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INDUSTRIAL DEVELOPMENT POTENTIALS IN THE CORRIDOR X ZONE IN SERBIA

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Abstract. *Although not properly valued as yet, corridor X represents the basic opportunity for development in Serbia (and also in Macedonia and Bulgaria, partly in Croatia and Slovenia). It is also the zone of high demographic concentration and the concentration area of functional capacities, infrastructure. Spatially, this is a relatively small area with high rates of agglomerated human, material, and some natural resources. The zone, therefore, determines industrial development directions and significantly influences spatial and regional polarization of the environment.*

1. THE CORRIDOR X ZONE IN SERBIA (GEOGRAPHIC POSITION, POPULATION AND LABOR FORCE)

a) Serbia is a central Balkan, central European and Danubian country. As an integral part of the state union of Serbia and Montenegro, it is also a Mediterranean country.

Political-geographic, geostrategic and macroregional position of our country has changed in the course of history. Nevertheless, it has never lost its main role - that of transit and mediation among its immediate neighbors and more distant European states. For some neighboring countries (Albania, Macedonia, Bulgaria), Greece, and the countries of the Middle East, Serbia is the logical shortcut to the European backbone. The reverse direction also applies.

It is well known that, for the purpose of quicker development and integration of the former eastern European territories, the European Community in the nineties defined a total of ten Pan-European multimodular corridors. Their intended purpose was to become a "basis" for interregional, intraregional, and transborder developmental and integrative process in this part of Europe. The importance of Southeast Europe, its geographic and transit position is well understood once we recall that out of these ten Pan-European corridors, only three do not pass through this macro territory (corridor I - Helsinki-Gdansk, corridor II - Berlin-Moscow-Nizhniy Novgorod, and corridor III - Berlin-Kiev). The

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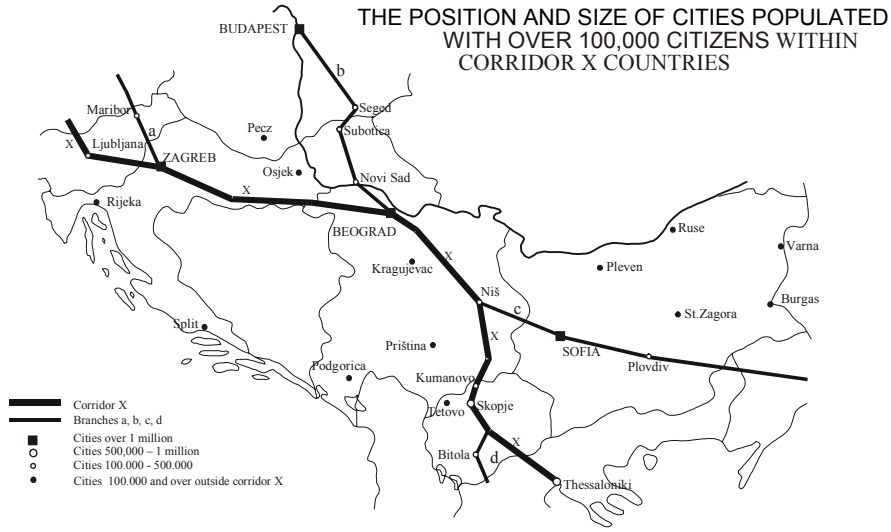
backbone of most Southeast European traffic is made up of two corridors: corridor VII (the Danube), and corridor X (Salzburg-Thessalonica) with its corresponding four branches.



Corridor X has been one of the most important European routes ever since the Roman Empire. In the last two millennia, this direction has represented the shortest land link between western and central Europe, southwest Asia and parts of central Africa. Seen as such, this road is one of the most important transcontinental lines of communication in this part of the world. We define corridor X as a multimodular traffic route connecting Salzburg with Thessalonica, via Ljubljana, Zagreb, Belgrade, Nis, Skopje, and Veles; it is also described as a corridor which connects four countries of the Southeast Europe macroregion with Central Europe and which also represents the most important section in the intercontinental Euro-Asian highway. Corridor X has four branches: branch A (Graz - Maribor - Zagreb), branch B (Budapest - Novi Sad - Belgrade), branch C (Nis - Sofia - corridor IV up to Istanbul), and branch D (Veles - Bitola - Florina - Thessalonica). The four branches complete both the link between Central and most Southeast Europe and the combined sea-mainland link between the macroregions of Europe, the Middle East, and Central Africa. This route, in terms of its geographic position and the roads with which it is equipped, represents the functional backbone of most Southeast Europe. In the vicinity of the corridor (located less than 25 km away from it) there lives more than 1/3 (36.7%) of the population of Croatia, about 1/3 of the population of Serbia (37.7%), more than a half of the population of Macedonia (around 52%) and almost 1/3 (31%) of the population of Bulgaria. At the same time, the route directly connects the major urban agglomerations in these states, which have been the major urban centers since the 20th century. Only metropolitan area of Belgrade, for instance, hosts 1.4 million people. The population of Sofia is 1.2 million, of Zagreb 1.0 million, of Skopje about 0.5 million. Likewise, corridor X connects numerous (demographically smaller but functionally equally important) secondary urban centers, especially in Serbia, Macedonia, and Bulgaria.

b) Modern changes in Serbian population started more than a century ago. This period was marked by a demographic change, where the population grew substantially,

where almost all groups (economy, age, education) switched from being underdeveloped to becoming developed, where reproduction started following the pattern of developed areas. Therefore, in spite of the terrible losses during the 20th century wars, and occasional additional slowdowns, Serbian population performed its vital functions to the benefit of the country's economy and all society.

After World War II, the Serbian population occupied a war-torn, ravaged, and backward country. Over 70% of the people lived on agriculture, and in 1948 the percentage of population active in some kind of agriculture was 75%. *That year agriculture made up 45% of GDP, whereas the corresponding share of industry was marginal 15%.*

The abundance of labor force in the countryside, and the resulting lack of arable land caused agrarian overpopulation. This was a serious hindrance to further agricultural development in Serbia. However, even though it was primary, agriculture was not able to give the decisive boost to Serbian economy. *This role was soon taken over by industry*. The increase of industry was followed by new work on construction, traffic, and other infrastructure. This in turn caused masses of population to move from the countryside into towns and newly-built industrial centers. More modern agriculture was being developed, which increased yields, but also improved life in town and village. In the period 1948 – 1984 GDP increased seven times, or 5.4% a year on average. Š5, p.23Ć Simultaneously, *industry growth was 8.2% a year (17 times in the given period).* Agricultural production increased 2.8 times, 2.9% a year on average.

With occasional inevitable oscillations, this relatively quick growth opened up the way for the non-industrial sector: education, health care, science, culture. According to the 1948 census, in Serbia 26.8% people were illiterate, in Kosovo even 62.5%. The 1991 census revealed 7.1% illiterate population.

The accelerated growth of all economy provided numerous vacancies and employment rates grew. This stirred the workers from the countryside to massively move to cities, and start work in non-agricultural branches. Unemployment started growing. In 1952 there were only 15,540 people asking for help from employment agencies, whereas in 1990 the figure was over 600,000. The data of the Central Serbian Employment Agency, at the end of 1994, the number of unemployed was 694,300.Š1, p.136Ć Today, this figure is even greater and amounts to some 780,000 persons. Many unemployed workers tried to find jobs abroad. The 1991 census did not include Albanians from Kosovo and Metohija and two south Serbian municipalities. Even without them, the number of registered workers from Serbia temporarily employed abroad was 182,000 (to this one should add their 64,000 family members).

These last fifty years have therefore introduced significant changes in economic and population structures. The share of agriculture in Serbia's GDP has now dropped below 20%, and the share of workers in this sector to some 17.2%. *The transfer of labor force from agriculture to industry was rather chaotic.* Many villages, sometimes whole regions, were left by virtually everyone capable of working, and they are now almost unpopulated.

In Serbia, the corridor X zone comprises 52 municipalities with the total area amounting to 26% of the Serbian territory excluding Kosovo and Metohija (20,118 km^2). Around one third of the zone (7,021 km^2) is in the 15 municipalities of Vojvodina (4 on the mainline and 11 on branch B), and two thirds are in central Serbia (13,097 km^2) and 37 municipalities (out of which 34 are on the mainline and 3 on branch C).

Basic spatial-demographic characteristics of corridor zone municipalities[1]

	Population Number		Index	Pop. density
	2002	1991	2002/1991	in 2002
Aleksinac	59826	63844	93.7	85
Batočina	22297	22939	97.2	164
Bela Palanka	14488	16447	88.1	28
Voždovac	157813	161376	97.8	1059
Vračar	61032	69680	87.6	20344
Grocka	80131	69448	115.4	277
Zvezdara	137478	140483	97.9	4296
Zemun	198097	181692	109.0	451
Mladenovac	55079	56389	97.7	162
Novi Beograd	225208	224424	100.3	5493
Palilula	160274	156587	102.4	359
Rakovica	102117	97752	104.5	3404
Savski Venac	44363	47682	93.0	3169
Sopot	21197	20527	103.3	78
Stari Grad	58661	70791	82.9	8380
Čukarica	174133	154632	112.6	1116
Bujanovac	53860	49238	109.4	117
Velika Plana	49733	51150	97.2	144
Vladičin Han	24676	25255	97.7	67
Vlasotince	33698	34302	98.2	109
Vranje	89184	86518	103.1	104
Gadžin Han	10615	12990	81.7	33
Dimitrovgrad	11871	13488	88.0	25
Doljevac	20000	20662	96.8	165
Jagodina	76117	77226	98.6	162
Leskovac	160727	161986	99.2	157
Merošina	15270	16139	94.6	79
City of Niš	255941	247755	103.3	429
Paraćin	63771	64119	99.5	118
Pirot	64589	67658	95.5	52
Preševo	47965	38943	123.2	182
Ražanj	11827	13582	87.1	41
Svilajnac	32922	33136	99.4	101
Smederevo	116669	115617	100.9	243
Smed. Palanka	58549	59822	97.9	139
Ćićevac	11149	11757	94.8	90
Ćuprija	38510	38747	99.4	134
Bačka Topola	38991	40473	96.3	65
Vrbas	46417	46405	100.0	123
Inđija	51281	44185	116.1	133
Kanjiža	28404	30668	92.6	71
Mali Iđoš	13919	14394	96.7	77
Novi Sad	305204	265464	115.0	437
Pećinci	21855	20077	108.9	45
Ruma	62483	55087	113.4	107
Srbobran	18088	17365	104.2	64
Srem. Mitrovica	88269	85328	103.4	116
Srem. Karlovci	9051	7534	120.1	177
Stara Pazova	70045	57291	122.3	200
Subotica	151639	150534	100.7	151
Temerin	29124	24939	116.8	171
Šid	40195	36317	110.7	59
Corridor	3,794,802	3,690,844	102.8	189

[1] Source: *Population, Household, and Residential Apartment Census of 2002 – First Census Results in Municipalities and Settlements of the Republic of Serbia,* Federal and Serbian Statistics Bureau, Belgrade; *Population Census 1991 - State Archives,* Serbian Statistics Bureau, Belgrade.
Note: The total population of 2002 pertains to the population both in the country and abroad; the data for municipalities Bujanovac and Presevo are just estimations for 1991. There are only insufficient data for the immigrants to this area in the meantime. Urban population data pertain to the population currently in the country. [7, p. 271].

According to the 2002 census results, all corridor X zones in Serbia host 3,794,802 inhabitants, which is 50.7% of the total Serbian population (without Kosovo). In corridor X municipalities in Vojvodina, there were 974,965 inhabitants in 2002 (about 48% of province population, or 13% of total Serbian population), whereas in the corridor zone central Serbian municipalities, there were 2,819,837 inhabitants (as much as 51.6% population of this macroentity, or 37.6% of Serbia without Kosovo). In the period 1991 – 2002 the corridor zone population in Serbia expanded for 2.8% (from 3,690,844 to 3,794,802), so that this area is the only larger zone in Serbia without Kosovo which showed demographic expansion in the period between the last two censuses. This expansion was much higher in Vojvodina corridor zones (8.8% on average) than in corresponding central Serbian zones (only 0.9%).

The importance of the corridor zone, an area of high demographic concentration in Serbia, is seen in population density of individual in-zone municipalities. Most of these (formal) areas are more highly populated than the rest of Serbia. The average population density in Serbia without Kosovo is 97 inhabitants per km^2. In comparison, the corridor zone has a twice higher density – 189 inhabitants per km^2. Fifteen in-zone municipalities are more densely populated than the rest of the country, and all of these are major administrative centers within the three major agglomerations in Serbia – Novi Sad, Belgrade, and Nis (this does not apply to two municipalities only – Stara Pazova and Smederevo). Only the smallest municipalities in the corridor zone are less densely populated than the Serbian average, such as the small towns of Bela Palanka, Vladicin Han, Dimitrovgrad, or even smaller settlements such as Merosina, Gadzin Han, etc. The smallest of these have up to seven times lower population density than the Serbian average (e.g. Dimitrovgrad).

As to migrations in Serbia, intense migration dynamics was conspicuous within the corridor (usually from rural to urban industrial centers). However, many people from Serbian municipalities outside the corridor zone, and indeed from other parts of the former Yugoslavia, moved to corridor zone centers. The 1991 census data give us more detailed information on these events. Out of total immigrants to Serbia, almost a half (48.3%) came to live in one of the corridor areas. Meanwhile, out of the total number of immigrants (1,753,956) to the corridor zone, more than 1/5 immigrants (21.1%) came from other republics of the former Yugoslavia, 38% were immigrants from other Serbian zones outside the corridor, whereas 40.8% were intraregional migrations. Migration from rural areas was significant (1/3 of total immigrants came from rural settlements).

The highest corridor zone population concentration prevailed in the industrialization period 1960s – 1970s. In the period 1981 – 1991 there was substantially less migration, where major population movements occurred in big city suburbs. For example, in the municipality of Nis, the immigration rates decreased in the three censuses of the period 1961 – 1991 – from 26.6%, over 21.5% to 17.4%. In the city areas of this municipality, the proportion of immigrants was in the last decade of this interval doubly reduced (15.2%) when compared to the most intensive migrations of the seventies (28.3%). At the same time, relative immigration intensity in undeveloped municipalities increased, and was the largest in the period 1981 – 1991.

Turbulent changes in all spheres of the Serbian society after 1991 left numerous negative consequences on population growth. On the one hand, *the relocation of the population slowed down, due to a severe economic crisis and drastic industrial production de-*

cline. On the other hand, there were two new types of serious migration: the influx of refuges and war-threatened persons and the exodus of local population to foreign countries. In the Vojvodina part of the corridor zone there is pronounced influence of high refugee numbers on total demographic growth. Since there was negative birth growth in the province earlier, these migrations significantly increased the total population in this part of the country. In some municipalities, the percentage of refugees in total population exceeds one fifth: Temerin, Stara Pazova, Sremski Karlovci, Ruma – around 20%, Sid as much as 28%. On the other hand, there is significant decrease in depopulation even in those underdeveloped southeast areas of the country which were traditionally emigration areas (Bela Palanka, Vlasotince, Gadzin Han, Dimitrovgrad, Doljevac, Merosina, and Pirot). This best testifies of the population and demographic turmoil in the entire region in the previous decade.

The corridor X zone is much more urban than the rest of the country (the Serbian urbanization was 52% in 2002). This is seen in the fact that out of five urban agglomerations with over 100,000 people in Serbia without Kosovo, four are along the corridor zone (Belgrade, Nis, Novi Sad, and Subotica), whereas the fifth one (Kragujevac) is in the nearest vicinity of the corridor line.

c) The conditions on labor market and employment policy are strongly influenced by general trends in Serbian economy and society. Labor market is still under a strong influence of unfavorable tendencies from the previous period.

The numbers of persons enrolled in the lists of employment agencies is still increasing. The monthly average is 768,595 (without Kosovo and Metohija). In late December 2001 the number was 780,541 - 6.5% higher than in the same months the previous year.

As for the makeup of the employed population, *there was a decrease in the public sector and traditional industrial branches, and an increase in private enterprises and services.*

We must point out there are vast numbers of people working in the so-called "grey economy" (unemployed persons, laid off workers, surplus workers on "coercive leaves" from work, etc.)

The excess of employed numbers has also been evident for some time. There are currently two groups of superfluous workers: those who are not needed temporarily, and those unfortunate ones who will not be further needed at all. This is all a consequence of the restructuring of companies as well as technological and organizational changes in the new conditions.

In the total unemployment structure, the ratio of highly qualified workers is 61.4% (471,710), and of unqualified workers 38.6% (296,885).

2. THE MOST IMPORTANT INDUSTRIAL DEVELOPMENT POTENTIALS

Here we will present the industrial development potentials in corridor X related to the regions of Serbia.

The province of **Vojvodina** is mostly oriented towards agriculture, and therefore agriculture is the key development potential for all regions within the province.

The City of Belgrade is quickly developing due to a number of factors, first of all its population and labor force, where many people hold diverse and high qualifications.

Around 17% of Serbian industry employees work in Belgrade. This area is marked by increasing immigration, which hosts the most active and employed population. This region is home to most highly qualified personnel and research institutions, although most people with university degrees do not directly work in the industry.

As for Belgrade industry, the production of energy, metals, chemical products, and food prevails. Since coal dominates the underground surrounding the capital, coal-based electricity production represents an important branch of industry here. These power plants have been used uninterruptedly for a long period of time, and there remains an impression that the investment into them could have been partly used more reasonably for some other purposes.

Belgrade is located at the confluence of two rivers, and the quality of land there is very good. Hence agriculture is also an activity of choice for the future, and along with it new food industry.

There are not many usable forests in the vicinity of the capital city; however, there are numerous processing facilities in the city. This shows not even Belgrade was immune to some illogical steps taken during the rebuilding of the country's economy in the previous century.

Belgrade is in many ways specific, which gives it some head start on other regions. These advantages include: the fact this is the capital city, the fact it has a favorable geographic position (close to or along most developmental axes in Serbia), and the fact it has vast numbers of research and educational institutions and educated professionals. These advantages open up the way for founding new research - technological parks and propulsive industry branches. In this respect, priority developmental projects for Belgrade could be:

- IT industry (electronics and computer industry), robotics, automatics,
- tool machinery, equipment and devices for energetic, mining and processing industry,
- airplane industry,
- biotechnology and genetic engineering,
- rare material production,
- the production of pharmaceutical raw materials, medication and other profitable chemical industry programs,
- the strengthening of assortment from other industry branches.

In the **Danubian region** the dominant branches are ferrous metal production, the electroenergetic complex, and agroindustry. Wooded areas in the county are scarce and mostly deciduous, so there are no conditions for wood industry here.

This region does not have enough energy potential, apart from coal pits. There seem to be some oil deposits in the Danubian region near the town of Smederevo.

Ferrous metal industry, within the Metallurgy Integrated Plant Smederevo, dominates the area. Its development, however, should not be autonomous. Rather, it should satisfy the rational needs for steel in all Serbia.

Metal processing industry is also pronounced in the area ("Gosa", "Milan Blagojevic", "Heroj Srba"). Its capacities should aim at the following profitable programs: the production of equipment for thermo- and hydro-electric power plants, the equipment for mines, oil exploitation, construction and cement industry, transport machines, rail and road vehicles, machines for agriculture, and household appliances ("Milan Blagojevic").

Industry potentials of the **Morava Region** are coal production and nonmetals - limestone and quartz. These provided the basis for big factories, such as the cement factory in Popovac (near Paracin) and the "Serbian Glass Factory" in Paracin.

This part of the country is provided with all the preconditions for the new material production program (facilities, raw materials, personnel). Apart from the currently profitable projects within the glass and cable factories (the latter is in Jagodina), future attention should be paid to:

- optical glass and fiber optic production for microelectronics,
- participation in the production of PAN fibers to replace asbestos and their application in the industry of motor vehicles, thermoisolation, and fire protection,
- obtaining a new glass fiber technology for automobile and aircraft industry, ship construction and mass consumption,
- the production of crystal glass for machine- and electroindustry and other users, and,
- the development of new sheet steel technologies for vehicle protection and numerous materials for the future for which there are serious prerequisites in this area.

In local food industry, there should be an increased production of sugar beet, within the facilities in Cuprija, and confectionery (Cuprija, Paracin).

The most important industry branches in the **Nisava Region** are and should be even more in the future: the production of electrical machines and appliances and machine construction. These should take numerous roles as carriers of the country's development: in terms of their overall importance in the industry and potential power as generators of overall progress. It is therefore necessary that current problems be quickly overcome, especially those pertaining to the strategy of technological development (development policy, growth potentials of particular branches, labor management, material support, etc.)

Electronics should be accentuated: this means the introduction of new microelectronic components, the application of new technologies, the use of new materials. With the help of foreign capital, conditions would be created for quicker structural changes in the production of electronic systems, components, telecommunication devices, devices for military industry, data processing and transmission, electromedicine, and other areas where new technology and materials are crucial.

Very important for the area are also tobacco industry (DIN Nis) and the company for aluminum processing NISSAL Nis.

The region of **Pirot** is dominated by the city of Pirot. Its industry includes rubber industry TIGAR. The capacities of this gigantic company should be equalized with similar companies in the country. The landmark of textile industry here is "Prvi Maj" which stands a chance of becoming a good exporter, if we consider the increasing overall textile export in the country. The same goes for the factory "Lisca" in Babusnica. Textile industry, pretty much as whole industry, should be accommodated to local and international markets, in terms of the quality of offer, assortment, and materials used.

The energetics of the area should develop on the grounds of more substantial investment into hydroenergetic facilities, such as power plants, accumulations, and small hydroelectric plants.

The most of industrial activity within **Jablanica Region** is located in the town of Leskovac. There is mostly textile industry, however it is import-dependent. Numerous processing facilities in food industry are present here, too; however they do not have suf-

ficient raw materials in the local environment. Industry, especially technologically modern, is scarce.

Some lead and zinc mines from the area (Lece, Blagodat, and Kriva Feja) have failed to give sufficient ore and have not given an impetus to development.

Facilities for production and processing of nonmetals are meager and outdated. They are not sufficiently related to complementary economic activities. Their management spends too much time solving pressing problems, and thus devotes little time to strategic planning.

Structural industry changes here are mostly related to the development of textile industry. It grew during last century's industrialization, and its main purpose was to reduce unemployment rates. At that time it offered quick development, which, however, was not well directed. Today textile industry is largely import dependent (especially in wool production), its capacities are obsolete, its finances are basic. Priority tasks in this branch are consequently the update of technology, development of local capacities for raw materials, the increase of the ratio of finalized production, specialization and new division of labor, and the introduction of contemporary methods into the entire process.

There are some prerequisites for fine chemical industry in this area, for which there are already good factories in Leskovac. However, to survive, this fine tradition needs the influx of new, diversified production programs, foreign-based technologies, better marketing, new materials, and other factors to beat the competition.

Jablanica region stands a good chance for the export of food products, such as fully processed forest fruit, berries, vegetables, and grapes.

The main zone of **Pcinja Region** is in and around the town of Vranje, whose industry consists of wood processing ("Simpo"), textile ("Jumko"), and leather footwear production ("Kostana"). Such structure explains why in this region the vast majority of the population or 80% works in traditional industry branches, whereas only 8% works in propulsive branches.

Wood is the material going through a peculiar renaissance at the moment, and this area is rich in it. This gives good chances for the future of the region, with possible restructuring, the increase of production quality and assortment, which would in turn enable better accumulation and more vacancies for the population. SMEs would help here indeed, for they would produce small series of elements in the existing facilities.

In textile industry, some work should be done on the reduction of export dependence, new material affirmation, assortment expansion, new qualified personnel (especially for creative work, such as design), and update of other company functions.

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There are significant material potentials in the whole corridor X zone, as well as in Serbia. Labor force is also significant potential for industrial development, or the factor which is not limiting for the development of Serbia, and especially in the whole corridor X zone. However, the participation of industry in the economic structure and its internal structure are the consequences of slow adaptation (or the transition from big state enterprises to smaller, more modern and more efficient industrial capacities).

From the traditional point of view, in some departments of industry, Serbia still has the chance to regain leadership in those segments in the corridor X.

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RAZVOJ INDUSTRIJSKOG POTENCIJALA U ZONI KORIDORA X U SRBIJI

Gorica Bošković

Mada još uvek neadekvatno vrednovan, koridor X predstavlja bazičnu mogućnost za razvoj u Srbiji (takodje, i u Makedoniji i Bugarskoj i, delimično, u Hrvatskoj i Sloveniji). Predstavlja istovremeno i zonu visoke demografske koncentracije, kao i područje koncentracije funkcionalnih kapaciteta i infrastructure. Prostorno, radi se o relativno malom podrucju sa visokim stopama koncentracije ljudskih, materijalnih i nekih prirodnih resursa. Ova zona, stoga, odredjuje pravce industrijskog razvoja i značajno utiče na prostornu i regionalnu polarizaciju sredine.