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## HARMONIOUS DEVELOPMENT STRATEGIES AS A MEANS OF MINIMIZING LOCAL PROBLEMS OF MOUNTAIN COMMUNITIES

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### СТРАТЕГІЇ ГАРМОНІЙНОГО РОЗВИТКУ ЯК ЗАСОБИ МІНІМІЗАЦІЇ ЛОКАЛЬНИХ ПРОБЛЕМ ГІРСЬКИХ НАСЕЛЕНИХ ПУНКТІВ

***Mountain regions, despite their natural beauty and resource diversity, often face a complex set of socio-economic problems. These issues are particularly acute in small settlements, where isolation exacerbates the negative effects of natural and anthropogenic factors. To preserve the unique natural and cultural heritage of mountain regions and improve the quality of life for residents, it is crucial to develop and implement effective strategies for harmonious development. The article aims to examine the features of forming a harmonious development strategy and its role in minimizing local problems in mountain settlements. The study found that the development of mountain settlements is accompanied by several specific problems that distinguish them from lowland areas. It was noted that these problems are due to the unique features of the terrain, climate, economic conditions, and infrastructure, leading to imbalances in the socio-ecological-economic system. It has been proven that for mountain settlements, it is important to recognize development strategies that prioritize harmonious development and to take note of the unique characteristics of mountain ecosystems and local populations. It necessity is because key ideas related to harmonization in the economy are associated with concepts such as coherence, interaction, and balance. In the context of a strategy for the harmonious development of mountain settlements, economic actors and the population need to focus on achieving ecological equilibrium (which considers the interaction of natural and anthropogenic factors in the mountain environment), social equilibrium (which considers the level of residents' satisfaction with their lives, social justice, harmony between different social groups, and the community's ability to adapt to changes), and economic equilibrium (which considers the balance of economic processes in the mountainous area). It is characterized by stable economic growth and a diversity of economic activities. The ultimate priority of the strategy for the harmonious development of mountain settlements should be to transition towards achieving a maximum balance in the socio-ecological-economic system. This balance aims to meet the needs of the current generation without compromising the ability of future generations to meet their own needs.***

**Гірські регіони, попри природну красу та ресурсну різноманітність, часто стикаються з комплексом соціально-економічних проблем. Особливо гостро ці проблеми проявляють себе у великих населених пунктах враховуючи ізольованість (що посилює негативні наслідки природних та антропогенних чинників). З метою збереження унікального природного та культурного спадку гірських територій, а також підвищення якості життя місцевого населення, актуальною є розробка та впровадження ефективних стратегій гармонійного розвитку. Відтак, дослідження спрямоване на вивчення особливостей формування стратегії гармонійного розвитку та її ролі як засобу мінімізації локальних проблем гірських населених пунктів. У ході дослідження встановлено, що розвиток таких населених пунктів супроводжується низкою специфічних проблем, які відрізняють їх від рівнинних територій. Констатовано, що ці проблеми обумовлені особливостями рельєфу, клімату, особливістю умов господарювання та недорозвиненістю інфраструктури, що призводить до дисбалансів у соціально-еколого-економічній системі. Доведено, що для гірських населених пунктів важливим є формування таких стратегій розвитку, що пріоритезують гармонійний розвиток та враховують унікальні особливості гірських екосистем та потреби місцевого населення. Така доцільність обумовлена тим, що ключові ідеї гармонізації в економіці пов'язані з такими концептами, як злагодженість, взаємодія та рівновага. В контексті стратегії гармонійного розвитку гірських населених пунктів важливий фокус суб'єктів економічної діяльності на досягнення станів екологічної рівноваги (що враховує взаємодію природних і антропогенних факторів у гірському середовищі), соціальної рівноваги (що враховує рівень задоволеності жителів якістю життя, наявність соціальної справедливості, злагодю між різними соціальними групами та здатність спільноти адаптуватися до змін) та економічної рівноваги гірських поселень (що враховує збалансованість економічних процесів у гірській місцевості, характеризується стабільним економічним зростанням, різноманітністю економічної діяльності). Кінцевим пріоритетом стратегії гармонійного розвитку гірських населених пунктів є досягнення загального балансу соціо-еколого-економічної системи в тій мірі, в якій максимально задовольняються потреби теперішнього покоління без зниження можливостей майбутніх поколінь задовольняти свої потреби.**

*Key words: economic equilibrium; social equilibrium; strategy; diversification of economic activities; socio-ecological-economic systems*

*Ключові слова: економічна рівновага; соціальна рівновага; стратегія; диверсифікація економічної діяльності; соціо-еколого-економічні системи.*

## PROBLEM STATEMENT

Mountain regions, despite their natural beauty and resource diversity, often face a complex set of socio-economic problems, including high unemployment rates, low income levels, and significant outmigration of the working-age population. These issues are particularly acute in small settlements, where isolation exacerbates the negative effects of natural and anthropogenic factors. To preserve the unique heritage of mountain regions and improve local quality of life, effective strategies for harmonious development are essential. Such strategies can provide an approach to minimizing local problems in mountain settlements by ensuring a balanced combination of economic growth, social well-being, and environmental preservation of mountain areas.

## THE ANALYSIS OF RECENT RESEARCHES AND PUBLICATIONS

The contributions of Petrova N. O., Pityulych M. M., Paush M. M., and Kutsenko I. are significant for strategy formulation for diversifying the development of mountain areas. The

researcher's approach to minimizing the problems of mountain areas considers the economic aspects of their development, while social aspects are often secondary. Yet, the resident's quality of life is a key indicator of the success of any strategy. Furthermore, while ecological issues in mountain areas are often mentioned, their interconnection with economic development has been insufficiently explored. It is important to focus on the harmonious development of their socio-ecological-economic system, as emphasized in our previous research.

## GOAL SETTING (FORMULATION OF GOALS OF THE ARTICLE)

The article aims to examine the features of forming a strategy for harmonious development and its role in minimizing local problems in mountain settlements.

## THE PAPER MAIN BODY WITH FULL REASONING OF ACADEMIC RESULTS

The development of mountain settlements is associated with several specific problems distinguish them

from lowland areas [1; 3]. These problems are due to the unique features of the terrain, climate, economic conditions, and infrastructure, which cause striking disparities in the state of their socio-ecological-economic system [1; 6–7].

Among these problems are limited employment opportunities (due to the specific terrain and climate, mountain areas often have restricted possibilities for industrial and agricultural development), low-income levels (limited employment opportunities and the seasonal nature of economic activities result in incomes in mountain regions generally being lower than the national average), restricted access to social services (remoteness from major cities and challenging natural conditions complicate access to quality education, medical care, and other social services), soil erosion (intensive agricultural activities, livestock grazing, and deforestation lead to soil erosion and land degradation), water pollution (inadequate wastewater treatment, industrial waste disposal, and the use of chemicals in agriculture pollute rivers and lakes), and biodiversity conservation (increased anthropogenic pressure on natural ecosystems leads to biodiversity loss) and so on [3; 6; 8].

Therefore, the authors emphasize within the study that, for mountain settlements, it is crucial to recognize development strategies that prioritize harmonious development and consider the unique characteristics of mountain ecosystems and local populations. The term 'harmonization' has been used in various contexts for centuries. For example, the term 'harmony' was initially used in music to describe a pleasing combination of sounds and in philosophy to denote a state of balance, concord, and interrelation between different system elements.

Today, the term 'harmonization' is widely used in various fields such as economics, law, sociology, and more. Regardless of the field of application, the core meaning of 'harmonization' involves achieving coherence, consistency, and interaction among different system elements. This can apply to material objects (e.g., standards, legislation) and intangible elements (e.g., ideas, values). Indeed, key ideas related to harmonization in economics are connected to concepts such as coherence (where all system elements work together towards a common goal), interaction (where all system elements interact with and influence each other), and equilibrium (where a balance is achieved between different interests and needs).

Based on the content of these concepts, harmonization as a category for the development of mountain settlements refers to a process aimed at achieving coherence and interaction among different elements of the socio-ecological-economic system. This process enhances its effectiveness, simplifies interactions, and ensures developmental stability. Thus, in the context of developing mountain settlements, the following key aspects of this process can be highlighted [1; 3; 6–7]:

1. The focus of economic actors and the population is on preserving the natural environment. A priority is the harmonization of biodiversity, reforestation, rational use of water resources, and preservation of soil fertility to achieve ecological equilibrium in mountain settlements.

2. The focus of economic actors on social development. A priority is the harmonization of the quality of life

for residents through the development of local infrastructure, ensuring access to education and healthcare, and creating job opportunities to achieve social equilibrium in mountain settlements.

3. The focus of economic actors on diversified economic development. A priority is to stimulate local ecological production, develop tourism, and support traditional crafts and agriculture to achieve economic equilibrium in mountain settlements.

Noted that, from this perspective, the ways to minimize local problems in mountain settlements are aimed at achieving several conditional states of equilibrium

Specifically, from this viewpoint, the important states are [5–7]:

1. The state of ecological equilibrium in mountain settlements is a dynamic indicator reflecting the interaction of natural and anthropogenic factors in the mountain environment.

2. The state of social equilibrium in mountain settlements is a dynamic indicator reflecting the residents' satisfaction with their lives, the presence of social justice, harmony between different social groups, and the community's ability to adapt to changes.

3. The state of economic equilibrium in mountain settlements is a dynamic indicator reflecting the balance of economic processes in the mountainous area. It is characterized by stable economic growth and diversification of economic activities.

Given the specifics of the outlined states, the ultimate goal of developing mountain settlements should be their overall harmonization through the sequential attainment of each of the outlined conditional states, supported by a well-thought-out long-term action plan that considers [1; 2; 4]:

1. Local natural, cultural, and historical characteristics of mountain settlements;

2. The interests of all stakeholders (local population, business representatives, scientific communities, and authorities);

3. Long-term perspectives and phased implementation of measures, as external conditions may change.

The ultimate priority should be to achieve the maximum balance in the socio-ecological-economic system to the extent that the needs of the current generation are met without compromising the ability of future generations to meet their own needs. Under these conditions, a component of the long-term action plan for harmonizing the development of mountain settlements should be a combinatorial step-by-step mechanism (which allows for the consideration of the complexity and multifaceted nature of mountain systems).

Thus, the first step is to implement the focus of economic actors and the population on preserving the natural environment to the extent that it most effectively contributes to minimizing ecological problems in mountain areas. These problems include the overall vulnerability of mountain ecosystems, issues related to water conservation and climate regulation, and the continuous increase in anthropogenic impact from local production and domestic activities [6–7]. Thus, the key aspects that require immediate attention in addressing the ecological

**Table 1. Key aspects requiring immediate attention in addressing ecological problems in mountain areas**

Key aspects	Causes of vulnerability	Solutions (Strategic measures)
Overall vulnerability of mountain ecosystems	Steep slopes cause rapid soil erosion. High sensitivity to climate changes (changes in temperature regimes, precipitation). Limited area for ecosystem recovery after disturbances	Creation of protective strips (planting trees and shrubs along slopes to prevent erosion). Regulation of livestock grazing (establishing optimal livestock numbers on pastures to prevent overgrazing). Restoration of degraded lands (conducting reclamation work on disturbed lands)
Water conservation issues	Deforestation, leading to reduced water infiltration into the soil. Pollution of water bodies from industrial and domestic wastewater. Inefficient use of water resources.	Forest protection (increasing forested areas and implementing ecologically sound forestry practices). Construction of wastewater treatment facilities (to treat wastewater from industrial enterprises and settlements). Implementation of water-saving technologies in industry and domestic use.
Climate regulation	Changes in climatic conditions, leading to increased frequency of extreme weather events. Deforestation, which reduces the ability of ecosystems to absorb carbon dioxide.	Transition to renewable energy sources and energy efficiency. Increase and preserve forested areas. Develop and implement measures for adaptation to new climatic conditions.
Continuous increase in anthropogenic impact	Industrial and agricultural development. Increasing population. Intensive tourism	Development and implementation of environmental standards (for all activities impacting the environment). Creation of an environmental monitoring system (to track the condition of ecosystems and respond promptly to negative changes). Engagement of the public in addressing environmental issues (conducting informational campaigns, involving non-governmental organizations).

Source: formulated by the author based on [1; 4; 6—7].

problems of mountain areas within the framework of a strategy for the harmonious development of mountain territories are highlighted in Table 1.

It is important to understand that minimizing local environmental problems in mountain settlements is a complex process that requires

**Table 2. Key aspects requiring immediate attention in addressing social problems in mountain areas**

Key aspects	Causes of vulnerability	Solutions (Strategic measures)
Limited access to infrastructure	Poor road quality, complicating transportation and access to medical and educational facilities. Lack of or limited access to electricity, water supply, and sewage systems. Weak development of telecommunications networks	Construction and modernization of roads, bridges, and tunnels. Ensuring stable electricity supply, water supply, and sewage systems. Development of telecommunications networks.
Challenging climatic conditions	Frequent natural disasters (landslides, floods, snowfalls) pose a threat to life and property. Harsh winters and short growing seasons limit agricultural opportunities. High levels of ultraviolet radiation.	Development of natural disaster monitoring networks, implementation of early warning systems. Construction of buildings resilient to natural disasters. Use of alternative energy sources to ensure autonomous power supply in remote areas.
Restricted economic opportunities	Insufficient number of job opportunities, especially for youth. Low income levels among the population. Challenging conditions for doing business	Support for small and medium-sized businesses (providing financial support and consulting, creating a favorable business climate)
Social problems	Out-migration to cities. Isolation and limited opportunities for social interaction. Insufficient number of educational and cultural institutions.	Construction and modernization of schools, hospitals, and cultural centers. Organization of social programs to support vulnerable groups of the population.

Source: formulated by the author based on [2; 5—6].

**Table 3. Key aspects requiring immediate attention in addressing economic issues in mountain regions**

Key aspects	Causes of vulnerability	Solutions (Strategic measures)
Resource depletion	Intensive use of natural resources without their restoration (which may lead to their depletion in the future).	Encouraging the use of renewable energy sources (solar, wind, hydroenergy). Promoting environmentally conscious resource consumption
Non-Ecological technologies and production	Pollution of air, water, and soil, which negatively impacts human health and mountain ecosystems	Investment in research and development of new technologies that reduce environmental impact. Establishment of environmentally friendly production methods. Introduction of pollution taxes to encourage businesses to reduce emissions.
Creation of environmentally unacceptable products	Production of goods that are harmful to the environment or associated with the depletion of non-renewable natural resources.	Creation of an eco-friendly product labeling system
Increase in waste	The growing amount of waste creates problems for its disposal and burial. Waste pollutes the environment.	Minimizing waste through recycling and reuse. Closed-loop, green cycle (instead of the linear «extraction-production-consumption-disposal» cycle). Essentially, a system should be created where the waste of one process becomes the raw material for another. Designing products with their lifecycle and potential for reuse in mind

Source: formulated by the author based on [2; 4–5; 7].

collaborative efforts from government, businesses, and the public [3].

The second step is to implement a focus on social development by economic actors to the extent that it maximally contributes to minimizing issues related to the residents quality of life, such as limited access to infrastructure, challenging climatic conditions, restricted economic opportunities, and social problems. Thus, the key aspects that require immediate attention in addressing social difficulty in mountain areas within the framework of a harmonious development strategy are outlined in Table 2.

It is important to understand that minimizing local social problems in mountain settlements is a complex and multi-level process that requires a nationwide policy of support for mountain settlements, as well as cooperation between local authorities and local self-government [3].

The third step is implementing the focus of economic actors on economic development to the extent that it maximizes the flow of Hicks-Lindahl aggregate income. However, the main problems are that this is not possible due to resource depletion and non-ecological technologies in the extraction and processing of raw materials, the creation of environmentally unacceptable products, and the increase in waste from economic activities. So, key aspects requiring immediate attention in addressing the economic issues of mountain regions within the framework of a harmonious development strategy for these areas are outlined in Table 3.

It is important to understand that addressing economic challenges in mountain communities requires a

comprehensive approach, which involves preserving the collective capital (physical, natural, and human) that generates income [3].

Therefore, an important step is transitioning to optimal use of limited resources and adopting ecological technologies, including the extraction and processing of raw materials, creating environmentally acceptable products, and minimizing, recycling, and disposing of waste [1; 7].

The fourth step is the overall harmonization of the development of mountain settlements. When implementing this step, it's important to remember that mountain regions differ in natural conditions, cultural features, and levels of development. Therefore, there are no universal steps to achieve harmonization.

Individual approaches for their content are needed (based on incentive measures that promote achieving a balanced territorial system and transitioning from an imbalanced state of the socio-ecological-economic system).

### CONCLUSIONS FROM THIS STUDY AND PROSPECTS FOR FURTHER EXPLORATION IN THIS DIRECTION

The research has established that the development of mountain settlements by several specific problems that distinguish them from lowland areas. These problems are due to the characteristics of the terrain, climate, economic conditions, and infrastructure, which lead to imbalances in the socio-ecological-economic system. The outlined points have led to the following conclusions:

1. For mountain settlements, it is crucial to recognize development strategies that prioritize harmonious growth and consider the unique characteristics of mountain ecosystems and local populations. Such appropriateness is because key ideas related to economic harmonization are associated with concepts such as coherence, interaction, and equilibrium.

2. In the context of the strategy for the harmonious development of mountain settlements, it's important to focus on achieving ecological equilibrium in mountain settlements (considering the interaction of natural and anthropogenic factors in the mountain environment), social equilibrium (considering residents' satisfaction with their lives, social justice, harmony among different social groups, and the community's ability to adapt to changes), and economic equilibrium (considering the balance of economic processes in mountain areas, characterized by stable economic growth and diversity of economic activities).

3. The ultimate priority of the strategy for the harmonious development of mountain settlements should be the transition to maximum balance within the socio-ecological-economic system, ensuring that the needs of the current generation are met to the greatest extent possible without compromising the ability of future generations to meet their own needs.

The research findings can be used to develop targeted government support programs for mountain regions.

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