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# SUSTAINABLE DEVELOPMENT OF THE UKRAINIAN AGRARIAN SECTOR: PERSPECTIVES AND CHALLENGES

## Abstract

Sustainable development of the Ukrainian economy is rather complicated, extraordinary and controversial task for Ukraine. By fulfilling the obligations assumed by the world community to implement the main provisions of sustainable development, Ukraine undergoes comprehensive structural transformations, which undoubtedly have a significant impact on the development of its agrarian sector. Administrative and territorial reform is one of the major structural changes, which is taking place at the present time and has a direct impact on the agrarian sector development. The research is aimed at deepening the methodological principles for predicting the effectiveness of new institutes and rules caused by agrarian and structural transformations in the national economy, as well as substantiating the cluster model of sustainable development of the agrarian sector.

The provision of the economic theory of "path dependence" is the methodological basis of the research. In the article, based on a combination of theoretical and empirical methods, the transformation of the state of the socio-economic system, which is conditioned by the introduction of a new rule in implementing the reforms, is researched. Under these conditions, the effect of hysteresis may arise – the new rule can fall into the institutional trap and stay in it even when perturbations often disappear.

Given the analysis of the current implementation of the sustainable development model in the agrarian sector, the authors focus on combining the efforts of management bodies, socially responsible business and rural population and substantiate the need to improve the system of functional environment, which should be based on the cluster concept of development. It is precisely the cluster structure that will ensure the effectiveness of production relations between market agents, minimize the emergence of ineffective institutions and reduce the likelihood of institutional traps in the future.

**Keywords** agrarian economics, sustainable development, cluster model, institutions, path dependence

**JEL Classification** O10, Q10, Q18

## INTRODUCTION

To date, Ukraine has chosen a sustainable development model, according to which all vectors of socio-economic development are aimed at harmonious combination of the economy with minimal impact on the environment. But a fairly large number of social, economic, environmental and institutional issues that have a significant impact on the agrarian sector of the economy remain unresolved.

The development of the agrarian sector will be significantly affected by the administrative and territorial reform, during which a decentralization of authoritative and financial powers takes place, the regulatory and legal framework is being improved and updated, new united territorial communities (UTCs) are formed, and some rural UTCs are combined with urban communities. The newly established rural com-

munities receive quite significant powers that were not previously attributed to village councils; access to significant state aid is expected, which should be aimed at creating a supportive environment for the further effective development of this community.

The study of the functional environment for the sustainable development of the agrarian sector of Ukraine's economy gives reason to argue about the existing rather low level of its institutional support. It is precisely the mechanism of implementing the sustainable development strategy among the legal, organizational, financial, economic-innovative, social, environmental and information directions of development, where institutional determinants are instrumental.

Therefore, for the domestic agrarian science, it is extremely important to develop a methodology aimed at identifying and depriving the abovementioned institutional traps, as well as developing effective mechanisms for ensuring sustainable development of the agrarian sector of the economy.

## 1. LITERATURE REVIEW

A great number of scientists research the problems of institutional development, as well as the formation of new institutes and their influence on the functional environment of sustainable development. Lopatynskyi (2006), Tirole (1993), Bardhan (1997), Nelson (1997), Winter (1997), North (1997), Arthur (1994), Polterovych (1999), Pochenchuk (2016) and others are among them.

Lopatynskyi (2006) emphasizes the main determinants of institutional influence on sustainable agrarian development: institutional environment and institutions; standards and rules; property rights; economic and managerial agents and their behavior; limited rationality; asymmetry of information; execution of agreements and contracts; contractual terms; transactions and transaction costs; trust; opportunistic behavior; social choice; law economics; economic history and evolution, etc. The author also states that in order to realize institutional capacity, it is necessary to exclude the misuse of institutions, to overcome their inconsistency, to transform the institutional system into a decisive driver of the economic development. Accordingly, there is a dual link between the institutional system and sustainable development: institutions not only act as sources of sustainable development, but also are themselves the result of the sustainable development (Lopatynskyi, 2006).

North (1997), Arthur (1994), and Polterovych (1999) note that in the carrying out modern structural reforms (aimed at increasing the economic system efficiency), stable ineffective institutions or rules of

behavior that influence the transition to sustainable economic growth may appear. They call an ineffective stable rule (ineffective institution) an institutional trap. As with any norm, the stability of the institutional trap means that, with a small temporary external influence on the system, the new rule remains in the institutional trap, perhaps only slightly changing the parameters of the state, and after removing the disturbance returns to the former equilibrium (North, 1997; Arthur, 1994; Polterovich, 1999).

Tirole (1993) stresses that researching the historical context of state development should consider the scientific developments of economic theory, including developments in the theory of privatization, the study of financial markets, research on rent-oriented behavior and corruption, and also non-economic factors such as "government trust credit" or "firm reputation".

Bardhan (1997) and Nelson et al. (1982) shape and use new indices characterizing the institutional structure of the economic system, namely the liberalization index, the corruption index, and the index of political will.

The issue of general institutional changes was posed by Veblen and is central to chapter 11 of North's book (North, 1997). North refers to Arthur's research on self-sustaining mechanisms in the economy. Arthur illustrates his ideas with the help of dynamic models, interpreted mainly as models of technological development. North notes that the mechanisms described by Arthur also play an important role in the evolution of institutions, and highlights, in particular, two factors that, in his

opinion, determine the direction of institutional change: the increasing scale of returns and transaction costs (Arthur, 1987; Arthur, 1994).

Polterovich demonstrates the applicability of scale of impact and transaction costs to institutions such as barter, non-payment, tax evasion, and corruption. The author argues that, along with transaction costs, the costs of transition from one rule to another, that is, transformational costs, and transitional rent, the income arising in the private sector as a result of the movement to the balance after the reforms, play an important role for institutional changes (Polterovich, 1999).

Porter (2005), Shebanin (2012), Vasylieva (2011), Bihus (2017), Ilchuk (2008), Katan (2012), Kropyvko (2008), Maksimova (2015), Cvijanović, Mihailovich, Chavlin, and Chavlin (2015), Sobkevych (2014) have dedicated their research to the study of theoretical, methodological and applied issues of the development of cluster structures and their impact on the sustainable development of enterprises, industries, regions, and domestic economy as a whole.

Thus, Vasylieva (2011) considers the cluster as an instrument for increasing the competitiveness of the agrarian sector of the economy; Bihus and Holikova (2017) investigate clusterization as a prospect for development of international tourism and an activator of economic development in Ukraine; Ilchuk, Lysenko and others (2008) consider formation of clusters as a means of sustainable socio-economic development of the region; Katan (2012) deals with the theoretical foundations of shaping a regional innovation-oriented cluster of the agrarian sphere; Kropyvko et al. (2008) substantiate the possibility of developing agrarian enterprises based on a cluster approach.

Many other scientists also stress the need to support the development of clusters in their countries. Thus, Maksimova (2015) emphasizes the need to create agro-industrial clusters and considers their development as an element of national security. Serbian scholars Cvijanović et al. (2015) explore cluster structures as a point of growth of the national economy, as well as an instrument for ensuring the competitive advantages of the national economy in the global economic space (Maksimova, 2015; Cvijanović et al., 2015).

Porter emphasizes that with the provision of sustainable development, a cluster strategy should prevail, which is a rather popular tool of state policy for constantly restoring economic growth and increasing the competitiveness. According to the author, the most competitive industries in the world are developing on the cluster principle, and the state policy to support the creation of clusters increases the competitiveness of companies – cluster members and the national economy as a whole (Porter, 2005).

Some interesting and important researches, concerning the issues of sustainable development, were made in the spheres of agriculture and environmental economics. Thus, Semenda et al. (2018) substantiated the necessity to define and generalize the criteria for assessing the ecological and economic efficiency of using agricultural lands in Ukraine. Cheteni (2017) investigated the role of biofuels in agriculture as the pre-condition for its sustainable development. Chifurira et al. (2016) linked sustainable economic growth in agriculture of Zimbabwe with climate modelling.

Interesting and fully acceptable for sustainable rural development in Ukraine is the creation of tourism clusters. Bihus and Holikova (2017) in their work consider the tourism clusters creation through combining industrial, technological, marketing design, science, training specialists in the tourism sector, nature-recreational and historical and architectural objects. The authors characterize the formation of the cluster in tourism as a new step in the cooperation of enterprises, institutions, organizations, institutes and other economic entities to form and promote the tourism product market and to achieve common economic success (Bihus et al., 2017).

Discussing the effective use of the cluster approach in the agrarian sector, Katan (2012) notes that, together with the increase of the cluster enterprises competitiveness, one of the main goals of the cluster is achieved, namely the transition to sustainable development of agrarian production through the transition of all cluster participants to the investment and innovation development pattern. First of all, it involves the use of scientific and technological progress and the foundations for sustainable development of rural areas, which are engaged in agrarian activities by cluster subjects, and primarily by farmers and private peasant farms (Katan, 2012).

However, the problems of forming an effective institutional environment, as well as the development of cluster structures and their impact on the sustainable development of the agrarian sector of the economy, remain underdeveloped and need to be revised and supplemented, taking into account significant changes in the development of the agrarian sector and rural territories at the regional, national and/or international levels.

## 2. METHODS

The methodological basis of the study is a systematic analysis and a complex, dialectical approach that involves the study of individual elements and the system of functional support for the agrarian sector sustainable development in motion, changes, and continuous updating. The need to integrate the authority efforts, socially responsible business and rural population to implement a model of sustainable development was justified using the method of theoretical generalization. In studying the institutional environment, the main provisions of the path dependence theory were used. A cluster structure of the sustainable development model for the agrarian sector was designed based on a systematic approach using logical and heuristic methods.

## 3. AIMS

The purpose of the study is to offer effective methodological approaches to forecasting the effectiveness and efficiency of new institutions and standards arising during structural transformations in the national economy, as well as to formulate provisions on the feasibility of forming a functional environment for ensuring the sustainable development of the agrarian sector of the economy based on the cluster model.

## 4. RESULTS

The agrarian sector has always had a significant impact on the overall standing of the Ukrainian economy. However, today, not only the state of the national economy, but also national and food security, the quality of life of a large number of rural

population, export performance and the inflow of foreign currency, Ukraine's perception of the international food arena and much more depend on its condition and further development. However, the current state of the agrarian economy is not well-conditioned. This is affected by a lot of previously installed and still unrepaired errors, or institutional traps, which do not allow the agrarian sector to develop on the basis of sustainability. Accordingly, the Ukrainian agrarian sector should be competitive both on the domestic and foreign markets, to carry out science-intensive, rather than energy, and resource-intensive production, to have a free internal market, to maximize the pace of innovation, to provide material well-being for both rural and urban populations, etc.

These characteristics suggest the need to reform primarily the institutional structure of the country. The implementation of reforms necessitates adjusting the country's development strategy. There are strategic developments in Ukraine, and they need to be improved in the light of the economic science achievements. It is inappropriate to copy someone else's experience, as it is impossible to expect the corresponding results in another institutional environment. The research of domestic scientists based on examples of a reformed non-agrarian sphere confirms this repeatedly. For example, in Ukraine, one of the directions of reforms is the introduction of insurance medicine, appealing to the experience of the effective work of such a model of financing medical medicine abroad and the corresponding reform in Moldova. However, the reform carried out in Moldova did not bring the desired results: the practice of the so-called "envelope thanking" and the purchase of the necessary medicines of better quality at their own expense remained, but the expenses of the population also increased by the value of the health insurance cost, which, in most cases, serves as a pass to the doctor. Thus, it is necessary to modify foreign experience taking into account its own resource and institutional capacity (Pochenchuk, 2016).

However, ensuring sustainable development is an extremely difficult task, especially if there are no effective state policy mechanisms. Nowadays, many Ukrainian scholars have emphasized that in Ukraine, even the preconditions for the institutional provision of sustainable development

have not been created. That is, for many years, the mechanisms of interaction between the state and business have not been formed; the agricultural advisory service does not work; the agricultural market regulation tools are inefficient; at the initial stage are the transparent channels of agricultural production and the system of agrarian logistics and many other factors that do not contribute to the sustainable development of the agrarian economy, but act as limiting factors.

Considering a sufficiently large number of such institutional problems, careful attention should be paid to planning the next stages of the agrarian sector's development.

It is known that the structure of stable rules is significantly dependent on transformation costs. At first glance, it seems that they increase stability, leaving the rules themselves unchanged. However, more careful studies show that transformational

costs lead to the emergence of new steady states – mixed behavior. In a mixed equilibrium, the benefits of one rule over another are offset by the transformation costs. In this case, the loss of asymptotic stability is typical for disturbances that exceed a certain threshold. Some mixed equilibria can be effective, while others cannot, forming a range of institutional traps.

Thus, in strengthening the rule, transaction and transformation costs vary in opposite directions: the reduction of the former is accompanied by an increase in the latter.

In the case of a change in the rule, the corresponding transformation costs are unevenly distributed among agents. This, as well as cultural inertia and the uncertainty of the magnitude of transformation costs, lead to the emergence of pressure groups that impede the change in existing rules (Figure 1).

Source: The authors' own research.

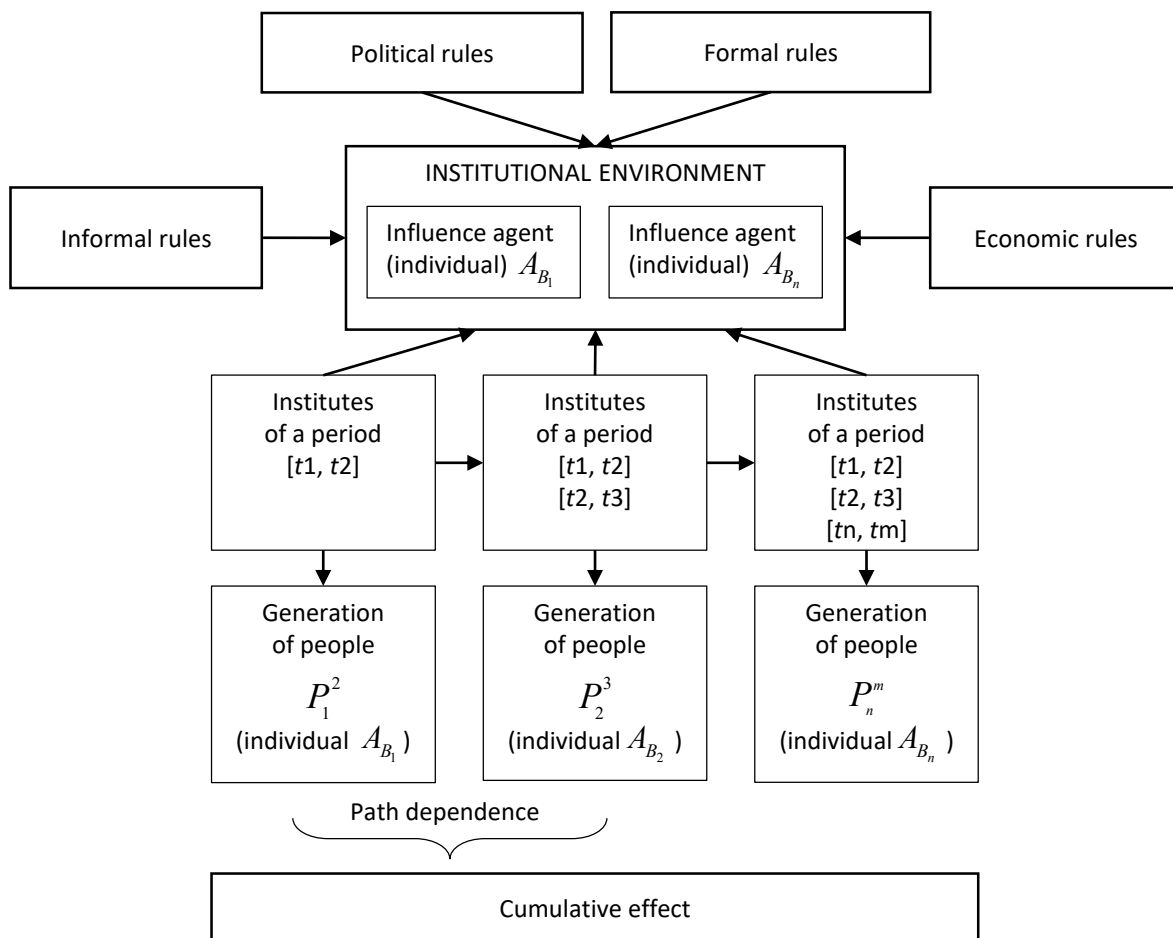
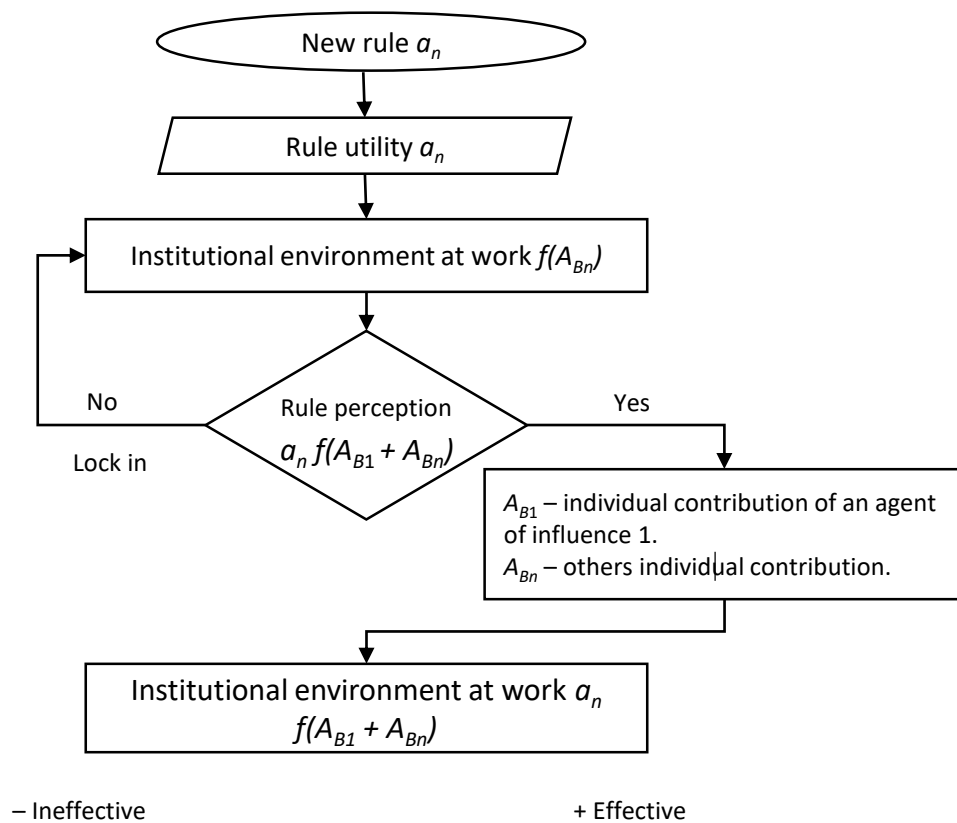


Figure 1. Shaping the institutional environment taking path dependence into account



**Figure 2.** Algorithm of a new rule input

For mechanisms with supportive externalities, the growing dependence of each agent’s winnings on the strategies of others is characteristic, but by itself, this property is not sufficient enough for the externality to be supportive. The situation can be described by the Nash equilibrium model with the target functions (expected benefits) of the influence agents of the species (Figure 2).

$$a_n \cdot f(A_{B1} + A_{Bn}) - A_{Bn}, \quad 0 < A_{Bn} < 1, \quad (1)$$

where  $a_n$  – individual utility of a new rule,  $f(A_{B1} + A_{Bn})$  – probability of a rule,  $A_{B1}$  – individual contribution of an influence agent 1,  $A_{Bn}$  – individual contribution of other agents.

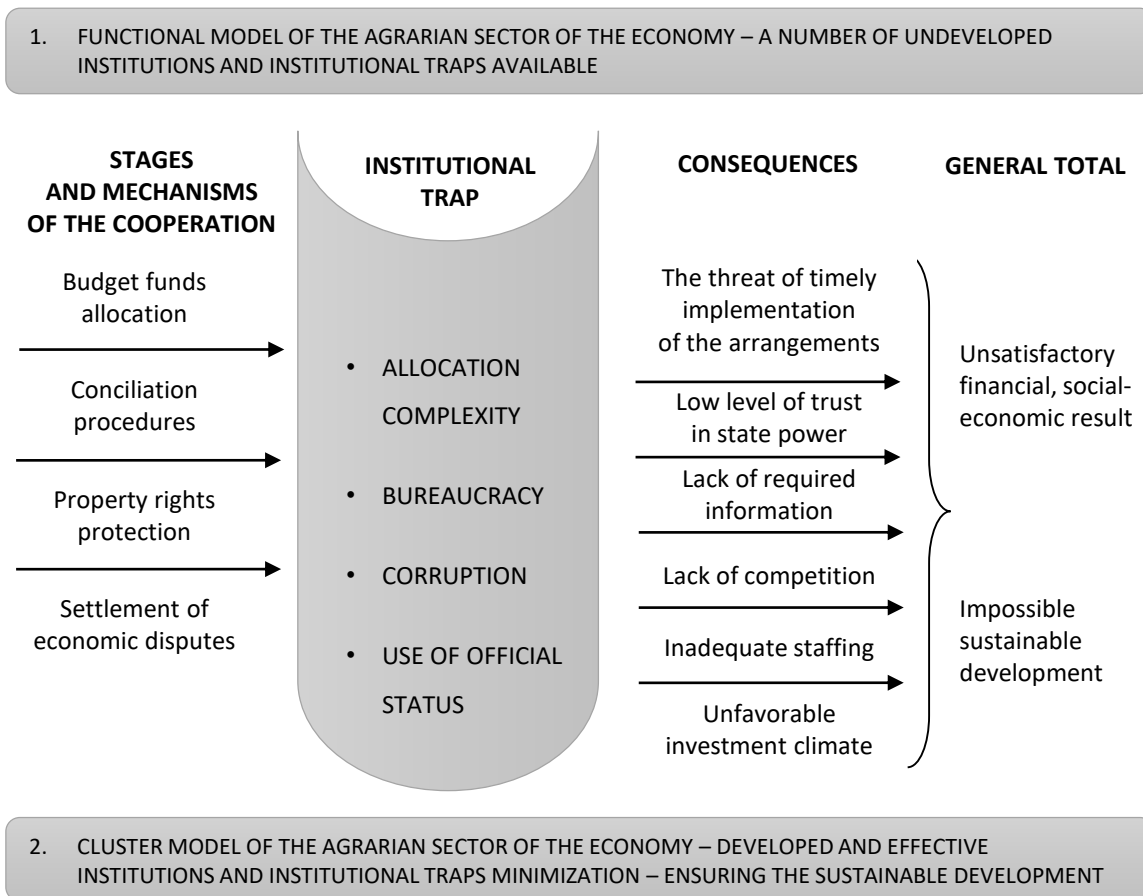
To characterize this situation, the term “lock-in” is used, which is translated as “blocking”.

As a result of the coordination effect, an individual or a small group loses when deviating from an appropriate behavior stereotype, while the simultaneous transition of all agents to an alternative norm would increase social welfare. Other effects

fix the resulting rule (sometimes they can lead to a trap, regardless of the coordination effect).

If an effective rule prevails in the system, then, after a strong disturbance, it may fall into the institutional trap, and stay in it even with the perturbations removal. This so-called hysteresis effect is a typical phenomenon for the forming rules and, in particular, institutional traps. That is, in some cases, the state of the system depends not only on the exogenous parameter value, but also on whether this value is obtained by reducing or increasing the parameter. If the state of the system has been changed by increasing the parameter (for example, transaction costs), then, in the presence of a hysteresis, it is necessary to reduce the parameter to the value below the output, to bring it back to its original state. Hysteresis is one of the forms of the system’s development dependence on its past trajectory (path dependence). The fact of the “history significance” is central to Arthur’s research (Arthur, 1987; Arthur, 1994).

It becomes obvious that the existing model for managing the development of agrarian economics



**Figure 3.** Functional model of the agrarian sector of the economy when compared to the cluster model

needs an update, primarily related to the integration, consolidation of the authority efforts, socially responsible business and rural population to solve the most important tasks in this direction.

The empirical studies made it possible to state that with the help of territorial cluster entities, state authorities and management can use new market trends more effectively to ensure the socioeconomic development of a region or a separate sector of the economy, effective mechanisms of cooperation between the state and business can be formed, as well as the institutional traps detected through the prism of the path dependence theory that were formed in the past and dramatically affect the future (Figure 3).

Today, for the agrarian sector successful development, first of all, it is necessary to form effective mechanisms of cooperation between the state and business.

The main forms of interaction between the state and business, which in varying degrees are now developed in the agrarian sector of Ukraine, are:

- public-private partnership;
- cooperation on the development of agrarian clusters and technology parks;
- interaction of state and local authorities with public organizations;
- partnership at the local level to support rural community initiatives in developing the social infrastructure of rural areas.

The mechanisms of public-private partnership aim at reconciling and taking into account the mutual interests of the state and business in cooperation between state and local government bod-

ies and private business entities in implementing joint business or socio-economic projects, targeted sectoral programs, etc. During such cooperation, the state activates and coordinates the investment activity, effectively and efficiently manages its own property, restores infrastructure objects, and stimulates entrepreneurial activity. Private business, through such a partnership, receives access to existing state resources, the use of which was previously impossible, due to simplification of permitting procedures, obtaining preferential loans under state guarantees, etc.

Thus, according to the Law of Ukraine “On Public-Private Partnership”, cooperation on ensuring the functioning of irrigation and drainage systems can be applied in the areas of public-private partnership, which directly or indirectly relate to the development of clusters in the agrarian sector of the economy; construction and/or operation of sea and river ports and their infrastructure; construction and management of networks of refrigerating and warehouse premises for agricultural products preservation; construction, service and management of markets for fruit, vegetables, as well as other “local” types of agricultural products; recycling of agricultural waste/biofuels.

But even with the high interest of private business in business projects through the mechanisms of public-private partnership, mass activation of such cooperation does not occur for a number of reasons that can be detected through the path dependence prism, that is, through identifying the existing institutional traps that were formed in the past and dramatically affect the future (Figure 3).

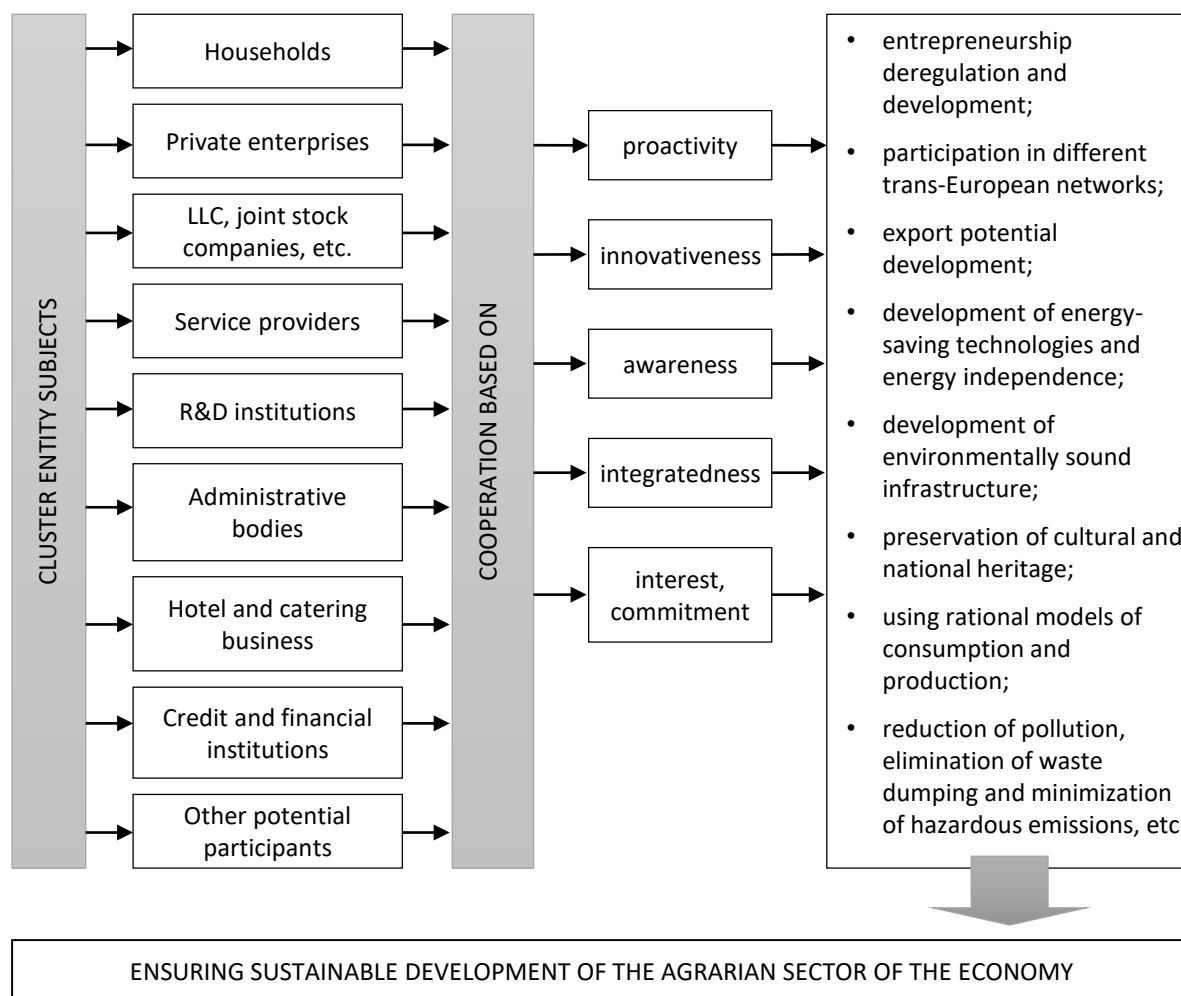
One of the most promising types of interaction between the state and business in the agrarian sector is cooperation on the agrarian clusters development, in which, for entrepreneurs, based on specialization and concentration of production, the attraction of innovative developments of research institutions and the formation of closed production cycles are ensured by increased competitiveness and profitability of products, and, at the state level, due to the development of rural areas with modern agro-service, agro-industrial, residential and cultural zones, a stable socio-economic development of the region is attained.

But in order for the tourism cluster to function effectively for sustainable rural development, it is necessary to radically address the ecological issue (effective system of domestic waste collection and recycling, problematic issues of landfill); infrastructure provision (development of a chain of hotels or hostels, cafes or restaurants); educational activities (training and informing the population about the green tourism development, the estate arrangement), etc. Therefore, solving these issues will provide an opportunity for effective development and the investment flow into the territory where the cluster is located, new workplaces creation. And, in general, it will make steady development possible.

Katan emphasizes the objective advantages of cluster policy. Exploring the conceptual foundations of sustainable development of the agrarian sphere, the author draws attention to the need to ensure:

- agriculture multifunctionality, which makes it unique as a tool for promoting development, namely, the type of economic activity, sources of income and provider of environmental services;
- proclamation of the ecological-social imperative from the point of view of its special significance, first of all, to meet human nutritional needs and the formation of living conditions of the rural population;
- development of agriculture not only as a sector of the economy, but also as an important way of life for a significant part of Ukrainians;
- rational formation of agro-landscapes and their long-term productivity;
- balancing sectoral and territorial development;
- optimal combination of large and small forms of agro-management;
- more innovative and integrated use of existing knowledge, achievements of science and technology, including “official” science, traditional and non-traditional knowledge, as well as new approaches to integrated management of agrarian and natural resources.





**Figure 4.** Cluster-based model of the agrarian sector sustainable development

Discussing the effective use of the cluster approach in the agrarian sector, Katan notes that along with the competitiveness of the cluster enterprises, another key objective of the cluster is achieved – transition to the sustainable development of agrarian production through the transition of all cluster participants to the investment and innovation model of development. First of all, it involves the use of scientific and technological progress and the introduction of the foundations for sustainable development of rural areas, which are engaged in agrarian activities by cluster subjects, and primarily by farmers and private peasant farms (Katan, 2012).

Combining organizations in the cluster is due to awareness of their own interests, and, on this basis, understanding of the need to interact (Figure 4).

However, the current situation of the agrarian sector, characterized by rather weak integration links between agricultural producers, processing enterprises, scientific institutions as innovation providers, significantly slows down the development of agrarian clusters in Ukraine. Therefore, nowadays, there are very few cluster entities at work that are created and operate on the personal principles of initiative producers based on the use of world practice of cluster development.

The creation of technology parks as forms of innovation business development is another area of public-private partnership.

The activities of technology parks, as points of growth cluster structure, may be as follows:

**Table 1.** Main problems and causes of advisory development inhibition in the agrarian sector of the Ukrainian economy

Problem	Cause	Problem nature
Slowdown of the institutional base of the advisory services	Lack of the national center for agricultural advisory services and regional agricultural advisory services with their district departments	Failure to comply with the legislation in effect (Resolution of the CMU "On approval of the plan of measures for implementing the Concept of forming the state system of agricultural advisory services for the period up to 2015")
Reduction of financing of agricultural advisory activity from the state budget, as well as incomplete use of public funds directly by advisory services	Since 2013, funds for state support of the agricultural advisory service were not allocated	There is no clear program of state financing of advisory services in Ukraine
The complexity of the procedure for obtaining budget funds by advisory services	Imperfect financial legislation	Imperfect financial legislation
Low solvency of farms, small businesses and rural population, which reduces their ability to order agricultural advisory and consulting services	Lack of a clear program for supporting small business development, including farms	Lack of a clear program for supporting small business development, including farms
Low cost of socially targeted advisory services	Obsolete indicators of socially-oriented advisory services	Since 2007, the cost of services has not been reviewed

- representation, testing and adaptation to the requirements of the customer of systems and technologies for protection, restoration and improvement of soil fertility, systems of precise agriculture and minimal tillage of the soil, aimed at the natural environment preservation;
- representation, testing and adaptation of high-performance technological complexes and equipment for different customers for various branches of agriculture, processing and food industry;
- representation, testing and adaptation of technologies and equipment for breeding activities in various branches of agro-industrial production;
- representation, testing and adaptation of waste recycling and utilization technologies, alternative energy sources and energy raw materials; and

- other high-tech activity areas.

It should be recognized that technoparks have not yet become widespread in the agrarian sector.

It should also be noted that informational and consulting support and advisory services are important for shaping a stable cluster structure in the agrarian sector. The main reasons hampering the development of agricultural advisory services in Ukraine are summarized in Table 1.

It should also be emphasized that the establishment of a system of agricultural advisory services in Ukraine is an integral part of the European integration process. Thus, Article 404 of the Ukraine-EU Association Agreement stipulates that cooperation between the parties in the field of agriculture and rural development will include, inter alia, the provision of a system of advisory assistance to agricultural producers. However, this rule is still unrealized.

## CONCLUSION

The results of the study indicate a significant influence of the institutional environment on the formation of a functional environment for sustainable development. Transaction and transformation costs play a very important role in consolidating new rules that appear in current transformations in the agrarian sector. If an effective rule prevails in the system, then after a strong perturbation (for example, after the reform), it may fall into the institutional trap, and stay in it even when removing the disturbance.

It is substantiated that through the path dependence prism, using the development model based on clusters, state authorities and management can more effectively use market trends to ensure socio-economic development, to form more effective mechanisms of cooperation between the state and business, to more effectively carry out structural transformations and reforms in the agrarian sector, while forming the necessary functional environment for ensuring sustainable development of the agrarian sector of the economy.

Also, it has been established that when planning and forming cluster structures, it is expedient to use the path dependence theory. In order to ensure the stable functioning of the cluster structure, effective advisory services are required that will enable fundamentally new industrial relations between agricultural producers, state authorities, agrarian education and science.

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