

Significant environmental issues in the Adriatic River Basin District

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1 INTRODUCTION

The EU Directive 2000/60/EC (Water Framework Directive) provides national and local authorities with a legislative basis for the maintenance and recovery of surface and ground waters with the aim to achieve good ecological and chemical status and to promote the sustainable use of water by 2015. It applies to all surface freshwater bodies, groundwater, estuaries and coastal waters to one nautical mile and aims to establish a strategic framework for managing the aquatic environment through integrated catchment management. In 2008, Slovenia is in the process of significant water management issues identification, where the significant water management issues are the pressures on the water environment that put our ability to achieve the environmental objectives of the Water Framework Directive most at risk.

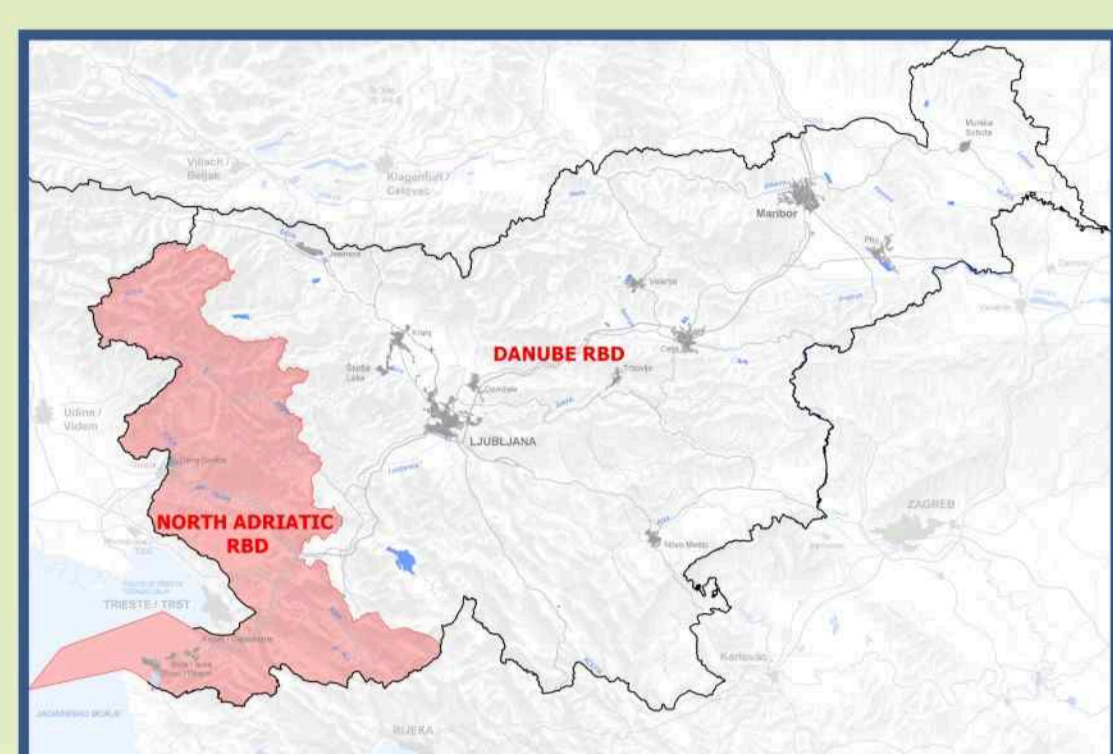


Figure 1: River basin district in Slovenia



Figure 2: Water bodies in Adriatic RBD



Figure 3: The Soča river (HPP Plave; SI6VT330)

2 GEOGRAPHIC SCOPE

Slovenia has been divided in two River Basin Districts - Adriatic RBD and Danube RBD (Figure 1), which were further divided into 5 River Basins (RB). Adriatic RBD includes RB Soča (Figure 2, 4-5) and RB Adriatic rivers with the sea (Figure 12-13). The division of surface waters into the water bodies is presented in Figure 3.



Figure 4: The Bača river (SI628VT)

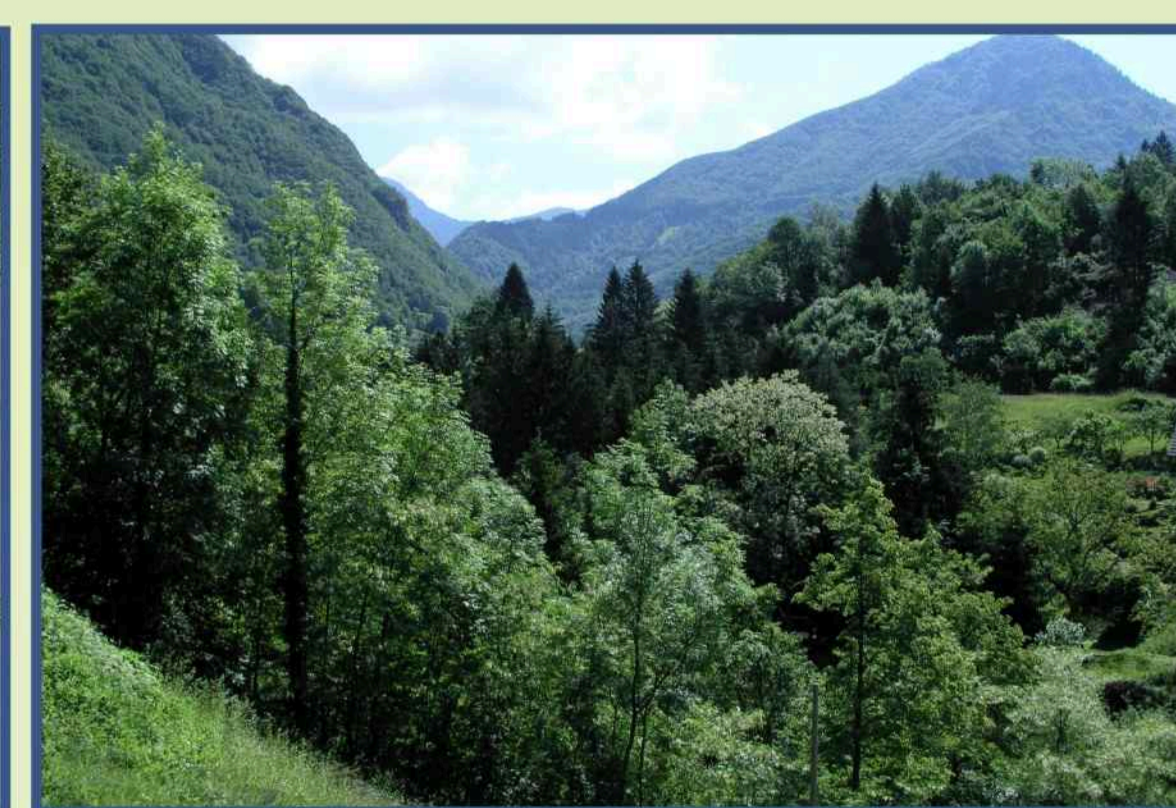


Figure 5: The narrow valley of the Bača river (SI628VT)

3 METHODOLOGY

In the process of significant water management issues identification, the first step includes identification of environmental pressures that pose the greatest risk to water bodies. On the national level we addressed: diffuse sources of pollution from agriculture, point sources of pollution, hydromorphological pressures and biological pressures. In the second step, we evaluate the risk for not achieving environmental objectives due to the pressures identified for each water body. For this purpose water bodies were classified into four groups: (4) at risk, (3) possibly at risk, (2) possibly not at risk and (1) not at risk. We prepared also an overview of basic economic analysis regarding the water use.

4 OVERVIEW OF PRESSURES AND RESULTS OF RISK ANALYSIS IN ADRIATIC RBD

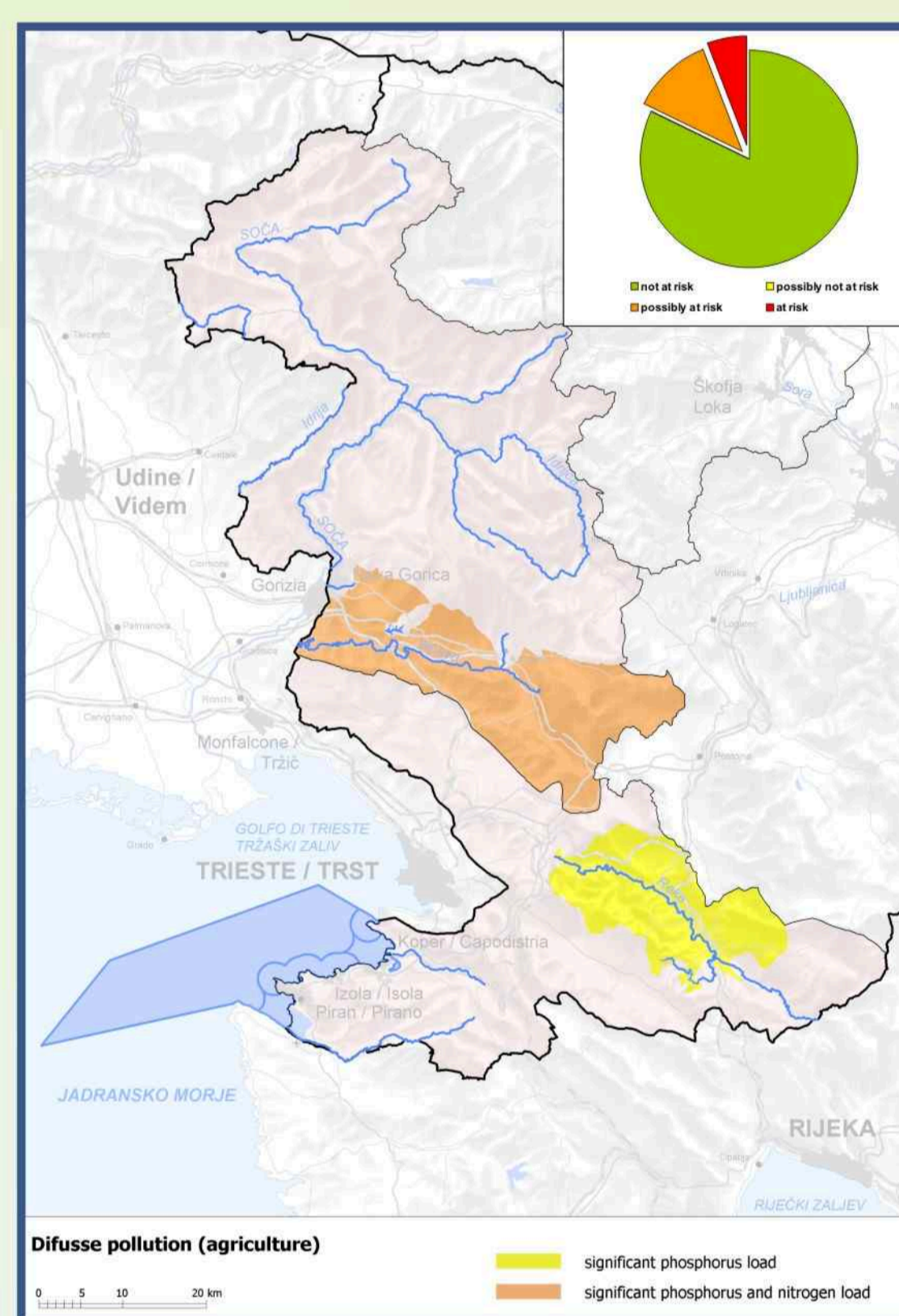


Figure 6: Diffuse source pollution

Figure 6 shows areas, significantly polluted with phosphorus and nitrogen from agriculture. 6% of WB in the RBD is at risk of failing good status in 2007 due to these pressures.

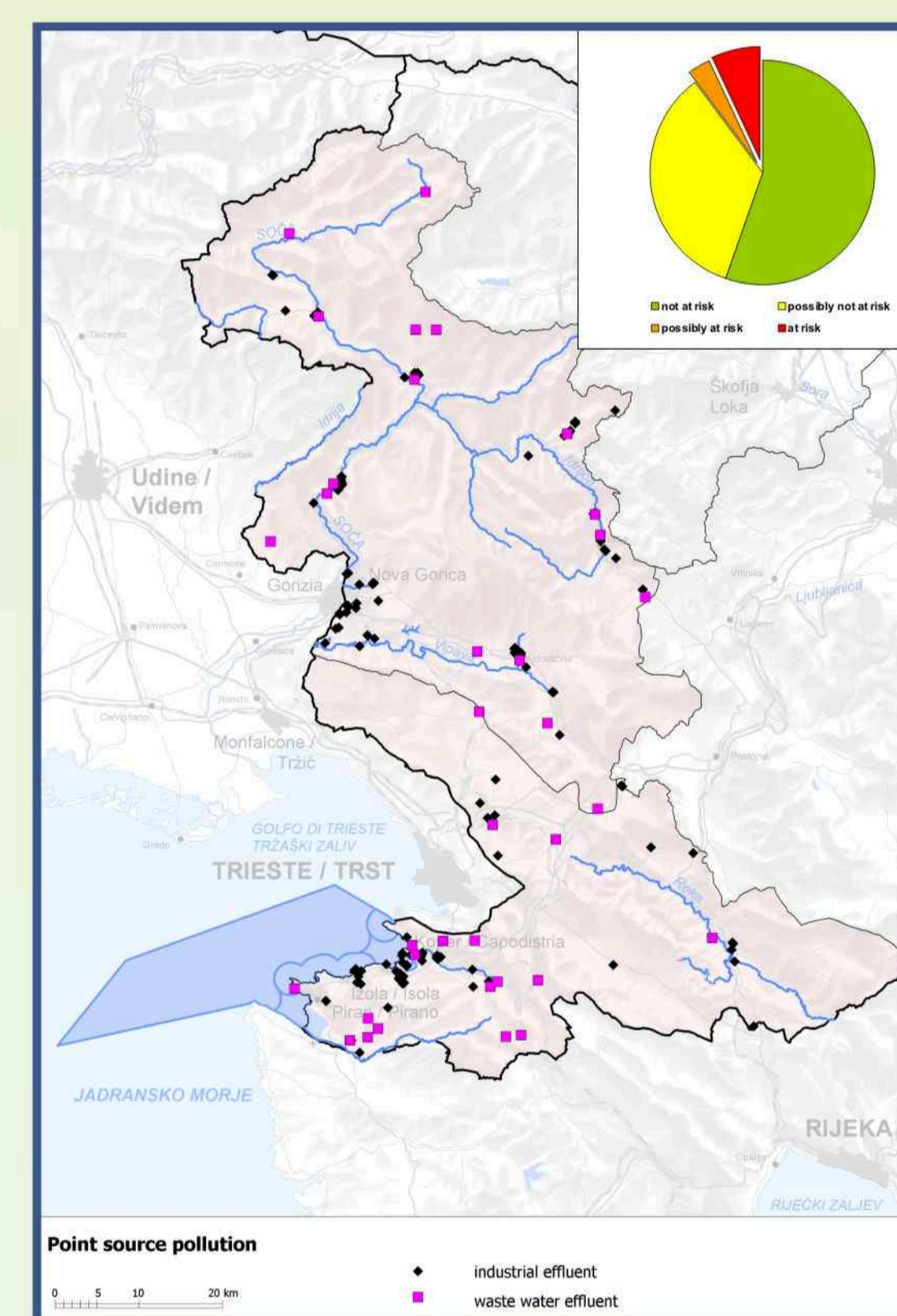


Figure 7: Point source pollution

Figure 7 shows point sources of pollution from industry and wastewater treatment plants, which are obliged to perform regular emission monitoring. 6% of water bodies is at risk of failing good status in 2007 due to these pressures.

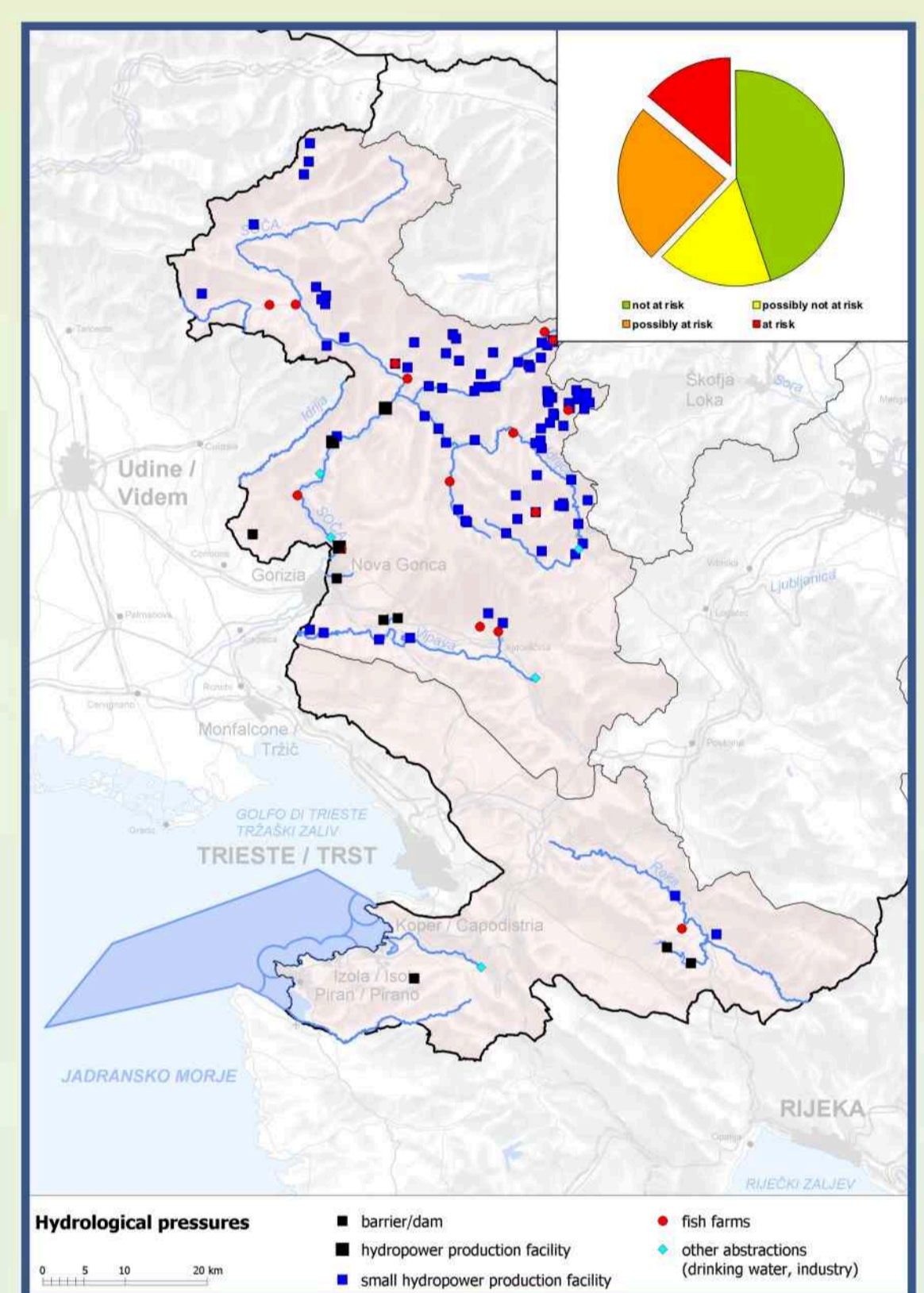


Figure 8: Hydrological pressures

Figure 8 shows hydrological pressures: barriers/dams, hydropower production facilities, fish farms and other water abstractions (irrigation, drinking water, industry). 12% of water bodies are at risk of failing good status in 2007 due to these pressures.

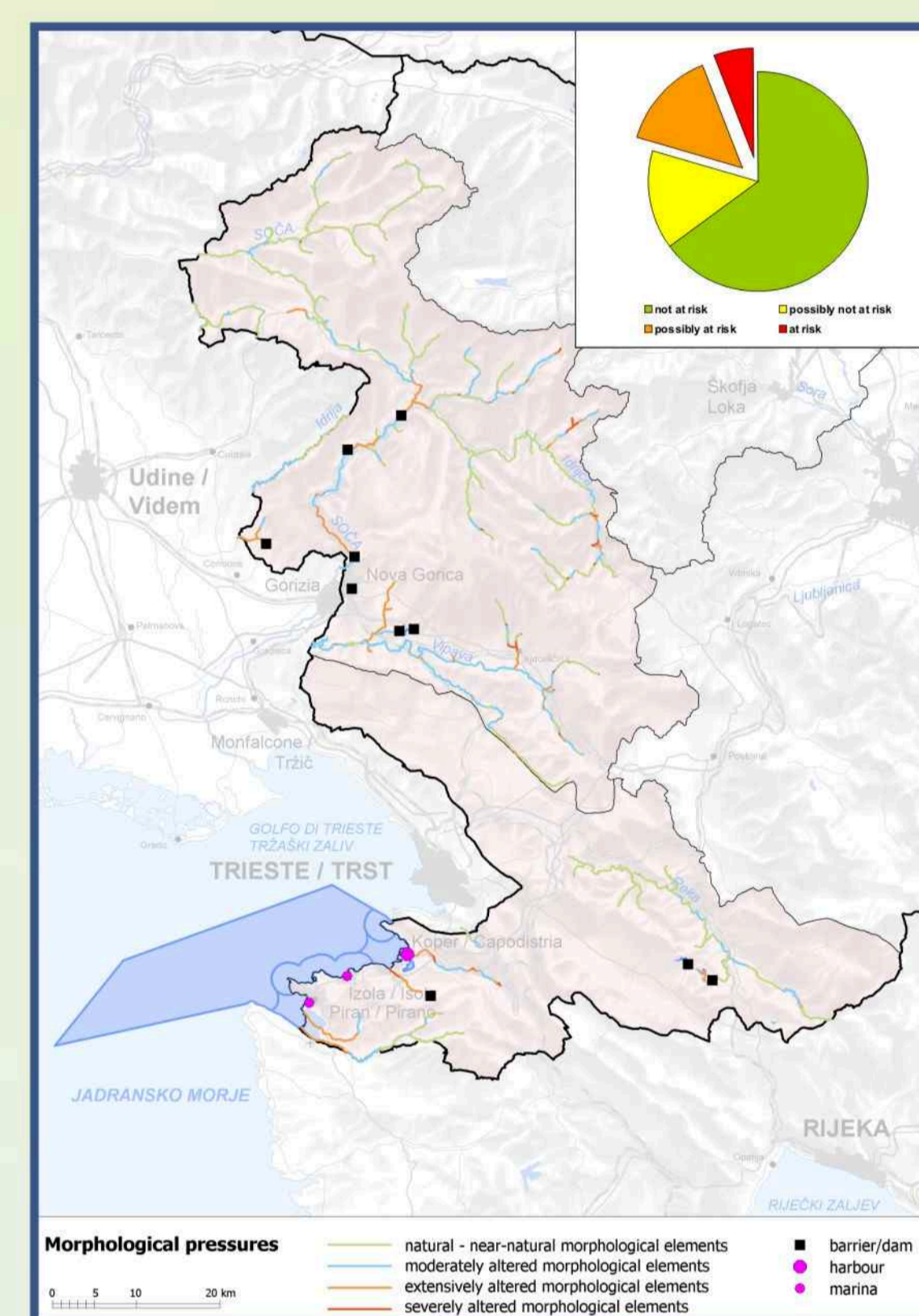


Figure 9: Morphological pressures

Figure 9 shows morphological pressures: river damming, river channelization, river resectioning, channel straightening, harbours, and marinas. Morphological pressures are cause to 6% of water bodies for being at risk not to achieve environmental objectives.

5 ECONOMIC ANALYSIS OF WATER USE

Households are the biggest water consumers in the river basin district, since 50% of water abstracted is supplied to households. Industry and other activities consume on average 20% of the water. The remaining 30% of all the water supplied to different users is lost within waterworks network (Figure 10).

To avoid the losses within waterworks network some investments in this field are already in progress. In order to finance the investments in the water sector Slovenia adopted some financial instruments, like fee for water use and environmental taxes.

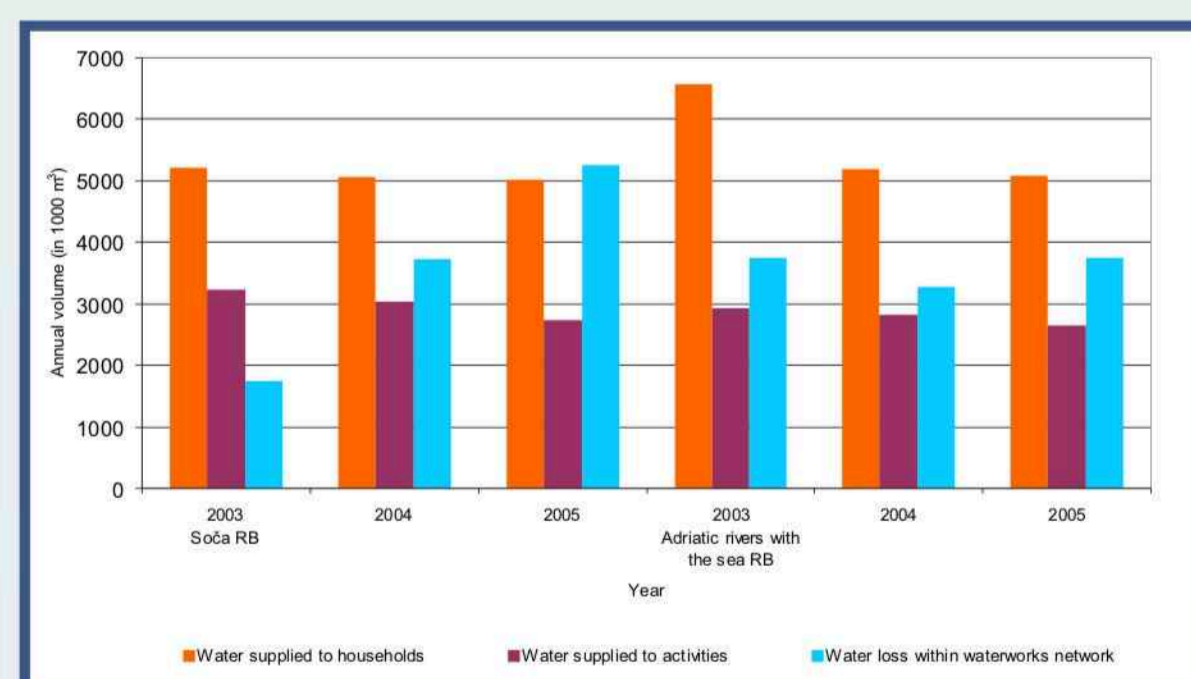


Figure 10: Annual volume of water supplied from public water supply in Soča RB and RB Adriatic rivers with sea

Especially in the summer, the Adriatic rivers and the sea RB is facing the problem of drinking water scarcity, which is mainly abstracted from the spring of the Rižana river (Figure 11). This is intensified during summer period, due to the high tourist season. As a consequence greater volumes of water have to be transported from other RB. The price for drinking water in this RB is the highest in Slovenia (0,77 €/m³ in respect to national average price of 0,44 €/m³, without including of the water fees, environmental taxes and VAT).

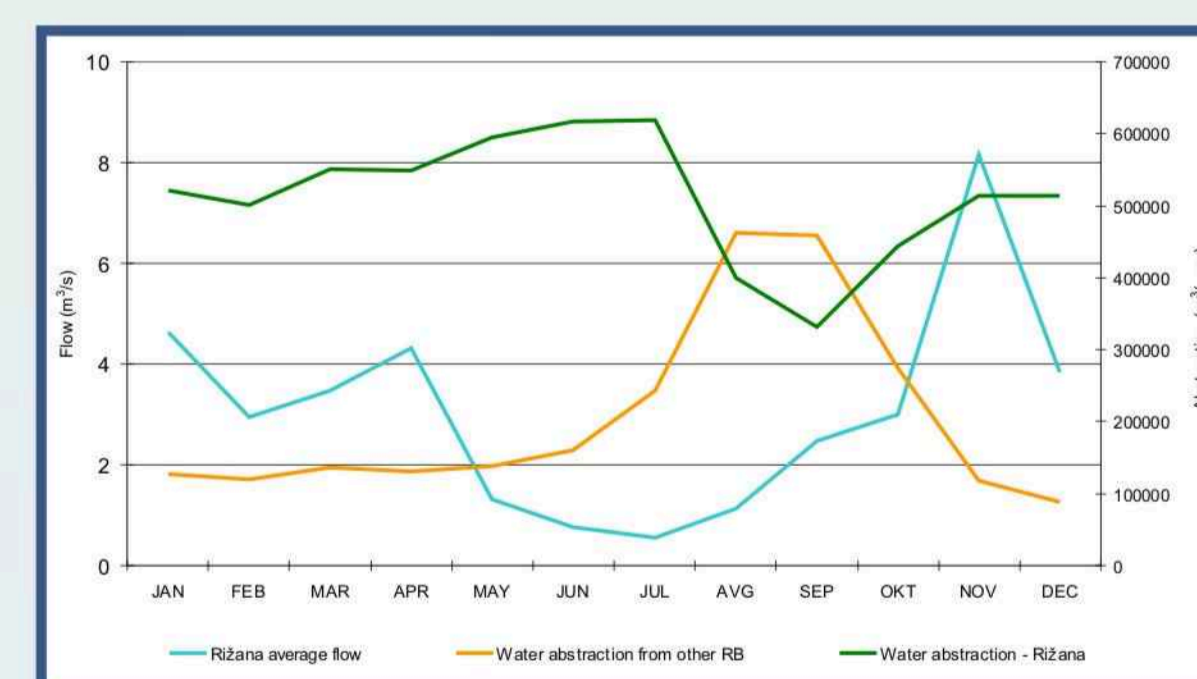


Figure 11: Water flow of the Rižana river, water abstraction from the Rižana river and water abstraction from other RB

6 CONCLUSION

We identified key sectors, which put WB at risk of failing of good status and not achieving WFD objectives in 2007:

- Diffuse source pollution: agriculture and urban development;
- Point source pollution: collection and wastewater treatment, excessive emissions from industry (especially food processing);
- Hydrological pressures: agriculture, tourism and urban development, producing electrical power;
- Morphological pressures: river engineering, agriculture, urban development, land claim of river banks, maritime ports of shipment expansion.

The key element in regard to water use is the decrepit infrastructure of waterworks network in the entire RBD, which is related to the seasonal scarcity of drinking water in the Adriatic rivers and the sea RB in tourist season.



Figure 12: Slovenian coast / Piran (SI5VT4)



Figure 13: Marine Piran (SI5VT4)