

RESHAPING RURAL COMMUNITIES AND SPATIAL PLANNING IN UKRAINE

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Received 5 February 2017; Accepted 10 July 2017

Abstract: Ukraine faces a number of challenges including rapid deterioration of the environment. Shift to the sustainable development requires a radical change in governance and legislation. It is obvious the lack of strategic documents, which would define the approaches to integration of certain objectives into sectoral policies. It is strongly related to the system of spatial planning, which should be improved according to European standards, including those concerning environmental protection. This publication reveals approaches to “greening” of the planning process on the basis of German methodology of landscape planning. This methodology was adapted in Ukraine in the framework of joint projects. Particular attention has been given to rural development under decentralisation process. Efficient ways towards the improvement of spatial planning and development have been considered on the case of Ukrainian local community.

Key words: spatial development, spatial planning, landscape planning, local community, decentralisation, rural areas, Ukraine.

Анотація: Україна стикається з низкою проблем, зокрема щодо швидкого погіршення стану навколишнього середовища. Зрушення до сталого розвитку вимагає радикальних змін в сфері управління і законодавства. Очевидною є відсутність стратегічних документів, які б визначали підходи до інтеграції певних цілей в галузеву політику. Це тісно пов'язано з системою просторового планування, яка повинна бути поліпшена відповідно до європейських стандартів, в тому числі щодо охорони навколишнього середовища. Ця публікація розкриває підходи до “екологізації” процесу планування на основі німецької методології ландшафтного планування. Вона була адаптована в Україні в рамках спільних проектів. Особливу увагу було приділено розвитку сільських районів в ході процесу децентралізації. Ефективні напрями вдосконалення системи просторового

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планування і розвитку розглянуті на прикладі однієї з територіальних громад України.

Ключові слова: просторовий розвиток, просторове планування, ландшафтне планування, територіальна громада, децентралізація, сільські території, Україна

1. Introduction

Like other countries with the post-socialist past, Ukraine after becoming independent, had to pay considerable attention to transformations at all levels and in all areas. Particularly, the important changes were in the management system and planning of the territories, much of which remains a challenge at current and future development periods.

Most reforms encountered numerous traditional barriers; lack of funds, lack of professional staff, lack of information and knowledge, low public awareness, and later, non-transparency of decisions. Significant influence was also carried out in geopolitical vector. Up until 2014 Ukraine was balancing between Russia and the Western world, losing competitive advantages, opportunities and resources. After the signing of the Association Agreement with the EU (2014) power decentralisation reform became one of the priorities in Ukraine's national policy. Its important part is the creation of so-called "territorial communities" (hereinafter TC), the new units of administrative and territorial organisation, which would include several village councils within the same district. Such transformations are justified by low population number in many village councils, as well as the need for better governance and economic development at the local level. The pace of local communities' reshaping process is different in different regions, being the most active in the western part of the country. At the same time, prospective unification plans have been formed for all Ukraine regions. Another important part of reformation is to strengthen environmental pillar in different sectoral policies. It is stipulated in the Association Agreement (Chapter 6, implementation of the certain European directives) and in national legislation. However, mechanisms, approaches and implementation practices are still inadequately developed, and public awareness is low.

In this context, providing newly formed TC with modern instruments of territorial (spatial) and strategic planning becomes of particular importance. Apart from the planning system problems typical of Ukraine as a whole, there are major deficiencies in spatial planning at the local level today, such as: no official standards (norms) for a new level of planning (although the process of their preparation is going on); inadequate human resources to develop plans for all communities; lack of detailed information on the nature components state and approaches for its correct evaluation and consideration of future management in decision-making.

An example of the best implementation of those practices and the grounds for their distribution in other regions may be the result of the "Landscape Planning in Ukraine" project (at the village council level), which will be discussed in more detail in this article.

2. Theory

It is quite obvious that views on space (territory) are crucial for modern management in most sectors. At the same time, geographic methodology is the richest source of effective approaches to assessment, planning and forecasting of spatial development.

Their importance has significantly increased after the adoption of the "Agenda for the XXI century" (Rio 92), where the basic principles of interaction between society and nature in order to meet the interests of present and future generations have been defined. Also the importance of integrated and participative management, taking into account the value of ecosystems and cultural diversity, has been emphasised. Key provisions of the "Agenda", has been reflected in the policies of individual EU member states and the union as a whole, becoming the impetus for strengthening the spatial aspects in most programs and strategies and for improvements in assessment and planning of territory development. The examples of such documents as the "Guiding Principles for Sustainable Spatial Development of the European Continent", "Territorial Agenda 2020", "Strategy "Europe 2020" could be demonstrated here.

Various aspects of spatial development research and planning methodologies were addressed in the works of Ukrainian geographers, economists, architects: Yu. Bilokon, I. Bystriakov, D. Bohorad, I. Gorlenko, S. Ishchuk, K. Mezentshev, O. Liubitseva, V. Nudelman, Yu. Palekha, M. Palamarchuk, L. Rudenko, O. Topchiev, M. Fashchevsky, L. Cherniuk, L. Shevchuk, S. Shults, B. Yatsenko and others. Among the foreign researchers: E. Alaev, F. Brodel, Z. Bzhezinskyy, P. Burdie, E. Wallerstein, A. Hettner, U. Izard, B. Jessel, M. Castels, P. Krugman, K. Omae, F. Perru, S. Sassen, P. Taylor, A. Treivish, T. Fridman, P. Hagget, S. Huntington, K. von Haaren, S. Heiland and others.

Modern methodological basis of spatial planning has been presented in Ukraine within geo-planning paradigm. According to this paradigm planning of territory is viewed as “a holistic and integrated scientific direction of geographical research which includes certain kinds of planning work by their content and scope” (Topchiev et al., 2010), and based on “modern concepts of territorial society organisation, natural frameworks of territories’ environmental safety, settlement systems, territorial systems of industrial and social infrastructure, territorial production and service systems, territorial recreation systems and population quality of life” (Topchiev et al., 2011). Among many advantages of the paradigm, the concept of “operating territorial units” is proposed within it which promotes implementation of the European “place-based approach” into the Ukraine spatial planning practice.

Spatial planning is a system of planning measures for the long-term rational use of the country’s territory with distribution of public means for their implementation, i.e., setting specific goals, people responsible for implementation and funding sources. Spatial planning is a form of state regional policy, which is aimed at mitigation or elimination of regional disparities, social conflicts and environmental problems at regional and local levels. Modelling of the territory organisation is based on its assessment using provisions incorporated in strategies of the state and regional development, according to the indicators outlined in legal documents. Implementation of such assessment makes it possible to reveal the development prerequisites and limitations of various activities, establish the spatial differences in these conditions, the optimal development way of certain territories, justify the most effective ways of natural and economic resources use, protect natural environment. At all levels of spatial planning (state, region, district and town) comprehensive evaluation includes assessment of natural and anthropogenic elements of the planning framework and subsequent synthesis of some evaluation results for making planning decisions.

One of the relevant and important aspects of the modern planning discourse is its “greening”. In practice of spatial planning, the compliance with legal requirements to prevent environmental problems is achieved in the process of development of the planning organisation of territory. At the same time, improvement of the comprehensive methodology of assessment of territory’s environmental conditions, measuring the degree of anthropogenic pressure and environmental issues identification, risks and conflicts, adapted particularly for the planning process, still remains important.

A number of fundamental geographic researches to diverse the landscape analysis as well as to develop the ecologically-oriented recommendations for sustainable land use has been carried out in Ukraine. The most important results of these studies are elaborated methodological approaches to the collection and compilation of data about landscapes, their analysis and evaluation. However, there were notable gaps in implementation of the grounded and reliable landscape and environmental studies results into the planning process. It is attributed to the Soviet managerial tradition of decision-making “from above”, neglecting the role of public, etc. Therefore, as an integrated methodology for development of ecologically-oriented territory use schemes in Ukraine, we proposed to use landscape planning. A pilot project on implementation of landscape planning has been successfully implemented by the Institute of Geography of National Academy of Sciences of Ukraine in cooperation with the Technical University of Berlin and Dresden (Rudenko & Maruniak, 2012; Rudenko et al., 2014). In 2014–2016, the project was continued under the title “Integration of environmental requirements in spatial planning”, which contains the developed methodology of landscape planning results integration into the territorial planning (Rudenko et al., 2016).

Basis for landscape planning within the cross-border Belarusian and Ukrainian Polissya region has been developed in joint scientific work of the Institute of Geography of National Academy of Sciences of Ukraine and Institute for Nature Management of the Belarus National Academy of Sciences (Palienko et al., 2013).

Works on landscape planning implementation in Ukraine as grounds for environmental requirements integration in spatial planning practice are mainly based on the German experience, where it has a long history of practical application (Auhagen et al., 2002; Jessel et al., 2002; Riedel et al., 2002; von Haaren, 2004) and is stipulated in the environmental protection legislation. Landscape planning – is a spatial planning of the environment aimed at the study of landscapes multi-functional nature (natural and anthropogenic altered) on the sustainable development principles. Essentially, it is planning by branch, which aims are to identify and scientifically justify the recommendations on protection, development and improvement of landscapes, which should contribute to implementation of environmental goals in general (Heiland, 2010). Such goals include long-term conservation of: 1) biological diversity; 2) the ability of natural ecosystems to function and self-regulate; 3) variety, uniqueness and beauty of nature and landscape; 4) air and climate, 5) soil; 6) water. Landscape planning is intended to align the interests of different stakeholders to achieve sustainable nature management according to the legal requirements on environmental protection. Landscape planning is intended as a hierarchical system of landscape plans (landscape program / -master plan / -plan) at the appropriate levels of administrative and territorial division (region, district, community). Hierarchical planning level defines the scope of work, detailed data, the degree of results generalization and specification of the proposed conservation objectives and measures. The recipients of the landscape planning are local communities and governmental bodies which exercise their authority within certain administrative units.

3. Methodology

Research methodology is based on the key provisions of geography with widespread use of fundamentals of related sciences, particularly economics, geopolitics, governance, ecology. The following general scientific methods as system and civilisational approaches, comparative geographical and historical methods, methods of mathematical statistics, cartographic analysis and modelling, polls have been applied. Among the principles of modern spatial planning we can distinguish: the principle of consistency and comprehensiveness; multicomponent and hierarchy principles; the principle of balanced social, economic and environmental components; principle of flexibility and dynamism; principle of uniqueness; the principle of decentralisation and addressed responsibility; the principle of social ecology (or ecological friendliness); the principle of accessibility and openness of the planning processes and data; the principle of dialogue and involvement of all interested parties; the principle of outer integration and paradigm suitability to social development.

Testing and practical implementation of landscape planning for the development of eco-oriented plan of the territory use at the community level has been performed on the example of Stepantsi village council of Kaniv district in Cherkasy region (Fig. 1). This area is a part of the Stepantsi TC.

The key area is located on the right Dnipro River bank, part of Cherkasy region, in its northern part within Kaniv district. The total area of Stepantsi village council territory is 7124.5 hectares (or about 5.6% of Kaniv district). The centre of the village council, Stepantsi village, is located 15 km away from the district centre town of Kaniv. The village council is comprised of Stepantsi village, Pylyava village and Stepanetske settlement. The total population of the village council was 2589 people (2012). For Stepantsi village council, as well as for Kaniv district and Cherkasy region as a whole, significant demographic problems are typical. Particularly, for a long period, mortality rate have far exceeded the birth rate and proportion of pensioners has been steadily increasing. The low proportion of the working population and high demographic burden on workers is further intensified by imbalances in the sex structure of employable population. The majority of the research area workforce are women. Another pronounced problem is unemployment. However, Stepantsi village council shows one of the best indicators of socio-

economic development compared to other local communities in Kaniv district of Cherkasy region in as a whole.

Fertile arable land of the village council area is sowed by the crops that deplete soils – sunflower, corn, soybean and rapeseed. The traditional crops share (cereal – especially wheat, technical – sugar beet, potatoes, and vegetables) has reduced significantly compared to the Soviet period. In the livestock farming there was rapid decrease in cattle, horses and pigs. At the same time the number of chickens at the newly erected poultry enterprises JSC “Myronivka poultry farm” has rapidly increased. Today it is this manufacturer who is responsible for a number of conflicts in nature management. The poultry plant activities has increased the burden on the environment, particularly use volumes and pollution level of scarce water resources as well as air pollution emissions, have increased.

Most of the Stepantsi village council territory is situated on the loess plain, with typical black soil which is all plowed and used as arable land. The Rosava River runs through the territory of the village council whose floodplain is largely reclaimed. Left Rosava River bank is a sandy terrace 4–5 km wide, where the Stepantsi village is, but most of the terrace is planted pine forest. The right bank of the Rosava River is high with its slopes, cut by gullies and ravines with dissected fragments of loess terraces. Stepantsi (northern part) and Pyliava (southern part) villages are situated there.

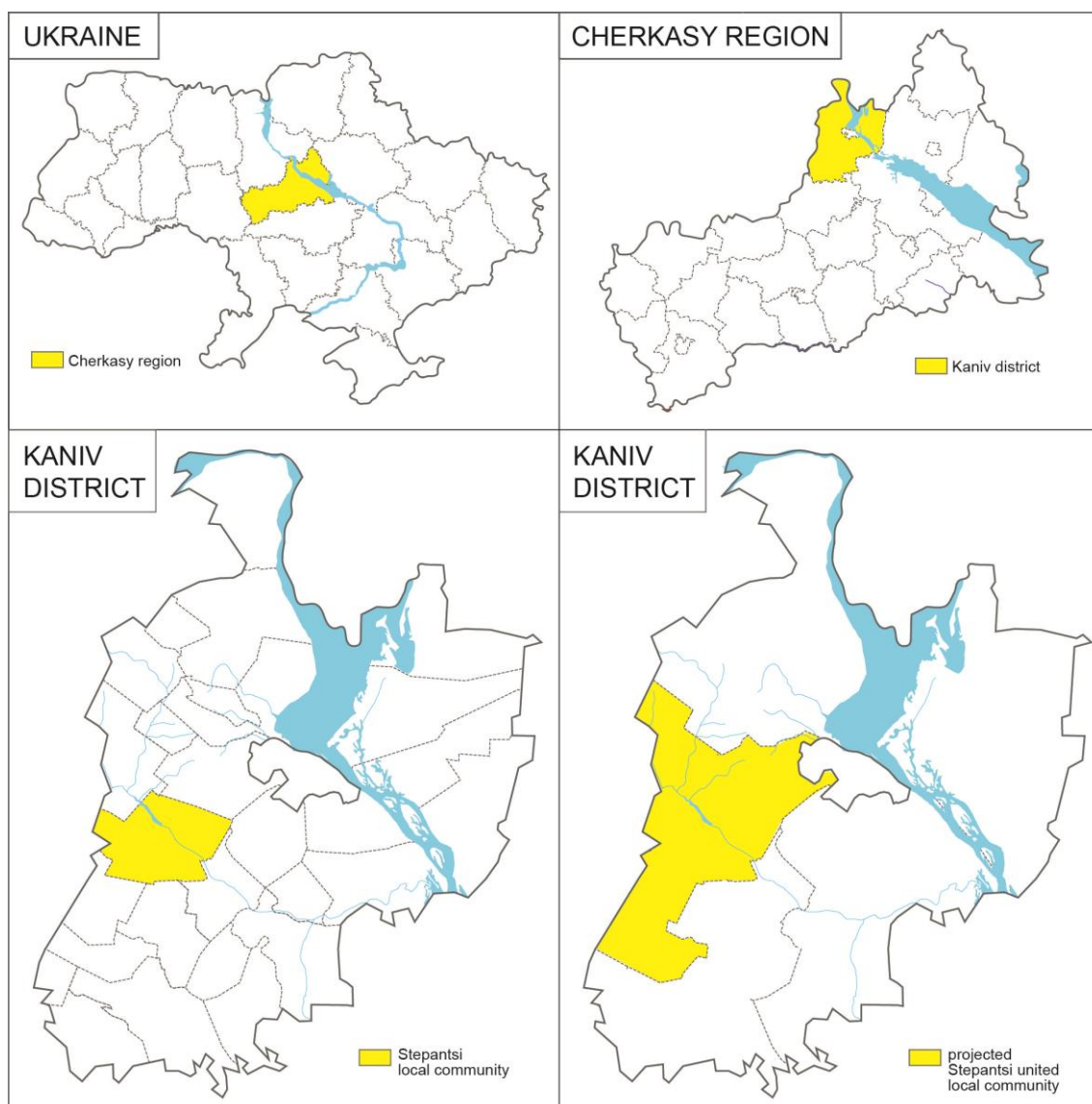


Fig 1. The location of the key area – Stepantsi local community.

Selection of key area was made based on the principle of hierarchy in the implementation of landscape planning. That is, each next level of planning was based on the findings of a higher level. In the appropriate landscape-planning document, the objectives of protection, development or sanitation of the landscape were specified. Thus, the Landscape program for Cherkasy region was developed, where general functional areas of nature conservation priority directions were marked; environmental protection goals at Kanev district level were detailed in the Landscape master plan; at the Stepanytsy village council level, the Landscape plan with more detailed conservation objectives and proposed appropriate measures was created.

According to the German tradition, the landscape planning is carried out in the following stages: defining framework planning conditions; collection and analysis of data on natural and socio-economic conditions; conflicts and risks of nature management; the concept of environmental protection objectives and measures of development based on results of the landscapes value evaluation and sensitivity to already existing and planned types of economic activity; approval, implementation and monitoring.

Evaluation in landscape planning is used (Auhagen et al. 2002; Riedel and Lange 2002; von Haaren 2004) firstly to determine the importance of spatial differentiation of landscape features, secondly, to identify the most vulnerable areas to the negative impacts of human activities. Accordingly, two evaluation categories are used – the significance and sensitivity (high, medium, low with appropriate description in maps legends and texts). Sensitivity is generally regarded as the intensity and speed of the natural component's reaction to certain impacts (chemical pollution, soil plowing, carrying out recreational activities, etc.), the elasticity with respect to its return to the initial state (the state in which the natural component was prior to activity or before anthropogenic impact intensification) (von Haaren 2004). The category "significance" refers to the degree the natural component's condition corresponds to its standard state due to the necessity of optimal implementation of certain objective usage function to each individual nature component (e.g. the importance of soil for growing grain or other crops depending on natural fertility of soils) (Rukovodstvo... 2001). The significance of the same area is usually different for different landscape functions (Heiland and May 2009). To determine the significance and sensitivity of the landscape a wide range of methods developed in geomorphology, soil science, geobotanics, climatology, hydrology, landscape ecology and landscape science, geochemistry and landscape geophysics are being used.

The goals of landscape planning may be considered as guidelines that indicate the most optimal and desired state of landscapes developed with the purpose to overcome and prevent conflicts. The formulation of objectives is based on the results of the evaluation stage and planned types of economic activity. There are several approaches to the goals formulation. In our work they are given from the point of view of action content – conservation, development or improvement of the landscape. Formulation of the purposes by the actions meaning and corresponding presentation in the legends of the target map enables experts, officials or citizens to focus clearly in the proposed areas of activity to ensure ecologically sustainable environmental management.

Preparation and analysis of geological data, integrity of the landscape planning stages and implementation of the results, was provided by use of GIS technology. Main software used during the work – ArcGIS for Desktop 10.x, individual tasks from the GIS landscape analysis, were performed by the SAGA GIS software.

Information base of the research instruments consist of the legal framework of Ukraine and the EU states, State and Regional Statistics Committee of Ukraine, reference books, stock cartographic materials, as well as the results of the authors' own research. Development obtained within the framework of European Spatial Planning Network (ESPON) and German Academy for Spatial Research and Planning (ARL) were also considered.

4. Main part

For the second year, 15 reforms proposed by the specially created Council are continuing implementation. Their main aim is to ensure economic growth. The strategic documents for reforms implementation are: the Ukraine Association with the EU Agreement, Sustainable

Development Strategy “Ukraine – 2020”, Coalition agreement, Memorandum with the IMF, and Government action program to implement the 2020 Strategy.

No doubt, all 15 key reforms in some way affect the status and development of rural communities. But of all reforms, the decentralisation reform has the greatest impact on rural communities. It implies transfer of significant powers from the central government bodies down to local community authorities. Powers, along with finance, are being transferred closer to the people, where they can be implemented most effectively. Decentralisation is carried out on the principles of voluntariness, ubiquity, cost-effectiveness and government support.

By 2015, in Ukraine, there were 11,510 village, town and city territorial communities (10,278 of them were rural). Of these, in 9,478 rural communities (92%) there were less than 3,000 residents. 4,809 rural communities (47%) had less than 1,000 residents. The budgets of villages, towns and cities of regional importance, nearly 75% were subsidised, and in many of them, the figure ranged from 95% to 99% of revenues (Decentralisation, 2017).

Under the implemented reforms, the number of local communities is expected to be significantly reduced through their unification. Approximately, average TC size should be 400 km² with 16 settlements on average and the average number of residents in such community about nine thousand. So a TC represents a community of settlement residents who are united by common interests of their own livelihoods. They have the right to decide local issues within the scope of the Constitution and laws of Ukraine and are formed by the voluntary association of previously existing communities. Today, more than 30 TCs have already been created from a few, in every region of Ukraine. The largest number of TC has been established in Ternopil and Dnipropetrovsk regions (respectively 36 and 34 TCs). In Ternopil region, the formation of TCs has been 100% completed. In Cherkasy region, where the model area for this study was chosen (Stepantsi village council, then – Stepantsi TC), the process of TC creation is quite slow. As of the beginning of the 2017, only 15% of the planned TC number has been created.

The new model of TC financial security formed in the process of reform, allowed the establishment of new approaches in relations between the state and local budgets. Direct revenue flow into TC, however, widened the range of community responsibilities (issues of the territory development, providing utility services, road maintenance, organisation of public transport, public safety, functioning of schools, cultural facilities, medical and social assistance, local economic development, local infrastructure development and the community territory development planning).

The reforms undertaken in Ukraine have a huge impact on the countryside. Here, we mean the part of the country's territory which functions outside cities and some industrial facilities. This is generally consistent with the position outlined in CEMAT documents, where the countryside is meant as a “sparsely populated area without significance by importance town”, besides, “countryside refers to certain forms of landscapes and land use where agriculture and natural areas play significant role” (European Conference..., 2017).

It is worth pointing out that the post-Soviet transformation period were especially badly affected rural areas. Share of rural population since the mid-twentieth century has been constantly decreasing. And it is not only a natural consequence of urbanisation processes. This is the result of several famines organised by the Soviet authorities in order to reduce the Ukrainian peasants' resistance to collectivisation and to its final submission; the excessive burden carried by the Soviet Ukraine to restore economic might of the USSR in the postwar years; injustice and inhumane work conditions that prevailed in the collective farms until the 70s of the XX century. Thus, the percentage of rural population, which in 1926 was 81.5% of the total population already in 1970 stood at 45.7%, in 1989 at 33.3% (Perepisi naseleniya..., 2017). During the years of independence, this share remained more or less stable, but with a tendency to decrease. At the beginning of 2015, it was 30.9%. Since 1990, the number of villages has decreased by 420 (Yatsuba et al., 2002). Changes in the administrative-territorial division, directed at communities consolidation implemented by the current government will obviously allow to cover the development of this trend, since today the number of villages with a few dozen of retired people is considerable. Besides depopulation in rural areas such trends as ageing, high unemployment and poverty, poor infrastructure security, limited access to education, medicine,

trade should be pointed out. Thus, in most regions of Ukraine among registered unemployed, every second is a resident of rural areas, particularly in Vinnitsya, Zakarpatys'ka and Chernivtsi regions – 60%. According to the Ministry of Social Policy, it is obvious “that the risk of poverty increases with reduction of the settlement size. Rural poverty is high, the rate at which (34.8%) 1.7 times higher than the poverty rate in large cities (20.9%)” (Zainyatist' ta bezrobittya...). After the collapse of the traditional collective farms, peasants found themselves hostages of the new business owners, whose success or failure often determined the fate of the settlement. Private initiative and farming also met a number of institutional and financial obstacles, which will be discussed below.

The researchers rightly point out that “rural areas are much inferior to cities by a number of indicators, including the level of housing conveniences, development of transport infrastructure, the quality of educational services, health and community services areas. These differences have arisen with some features of the state policy on the villages. Thus, in 1970–1980s small rural settlements were classified as “unfeasible” and they were prepared for resettlement, and therefore their infrastructure, unlike large villages, was not developed” (Kogatko, 2015).

Current state of households' satisfaction by rural social services deserves special attention (Samootsinka..., 2014). Due to absence of institutions which provide household services in a settlement suffer at 45.7%, absence of the nearby medical facility at 28.5%, absence of the timely ambulance services in the settlement at 41.8%, absence of regular daily transport to other settlements with more developed infrastructure at 24.4, absence of water supply at 48.5%, a bathroom at 53%, toilet at 57.8%. Dissatisfaction with transportation and medicine increased compared to 2011.

Based on socioeconomic adversities, environmental problems also intensively manifested. High level of land plowing and contamination, the extent of erosion processes and rate of its spread, deteriorating quality and even the complete disappearance of well water, flooding - this is a general list, some items of which are differently indicated in different regions of Ukraine but are quite acute everywhere.

It is in such circumstances countryside met the first large investors, whose more or less prominent appearance may be associated with the beginning of the new millennium. The appearance of large and medium-size agricultural holdings on the Ukrainian market in essence marked the beginning of intense globalisation impact. It is well known that their activity has a number of hidden and obvious disadvantages. First of all, we are talking about a strong trend to increase area under corn and commercial crops which deplete soils. Another specifics has influence of the powerful livestock farms.

In most cases, the local government influence on business structures, socio-economic development and land use is limited. The main reasons are: lack of clear planning regulations, no modern European procedures for environmental impact assessment and powers monopolisation. Therefore, the processes in rural areas largely reflect the weakness and imperfection of management processes, especially planning.

The current system of spatial planning in Ukraine was shaped by a number of factors and today combines the experience of national, post-Soviet planning and some elements of European practices. In particular, attempts to integrate guidelines and some individual CEMAT decisions have been made in Ukraine. According to international practice, the basis of planning in Ukraine today is laid in two directions: strategic and territorial (spatial) planning. Both units are important legislatively related components of national security and development.

Spatial planning and spatial development today means balanced organisation of territory considering its features, characteristics, relationships and time parameters. For Ukraine, the main challenges necessary to address during the implementation of the planning process should be: global challenges; the specifics of geopolitical situation and civilisational dimension; continued population decline, as a result of migration and natural decrease, decline in human resources quality; impressive disparity in socio-economic development of regions, cities and rural areas by most indicators (GDP, labor market, population income, availability of infrastructure and services); dominance of primary and secondary sectors; urbanisation and suburbanisation processes,

development of large cities suburban areas; decline in significant number of villages and small towns; technical obsolescence of infrastructure assets; high anthropogenic pressure (resource consumption, pollution, depletion of the environment components); increase in vulnerability of the landscape to hazardous natural phenomena and processes; problems in infrastructural development; ineffective governance; spatial planning deficiencies: lack of the environmental component representation, outdated documents, problems of implementation and coordination with communities; low living standards; declared need to integrate into the European space in such areas as legislation, production, trade, investment, transport, environmental protection, joining the planning framework. The signing of the Association Agreement obliges Ukraine government to implement European standards and approaches to improve Ukrainian legislation according to methodological principles of planning in the EU.

Legal basis of the spatial planning in Ukraine are being formed within the field of over a hundred of legislative acts (Constitution, codes, laws, resolutions of the Verkhovna Rada and the Cabinet of Ministers, Ministry of Regional Development, Construction and Housing). As a whole, the legal framework in the area of spatial planning and urban development can be considered formed. However, despite the rather large array of documents, there is still a number of drawbacks in the practical development and implementation of strategic plans. First of all it concerns the lack of consistency in accepted documents, inter-sectoral, inter-agency communications and lack of spatial dimension. The main document regulating relations in the field of urban development and spatial planning is the Law of Ukraine "On Regulation of Urban Planning" (2011), which obviously needs changes according to European legislation. The law defines three levels of planning: national, regional and local. The General Scheme of territorial planning in Ukraine corresponds to the national level (Law, 2001, as amended – 2012) as well as the planning scheme of separate parts of the country. Planning at the regional level is done by development of planning schemes for Autonomous Republic of Crimea, regions and districts. Territory planning at local level is done through development and approval of the settlements' master plans, zoning plans and detailed area plans. The content of planning documents is defined by law, Ukraine state building codes and is presented by maps and explanatory texts.

The impact of Soviet and post-Soviet period can still be strongly felt in Ukrainian society, expressed by inertia, irresponsibility, lack of ideas about the standards of high quality of life, unpreparedness to market conditions. It reflected on the state of civil society and its unpreparedness to get involved in planning the environment they live in. For a long time public participation in the planning process was not reflected in the legislation and still remains rather formal.

It is worth to note that despite numerous declaration and recognition of sustainable (balanced) development principles, and thus of equality of social, economic and environmental components, the latter is insufficiently taken into consideration in the documentation design. It is due to several factors at once, such as – education and planning traditions formed in other social and political conditions, information barriers (unavailability of organised actual data), load, time and funding allocated for the plan development and approval.

The main loopholes also include (Kuibida et al., 2009): the overall complexity and high uncertainty of procedures for obtaining permits for urban development construction; unclear prioritisation for planning documentation requirements with respect to the development of territories, allocation of construction objects; unsettled character of some coordination procedures and approval of urban planning documents and amendments to them; undefined need for settlements master plans permanent design; lack of clear order of the various zones of cities (suburbs) delimitation as well as regulations for the use of those areas, determining procedures for reserving areas for settlements development; imperfection of the procedures to consider the residents interests in decision-making by local authorities; gaps of planning process concerning features of various area types (including cultural landscapes, mountain, coastal, riparian areas of former industrial and military areas).

The dynamics of the development and update of city planning documentation remains quite low. As of today, only 15–17% of the rural settlements have required site plans.

One of the most important to “format” the Ukrainian state policy is the Law “On ratification of the Association Agreement between Ukraine, on one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other hand”. Effectiveness of Ukraine integration into the EU in the coming periods will greatly depend on adherence to it.

Let us review in more detail the opportunities to overcome the aforementioned reformation gaps by the introduction of landscape planning (example of the landscape plan development project implementation). First, let us outline its framework objectives.

For the rural and city council level, and now – for the territorial community, the relevant planning document is a landscape plan. With a landscape plan community receives the information regarding the requirements to the environment protection when using its territory. It is planned to develop specific environmental goals and measures for their implementation, based on detailed studies of the territory and to be implemented directly by local authorities.

The framework goals of Landscape have been defined based on the Cherkasy region Landscape program conservation objectives concept and Kaniv district Landscape master plan, according to a preliminary analysis of socio-economic and natural conditions of the village council, the analysis of the of local people survey results and consultations with members of the village council, as follows:

- the preservation of agricultural landscapes with highly fertile soils in the context of their sensitivity to water erosion, and chemical pollution;
- preservation and improvement of forests;
- minimising the negative impacts of the poultry plant economic activities;
- maintainance of comfortable living conditions in settlements;
- scenarios of nature management within the Rosava river floodplain;
- prospects of the area development in context of the concept of Kaniv Biosphere Reserve creation.

To process these directions of the Stepantsi village council territory development based on available output data, a range of evaluation work on sensitivity and importance: local climate conditions, surface and groundwater, species of flora and fauna, soil and landscape has been performed. Further, more details on the results of the component landscape evaluation.

Components evaluation

Waters

The main surface water flow which drains the Stepantsy village council area is River Rosava – the left tributary of the Ros River (Dnipro basin). Both the bed and the floodplain of the river experienced significant human transformation.

The main and traditional source of drinking water for the majority Stepantsi village council residents is ground water obtained from wells. Therefore, the issue of ground water quality is extremely important for the village council population. The use of fertilisers and plant protection products in crop production agriculture, creating unequipped dumps as well as emissions of transport and industrial enterprises are all sources of chemical impact on groundwater. Accordingly, it is important to know how sensitive the groundwater is to contamination by chemical elements.

Considering such factors as the ability of soil to bind pollutants, soil water permeability and depth of the groundwater layer it has been found that the Rosava River floodplain landscapes and the sand terraces of the left riverbank located within Stepantsi village have the highest sensitivity. The lowest – watershed surfaces, where Stepanetske settlement and Pyliava village are located (Figure 2).

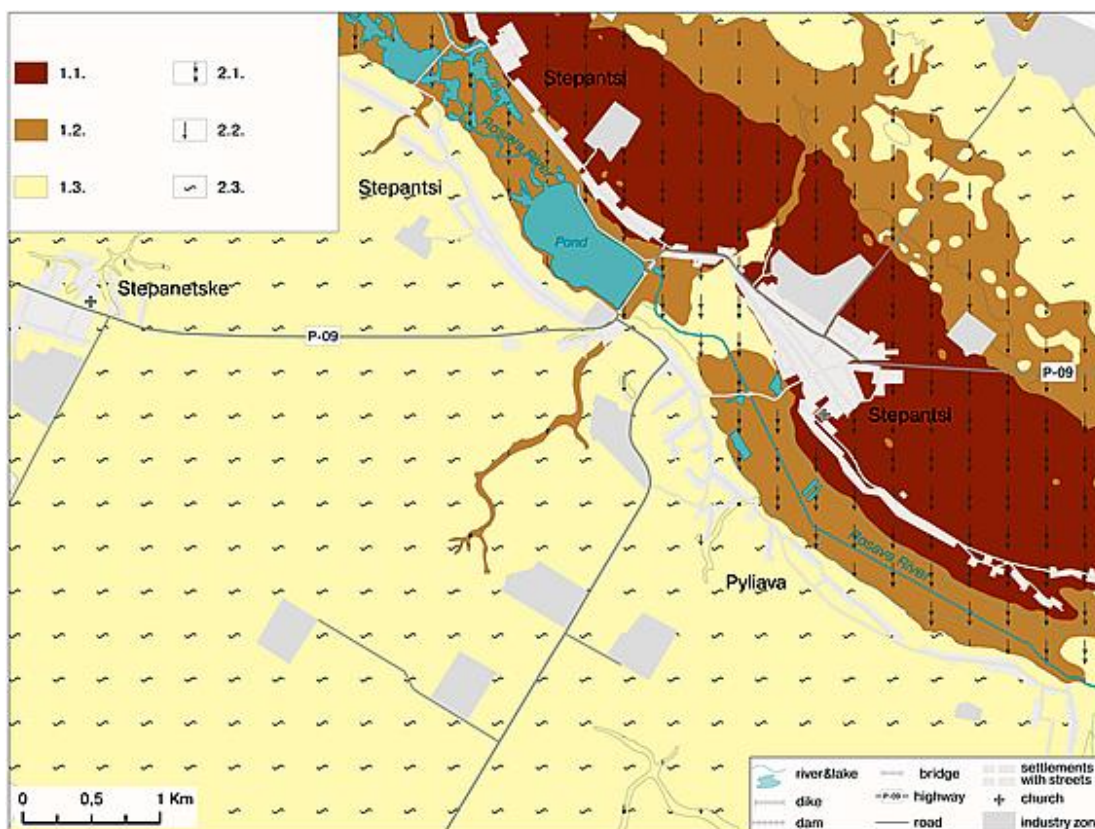


Fig 2. Landscape Plan of Stepantsi village council. Sensitivity of soil and groundwater to chemicals contamination (fragment).

| Sensitivity of soil to pollution with heavy metals and pesticides (the degree of chemical elements mobility) | Sensitivity of groundwater to contamination (including soil permeability and buffer capacity) |
|---|---|
| 1.1. high | 2.1. high |
| 1.2. medium | 2.2. medium |
| 1.3. low | 2.3. low |

Climate and surface atmospheric layer

According to the agroclimatic zoning of Ukraine, the territory of Stepantsi village council is located in agroclimatic zone of insufficient moisture (hydrothermal coefficient – 1.0–1.3) (Natsionalnyi atlas Ukrainy, 2007). The sum of active air temperatures, which is an integral feature of heat provision for the growing period, is about 2800°C. In general, climatic conditions in this territory are favorable to agriculture. However, some adverse weather processes and phenomena are possible there.

Climate changes, which have acquired great relevance in recent decades, should be properly considered within landscape planning. The following conclusions regarding the main trends of climate change in the Ukraine forest-steppe zone, which includes the territory of Stepantsi village council: air temperature increase, climate aridity and recurring extreme weather conditions and phenomena (VI National communication..., 2012). Based on that, the Stepantsi village council territory sensitivity to the expected climate changes has been assessed. When assessing the landscapes sensitivity to climate changes we looked into the negative consequences only.

The main negative effects of the climate change possible on the territory of Stepantsi village council are shown at Figure 3.

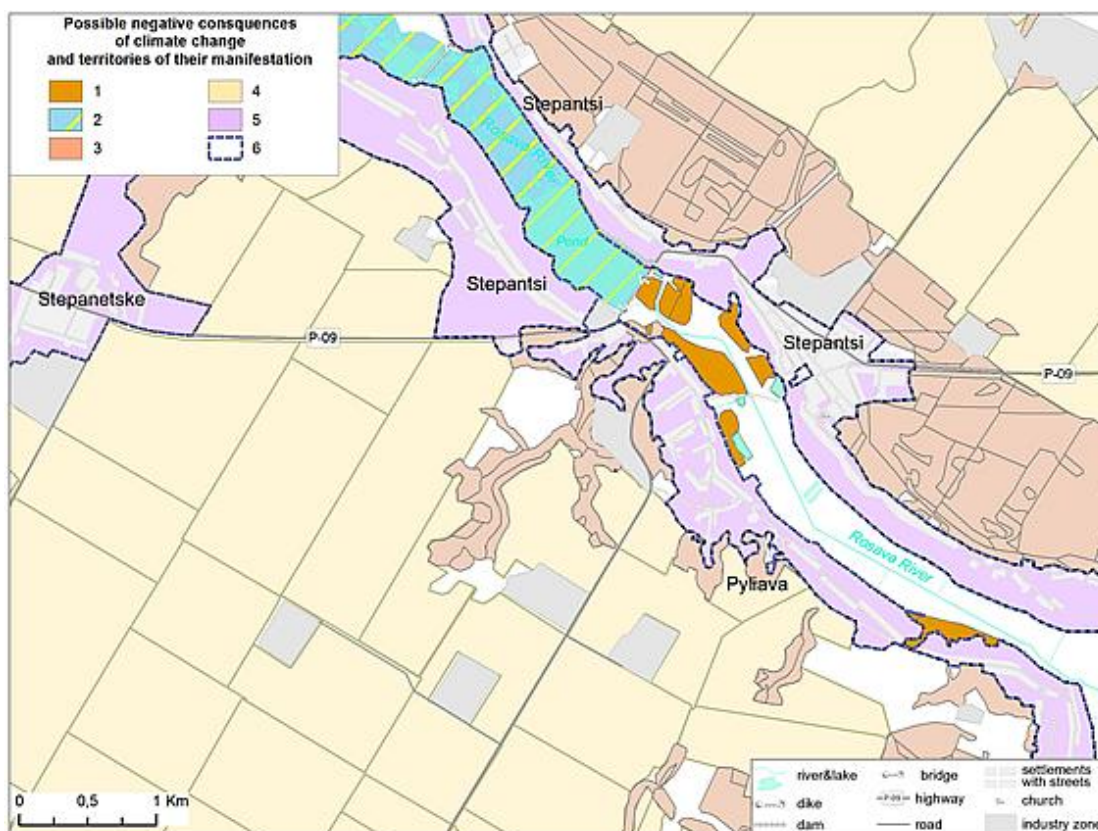


Fig 3. Landscape Plan of Stepantsi village council. Sensitivity to negative climate change (fragment).

| Possible negative consequences of climate change and areas of their manifestation |
|---|
| 1 – loss of biodiversity caused by possible significant change of species habitats (floodplain forests) |
| 2 – deterioration of fish fauna habitats in small water bodies caused by their overheating in summer |
| 3 – increased risk of forest fires |
| 4 – deterioration in growing conditions of many crops |
| 5 – deterioration of medical-climatic living conditions of population caused by increasing of frequency of extreme weather (especially in summer) |
| 6 – lack of drinking water in some localities or their parts |

Species and biotopes

Evaluation of species and biotopes during the landscape plan development was carried out, based on the primary objective function defined for this component – conservation of biodiversity. Based on the evaluation results, three categories have been identified (Figure 4):

1) high value biotopes – habitats slightly affected as a result of human impact, with relatively high levels of biodiversity, biotopes, performing eco-network function (forest biotopes of the natural origin (mainly fragments of alder forests in the Rosava River floodplains), artificial forest biotopes, floodplains and wetland patches in the Rosava River floodplains, dry-valley meadows with fragments of natural steppe vegetation; habitats of the forest stripes;

2) medium value biotopes – forests of artificial origin with a predominance of one species (primarily – tracts of pine forests on the Rosava River woody terraces) as well as biotopes of the settlements;

3) low value biotopes – biotopes greatly altered as a result of anthropogenic impact, with low biodiversity level; this category includes primarily arable land biotopes and biotopes within active and abandoned technogenic objects.

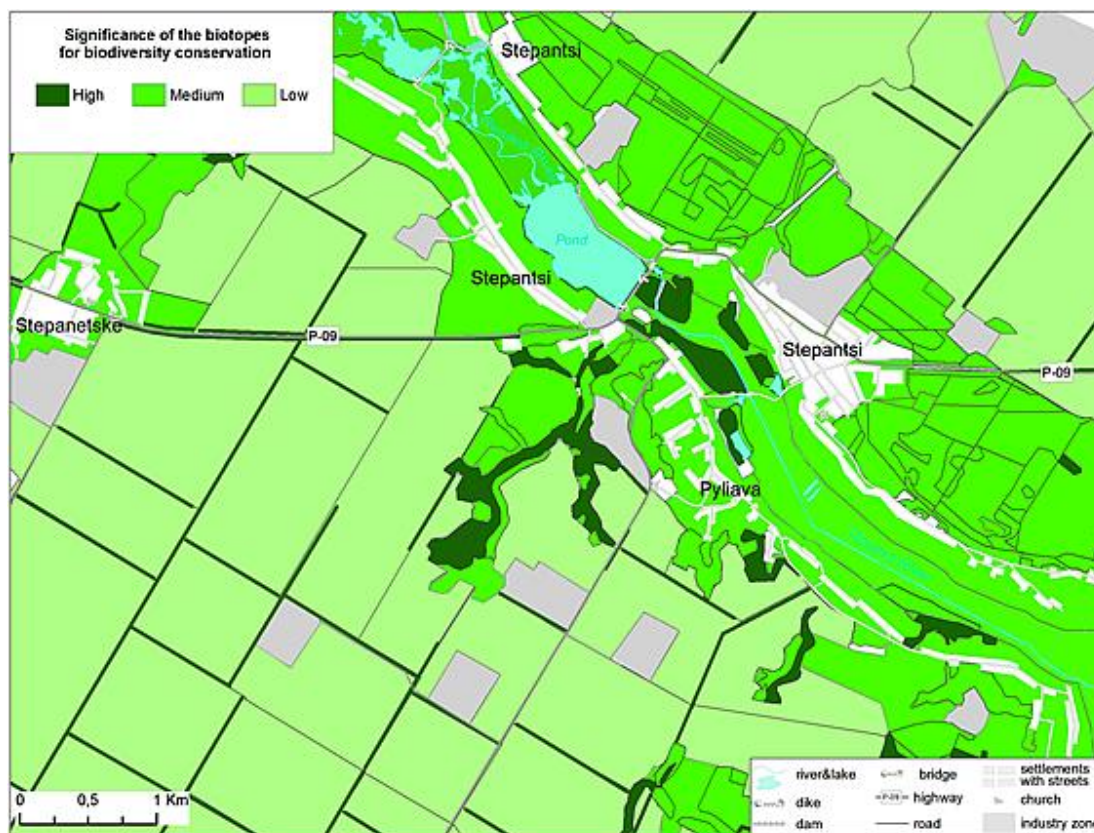


Fig 4. Landscape Plan of Stepantsi village council. Significance of the biotopes for biodiversity conservation (fragment).

Soils

Evaluation results found that the most fertile soils in Stepantsi village council is typical black soil, which cover 75% of the area (Fig. 5) and characterised by “normal” or typical local landscape habitat conditions.

Soil sensitivity to water and wind erosion is a major limiting factor for the land resources use. The high degree of soils sensitivity to wind erosion is typical of the dry areas of sandy soils on the woody terrace of the Rosava River. Now they are covered by pine plantations which exclude deflation. Activation of the arable land wind erosion is possible when the vegetation is absent and the wind speed is significant, favourable conditions for which are possible in spring. High sensitivity to water erosion is typical of slopes of black earth and gray forest soils which were formed on loess substrate.

Special conditions and specific biotopes are typical of floodplains and marsh in depressions as well as for marsh and peat soils in the Rosava River floodplain. They are eligible for protection under the Ramsar Convention. The soils under forests and grasslands on the plains between rivers and floodplain soils are important to maintain the landscape water regime. High susceptibility to chemical pollution (Fig. 2) is typical of the sod-podzolic soils on sandy Rosava River terraces, chemical and physical properties of which contribute to the high mobility of heavy metals. Black soils on the contrary are of high significance as a geochemical barrier for chemical contaminants spread.

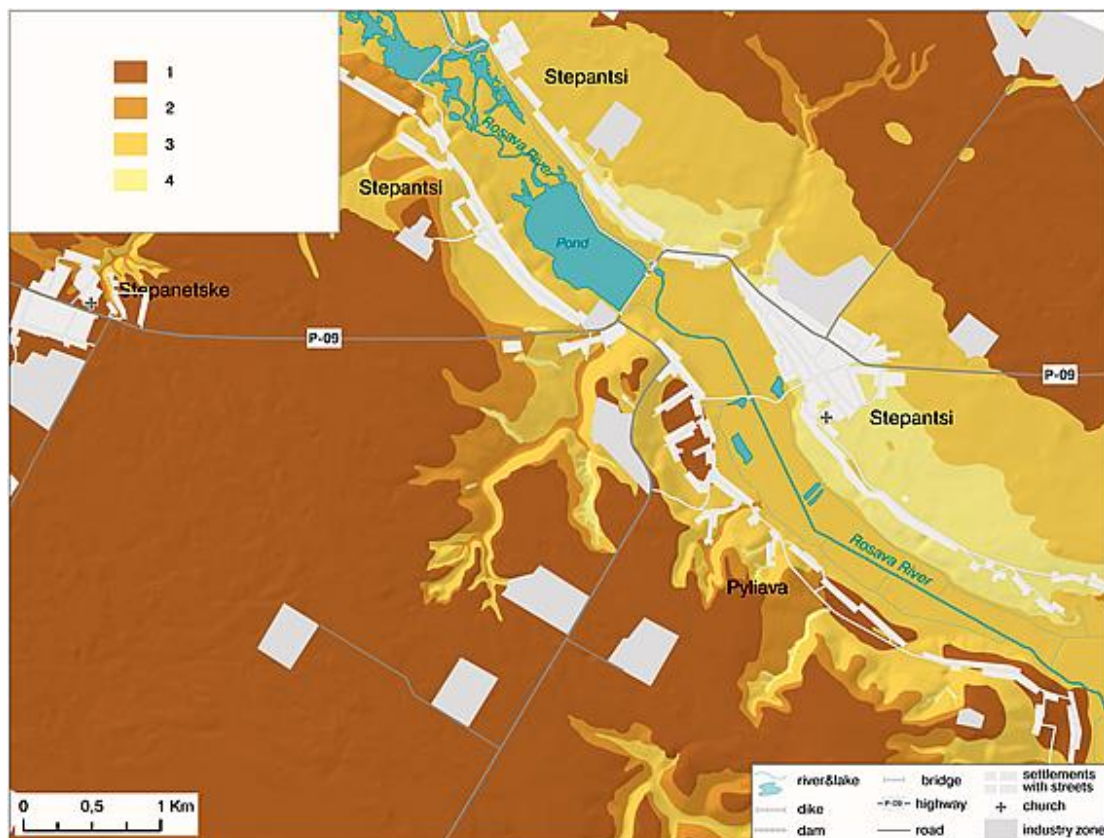


Fig 5. Landscape Plan of Stepantsi village council. Natural soil fertility (fragment).

The soil significance by fertility level

- 1 – High** (soils with high productivity, well supplied with nutrients, optimum pH reaction of soil solution, water-air and thermal regimes are favorable for crop production)
- 2 – Medium** (sufficiently supplied with nutrients and productive moisture)
- 3 – Low** (low supply of nutrients, poor pH reaction of soil water solution, as well as air and thermal regime. A pronounced negative properties of soils. High wash out degree of the upper soil horizons)
- 4 – Soils unsuitable for agriculture**

Landscapes

Landscapes as protected nature components are considered from two angles (Auhagen et al., 2002; von Haaren, 2004):

- the image of the landscape by positive / negative perception, aesthetic appeal;
- landscape as a place for recreation.

Recreation means an opportunity for people to spend their free time “in nature”, arranging picnics, going hiking, doing sport, etc. Initial data for landscapes attractiveness evaluation and their significance include such items as natural characteristics of landscapes, their current status and anthropogenic conversion. Methodological approach which has been applied includes sequential analysis of the spaces which reflect features of a natural environment; historical development and current status (Schmidt et al., 2010) (Photos A–D, Figure 6).



A. Terraced loess plains, right bank of the Rosava river, elevated, slightly indented with numerous small depressions occupied by arable land and industrial buildings (3).



B. In the foreground – plowed slopes terraced loess plains (5b), in the middle – woody sandy terraces (6a, 6b); at the far – marginal slopes of the Kaniv «mountains» (1).



C. Woody sand terraces of artificially planted pine forest, hilly landscape, common marshy depressions (6a).



D. Reclaimed floodplain with straightened watercourse and channels in meadow marsh vegetation, fragmented – alder and willow plantations (7b).

Photos A–D. Landscapes of Stepantsi village council (photos' names match the designation on the map, indices in parentheses – modern landscapes, see Fig. 6)

Each of the allocated Stepantsi village council areas is assessed by the level of attractiveness using the following criteria: degree of landscape diversity expressed through internal morphological structure of the landscape; landscape originality as it belongs to different regional-typological complexes; biodiversity – plant and animal species spread, presence of rare species; availability of saved natural or close to natural elements (wood, shrubs, grasslands, swamps). “Neighbouring” factor is included as which landscapes it borders with, how they are aesthetically attractive, opportunities for panoramic sightseeing in the area.

The criteria for determining the level of landscapes attractiveness for recreation, in addition to aesthetic appeal, is the presence of necessary infrastructure (hotels, transport routes), morphometric parameters that determine the degree of permeability and accessibility of the area. Factors that negatively affect the perception and attractiveness of landscapes are analysed. Among them are the location of industrial plants, roads and zones of their influence by noise and chemical pollution; bugs, spread of the insects and plants-allergens habitat.

The high degree of appeal is found for certain landscapes (Rudenko et al., 2015) of the Rosava River floodplain (below the dam, photo D) and Rosava River sand terraces of pine wood (picture C). Significant biodiversity is characteristic for these landscapes, including much herbal and woody vegetation, particularly fragments of the black alder forests of natural origin; here you can observe wild birds. Also, the landscape of the right bank loess terrace areas where the Pyliava village is situated. This village is sparsely populated, but well maintained. There is plenty of tree plantations, orchards, from the southwest, at a higher dissection by ravines surface, the village surrounded by the areas of deciduous and coniferous forests, dry-land meadows. Towards

the southeast, the terrace is slightly inclined towards the floodplain, from this point, the spectacular multilevel landscapes open, consisting of flood plains, pine forest on the terrace, vast fields on loess terrace and high forested Kaniv “mountains” in the distance (photo B).

The most significant for recreation and tourism are the landscapes of the Rosava River floodplain, pine forest on sandy terrace, Pylava village. The advantages of these landscapes are their attractive scenery, proximity to settlements, availability of infrastructure (roads, equipped recreation areas). The less significant are the lowland agricultural landscapes (Photo A), where the land is under cultivation everywhere, natural steppe plant associations almost have not survived. Forest strips diversify the image of the landscape to some degree. Poultry farm buildings negatively affect the perception of the landscape, especially specific odours and heavy traffic of freight transport attributed to its activities.

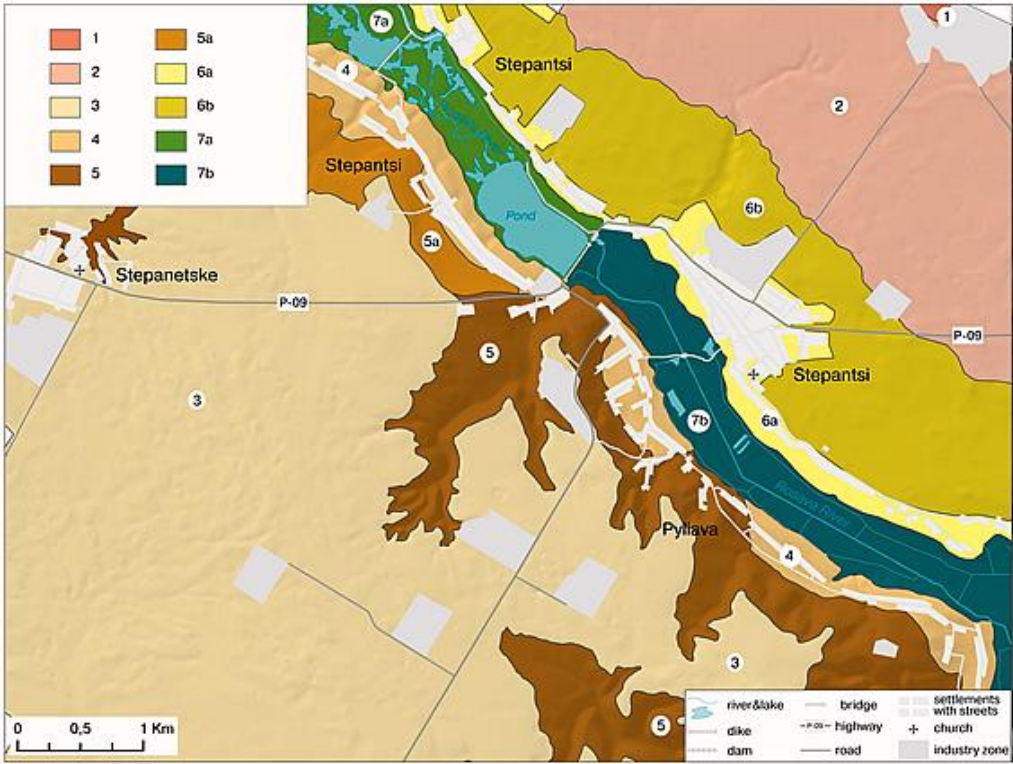


Fig 6. Landscape Plan of Stepantsi village council. Landscapes (fragment).

| Characteristics of modern landscape – space for landscapes image assessment |
|--|
| 1. Edge part of the Kaniv “mountain” with rounded and steep slopes, dissected by gorges and ravines, mostly fallow, gorges forested. |
| 2. Terraces loess plains, left bank of the Rosava river, lowered, slightly dissected occupied by arable land and industrial buildings. |
| 3. Terraces loess plains, right bank of the Rosava river, elevated, slightly dissected indented with numerous small depressions occupied by arable land and industrial buildings. |
| 4. Terraced loess plains, (fragments on the right bank of the Rosava river) with aligned central surfaces and steep slopes near the floodplain part, mainly under housing and household plots. |
| 5. The slopes of terraced loess plains, from gradual to steep, medium and heavily dissected by ravines, under fragmented mixed (oak, acacia, maple) forests; |
| 5a) plowed slopes, deforested. |
| 6. Woody sandy terraces: |
| 6a) rural settlement, private building, along with household plots; |
| 6b) artificially planted pine forest. |
| 7. Floodplain of the Rosava river: |
| 7a) flooded pond (periodically drained); |
| 7b) reclaimed floodplain with straightened watercourse and channels under meadow marsh vegetation and fragments of alder and willow forests |

Conflicts

Major existing and potential conflicts and threats present on Stepantsi village council territory are shown in Figure 7. A number of conflicts and threats which exist in the village, but do not have a strong territorial localisation or are ubiquitous, are not displayed on the map.

The apparent local conflict – conflict of interests between the local community and operations of “Myronivka poultry farm” production facilities. It could be described by such features as location of premises on the most fertile soils, depressive groundwater funnels at the ground water intake sites, groundwater contamination around the slaughter plant, blocking the opportunities for the development of recreational and tourist activities and limiting the prospects of crop production in the region, the threat of emergency accidents at wastewater treatment plants, the need for land reclamation after the closure of production sites etc. Existing conflicts are caused by the choice made for the use of land resources in the process of allocation between:

- crop and animal production in agriculture;
- farming and recreational activities;
- agriculture and forestry.

The potential conflict associated with soils sensitive to water and wind erosion, which are under forest plantations and meadows is worth paying attention to. Within the village council, there are forests highly susceptible to fire, and which belong to the class I of fire safety measures and require additional fire protection, especially in the hot summer period. Another potential conflict – motorway construction project, which in one of the proposals can be laid through the territory of the village council.

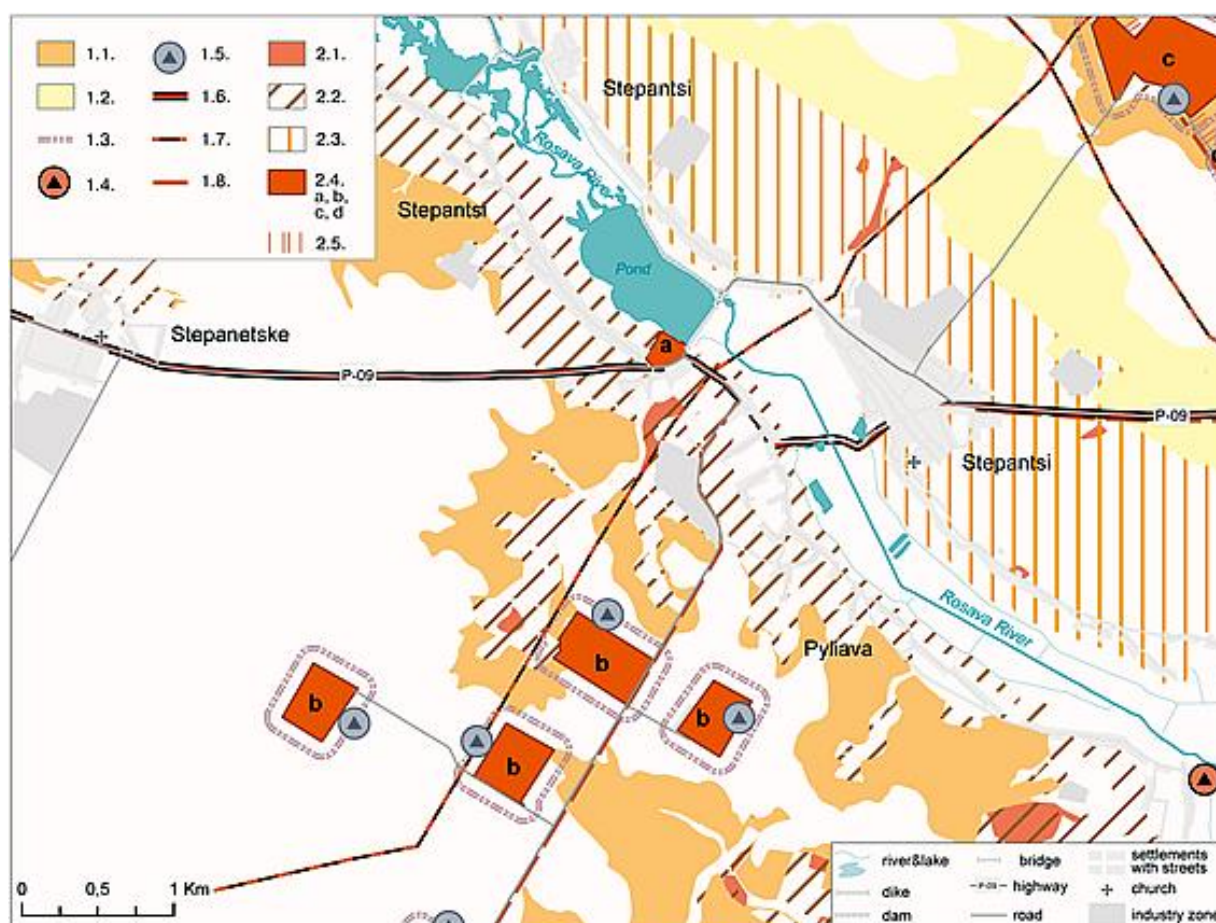


Fig 7. Landscape plan of Stepantsi village council. Conflicts (fragment).

| |
|---|
| I. Existing conflicts and threats |
| 1.1. Plowing of soil with high sensitivity to water erosion 1.2. Plowing of soil with high sensitivity to wind erosion 1.3. The spread of bad smell 1.4. Wastewater discharges 1.5. Intensive use of artesian water 1.6. Chemical and noise pollution along the roads of national importance 1.7. Electromagnetic pollution by power lines violating migration routes of birds and reducing the attractiveness of the landscape 1.8. The additional traffic load due to constant mass transport of poultry |
| II. Potential conflicts and threats |
| 2.1. Forests with the greatest sensitivity to fire (class I of fire safety) 2.2. Areas with the greatest sensitivity to water erosion, which currently are not plowed 2.3. Areas with the greatest sensitivity to wind erosion, which currently are not plowed 2.4. Objects that require special attention: a – Kaniv repair and transportation company b – poultry c – slaughter complex d – sewage treatment plant of the slaughter complex 2.5. The threat of changes in components of nature and landscapes, chemical and noise pollution along the projected highway |

Objectives concept

To develop the “Concept of objectives and measures” for Stepantsi village council landscape plan, the analysis and synthesis of industry (component by component) proposals have been performed and priority actions for landscapes conservation, development or improvement have been developed. Detailed inventory and the village council territory evaluation studies provide the basis for setting goals. Existing and potential conflicts in the study area, associated with anthropogenic activity which discourages the achievement of the area, sustainable development have also been taken into account. The objectives of eco-oriented environmental management have accurate localisation.

Key points of the main landscape plan document – the integral concept of environmental protection objectives, are presented in Table 1 and their spatial differentiation is shown in Figure 8. The areas recommended for preservation of the natural environment or the socio-economic development demarcated here, the areas with the most severe environmental problems identified and the ways of their recovery outlined, the directions of the village council territory development, have been clarified and specified. To achieve the set goals and objectives, some specific measures have been proposed.

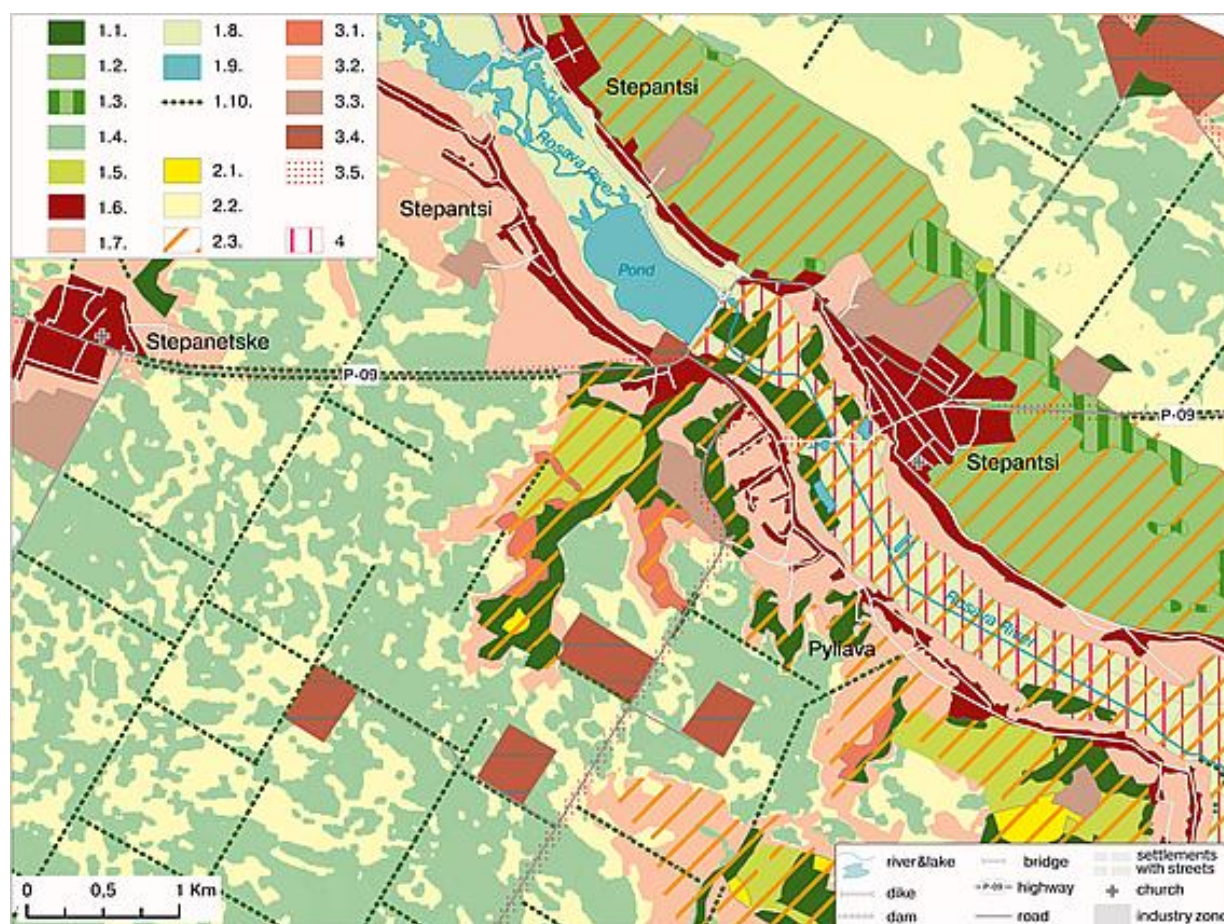


Fig 8. Landscape Plan of Stepantsi village council. The integrated concept of environmental protection objectives (fragment). Explanation of the legends indices – see Table 1.

Regarding the concept of Kaniv Biosphere Reserve creation in Cherkasy region (Golubtsov et al., 2014), the alternative is proposed within the landscape plan. Thus, a special development area “Rosava River Valley integrated landscape complex” should be defined (Fig. 8, index 4) including the slopes of the Rosava River right bank, its reclaimed floodplain area, upland terraces on the left bank. The settlements are considered as an integral part of the landscape which are protected and are the foundation of tourism and recreational activities development with emphasis on rural recreation and ecotourism.

Both options of this part of the village council territory development have reasonable goals and measures of ecologically oriented nature management. Under the first option, it is proposed to maintain the current state of the landscapes. The option to create the biosphere reserve involves the Rosava River floodplain natural landscapes restoration and intensive development of the valley recreational potential. Having two alternatives of the territory – is the defining feature of the landscape planning which is oriented to meet the expectations of primarily local population.

Implementation of the environmental protection recommendations differ by the investment size. The decision regarding the direction of the territory use must be made by the local community.

Tab 1. The integrated concept of environmental protection objectives. Source: Landscape Plan of Stepantsi village council

| Index | Objective | Landscape character |
|-----------------------------------|---|---|
| PROTECTION, CONSERVATION, SUPPORT | | |
| 1.1. | Support high value biotopes with typical vegetation | Deciduous forests with high biodiversity |
| 1.2. | Conservation and support of forest biotopes typical for sandy terraces. More efficient use of leisure | Artificially planted pine monoculture forests on sandy terrace |
| 1.3. | Protection of sensitive biotopes | Plantations with special conditions within the pine forest |
| 1.4. | Preservation of modern use. Efforts to replenish groundwater. Support of soils buffer function | High value agricultural soils with low susceptibility to erosion and pollution |
| 1.5. | Support and maintaining the extensive use of dry meadow bows. Support of biodiversity | Upland grasslands used for grazing |
| 1.6 | Maintaining high level of biodiversity, comfortable local climatic conditions. Development and maintenance of water supply | Settlements |
| 1.7 | Saving extensive use of household plots | Household plots (gardens) within settlements |
| 1.8 | Extensive use. Support of the current floodplain state | Floodplains of the Rosava river |
| 1.9. | Pond maintenance to prevent its degradation | The pond in the Rosava river floodplains |
| 1.10. | Support existing tree windbreak, enriching their species composition | Windbreak belts |
| DEVELOPMENT | | |
| 2.1. | Development of biotopes for their closeness to natural environment | Pine forests on the hills on the right bank slopes |
| 2.2. | Development of agricultural landscapes to minimize the impact of erosion. The development of water-retaining function of the landscape | Fertile soils susceptible to water and wind erosion |
| 2.3. | Landscape development for recreational needs | The combination of landscapes: slopes of the Rosava river right bank, Rosava river floodplains, pine forests of the woody upland terraces |
| SANITATION | | |
| 3.1. | Improvement of forests condition | Acacia plantations |
| 3.2. | Remediation and prevention of soil degradation | Arable land on soils highly susceptible to water erosion |
| 3.3. | Reclamation of abandoned industrial sites | Areas of abandoned farms and other industrial developments |
| 3.4. | Remediation of the poultry farm negative impacts | Land under industrial development, poultry farms |
| 3.5. | Minimizing the negative impacts of roads with heavy traffic | Roads and areas of their influence up to 50 meters |
| 4 | Alternative scenario – restoration of the Rosava river floodplains natural state and development of recreational potential of the Rosava river valley | |

5. Conclusions

The process of creating new TC as a part of the decentralisation reform continues and, will probably be completed in 2017. Some important steps to ensure the legislative provision of the reform have already taken, new laws or amendments to existing ones, set of Ukraine Cabinet of Ministries acts have been passed and adopted. It provided the opportunity for local elections. The state developed the typical structure of TC development plan, and the Strategy of socio-economic development has been developed and approved within the established communities. Under the new budget process, the created TCs conduct direct budgetary calculations and directly receive educational and medical subsidies, basic subsidies. Communities received the same powers as the cities of regional subordination. There is also international support in this area. The EU has approved a program of the decentralisation process financial support. UNDP in Ukraine provides new communities with constant advice ("decentralisation school" and others) and implements specific projects.

Alongside the new communities creation there is the process of understanding of their mechanisms by the new residents in connection with existing budgets to support infrastructure (housing, transport, energy, educational, medical, cultural and informational). TCs having become the subject of regional development, are forming their relationships with external entities (state and regional governments) and have to consider the existing market environment factors. The latter is particularly affecting the need to create the strategic vector of TCs development, prioritise activities based on balancing the economic, social and environmental development components (with rates determined by global strategic development goals by 2030). It is clear that taking into consideration the problems of demographic development and the critical ecological state of the environment, the focus in the development of the TC regional plans, which are required according to the decentralisation reforms, should be given to social and environmental components.

When developing local TC plans, emphasis should be placed not only on historically utilised potential, but also on discovered development reserves and, in many cases, implementing new evaluations of possible use. In this context, it is feasible to implement the European experience, including the environmentally-oriented (landscape) planning. The project, implemented by the authors proves the last statement in practice. Materials of the landscape planning will not only become the forming foundation of Stepantsi community socio-economic development but also a part of its regional plan. They already provide guidance for adjustment of management processes at the local level; contribute to the Cherkasy region Strategy by 2020 implementation plan, including the "Improving the competitiveness of the region", "Rural Development", "Environmental security and sustainable environment" programs.

The project also demonstrated that the adaptation of the German methodology of landscape planning in Ukraine is a harmonious process, which will require only legislative and managerial support. Stages (structure) of the works are mostly agreed with the national planning process of the territories, and their results can be directly integrated into the decision-making process. At the same time, the methodology of components' evaluation (soils, landscapes etc.) is sufficiently developed in Ukraine and can only be partially supplemented, in particular by expert assessments and participatory approaches. In general, the introduction of landscape planning in Ukraine is a significant step both to improve the existing spatial planning system and local people's awareness in the field of sustainable development. Moreover, it is a key instrument for rural communities toward responsible management of their territorial capital.

The achieved results also have political significance. According to the Ukraine Sustainable Development Strategy to the year 2030 draft, the foundation for its further development is innovations. Therefore, territorial and community plans should be developed according to approaches, taking into consideration the regions and country's potential and with involvement of all interested stakeholders. Particularly, the awareness of innovations, scientific and technical sphere role in the governing structures is important.

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