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EXPERIENCE OF THE REPUBLIC OF KAZAKHSTAN IN REALIZATION OF SUSTAINABLE DEVELOPMENT POLICY

Key notions that uderpin the "sustainable development" concept are discussed. Based on the calculation methodology of the region's sustainable development, the level of development of Pavlodar region was defined. A framework for developing the indices which define the level of region's sustainable development and the algorithm for realization of sustainable development policy are suggested.

Keywords: *sustainable development, region; integral indicator; sustainable development indices; state policy.*

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ДОСВІД РЕСПУБЛІКИ КАЗАХСТАН В РЕАЛІЗАЦІЇ ПОЛІТИКИ СТІЙКОГО РОЗВИТКУ

У статті розглянуто основні поняття, що визначають «стійкий розвиток». На основі методики розрахунку стійкості розвитку регіону визначено рівень стійкості Павлодарської області. Запропоновано процес розробки індикаторів визначення рівня стійкого розвитку регіону, алгоритм реалізації політики стійкого розвитку.

Ключові слова: *стійкий розвиток, регіон, інтегральний показник, індикатори стійкого розвитку, державна політика.*

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ОПЫТ РЕСПУБЛИКИ КАЗАХСТАН В РЕАЛИЗАЦИИ ПОЛИТИКИ УСТОЙЧИВОГО РАЗВИТИЯ

В статье рассмотрены основные понятия, определяющие «устойчивое развитие». На основе методики расчета устойчивости развития региона определен уровень устойчивости Павлодарской области. Предложен процесс разработки индикаторов определения уровня устойчивого развития региона, алгоритм реализации политики устойчивого развития.

Ключевые слова: *устойчивое развитие, регион, интегральный показатель, индикаторы устойчивого развития, государственная политика.*

Problem setting. Since the declaration of independence over the two decades the Republic of Kazakhstan has become a modern competitive nation which has successfully implemented large-scale political, economic and social reforms. There are 14 regions, 86 cities including 2 cities of republican subordination (Astana, Almaty) in the republic. The economic policy of Kazakhstan is directed at the diversification of the national economy and attributing the sustainable character to its development. However, the achieved economic growth of the republic in most cases has been provided at the expense of developing and using of natural resources, mainly oil and gas under the favorable opportunities of the world markets. Under the current conditions such model is not fully meeting Kazakhstan's national interests and does not correspond to the world tendencies.

Latest research and publications analysis. In relation to the concept of sustainable development that was suggested at the turn of 80s–90s the term "sustainable

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development" is becoming more widespread. A number of well-known foreign scientists, such as: P. Samuelson (2002), J. Shumpeter (1982) and others devoted their research to theoretical, methodological and practical aspects of the national economic systems development.

Sustainable development issues are also reflected in the papers of such economists from the CIS: M.M. Guzev (1997), S. Bobylev (2004), V.M. Kotlyakov (1997) and others.

The problems of economic development and the ways to solve them are investigated in the papers of Kazakhstan's scientists: E.N. Sagindikov (2007), M.V. Akhmedyarova (2005) and others. At the same time the issues of sustainable economic development at the regional level have a special meaning for Kazakhstan.

Contemporary economic literature provides a lot of definitions of sustainable development reflecting important economic aspects (Guzev, 1997):

- the development that does not impose additional expenditures on the following generations;
- the development that minimizes external effects between generations;
- the development that provides constant simple and/or extended reproduction of production potential for perspective;
- the development by which the humanity needs to live only on the percentage from natural capital not touching it itself.

Development might refer to inevitable and qualitative transformations of the object leading to the state which is determined as a process of logical change: transition from one state to another, from past qualitative state to a new one, from simple to difficult, from the lowest to the highest (Bobylev, 2004).

According to J. Schumpeter (1982) development means such changes of economic circulation that economics causes itself, i.e. only random variations are represented for it and are not brought to the motion by impulses from outside of national economy. "If it had suddenly been found out that there were no similar self-arising in economic sphere reasons for changes and phenomenon which in reality was called economic development, based only on changes of indices and economic adjustment to them, people would have got every right to speak about a absolute absence of economic development" (Bobylev, 2004).

The economist L.E. Basovskiy (2001) assumes that from the scientific point of view such notion cannot exist because in the reality "everything flows and everything changes", so stability is considered relative.

In contrast to this statement it can be declared that everything in this world is relative: "stability", "development", "motion", "rest" etc. However, practice confirmed the validity of this notion.

S.I. Valyanskiy and D.V. Kalyuzhnyy (2002) argue that "development basically cannot be sustainable", i.e. both notions "sustainable" and "development" contradict each other.

Nevertheless, development is a discrete case of motion when complication and the level of organizational system grow and its entropy decreases. According to L.I. Nemirov's opinion, development (both on macro- or microlevels) in the foreseeable period of time is sustainable if it keeps its essence, wholeness, i.e. it neither changes, nor exposes to threat any characteristic, object or attitude (Nemirov, 2000).

V.I. Danilov-Danilyan (1997) considers the category under study only from the position of ecology, i.e. he specializes the context of the notion. V.I. Danilov-Danilyan, specifying the notion "sustainable development", insists that "no matter how many economists, sociologists, culture experts and specialists from any other spheres explain the concept, sustainable development has both origin and content mainly ecological" (Danilov-Danilyan, 1997). There is no doubt that integrity and reproducibility of biosphere are the most important components of sustainable development.

The most popular, well-known definition of "sustainable development" is the definition introduced by the UN International commission on environment and development (1987) headed then by the Prime-Minister of Norway Brundtland: "Sustainable development is such development that satisfies the need of present time but it does not expose to threat the ability of future generations to satisfy its own needs (Koptyug, 1992). It includes the two key notions:

- needs, mainly those which belong to the poorest people that should become a subject of paramount priority;
- limitation, specified by technology conditions and society organization applying to environment ability to satisfy present and future needs".

A number of preparatory events preceded the conference in Rio de Janeiro (Moris Strong) (Figure 1).

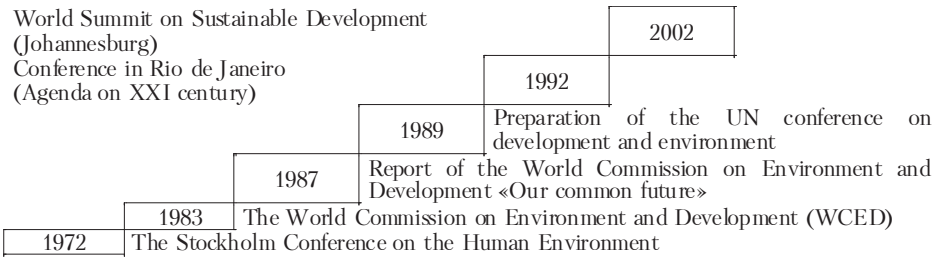

Figure 1. **International level events on the sustainable development issue,** *made by the author*

Generalization of theoretical provisions of different authors in understanding the category of "sustainable development" allows to formulate the two main interpretations of the notion in narrow and wide senses. In the narrow sense the focus is made mainly on its ecological component that relates to optimization of activities in biosphere. In the wide sense sustainable development means the process of a new type of civilization functioning based on radical changes of its historically formed characteristics (economic, social, ecological, culturological and others).

Sustainable development of a country is being provided with sustainable development of each region. Features of regional development are determined both objectively (the place of a region in the social division of labor, sectoral structure, geographical location, natural resources) and subjectively (the methods of regional management, stability of conditions of business enabling, the purposefulness of regional system functioning as a whole) factors. The latest ones are significant and determinative for the creation of effective mechanism of region's sustainable development management.

Elements, reasons and conditions that can be considered as a driver for economic events and processes are understood within the impact of the following factors. Their influence is an embodiment in the change of economic system quality, speed of growth, absolute values of specific indicators, groups of economic indicators characterizing the system condition (Rayzberg, 1997).

The analysis should be revealing the region's ability to self-development in the market environment to ensure reproduction of social and material conditions and population livelihoods, to satisfy community needs, objectively fixed for the region in the process of territory division of labor; to create conditions (resources, social, organizational and etc.) for decent living conditions for not only living now but also for future generations, too.

Unresolved issues. The study of the wide range of Kazakhstan and foreign authors' papers has shown that there is no generally accepted methodology for the determination of social, ecological and economic systems stability. In this case it is better to say that there is no system for determining the national or regional sustainable development and the indicators under the current methodology. At the same time the existing methods of regional sustainable development assessment do not often take into account the influence of social factors.

Methodology. It is possible to define two most often widely spread main approaches to the assessment of regional systems stability:

а) the construction of integral, generalizing, aggregating index for the sustainable development assessment;

б) construction and analysis of the system of indices, each reflecting a separate aspect of sustainable development.

The integral index of sustainable development assessment is determined by the product of indices changes of the complex's private criteria of economic (K_{econ}), social (K_{soc}) and ecological (K_{ecol}) indicators, and the formula would be:

$$K_{\text{int}eg} = \sqrt[3]{K_{econ} \times K_{soc} \times K_{ecol}}. \quad (1)$$

Having formed the matrix of values in accordance with the represented system of indices it is necessary to transform them into the system of standardized values of corresponding indices by the following formula:

$$z_{ij} = \frac{X_{ij} - \min(x_{ij})}{\max(x_{ij}) - \min(x_{ij})}, \quad (2)$$

where X_{ij} is the standardized value of index j for i year.

For the overall assessment it is necessary to take into account that for the standardized value of a negative index the following formula of calculation is used:

$$z_{ij} = \frac{\max(x_{ij}) - x_{ij}}{\max(x_{ij}) - \min(x_{ij})}. \quad (3)$$

On the basis of the standardized values the overall index on the selected criteria is defined by the formula:

$$y_i^k = \frac{\sum_{j=1}^{n} z_{ij}}{n}, \quad (4)$$

where y_i^k – the overall index i region on selected criteria; n – the number of defined indices.

Key research findings. We will calculate the integral index of sustainable development determination of Pavlodar region of the Republic of Kazakhstan. One of the hugest in the CIS's economic space territorial production complex with optimal combination of traditionally difficult productions and enterprises dealing with the development of mineral and hydrocarbons crude has been formed historically here. The Pavlodar region being situated in the north-eastern part of the Republic of Kazakhstan occupies the area of 124.8 ths of square km (4.6% of the Republic's total area). The choice is specified with the fact that the region is one of the industrial areas of the republic and correspondingly has a big load on the environment.

The data for calculation of the integral index of the region's sustainable development are shown in Table 1.

Table 1. **Social, ecological and economic development indices of Pavlodar region, 2007–2011**

Index	Index value by years				
	2007	**2008**	**2009**	**2010**	**2011**
Social development indices					
- the level of unemployment, %	6.9	6.4	6.4	5.6	5.2
- the balance of migration, people	46	-779	-1381	-405	-1608
- the overall area of apartment houses, ths square m	164.9	143	142.1	82.4	75.1
- dead from all reasons, persons	8924	8456	7987	8289	8210
- average month salary, tenge	46297	52227	56113	64955	75338
- expecting life interval, years	65.67	66.48	67.93	67.8	68.23
- infant death, persons	123	261	218	158	173
- the correlation of income used for consumption to the values of living wage, %	208.2	200.5	204.1	229.8	194.5
- the values of living wage per capita, tenge	8881	11099	11293	12173	14860
- the volume of health and educational services, mlrd tenge	38.3	38	45.3	54.6	-
Economic development indices					
- GRP per capita, ths tenge	793.9	1153.6	1160.8	1384.6	1848
- the index of physical volume of industrial production, %	106.3	104	99.3	115.2	103.4
- the index of physical volume of agricultural products, %	110.9	85.5	140.6	78	109
- investments in basic capital, mlrd tenge	129981	148435	165788	185492	207716
- retail trade turnover, mln tenge	77455	89930	95921	118996	186347
- degree of depreciation of capital assets, %	35.4	35	37.9	38.3	37
- income in economics, mlrd tenge	38.3	62.4	94.1	219.70	-
Ecological development indices					
- current costs for environment protection, mln tenge	6857.6	11254.7	11750.1	12250.8	17152.4
- emissions of the most widespread air pollutants from stationary sources, ths tons	575	597	561	572	632
- utilized pollutants by treatment plants, ths tenge	2829.3	3083.5	376.4	3226.4	3381.9

Source: Annual Statistical Report, 2012.

Calculate the overall index on the basis of the standardized values by the formula (1) (Table 3).

Thus, the integral index of stability can be defined by the formula (1) on the basis of the obtained data:

$$K_{int}2007 = \sqrt[3]{0.24 \times 0.26 \times 0.53} = 0.85;$$

$$K_{int}2008 = \sqrt[3]{0.42 \times 0.29 \times 0.6} = 0.88;$$

$$K_{int}2009 = \sqrt[3]{0.68 \times 0.34 \times 0.5} = 0.84;$$

$$K_{int}2010 = \sqrt[3]{0.79 \times 0.67 \times 0.73} = 0.79;$$

$$K_{int}2011 = \sqrt[3]{0.93 \times 0.6 \times 0.67} = 0.78.$$

Table 2. **The standardized values of indicators of social, ecological, economic development of Pavlodar oblast, 2007–2011**

Index	Standardized values by years				
	2007	**2008**	**2009**	**2010**	**2011**
Social development indices					
- the level of unemployment, %	0	0.29	0.29	3.7	1
- the balance of migration, people	0	1.8	3.2	1	3.7
- the overall area of apartment houses, ths square m	1	0.8	0.7	0.1	0
- dead from all reasons, persons	0	0.03	0.06	0.04	0.04
- the average month salary, tenge	0	0.2	0.3	0.6	1
- expected life interval, years	0	0.3	0.8	0.8	1
- infant death, persons	1	0	0.3	0.7	0.6
- the correlation of income used for consumption and the values of living wage, %	0.4	0.2	0.3	1	0
- the values of living wage per capita, tenge	0	0.4	0.4	0.6	1
- the volume of health and educational services, mlrd tenge	0.02	0	0.4	1	-
Economic development indices					
- GRP per capita, ths tenge	0	0.3	0.3	0.6	1
- the index of physical volume of industrial production, %	0.4	0.3	0	1	0.3
- the index of physical volume of agricultural products, %	0.5	0.1	1	0	0.5
- investments in basic capital, mlrd tenge	0	0.2	0.5	0.7	1
- retail trade turnover, mln tenge	0	0.1	0.2	0.4	1
- degree of depreciation of capital assets, %	0.9	0.9	0.1	1	0.4
- income in economy, mlrd tenge	0	0.1	0.3	1	-
Ecological development indices					
- the current costs of environment protection, mln tenge	0	0.4	0.5	0.5	1
- the emissions of the most widespread air pollutants from stationary sources, ths tons	0.8	0.5	1	0.8	0
- the utilized pollutants by treatment plants, ths tenge	0.8	0.9	0	0.9	1

Source: Annual Statistical Report, 2012.

Table 3. **Overall indices of Pavlodar region's sustainable development**

Index	**2007**	**2008**	**2009**	**2010**	**2011**
Indices of social development	0.24	0.42	0.68	0.79	0.93
Indices of economic development	0.26	0.29	0.34	0.67	0.6
Indices of ecological development	0.53	0.6	0.5	0.73	0.67

The analysis of integral values of the index shows the tendency of decrease in stability development of Pavlodar region in 2011. Although the index itself is high enough and we can talk about the high degree of region's stability.

The given calculation method of sustainable development for regional systems is more acceptable as it is based on available information and covers wide enough data.

Development prospects. It is necessary to develop the indices of sustainable development for regions (Figure 2). The stages of sustainable development indices of regional systems are shown in Figure 2.

The experience in realization of the previous state programs revealed significant difference between the events carried out by the state authorities and those that were

demanded within the program. Alhough, the indices should exactly correspond to those aims that are reflected in the Conception of the Republic of Kazakhstan's transition to sustainable development for 2007–2024.

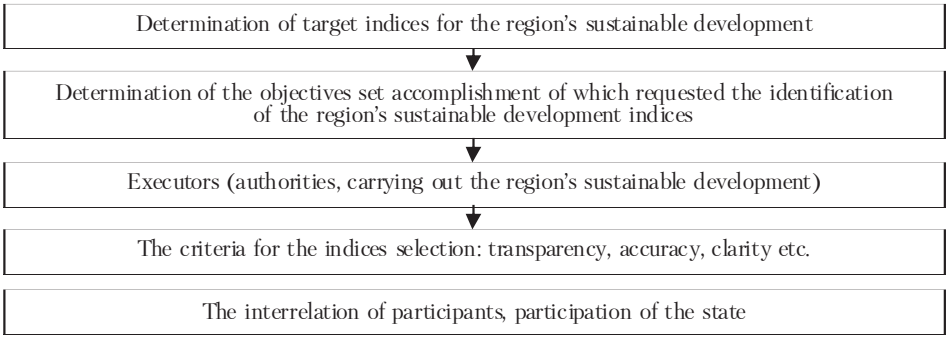

Figure 2. **Stages in the development of indices of sustainable development of regional systems,** *made by the author*

The main principle of sustainable development indices should become the principle of transparency. Moreover, the development indices are be held with attracting of wide public community.

One of the reasons of ineffective optimization policy in the field of sustainable development of regional systems is sometimes wrong understanding of the aims of strategic documents by local executive authorities.

The transition of the Republic of Kazakhstan to sustainable development during 2007–2024 has been formally approved by the decree of the President of the Republic of Kazakhstan. The issues of efficiency of resource and energy usage, balanced demographical policy and providing ecological stability are denoted as priorities there. The Concept was presented in the UN in May 2007.

Approved in 2007, the Ecological Code of the Republic of Kazakhstan allowed the harmonization of Kazakhstani with the world experience and international standards. Besides acts of national legislation, 20 recommended and governing documents of different international organizations, about 30 directives of the European Union and laws of other nations and also the project of the model code of CIS have been taken into account in it.

The Ministry for the environmental protection of the Republic of Kazakhstan is the central executive authority of the Republic of Kazakhstan carrying out governing and intersectoral coordination of state policy realization in the field of environment protection and nature exploitation and providing ecological sustainable development.

We have shown the algorithm of policy realization of sustainable development at the macro- and microlevels in Figure 3. The spheres that are poorly developed in Kazakhstan are marked with italics.

In coordination of state and regional interests the exponent of the first one is the central management authorities, and the second one is both local state management authorities and population directly. Obviously, the interests of all the mentioned entities and participants are contradictory. There are the following groups of contradictions (Sagindikov, 2007):

- between competitive interests of different regions, both commodity producers and objects of state and private investments and also other manifestations of regional policy;

- between interests of regions and huge owners of production means (the latter in some cases do not want to develop production in which the region is interested in do not wish to disassemble existing ones in which the region does not have interest);

- between the interests of state and separate regions in the part of distribution of the property, authority, tax and custom charges etc.;

-between the location of state production objects and ecological condition of natural environment in separate regions. The region as a subject of nature exploitation can be strongly interested in the formulation of ecological limitations (or even bans) to scales of production and processing of resources, their concentration.

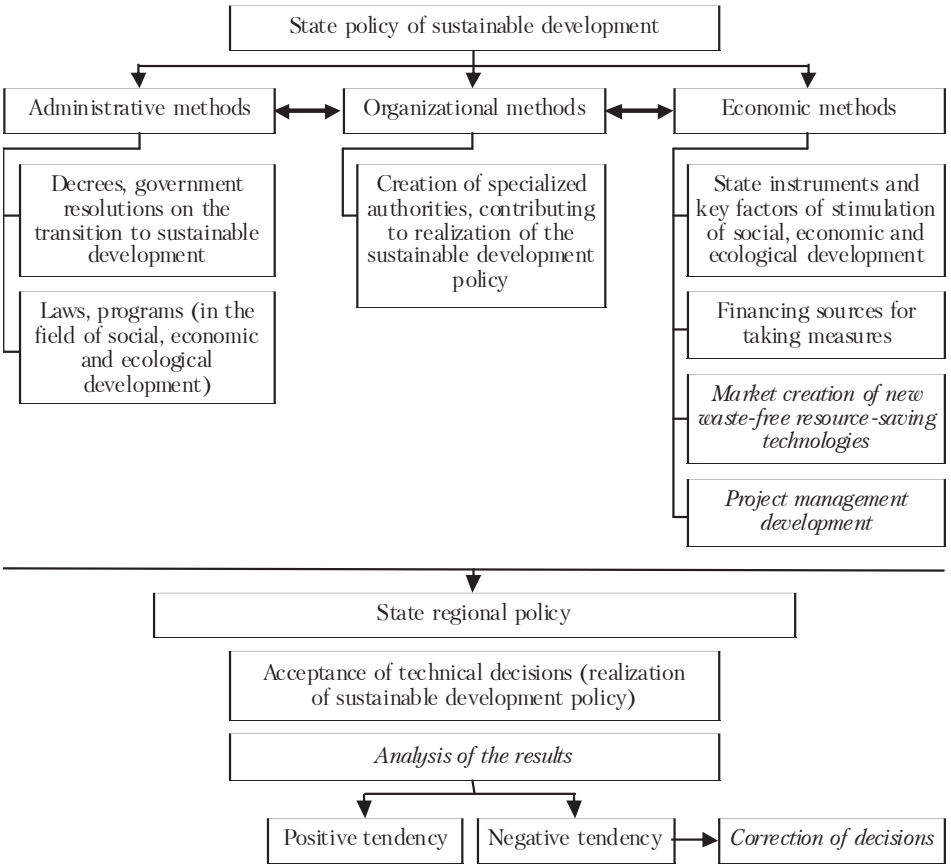

Figure 3. **Algorithm of sustainable development policy realization,** *made by the author*

Factors and reasons which hinder sustainable development of Kazakhstan are the following (Akhmedyarova, 2005):

- weak ideological, spiritual, informative and educational public policy;

- not developed intersectoral system of society development, distorted thinking, social stereotypes, laws and behavior. The definition of sustainable development, its criteria, characteristics and indices are not defined by the law;
- underestimated role of "general factor of production", nonproductive and noneconomic assets, human and ecological capital. Economic advantages of sustainable development are not revealed;
- main part of the capital is formed at the expense of disintegrational work which is destroying natural and social (human) relationships. The sector of shadow economy is growing. The principles of confrontation prevail above the principles of cooperation;
- raw materials orientation of productive forces;
- the absence of personal stimuli in social progress. Differences of interests at the local, departmental, national and international levels have not been overcome. Weak interdepartmental and cross-sectoral integration;
- the absence of reliable relations between the center and regions;
- the absence of sustainable development indices in indicative planning, in reporting and assessment indicators of executive bodies' work;
- the lack of integrity and agreement on the legislation basis, low stimulating and regulating function of laws and standards;
- general public has not enough been involved in the process of decision-making;
- the absence of complex informational and organizational assistance to socially important initiatives in business, science and public activity;
- the absence of common priorities in the international donors' work, that leads to doubling and unconformity of projects, extremely ineffective usage of financial support.

These barriers in different variations are inherent not only for Kazakhstan but for other developing countries.

Thus, the increase of management decisions efficiency for the stabilization of social and economic situation and the creation of prerequisites of economy's sustainable development should be in the number of priority objectives for regional management authorities.

Conclusions. Summing up the theoretical aspects of sustainable development of regional systems and those problems with which the author has met in determining the level of sustainable development of the specific region we can conclude that:

- generally accepted formulation of sustainable development of regional systems is absent;
- there are many methods for determining sustainable development of regional systems with different indices;
- management of sustainable development of the region is absent;
- it is necessary to develop indices on the sustainable development of a region;
- one of the reasons of ineffective optimization policy related to sustainable development of regional systems is sometimes the wrong understanding of the objectives set in strategic documents by local executive authorities.

Elimination of the given problems would allow further sustainable development of the Republic of Kazakhstan.

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