
**RAPID ENVIRONMENTAL
ASSESSMENT OF THE TISZA
RIVER BASIN**

2004 United Nations Environment Programme

Prepared by

Karin Burnod-Requia

This is a joint publication of UNEP/ROE and UNEP/DEWA/GRID~Europe, in collaboration with UNEP/Vienna-ISCC.

Disclaimers

The contents and views express in this publication do not necessarily reflect the views or policies of the contributory organizations or the United Nations Environment Programme (UNEP).

The opinions, figures and estimates set forth in this publication do not imply the expression of any opinion whatsoever on the part of UNEP concerning the legal status of any country, territory, city or its authorities, or concerning the delimitation of its frontiers and boundaries.

Mention of a commercial company or product in this publication does not imply the endorsement of UNEP.

Reproduction

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made. UNEP would appreciate receiving a copy of any publication that uses this publication as a source.

No use of this publication may be made for resale or any other commercial purpose whatsoever without prior permission in writing from UNEP. The use of information from this publication concerning proprietary products for publicity or advertising is not permitted.

UNEP/Regional Office for Europe

International Environment House
11, Chemin des Anémones
CH-1219 Châtelaine, Geneva, Switzerland
<http://www.unep.org>

UNEP/DEWA/GRID~Europe

International Environment House
11, Chemin des Anémones
CH-1219 Châtelaine, Geneva, Switzerland
<http://www.grid.unep.ch>

CONTENTS

INTRODUCTION	1
1. Description of the Natural Environment of the Watershed	1
2. Historical and Political Background	3
1. ENVIRONMENTAL POLICY OVERVIEW	4
1.1. Policy Framework	4
1.2. International and Regional Cooperation	6
2. SOCIO-ECONOMIC TRENDS IN THE TISZA RIVER BASIN	7
2.1. Economic Driving Forces	7
2.1.1. Agriculture	7
2.1.2. Industry	8
2.1.3. Energy	10
2.1.4. Transport	11
2.1.5. Forestry	11
2.1.6. Tourism	12
2.2. Social Driving Forces	12
2.2.1. Population, Employment, Migration and Poverty	12
2.3. Financial Initiatives	13
3. MANAGEMENT OF NATURAL RESOURCES AND STATE OF THE TISZA RIVER BASIN ENVIRONMENT	15
3.1. Water Resources	15
3.1.1. Water Balance	15
3.1.2. Water Availability and Use	15
3.1.3. Surface and Ground Water Quality	16
3.1.4. Waste Water	17
3.2. Biological Diversity	19
3.2.1. Flora and Fauna Diversity	19
3.2.2. Protected Areas	20
3.2.3. Current Threats	22
3.3. Land Resources	23
3.3.1. Land Uses	23
3.3.2. Land Degradation	23
3.3.3. Soil Erosion	25
3.4. Forest Resources	25
3.4.1. Forest Stands	25
3.4.2. Logging	26
3.5. Mineral Resources	26
3.5.1. Endowment and Use	26
3.5.2. Tailings Deposits	29
3.5.3. Mine Waste Water	29
3.6. Wastes	31
3.6.1. Municipal Wastes	31
3.6.2. Industrial Wastes	33
3.6.3. Radioactive Wastes and Hazardous Chemicals	34
4. ENVIRONMENT AND SECURITY	35
4.1. Natural Disasters	35
4.1.1. Floods	35

4.1.2. Droughts	39
4.1.3. Landslides	39
4.2. Accident Pollution	39
4.2.1. Potential Accident Risks Spots	39
4.2.2. Management of Trans-boundary Environmental Impacts	42
5. DEVELOPMENT ALTERNATIVES FOR THE TISZA RIVER BASIN	43
5.1. Current Policies and Programmes	43
5.2. Integrated Sustainable Development Strategy	49
6. CONCLUSIONS AND RECOMMENDATIONS	51
REFERENCES	57
ACKNOWLEDGEMENTS	59
Abbreviations and symbols	60
List of Figures	61
List of Tables	61
List of Boxes	61
List of Photos	61
Appendix 1	62
Appendix 2	65

INTRODUCTION

1. Description of the Natural Environment of the Watershed

The Tisza¹ River Basin (TRB) is located almost exactly in the geographical centre of Europe and crosses the new boundaries of the European Union. The streams and rivers feeding into the Tisza originate in the Carpathian Mountains in the territories of Romania, Slovakia and Ukraine. It flows through the Pannonian flood plain of eastern Hungary and then south into Serbia and Montenegro where it joins the Danube (Figure 1).

The Tisza catchment area is characterized by high diversity of landscapes, fauna and flora, with a significant number of nature protected areas and national parks. The region has outstanding natural ecological values such as regionally (and perhaps globally) unique freshwater wetland ecosystems of 167 larger oxbow-lakes and the total of more than 300 riparian wetlands. However, there are significant environmental concerns in the TRB related to the extreme dangers of both the excess and shortage of water (occurring almost simultaneously within a given year), the frequent landslides in the uplands due to deforestation, the multiple hazards of diffuse and point source pollution and the further potential accidents at industrial “hot spots”, including tailings dams (e.g. the Baia Mare cyanide spill in January 2000 and the Baia Borsa heavy metal spill in March 2000).

The TRB is the largest sub-basin (157,186 km²) of the Danube Basin (801,463 km²), being divided into three main parts:

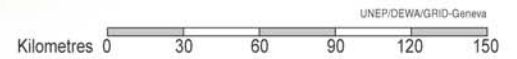
- *the mountainous Upper Tysa in Ukraine*: the headwater section upstream of the Ukrainian-Hungarian border, including the border sector and tributaries of Romania;
- *the Middle Tisza in Hungary*: receives the largest tributaries Bodrog River and Slana/Sajo River collecting water from the Carpathian Mountains in Slovakia and Ukraine as well as the Somes/Szamos River, the Crisul/Koros River system and the Mures/Maros River draining Transylvania in Romania, and
- *the Lower Tisza downstream of the Hungarian-Serbian border*, where it receives the Bega/Begej River and small tributaries through the Danube-Tisa-Danube Canal System.

¹ Tysa in Ukraine, Tisa in Romania, Slovakia and Serbia and Montenegro, and Tisza in Hungary. The internationally known name Tisza is used in the general text of this report.

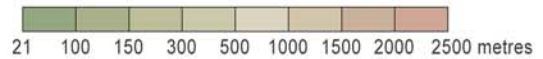
Figure 1: Map of the Tisza River Basin.



The boundaries and names shown and the designations used on these maps do not imply official endorsement or acceptance by the United Nations.



- Tisza river basin
- International boundary
- First level administrative unit
- National capital
- Administrative capital
- Lake or reservoir
- River



The *Upper Tysa* catchment area covers only 2 per cent of the Ukrainian territory and lies in the Zakarpatska Oblast, with 1.3 million inhabitants. Most of the Ukrainian basin area is located in the Eastern Carpathian Mountains, with the highest elevation peak of 2,061 m and average elevation of 550 m. The largest part of the TRB lies in Romania (72,636 km²). The basin area is located in the western, central and north-western parts of the country. It has 6,095,024 inhabitants and represents about a third of both the total land surface and population of Romania. The TRB occupies an area of 15,250 km² in southern Slovakia. The basin drains predominantly mountainous areas in both the Romanian and Slovak territories, with the highest elevation peaks of 2,300 m in the Rodna Mountains (Tisa sub-basin) and of 2,500 m in the Retezat Mountains (Mures sub-basin). Some lowlands occur in the south, on the edges of the Pannonian basin. Almost 50 per cent of the Hungarian territory is covered by the *Middle and Lower Tisza*, which flows through typical lowlands of the Great Plain and occupies an area of 46,222 km². The *Lower Tisza* also lies within the northern part of Serbia and Montenegro (Backa and Banat areas), covering 10 per cent of the country's territory. A brief description of some natural conditions in the TRB riparian countries are given in Table 1.

1: Selected natural conditions in TRB riparian countries.

Characteristics	Serbia and Montenegro	Hungary	Romania	Slovakia	Ukraine
TRB area in the country (square km)	10,376	46,222	72,636	15,250	12,734
Percentage of TRB area of the whole country area (%)	10,1	49,7	30,5	31,1	2,1
Relief	Typical lowland river, same for its tributaries	Typical lowland river, same for its tributaries	Mountainous and lowland areas	Mountainous and lowland areas	Mainly mountainous areas and very minor lowlands
Climate	Continental with low precipitation	Continental with low precipitation	Continental with high precipitation in the mountains	Continental with high precipitation in the mountains	Continental with high precipitation in the mountains
Other characteristics	Canal between Danube and Tisa, 269 km embankments for flood protection	Unique wetlands and conservation areas Frequent floods Regulated river bed	Great biological diversity and high rate of natural ecosystems Frequent floods River pollution	Frequent floods	50% forest cover Frequent floods Erosion

2. Historical and Political Background

Historically, the main structural changes of the Tisza River happened in the 19th and early 20th centuries. During this period, the former huge floodplain was drained and dikes were constructed, with about 84 per cent loss of the floodplain. The Tisza was also strongly regulated (32 per cent of the river length).

Several years of communism in Central and Eastern Europe resulted in negative effects for the water quality of the TRB. Since 1989, deep changes in the political regimes, the opening of the market economy and the economic difficulties encountered by the countries in the region resulted into a reduced pressure on the basin environment. For example, with the decline of the Romanian economy, pollution from major economic sectors located in the TRB area, such as mining/metal processing and agriculture, has decreased. Still, some of these sites continued to be serious pollution and accident risk spots. Also, many wetland areas were drained over decades to support unsustainable agricultural and industrial practices, e.g. along the Tisza river in Hungary 2,590,000 ha of floodplains were reduced to 100,000 ha.

However, the TRB possesses a generally higher level of biodiversity than other catchments in Western Europe. For example, there are still some extensive areas of natural or semi-natural floodplain habitats and other wetlands in the Tisza catchment area. In the Carpathians, generally a remote and marginal area, many of the bad effects of the communist central planning were avoided, such as preservation of many rural areas from intensive agriculture and forestry.

The interaction between transitional political systems, economic readjustment and development, together with the expansion of the European Union, have led to a wide variation in capacity throughout the TRB region to address and mitigate environmental deterioration. Currently, the Tisza riparian countries are at different phases of development, and have wide-ranging capacities to address local, national and regional river basin management issues. While some of these circumstances have promoted advancements for the region as a whole, historically there has been a lack of coordinated environmental and water management among the Tisza states, even though institutional capacity existed to do so.

1. ENVIRONMENTAL POLICY OVERVIEW

1.1. Policy Framework

All Tisza countries are signatories of the Danube River Protection Convention

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_11563

