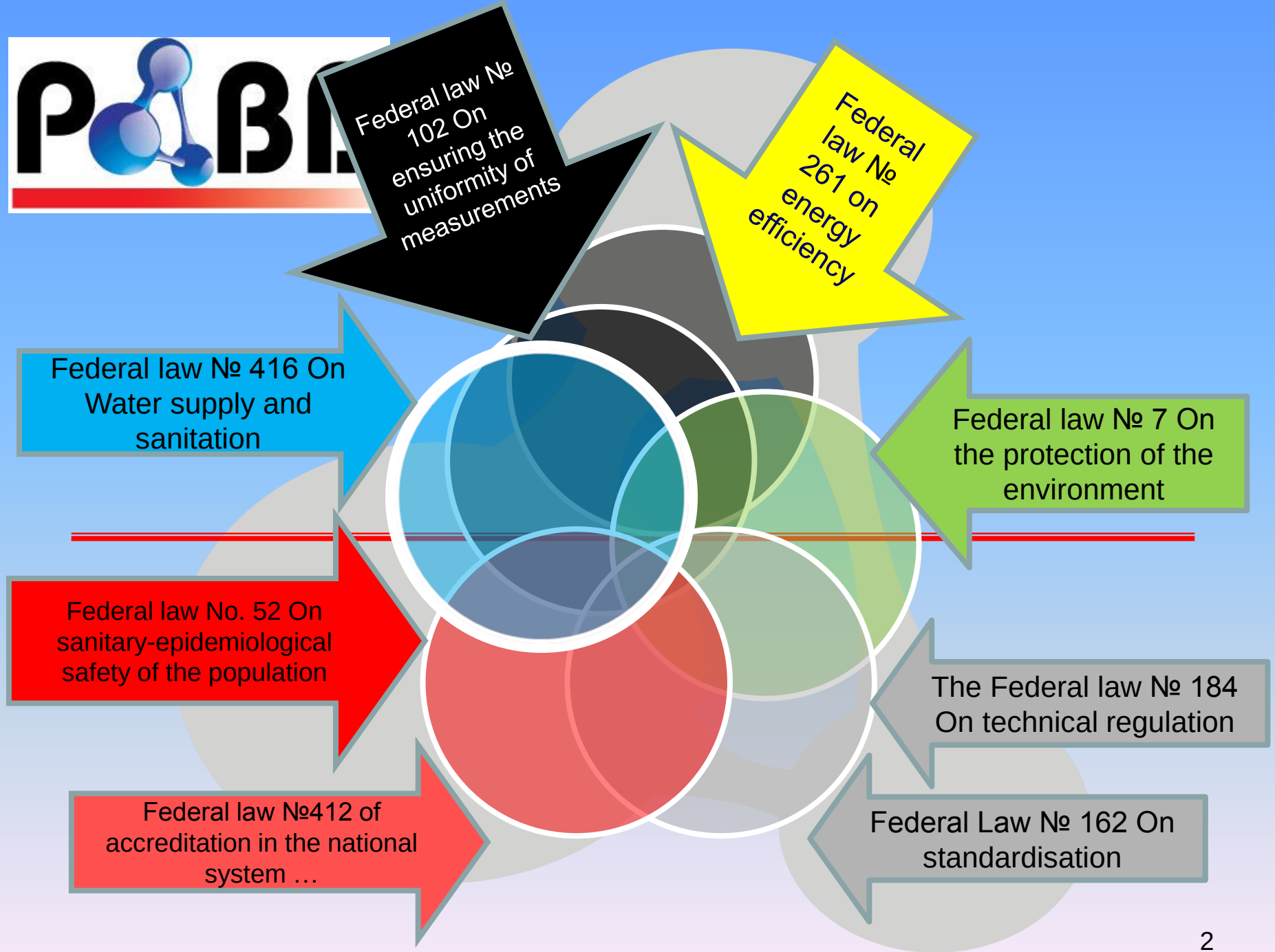
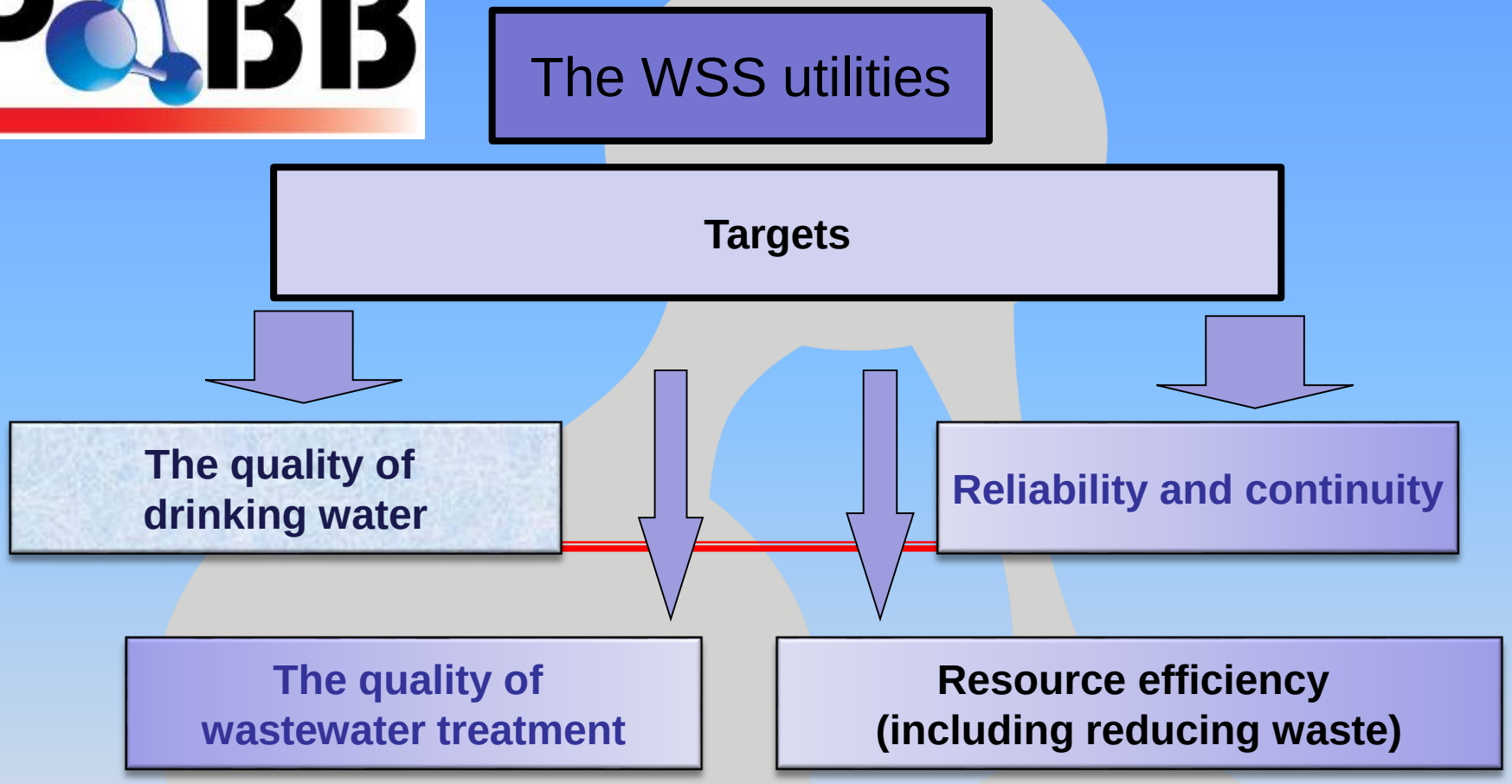
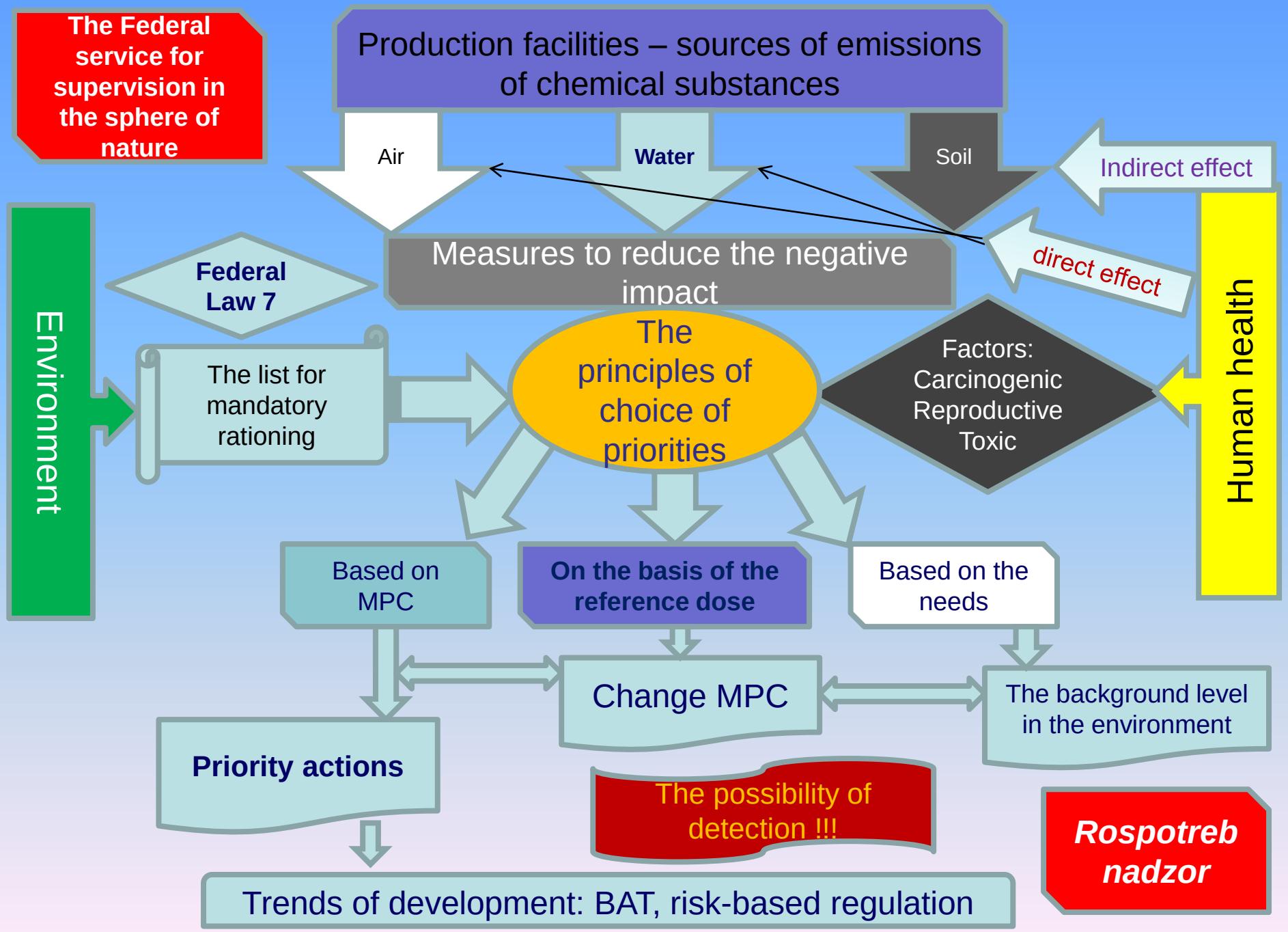

Federal law № 102 On ensuring the uniformity of measurements
Federal law № 261 on energy efficiency
Federal law № 416 On Water supply and sanitation
Federal law № 7 On the protection of the environment
Federal law No. 52 On sanitary-epidemiological safety of the population
The Federal law № 184 On technical regulation
Federal law №412 of accreditation in the national system …
Federal Law № 162 On standardisation

The Federal law 416 - targets of the organization's activities in the water sector



Targets are established by public authority of the subject of the Russian Federation for the period of the investment program taking into account their comparison with the best analogues of actual performance over the last control period and results of the technical audit.


The Federal service for supervision in the sphere of nature
Production facilities – sources of emissions of chemical substances
Air
Water
Soil
Indirect effect
direct effect
Human health
Environment
Federal Law 7
Measures to reduce the negative impact
The list for mandatory rationing
The principles of choice of priorities
Factors: Carcinogenic Reproductive Toxic
Based on MPC
On the basis of the reference dose
Based on the needs
Change MPC
The background level in the environment
Priority actions
The possibility of detection !!!
Rospotreb nadzor
Trends of development: BAT, risk-based regulation

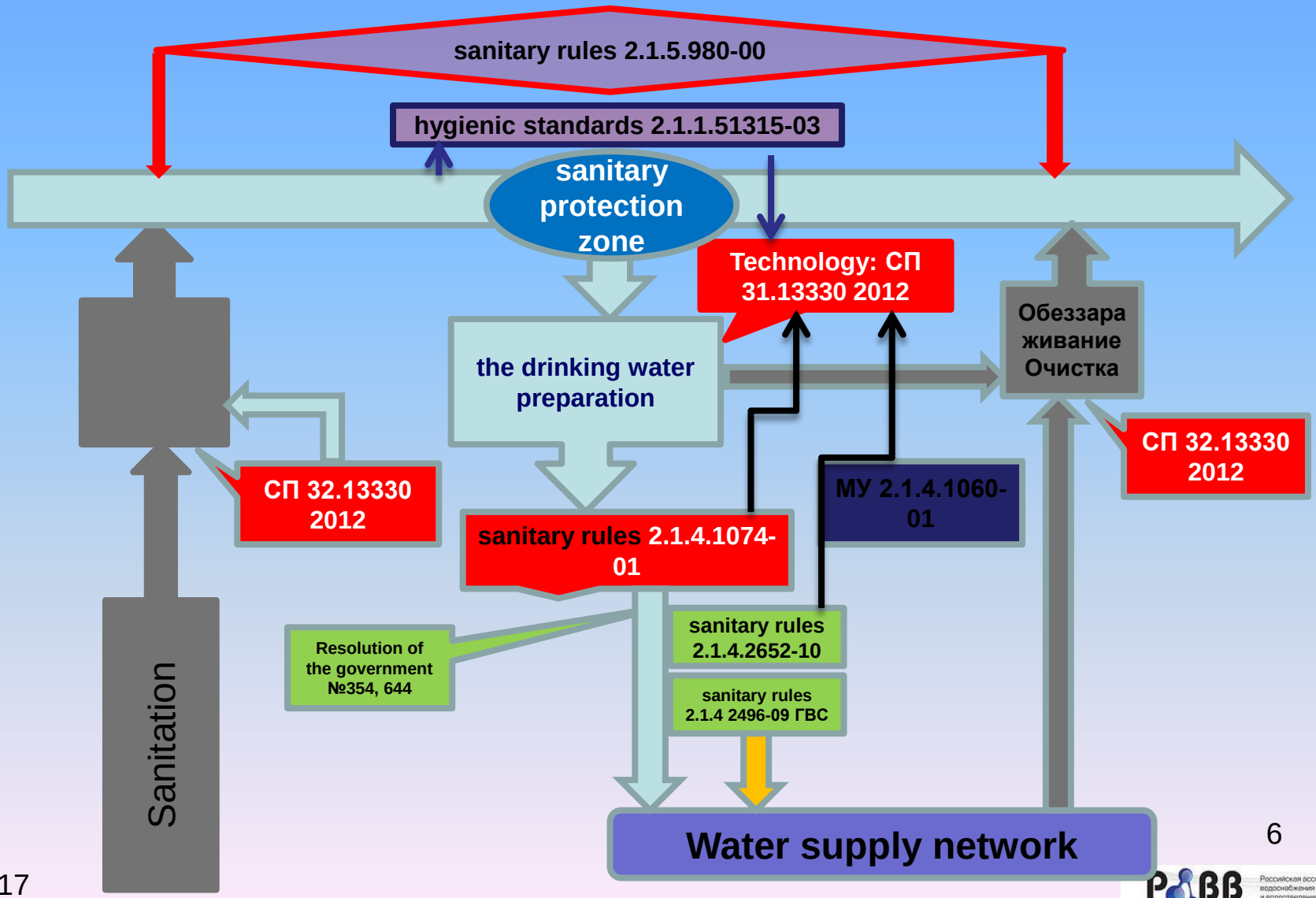
Как учитывается состояние отрасли ВКХ при переходе на НДТ?

The use of basic technologies at MWWP

Indicators	Sewage treatment plants with different design performance, %			
	More than 300000 m3/day.	100000–300000 m3/day.	Less than 100000 m3/day.	In General all groups
The number of the counted objects	20 ед.	30 ед.	150 ед.	**200 ед.**
Have biological treatment	100	96,7	*100*	***99,5***
Biological treatment is performed in aerotanks	100	100	*95,6*	***96,7***
Biological treatment is performed in the biofilters	0	0	*4,4*	***3,3***
Apply nitrogen removal (denitrification)	20	16	14	**15**
Used diphosphatase	10	10	*8*	***8,5***
Have stage purification	20	29	*31*	***29,6***
UV disinfection	25	30	*18*	***20,5***
Disinfection with chlorine	35	32	*28*	***29,3***
Disinfection with sodium hypochlorite	30	22	*24*	***24,3***
Disinfection free chlorine reagent	0	0	*4*	***3,0***
Without disinfection	10	16	*26*	***22,9***
Aerobic stabilization	20	16	*24*	***22,4***
Anaerobic digestion	35	13	*8*	***11,5***
Mechanical dewatering	80	71	*31*	***41,9***

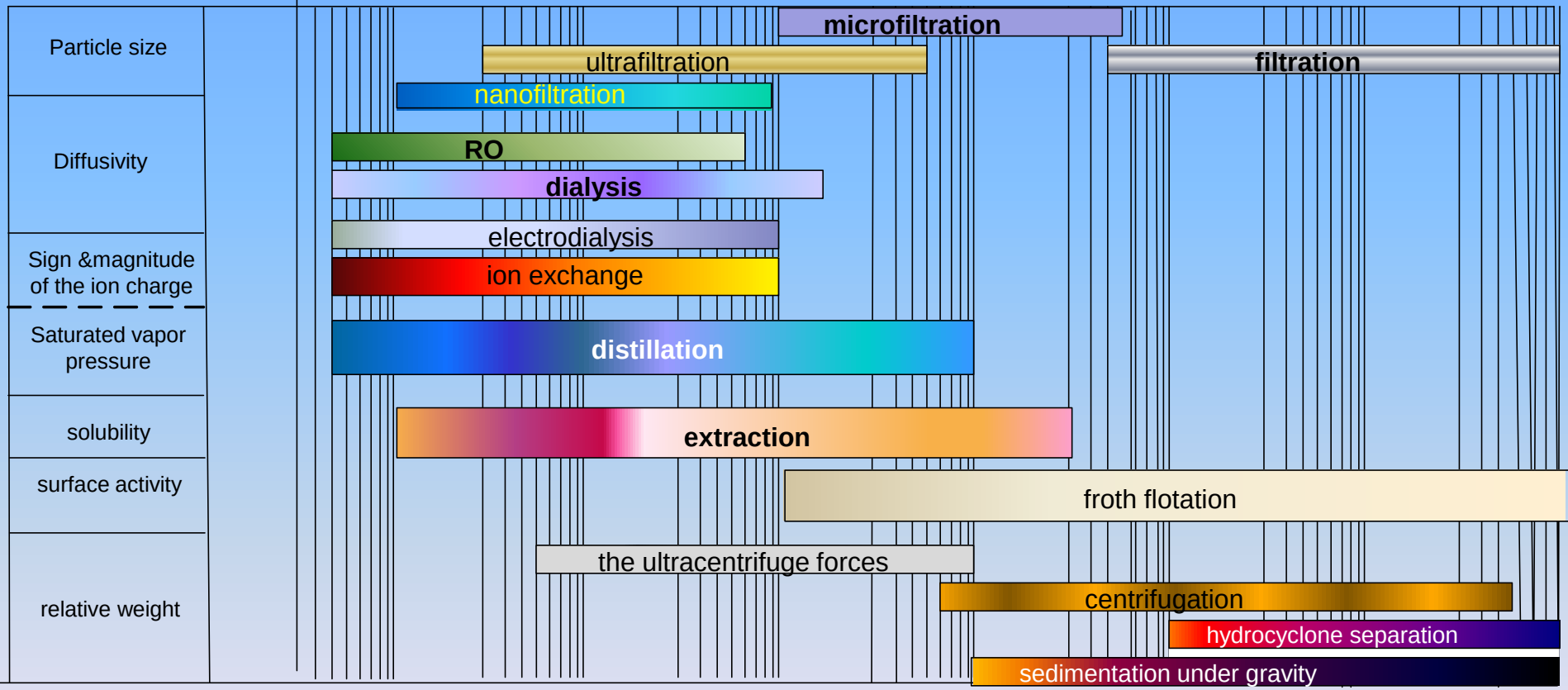
- In the industry only 10% of sewage treatment facilities have a modern level of biological treatment (NDT). Conclusion on the industry analysis: BAT for water and wastewater – maximum ecological and economic efficiency, i.e., the maximum prevented damage to the environment on the ruble of invested funds

Drinking water. The particular legislation



The range of properties of the pollutants and possible methods for their removal

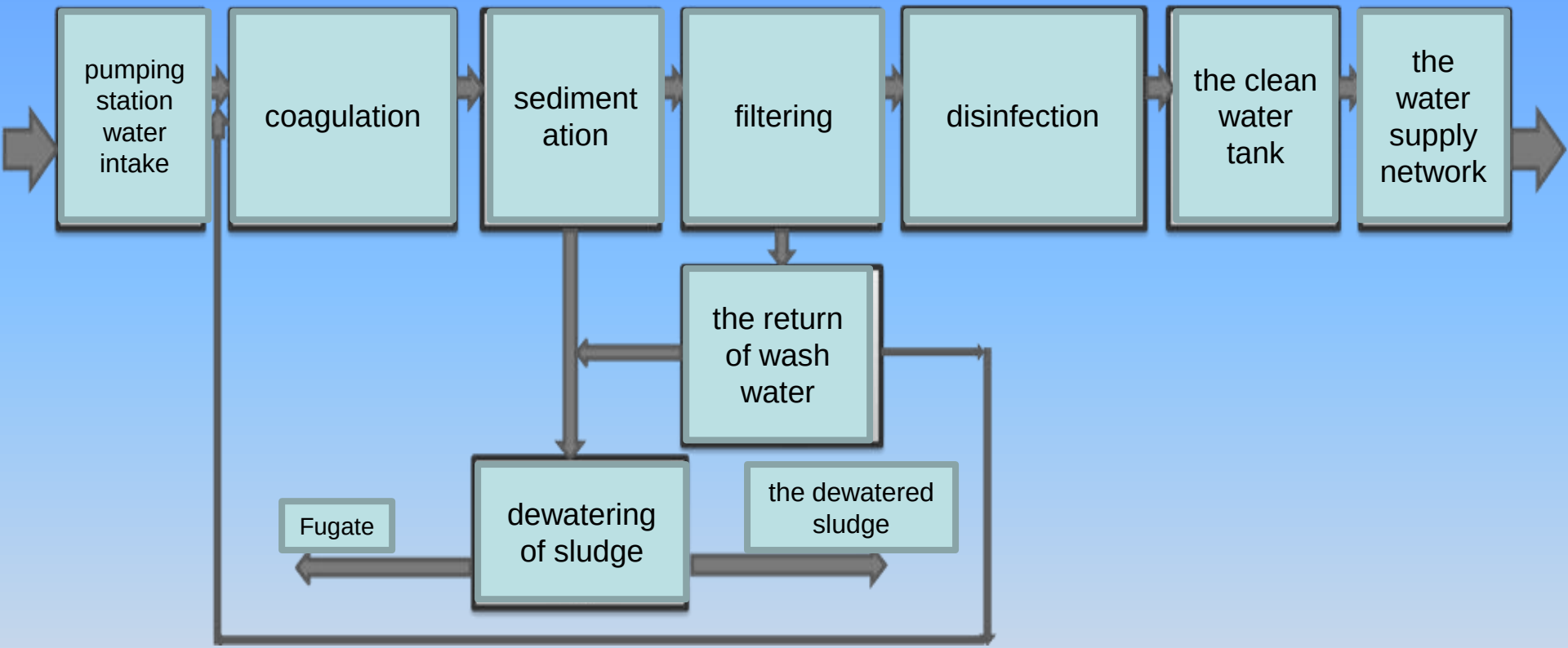
Properties that determine separation



Angstrom	**1,0**	**10**	**10^2**	**10^3**	**10^4**	**10^5**	**10^6**	**10^7**
nanometer	**10^{-1}**	**1,0**	**10**	**10^2**	**10^3**	**10^4**	**10^5**	**10^6**
Micrometer	**10^{-4}**	**10^{-3}**	**10^{-2}**	**10^{-1}**	**10**	**10**	**10^2**	**10^3**
Millimeter	**10^{-7}**	**10^{-6}**	**10^{-5}**	**10^{-4}**	**10^{-3}**	**10^{-2}**	**10^{-1}**	**10**

Ions and molecules | **Macromolecules** | **Colloidal solutions** | **Suspension**

An example of the problems of water treatment



The share of reagents in the tariff of water utilities 2…6%

The growth of prices of reagents 20…250%

Technological challenges

1	Improving the quality of the process
2	Optimization of reagent consumption
3	Recycling of wash water
4	Reducing the burden on fast filters
5	The failure of the primary disinfection

Compliance with the Unified requirements of the Customs Union dated may 28, 2010

Thank you for your attention!

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