



**The Spatial Development Concept of  
Interregional Co-operation in the Danube Space  
SEE EoI/A/246/4.2/X**

**WP1  
Transnational project  
management and coordination**

**WP4 – Comprehensive evaluation and  
Typology of regions methodology**

# **Comprehensive evaluation and Typology of regions**

## **1. Methodological background**

The work on the comprehensive evaluation of development potential of regions in the Danube area was focused on the following areas:

- methodical design procedure and comprehensive assessment of development potential DONAUREGIONEN+,
- selection of indicators for comprehensive assessment by individual general schemes,
- comprehensive assessment of development potential for the whole territory of DONAUREGIONEN+ - collection and processing inputs from various partners on project.

Due to the need for unification of methodological and substantive approach different participants on the project proved to be effective come out from previous work on comprehensive development potential of the project Donauregionen. As a part of this project we created one integrated document, which at this stage of the project Donauregionen+, was necessary both to update the data and to supplement document by new regions.

## **2. Specification of inputs**

Together with the methodology proposal and work's progress on comprehensive development potential was created a uniform approach between the new participants to set up following requirements for selected indicators:

- indicators for the evaluation must be a part of the analysis in the General Scheme,
- indicators must reflect the key factors that affect the conditions and thus the development of problematic areas in the General Scheme for the NUTS 3 level,
- selected phenomenon must be expressed in quantitative indicator of absolute or relative value, we recommend to prefer relative form,
- indicator will be expressed in units agreed in the General Scheme,
- we recommended within each General Scheme to choose a maximum five indicators,
- indicators will be processed for the years 1996, 2001, 2005 and 2008 (eventually 2007),
- all participants will agreed on selected indicators for each General Scheme.

From the text above arises that the effortfulness of selected approach has been given on the one hand because of international comparison of the regions where the risk of inhomogeneous indicators (in terms of possible differences in methodology for completing the indicator in each country), on the other hand the fact that it is a common procedure and creation of documents for comparison of diverse and thus not comparable indicators.

The methodology was designed to assess cumulatively the following indicators for each General Scheme:

## **Natural conditions**

- Protected areas according to the national characterization
- Protected areas of NATURA 2000
- Water supplies-Average substantiality of water resources (l/s)
- Water supplies-Number of water resources
- Protected water management areas
- Water pollution index
- Water pollution-I.class
- Water pollution-II.class
- Water pollution-III.class
- Water pollution-IV.class
- Water pollution-V.class
- Atmosphere pollution-% share of emissions of the state (SO<sub>2</sub>)
- Atmosphere pollution-% share of emissions of the state (Nox)
- Atmosphere pollution-% share of emissions of the state (ash)
- Atmosphere pollution-% share of emissions of the state (CO)
- Landfills

## **Settlement Structure and Human Resources**

- Share of urbanization – share of inhabitants living in municipality (NUTS V.) with over than 5 000 inhabitants
- Share of inhabitants living in municipality (NUTS V.) up to 2 000 inhabitants
- Share of inhabitants living in municipality (NUTS V.) with over 100 000 inhabitants
- Number of dwellings per 1 000 inhabitants
- Share of university students per 1 000 inhabitants
- Regional density of population
- Regional vitality index

## **Transport & Technical Infrastructure**

- Road Transport – Share of Highways
- Road Transport – Density of Highways
- Railway Transport – Share of Railways
- Railway Transport – Density of Railways
- Water Transport
- Accessibility of water ports
- Airport accesibility
- Air Transport – Passengers
- Air Transport – Freight
- TEN-T Corridors
- Electric energy supply
- Renewable energy sources
- Natural gas
- Broadband
- Drinking water supply
- Wastewater treatment
- Renewable energy sources

## **Economy**

- Regional GDP per capita in PPS as a share of EU 27(25) average (%)
- Labour force participation rate (%)
- Unemployment rate in region (%)
- Number of employed in tertiary branch (%)
- Share of college and secondary school education inhabitants
- Total intramural R&D expenditure by all sectors of region at NUTS 2 (mil. of €)
- Average guest by night
- Foreign visitors by 1000 inhabitant

### **3. Output Specification**

The output of activity is cumulative assessment and determination of regionalization purpose and typology of regions.

The proposal for special purpose of regionalization is based on:

- generally accepted theoretical principles of economic regionalization,
- assessment of individual factors in the General Schemes.

Different regions in terms of their development potential are essentially divided into the following groups:

- developed regions,
- stable regions,
- stagnate regions,
- depression regions.

Mentioned typology serve us a basis for decision sphere in various countries in choosing appropriate measures for regional development, while that types of regions should correspond to differentiated regional and territorial planning policy with emphasis on:

- to create conditions for socio-economic development,
- improvements in spatial planning with emphasis on facilities and availability of the regions,
- to support polycentric system of settlement,
- to support the development and environmental protection.

The outputs are evaluated by time series of indicators for the years 1995, 2001, 2005 and 2008 (eventually 2007) in tabular, graphical form and maps.

### **4. The progress of work on comprehensive analysis of spatial-technical conditions and evaluation of development potential of Donauregionen+**

Workflow of comprehensive assessment was carried out as follows:

1-st step – processing time series of indicators for each of the General Scheme for the years 1996, 2001, 2005 and 2008 (eventually 2007),

2-nd step – provide data from individual guarantors of General Schemes to coordinated workplace,

3-rd step – overall evaluation of the development potential of individual regions according to the chosen methodology,

4-th step – establish categories of regions into groups depending on the position they occupy, to identify differences between regions, identification of strengths and weaknesses of individual regions.

During 2010, were found at each participating project partners processed time series of indicators for each of General Schemes. These indicators were evaluated and due to the fact that the individual countries data were not complex, it was necessary to add the missing data (currently in the process). Subsequently, these indicators for each region will be evaluated according to the methodology as follows:

**First step:** The determining factors of concept creation are qualified according to two aspects:

- **The value of X**: can vary between +3 and -3 depending on the fact, to what extent the given factor can be considered as strength (+3) or weakness (-3) for the region.
- **The value of Y**: can vary between +3 and -3 depending on the fact, that by changing, developing the given factors to what extent opportunities turn up e.g. in government policies, or in connection with joining the EU, and to what extent these expected, predictable changes mean threats from the aspect of using, utilizing the given factor.

**Second step:**

- **Creating strategic programs**: According to a sophisticated SWOT-analysis, experts determine new programs different to those of the development plans, – strategic programs that seem to have high probability and have higher impact on the indicators.

**Third step:**

- **Preparing scenarios**: The scenarios derive from the Y values linked to X values, i.e. following the further consideration, analysis of the external factors. During the qualification of the external factors the upcoming changes can be displayed in several variations, because the three groups of external factors make it necessary (constant, predictable, non-predictable external factors).

## **Value X**

The value of X can vary between +3 and -3 depending on the fact, to what extent the given factor can be considered as strength (+3) or weakness (-3) for the region.

Value X is calculated for each region and generated from each indicator that shows the state of every region compared to the others from the point of view of the selected indicators. The indicators are classified in 4 groups, these are: **Natural conditions, Settlement structure and human resources, Transport & Technical infrastructure and Economy**. The indicator groups now are the same as they were in the Donauregionen project, but some indicators have been changed from Donauregionen to Donauregionen+ project. The indicator changes happened because new variables were needed so that the possible changes caused by development projects could be measured. With the new indicators impacts of development projects can be shown more easily than with the ones of the former group.

## Practical information – how to define the value of X

To calculate the value X, each value (the units such as average guest nights) connected to a region has to be standardized by the formula:

$$[(\text{Value}_i - \text{Value}_{\min} / \text{Value}_{\max} - \text{Value}_{\min}) - 0,5] * 6$$

where:

$\text{Value}_i$  is the value of the indicator of Komárom-Esztergom county

$\text{Value}_{\min}$  is the value of the region with the lowest value of the given indicator

$\text{Value}_{\max}$  is the value of the region with the highest value of the given indicator

$\text{Value}_i - \text{Value}_{\min} / \text{Value}_{\max} - \text{Value}_{\min}$  gives the so-called "Own value", this is transformed to the -3 - +3 scale by taking away 0,5 than multiplying it by 6.

The value of the indicator is calculated using the highest and the lowest value of the Danube regions, the given X value is relative and is situated in a -3 - +3 range. On this indicator axis „0” is the half of the numbers' range, as it is  $\max - [(\max - \min) / 2]$ , and differs from the mean. When calculating value X, the deviation is not taken into consideration. It is worth calculating and illustrating the average (the way shown above) as well in every case to achieve the right reading of the value. This way value X can be compared to the lowest and highest value as well as the mean.

Based on this procedure:

- collectively evaluate the development potential of the Danube Area,
- we will determine the typology of regions,
- we will identify problematic areas,
- according to various General Schemes we will set of comparative advantages or disadvantages of different regions at NUTS 3 level.

The results of comprehensive assessment within the meaning of the chosen methodology will serve as a basis for document on WP5 package of the project and will be placed on the project website.