

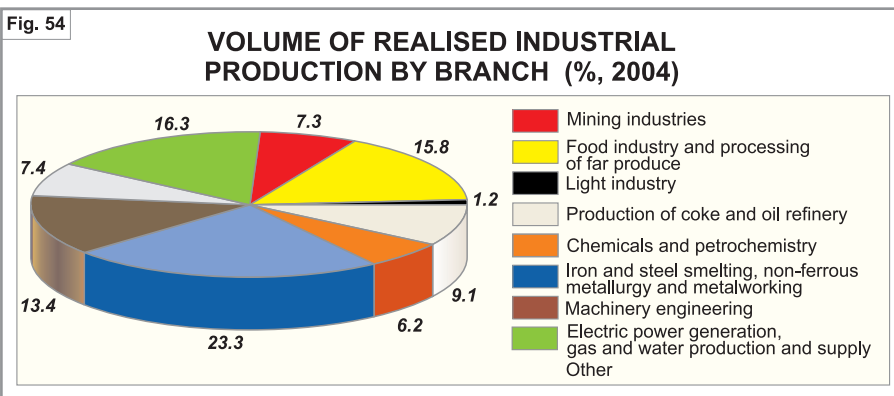
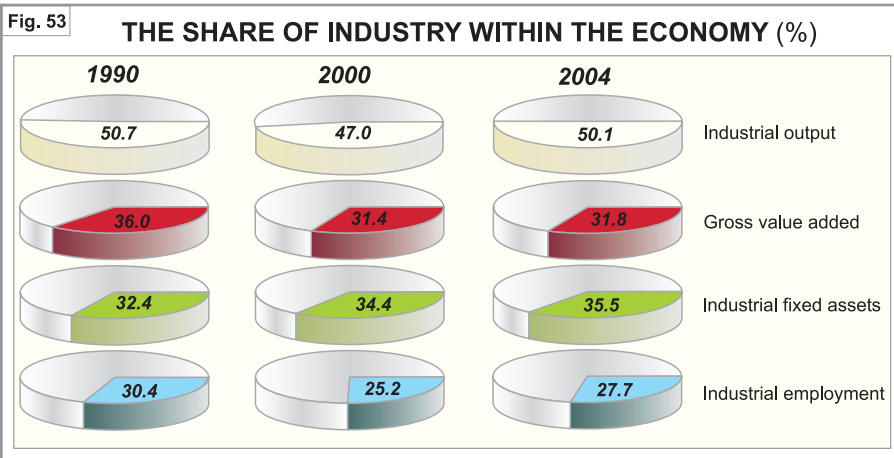
Industry

Industrial growth in Ukraine stopped in 1990, and there was an even more abrupt deterioration of the sector in the years following. This pace of decline only slowed down in 1995, with the first steps towards a recovery taking place from 1999 onwards. This turned into a real growth in output that reached 12.9% in 2000 and 16% in 2005. Industry continues to play a leading role in the country's national economy. The sector produces about half of gross domestic output (GDP), employing 27.7% of the labour force and representing 35.5% of fixed assets. In spite of the recent crisis situation the industrial potential of the country may be the fundamental bedrock for future economic progress and a decisive factor in urban and regional development (Figure 53). With respect to the volume of actual industrial production, the following oblasts had the highest shares: Donetsk (25.4%), Dnipropetrovs'k (15.7%) Zaporizhzhia (9.1%), Luhans'k (8.1%), and Poltava (5.9%).

Since 2000, statistical data have been published according to a standard 'Classification of Economic Activities'. Industrial data is calculated through adding-up economic activity in the branches of raw materials extraction, manufacturing, and the production and distribution of electricity, gas and water. Figure 54 shows the volume of actual industrial production by branch in 2004. Since 1990, relevant structural shifts have occurred, attributable to the changing specific weight of the leading branches within the total industrial output, according to the indicator values. The most important sectors of Ukrainian industry are iron and steel smelting, non-ferrous metallurgy, food production and the processing of agricultural produce, machinery engineering, the fuel and energy industry, the production of building materials, and light industry.

The share of the machinery industry dropped dramatically, from 30.5% in 1990, down to 13.4% in 2004. This branch has suffered particularly badly from the disintegration of the USSR, previously producing weapons, equipment (for the mining, iron and steel, chemicals and power generation industries), agricultural machinery, sea vessels, aircraft, and consumer electronics for the internal Soviet market.

Light industries also experienced considerable shrinkage. Between 1990 and 2004 this branch saw the most remarkable loss of output and decline in its specific weight within the industrial production ratio; from 10.8% in 1990 down to 1.2% in 2004. A low level of automation, the loss of reliable markets



and the emergence of unprotected domestic producers have effectively driven this branch to bankruptcy. This has been the price paid for the liberalisation of foreign trade and the inundation of the Ukrainian market with imported commodities.

At the same time the shares of the electricity generation and fuel production industry, along with iron and steel melting have grown considerably. This shift has caused an increased alteration in the structure of the industrial sector. There is prevalence towards branches that are raw material and energy intensive, with the outcome that environmental pollution is growing. In 2004 the electricity generation and fuel production industry, along with metallurgy together provided 48.7% of total industrial output, whereas the shares of machinery engineering, light industries and food processing amounted to only 30.4%. It should be noted that the share of heavy industry more than doubled over the period 1991–2004 partly owing to overpricing the output and also due to the rising costs of production and a decline in retail prices.

Shrinkage in output volumes and their devaluation are characteristic of the food industry as well, albeit at a slower rate. Its specific weight within the volume of total industrial output dropped from 18.6% in 1990 to 15.8% in 2004. As of the start of 2004, the private ownership structure was overwhelming in the food industry and that for processing agricultural produce (96.6%). The only exception is the distillation of spirits, being a state monopoly.

It was the energy crisis that worst affected the industrial potential of Ukraine. Presently, the most salient trends and factors underpinning industry are high rates of industrial productivity resulting in output that exceeds 1990 levels; a favourable investment climate which may stimulate the modernisation of fixed industrial assets; and high levels of growth in the machinery industry, the main target for investment. Rising productivity of labour, i.e. economising living labour, whatever high contribution it makes to the efficiency of production, is only one of the several factors of improving efficiency, which also includes other spheres e.g. reduction of the value of raw materials and power sources.

High growth rates in the machinery industry represent a very progressive trend, determining the level of technological sophistication and act as a driving force in the economy. However, even these high rates are unable to

improve the technical and technological basis of the economy. Quantitative changes must be accompanied by qualitative growth, i.e. a rise in the efficiency of production, and of the scientific and technical level of engineering.

Metallurgy is in a key position within Ukraine's industrial sector. Historically, the iron and steel industry emerged in the 19th century and was based on high-grade raw minerals found in abundance, namely, coal and metal-bearing ores such as ferrous and manganese, ores of rare metals (titanium, zirconium, etc.), of non-ferrous metals (nickel, bauxite, mercury) and of precious metals (gold).

A leading branch of metallurgy is iron and steel smelting, having first emerged in the Donets basin (the present Donets'k and Luhans'k oblasts) due to the presence of resources of coking coal, and later, along the Dnieper river (Dnipropetrovs'k and Zaporizhzhia oblasts) in the proximity of vast iron ore deposits (Kryvyi Rih basin, Belozerskyi district) and manganese ore fields (Nikopol' basin) (*Figure 55*). According to 2004 production figures for iron and steel, the sector had the following share within the industrial output of the respective oblasts: Dnipropetrovs'k, over 67%; Donets'k, 53%; Zaporizhzhia, over 46%; and Luhans'k, 21%. These four regions provide for more than 90% of the national production volume with the Donbas region alone having a 41% share (producing around 52% of total output in pig iron, 46% in steel and over 53% of rolled steel). The region along the Dnieper has a share of almost 54% within the output of ferrous metals, non-ferrous metals (aluminium and rare metals) and ferrous and manganese concentrates.

The metallurgical branch has a complex and extensive structure. Various activities include the extraction and enrichment of raw minerals, the production of metallurgical coke, as well as the smelting of various types of metals (pig iron, steel founded in open-hearth, Bessemer converters, and those produced by electrometallurgy). Further included is the production of rolled steel, cast iron, forged and other metal products. An intense development in Ukrainian metallurgy has promoted its expansion in the world market. A considerable amount of revenue from exports can be attributed to ferrous metals, and to a lesser extent to non-ferrous metals and metal products.

Metallurgy in Ukraine is facing problems such as the urgent need for technologi-

cal modernisation, so that: global standards can be adopted to raise the competitiveness of the branch; to support development of related branches, such as the manufacture of building materials and the chemicals industry, making use of the waste output from primary production; and to ensure the ecological safety of the population and environmental protection.

The **food industry** is decisive for Ukraine's place in the international division of labour. Despite the current problems, the country continues to export food products to the former republics of the USSR (primarily to Russia), to the Middle East, China, and others. Ukraine produces food products like cereals, meat, fish, etc. for the international market and is increasing production of confectionery products, alcoholic drinks and vegetable oil.

Food processing occupies second place in industrial output, with 16.3% of total output and 13.4% of industrial employment. The branch has a ramifying structure with more than 40 types of production, embracing 9,200 enterprises.

The level of development in the food industry is closely related to the health of farming, and the levels, structure and productivity of agriculture. The leading segments of the food industry are those specialising in the production of flour and cereals, meat and milk production, the production of vegetable oil and fats, the sugar industry, the manufacture of confectionery products, wine and spirits, and the tobacco industry. The food industry has reached its highest levels of development in Vinnytsia, Kharkiv, Kyiv and Sumy oblasts (*Figure 56*).

Machinery engineering plays an important role, owing to its main function to supply the national economy with machinery (be that equipment, tools, instruments, etc.), vehicles, weapons for national defence purposes, consumer goods (such as home appliances), etc. This branch provides 13.4% of total industrial output and over 11,000 enterprises currently operate in the manufacture, and associated repair and installation of equipment. Around 22.7% of industrial workers are occupied in this sector, which is instrumental in the acceleration of technological progress and holds the solution to complex socio-economic tasks.

More than 100 types of manufacturing make up the profile of contemporary machinery engineering. Due to objective economic factors, and for historical reasons too, the machinery

engineering sector has always been considered to be the first priority for the national economy and branch specialisations had specific features. The largest enterprises are the plant at Novokramators'k, and heavy engineering factories at Mariupol', Slovians'k, Dnipropetrovs'k, Kryvyi Rih, Donetsk, and Luhans'k (*Figure 57*).

Large centres of engineering associated with *power generation* are the turbine works in Kharkiv (manufacturing extra powerful turbines for nuclear power plants), and the equipment plants in Tokmak (Zaporizhzhia oblast), and in Pervomais'k (Mykolaiv oblast).

The *vehicle engineering* sector produces diesel and electric locomotives, railway rolling stock, river and sea vessels, aircraft, lorries and buses. Large assembly works maintain technological links with many factories. Diesel and electric locomotives are manufactured in Luhans'k and Kharkiv, and railway rolling stock is assembled in Dniprodzerzhynsk and Kremenchuk. A massive shipbuilding branch has developed since the late 18th century with Mykolaiv, Kherson and Kerch as the main centres of sea vessel construction and Kyiv and Zaporizhzhia for river vessels. Ship repair facilities are also to be found in many ports and harbours.

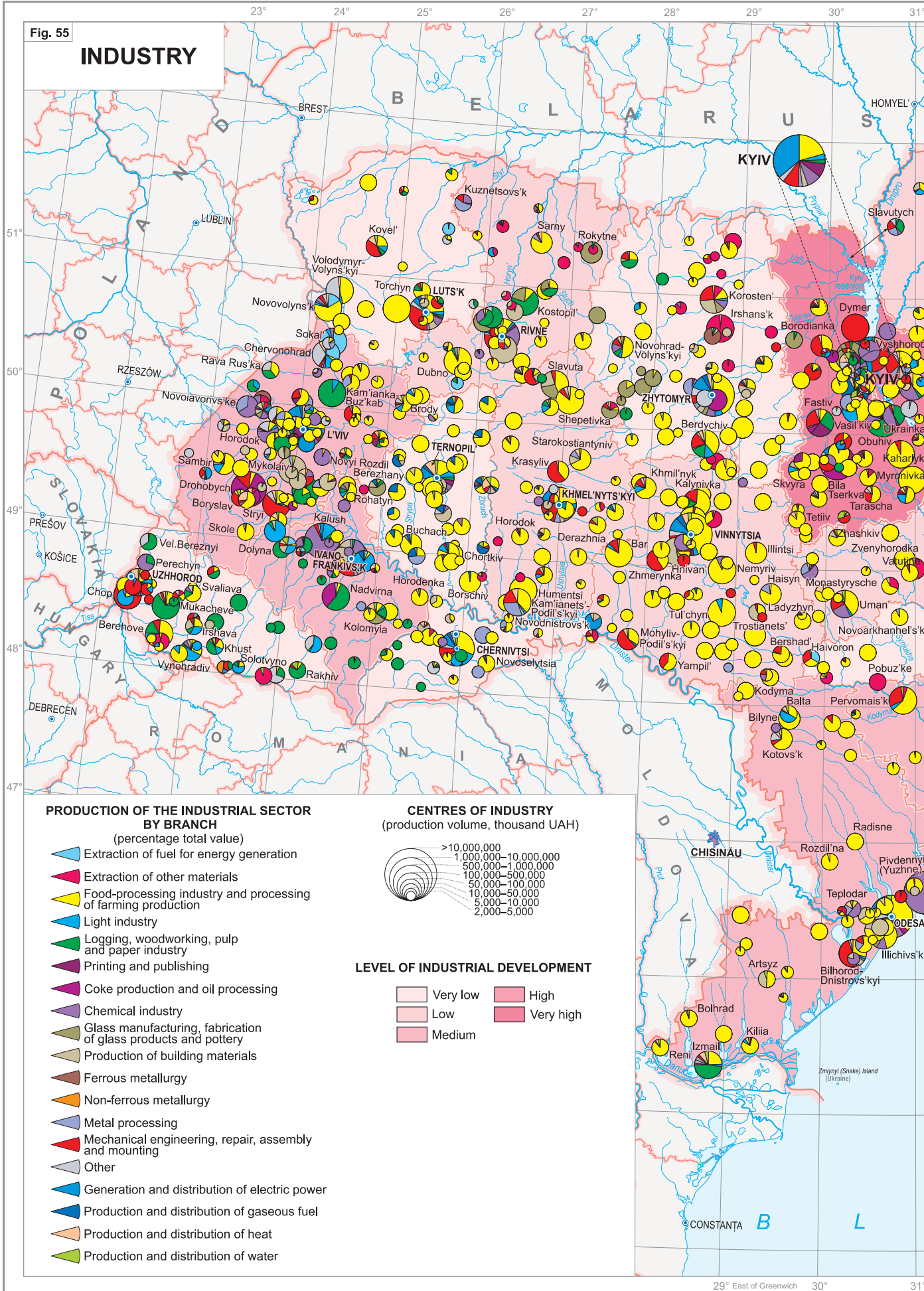
Aircraft construction is a highly prestigious branch of the national economy and is broad-based. The A.K. Antonov Design Bureau and Construction Works operate in Kyiv. Passenger-carrying and transport aircraft have been designed and many of them constructed here. The most famous transport aircraft are the An-124 (Ruslan) and An-225 (Mriya, or under the NATO reporting name, Cossack). The latter is the world's heaviest and largest aircraft. Aeroplanes are also assembled in Kharkiv and aircraft engines are manufactured in Zaporizhzhia.

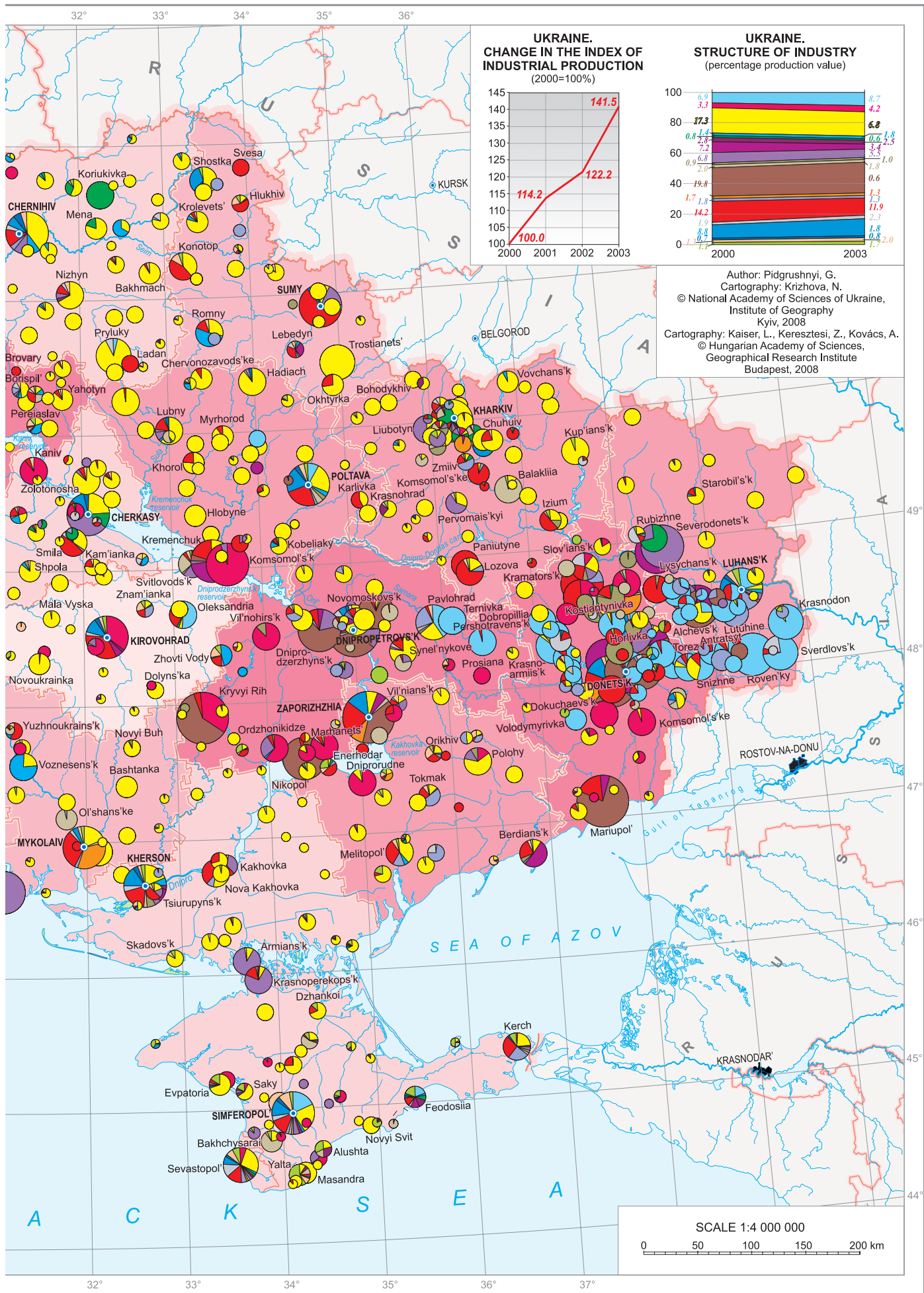
Space and rocket technology is another priority field of expertise for the national economy. Yuzhnoye Design Bureau (where Soviet intercontinental ballistic missiles used to be assembled) still operates in Dnipropetrovs'k. Zenit, a space launch vehicle (carrier rocket) for delivering earth satellites into orbit in a most economical and ecologically clean mode is produced here.

In recent years the *motor industry* has been given a fresh impetus in Ukraine. Cars are produced in Zaporizhzhia and Luhans'k, lorries in Kremenchuk, and buses in L'viv. There are assembly plants in Odesa, Cherkasy, Chernihiv and in other locations.

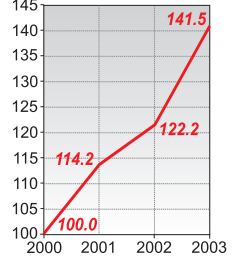
Fig. 55

INDUSTRY

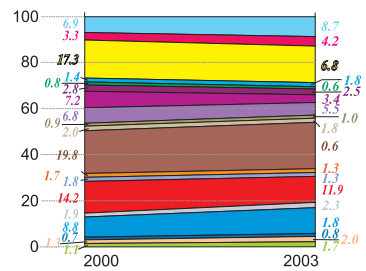




**UKRAINE.
CHANGE IN THE INDEX OF
INDUSTRIAL PRODUCTION**
(2000=100%)



**UKRAINE.
STRUCTURE OF INDUSTRY**
(percentage production value)



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Cartography: Krizhova, N.
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Cartography: Kaiser, L., Keresztesi, Z., Kovács, A.
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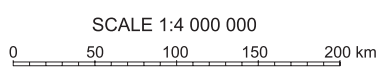
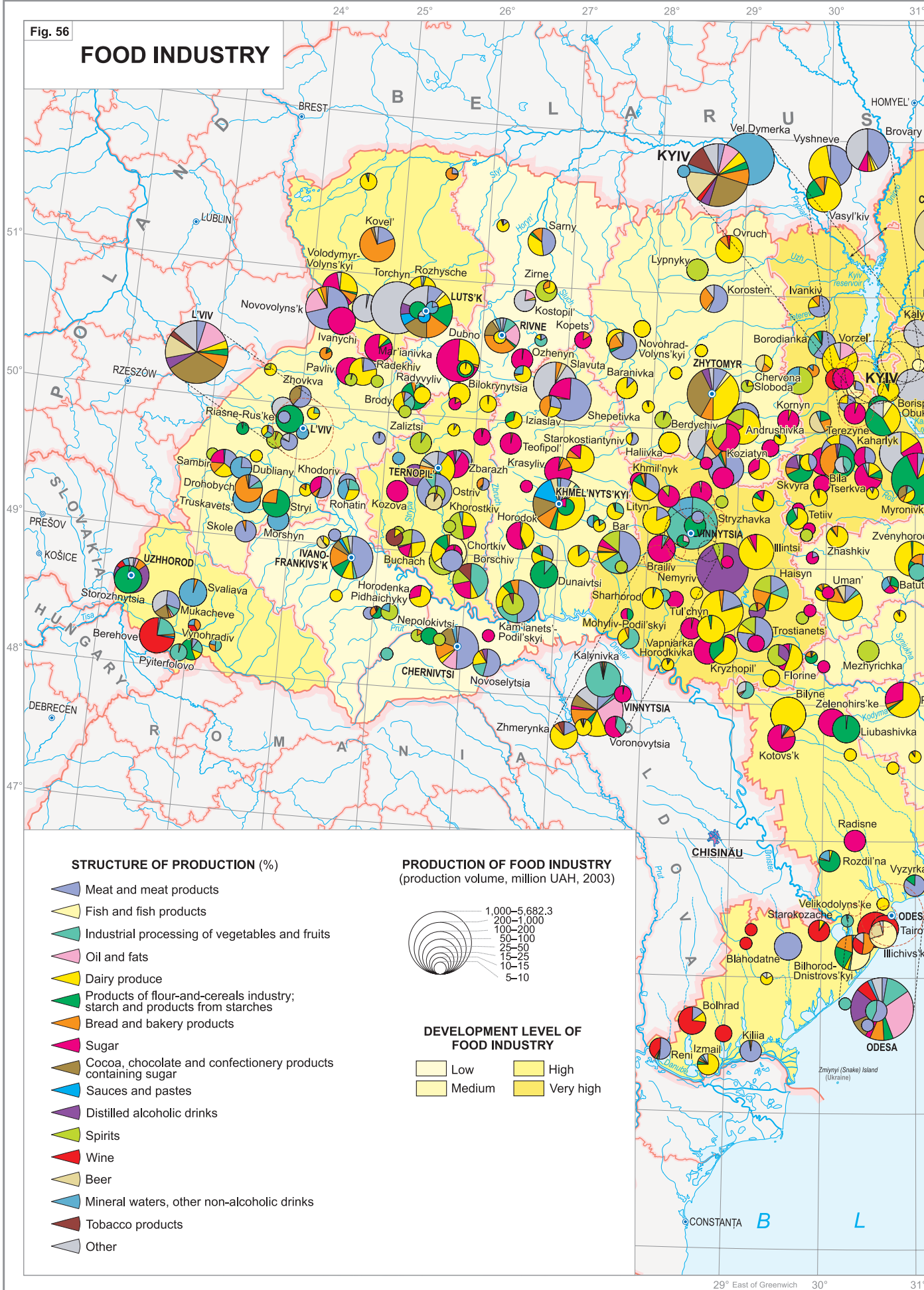


Fig. 56

FOOD INDUSTRY



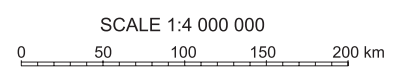
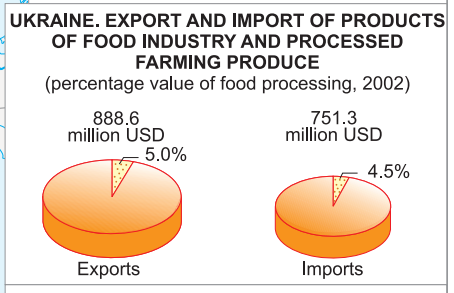
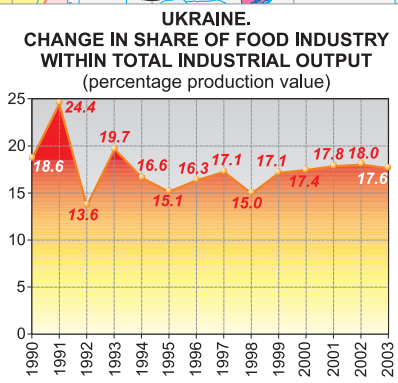
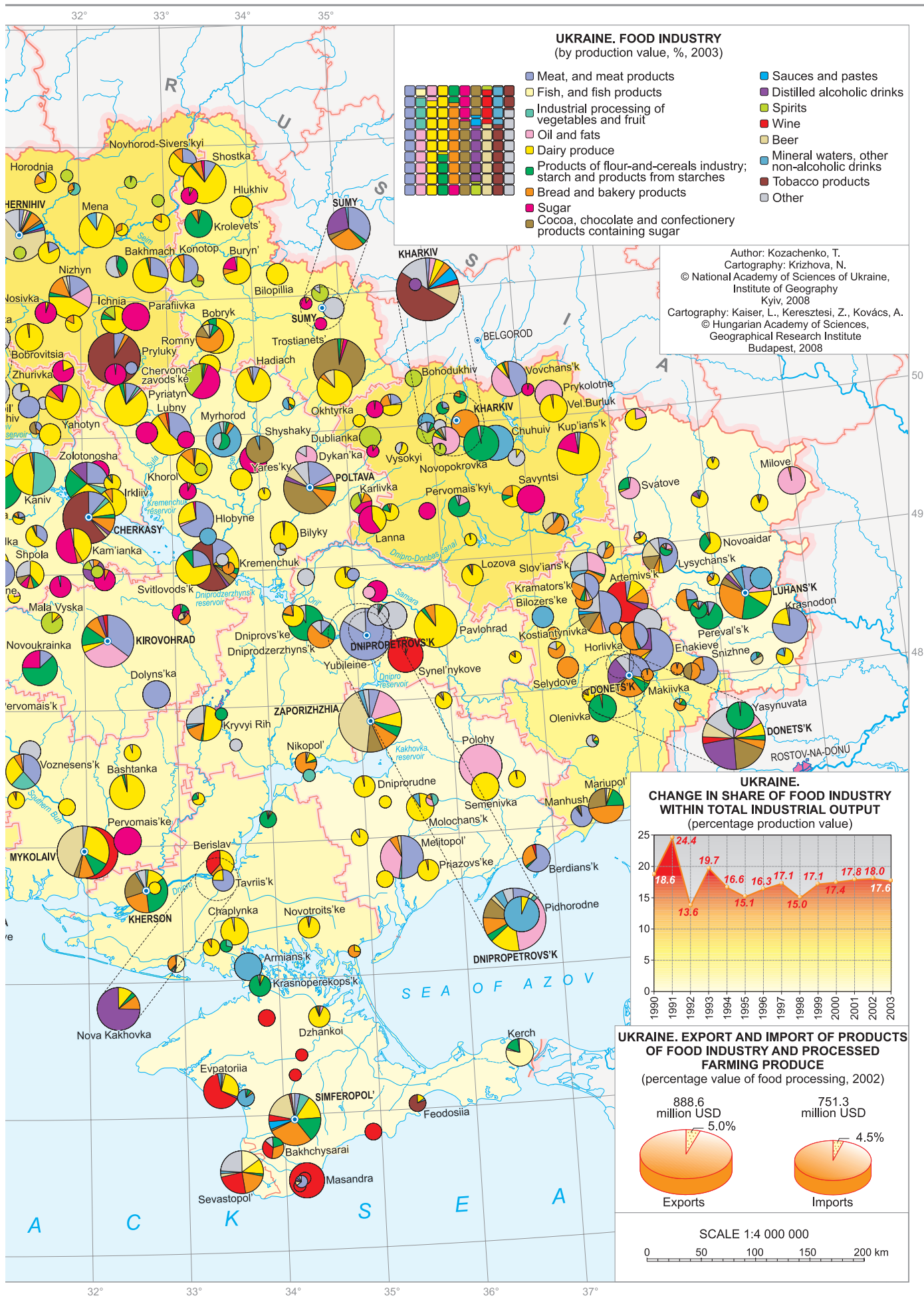
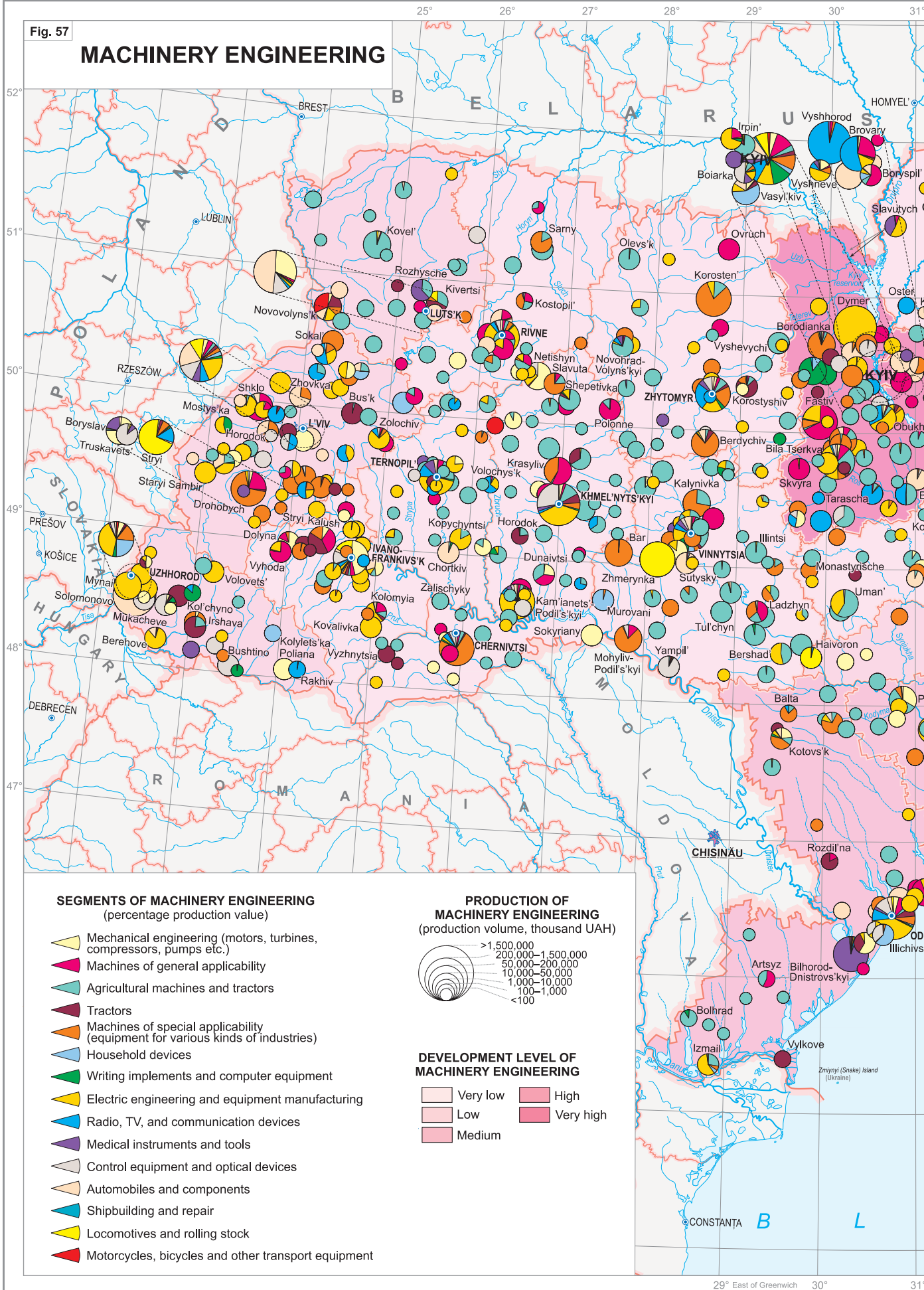
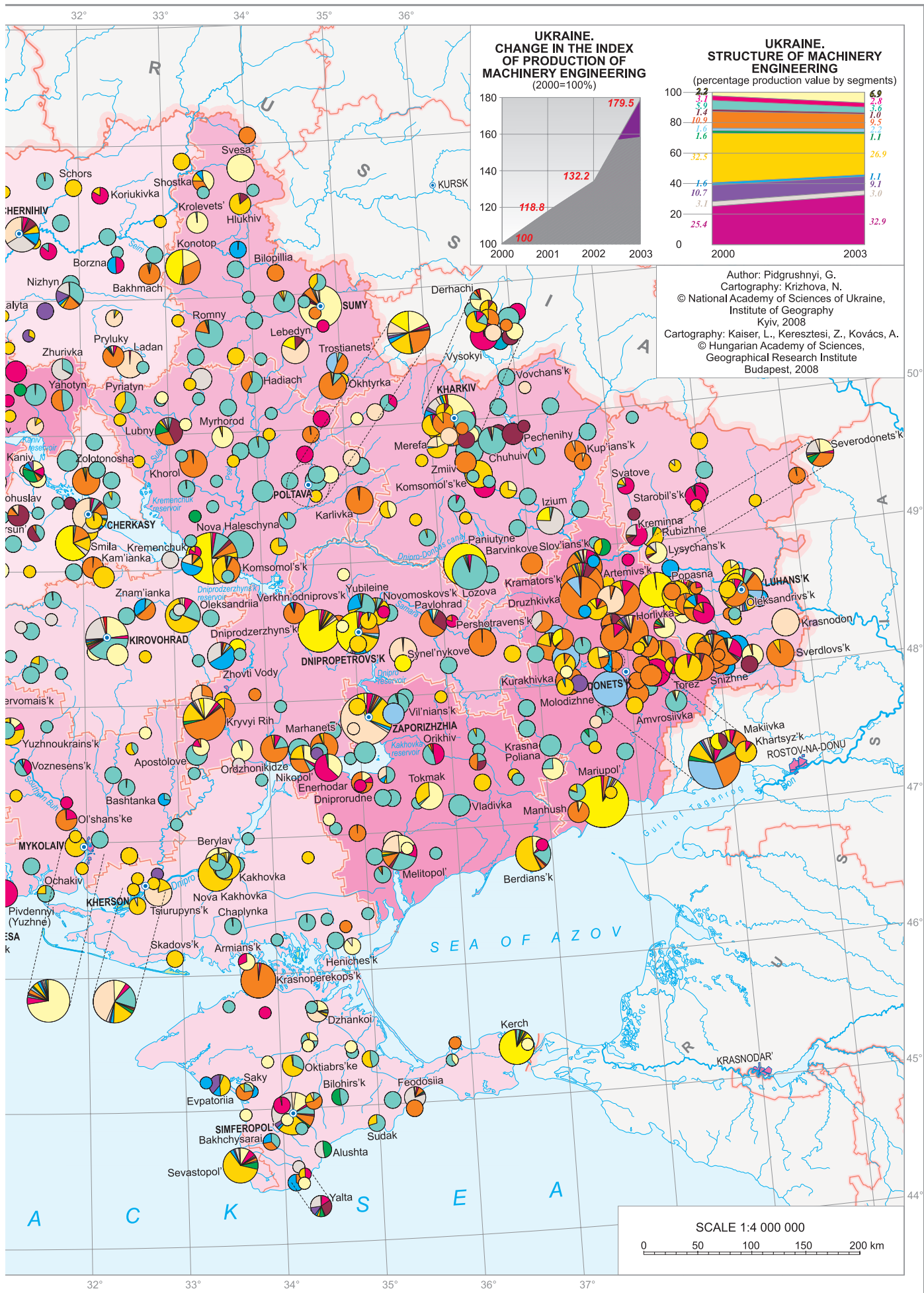


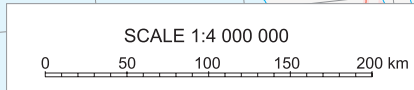
Fig. 57

MACHINERY ENGINEERING





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The manufacturing of vehicles involves 20 companies. Tractors are assembled in Kharkiv, where engines and chasses are also produced. Accessories are made in Kyiv, Vinnytsia and Khmel'nits'kyi. Agricultural mechanical engineering, electrical engineering and the production of equipment for different uses are the growing branches of manufacturing. In contrast, precision engineering, i.e., radio-electronics, IT, along with the manufacture of telecommunications equipment, and instruments, are lagging behind.

The **chemicals industry** plays an important role in economic development. Together with petrochemical firms, 3,300 companies are involved in this sector, sharing 6.4% of GDP and 5.5% of industrial employment.

The development of this branch of the economy is promoted by rich resources of basic raw materials. They include mineral resources, and waste materials from the metallurgy, timber and woodworking sectors. The chemicals industry has a wide range of specialisms and of them, those processing extracted mineral resources are of foremost importance. Potash salt is mined at Kalush (Ivano Frankivs'k oblast) and Stebnyk (L'viv oblast), rock salt is extracted at Solotvino (Transcarpathian oblast), Artemivs'k and Slavians'k, and sulphur deposits are worked at Rozdil and Novoiavorivs'ke (L'viv oblast).

The manufacture of *mineral fertilisers* is a special segment of the chemicals industry. Nitrogen fertiliser plants are located with the coke and coal processing sectors in Rivne, Lysychans'k, Horlivka, Dniprodzerzhyns'k, Zaporizhzhia and Cherkasy. Phosphorus fertilisers are produced from imported raw materials in factories in Odesa, Vinnytsia, Sumy, Konstantynivka, and others.

One of the longest established sectors in chemicals manufacturing is *soda making*. This industry is confined to areas with rock salt deposits, limestone quarries and fuel sources, and its centres are in Slovians'k, Lysychansk and Krasnoperekops'k. Caustic soda and chlorine is produced at Kalush (Ivano Frankivs'k oblast).

The *paint and varnish industry* also belongs to the 'traditional' segment of the chemicals industry. The first factories appeared in the mid-19th century at L'viv and Odesa. The largest paint and varnish plants are in Kyiv, Dnipropetrovs'k, L'viv and Odesa, and there is a miniate factory in Kryvyi Rih.

The *manufacture of plastics, synthetic resins and fibres* are key segments of industry for the economic development of the country. They are located near to oil wells and refineries, coal mines and processing plants. The largest factories for plastics and synthetic

fibres are located in Donets'k, Dniprodzerzhyns'k, Zaporizhzhia, Pervomaisk and Sieverodonets'k, and those for synthetic fibres in Kyiv, Chernihiv, Cherkasy and Zhytomyr.

The *petrochemicals and rubber-metal industry* is a relatively young segment within chemicals manufacturing and the development of the latter only started in recent decades. It is based around the refining of oil and gas, and imported rubber (synthetic and natural). Petrochemical plants and oil refineries are located close to one another (Kremenchuk, Kherson and Borislav). There are ca. 30 asbestos rubber plants in Ukraine. Dneproshina (Dnipropetrovs'k) is the largest tyre manufacturer on the territory of the former USSR. Rubber-metal products and tyres are made in Bila Tserkva, and there are large asbestos rubber plants in Lysychansk, Sumy, Zaporizhzhia, Odesa and Kharkiv.

The manufacture of fine chemicals essentially takes place within the pharmaceutical sector. They are as a rule located in large urban centres with a high concentration of academic institutions and scientific cadres (Kyiv, Kharkiv, Odesa, L'viv and Dnipropetrovs'k). The level of development in this segment is lagging far behind the needs of the medical sector.

The chemicals industry requires profound innovation, including the adoption of energy-saving and waste-reducing technologies.

During the recent period, significant shifts have taken place within the structure and spatial organisation of the **construction industry** in Ukraine. They are closely allied with the processes of transition to a market economy, the privatisation of state owned assets, and stem from the sectoral problems arising from the cut in financing, previously provided by the state as a traditional customer. Of construction projects completed in 2003 by building contractors one quarter were located in Kyiv and Kyiv oblast, with its ever-growing boom in construction activities. An intensifying spatial differentiation is a major characteristic feature of construction in contemporary Ukraine.

Trends in the dynamics of gross indicators of the construction industry have been accompanied with changes in the ownership of the projects under development. The percentage of buildings in state ownership diminished from 71.7% to 39.6%, whilst the share of private and joint public-private ownership increased (from 4.6% to 11.9% and from 23.7% to 46.8%, respectively). A positive change that has taken place in the construction sector has been the technological modernisation of the firms operating in this sector.