The Spatial Development Concept of Interregional Co-operation in the Danube Space

SEE EoI/A/246/4.2/X

WP7

COMPREHENSIVE STRATEGY

Background report for Slovak Republic

Part B – National scenarios

Methodical example

SOUTH EAST EUROPE
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Content

1. Preface

The role of WP7 is to define the conditions and ways of Donauregion countries territorial cohesion. The WP7 scenarions objective we propose as follows: **„Donauregion as the Development Axis within the European Space“**.

Transformation of Donauregion (D+region as its core area) into development axis of European importance requires a common strategy of participating countries.

The success of common strategy will be derived from cooperation quality of participating Danube regions, as well as from involvement and support of those endogenous and exogenous resources of ARGE Donau subregions and Cross Danube regions which contribute to their spatial integration, respectively their territorial cohesion.

The scenarios defined in the project application can be expressed as follows:

- promotion of conservation and restoration of the endogenous sources focusing on the internal cohesion (pessimistic scenario)
- promotion of the endogenous sources with external support focusing on the subregional cohesion (optimistic scenario)
- promotion of the endogenous areas sources focusing on the crossdanube regional cohesion (realistic scenario)

The basis for the scenarios should be the results of the WP5, supported with the information from the WP-s 4. and 6.

The time frame of the evaluated indicators in the WP5 and WP6 is from seven to ten years. It means the year 2017-2020. But in the scenarios it is necessary to show the development trends in the longer time frame – in the next 20 – 25 years. It depends on the long time cycles of the activities, which influenced the development of the territorial cohesion. Therefore the scenarios have to go over the time expressed in the WP5 and probably in the official country documents targeting the investigated region as well.

2. The starting points for creation of national scenarios

Projected scenarios for development of individual Donau subregions will be derived from ideas rooted in national development scenarios of individual states (i.e. state development trends) as well as from scenarios/development trends of regions that comprise each respective Donau subregion. Such national and regional scenarios/development trends will obviously be tied, to certain extent, also to all-European development and its scenarios and trends. Influence of EU, along with the extent of its impact on given national and regional development trends, will be mostly determined by development self-initiative and ability to utilize internal development potentials of respective member states – in our case this translates into actual Donau subregions.

As for development scenarios of respective Donau subregions, it is vital to above all concentrate on development initiatives, options and trends derived from internal potentials, given facts and particularities.

Any basic scenario-related considerations should originate from the past ideas of maintaining development in the last ten to twenty years. Such knowledge can be used in each respective Donau subregion as a basis for formulation of various scenarios 0150 – ranging anywhere from pessimistic to optimistic. It should be an expert's examination of how sustaining of existing development ought to be perceived in the timeframe of the next ten to twenty years. It should be determined whether or not sustaining of current development gives reason for optimism or pessimism in development of given subregion.

Implications assessment of sustaining the current development will be done by knowing the territory and obtaining the information and data from previous work packages for individual general schemes.

The starting points of three scenarios should be derived from the following hypotheses:

Optimistic scenario

Optimistic scenario works with an assumption of optimal utilization of all possible resources and potentials for further development of given region. It is well in correlation with optimistic development of EU and its cohesion policies, supporting cohesion oriented scenario of EU-27 European territories (scenario called also as „Danubian Europe"). Resulting from such development, one could expect to see spatial development of suburban character around major suburban centers of supra-regional and even state-wide importance; and development of other settlement centers of regional and subregional Importance along with their suburbs – thus securing proportionally balanced development of the whole territory. Positive development will be seen in territories of a high tourist potential, which hence will create more substantial economic as well as settlement-related development effect. In terms of settlement system, this scenario will represent considerable polycentric settlement development that would minimize marginalized territories. Along with that, infrastructure will be developed both as impulse and induction factors. One can expect favorable/more favorable development of population growth, mostly due to immigration.

Optimistic scenario represents a strong assumption of social, economical and territorial cohesion on all levels – regional, national and international alike.

Optimistic scenario further embodies a wish of how the development in given territory could/should proceed. Thus, it expresses a desired end-state, which shall be pursued in the long term horizon.

Pessimistic scenario

This model is built around an assumption of high concentration and locking of cities and regions away from other cities and regions. The main development of this scenario, as seen by decisores and stakeholders, lies in concentrated development on the local level in strong competition with other territorial units. Basically, these are the trends that lead towards strengthening of individual cities, and possibly also some other for-development-suitable municipalities on the local level, at the expense of mutual cooperation. Also, such interests subordinate the development of infrastructure, which is mostly focused on the local level and on certain selected parts of superior transport networks. This scenario also assumes lower and much slower economic development, partly caused also by having fewer options to utilize various support funds in the given territory. Funds, even if obtained, will most likely end up being used for concentrated development in the centers of choice. Development of the selected centers will strongly influence migration of the population. Suburbs of these centers will most likely witness creation of centripetal flows of inhabitants seeking work and services in the closest municipalities. More remote territories will lack sufficient development impulses and the concerned territories will be susceptible to marginalization (further marginalization?) and depression, both economically and socially. Settlement system in terms of polycentric conception will be rather limited with considerably marginalized territories. One can expect rather unfavorable development of population growth, along with strengthened emigration from the given territory.

Based on the above-stated, one can hardly assume further development of intra-regional, regional and wider inter-regional cohesion (social, economical and territorial).

Pessimistic scenario can be perceived also as sort of warning scenario. This is the scenario pointing out to the undesirable development due to neglecting or failing to adopt critical decisions – in the interest of utilizing internal territory potential and currently insufficient utilization level of various support funds of different sources.

Realistic scenario

Development assumptions under realistic scenario are derived both from realistic estimates of options for generating new economic activities and from approved and expected infrastructure development activities. This scenario operates with assumptions of development in major settlement centers, as well as with support and development of centers in rural areas. Centers in rural areas should saturate requests for basic and higher social equipment. Infrastructure development is based on its development objectives according to the optimistic scenario, in the interest of establishing connection between the development centers, as well as linking them with adjacent regions. Its realization; however, will not be accomplishable to a full extent within the expected time frame (2030 time horizon). Population growth development expects certain stabilization in centers.

There will be positive trends in the development of territorial, economical and social cohesion. Territorial cohesion, in international context, will be apparent mostly among the major centers; more specifically, between centers on one side of the border and agglomerative municipalities on the other – depending on conditions and accessibility.

Realistic scenario embodies estimation of realistic options for fulfilling certain basic elements of desired development, as expressed in the optimistic scenario, within the given time horizon.

Generally it can be said that the term “optimistic scenario” will primarily encompass general economic and social development in terms of increasing GDP, generating of new job opportunities, developing infrastructure and securing social comfort. On the other hand, such a development might be perceived as negative when it comes to the matters of environmental impacts, landscape conservation and protection of natural resources. Each scenario will be described objectively in accordance with corresponding general schemes, where individual viewpoints on characteristics of each individual scheme are to be addressed. It is necessary to perceive and bear in mind possible confrontations/connections between these different viewpoints–while formulating hypotheses for each scenario (in form of a table); and especially while preparing and forming the final interpretation of possible development in the recommendations section located in part C of the national background reports.

2.1. Methods for processing scenarios on the national level in individual Donau subregions

Scenario processing methods

The suggested processing methods to be applied while working with individual scenarios are:

1. based on knowing the actual conditions in subregion, as resulting from WP4 data evaluation, it is needed to specify relevant indicators, characterizing the quality of environment according to general schemes that would likely also represent a possible qualitative development in wider perspective (natural conditions, spatial structure and human resources, transport and technical infrastructure, economy structure). The solution is working with indicators, which are also being addressed in WP5. However, it is advised to possibly consider other relevant region-specific indicators as well.
2. based on time series data obtained from WP4, for chosen indicators it is recommended to apply mathematical and statistical method of extrapolation, in order to construct new data and hence interpret possible future development (some methods utilizable for this solution phase will be available on the portal). To express extrapolation of indicators’ growth, it is also viable to use other methods, such as growth coefficient, increment coefficient, growth rate and/or increment rate.
3. evaluation of indicators’ development as addressed in WP5 and its prolongation till 2030 (to take advantage of expert’s opinion on development of indicators in variants, as created based on method(s) presented on the portal.
4. based on interpretation of possible development of indicators, according to both methods (point 2 and 3), to express scenarios in compliance with their characteristics as previously formulated. Trend/extrapolation development as expressed based on the evaluation according to point 2 is to be compared to the evaluation according to point 3. In this step, extrapolation is to be assessed (point 2) and it is to be evaluated to what extent this trend reflects each particular scenario (pessimistic, optimistic, realistic). Characteristics of development in each scenario will then accommodate to these findings.

5. to characterize individual scenarios of corresponding subregions in text form, supplemented by numerical values/tables and/or graphical schemes.
6. to express scenarios hypotheses (in form of a table), which should also encompass mutual confrontations/connections between the utility-oriented characteristics of each scenario (e.g.: optimistic scenario under Economic Structure general scheme versus the scenarios under Natural Conditions general scheme; and similarly, scenarios under Spatial Structure general scheme versus the scenarios under Natural Conditions general scheme, etc.)

3. Characteristic of the scenarios

A short description and comments on the scenarios according to the general schemes

3.1. Natural conditions

3.1.1. Land use

Optimistic scenario

- losses of agricultural lands will be stabilized, especially then the losses of most favorable lands in the vicinity of cities in Žitný ostrov
- minimal landscape structure changes related to climate change
- revitalization of damaged urban areas and disposal of old environmental burdens (operations of formerly-active industrial facilities in Bratislava, Sereď, Piešťany and Zlaté Moravce; waste disposal sites and dumping grounds from industrial production in Sereď and Šaľa)
- re-use of once devastated agricultural sites for both agricultural and suitable non-agricultural purposes

Pessimistic scenario

- considerable drops in the amount of agricultural lands due to increased number of inhabitants; and heightened demands of increased populus on the extent of built-up areas in the cities, and municipalities located in their suburbs (Bratislava, Nitra, Trnava, partly also Nové Zámky and Komárno)
- substantial landscape structure changes and corresponding land-use and vegetation cover changes due to climate change
- fragmentation, degradation and destruction of biotopes
- growing of genetically-modified crops on vast areas of high-quality agricultural lands (Podunajská nížina)

Realistic scenario

- loss of agricultural lands and expansion of built-up areas are balanced
- changes of landscape structure related to the climate change
- gradual loss of biodiversity
- forest cover spreads through self-seeding

3.1.2. Nature conservation and landscape protection

Optimistic scenario

- completion of all-European NATURA 2000 network
- protection and preservation of wetlands (Ramsar Convention – Alúvium Rudavy, Dunajské luhy, Niva Moravy, Šúr and other wetlands of national importance)
- functional interconnection of individual green spaces (retention and execution of the objectives of both general building scheme and supra-regional territorial systems of ecological stability, as defined in regional documentations)
- active protection of conservation areas by means of adopting constructive ecological-managerial measures
- support of activities helping to stabilize Danube as a hydric biocorridor

Pessimistic scenario

- intensive development of tourism in conservation areas and areas of ecological significance (mostly protected landscape areas Dunajské luhy, Malé Karpaty, Záhorie, Ponitrie and Štiavnické vrchy; there is also inappropriate development of watermanship tourism in Malý Dunaj, the river Danube and its distributaries, along with rivers Hron and Ipeľ)
- spread of invasive non-native vegetation species (e.g. Solidago Gigantea, Fallopia Japonica, Heracleum Mantegazzianum, Robinia Pseudoacacia and others)
- loss of wetlands
- extinction of original animal species

Realistic scenario

- legislative protection of valued territories will be reconsidered
- extinction threat in case of some animal species
- anticipated changes in representation of major forest woods species

3.1.3. Air quality and pollution

Optimistic scenario

- CO_2 emissions to be reduced at least by 50% till 2050
- Reduction of fuel usage in consequence of halting the warming process

Pessimistic scenario

- Excessive industrial activities, chemical pollution, accidents
- Emissions from increased traffic

Realistic scenario

- Gradual decrease of emissions due to legislative measures
- Upgrading of obsolete industrial technologies

3.1.4. Water quality and pollution

Optimistic scenario

- reaching quality class max. III in the assessment of surface water quality
- functional preservation of water sources
- bringing flow into so-called dead and blind stream branches

Pessimistic scenario

- Excessive industrial activities, chemical pollution, accidents
- Deterioration of drinking water supply (surface and subsurface, especially then water resources in Žitný ostrov)
- increase of natural disasters (floods)
- yield decrease of some water sources (springs)

Realistic scenario

- quality of water bodies will be neither impaired nor significantly improved
- changes in drainage areas of some catchment basins
- changes in water management due to climate change

3.1.5. Waste

Optimistic scenario

- lesser production of waste (communal, unsecured)
- improvement of waste management, e.g. high technical standards of waste disposal sites
- share of separated waste collection in the total production of communal waste will increase
- elimination and re-cultivation of old or illegal waste deposits

Pessimistic scenario

- high production of communal waste due to increasing number of the inhabitants
- insufficient capacities and unmet technical requirements of waste disposal sites
- waste management programmes are insufficiently updated and executed
- increase of illegal waste disposal sites
- contamination risk from radioactive and other unsecured waste resulting from its inappropriate storage

Realistic scenario

- waste production kept on its present level
- reevaluation of the waste combustion technology and consequent utilization of biogas (heat, energy, fuel)
- preparation of waste management programmes
- gradual implementation of biologically degradable refuse collection

3.2. Spatial structure and human resources

3.2.1. Spatial structure

Spatial structure of the Slovak Donau subregion is, according to the Slovak Spatial Development Strategy 2001, formed by the settlement centers, settlement core areas and development axes. According to the development conditions of each of the scenarios, their characteristics will be changed depending on the rate of agglomeration and intensification of the development axes. Generally, it can be said that the pessimistic scenario, oriented more on the competitiveness between the cities and regions, will be characterized by the development of the main and strongest cities of the region and there will be growing disparities between the developed cities and the rural areas. As opposed to the pessimistic scenario, the optimistic scenario will be characterized by growth of agglomerations, by improvement of relations between the cities and rural areas as well, and finally, also by emerging of stronger development axes. In the Slovak Donau subregion, there is a specific situation near the city of Bratislava, characterized by its polarization and agglomerative tendencies. All scenarios suggest there will be a significant influence of the city on the settlements in its hinterlands. As for Bratislava agglomeration, the only variable and unanswered question remains to what degree the agglomerative process will be developed (between Bratislava and the agglomerated cities) and the quality of the agglomeration itself.

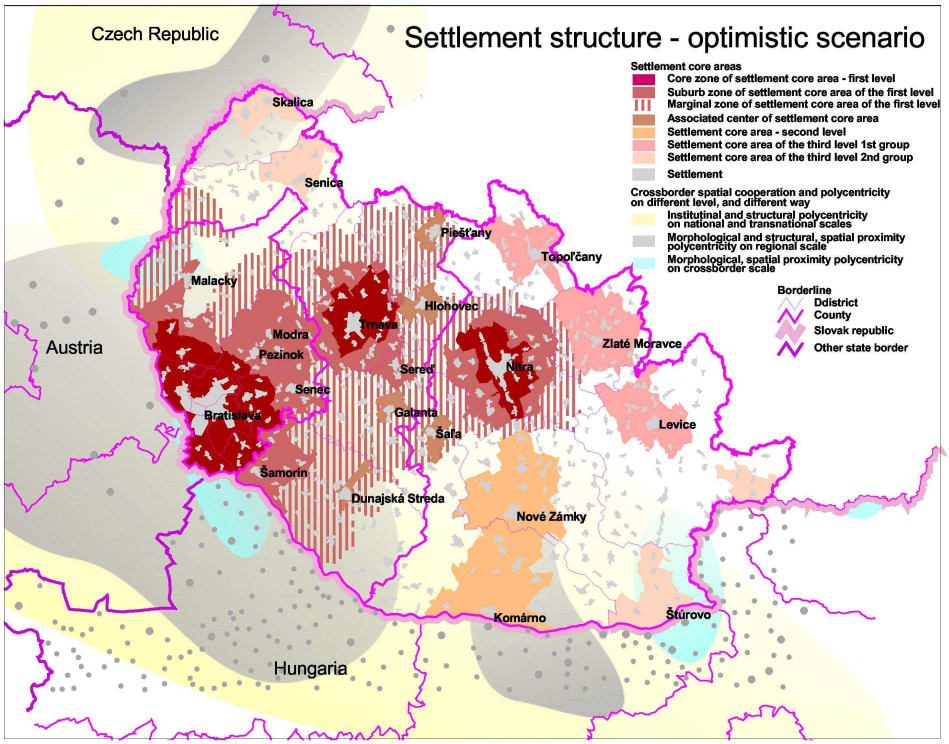
Characteristics of the scenarios:

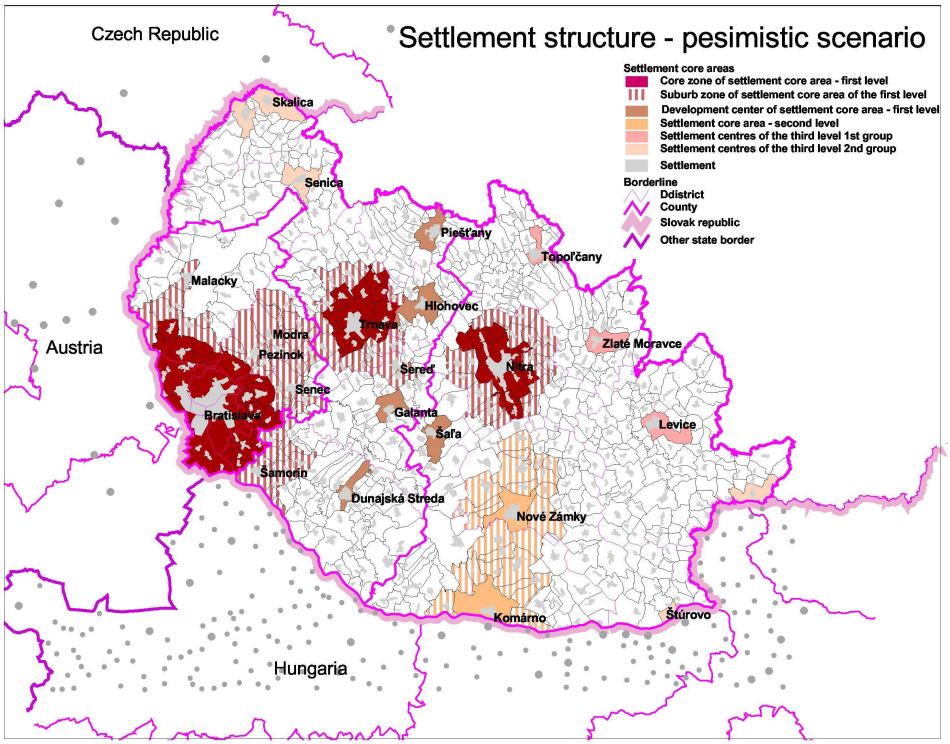
Optimistic scenario

– the agglomeration rate in the subregion will be the highest. Influences from Bratislava will spread over the regional dimension. The agglomeration will be consolidating from Bratislava through Trnava up to Nitra with their relevant hinterlands. Nové Zámky – Komárno agglomeration will be developed just outside of the largest Bratislava agglomeration. Besides, several smaller agglomerations will emerge too – around Levice, Topoľčany and Zlaté Moravce. Other development cities, whose surroundings will be influenced to a much lesser extent, are Skalica, Holíč, Senica, Myjava, Štúrovo and Šahy. The development axes will be created hierarchically along the superior and main regional roads in the system, hence fulfilling the settlement system in sense of Slovak Spatial Development Perspective 2001. In addition to Bratislava agglomeration, the spatial cross-border interactions will be as well seen in the vicinities of Komárno, Štúrovo and Šahy.

Pessimistic scenario

– besides the growth of Bratislava city and its hinterland, the development will be mostly visible in the regional centers Trnava and Nitra, with polarization in the villages seated in their hinterlands. Other regional cities will grow at a slower pace, mostly those that previously held positions of district centers. Better conditions will be seen by the larger cities such as Nové Zámky, Levice, Komárno, and Topoľčany, respectively. The development axes will increase especially along the constructed superior roads. The cross-border agglomeration tendencies will be seen only by the city of Bratislava.

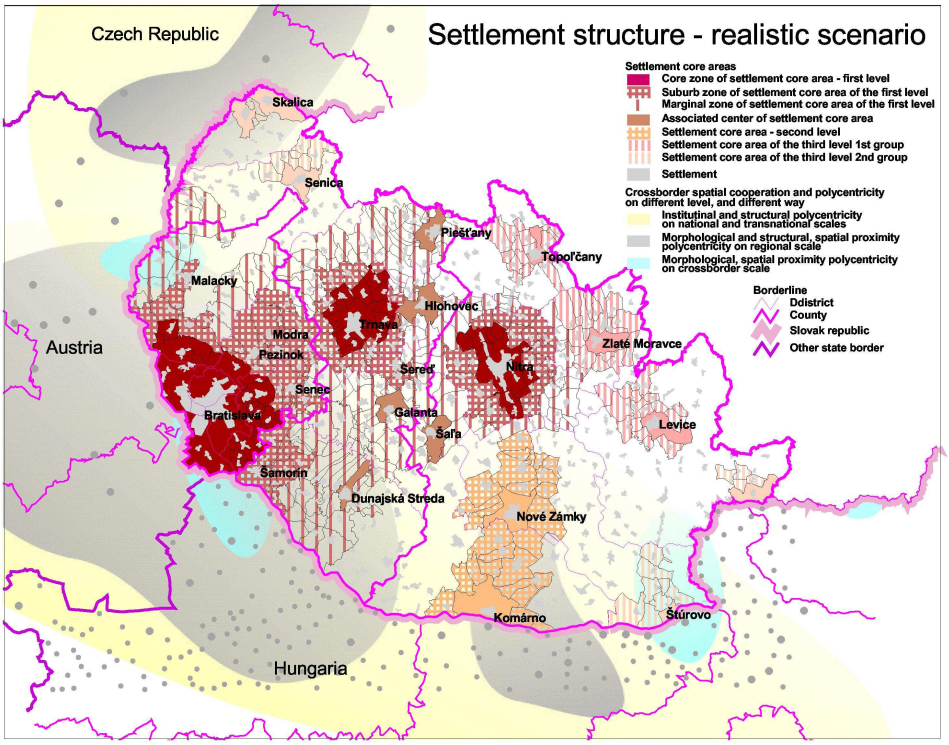




Realistic scenario

– is characterized by growing and strengthening of the Bratislava agglomeration, which is also apparent cross the state border. There will be a development in Trnava

and Nitra agglomeration too. However, Nové Zámky – Komárno agglomeration will witness much less of an expansion. The other regional cities will generate centripetal effects on their immediate hinterlands. The development axes will increase mainly along the main roads, and in areas not far from the central cities.



3.2.2. Human resources

The Slovak republic is from a demographic perspective well known for its regional disparities, based on which one can divide the country into two distinctive regions. On one hand, there are north and east with progressive development; and on the other, there are south and west with regressive development. These exhibit two different types of reproductive and migration behavior among the inhabitants. A tendency towards new reproductive model is most apparent in Bratislava region, to a lesser extent also in remaining regions of Western Slovakia.

Demographic prognoses are one of basic information to look at while considering future development of the society. Demographic Research Centre, operating within INFOSTAT, processed such prognoses in November 2007 and offered the results in publication *Prognosis of population development for SR up to the year 2025 (update)*; and consequently in November 2008 in publication *Prognosis of population development for SR regions up to the year 2025*.

Processed demographic prognoses conclude that development of natality, or rather fertility, is to be seen as a major development factor shaping population growth trajectory across the whole Slovakia. Its value is expected to record a gradual increase over the years, reaching top values in 2025 prognosis horizon, where it should amount to 1.6. Hence, there is high probability that Slovakia will fail to secure the value of replacement-level fertility, from the viewpoint of natural movement of its population.

Along the states of former Eastern Bloc, Slovakia belongs among countries with the highest mortality rates in the EU. There is a trend of declining mortality and it will continue to be visible in all counties and in all age groups, for both genders alike. As a general rule, the mortality rate tends to be lower in the western and northern parts of Slovakia, when compared to the southern part of the country; and as well, cities do exhibit lower mortality rates than the rural areas.

While formulating general hypotheses in case of future migration development, it is vital to bear in mind increasing intensity of the international migration connections. Here, especially immigration could affect migration turnabout of the county population, and thus, consequently also the values of migration balance. Prognoses forecast increased values of migration balance mostly due to boosted immigration. Greater stability is expected in case of the emigration.

Prognosis of population development in the SR up to the year 2025 expects Slovakia to reach the following population till 2025

Number of Inhabitants in Year				
Year 2009 (as of 31.12.) real figures	**Prognosis year 2010**	**Prognosis year 2015**	**Prognosis year 2020**	**Prognosis year 2025**
5 424 925	5 423 703	5 471 653	5 510 225	5 521 745

Source: *yr. 2009 – ŠÚ SR, yrs. 2010-2025* – Prognosis of Population Development for SR up to the Year 2025 *(update), INFOSTAT, VDC, 2007*

Total number of inhabitants in the SR processed for each individual region, in years 1991, 2001, 2009 and a prognosis for 2025; growth index

Territory	**Number of inhabitants**			**Prognosis**	**Growth index**		
	3.3. 1991	26.5. 2001	31.12. 2009	Yr. 2025	2001/1991	2009/2001	2025/2009
Bratislava county	606 351	599 015	622 706	641 134	98.79	103.95	102.96
Trnava county	541 992	551 003	561 525	573 408	101.66	101.91	102.12
Trenčín county	600 575	605 582	599 214	595 469	100.83	98.95	99.38
Nitra county	716 846	713 422	705 661	691 330	99.52	98.91	97.97
Žilina county	668 771	692 332	697 502	708 872	103.52	100.75	101.63
B. Bystrica county	659 320	662 121	653 186	634 265	100.42	98.65	97.10
Prešov county	739 264	789 968	807 011	837 482	106.86	102.16	103.78
Košice county	741 216	766 012	778 120	784 891	103.35	101.58	100.87
The Slovak Republic	**5 274 335**	**5 379 455**	**5 424 925**	**5 466 850**	**101.99**	**100.85**	**100.77**

Source: *SĽDB 1991, ŠÚ SR; SODB 2001, ŠÚ SR; yr. 2009 – ŠÚ SR; yr. 2025* - Prognosis of Population Development for SR Regions up to the Year 2025*, INFOSTAT, VDC, 2008; own calculations*

According to the *Prognosis of population development for SR regions up to the year 2025*, the population (and age structure) of Bratislava, Trnava and Nitra counties, as well as in the overall SR, is forecasted to take the following dimensions by 2025:

Population age structure in Bratislava, Trnava and Nitra counties, along with the whole SR, as of 2009 and according to the prognoses also as of 2010, 2015, 2020 and 2025

Settlement structure	Characteristic age groups	Number of inhabitants					Inhabitants - % share				
		31.12.2009	yr. 2010 (prognosis)	yr. 2015 (prognosis)	yr. 2020 (prognosis)	yr. 2025 (prognosis)	31.12.2009	yr. 2010 (prognosis)	yr. 2015 (prognosis)	yr. 2020 (prognosis)	yr. 2025 (prognosis)
Bratislava county	pre-productive	81 659	81 273	89 787	91 696	84 162	13.1	13.1	14.2	14.3	13.1
	productive	461 486	456 898	443 800	425 721	417 032	74.1	73.7	70.2	66.5	65.0
	post-productive	79 561	81 588	98 911	122 749	139 940	12.8	13.2	15.6	19.2	21.8
	altogether	622 706	619 759	632 498	640 166	641 134	100.0	100.0	100.0	100.0	100.0
Trnava county	pre-productive	78 036	77 265	77 993	80 253	78 530	13.9	13.8	13.7	14.0	13.7
	productive	413 530	413 754	408 668	393 584	381 372	73.6	73.6	71.8	68.6	66.5
	post-productive	69 959	71 097	82 591	99 682	113 506	12.5	12.6	14.5	17.4	19.8
	altogether	561 525	562 116	569 251	573 519	573 408	100.0	100.0	100.0	100.0	100.0
Nitra county	pre-productive	96 470	95 013	93 582	95 532	93 516	13.7	13.5	13.3	13.7	13.5
	productive	513 796	513 574	500 994	476 807	457 198	72.8	72.9	71.4	68.3	66.1
	post-productive	95 395	96 198	107 384	125 736	140 615	13.5	13.6	15.3	18.0	20.3
	altogether	705 661	704 784	701 960	698 076	691 330	100.0	100.0	100.0	100.0	100.0
DONAU SUREGION space on territory of the SR (counties together)	pre-productive	256 165	253 551	261 362	267 481	256 208	13.5	13.4	13.7	14.0	13.4
	productive	1 388 812	1 384 226	1 353 462	1 296 112	1 255 602	73.5	73.4	71.1	67.8	65.9
	post-productive	244 915	248 883	288 886	348 167	394 061	13.0	13.2	15.2	18.2	20.7
	altogether	1 889 892	1 886 659	1 903 709	1 911 761	1 905 872	100.0	100.0	100.0	100.0	100.0
The Slovak Republic	pre-productive	831 320	819 267	818 551	832 184	810 664	15.3	15.1	15.0	15.2	14.8
	productive	3 928 471	3 928 765	3 865 601	3 726 350	3 615 830	72.4	72.5	70.9	68.1	66.2
	post-productive	665 134	671 659	768 249	914 560	1 040 356	12.3	12.4	14.1	16.7	19.0
	altogether	5 424 925	5 419 691	5 452 401	5 473 095	5 466 850	100.0	100.0	100.0	100.0	100.0

Source: *yr. 2009 – ŠÚ SR; yrs. 2010-2025* - Prognosis of Population Development for SR Regions up to the Year 2025*, INFOSTAT, VDC, 2008; own calculations*

In 2009-2025 outlook, Bratislava county is expected to gain 18 428 inhabitants, Trnava county to gain 11 883 inhabitants, whereas Nitra county is forecasted to record decline in population by 14 331 inhabitants. Slovak Donau subregion will between 2009 and 2025 record a rise in population by 15 980 inhabitants; while this figure will total to 41 925 people for the whole SR.

The overall tendency of age structure development will lead towards worsening of its structure due to substantial increase of inhabitants in post-productive age. This share of the oldest population group will grow in Bratislava county from 12.8% in 2009 to 21.8% in 2025; in Trnava county it will be from 12.5% in 2009 to 19.8% in 2025, and finally, in Nitra county the share of post-productive population will increase from 13.5% in 2009 to 20.3% in 2025. As for Donau subregion space on territory of the SR, this figure will climb from 13.0% in 2009 to 20.7% in 2025; whereas the whole SR will in the same time period record an increase from 12.3% to 19.0%.

For the needs of project Donauregionen+, the population development was calculated for Bratislava, Trnava and Nitra counties based on the trends officially formulated by Demographic Research Centre (VDC) operating within INFOSTAT in their "*Prognosis of Population Development for SR Regions up to the Year 2025*" from November 2008; and the calculations are stated in the table and charts below. However, instead of the official prognosis the source data for 2010 were taken from the Statistical Office of the Slovak Republic (up to 30.6.2010).

Realistic scenario preserves population development tendencies in individual counties as stated in the official VDC prognosis. Pessimistic and optimistic scenarios were then both derived from this (most probable) realistic scenario. Individual demographic coefficients, which were utilized for prognoses calculation in each variant, were analyzed based on possible inputs influenced by the future socioeconomic development on the territory of both region and state. Preconditions for this prognosis are developments of fertility, mortality and migration. Expected

development of all major processes of the natural movements (natality, mortality), in each scenario, is assumed to be the same as the one offered by official VDC prognosis. Pessimistic and optimistic scenarios; however, differ in terms of expected migration development.

Pessimistic scenario presumes lower migration balance (than the official VDC prognosis does) and possible outflow of the younger population from the SR.

In medium-term time horizon, Slovakia will still be only a transit country for migrants (going westwards) and less likely a country to stay in permanently. Average population age along with the aging index will grow significantly, which will be reflected in substantial aging of the population. As opposed to this scenario, optimistic scenario presumes booming younger population and favorable economic and social conditions in the country. When compared to the official VDC prognosis, a stronger growth of migrants is being assumed, along with inflow of younger population. SR, under this scenario, is perceived as an interesting country to stay in permanently for immigrants. Average population age and aging index will grow more slowly than in pessimistic scenario.

The following table states scenario-based overview of the population development in Bratislava, Trnava and Nitra counties; as well as in the whole Slovak Donau subregion, ranging between 2010 and 2030.

Settlement structure	Development scenario	Number of inhabitants in year				
		2010	2015	2020	2025	2030
Bratislava county	official VDC prognosis	619 759	632 498	640 166	641 134	638 253
	realistic scenario	628 724	641 647	649 426	650 408	647 485
	pessimistic scenario	628 724	633 363	635 030	632 265	624 420
	optimistic scenario	628 724	649 932	660 895	665 771	668 049
Trnava county	official VDC prognosis	562 116	569 251	573 519	573 408	571 164
	realistic scenario	563 101	570 249	574 524	574 413	572 165
	pessimistic scenario	563 101	565 353	567 615	566 315	562 605
	optimistic scenario	563 101	575 144	581 467	583 793	584 589
Nitra county	official VDC prognosis	704 784	701 960	698 076	691 330	686 568
	realistic scenario	704 529	701 706	697 823	691 080	686 319
	pessimistic scenario	704 529	699 932	692 587	685 169	680 325
	optimistic scenario	704 529	703 480	701 333	697 001	694 732
DONAU SUBREGION space on the territory of the SR (counties together)	official VDC prognosis	1 886 659	1 903 709	1 911 761	1 905 872	1 895 985
	realistic scenario	1 896 354	1 913 602	1 921 774	1 915 901	1 905 970
	pessimistic scenario	1 896 354	1 898 648	1 895 232	1 883 750	1 867 350
	optimistic scenario	1 896 354	1 928 556	1 943 695	1 946 566	1 947 369

Source: *years 2010-2025 for official VDC prognosis* – Prognosis of Population Development for SR Regions up to the Year 2025*, INFOSTAT, VDC, 2008;*

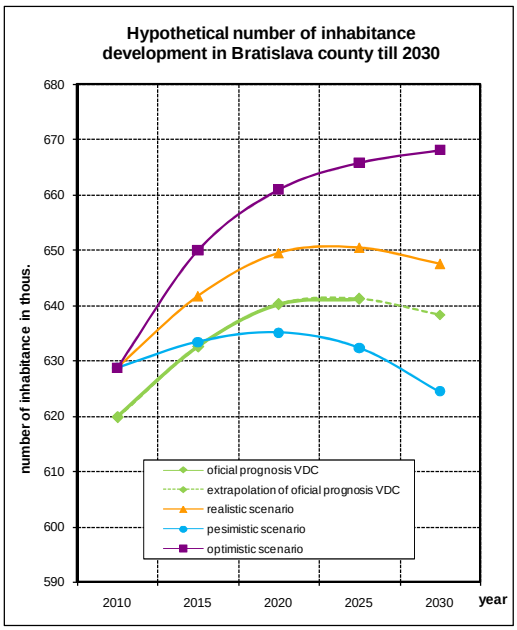
year 2010 for realistic, pessimistic and optimistic scenario – own calculations;

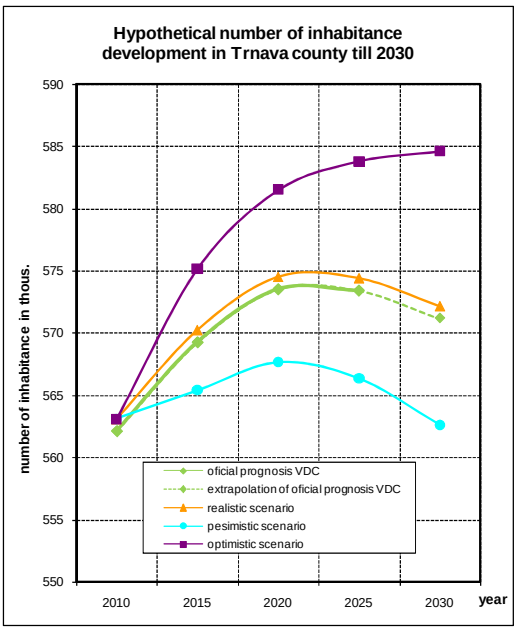
year 2030 for official VDC prognosis – own calculations via extrapolation;

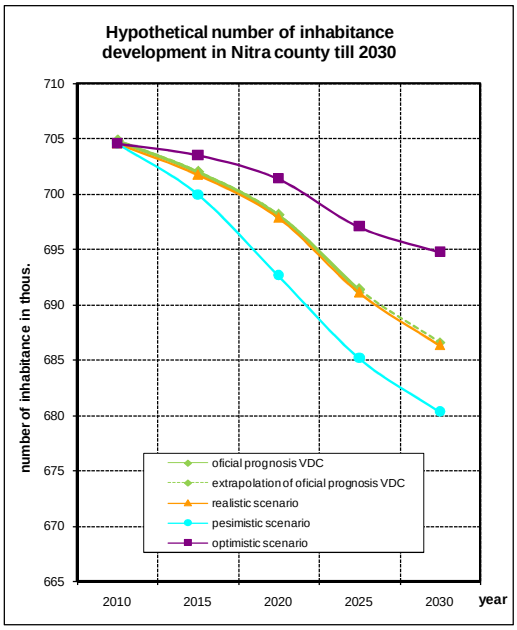
year 2015-2030 for realistic, pessimistic and optimistic scenario – own calculations

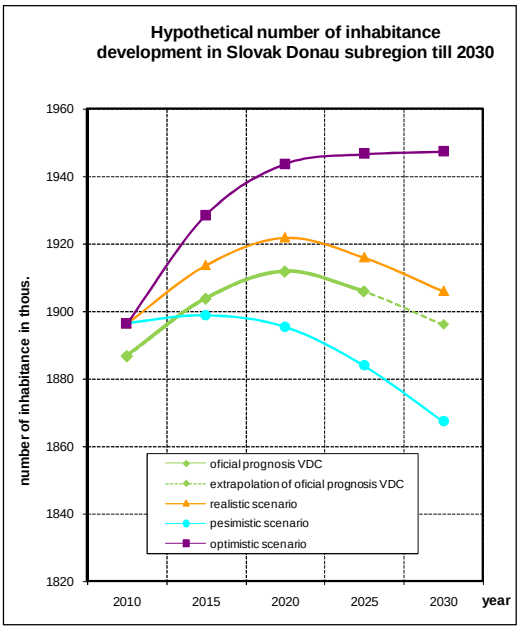
According to the official VDC prognosis modified for 2030 outlook, territory of Slovak Donau subregion is assumed to record only minimal rise in population, reaching approximately 1 895 985 inhabitants (the total 2009-2030 population growth is thus approximately 6 093 people). Realistic scenario presumes the territory to reach roughly 1 905 970 inhabitants by 2030, which translates to overall population increase of approximately 16 078 people. Pessimistic scenario expects a drop in population, totaling to 1 867 350 inhabitants by 2030, which means 2009-2030

population decrease of 22 542 people. Optimistic (development) scenario assumes booming younger population and it projects a rise in population by 57 477 people between 2009 and 2030, reaching a total of 1 947 369 inhabitants by 2030.









3.3. Transport and technical infrastructure

3.3.1. Transport

Transportation in Slovak Donau subregion can be seen as largely sub-standard, from the viewpoint of superior transport networks of national and international importance. A completion of highway network, along with construction of several sections of high-speed motorways, is planned for subregion's territory. Highway network is meant to connect Bratislava with both neighboring countries and remaining territories of

Slovakia in the northeast direction. High-speed motorways will connect Bratislava from the east and southeast. In addition to superior transport networks, several technical modifications will be introduced, along with some bypass roads around settlements.

Railroad network in the subregion is part of Pan-European Corridor No. IV and V, branch Va.

Characteristics of the scenarios:

Optimistic scenario

– is assuming development of a complete road network to the full planned extent. This means completing the network of highways by extending it (D1 and D2); and construction of highway D4 – closing a full circuit stretching from SR/AT state borders near Jarovce, through Malé Karpaty all the way to SR/AT state borders near Devínska Nová Ves. This scenario also assumes full completion of network of high speed communications (motorways) on the subregion's territory, i.e. R1 from Bratislava to Trnava, Senec, Dunajská Streda and Galanta; section of R3 between Šahy and Zvolen; R7 from Bratislava to Dunajská Lužná, Dunajská Streda, Nové Zámky and Čaka, and finally, section of R8 between Nitra (intersection of R2 and R8) and Topoľčany. For the sake of improving international accessibility, new bridges over the river Danube are assumed to be erected in cities of Komárno and Štúrovo.

Railroad transportation is assumed to see full reconstruction of its networks to meet criteria of required speeds, which includes accompanying constructions on the railway stations along the rails. New high speed Bratislava-Nitra connection should be part of this scenario as well.

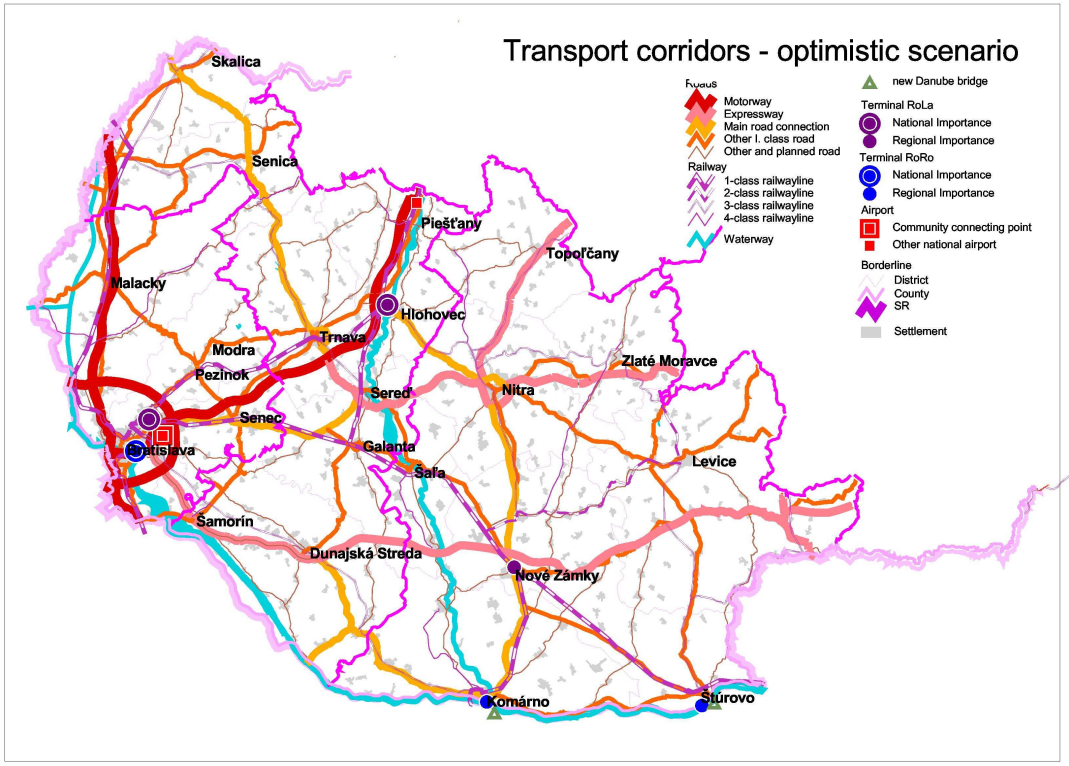
For air transportation this scenario assumes construction of new terminal building in Letisko M. R. Štefánika – Airport Bratislava, along with modification and extension of its runway system. Besides, one can expect development of airports in Piešťany and Nitra.

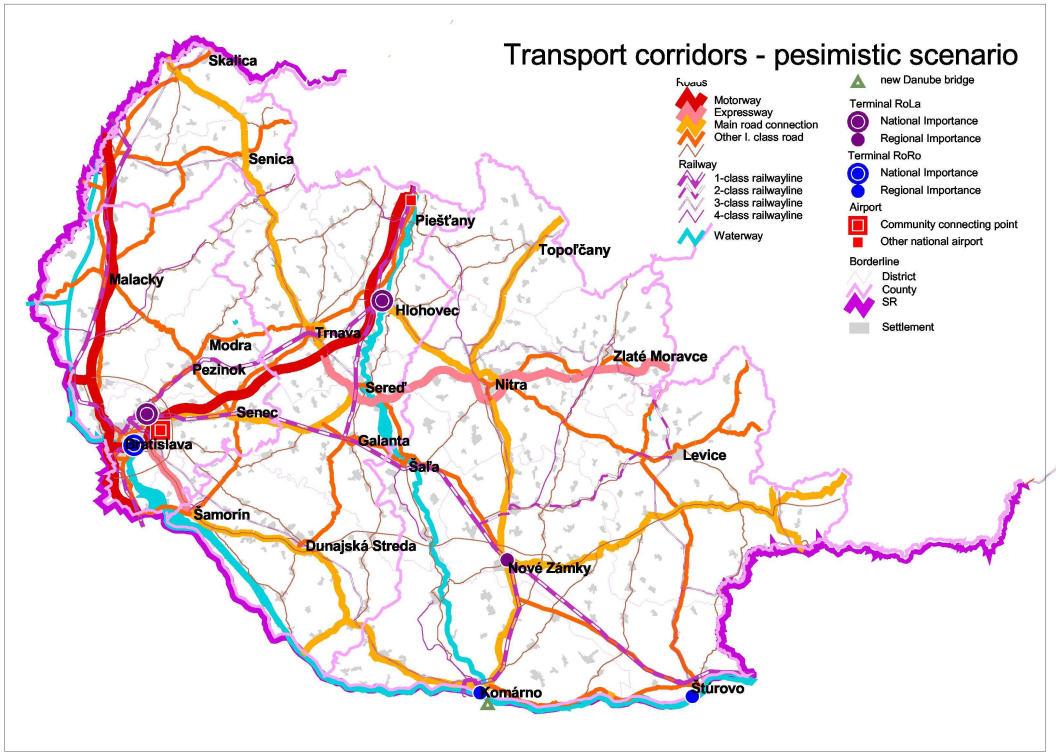
Pessimistic scenario

– is a warning scenario, which supposes complications with obtaining of financial resources and capacities as needed for development of desired transport-related constructions. This scenario expects only highways D1 and D2 to be finished, whereas highway D4 will be a work in progress near state borders. High speed motorways R1, R3 and R8 will not be under construction. High speed motorway R7 is expected to be partially constructed in the closest vicinity of Bratislava, reaching to Šamorín. International accessibility is to be improved only via a new bridge over the river Danube in Komárno.

Railroad transportation is assumed to see only the reconstruction of currently present railway lines.

Air transportation will be limited only to construction of new terminal building in Letisko M. R. Štefánika – Airport Bratislava, along with reconstruction of its existing runway system.





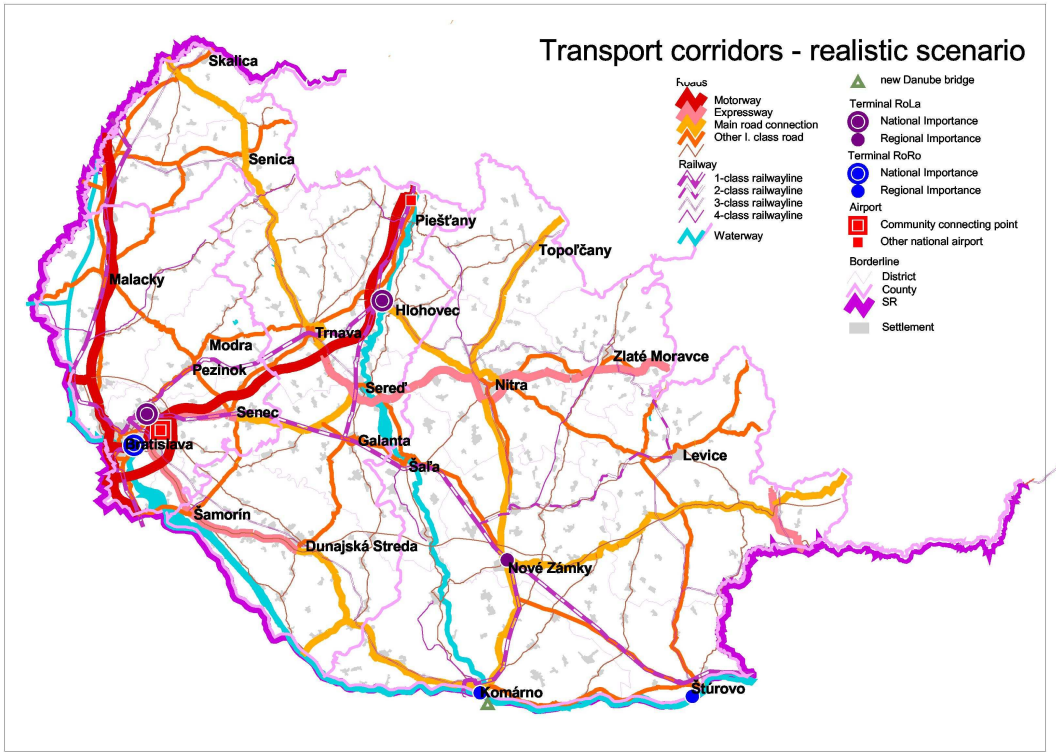
Realistic scenario

– operates with an assumption that all transport networks will be constructed in line with proposed planning; however, not all transport-related constructions will be accomplished to the full extent, as originally conceived within the 2030 time horizon.

Road network is assumed to see only completion of highways D1 and D2. Highway D4 will be under construction from SR/AT state border near Jarovce to D1 highway. High speed motorways R1 and R7 will be partly developed in the vicinity of Bratislava, in direction of Senec up to Galanta (R1) and in direction of Šamorín up to Dunajská Streda (R7). For international accessibility, a new bridge is to be erected over the river Danube in Komárno.

Railway network is assumed to undergo only a reconstruction of its currently present lines.

Air transportation will be limited to new terminal building in Letisko M. R. Štefánika – Airport Bratislava and reconstruction of its existing runway system; and based on circumstances also reconstruction of airport in Piešťany.



3.4. Technical infrastructure

will be added

3.5. Economy structure

Optimistic scenario

Subregion's economic potential will be gradually moving also towards the suburbs of development centers. This will alleviate the strain put on transport infrastructure and migration of workforce. Subregion will witness migration of workforce from other regions of Slovakia, as well as from abroad.

Gross Domestic Product (in PPS) of the region will grow in absolute terms also on a year-on-year growth rate basis, and it will be reaching towards the EU average.

There will be a differentiated development of individual counties, where Nitra and Trnava will reach the average EU levels in relatively short time, resulting mostly from localization of new enterprises.

Unemployment rate in the whole subregion will gradually decline below all-Slovakia average.

As for regional sector structure of economy, there will be an apparent trend towards diversified economic structure with growing share of sophisticated production and services. Subregional spending on science and research will grow considerably. Suitable conditions will be formed for further growth of automotive cluster, based on localization of car producers Peugeot-Citroen and Volkswagen.

There will be a growth of business units, especially then small and medium-sized enterprises.

The region will retain its attractiveness for foreign direct investments.

Pessimistic scenario

Dynamics of Gross Domestic Product growth, especially in the eastern part of the subregion, will record relatively low growth rates, which will be constantly prolonging the time needed to reach the European average.

Economic development will be characterized by small scale diversification of subregion's economic basis with high sensitivity to changes in market conditions. Primary and secondary sectors will assume major position economic structure of the subregion mostly in Nitra and Trnava counties. Concentration of economic activities will remain mostly apparent in existing centers of development (Bratislava, Trnava and Nitra).

Downturn in the subregion's economic basis will translate into growing unemployment rate above the all-Slovakia average (Nitra and Trnava county) and will initiate migration of the population from eastern parts of the subregion into regional centers (mostly apparent among the younger generation with higher qualification).

This scenario assumes insufficient levels of preparation and execution of planned objectives translated into consequent failure to stimulate new high-quality economic development.

Business environment will witness a gradual decline in the amount of business units, apparent especially in the segment of small and medium-sized enterprises.

Subregion will be less able to attract foreign direct investments, also as a result of insufficiently developed transport infrastructure.

Realistic scenario / Inertialy stabilized scenario

Economic potential of subregion will continue to be concentrated in centers, above all in regional capitals Bratislava, Trnava and Nitra, all of which will continue to offer favorable conditions for localization of manufactural and non-manufactural activities. Along with these centers, development will also be seen amongst the smaller centers with good accessibility to the higher centers and superior transport networks. However, regional development participants will be acting in insufficiently regulated economic environment.

Development of gross domestic product will be stabilized at its current level, whereas its average annual growth rate will fluctuate between 7% (Nitra county) and 10%

(Trnava county). The tendency towards equalization and reaching EU levels will lack necessary dynamics.

In eastern part of the subregion (Nitra county and partly also Trnava county), there will be a recession in traditional sectors in the regional's economic basis and transition to new structure of economy will lack sufficient dynamics.

Unemployment rate will exhibit impacts of cyclic and differentiated economic development of the subregion. The unemployment rate will be the lowest in the western part of the subregion (Bratislava county), whereas the unemployment rate in the two remaining counties will fluctuate below the all-Slovakia average.

As for the business environment, business units will be emerging and disappearing; especially then in the segment of small and medium-sized enterprises (moderate growth of business units and enterprises).

Inflow of the foreign direct investments into the subregion will stagnate.

4. Hypotheses of the three scenarios:

	optimistic scenario	pessimistic scenario	realistic scenario
natural conditions	- considerable drops in the amount of agricultural and forest lands - endangerment of natural conservation areas due to extensive development of settlements and tourism - endangerment of wetlands and extinction of original species - excessive increase of emissions into air and streams - high risk of deterioration of the water sources - amounting problems with waste production	- preservation of the most suitable agricultural lands - minimal intervention into the systems of natural conservation areas - assumption of original biodiversity preservation - considerable reduction of emission levels - improvement of water quality in streams - lower waste production	- balanced ratio between loss of agricultural land and expansion of built-up municipality areas - re-evaluation of legislative protection of valued territories - extinction threat in case of certain biotopes and animal species - gradual systematic decrease of emissions - stagnation of water bodies quality - stabilization of waste production and introduction of separated and biologically decomposable waste
settlement structure	- high level of urbanization - formation of agglomeration with international reach (Bratislava-Trnava-Nitra) - stabilization of agglomeration N. Zámky-Komárno with international reach - creation of local agglomerative spaces (Levice, Topoľčany, Zlaté Moravce) - development of centers, and their suburbs, around regional centers (Skalica, Holíč, Senica, Myjava, Štúrovo and Šahy) - developed cross-border territorial interconnections (Bratislava – cross-border areas in Austria and Hungary, Komárno-Komárom, Štúrovo-Ostrihom, Skalica-Holíč-Hodonín)	- settlement development oriented mostly to Bratislava agglomeration, to a lesser extent also around regional capitals and their suburbs - stabilization in remaining territories, even moderate decline around largest cities of subregion (Nové Zámky, Levice, Komárno, Topoľčany) - anticipated growth of marginalized territories southeastern part of the subregion - more significant cross-border territorial connections interconnections only in vicinity of Bratislava	- settlement development oriented mostly to Bratislava agglomeration, along with Trnava and Nitra agglomerations - agglomeration near Nové Zámky-Komárno being developed to a lesser extent - other regional centers exhibiting only centripetal effects on their immediate surroundings - cross-border territorial cooperation in vicinity of Bratislava, and similar being partly developed near agglomeration Nové Zámky-Komárno, Skalica-Holíč

human resources	- gradual increase of natality till 2025 - trend towards lower mortality rate - gradual increase of immigration and decrease of emigration - moderate aging of the population	- gradual increase of natality till 2025 - trend towards lower mortality rate - gradual increase of emigration and decrease of immigration - considerable aging of the population	- gradual increase of natality till 2025 - trend towards lower mortality rate - stabilization of emigration - gradual aging of the population
transport	- development of complete network of highways and high speed communications (motorways) - successfully finished reconstruction of railroad network - development of high-speed railway connection between Bratislava and Nitra - constructed Bratislava Airport, airports in Piešťany and Nitra are being developed - two new bridges are erected over the river Danube – Komárno, Štúrovo	- extension of highway D1 and D2, D4 under construction only in areas of state border - high speed motorways partially constructed in the area of Bratislava suburbs - successfully finished reconstruction of railroad network - reconstruction of Bratislava Airport	- extension of highway D1 and D2, a connection passage through Malé Karpaty is still missing on D4 - high speed motorways constructed solely to the extent for the purposes of Bratislava agglomeration - successfully finished reconstruction of railroad network - reconstruction of Bratislava Airport, development of the airport in Piešťany gets partial support
technical infrastructure	- will be added	- will be added	- will be added
economy structure	- GDP will grow and draw near the EU average - Diversified development of economic infrastructure - Growth of SME (small and medium-sized enterprises) - Unemployment rate below the average of Slovakia - Attractive conditions for foreign direct investments	- GDP falls behind the European average - region sensitive to structural changes - a drop in the number of enterprises and business units - unemployment rate of Nitra and Trnava counties above the all-Slovakia average - loss of attractiveness for foreign direct investments	- GDP slowly approaching the European average (with low dynamics) - Low dynamics in movement towards new economy structure - unemployment rate is the lowest in Bratislava, remaining territories a bit below all-Slovakia average - number of enterprises and business units growing moderately - stagnation of foreign direct investments

5. Conclusions and recommendations

- brief summarization of results and description of previous activities (part A and B)
- suggestions for improvement of territorial cohesion in Donau subregions based on the results from scenario analyses
- formulation of policy options that will express basic principles and goals supporting territorial cohesion of Donau subregions

Coordination recommendations and policy options, within the framework of D+strategy, will contain:

spatial coordination and policy options (heading towards the transnational polycentric network and human activities)

transport coordination and policy options (TEN-T and other transnational transport networks supporting territorial cohesion of Donau subregions)

environmental coordination and policy options (nature protection and activities contributing to considerate utilization of natural and cultural potential for the benefit of fulfilling the mutual development strategy)

socio-economic coordination and policy options (trans-border social and economical networks)