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INNOVATIVE SOLUTIONS FOR ARCHITECTURAL AND PLANNING ORGANIZATION OF MULTIFUNCTIONAL COMPLEXES IN RURAL AREAS OF UZBEKISTAN

Berdiqulov Jasur Begimovich
Samarkand State University of Architecture and Construction; 3rd-stage doctoral candidate specializing in Regional Planning, Urban Planning, Rural Settlement Planning, Landscape Architecture, and Buildings and Structures (Specialty Code: 18.00.02).

E-mail:berdikulov@mail.ru

Abstract: This article analyzes modern approaches and innovative solutions for the architectural and planning organization of multifunctional complexes in rural areas of Uzbekistan. The role of multifunctional complexes in the socio-economic development of rural settlements, improvement of service infrastructure and improvement of the quality of life of the population is highlighted. During the study, the principles of architectural and planning formation of complexes combining the functions of community centers, household services, trade, culture, education and recreation in rural areas were studied. Also, innovative solutions that ensure energy-saving technologies, digital management systems and environmental sustainability were proposed.

Keywords: rural area, multifunctional complex, architectural and planning solution, innovative technologies, community center, sustainable development, ecological architecture.

Introduction. In our country, the comprehensive development of rural areas, the creation of a comfortable living environment for the population and the improvement of the service system are among the priorities of state policy. In recent years, special attention has been paid to the formation of modern infrastructure in rural areas, the construction of new residential areas and the expansion of the network of social facilities. The state programs and concepts for the development of regions adopted in this regard serve to improve the living conditions of the rural population, introduce modern engineering and communication networks, and reduce the socio-economic disparities between rural and urban areas. In particular, the issue of fully satisfying the needs of the rural population in education, medicine, culture and household services is considered one of the urgent tasks.

World experience shows that multifunctional complexes play an important role in the effective development of rural areas. Such complexes simultaneously perform several social, cultural, economic and recreational functions, providing various services to the population through a single center. As a result, the efficiency of using the territory's infrastructure increases, the quality of services improves, and additional amenities are created for the population. Especially in rural areas with a relatively small population, it is economically and urbanistically expedient to place them in a single complex instead of building several separate facilities.

Multifunctional complexes allow rural residents to meet their trade, service, cultural, educational, sports and recreational needs in a single center. In such centers, shops, consumer service outlets, libraries, information and resource centers, youth centers, gyms, medical stations, cultural centers and various public spaces operate in an integrated manner. This reduces the need for residents to travel long distances to meet their daily needs and significantly reduces time and transportation costs.

Today, the socio-economic development of rural areas is largely associated with the use of modern architectural and urban planning approaches. Therefore, when designing multifunctional complexes, special attention should be paid not only to functional convenience, but also to energy efficiency, environmental sustainability and the creation of an inclusive environment. The use of modern building materials, renewable energy sources, digital control technologies and “smart

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building" systems will further increase the efficiency of such complexes. Also, taking into account the natural and climatic conditions of the region, national architectural traditions and the lifestyle of the local population will allow creating sustainable architectural solutions that are suitable for the rural environment.

The formation of multifunctional complexes also serves to create new jobs in rural areas, develop entrepreneurial activity and increase investment attractiveness. Such complexes create new opportunities for local manufacturers and service providers, giving impetus to the activation of the regional economy. At the same time, the creation of public spaces increases the social activity of the population, creates conditions for holding various cultural and educational events and contributes to improving the quality of life of rural residents.

As a result, multifunctional complexes are formed as modern centers of rural settlements, increasing the efficiency of land use, creating a comfortable urban environment for the population, and serving as an important factor in ensuring the sustainable development of rural areas. Therefore, the organization of multifunctional complexes in rural areas on a scientific basis in terms of architectural and planning and the development of innovative solutions is one of the current scientific and practical issues.

Research methodology. The research used the methods of systematic analysis, comparative analysis, architectural and planning modeling, and scientific literature review. The experiences of Uzbekistan and foreign countries in developing rural infrastructure were studied, and the factors influencing the formation of multifunctional complexes were analyzed.

Main part. A multifunctional complex is an architectural object that combines several public functions in a single area. In modern rural areas, such complexes are organized to meet the daily needs of the population, improve the quality and convenience of services, and make effective use of available land resources. Multifunctional complexes may include shopping and service centers, medical centers, educational and vocational centers, libraries and information and resource centers, sports and recreation facilities, cultural and event halls, youth centers, and coworking areas. The placement of these functions in one complex makes it possible to meet the various needs of the population in one center, reduces service costs, and has a positive impact on the socio-economic development of the region.

Village in the regions many functional complexes architectural and planning organization in the process of centralized planning principle important importance has. Such complexes village in the center or main transportation directions intersected in the regions placement population all layers for comfortable use opportunity creates. With this together, complexes in design functional zoning on the principal action to do necessary. In this, the community and cultural events territory, trade and service show zone, sports and recreation fields and administrative management parts each other connected without, but independent activity yurita can in a way organization Such a solution from the area use efficiency increases and various functions transportation between and pedestrians flow order puts.

Also, modern village in complexes flexible planning principle separately importance profession the buildings internal places and constructive systems in the future to the surface arrival possible was new to needs suitable accordingly again organization to grow to the possibility has to be This is necessary. of buildings exploitation the deadline extends and from them use efficiency increases.

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Many functional village complexes functional Composition. Table 1.

T/r	Functional block	Home task
1.	Population daily needs satisfaction, trade and household services organization to grow	Trade and service show center
2.	Primary medical service and preventive events done increase	Medical point
3.	Youth and population professional qualification increase	Education and profession center
4.	Information resources with provision, spiritual and educational activity develop	Library and information center
5.	Healthy marriage style formation and sports activities organization to grow	Sports and health promotion territory
6.	Cultural and educational events, meetings and exhibitions transfer	Culture center
7.	Youth initiatives support and innovative activity develop	Youth center and coworking territory

Innovative architecture solutions. Today on the day village territories in development innovative technologies application important from factors one is considered. Many functional complexes in design energy economic and ecological safe from solutions use construction economic efficiency increase with together to the environment negative also reduces the impact. In buildings sun panels, wind energy devices, rain waters assembly and again use systems and modern heat insulating from materials use energy spending noticeable at the level shortens.

Digital technologies based on " Smart building" systems are being developed lighting, heating, ventilation and security systems automatic management opportunity gives. As a result, energy from resources use efficiency increases and exploitation expenses decreases. From this outside, modular construction technologies construction deadlines abbreviation, project value reduces and construction quality to increase service does.

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Innovative solutions Advantages. Table 2.

T/r	Innovative solution	Expected result
1.	Sun panels and again recovering energy sources	Energy expenses reduce
2.	" Smart" building management systems	Energy saving and use convenience
3.	Modular construction technology	Construction deadlines reduction
4.	Rain waters assembly system	Water from resources reasonable use
5.	Ecological landscape design	Convenient microclimate and ecological stability
6.	Transformative internal spaces	Future to needs flexibility

Uzbekistan villages for conceptual model. Research results based on Uzbekistan village regions for modern requirements and local conditions into account received without many functional of the complex conceptual model working This model is administrative. and service show center, trade and entrepreneurship center, education and innovations center, youth and culture center, sports and recreation center and recreational-green from the regions organization found They are a single architectural and planning system within each other integral connected without activity runs. Offer Model village in progress population daily needs complex accordingly to satisfy aimed at in the area modern public the center formation opportunity gives.

Administrative and service show center village citizens meeting, state services center, bank and mail services such as important social objects own inside This population for state and administrative from services use relieves and various services one in the area concentration through time and savings provides. Trade and entrepreneurship center and local working issuers products sale, small business and family entrepreneurship develop for comfortable conditions creates. As a result village economy activity increases and new work places is created.

Education and innovations center modern information and communication technologies with equipped study rooms, profession to teach centers, libraries and innovative laboratories own inside It takes. These young people knowledge and qualification upgrade, modern professions possession and innovative activity to develop service does. Youth and culture center and various cultural and educational events, creative clubs, exhibitions and meetings organization to grow for intended to be, to be part of society spiritual his life to enrich help gives.

Sports and fitness center includes universal gyms, outdoor sports fields, fitness and health promotion regions This population physical activity increase, healthy marriage style promote to do and of the youth empty time meaningful organization to reach service does. Recreational-green regions and pedestrians alleys, children playgrounds, recreation places and landscape design elements with enriched, ecological in terms of comfortable the environment shapes.

Offer being done conceptual model important from the advantages one all functional unified architectural and planning of blocks composition based on This approach is based on the concept of

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transport and pedestrians' movement optimizes, from the area use efficiency increases and village of the center modern and aesthetic appearance creates. With this together, energy economical technologies, re recovering energy sources and " smart" management systems current to grow through of the complex ecological and economic efficiency increase possible.

As a result, offer done many functional complex model village of the regions social, economic and cultural development acceleration, population for comfortable and safe to live environment create and village population of points stable development to provide service doer modern architectural and planning solution as recommendation is being done.

Results and discussion. Analysis this showed that many functional complexes village infrastructure central element as service to do Their innovative architectural and planning solutions based on to be designed land from the fields effective use, energy thrift provision and services quality and coverage increase opportunity gives. With this together, like this complexes village population social activity strengthens and of the regions stable to develop service does.

Conclusion. Uzbekistan village in the regions many functional complexes organization to grow modern urbanization processes and regions complex develop of the policy important structural part is considered. The population marriage level increase, social infrastructure from objects uses opportunities expansion and village and city between development differences in reduction such complexes importance increasingly increasing is going on. Therefore, village population points in planning many functional complexes formation issue architecture and urban planning current from directions one as manifestation It is happening.

Research during many functional village complexes architectural and planning formation principles, functional composition and territorial organization to grow features studied. Analyses as a result complexes centralized placement, functional zoning, flexible planning and public places with integrated without design their efficiency increasing main factors that was also found. functions in a single area incarnation land from resources reasonable use, construction and exploitation expenses reduce and to the population displayed services quality improve opportunity to give was founded.

In the study modern innovative technologies of use promising See also directions was released. Including energy economical construction materials, recycled recovering energy sources, " smart building" technologies, modular construction systems and ecological landscape solutions village complexes economic, ecological and functional efficiency to increase service to do This was determined. approaches not only energy resources saving, maybe comfortable microclimate creation, environment negative the effect reduce and of buildings far term exploitation provision opportunity gives.

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Research of the results analytical Table 3.

No.	Research direction	Home content	Expected result
1	The research relevance	Village in the regions many functional complexes organization to grow urbanization and regions complex development important factor is considered	Village and city between infrastructural differences reduce
2	Social importance	Population marriage level and from services use opportunities improve	Social of well-being increase
3	Architectural and planning principles	Centralized placement, functional zoning and flexible planning	From the area use efficiency increase
4	Church places integration	A single set of various functions in the composition combine	Population for comfortable and active public environment create
5	Earth from resources use	Functions one in the area concentration through land from the fields reasonable use	Construction and exploitation expenses reduce
6	Innovative technologies	Energy efficient materials and modern engineering systems application	Energy consumption reduction and economic efficiency increase
7	Again recovering energy sources	Sun and wind from energy use	Ecological stability provision
8	" Smart" building technologies	Engineering systems automated management	Operation efficiency increase
9	Modular construction systems	Prefabricated constructions based on construction	Construction deadlines and expenses reduction
10	Ecological	Landscape design and	Convenient

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	approach	green regions formation	microclimate and ecological environment create
11	Offer done conceptual model	Administrative, commercial, educational, cultural, sports and recreational from blocks consists of complex	Population needs complex satisfy
12	Economic efficiency	Entrepreneurship develop and new work their places create	Area economic activity increase
13	Urbanist efficiency	Modern village the center formation	Village of the regions attractiveness increase
14	Scientific and practical importance	Offer done the model practical in projects application opportunity	Village territories stable develop for scientific basis create
15	Future research	Regions natural-climatic and demographic features into account received exemplary projects working exit	To practice implementation to grow efficiency increase

Research results based on working issued conceptual model administrative and service show center, trade and entrepreneurship center, education and innovations center, youth and culture center, sports and recreation center and recreational-green from the regions consists of village population main needs complex accordingly to satisfy This is aimed at model to practice current to be village of the regions economic activity increase, new work their places creation, population for comfortable to live environment formation and of the regions investment attractiveness to strengthen service does.

So offer done architectural and planning solutions and conceptual model Uzbekistan village territories stable development, modern infrastructure formation and population socio-cultural and economic needs effective satisfy for scientific and practical basis to be service to do possible. In the future this in the direction of the regions natural-climatic, demographic and economic features deep into account received without exemplary projects working exit and them to practice implementation to grow important importance profession will reach.

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