

THE ROLE OF ECOLOGICAL SETTLEMENTS IN REDUCING ANTHROPOGENIC IMPACT ON ENVIRONMENT

У статті розглядаються перспективи створення на території України мережі екологічних поселень по аналогії зі світовими тенденціями. Проаналізовані переваги і недоліки таких поселень, принципи їх створення та основні проблеми соціального та економічного характеру, що можуть виникати при їх організації.

Ключові слова: екопоселення, урбанізовані території, вплив на навколишнє середовище, соціальні проблеми.

В статье рассматриваются перспективы создания на территории Украины сети экологических поселков по аналогии с мировыми тенденциями. Проанализированы преимущества и недостатки таких поселений, принципы их создания и основные проблемы социального и экономического характера, которые могут возникать при их организации.

Ключевые слова: экопоселок, урбанизированная территория, влияние на окружающую среду, социальные проблемы.

The perspectives of ecosettlements network development in Ukraine have been considered in the paper according to the world trends. The advantages and disadvantages of such settlements have been analyzed, as well as principals of their creation and major social and economic problems, which appear in the process of ecosettlements creation.

Keywords: ecosettlement, urban areas, environmental impacts, social problems.

Introduction. Industrial development and social progress have allowed people of creating the most comfortable accommodation and providing the needs of public, municipal, information and education. Urbanization as an objective process has been developing for many centuries, and as a result, in addition to provision of urban residents with maximum comfort, safety and life benefits, this process has created new threats to human life due to complicated environmental, social and demographic situation. Ecovillages could be considered a feasible alternative for the reduction of anthropogenic impact and urbanization intensity.

Analysis of publications. The creation of eco-friendly settlements is an attempt to harmonize human activity with the natural cycles that enables prediction and regulation of human impacts at different scale and time, to ensure the creation of stable, almost stationary systems.

The term “eco-village” was introduced by Georgia Institute of Technology Professor George Ramsey in 1978 in his work “The Passive Energy Applications for the Built Environment” for the First World Energy Conference of the Association of Energy Engineers to describe small-scale, car-free, close-in developments, including suburban infill. He was arguing that “the great energy waste in the United States is not in its technology; it is in its lifestyle and concept of living.” Ramsey’s article includes a sketch for a “self-sufficient pedestrian solar village” by one of his students that looks very similar to eco-villages of today.

It seems that the movement of ecovillage is an international phenomenon, and it has started simultaneously in different places at about the same time – in the 1980s – 1990s. These communities, claiming to be “eco-villages” today, were established in two different ways. The first group includes those, which were founded in late 1980s and especially after 1991, when the book by Robert Gilman "Ecovillage and sustainable community" was published. They have originally called themselves *ecovillages* and their mission signified in the conceptual documents was to create the society, in which humans live in harmony with nature and not deplete their resources.

These are eco-village in Ithaca in rural areas of New York, founded in 1992, and ecovillage in Los Angeles, established in 1993 in the city.

The second way that has led to formation of environmental settlements is the evolution of the oldest settlements and communities established in the 1960s and 1970s as spiritual, revolutionary, political-social or alternative. Having existed for several decades, many of them came to the same ideas that we now denote as "sustainable development», and also began to call themselves eco-village. These are two well-known educational centers: Sirius in Massachusetts and Lost Valley in Oregon, as well as similarly important and known spiritual communities the Farm in Tennessee and rural commune Twin Oaks in Virginia. The last two are the largest of the survived to this day settlements established by hippies.

Modern eco-village is primarily a way of life, in which production activities (including agriculture) are consistent with the natural processes [1].

All of these projects are the answer to current problems of society; they have virtually nothing in common with the communes, created by the hippie movement in 1960s and 1970s: another generation, other reasons, new ideology, different strategy and approach to the organization. If the founders of the communities in 60s dreamt "to escape from the system", the modern ecological settlers say that they try to build "an alternative model" that could affect the whole society towards greater environmental awareness, spirituality, wisdom, stability [3].

Formulation of the problem. The main problems resulting from the expansion of urban areas and artificial structures are the problems of efficient land use and pollution of environment components.

Construction and operation of urban settlements lead to constant reduction of agricultural lands, natural plant communities and hydrological facilities area, degradation of water resources due to their transformation in accordance with the needs of municipal communities and discharge of untreated sewage. At the time use of coastal areas and green plantations within and on the periphery of the cities for recreational activities inevitably ends with the loss of water bodies and green areas quality, which in turn prevents the recovery of atmospheric air and pollution neutralization, resulting in reduced efficiency decline of rehabilitation and health services.

Issues of natural resources depletion, violation of ecological balance, complication of demographic situation, interaction of environment and production (economy) were considered by D. Meadows, J. Forrester, A. Toffler. Among the issues discussed, one of the most topical is economic backwardness of developing countries. Lemeshev A.M., Hvishyani D., Zahladin V., Harichkov S., Andreev N., Kurinets L. have determined causes of global environmental and economic problems, methods of their analysis, forms of display and influence, as well as interactions between them [5].

Changes of microclimate conditions are also important, because warmer, but polluted, as compared to suburban area, airflow from the urban territory creates stable vertical air circulation. Under conditions of low winter temperatures and atmospheric inversion, formed above the city, the air goes to the urban periphery cools down gradually, falls to the ground and this way returns to the city. The general condition of urban air, soil, green plantations also differ from optimal. This combination of unfavorable factors creates a wide range of threats to the health of urban population.

An additional source of hazard to urban residents is impact of power generating facilities, including electromagnetic fields and high-voltage lines, radars of weather forecast service, communication systems, especially cell phones. In addition, major problem is noise and increased stress.

Formation of anthropogenic zoocenosis also worsens sanitary-epidemiological situation through breeding pests and disease carriers: rats, mice, stray dogs and cats, pigeons, crows, insects and microbiological and viral populations, which originate in buildings and urban apartments. The constant source of microbial and viral threats is municipal waste, landfill, biological treatment fields, which bring back secondary and altered biological products into urban area.

Another important issue of cities is excessive, wasteful use of energy resources for illumination, maintenance of public transport and services, operation of treatment plants and factories.

The list of problems is much longer, but the need to find alternatives is obvious. In much the same way it is obvious that reduction or abandonment of urban areas is impossible. So, the purpose of this work is to analyze the main advantages and disadvantages of environmental settlements and prospects of their development in Ukraine.

The principles of environmental settlements. Ecological settlement is an experiment, new creative lifestyle, combining reasonable farming, simple and healthy rural life with modern knowledge and technologies used wisely and carefully [3].

The basic principles valid for all ecovillages are the following [2]:

- harmonious interaction with the environment, minimizing negative impacts on it;
- creating conditions for healthy and long life;
- creating conditions for harmonious development of personality;
- maintenance of permanent agriculture;
- sustainable environmental management;
- use of renewable resources for life and power generation;
- healthy lifestyle;
- proper diet with organic food.

Each ecovillage may introduce additional specific environmental restrictions on lifestyle, avoiding alcohol, smoking, profanity, drug use, meat or thermally processed food; ban on birth control; rejection from usage of certain materials and technologies; ban on presence of certain animal species (dogs, cats), vehicles in the settlement, etc.

Exact number of ecological settlements in Ukraine is unknown. In 2011, it was 25, but this figure is approximate, because the government does not keep statistics about these communities, at the same time people who decided to leave urban settlements and found ecovillages are sometimes not in a hurry to declare its existence as a unit of society. However, they have the opportunity to express themselves in modern Global Ecovillage Network, which reflects the activity of this movement in the world. The global network of ecovillages includes just over 400 worldwide, but Ukrainian communities are not registered.

In 2013 visitors of specialized sites have been actively discussing the prospects of creating ecological settlements – family estate in Poltava ("Baranivka"), Kyiv region ("Creation"), Chernihiv ("Family Earth"). As for state support at the highest level, the desire to live according to the laws of nature is not considered to be harmful. However, there is a big problems with the aspect of children socialization, as normal physical and mental development of kids is provided with school education and communication with children of the same age, free information, development of abstract thinking, etc. Therefore, such exclusion from society, as in ecovillages, even for immersion in nature, is unacceptable.

Problems and disadvantages of alternative settlements. Basic negative aspects of alternative settlements appearing in Ukraine and neighboring Slavic states are as follows. First, it is financial problem: implementation and application of new technologies (innovative technologies, alternative energy, etc.) require large investments and banks are not willing to provide loans to organizers lacking necessary funds and guarantees.

Another drawback is a large area of such objects, because sustainable farming requires large areas. Therefore, land plot of 0.5-1 ha per family can be a drawback, as it can be used more efficiently in urban areas and even in traditional rural settlement. Therefore, the whole area of such settlement will be enough to provide the needs of maximum 5-10 families. Allocation of such large areas in areas with favorable climatic conditions can be very difficult for the government. Additionally having no revenues the state is not ready to support them [4].

Except the problem with land resources, there is an ethical problem. The thing is that the majority of people living in these settlements are vegetarians or raw food eaters, – it is significant advantage, but also an important disadvantage, because huge number of people today are not ready to switch to this type of food and get rid of their comfort zone.

The fourth negative aspect typical for ecovillages not only in Ukraine, but also in the whole world, is ideological imbalance. Unfortunately, considerable number of ecovillages set certain ideological requirements beyond environmental strategies. Often their members are united with the idea, religious or radical. The most common incentive to form alternative communities are religious

motivation, the desire to implement political and economic reforms, as well as need for self-realization. However, experience shows that the most productive and durable organizations are those in which ideological component is balanced and does not go beyond the ecological balance of life.

Summing up the experience of existing ecovillages we can identify the main applied problems and obstacles for ecological settlers that will decide to change their lifestyle in Ukraine:

- failure to provide comfortable living standards;
- lack of normal education and other services;
- problems in establishing good neighboring relations with indigenous villagers.

Some ecovillagers have managed to adapt to these conditions, created protoecovillages and have formed several regional networks. Others began to form groups of like-minded and developed initiatives on creation of ecological settlement. Some of them were viable and currently implemented.

In Ukraine, the alternative settlements movement faces significant difficulties and is now at the stage of formation. Experts state that in Ukraine only 4 of existing 37 ecosettlements have good financial support.

Prospects of ecosettlements in Ukraine. Despite the mentioned negative aspects the creation of alternative communities is positive process, as their experience could be used for balancing existence of modern populations and solving environmental problems of cities. Among other ecovillages enable achieving such positive results:

1. Overcoming unemployment and poverty due to production of goods for their own consumption, ensuring self-sufficiency of the community.
2. Availability of privately owned land to build a house objectively helps solve the problem of begging and homeless.
3. Health problems could be solved through acceptance and implementation of new, healthy life in the village.
4. Development of self-education and research in the field of environmentally sound management of alternative settlements.
5. Ensuring decent existence of elderly person through the creation of self-service in family estates, where people live peacefully. In addition, the elderly people are able to provide their additional needs without spending all costs for utilities and food that is currently happening in the city.
6. Addressing the spiritual development of man, self-realization and happy life. Reevaluation of values, realization of spiritual needs, ethical and moral ideals, new teaching methods and new lifestyle are working for personality improvement.
7. Addressing the environment in organization and conduction of sustainable economy.

Significant economic and social prospects for such settlements are connected with rural tourism, because it can make an important input into sustainable increase of local revenues and budgets of communities, enhance the development of many related industries (transport, trade, communications, construction, agriculture etc.). It will also give impulse to the revival and development of traditional culture, folk architecture, art, and crafts – everything that makes ethnic color together with natural and recreational factors. At the same time ethnic formations will represent Ukraine at global tourist market and also attract foreign visitors. Therefore, an important prerequisite for successful development of recreation in rural areas must be the revival of ethnographic ideology and development of the entire range of traditional culture from crafts to spiritual heritage, which will provide favorable conditions for individual vacation in ethnographic regions of Ukraine.

Conclusion. In Ukraine there are all prerequisites for the development of ecological settlements that can be seen as a specific form of sustainable economic activity for rural environment, with natural and cultural potential, or as a form of small business, which makes it possible to start solving problems of rural employment, living standards improvement, better use of natural, historical and cultural potential of rural areas. The development of such settlements has real state perspective and helps improve the socio-economic situation in rural areas.

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