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THE EXPERIENCE OF AGGLOMERATION DEVELOPMENT IN CHINA AND KAZAKHSTAN

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Abstract. This article examines the experience of agglomeration development in China and Kazakhstan. It reviews the history of formation and approaches to defining the concept of urban agglomeration, including the definition of urban agglomeration by Chinese scholars. Forecasts are presented for metropolitan areas around the world and in China. In the practice of agglomeration development in China today, five urbanization belts and nineteen major urban agglomerations are outlined. The transfer of "non-capital functions" from the Chinese capital to Hebei Province is transforming Xiong'an into a center of innovation. The set of special measures used by the Chinese authorities to stimulate the development of megalopolises and agglomerations is considered. Characteristics of the functioning of China's urban agglomerations are presented, as well as their advantages and disadvantages.

The experience of agglomeration development in Kazakhstan at the legislative level is studied, and attention is paid to the introduction of a new model of agglomeration management in the country, which gives regional administrations basic, additional powers and responsibilities for agglomeration development. The imbalances around the major cities and the main factors contributing to these imbalances are considered. The need for the formation and development of agglomerations as points of economic growth of the country and their effective positioning according to the level and specialization of their development is substantiated.

Based on the analysis of the development of agglomeration processes in Kazakhstan, the advantages and disadvantages of urban agglomerations are presented. Suggestions are made on the directions of their further development.

Key words: megacities, urban agglomeration, sub-region, urbanization, agglomeration governance model, local agglomeration councils.

Introduction In our opinion, Chinese scholars have studied Western achievements in the field of urbanism quite well. Their works are based on the works of S. Claudio, C.M. Christin, P.A. Harper, A. Denis, I. Peterson, C. Davis and other famous researchers. Most importantly, Chinese scholars have adapted the generally accepted categorical apparatus of urbanism to Chinese realities, highlighting such concepts as urban agglomeration, urbanization, urban congestion, the system of cities and towns, the main urban area, the megacity, etc. At the same time, modern Chinese scholars distinguish different models of development of cities and urban agglomerations, and identify regular and spontaneous processes in urbanism. From the point of view of the global economy, the main unit of international economic competition in the XXI century will be neither a separate state nor a corporation, but a large urban agglomeration as a new spatial unit. The territorial division of labor between urban agglomerations, cooperation and competition will determine the future political and economic picture of the world.

Methods a wide range of methods was used in the research, including systematic, theoretical generalization, grouping, comparative analysis.

Results The agglomeration development path is a natural stage of urbanization and a general global trend of the last decades of modern settlement development.

In the future, agglomeration processes will be one of the most important drivers of global economic growth in this century.

By 2030, there will be 41 megacities with 720 million inhabitants. In addition, by 2025, 600 cities will account for more than 60% of global GDP growth. According to the UN, the tipping point in urbanization occurred in 2007, when the world's urban population exceeded its rural population. It

is estimated that by 2050, 66% of the world's population will live in urban areas (100 years ago, 70% of the population lived outside cities).

According to the methodology of the Organization for Economic Co-operation and Development, an urban agglomeration includes a city and its surrounding areas whose inhabitants regularly commute to the city center for work, leisure and other purposes. A commuting area adjacent to a city is included in an urban agglomeration if at least 15 per cent of the economically active population commutes to work in the city.

The concept of urban agglomeration in the modern sense was first used by the American economist Adna F. Weber in "Urban Growth in the 19th Century", where she proposes statistical methods for assessing the development of agglomerations and also shows their impact on the functioning of the economy at the state level. Interesting works include "Urban Economics" by J. Jacobs, "Urban Development: Theory, Facts, Illusions" by J. W. Henderson and "Introduction to Urban Economics" by A. Evans, which examine modern processes in the development of urban agglomerations from different angles: from the concentration of high-tech production to growth patterns in large cities. Chinese scholars Yang Wuyang in Economic Geography and Zuo Zongqing in Reconstructing Pareto's Law and Its Relation to Urban System Evolution define the urban system, and Zhang Li in Evolution of Chinese Urban System due to Reform and Opening-up Policy reveals the characteristics of this economic unit. Chen Haoguang, in "Exploring the role of Guangzhou in the development of urban agglomeration in the Pearl River Delta", examines the problem of the development of the Delta, drawing on the theoretical work of his predecessors, and predicts the future interdependence of cities. Shang Yu, in "An Analysis of PRC Suburbs and Urban Systems", complements Chen Haoguang's idea by arguing for the importance of connectivity formation. The British scholar D. Barton, who reveals the relationship between economic development and space, explores the characteristics of the city and the urban system. [1, 91-101]

Discussion

China's economic development relies on a number of large urban agglomerations to drive innovation, production and urbanization. The Fourteenth Five-Year Plan, adopted in 2021, identified 5 urbanization belts and 19 major urban agglomerations. The largest are the Beijing-Tianjin-Hebei metropolitan sub-region, the Hong Kong-Macao-Huangdong cluster and the Yangtze River Delta.

The Chinese head of state has ordered the transfer of 'non-capital functions' from the Chinese capital to Hebei province. In particular, many industrial enterprises and the headquarters of large companies will be relocated. The latter will move to the new Xiong'an district in Hebei province, 100 kilometers south of the capital.

The district has been built from scratch in just a few years, with 540 billion yuan (about \$80 billion) invested in the project. Construction began in 2017; in 2018, its area was 200 square kilometers, and today it has reached 1,770 square kilometers, which is comparable to the area of New York City.

Xiongnan has become a center of innovation, with companies developing technologies in the fields of alternative energy and new materials, biomedicine, artificial intelligence, cybersecurity and integrated circuits.

The relocation of industries from Beijing and Tianjin to Hebei Province will create world-class advanced industrial clusters. A series of 'environmental shields' are planned to ensure that the development of industrial clusters does not lead to an increase in pollution. The gross domestic product of the metropolitan sub-region is about 10 trillion yuan, accounting for about 8.5% of the national GDP. The People's Republic of China is in the process of creating larger agglomerations. In 2019, for example, the country will begin developing the world's largest urban agglomeration in the Yangtze River Delta: it will bring together 41 municipalities, with China's 'economic capital', Shanghai, at its heart. The total population of the new super-city will exceed 100 million and its contribution to national GDP will be around 20%. However, the Shanghai urban agglomeration is being built 'off the shelf', while the metropolitan sub-region is undertaking all new projects from scratch. This makes it the No. 1 agglomeration in the whole of China. [2]

In China, the authorities are using a number of special measures to encourage the development of megacities and metropolitan areas: incentives for industries with high R&D potential, and the redistribution of funds to the retail, hotel and financial sectors. Prospective companies are allowed to repatriate profits freely, as are duty-free imports of construction materials, semi-finished goods, vehicles and office equipment.

A characteristic feature of China's urban agglomerations is the significant increase in population concentration in the agglomerations, which in turn leads to reverse processes: this has the effect of worsening the conditions and quality of life of the population, but at the same time contributes to a positive economic environment (enhanced communications, expanded infrastructure, establishment and development of enterprises. [3].

The President of Kazakhstan, Kassym-Jomart Tokayev, has signed the law "On the development of agglomerations". The law introduces a definition of the term "agglomeration" and criteria for defining agglomerations. The formation of agglomerations is carried out by the authorized body for agglomeration development and is approved by a decree of the Government of the Republic of Kazakhstan. Almaty, Astana, Shymkent, Aktobe and possibly other oblast centers will be defined as agglomerations. The law also introduces a new model of agglomeration management. Local agglomeration councils will be established at the regional level. They will act as a platform for interaction between the local executive bodies of the city and the surrounding region to address specific issues for the coordinated development of the agglomeration. The regional administrations are granted 25 additional authorities under the main law and the accompanying law: 11 authorities under the main law and 14 authorities under the accompanying law. The accompanying draft law envisages the following competencies for the development of agglomerations: extending the authority of the administrations of cities of republican importance and the capital to participate in the development of architectural and construction policies for suburban areas; providing for the granting of authority to the administrations of adjacent regions to designate land in agglomeration areas for the construction of social, transport and engineering infrastructure financed by local executive bodies of the capital, cities of republican importance; budget coordination at one level. For the purpose of coordinated agglomeration development, the bill develops a mechanism of horizontal transfers between the budgets of the city and the surrounding region in order to finance joint agglomeration projects with synergetic effects, which will affect both the development of the city center and its suburbs. [4]

The Ministry of Industry and Infrastructural Development of the Republic of Kazakhstan explained that the decision to merge megacities with adjacent territories into new unions was taken because there is currently an imbalance in economic development, financial and human potential between the city center and the surrounding areas.

The main factor contributing to this imbalance is the uncontrolled population growth of large cities and their surrounding areas.

Over the past decade, for example, Astana's population grew by 59% (from 451,500 to 1.2 million), Almaty's by 37% (from 1.4 to 2 million) and Shymkent's by 67% (from 659,000 to 1.1 million).

Urban areas have also grown significantly. This leads to a number of problems, such as increased pressure on all kinds of infrastructure, construction on the outskirts of the city without connection, lack of or improper implementation of detailed planning projects, lack of a convenient transport system, lack of infrastructure, social, industrial and other facilities.

By 2025, the country's urbanization rate is expected to reach 62.6%.

If this indicator is achieved, it is expected that nominal GDP per capita will increase from \$10,300 to \$14,600 across the country, including for Astana - from \$17,300 to \$25,200, for Almaty - from \$17,600 to \$27,400, for Shymkent - from \$5,700 to \$9,300. [5].

In the state program of regional development for 2020-2025, one of the important tasks is the development of agglomerations. Table 1 shows the achievement of this task measured by the following performance indicators.

Table 1. Achievement of the objective as measured by the following performance indicators

[6]

Performance indicator	2023	2024	2025
1. Population in agglomerations, thousand people			
Total per agglomeration	7648,9	7873,0	8 088,8
Capital	1534,9	1607,1	1669,6
Including Nur-Sultan	1243,6	1302,0	1352,6
Almaty	3280,0	3376,0	3471,3
Including Almaty city	2096,7	2156,8	2216,5
Shymkent	2129,5	2172,9	2218,1
Including Shymkent city	1132,1	1169,8	1201,7
Aktobe	704,5	717,0	729,8
Including Aktobe city	525,5	540,5	552,5
2. Growth in attracting investment in fixed capital (excluding budget funds) in agglomerations, million tenge			
Total	2 779 129	3 033 543	3 340 218
Nur-Sultan	1 014 182	1 115 200	1 253 064
Almaty	863 660	941 595	1 030 035
Shymkent	751 136	816 498	888 405
Aktobe	150 151	160 250	168 714
Note: [6]			

The main objective of agglomeration development in Kazakhstan is to form them as long-term growth centers integrated with global and regional markets. In this case, the priority economic specialization of each agglomeration is defined.

For example, the Astana agglomeration is proposed to be positioned as a center of high technology and innovation based on Nazarbayev University, a medical cluster and an emerging industrial zone. It is also seen as a network 'growth zone', taking into account the proximity and development prospects of Karaganda and the Shchuchinsko-Borovoy resort area.

The Almaty agglomeration will be developed as a trade, logistics and financial center, an innovation cluster based on the Alatau IT Park and major universities, and a tourism center for the entire Central Asian region. This agglomeration will be developed taking into account the construction of satellite cities G 4 City and the Khorgos International Border Cooperation Centre.

Shymkent is one of the few cities in Kazakhstan that did not suffer particularly during the years of depression and has steadily grown. It is the only city where the population has increased significantly in the last 20 years. [7, 59-67].

The city of Aktobe, as the urban center of Western Kazakhstan, is growing and developing rapidly, and its future lies in improving its territorial organization, ecological positioning, comprehensive infrastructure development and ecological recovery of the territory. All this allows for the creation of growth points with a solid industrial base and innovative foundations in various sectors of the economy.

Conclusion

From the analysis of agglomeration development, the advantages of agglomerations are as follows

- As a relatively large unit, agglomerations achieve economies of scale and lower production costs, making them more successful than conventional economic units.
- At the macro level, agglomerations are more resilient to ongoing changes in the internal and external environment.
- Agglomerations are more attractive to foreign investment, which can create new advanced industries and hence new jobs.

- Agglomerations cause the expansion of labor markets, increase their capacity, create diversity of goods and services, and cause the development of modern skills of employees.
- Agglomerations contribute to the intensive development and renovation of the existing transport and logistics infrastructure, which makes it possible to overcome the spatial barrier, which is relevant for all regions.
- The entire resource potential of the agglomeration entities is used more intensively and efficiently, integrating them into the unified national economic complex of the region.
- The conditions for improving the standard of living and quality of life of the population of the agglomeration are created.

Agglomeration development can be associated with certain disadvantages. These include the following

- Intensive development and expansion of the production sphere and transport and logistics facilities of a given agglomeration inevitably reduces the area of adjacent agricultural land and forests, which has a negative impact both on the environmental situation of the area and on the development of the agricultural sector.
- The concentration of all resource potential in a relatively small area will lead to an accelerated large-scale use of the natural resources available here and to their accelerated depletion, contrary to the UN decisions not to compromise the ability of future generations to meet their needs and the need to develop an economy that does not destroy but rather preserves the environment.
- The uneven geographical distribution of agglomerations across the country would increase regional disparities within the country.
- Alongside the improvement in the lives of people living in urban agglomerations, the polarization of people's material status is increasing.

In our opinion, it is necessary to:

- forecast the development of urban agglomerations in order to meet the needs of the resident population in terms of public utilities, transport and logistics, cultural, educational, recreational and many other services;
- to develop areas of support from the city - the center of economic growth - to the small towns and villages that are part of the developing urban agglomeration;
- prior to making a decision, it is necessary to calculate the amount of financial resources needed to achieve the set objectives;
- it is necessary to train a team of professional managers in the management of a large agglomeration - a megacity - in order to minimize the inevitable risks.

At the same time, worldwide experience shows that, in addition to the positive aspects, the development of agglomerations, especially if it is not well planned and managed, leads to a number of negative consequences, such as environmental degradation, congestion of internal and external transport, lack of land, water resources and the problem of labor resources is also complicated.

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ҚЫТАЙ ЖӘНЕ ҚАЗАҚСТАНДАҒЫ АГЛОМЕРАЦИЯЛАРДЫ ДАМУ ТӘЖІРИБЕСІ

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Андатпа. Мақалада Қытай мен Қазақстандағы агломерацияларды дамыту тәжірибесі қарастырылған. «Қалалық агломерация» ұғымының қалыптасу тарихы мен анықтау тәсілдері, оның ішінде қытай ғалымдарының қалалық агломерация терминінің ашылуы қарастырылған. Өлемдегі, сондай-ақ Қытайдағы агломерациялардың дамуының болжамдары берілген. Қазіргі кезеңде Қытайдағы агломерацияларды дамыту тәжірибесінде урбанизацияның бес белдеуі, он тоғыз ірі қалалық агломерация анықталды. Қытай астанасынан Хэбэй провинциясына «капиталдық емес функциялардың» ауысуымен Сионьань жаңашылдық орталығына айналуға.

Мегаполистер мен агломерациялардың дамуын ынталандыру үшін Қытай билігі қолданатын арнайы шаралар кешені қарастырылуда. Қытайдағы қалалық агломерациялардың жұмыс істеуінің сипаттамалық белгілері берілген: артықшылықтары мен кемшіліктері.

Қазақстандағы агломерацияларды дамыту тәжірибесі заңнамалық деңгейде зерделенді, республикадағы агломерацияларды басқарудың жаңа моделін енгізуге, облыс әкімдіктеріне базалық, қосымша өкілеттіктерді беру, агломерацияларды дамыту бойынша құзыреттерге назар аударылды.

Ірі қалалар төңірегіндегі теңгерімсіздіктер, мұндай теңгерімсіздіктердің пайда болуына ықпал ететін негізгі факторлар қарастырылады. Елдің экономикалық өсу нүктелері ретінде агломерацияларды қалыптастыру мен дамыту қажеттілігінің негіздемесі және олардың даму деңгейі мен мамандануына сәйкес олардың тиімді орналасуы келтірілген.

Қазақстандағы агломерация процестерінің дамуын талдаудан қалалық агломерациялардың артықшылықтары мен кемшіліктері көрсетілген. Оларды одан әрі дамыту бағыттары ұсынылды.

Түйін сөздер: мегаполистер, қалалық агломерация, субрегион, урбанизация, агломерацияны басқару моделі, жергілікті агломерациялық кеңестер.

ОПЫТ РАЗВИТИЯ АГЛОМЕРАЦИЙ В КИТАЕ И КАЗАХСТАНЕ

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Аннотация. В статье рассмотрен опыт развития агломераций в Китае, Казахстане. Рассмотрены история формирования и подходы к определению понятия «городская агломерация», в том числе раскрытие термина городской агломерации китайскими учеными. Представлены прогнозы развития агломераций в мире, а также в Китае. В практике развития агломераций в Китае в современный период обозначены пять поясов урбанизации, девятнадцать крупных городских агломераций. В связи с переносом из китайской столицы «нестоличных функций» в провинцию Хэбэй, Сюньань становится центром инноваций. Для стимулирования развития мегалополисов и агломераций рассмотрены используемые китайскими властями комплекс специальных мер. Представлены характерные особенности функционирования городских агломераций Китая: преимущества и недостатки.

Изучен опыт развития агломераций в Казахстане на законодательном уровне, уделено внимание внедрению новой модели управления агломерациями в стране, наделение акиматов регионов основными, дополнительными полномочиями, компетенции по развитию агломерации. Рассмотрены дисбалансы вокруг крупных городов, основные факторы, способствующие возникновению таких дисбалансов. Дано обоснование необходимости формирования и развития агломераций как точек экономического роста страны и эффективного их позиционирования в соответствии с уровнем и специализацией их развития.

Из анализа развития агломерационных процессов в Казахстане представлены преимущества, недостатки городских агломераций. Предложены направления их дальнейшего развития.

Ключевые слова: мегаполисы, городская агломерация, субрегион, урбанизация, модель управления агломерациями, советы местной агломерации.