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**THE ACTUAL PROBLEMS OF LOCALIZATION AND DEVELOPMENT
OF INDUSTRY OF THE SLOVAK SOCIALIST REPUBLIC**

Jozef Mládek: Les problèmes actuels de la localisation et du développement de l'industrie de la République Socialiste Slovaque. Geogr. Čas., 32, 1980, 2—3; 2 cartes, 4 tableaux, 9 réf.

L'industrialisation socialiste de la Slovaquie, à part la croissance marquée de l'industrie, les changements structureaux, s'est manifestée aussi dans la répartition territoriale de l'industrie. L'analyse des centres industriels de la Slovaquie [en 1975 on comptait 159 centres et 276 localités industriels] fait partie de l'étude des formations territoriales de l'industrie et de la problématique de l'optimalisation de leurs structures. L'attention a été concentrée, avant tout, sur l'ampleur des secteurs, sur la diversité de leurs structures et sur la détermination de leurs branches principales de l'industrie. La création de telles formations territoriales, comme sont les complexes industriels, les noeuds industriels, etc., peut être considérée pour l'un des moyens importants du développement économique futur intense.

1 DEVELOPMENT OF INDUSTRY IN SLOVAKIA (1948—1978)

In the post-war period Slovakia has registered a very dynamic economic and social development. It attained the quickest development of production and non production activities and the quickest rise of the living standard of the inhabitants in the whole present history. From all social changes, mainly in the production sphere the greatest attention merits the rapid growth of industrial production. An economically backward territory with predominantly agricultural country whose production potential is an important part of the czechoslovak economy.

The industrialization of Slovakia has become one of the principal marks of the economic development and its results appeared in all the spheres of the social development. The industrial production in 1978 has increased by 45-times as against 1937 and by 23-times as against 1948, meanwhile the realization of production means grew twice as fast as the production of consumption items. While the part of little developed industry in the creation of the national income of Slovakia was only 40 % in 1948, the part of industry in 1978 has grown to 59.5 %. A marking change of the state is documented also by the facts on the number of workers. In 1948 4-times more persons worked in the agriculture than in the industry. In 1978 the number of wor-

kers in the agriculture fell to 340 000. The socialist industrialization meant also the increased part of Slovakia in the industrial production of the ČSSR. In 1937 the share of Slovakia in the industry of Czechoslovakia amounted only to 7 %, in 1960 it amounted to 18.7 % and in 1978 to 27.6 %.

Apart from the marking growth of the industrial production characteristic are also the changes in the structure of the industry and in its territorial distribution. In the structure of the industry a dominant position has been gained by the realization of the production means with a share almost 2/3 in the industrial production. An above average rate of growth has been reached by branches of the machine industries, metallurgy, precious metals and of the chemical industry. There has come into being a quantity of production branches which were not localized in Slovakia in the past (production of telecommunication equipment and instruments, computer techniques, almost a whole branch of clothing industry, car industry, etc.).

The changes in the branch structure of the industry have markedly strengthened the position of the machine and metal industries which gained the leading position with a share more than 1/4 (in the slovak national production. Together with two other branches, food and chemical industries, they represent more than 1/2 of the industry of Slovakia. If to this grouping we add both smelting industries branches, the share will increase to 2/3.

The development of industry of Slovakia, the changes of the branch structure of the industry reflect also in the territorial distribution of the industry. New industrial centres came into being, new non traditional production links were created, several regions gained a marking industrial character. Actual become the study of localization principles, of problems of territorial concentration and specialization of industry, creations of optimum territorial formations of industry and of their typology.

2 INDUSTRIAL CENTRES OF SLOVAKIA — BASIC TERRITORIAL FORMATIONS OF INDUSTRIAL REGIONALIZATION

In the set of taxonomic unites of industrial regionalization we consider the industrial plant as an elementary unit. It has several marks (internal structure, external relationships, productions potential, etc.) which have also the higher units of regionalization.

The industrial centre is the fundamental territorial-production unit of the industrial regionalization. It may be represented by the land unit with several industrial plants or only with one plant. The decisive criterion of delineation of industrial centres are the borders of administrative units (residences). The localization of industrial plants in the centre lies on the unity of transpogeographical position and on the use of the common production and non production infrastructure.

Similarly as the other territorial units also the industrial centres are distinguished by a marking regional differentiation. This is manifest in such marks as are the size of centres, the different branch structure of the centres, the different intensity and spatial impact of regional and above regional influence of industrial centres. Some of these marks we used also in the evaluation of industrial centres of Slovakia.

2.1 Size of industrial centres

The main criterion we used in the evaluation of centres was the size of the industry. The size indicators are their fundamental economic characteristics—the number of workers, the value of production, the value of fundamental production means (1975). A priority position was assigned to the indicator of the number of workers.

The set of land units, in which in 1975 was localized the industrial activity contains 435 units. With regard to their marking size difference we introduce the category of industrial localities. We mark by it the smallest centres of industry, in which in general one plant is localized. The upper limitation of their size is 500 workers which from the view point of total industrial potential of Slovakia represents the share approximately 0.1 %. By number the industrial localities represent 63.5 % from the total number of followed units. Their total share in the industry of Slovakia is less than 5 % (Tab. 1).

The decisive share in the production of Slovakia has the group of industrial centres bigger than 500 workers. It represents only 36.5% of the total number of units, but 95 % of industry is concentrated in them. That there is a considerable concentration of production is also the fact that more than 1/3 of the industry is concentrated in 11 biggest centres (Bratislava, Košice, Martin, Dubnica n. V., Žilina, Trnava, Partizánske, Nitra, Pov. Bystrica, Prešov, Trenčín), from which 2 biggest (Bratislava, Košice) occupy a particular position with a share approximately 1/5 in the industry of Slovakia.

2.2 Variety of industrial structures

The branch structure of the industry is an important characteristic of each industrial centre. It provides an important information from the recognition view point and for the planning practice, as well as for regulation of the development of the centre as a whole.

Table 1
Size of Industrial Centres

Number of Workers	Shares In %						Number of centres (localities)	Share in % c_i	Σc_i
	value of production v_i	Σv_i	workers f_i	ΣP_i	production means z_i	Σz_i			
10 001—60 000	47.0	47.0	33.2	33.2	37.2	37.2	11	2.5	2.5
5 001—10 000	23.3	70.3	25.1	58.3	23.0	60.2	24	5.5	8.0
2 001— 5 000	16.8	87.1	22.7	81.0	21.8	82.0	44	10.1	18.1
1 001— 2 000	5.6	92.7	9.0	90.0	8.7	90.7	38	8.7	26.8
501— 1 000	3.6	96.3	5.0	95.0	4.4	95.1	42	9.7	36.5
101— 500	2.9	99.2	3.9	98.9	3.9	99.0	95	21.8	58.3
1— 100	0.8	100.0	1.1	100.0	1.0	100.0	181	41.7	100.0

Good possibilities for establishing the branch variety of industrial structures are provided by the measures of diversification. Before all they enable to express quantitatively the variety of industrial structures and provide fundamental informations to compare the variety of structures of several industrial formations.

In evaluating the variety of structures of the industrial centres of Slovakia

Table 2
Categories of Industrial Structures

	Index value of diversification	Number of centres	Number of localities
Very varied	500— 800	6	—
Medium varied	801— 900	14	—
Transitive	901— 950	36	3
Medium specialized	951— 975	29	19
Strongly specialized	976—1000	74	254

we used pure indices of diversification [3, 4, 6]. The degree of variety of the industrial structure is indirectly related to the index value.

Based on the index value of diversification we delineate 5 categories of industrial structures (Tab. 2).

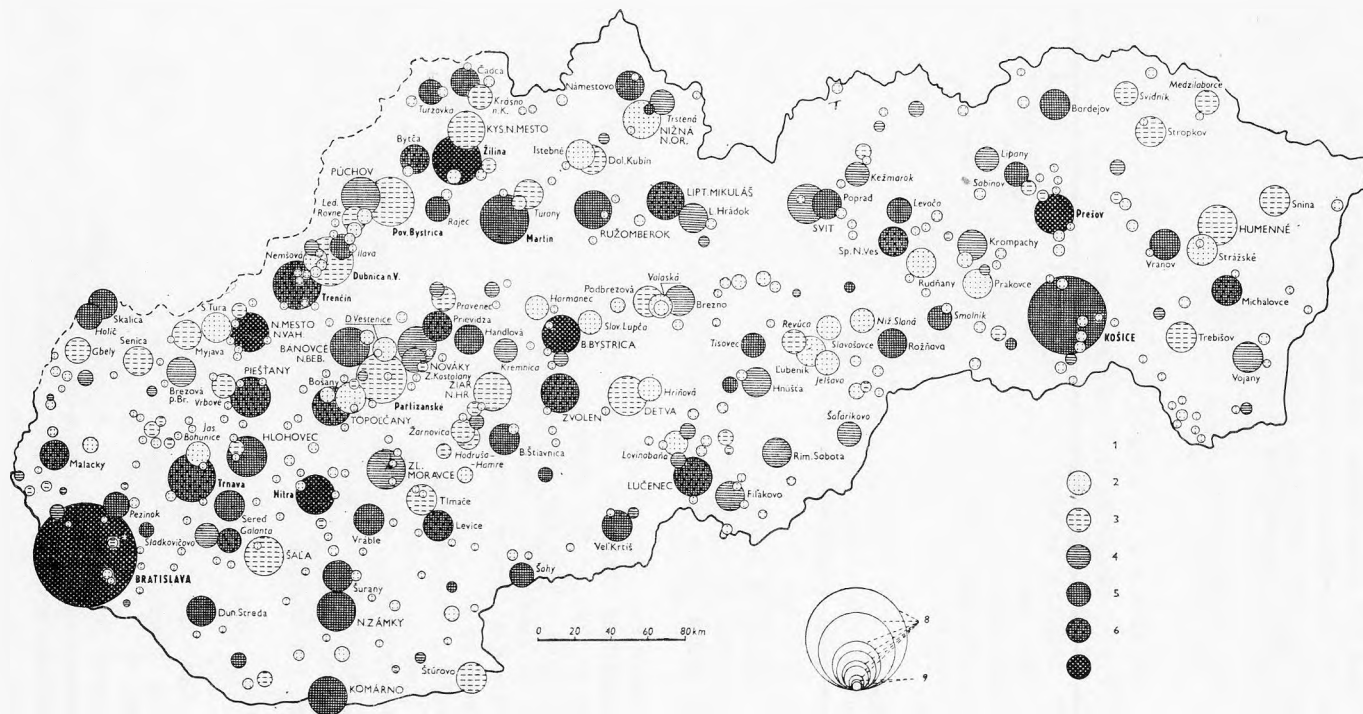
Most of the industrial centres and localities have in Slovakia a moderately or strongly specialized structure. Such a structure is distinguished by a dominant position of one, or two industrial branches. It is most frequently in localities which have a very low variety of structures and only one industrial branch (plant) is localized in them. About one third of industrial centres have a more varied structure with a more important representation of several branches (map 1).

There is a certain relationship between the size of industrial centres and the variety of their structures. With the size of centres increases also the index value of diversification. The bigger centres have tendency to create more varied, more complex structures. In the group of the biggest industrial centres, however, they are as strongly specialized structures (Dubnica n. V., Považská Bystrica, Partizánske, so also the very varied (Bratislava, Žilina).

2.3 Principal branches of industrial structures

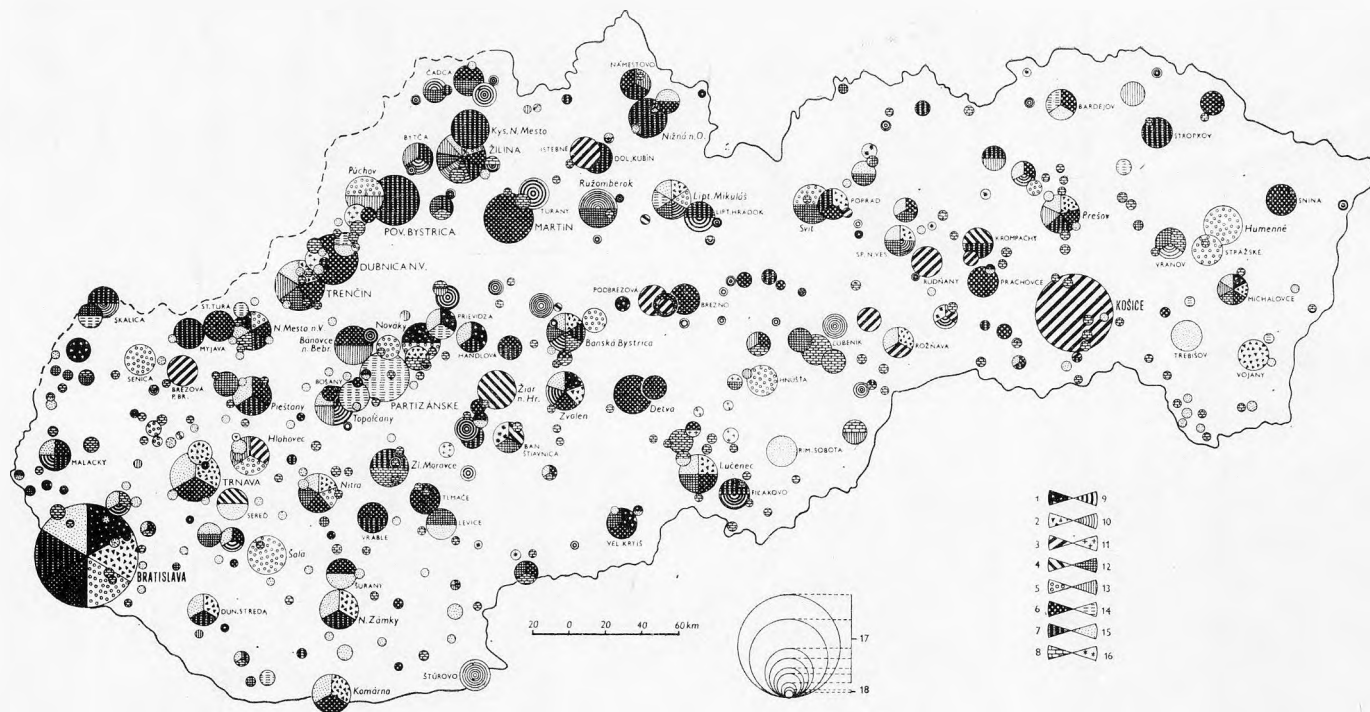
In evaluating the variety of industrial structure of a certain formation there appears also the necessity to establish the main, determining elements of such a structure. It is the selection of representative branches which are sometimes considered also as branches of specialization.

One of the possibilities to determine the combination of principal elements of a certain structure provides the J. C. Weaver method [9] and its application and modifications [1, 3, 4]. The main elements of the structure are established on the basis of comparing empirical structures of industrial centres



Map 1. Diversification of the industry of Slovakia.

1 — diversification index, 2 — 1000, 3 — 976—999.9, 4 — 951—975, 5 — 901—950, 6 — 801—900, 7 — 600—800, 8 — industrial centres, 9 — industrial localities.



Map 2. Principal Branches of Industrial Structures.

1 — industry of fuels, 2 — energetic industry, 3 — metallurgy of iron, 4 — metallurgy of non ferrous metals, 5 — chemical industry, 6 — machine industries, 7 — electrotechnical and iron processing industry, 8 — industry of building materials, 9 — industry of wood processing, 10 — industry of paper and cellulose, 11 — industry of glass, ceramics and porcelain, 12 — industry of textile, 13 — industry of clothing, 14 — leather and shoe industry, 15 — industry of foodstuffs and delicacies, 16 — cooling, mineral water and tobacco production, 17 — industrial centres, 18 — industrial localities.

with theoretical models. The size of elements in the theoretical models is determined as an average share of n-elements. They are in fact models of structures with the highest degree of diversification (map 2).

From the application of method of the main branches to the set of industrial centres of Slovakia it results that between the degree of variety of industry and the number of main branches in the structure of the industry there

Table 3
Variety and Principal Industry Branches

Index size of diversification	Number of Principal Branches					Number of Centres (localities)
	5—7	4	3	2	1	
Industrial Centres						
300—700	1					1
701—800	5					5
801—900	4	1	5	1		14
901—950			23	11	2	36
951—975				19	10	29
976—999.9				1	38	39
1000					35	35
Centres Total	10	4	28	32	85	159
Industrial Localities						
900—950		1	1	1		3
951—970				14	5	19
976—999.9				2	13	15
1000					239	239
Localities Total		1	1	17	257	276
Total	10	5	29	49	342	435

exists a direct relationship. Centres with a lower index value of diversification have 3—7 principal branches. The second group of centres with several localities have a medium varied structure with 2—3 principal branches. Almost half of the centres and a great majority of localities have a specialized structure with one main branch (Tab. 3).

On the basis of the variety of structures and the number of their principal branches it is possible to distinguish 3 types of industrial centres and localities:

mono-branch—with a low degree of variety and only with one principal industry branch,

bi-branch—with a medium degree of variety and with 2 principal industry branches,

poly-branch—with a considerable degree of variety and with 3 and more principal industry branches.

The structure of older centres was formed gradually, localization and de-

Table 4
Types of Industrial Centres and Localities

	Centres		Localities		Total	
	Number	%	Number	%	Number	%
Mono-branch	85	53.5	257	93.1	342	78.6
Bi-branch	32	20.1	17	6.2	49	11.3
Poly-branch	42	26.4	2	0.7	44	10.1
Total	159	100.0	276	100.0	435	100.0

velopment of several branches took place. A polybranch model was created (Žilina, Bratislava, Trenčín, Banská Bystrica, Nitra, Liptovský Mikuláš, Prešov, Zvolen, Trnava and others). Younger industrial centres in which localization of a bigger industrial plant took place in a short period of time have a specialized monobranch structure (Košice, Žiar n. H., Dubnica n. V., Považská Bystrica, Martin, Partizánske, Šaľa, Detva, Stará Turá and others).

3 CONCLUSION

A relatively dense network of industrial centres and localities has been formed in the present development of the industry. The considerable dispersion of industrial activity is quite frequently valued critically as it does not bring forth always the necessary effect of the national economy. It is why, during the recent years, in accordance with the process of urbanization, concentration of the industry into bigger industrial centres steps in. It is assumed that this trend will go on even in the future.

Apart from it a greater attention must be paid to the formation of effective territorial structures of the industry, as are industrial complexes, industrial groups, industrial cycles and others in which a significant social effect is attained. In comparison with the dispersed distribution of the industry positive influences of many factors apply in similar formations. They contain conditions for a more rational use of all resources (raw materials, water, energy, manpower, etc.) and of investment means. Such forms enable to attain an optimum organization of a production process, a proportional branch structure of the production (mainly in relationship with the principal and complementary branches), as well as an effective concentration, specialization and combination of the production. Of positive influence is also the common production and non production infrastructure, which in similar formations is possible to build more complexly and also to use more rationally. In similar formations it is possible to achieve a more optimum use of the space which is the result of its correct functional delimitation for the production needs, settlement, tourism, recreation, etc. In a similarly arranged space it is possible to apply also the requirements of protection and creation of the environment.

The creation of territorial formations of the industry can be considered as one of important resources of a further intense development of the eco-

nomy. They come before mainly in connection with the transition from extensive resources and forms of development to the use of intense forms.

Territorial industrial formations of all types and sizes are taken as very dynamic elements. Their dynamics results from the total social development. The scientific technical development, the use of new raw material and energetic resources, the satisfaction of growing needs of the inhabitants, etc., cause quite rapid changes in the specialization, internal and external relationships of the industrial plants. It would be desirable to use these changes in the orientation of the industrial production for the creation of an optimum structure of territorial industrial formations.

REFERENCES

1. BIELECKA, K.: Metody okrešľania elementov wiodacych w strukture. Modyfikacje metody J. C. Weavera. Przegląd geograficzny, XLIII, 1—2. Warszawa 1971. — 2. CHRUŠČEV, A. T.: Promyšlennyye rajony i uzly SSSR. Moskva 1972. — 3. MLÁDEK, J.: Typy priemyselných centier na strednom Považí. Geogr. Čas., 27, 2, Bratislava 1975. — 4. MLÁDEK, J.: Niektoré miery teritoriálnej špecializácie priemyslu. Geogr. Čas., 24, 1, Bratislava 1972. — 5. MLÁDEK, J.: Priemyselné uzly ako jednotky priemyselnej regionalizácie a ich identifikácia v regióne Senica. Geograf. Čas., 31, 4, Bratislava 1979. — 6. RODGERS, A.: Some aspects of Industrial Diversification in the United States. Econ. Geogr., 5, 33, 1957. — 7. SAUŠKIN, Ju. G.: Ekonomičeskaja geografija: istorija, teorija, metody, praktika. Moskva 1973. — 8. STŘÍDA, M.: Průmyslová jádra. Sbor. Čs. společnosti zeměpisné, 67, 2, Praha 1962. — 9. WEAVER, J. G.: Livestock Units and Combination Regions in the Middle West. Econ. Geogr., 32, 3, 1956.

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AKTUÁLNE PROBLÉMY LOKALIZÁCIE A ROZVOJA PRIEMYSLU SLOVENSKEJ SOCIALISTICKEJ REPUBLIKY

Socialistickú industrializáciu pokladáme za jeden z hlavných procesov ekonomického rozvoja Slovenska, ktorého vplyv sa prejavil v mnohých oblastiach života spoločnosti. Popri výraznom raste objemu priemyselnej výroby sa uskutočnili aj zmeny v odvetvovej štruktúre, pričom dominantné postavenie získali strojársky a kovospracujúci priemysel. Tieto zmeny našli odraz aj v teritoriálnom rozmiestnení priemyslu.

Súbor priemyselných centier Slovenska, ktoré pokladáme za základné teritoriálno-výrobné jednotky, obsahoval r. 1975 159 jednotiek (okrem toho výroba sa lokalizovala v ďalších 276 priemyselných lokalitách).

Štruktúru priemyselných centier charakterizuje index diverzifikácie a sú stanovené tiež hlavné odvetvia týchto štruktúr. Na základe rozmanitosti štruktúr a počtu hlavných odvetví možno rozlíšiť 3 typy priemyselných centier a lokalít. Sú to monoodvetvové, bioodvetvové a polyodvetvové. Štruktúra starších centier má väčšiu rozmanitosť (polyodvetvový model), mladšie centrá majú špecializovanú monoodvetvovú štruktúru.

Analýza priemyselných centier Slovenska je súčasťou štúdia teritoriálnych útvarov priemyslu a problematiky optimalizácie ich štruktúr. Tvorbu takýchto teritoriálnych útvarov, akými sú priemyselné komplexy, priemyselné uzly a ďalšie, možno pokladať za jeden z dôležitých prostriedkov ďalšieho intenzívneho ekonomického rozvoja.

Mapa 1. Diverzifikácia priemyslu Slovenska.

1 — index diverzifikácie, 2 — 1000, 3 — 976—999,9, 4 — 951—975, 5 — 901—950, 6 — 801—900, 7 — 600—800, 8 — priemyselné centrá, 9 — priemyselné lokality.

Mapa 2. Hlavné odvetvia priemyselných štruktúr.

1 — priemysel palív, 2 — energetický priemysel, 3 — hutníctvo železa, 4 — hutníctvo neželezných kovov, 5 — chemický priemysel, 6 — strojárstvo, 7 — elektrotechnický a kovospracujúci priemysel, 8 — priemysel stavebných hmôt, 9 — drevo-
spracujúci priemysel, 10 — priemysel papiera a celulózy, 11 — priemysel skla, keramiky a porcelánu, 12 — textilný priemysel, 13 — konfekčný priemysel, 14 — kožiarsky a obuvnícky priemysel, 15 — priemysel potravín a pochutín, 16 — výroba mraziarenská, žriedlová a tabaková, 17 — priemyselné centrá, 18 — priemyselné lokality.

Tabuľka 1. Veľkosť priemyselných centier.

Tabuľka 2. Kategória priemyselných štruktúr.

Tabuľka 3. Rozmanitosť a hlavné odvetvia priemyslu.

Tabuľka 4. Typy priemyselných centier a lokalít.