

Ministry for Natural Resources and Environmental Protection of the Republic of Belarus



Central Research Institute for Complex Use of Water Resources
(CRICUWR)

***Water quality monitoring and
assessment in the Republic of Belarus***

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MONITORING PRACTICE

Several different agencies monitor the conditions of water objects in the Republic of Belarus to meet the following goals:

- hydrochemical control over waterway contamination and control over pollution sources (Ministry of Natural Resources and Environmental Protection);
- monitoring of the natural water background composition, ecological condition of water objects, registration of surface runoff (the National Hydrometeorological Center (NHC) and the National Center for Radiological Control and Environmental Monitoring (NRCCEM));
- control over the hygiene and sanitary condition of water in physical contact with man that has direct impact on his health (Ministry of Health).
- impact (local) monitoring for surface and waste waters for some enterprises (from adopted list)

Transboundary river basins in Belarus

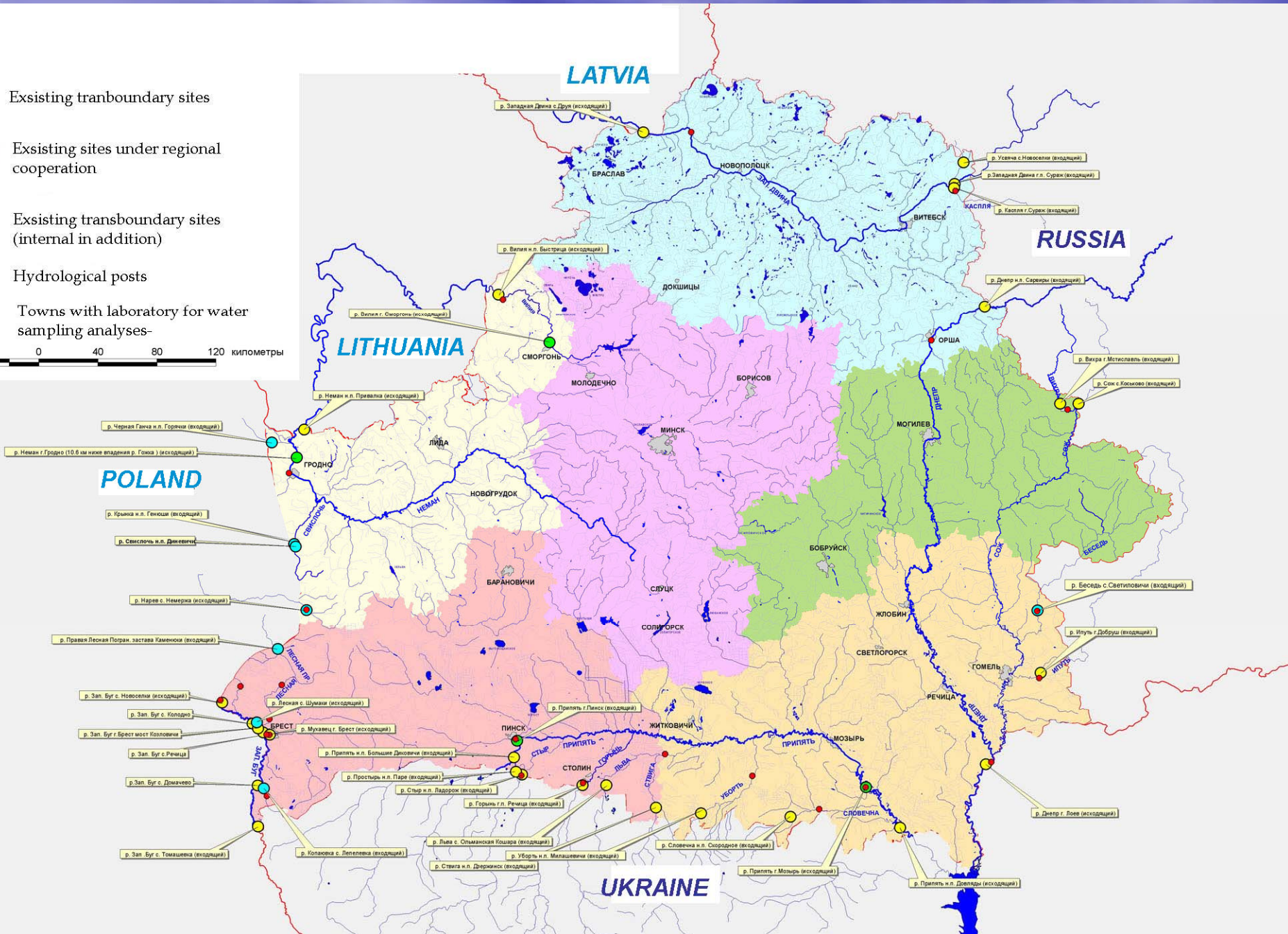


SOURCE: CRICUWR(2003)

Transboundary water quality monitoring network

- Existing transboundary sites
- Existing sites under regional cooperation
- Existing transboundary sites (internal in addition)
- Hydrological posts
- Towns with laboratory for water sampling analyses-

40 0 40 80 120 километры



DETERMINING WATER QUALITY BY WPI

Water pollution degree	Textual description	WPI Value
I	Very clean	< 0.3
II	Clean	0.3–1
III	Moderately polluted	1–2.5
IV	Polluted	2.5–4
V	Dirty	4–6
VI	Very dirty	6–10
VII	Extremely dirty	> 10

The WPI is calculated on the basis of average annual concentrations of the following major ingredients: solute oxygen, BOD₅, ammonia nitrogen, nitrite nitrogen, phenols, and oil products. The WPI is calculated according to the following formula:

$$WPI = \frac{\sum_{i=1}^n C_i / PDK_i}{6}$$

C_i – average value of concentration in mg/l of substance i

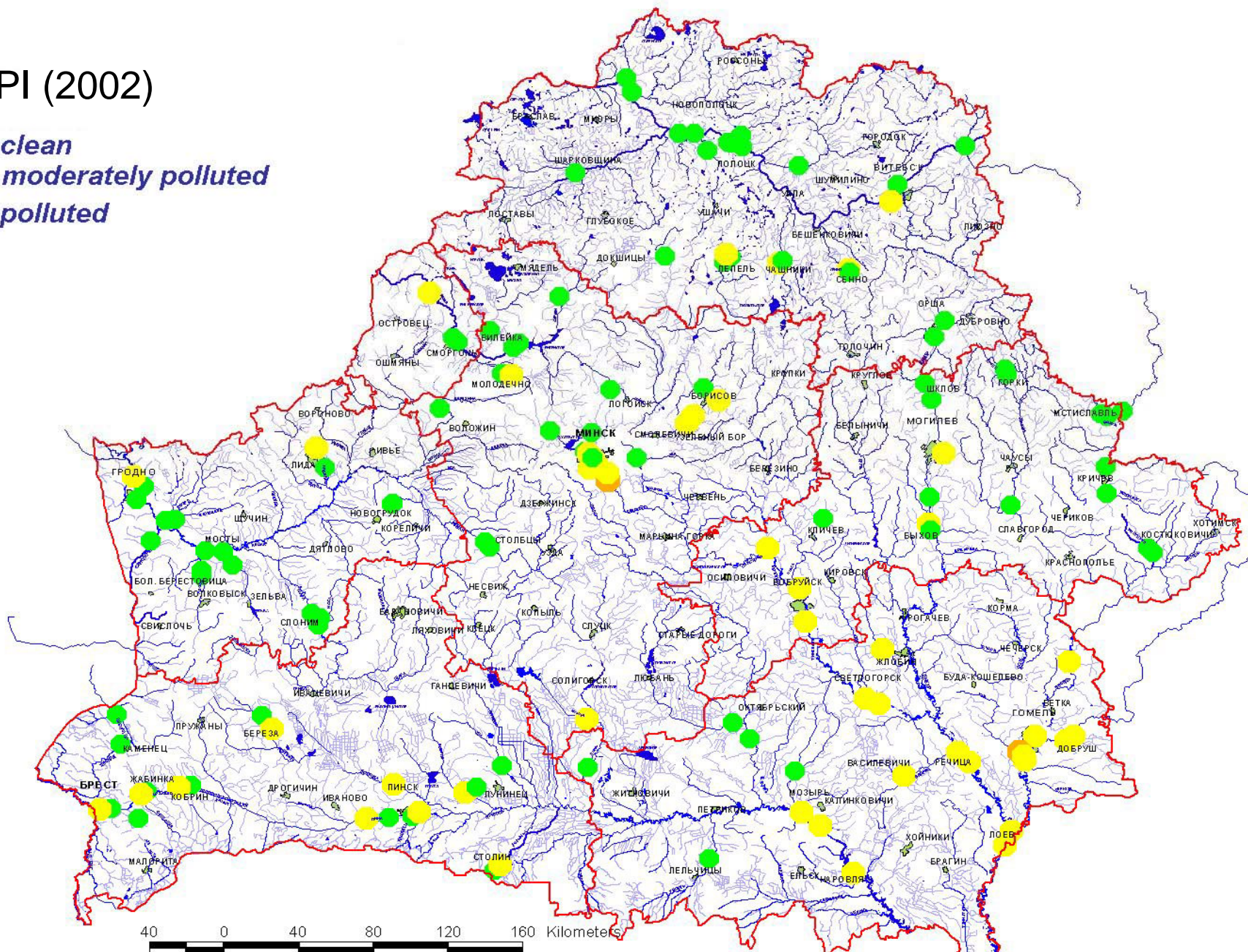
CLASSIFICATION OF WATER BODIES AND WATERWAYS QUALITY BY HYDROBIOLOGICAL INDICES

Water quality class	Water pollution degree	For phytoplankton, zooplankton, periphyton	For zoobenthos	
		Saprobity index by Pantle and Bukk (in Sladeczek modification)	Proportion between the total amount of oligochaete and the total amount of bottom organisms, % (Goodnight – Whitley index)	Biotic index by Woodiviss, points
I	Very clean	less than 1.00	1 – 20	10
II	Clean	1.00 – 1.50	21 – 35	7 – 9
III	Moderately polluted	1.51 – 2.50	36 – 50	5 – 6
IV	Polluted	2.51 – 3.50	51 – 65	4
V	Dirty	3.51 – 4.00	66 – 85	2 – 3
VI	Very dirty	over 4.00	86 – 100 or macrobenthos is absent	0 - 1

MAP OF CLASSIFICATION WATER QUALITY BY WPI

WPI (2002)

- *clean*
- *moderately polluted*
- *polluted*



OBSERVATION POINTS OF LOCAL MONITORING_c

- Предприятия, включенные в Перечень юридических лиц, осуществляющих проведение локального мониторинга окружающей среды в составе Национальной системы мониторинга окружающей среды в Республике Беларусь (сбросы сточных вод и поверхностные воды)

ГРОДНО - Аналитические лаборатории
Минприроды (контроль выбросов и сбросов)



ZONES OF RESPONSIBILITY FOR ANALYTICAL LABORATORIES OF MINISTRY OF NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION

