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FUNDAMENTAL ISSUES RELATING TO THE RIVER TISZA

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The River Tisza and the origins of the issues relating to it

The River Tisza is Hungary's second longest river. Of its entire length of 997 km, 579 km lies in Hungary. The size of its catchment basin is 157,186 km², and its average discharge is 820 m³/s in Szeged. With the two tributary streams Fehér and Fekete-Tisza as its headwaters, it rises in the Máramaros Alps in the Ukraine. Cutting across the range of the Carpathians at Huszt, it enters Hungary at Tiszaújlak. With its middle section zigzagging the Great Hungarian Plain, it follows a direction that is mainly north-to-south and meets the Danube at Titel in Serbia.

The Tisza Plain, a vast expanse of lowlands, evolved approximately 1 million years ago, through the gradual silting of the basin of the Pannon Sea. It was not until several hundred thousand years later that the Tisza and its tributaries emerged, first as streams following depressions and replacing backwaters in wetlands dotted with marshes and lakes. Prior to the river regulation in the 19th century, the meandering watercourse of the Tisza had intertwined the lowlands. At some places there were horseshoe bends in the river whose ends met. During floods, owing to stronger currents and higher water pressure, the river cut across the ends and no longer flowed around the loop of the bends. The loops thus left behind are called oxbows (or backwaters). Areas around oxbows became marshlands owing to frequent floods, with vast tracts of land lying waterlogged. Floods were a constant danger to the life and property of the people inhabiting the Tisza Valley. Repeated inundation lasting several months at a stretch prevented the development of farming and hindered communications – hence cultural advance – for long periods of time.

For historical and geographical reasons, the regulation of the Tisza, a great endeavour, commenced as late as the mid–19th century. (The country, given its prevailing economic strength at the time, had not been able to afford a project on this scale before.) The Ottoman rule ended in most parts of the Tisza Valley only in the late 17th century. The re-settling of these areas and economic re-organisation were the greatest challenges in the 18th century. In the 1840s, encouraged by Count István Széchenyi, the engineer Pál Vásárhelyi agreed to implement the regulation of the river by cutting off its bends and straightening its course after having conducted the necessary survey of the terrain. With over 100 short cuts made, it

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became 400 km shorter and, at the same time, its average incline became steeper and its current became stronger, hence suitable for navigation. The risk of floods turning floodplains into a sea diminished, allowing for the possibility of river traffic. Through this successfully accomplished monumental task, unparalleled in Europe, the country gained an area that was bigger than the total (flood-free) area reclaimed from the sea in the Netherlands.

Up until the 19th century and prior to the establishment of modern communications networks, the River Tisza – owing to its extensive system of tributaries, flood plains, navigable sections, varied and relatively developed settlements along the elevated riverbanks and points of river-crossing – *was a major axis of development and spatial structure of the Great Plain. Over the one and the half centuries that has passed since then, the general geographical and space structural position of the river and its environs has undergone a dramatic transformation.* Except for the river-crossing points that have remained hubs of communications, the Tisza has lost its importance as a major axis of development. Apart from a couple of major large and medium-sized cities, the greater part of the Tisza region has gradually become more marginalized in the economic and settlement structure of the Great Plain that is undergoing slow modernisation and transformation. Agriculture has, to an increasing extent, lost its capability for providing a livelihood, with its network infrastructure falling consistently behind the already low average in the Great Plain, the former organic 'symbiosis' between the settlements with their communities and the river having been discontinued.

Exerting a huge impact on the area along the Tisza, these profound and mostly adverse processes are still ongoing. Meanwhile, as a result of the social, economic and land use-related interventions in Hungary and in the river's catchment basin as well as the increasingly limited operation of the systems established through former water management measures, the Tisza region has become an increasingly endangered zone. Dangers include floods, the appearance of inland waters, the degradation of wildlife in natural habitats like oxbows and the abysmal state of affairs in environmental terms (e.g. waste management and public utilities infrastructure). All these make these settlements economically skewed and only moderately viable.

Notwithstanding the above, the Tisza and its immediate environs continue to be one of Europe's most unspoiled rivers. Its unrivalled natural, cultural landscape, ecological values and biological diversity are of utmost importance to the wildlife of the entire Carpathian Basin and to the whole Hungarian populace. Due to an obvious increase in aridity and frequent droughts in the Great Plain, the Tisza's water balance and water management (demand for drinking water, irrigation and viable riverside tourism, etc.) have been growing in importance in both regional and national economic terms.

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All these phenomena simultaneously call for a modern, sustainable, complex and concerted development of the Tisza region, which has to take into account the special characteristics of the areas along the river.

Given the singular and area-specific nature of such a development, two key factors must be taken into consideration:

– the Tisza and its environs treated as an organic whole
– the communities along the river, which have to deliberately rethink, reorganise and re-establish their relationship with the river, counting its inherent dangers, but also its potential benefits.

Environmental problems in the Tisza region are rather intricate *(Figure 1)*. Accordingly, several different approaches can be adopted and numerous solutions can be offered. The primary concern of ecologists is the protection of the environmental values of the ecological corridor. That for geographers is the preservation of landscape components. Engineers and researchers responsible for environment protection are intent on managing the sustainability of settlement environment systems. Water management authorities have prepared the next stage of the *Vásárhelyi Plan* with its related strategies.

The Vásárhelyi Plan is the most ambitious project of the past one hundred years in Eastern Hungary. With a budget of HUF 170 billion, it will provide safer living conditions for 1.5 million citizens. The core idea of the Plan is that peak floodwaters would be diverted through large gated culverts built in the line of dykes and retained in lowland reservoirs, which would be drained after the passage of the flood wave. Of the close to 30 potential storage sites examined, 11 have been selected for the construction of reservoirs, the first phase of which is scheduled for implementation. The six envisaged reservoirs with a combined surface area of 24,000 hectares will allow for the permanent storage of 130 million m³ of water**.** The thorniest issue at this point is the question of compensation, the one-off payment to the landowners affected by the plan to redress the loss of their land zoned (designated) for the reservoirs. The Vásárhelyi Plan cannot, however, resolve the problem of the high arsenic content of the water or the water management issues of oxbows and the sand hills in the area lying between the Danube and Tisza rivers. There are also a large number of economic, social and environmental issues outstanding that require environmental projects based on comprehensive approaches and the working-out of complex area and rural development solutions.

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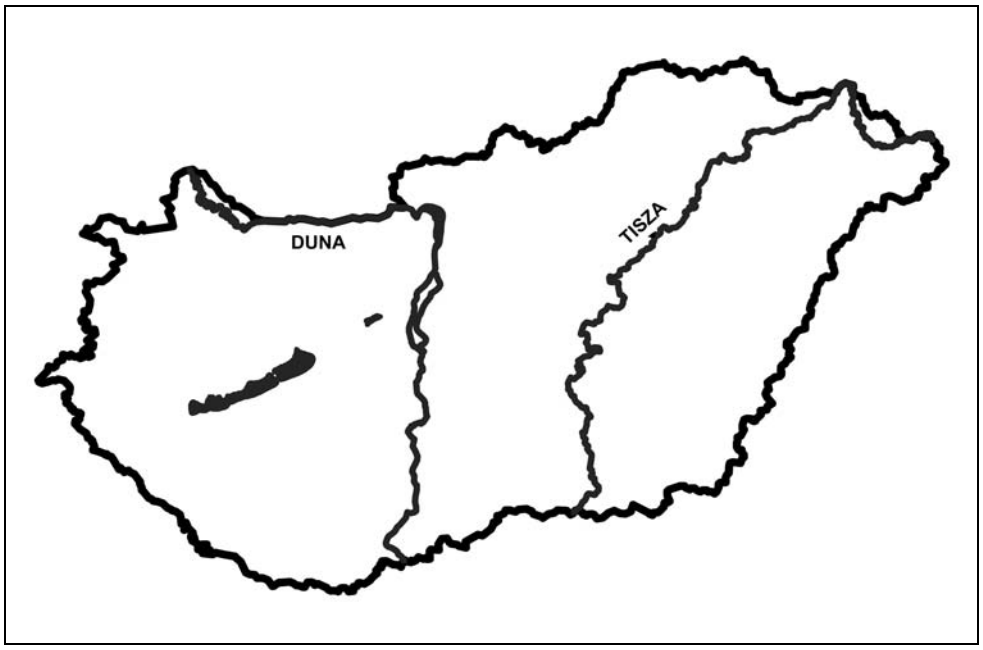
Figure 1

Borderline of Hungary and the position of main rivers



Conflicts and possible solutions

Environment protection and hydrology

The area along the River Tisza is seriously damaged ecologically. The landscape has lost its former diversity both on a smaller and bigger scale, with 'landscape homogeneity' dominant in certain areas. Despite the large number of such adverse changes of an anthropogenic nature, the region is still of tremendous natural value. In order for the remaining ecological features of the landscape to survive in the longer term, there should be a change in awareness that meets the demands of modern environment protection. *The river can be preserved only if its entire catchment basin is protected, and a related ecological network is established.*

The harmonisation of ecological and other environmental systems is indispensable for the sustainable development of the Tisza region, and is a must in modern area and rural development. By reviving, developing and upgrading traditional farming (e.g. forestry, turf management), farming on natural dykes (sandbanks),

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extensive animal husbandry, fruit production in flood plains and fishing, and by establishing the infrastructure for tourism, a network of protected areas, a buffer zone with turf and forest cover and transverse ecological corridors, one of most beautiful riverside corridors in Hungary and Europe could be created.

Water balance, floods and the ecological state of affairs

One of the key factors affecting natural and economic processes in the lowland small regions in the Tisza Valley is the river water reserves. A chief water balance feature of the Tisza area is considerable water depletion caused by evaporation in the summer. It is safe to say that smaller forest cover has significantly increased climatic water shortage (proneness to droughts) and the number of surface waters (inland waters and flood hazards). In consequence, *compared to the natural ecological state of affairs, the water balance of the Tisza region has become much more extreme.*

Attributable mostly to excessive use of ground water reserves, a reduction in the level of ground water is common to vast areas in the Great Plain. Drinking water supplies for the inhabitants in the Great Plain come mostly from waters present in deep layers of aquifers. A large amount of drinking water comes from sub-surface water reserves, whose natural arsenic content exceeds the threshold value laid down in the new regulations governing drinking water quality.

Owing to its geographical location, the Tisza region faces recurrent floods. Inherent features of the natural hydrological regime means that floods are not unusual on rivers in Hungary. Floods by themselves spell no disaster. In the case of rivers flanked with a line of dykes on either side, such situations only arise in the wake of a failure of the defences and subsequent inundation of reclaimed flood plains. Floods may occur on Hungarian rivers at any time of the year; floods caused by the build-up of pack ice are common on some. Meteorological, hydrologic and historical geographical research into extreme situations suggests that not even flood events of the recent years can be deemed as extreme. There are at least three overlapping cumulative causes of rises in the flood levels: an integrated emergence of human activity in the catchment basin, the implications of new, hitherto unknown weather conditions and, to a certain degree, the impact of the changes in the climate, the latter of which is still being hotly debated.

Owing to the discharge of the tributaries in the Tisza's catchment basin, a total amount of around 114-km^3 water rushes down into the basin. This amount varies from season to season, but results in the river overflowing its banks every 1.5 to 2 years. Major floods occur every five or six years, the duration of which may be 15 to 120 days along the middle and lower sections. After a considerable amount of precipitation, the water level may rise by 8 to 10 metres on the Upper Tisza and the

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Körös Rivers. Incidents of peak floods seem to be on the rise, translating into an increase of 990 mm on the Upper Tisza between 1970 and 1998. Recurrent floods have led to large-scale regulations. *At present, the length of the main line of dykes flanking the Tisza is 2,944 km, just 55% of which complies with flood protection requirements.* As the last two years have shown, this defence system cannot withstand high flood waves: both buildings and agricultural areas may be seriously damaged *(Table 1)*.

Table 1

Estimated cost of damage to settlements and agriculture exposed to flooding (in HUF billion, at 1996 prices) (Halcrow 1999)

	Tisza Valley	National aggregate
Settlement damage		
Damage to industrial assets	142.49	177.13
Damage to housing property	361.00	414.24
Other damage	228.67	270.03
Aggregate settlement damage	732.27	861.51
Agricultural damage (for a 15-day inundation)	41.82	54.92
Total	774.09	916.43

Source: own calculation.

In addition to floods, inland waters also pose a serious challenge. The hazard of *inland waters* has risen significantly. The capacity of the drainage system, due to a marked deterioration in its state of repair, is a mere 10 to 50% of the original amount. The overall size of the area exposed to inland waters is approximately 1.8 million hectares, that is close to 60% of cultivated arable land in the Great Plain. Like flood protection, inland water protection is also an issue of safety and economics, which is important not just in itself. Combined with drought protection, it fundamentally decides how much the ecological and environment structure of 'the Tisza corridor can be regulated', the optimal operation of the tourist industry and navigation and potential energetics developments. The alignment of the functional components of the hydrological spatial functions studied is only feasible through the supervision of flood protection systems and water storage capacity.

A further major obstacle is that water management authorities are seriously underfunded, with the central government providing only half of the funds needed for their operation and the discharge of their duties. The financial sum for meeting such responsibilities, all available dedicated funds included, fails to cover the amounts set on the basis of technical standards.

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In my opinion, the River Tisza in the future can no longer be regarded as a water facility used for draining floodwater or a flood plain serving as an operational arena. The Tisza Valley is a uniform ecological system manifesting itself in various types of habitats and a series of landscapes. As part of an ecological network, it serves simultaneously as a source, shelter and corridor. Owing to its roughly north-to-south direction, the Tisza as an ecological corridor is of significance for Europe. In contrast to its entire current length, its migration path is close to 2,000 km, the importance of which, in terms of the development of current wildlife in the Carpathian Basin, cannot be overestimated.

No radically new concept of flood protection can be worked out, as no natural geographic, engineering, or economic conditions allow for the possibility of doing so. Fortunately, there is no need for this. The development of existing flood protection facilities and the construction or reconstruction of reservoirs will provide satisfactory protection for the country against flood events. However, the emergency storage of extreme amounts of water poses ecological and other environmental risks.

A general improvement in the quality of dykes (by resolving problems of structure and elevation) and the construction of paved thoroughfares on their surface would considerably enhance the efficiency of flood protection. In line with social needs and as part of a 4,200 km cycle lane, paved thoroughfares would be instrumental in eco-tourism, with lock-keeper's lodges and flood protection centres serving as information offices, places of accommodation, first aid and other types of assistance and hubs of supply.

While placing flood and environment protection on new foundations, efforts must be made to ensure that flood protection complies with general ecological requirements (e.g. the designation of utilisation zones in flood plains and a concerted re-think of land use).

Environment protection

The current environmental status of the Tisza Valley is unfavourable, owing to the shortcomings of strategies for environment protection in Hungary and a dramatic increase in cross-border pollution. The environmental infrastructure of the settlements along the river is often obsolete, environment-related knowledge of prominent public figures is lacking, and the environment awareness of the local population is only occasional.

There are major industrial polluters in the region, which – despite the introduction of harsher measures and regulations, continue to add to the pollution of the Tisza, the deterioration of its water quality and air pollution. With varying degrees of success the majority of smaller settlements cope with the challenge of waste management, sewage disposal and the inadequate use of space. These unresolved

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issues have led to the degradation of agricultural areas, the deterioration of soil quality and forest management problems. Irreplaceable natural values and treasures of national heritage have become endangered; the fate of the population along the Tisza often seems bleak.

Though the frequency of extraordinary water pollution incidents on the river has diminished, the number of such instances still exceeds 10. Approximately 60% of them materialise in Hungary, 40% is cross-border pollution, the latter being more severe than the former. As regards sub-surface waters, the ground water is invariably polluted, thus unsuitable for drinking-water purposes. Deeper sub-surface drinking water reserves are exposed to a number of hazards. 74% of the soil along the Tisza is susceptible to the spread of pollution, with 70% to acidic pollution (e.g. acidic artificial manure exerting an acidic impact on the environment).

Of the fundamental environmental problems facing the settlements here, the most worrying is the backwardness of piped sewage disposal and wastewater treatment. Only 10% of the settlements have a comprehensive system of sewage lines, while in 70% of them there is no wastewater treatment.

The unresolved issue of environmentally friendly waste disposal is also a major environmental concern. Settlements along the Tisza produce an annual amount of 800,000 m^3 or 160,000 tons of communal solid waste, which is disposed of locally. Though there are two waste disposal plants operating on a small regional level, both of them are unsuitable for processing increased amounts of waste. Of the waste disposal plants currently operating, 60% are licensed to operate while 40% are not. However, even those that are licensed fail to comply with environment protection requirements.

Causes of low efficiency of environment protection in settlements include an inadequate environment-protection awareness of local government officials and an obsolete environment-protection policy in settlements. This is clearly reflected by the fact that there are no environment action plans in 90% of the settlements.

Major long-term objectives include the establishment of an automated water quality monitoring system, eliminating extraordinary water pollution incidents and achieving permanent Class II water quality. In order that these goals can be achieved, guarantees must be provided by international treaties and potential sources of hazards to the river's catchment basin must be identified and gradually eliminated.

In addition, local governments should put the issue of protecting the water quality of the Tisza (e.g. piped sewage disposal and waste water treatment) and the provision of healthy living conditions for the population higher on their agenda. In addition, communal waste disposal will have to be fully dealt with.

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Problems and opportunities of agriculture

A classification study of soil types in the Tisza region based on agricultural utilisation has revealed that over a quarter – or 382,000 hectares – of the entire 1.4-million-hectare area is unsuitable for agricultural cultivation. A further 193,000 hectares can be utilised only if amelioration is carried out, and market conditions are favourable. On the whole, only about half of the overall area can be considered to be of good quality in agricultural terms. This agriculturally valuable area is located in roughly equal proportions in settlements close to and off the Tisza.

Despite this, the truly serious problem that faces the agrarian sector is not the lack of quality soil. Rather, it is its failure to create jobs in the near future. Natural and human resources can be harmonised only if a wider selection of the services linked with agriculture is provided, and the manufacturing sector is expanded. The development of the latter is one of the costliest and most difficult tasks. For, in addition to developing industrial level manufacturing, special attention must be paid to manufacturing and commerce within the estates of the small agricultural producers.

Utilising farming methods based on centuries of experience and on traditions in ethnographic descriptions, a solution can be framed that takes into account old wisdom, and enables the modern residents to create a new harmony with nature. Key points of action could be the following:

- Forests and fruit-tree groves (relying on the genetic pool of ancient local types) must be planted on the elevations of the flood plain. It is orchards that may become especially important, since experience amassed over the centuries can still be accessed with ethnographic methods in the Upper Tisza region, say, where they are still practised. In addition to their economic usefulness, grove-like hard and soft wood forests may also contribute to a thriving tourist industry.
- Another traditional solution might be to turn oxbows and backwaters into fishponds. A network of lakes supplied with natural waters should be restored as a legacy of farming on natural dykes (sandbanks). Once such a network is restored, ecological conditions similar to those in the past that secured abundant supplies of fish should be created in order that similarly ample supplies of fish can be achieved again.
- The utilisation of flood land meadows and the revival of genetically invaluable ancient local types could revive those areas that could not be utilised for any other purpose. At the same time, these meadows could be deliberately flooded with river water and the fertile silt thus created could be commercially utilised.

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The role of tourism, a top priority, in the Tisza region

Rushing down from the Carpathian Mountains, the River Tisza, made up of small streams with their confluence near the geographic centre of Europe, has tested the endurance of those living along its banks on many occasions. Though its floods often posed a menace to those who chose to settle in its vicinity, it has always made up for the inconveniences with all it has to offer in terms of beauties and treasures of nature. Even though human interventions have transformed its environs dramatically over the past 150 years, the Tisza has kept its appeal as a tourist destination. Such appeal is irresistible to Hungarians (citizens of Hungary or ethnic Hungarians in neighbouring countries) and foreign visitors alike.

The tourist industry along certain stretches of the river plays a significant role on a national scale. Its significance is likely to further grow in the near future. The Tisza is a *key* ecological corridor of the Carpathian Basin, along which there is a string of contiguous areas. These small and medium-size landscapes (that is small regions defined as units of area development and a cluster of settlements) are popular tourist destinations. Offering splendid natural spectacles, cultural values and traditions and (thermal and medicinal) watering places, the majority of the landscapes are dedicated tourist destinations. The Upper Tisza region is a highly diverse area, and has a lot to offer in terms of appeal. However, this appeal is mostly confined to local and regional communities. That said, an unspoiled environment, the folk traditions and architectural heritage of historic Bereg and a programme called "The International Tisza Tour" attract a rising number of visitors. As a result, even village tourism has recently found new avenues. Its main assets in terms of tourism are areas in unique natural settings offering breath-taking landscapes, abundant in medicinal and thermal waters.

From a tourist point of view, the Tisza region is a nearly contiguous small tourist region, its most fundamental feature being ambivalence. It is reflected in overcrowding at popular watering places and watersport centres in the summer and in the marginal position of so-far undiscovered and unexploited "virgin lands". Spatial inequalities in the dynamics of tourism affect the region unfavourably. Along certain sections of the river, the infrastructure of tourism during the summer months cannot cater for visitors to a satisfactory standard, thereby jeopardising sustainability. In contrast, local entrepreneurs at other places along the river find it hard to attract tourists, owing to poor access, lack of suitable accommodation and a limited selection of programmes.

Another serious issue is seasonality. The recovery of the funds budgeted for capital projects in tourism, owing to the seasonal nature of the industry – confined to the summer months – is a slow process. It follows that some of the businesses engaged in catering, organising programmes and accommodation are unable to develop properly and successfully. Several such businesses have been barely

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breaking even for years, thus losing visitors' interest in them. *Settlement marketing,* advertising products unique to the tourist industry and *an improved expertise and foreign language skills of local communities* may mitigate the strong effects of seasonality.

Based on a local government questionnaire survey on R&D in the Tisza region, the greatest obstacle to the development of the tourist industry in settlements along the river was found to be lack of funds. Lack of places of accommodation and catering and satisfactory publicity for them, a middling or worse than middling infrastructure and poor access are all acutely felt at a large number of places. Some local governments believe that the lack of co-ordination and professional expertise, the low standard of services and the local population's attitude to this issue exert a negative impact on the development of the tourist industry. Further factors that cause delays in development include risks of high levels of water or the occurrence of a near-flood situation, often rendering the annual planning of tourism unpredictable for local governments and businesses alike.

The development and envisaged future of tourism in the Tisza Valley

The development concepts of the individual tourist regions and development initiatives for the industry offer a wide range of approaches to bring about development. As we are spoiled for choice, it is hard to choose the best ones. Broadly speaking, with regard to the settlements along the river, the following approaches should be highlighted:

- the establishment of the basic infrastructure of the tourist industry;
- strengthening the role of a tourist information system and marketing;
- the working-out of sets of programmes so that highly sophisticated products can be marketed.

The implementation of this vision is based on deliberate development, which is only feasible if all local community members are involved. If what is envisaged materialises, the growth rate of tourism in the Tisza Valley should be on a par with that for the national average, with its economic performance capable of maintaining or even increasing its current 5% to 10% share of the country's revenues. In order to achieve long-term objectives, *tourism must be transformed into a prosperous and sustainable business in the region,* in such a way that neither the cultural nor the natural environment is adversely affected, economic and social development are enhanced, and a solid livelihood is provided for those living here, with lucrative opportunities for businesses and excellent travel and holiday experiences for tourists.

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In order that the range of tourist industry products in the Tisza Valley can be expanded and a new image can be created, an environment-friendly tourist industry, i.e. eco-tourism, must be developed. This will also help achieve natural environment, social and economic objectives, which, in turn, will enhance regional development and provide a solid livelihood for the majority of the population. Based on this, major objectives of the 2000–2006 period are *the elimination of current shortcomings and the development of new products and eco-tourism.*

The ultimate aim of development projects is to turn the vision for the future outlined in regional tourism development programmes into reality and attain all long-term goals interlinked with them. To this end, environment and tourism-related as well as economic and social objectives must be taken into consideration; simultaneously, in co-operation with spatial planning, tourism must be integrated into the everyday life of communities. Responsibility for the successful implementation of these programmes lies with *local governments and societies as well as the local intelligentsia in the settlements along the River Tisza,* for, as the ultimate beneficiaries of the development and programmes recommended, they will have to rise to the challenge of securing sustainable development in the Tisza region. It should be borne in mind that the Tisza and its environs represent immense value and that the Tisza region will have a future of which it is part and which exists through it only if those responsible for it work towards such future creatively. One of the preconditions for leisure and tourism to evolve is awareness of the values that environment represents in the individual settlements (*Kiss,* 2001).

It is safe to assume that, during Hungary's run-up to EU accession, attention can be directed to the problems facing the Tisza, the need for its protection and the development possibilities of tourism along it. Of international importance, issues related to the Tisza are, in effect, affect the whole of Europe. Along with environment protection, tourism, which can guarantee long-term development and safe future in the region, is the supporting pillar of a pan-European task of maintaining the sustainability of the landscapes along the Tisza and improving the welfare of those living here.

Social problems in a narrower sense

Three quarters of the regions along the Tisza are traditionally rural small regions with *low population density* (the population in the majority of the small regions along the Tisza has been declining since 1990); their population is ageing and *decreasing, and the rate of agricultural employment is high.* Except for the regions with larger cities (e.g. Szolnok and Szeged) in them, they are also hit hard by permanent unemployment, suffer from multiple disadvantages and exhibit the symptoms of being on the (inner) peripheries. (There are 25 small regions along the 579-

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km-long Hungarian section of the Tisza. The 441 settlements located in these regions have an aggregate population of 1,561,997. The number of the settlements directly affected by the river is 141, with a population of over 700,000. Settlements with urban functions and a population of over 25 thousand lie in the southern third of the Tisza Valley. They may play a key role as suppliers to neighbouring villages and as participants in rural development projects aimed at the Tisza and its environs.) *The rate of unemployment is higher than the national average:* 6.5% in the area along the Tisza compared to the 5.5% national average. The proportion of those permanently unemployed also exceeds the national average.

Aimed at enabling the small regions along the River Tisza to catch up, the economic development project will have to tackle the issue of absorbing the labour force shed by agriculture and relieve unemployment. If the Tisza axis in the Great Plain is to serve nature and landscape rehabilitation and environment and nature protection, development projects striving to create jobs, boost small businesses and provide assistance to suppliers should focus primarily on the subsidised development of small towns.

To this end, developing communications infrastructure in and improving access to small regions along the Tisza as well as identifying potential environment-friendly industries (e.g. the deliberate and concerted development of tourism, flood plain farming and the manufacturing of marketable farming products with distinctive features etc) are indispensable pre-conditions.

The attitude of the communities along the Tisza towards the river is ambiguous. On the one hand, they are frequently scared and in awe of it; on the other, they like it and feel a strong attachment to it. Only few persons have deep enough knowledge of the river, its environs and current state of affairs that can translate into satisfactory awareness or development projects. Community development perspectives placed on new foundations must be worked out in regions that lag behind and lose their creative intelligentsia. Moreover, ‘an intellectual and cultural publicity campaign for the Tisza’, along with a marketing one, must be launched.

In many respects, the Tisza region is rather diverse. Spatial diversity, which can be determined by means of a number of indicators, and a great number of different processes are major aspects of planning and development. An overview of the current state of affairs as well as the development needs and possibilities of the key areas discussed in this study reveals that the future of the Tisza, its surrounding landscapes and the regions along it as well as the working out of development projects for them are key issues of sustainable regional and rural development in the entire the Great Plain.

It follows that the integration of the envisaged development in the Tisza region into national and international regional development systems is indispensable. Furthermore, a substantive network of regional, municipal, small regional, settlement and civil co-operation and partnerships must be established.

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All potential development and interventions must be subordinated to the principles of sustainable development. Embraced also by the neighbouring countries, a new concept of river regulation, water management and flood protection affecting the entire catchment basin of the Tisza must be worked out at an international level. It must be ensured that comprehensive rules governing the use of the environment in the catchment basin are enshrined in law.

Landscape rehabilitation along the Tisza, the strengthening of ecological stability, salvaging the environmental values of the settlements here and improving the living standards of those living in the Tisza region are the responsibilities of decision-makers and researchers in Hungary.

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