

## Indicative Model of Socio-Economic Development of Small Towns

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**Abstract:** In present, the small towns play the role of the centers of economic, social and cultural life of the municipal districts and sometimes even whole regions. These regions are the centers of location of industrial enterprises, transport and distribution centers, research centers, educational, medical and cultural institutions. Therefore, the small towns are the specific points of growth and development of territories. Thus, the uniformity (harmoniousness) of the territorial development of the economics of districts, regions and the country depends on economic growth and urban spaces of large- and medium-size cities and the development of the economics of small towns. World experience shows that the most efficient modernization of the economics of any region depends directly on the improvement of the cluster approach to assessment of potential of the subjects. In the broad sense, the cluster approach assumes that each economic sector cannot be considered separately from the others. Formation of the basic economic sector serves as a trigger to development of supply industries and industries - consumers, as well as the services forming a "cluster of economic activity". Besides of application of single cluster indicator, the system of the cluster approach and determination of the target balanced parameters of development of a municipal infrastructure of the urbanized territory in interrelation with dynamic features of development of the regional system of towns identified using the Zipf's law of "rank-size distribution" for the assessment of successful development of a region can become the most productive and effective in the future.

**Key words:** Region • Small town • Cluster

### INTRODUCTION

In present, the small towns play the role of the centers of economic, social and cultural life of the municipal districts and sometimes even whole regions. These regions are the centers of location of industrial enterprises, transport and distribution centers, research centers, educational, medical and cultural institutions. Therefore, the small towns are the specific points of growth and development of territories. Thus, the uniformity (harmoniousness) of the territorial development of the economics of districts, regions and the country depends on economic growth and urban spaces of large- and medium-size cities [1, 2] and the development of the economics of small towns.

Among small towns of the Russian Federation, there are some towns founded during the Soviet period, which are non-regional centers. These were important for state

defense and in the present, most of them looking for the place in the market economic conditions receiving the status of scientific centers.

In addition, there is another category of objects related to the small towns [3] - the urban-type settlements with population of 10-12 thousand people. However, these settlements must comply with concerning the formation of the quality of the urban environment [4] besides the number of residents.

Almost all small towns of Russia reveal the common socio-economic problems such as insufficient social orientation of the economics in majority of the towns; low technical development of the production facilities; inefficient use of local resources and capacities; loss of traditional industrial and labor skills of the residents, the disappearance of original productions based on broad involvement of own mineral, agricultural, forest and other resources; increase of the number of unemployed young

and pre-the retirement people and the people dismissed due to reduction of production, closure of enterprises related with the mining and primary processing of fuel and mineral resources; disproportion in the development of production and non-production spheres, the lag in the development of housing and communal services and low quality of the urban environment.

Some of these problems exist and specific for the small towns. For example, the small towns characterize by “truncated” educational complex which consists in the absence of higher educational institutions that results in outflow of talented youth to the large cities and thus, reduction of the number of labour resources. A distinctive feature of the small towns is the limited variety of job offers and insufficient professional education. Therefore, a significant part of the residents of small towns find a job in neighbor large cities.

The cluster approach is a necessary condition for translational and the breakthrough development of economics of any territory [5].

## **MATERIALS AND METHODS**

This article is to consider the specific features of territorial and economic development of small towns of the Republic of Tatarstan in the context of the cluster-based development strategy of economic zones of the Republic of Tatarstan.

For the rational organization of territorial administration, the authors used the concept of territorial development of the Ministry of Economics of the Republic of Tatarstan, which proposed to consider the socio-economic development of the Republic in the context of the formation and development of economic zones. The municipal regions were conditionally distinguished to economic zones by the iterative method of their phased formation around the junction centers (the main point).

Study of sustainable regional development is related with the transformation of views on the situation and development of the territories [6, 7, 8] and, in particular, development of the towns considered as local points of economic activity [9]. Economic analysis based on the mechanism of indicative planning allows the coordination of the activities of economic entities implementing the values “goal – activities – result – effect” [10].

In our study, we used a system of indicators defined as a group of indicators reflecting the degree of coordination between state and non-state subjects of administration combining the state regulation with market

mechanisms of self-regulation of the economics for assessment of socio-economic development of the municipal subjects. We assumed that the junction center is the municipal subject (district or city district), in which, the integral indicator of assessment of socio-economic development was 20% higher of the average for the Republic. This indicator was calculated using the following features: gross regional product per capita; investments per capita; cost of fixed production assets per capita, average wage; social burden per employee; provision of roads of the general use; housing; the level of unemployment.

In the contradictory conditions of interests of business and the state generating a high level of uncertainty of decision-making in the future, the methodology of indicative planning allows the mitigation of these contradictions and arrangement of a development plan acceptable to all parties [11].

The peculiarity of the methodological approach is in determination of the target balanced parameters of development of a municipal infrastructure of the urban territory in interrelation with dynamic features of development of the regional system of towns found using Zipf’s law of “rank-size distribution” [12].

**General:** Determined imbalances of socio-economic development of regions is the main obstacle in the development of the Republic of Tatarstan that worsen the disproportions of territorial development, complicates the achievement of a high quality of living environment of the residents in all municipal and urban districts and regions.

According to the Ministry of Economics of the Republic of Tatarstan, the raw material regions are the most competitive due to high concentration of production facilities, high capital investments and skilled and mobile labour forces. Inefficient spatial organization entails in a growth of expenses on the maintenance of infrastructures, redundant in regions losing the residents and productive assets and insufficient on developing territories (the low development of the transport network, pipelines in oil and gas production sector and other).

Assessment of spatial organization of the Republic showed that the residents are unevenly distributed within the territory of the region [13] with high concentration in industrially-developed regions. Besides the municipal district of Kazan (1 123,3 thousand people), the following urban districts and municipal regions characterize by high residential density: Naberezhnye Chelny (507 thousand people), Nizhnekamskiy (264,9 thousand people), Almetievskiy (194 thousand people), Zelenodolskiy (159,8

thousand people) and Bugulminskiy (112,6 thousand people). The lowest population density was observed in Tyulyachinskiy (14,4 thousand people) and Atninskiy (13,8 thousand people) regions [14].

The urban population of Tatarstan is 75% (2823,9 thousand people) and the majority of the citizens (90%) live in 14 the large Republican cities. Insufficient part of residents of the Republic (9,9%) live in remaining 8 cities and 21 urban-type settlements. The rural residents occupy only 15 districts of the Republic and prevalence in small non-industrial regions. Development of industrial production of the Republic is uneven in different territories. About 90% of the industrial production located only in 4 regions where the part of Almetievskiy municipal region is approximately 30%, Nizhnekamskiy – 24%, urban districts Naberezhnye Chelny and Kazan - 19% and 14 %, respectively. Nevertheless, there is significant interregional differentiation. The regions were 10- and 100-times different in the efficiency, volume of gross regional product (GRP) per capita and volume of investments per capita. There was a high level of interregional differentiation of incomes, wages and pensions observed. Housing of the people of the Republic roughly corresponds to the average level in Russia. However, total residential area per 1 inhabitant is less than the average for Tatarstan in Naberezhnye Chelny, Nizhnekamsk and Elabuga cities.

In present, the small towns, being mainly the monocities with the single city-forming industry, in conditions of transition to a market economics met some difficulties [15, 16]. Production decline, closing the city-forming enterprises, delays in the payment of wages are the reason of exacerbation of social problems (poverty, crime, reduction of the birth rate and other) and generally reducing the quality of the living environment of a man, its comfort and security [17].

The small towns characterize by unfavorable demographic situation (natural decline of population; prevalence of the people in incapable of working age; reduction of the life duration; increase the flow of migrants that can result in the social tension in future). The difficult economic situation is related, in particular, with the disappearance of the original production based on the use of own resources and many city-forming enterprises lost competitiveness in the market or became inefficient. Tourist business is often inefficient due to prevalence of a transit tourism and undeveloped touristic infrastructure [18]. In addition, many historical and cultural monuments are neglected and the cities gradually

lose their individual architectural appearance. The urban engineering communications became outdated both morally and physically.

The housing problem is important for small towns because the municipal construction is insufficient and as the result, the low-income residents cannot improve their living conditions. There is a large number of tumbledown and unsafe housing, as well as low comfort housing. The program of resettlement of tumbledown housing is not financing due to high prices of housing that unaffordable for the budgets of small towns. Cultural and leisure establishments are insufficiently developed in small towns.

Limited opportunities to receive the initial vocational, secondary special and especially higher education, limited choice of jobs and insufficient professional diversity result in irretrievable outflow of the most talented youth and qualified personnel in the larger cities. Deficiency of job places, low wages, the impossibility of self-realization, especially youth and male residents worsen the crime situation.

It is important for the sustainable economic growth assumes the development of the industries based on local specificity and new production types. The most acute problems of small towns of Tatarstan according to opinion of the local residents, can be solved by successful development of the economics that determines the improvement of the life quality and formation of financial capacity of the region, which is a key factor of positive shifts in the social sector, in increase of cultural and architectural wealth of a city, overcoming of the crisis and further prosperity of the city in general that require an increase of investments to the municipal economics, formation of an effective competitive environment and creation of the information base of the resources of the city.

Thus, the main problem related with the spatial organization of the Republic of Tatarstan, is the increase of regional disproportions in the development of regions. As a consequence, the inefficient spatial structures lose the resources and first of all – human resources.

The indicators of socio-economic development (for 2010–2012) of small towns of Kazan agglomeration, – Zelenodolsk and Kazan city and distanced less than 60 km aside Kazan are represented in Table 1.

To assess the socio-economic conditions of the towns, we used the first level indicators of the State Statistics (Table 2).

The second level is represented by 12 indicators (Table 2):

Table 1: Small towns and urban-type settlements (u.t.s.) of the Republic of Tatarstan with population over 10 thousand people

	The population of small towns,		
Small towns, large urban settlements	large urban settlements, thousand people	Large neighbor town	Distance in km on the map (along the roads)
Zelenodolsk	99,1	Kazan	38 (39)
Bugulma	89,9	Almetievsk	51 (52)
Elabuga	70,5	Naberezhnye Chelny	20 (21)
Leninogorsk	65,5	Almetievsk	35 (42)
Chistopol	61,1	Nizhnekamsk	80 (105)
Zainsk	42,0	Almetievsk	47 (57)
Aznakaevo	34,4	Almetievsk	49 (51)
Nurlat	32,1	Bugulma	39 (55)
Bavly	23,2	Bugulma	33 (38)
Mendeleevsk	22,4	Naberezhnye Chelny	22 (35)
Buinsk	20,4	Zelenodolsk	99 (174)
Agryz	19,2	Mendeleevsk	80 (112)
Arsk	18,0	Kazan	57 (60)
Kukmor u.t.s.	17,2	Arsk	64 (139)
Vasilievo u.t.s.	16,9	Kazan	26 (26)
Menzelinsk	16,5	Naberezhnye Chelny	48 (57)
Kamskie Polyany u.t.s.	14,8	Naberezhnye Chelny	64 (91)
Mamadysh	14,2	Naberezhnye Chelny	58 (80)
Dzhalil u.t.s.	13,9	Almetievsk	30 (33)
Tetyushi	11,4	Kazan	96 (166)
Bolgar	8,3	Kazan	90 (192)
Laishevo	7,9	Kazan	50 (60)

Table 2: Small towns distanced less than 60 km aside Kazan city

Town	$I_{1, \%}$	$I_2, rubles$	$I_3$ thousand people	$I_4$	$I_5$	$I_6$ thousand rubles	$I_7, \sigma$	$I_8$	$I_{10}$	$I_{11}$ thousand rubles	$I_{12}$ thousand rubles	$I_{13}$	$I_{14}$
Zelenodolsk	1,7	12601	70,1	0,52	26,7	236,8	18 371,3	0,97	0,9	13,7	19,8	7,6	2,1
Laishevo	0,32	17830	6,7	0,4	23,7	402,8	9342,4	0,97	0,9	8,0	75,3	5,8	4,9
Averages in Tatarstan	1,89	16519			23,3	339,4				15,8	68,6		

Table 3: The indices of economic development of small towns of Kazan agglomeration

Town/indicators (points)	$I_1$	$I_2$	$I_3$	$I_4$	$I_5$	$I_6$	$I_7$	$I_8$	$I_9$	$I_{10}$	$I_{11}$	$I_{12}$	$I_{13}$	$I_{14}$
Zelenodolsk	71	61	70,	52										
	92	56	44	97	92	95,6	23	48	66,7					
Laishevo	13,5	86	6,7	40	81	95	22,5	89	84	98,6	87,8	54	58,7	
Average in Tatarstan	80	80	-	-	80	80	-	-	-	-	80	-		

Note:  $I_i$  – indicators based on the indices of socio-economic development of a town (points,  $0 < I_i < 100$  and higher).

Intervals:  $0 < I_i < 25$  – index is low,  $25 < I_i < 50$  – below average,

$50 < I_i < 75$  – above average,  $75 < I_i < 100$  – index is high.

Table 4: Essential characteristics of existing and prospective clusters of the Republic of Tatarstan\*

Sector of economics	Base (general) enterprise	Location of base enterprise	Industry-specific higher educational institution	Labor specialization / component production	Cooperation communications (suppliers, consumers)	Labor resources	Coefficient of localization
Motor-car construction	+	Naberezhnye Chelny	+	+	+	+	> 50%
Petroleum, petrochemistry	+	Nizhnekamsk	+	+	+	+	> 50%
Electrical power engineering	+	Kazan	+	-	+	+/-	< 25%
Construction	-	Kazan	+	+	-	-	< 25%
IT-technologies	-	Kazan	+	-	+	+/-	> 25%
Agriculture	-	-	+	+	-	+/-	< 25%

\* - According to the data of the Ministry of Economics of the Republic of Tatarstan; Management of territorial development: The concept of territorial economic policy of the Republic of Tatarstan. Project 2009.

- $I_1$  – Indicators of socio-economic development of the city;
- $I_1$  – The registered unemployment rate, %;
- $I_2$  – Average income (monthly average salary of workers of medium- and large-size enterprises);
- $I_3$  – Number of employees of industrial productions;
- $I_4$  – Public health (number of doctors and middle-level health workers per 10 000 people);
- $I_5$  – Housing of residents (total area of residential houses per a inhabitant);
- $I_6$  – GRP per employed;
- $I_7$  – Agriculture (general volume of livestock products, t);
- $I_8$  – Transport network (ratio of the distance to the nearest large city to the length of roads);
- $I_9$  – Communication, access to the Internet (a part of enterprises using the Internet);
- $I_{10}$  – Overdue arrears of wages (per employee with arrears);
- $I_{11}$  – Investment activity (investments to the fixed assets per person);
- $I_{12}$  – Education, culture and sport (the number of educational institutions, establishments of culture and sport per 10 000 inhabitants).

Some indicators were compared to the averages of Tatarstan or Kazan. The level of these indicators is considered to be above average and at 100-point scale of indicators, the average values for Tatarstan and/or municipal district of Kazan is equal to 80 points. When, the indexes of economic development of small towns of Kazan agglomeration – Zelenodolsk and Laishevo expressed in points are as shown in Table 3.

The third level of the system of indicators involves the calculation of consolidated index of social-economic conditions in the towns, as the average of the 12 indicators:

$$I_{??} = \frac{\sum_{i=1}^{12} I_i}{12}$$

Taking into account the characteristics of the regional economics, its production, cooperation and interregional relations, resource potential besides already existing automotive, petrochemical and energy clusters, the efforts of the state administration should be targeted to the creation of clusters in IT-technologies and electronics, agriculture and construction (Table 4).

According to the data on the dynamics of development of small towns of the Republic of Tatarstan in the midterm, we have represented the “rank-size dependence” for a group of small towns on Fig. 2. Thus, a group of towns - Zelenodolsk, Elabuga, Bugulma and Leninogorsk are not a subject of Zipf’s law of “rank-size distribution” found for small towns that confirm the tendency of their growth and development corresponding to the patterns of growth and development of medium-sized and large cities. We have distinguished four groups of small towns of the Republic of Tatarstan using the indices of socio-economic development:

1 – the cities – leaders; 2 – the cities which the level of development is above average; 3 – the cities which level of development is below average; 4 – the cities at stagnation level (not found in the Republic of Tatarstan).

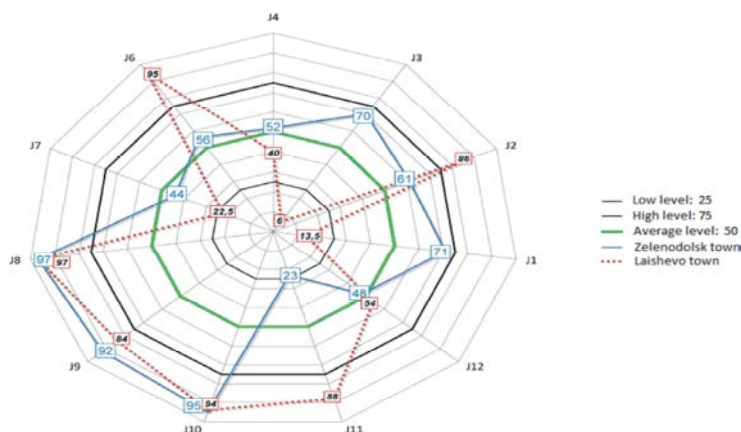


Fig. 1: Indicative model of socio-economic development of small towns by the example of Laishevo and Zelenodolsk towns (developed by the authors [16]).

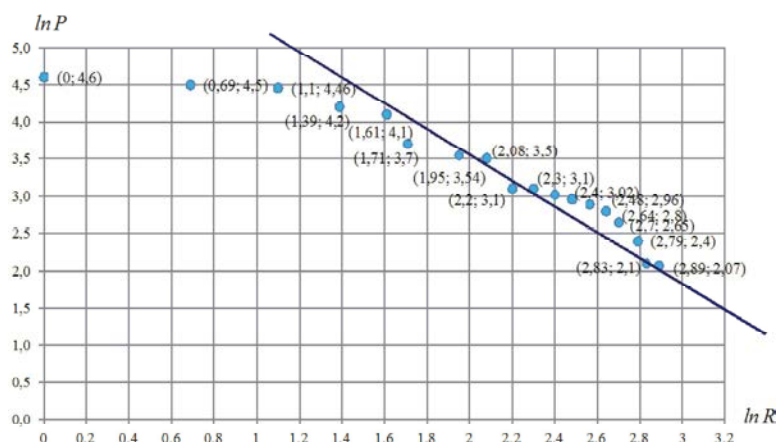


Fig. 2: The “rank-size distribution” of the group of small towns of the Republic of Tatarstan according to the number of population in 2012.

## CONCLUSIONS

Our study on investigation of the formation of the complex of theoretical and methodical statements and practical recommendations on implementation of the cluster approach to the development of small towns of the region has revealed that the development of the method of long-term planning and growth of small towns is an essential component in the implementation of regional programs of development of economics and industrialization.

The strategy of “points of growth” is based on the development of priority economic complexes, which in the short midterm will result in the greatest return and determine the development of economics in the entire territory of the Republic of Tatarstan. A breakthrough nature of this approach is based on intensive development of existing clusters of the real sector of the economics: the automobile industry, the petrochemistry, oil refining and power engineering. The capital of the Republic of Tatarstan, – Kazan and the cities – Naberezhnye Chelny, Nizhnekamsk, Elabuga, Almetievsk and Zelenodolsk should become the “points of economic growth” taking into account the highest efficiency of production facilities.

Development of Kazan agglomeration is stipulated by the development strategy of Kazan city as a capital of the Republic of Tatarstan and related with the extension of its influence beyond Kazan agglomeration with maximum use of the advantages of the central market conditions, implementation of the capacity of the historically-formed specializations of surrounding regions with innovative

diversification of their economies. The organization of the International Summer Universiade – 2013 can promote the development of the transport network, information, communication and social infrastructure.

Expansion of the network of high-speed motorways will create conditions for the formation of new places of settlement in the Kazan agglomeration with a high quality of life and business infrastructure, which along with a powerful scientific and educational potential of the capital and research and innovation infrastructure will create the conditions for the rational allocation of new high-tech industries in the manufacturing sectors of economics, modern transport-logistics and service management systems.

Development of Sviyazhsk logistic center, international and Russian transport ways will reduce transport costs and attract the investments to manufacturing industries focused on the central market, increase labour mobility of the residents.

Expansion of Zelenodolsk agglomeration will largely depend on the development of transport and business services, high-tech import-substituting sectors of the manufacturing industry such as the military-industrial complex, shipbuilding, automobile industry, as well as traditional industrial sectors of the North-Western regions – automobile industry, instrument engineering, electrical engineering, metallurgy, chemistry and biopharmaceuticals.

Thus, the development of the region until 2014 will largely depend on the existing points of fast economic growth, which include: Kazan and Naberezhnye Chelny agglomerations and South-Eastern economic zone, i.e. the

Table 5: Dynamics of development of small towns of the Republic of Tatarstan in near-term

Town	R (range)	LnR	LnP	Growth zone	Groups of small towns of Tatarstan Republic	Groups of small towns of Tatarstan Republic in midterm
Zelenodolsk	1	0	4,6	1	1	1
Bugulma	2	0,69	4,5	2	2	1
Elabuga	3	1,1	4,26	1	1	1
Leninogorsk	4	1,39	4,2	2	2	1
Chistopol	5	1,61	4,1	2	2	1
Zainsk	6	1,71	3,7		3	2
Aznakaev	7	1,95	3,54	2	3	1
Nurlat	8	2,08	3,5	2	3	1
Bavly	9	2,2	3,1		3	2
Mendeleevsk	10	2,3	3,1		3	2
Buinsk	11	2,4	3,02		2	2
Agryz	12	2,48	2,96		3	2
Arsk	13	2,565	2,89		2	2
Menzelinsk	14	2,64	2,8		3	3
Mamadysh	15	2,7	2,65		3	3
Tetyushi	16	2,79	2,4		2	2
Bolgar	17	2,83	2,1		3	3
Laishevo	18	2,89	2,07		2	1

Note: 1, point of economic growth in the short midterm – I stage; 2, point of economic growth in the short to medium term – II stage.

Table 6: The groups of small towns

Groups of small towns of the Republic of Tatarstan	Part of small towns in present, %	Part of small towns in near and midterm, %
1	11	44.4
2	39	38.9
3	50	16.7
4	-	-

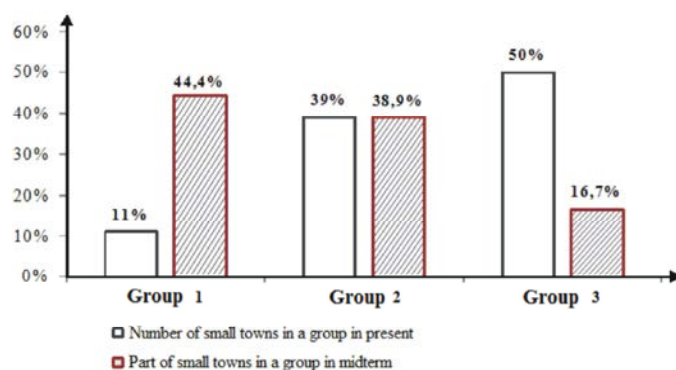


Fig. 3: Dynamics of development of small towns of the Republic of Tatarstan in the midterm

territories with the most intensive economic growth, developed infrastructure and territories focused on mining and processing.

After 2012, a growing contribution to regional development will be ensured by advanced centers of economic growth of the Republic of Tatarstan, which include industrial and agricultural regions with formed and sufficiently diversified economics, the potential of innovation development, the high level of development of human potential possessing unique natural resources and landscapes with important historical and cultural heritage.

In the short and medium term, there will be significant increase of the number of small towns in groups 1 and 2 related with the implementation of the strategy of territorial development of the Republic of Tatarstan (Table 6, Fig. 3).

At the second stage of territorial economic policy implementation, the points of economic growth should be formed on the territory of Chistopolskiy, Nurlatskiy, Leninogorskiy, Aznakaevskiy, Bugulminskiy, Leninogorskiy, Cheremshanskiy municipal districts, whose economics is significantly diversified.

Ensuring of food security should become a general development strategy of agricultural districts of the Republic.

Thus, the formation of new “points of growth” will result in reduction of regional disparity and a decrease of excess of the concentration of economic resources in urban agglomerations, at that, one of required conditions of the fast growth of infrastructure is accelerated development of energy and transport infrastructures and the telecommunications.

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