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RESULTS OF PRACTICAL IMPLEMENTATION OF LARGE TOWN PLANNING PROJECTS IN RURAL AREAS IN THE 80'S OF THE 20TH CENTURY IN UKRAINE (BY EXAMPLE OF VILLAGES CONSTRUCTED FOR THE CHERNOBYL ZONE OUT-MIGRANTS)

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Abstract. On the basis of field studies of rural residential areas, performed in 2016, which were designed and built for out-migrants from the Chernobyl zone in 1986-1987, the author analyzes their evolution, the 30-year period of their operation for the purpose of matching development planning decisions the real needs of rural inhabitants.

Key words: villages, residential areas, settlements for Chernobyl out-migrants, development, street, farmstead.

1. Introduction

According to the data of the Ministry of Regional Development, Construction and Housing of Ukraine as of June, 2016, master plans of 66.5 % of urban-type communities need urgent renewal, 29.5 % of villages in Ukraine have no master plans, and 64.4 % of the villages that currently have master plans were developed before 1991 [1]. That is, only 25.1 % of villages of Ukraine have master plans which are developed according to DBN 230-92 – a set of design rules, which fundamentally do not differ from the norms of the socialist period. Consequently, significant scope of design works on creation of new master plans of villages, against the background of degradation of the Ukrainian village as a whole, actualizes the problems of improving these master plans on basis of the previous rural construction experience.

In this regard, the results of the design, construction and evolution of villages for out-migrants from the Chernobyl zone could be interesting and useful. In spite of the unfortunate circumstances that caused their appearance, in fact, these villages represent a large-scale urban development experiment in the field of rural housing construction. Such an experiment, which represents the embodiment of the newest knowledge of the theory of village architecture for the mid 80-ies of the twentieth century and which was implemented into design rules was current at that time. These days, 30 years after the construction and settlement of those villages, it is a good opportunity to check how those design rules meet the real needs of the village, as current norms do not fundamentally differ from the design standards of 1986.

Analysis of recent investigations and publications. Works of physicists, physicians, historians, ethnographers and other scientists are dedicated to the problems of Chernobyl out-migrants. There are some works of M. S. Avdieieva, T. A Dotsenko, V. Ya. Pinchuk, dealing with research of housing and architectural environment for Chernobyl out-migrants, where the authors outline the peculiarities of national traditions while designing housing for Chernobyl out-migrants. Meanwhile, the architectural and planning decisions of the rural estate development project for Chernobyl out-migrants have remained unexplored.

The purpose of this study is to determine the results of the design, construction and operation of the settlements for the out-migrants from the Chernobyl zone. Evaluation and systematization of the collected data have formed the real picture of the present state of the villages, after 30 years of their operation.

Methodology and research objects – since almost no study has been carried out on the results of the construction of the settlements for out-migrants from the Chornobyl zone by this time, 30 years after the Chernobyl disaster, from August 2016, the author organized 6 expeditions to villages in the Kyiv region. Arkadiivka and Paskivshchyna in Zhuriv district, Trubivshchyna of Yahotyn district, Plesetske and Lubiana in Vasylkiv district, and the village of Havronshchyna in Makariv district were visited for the collection of materials. In the course of expeditions, field studies of the villages, photofixation, schematic measurements, interviewing of residents and heads of local village councils were conducted. The expeditions enable us to fix the current state of the quarters for the out-migrants from the Chernobyl zone, to find out the changes that happened during their 30 years of operation, to make certain conclusions based on the field studies.

2. Results and Discussion

The explosion of the 3rd reactor of the Chernobyl nuclear power plant caused significant transformations in the population settlement pattern of Ukraine. In 1986, about 116 thousand people were evacuated from the 30-kilometer zone around the Chernobyl nuclear power plant, for whom new settlements were designed and built on land that was promptly withdrawn from agricultural use. Despite the urgency, the choice of sites for the construction of settlements for Chernobyl out-migrants was quite meaningful and systematic:

1 – the residents of the Chornobyl zone villages were moved to new places compactly without settling them apart into different villages. However, such an ideal situation was rather exceptional, than typical for many reasons. New settlements of the commensurable size and capacity were constructed for them on the basis of the calculation of a household unit for each family (although it would be fair to note that there were often cases when single elderly people were settled in the same household or the same house). This principle mainly determined the extent of a newly formed settlement;

2 – the settlements were built in the central region of Ukraine, whose natural, climatic and landscape characteristics did not have too much differences from the conditions of the Chernobyl zone: in Vinnytsia, Khmelnytskyi, Rivne, Zhytomyr regions and in 10 districts of Kyiv region: Baryshivsk, Borodianka, Vasylkiv, Vyshhorod, Volodarsk, Ivankiv, Makarov, Pereyaslav-Khmelnytskyi, Fastiv and Yagotyn [2];

3 – the settlements had been located not far from large cities to provide more prospects for the youth, and above all – to absorb the probable surplus of labor force among those settlers who could not or did not want to work in the collective farms, to which Chernobyl out-migrants settlements were joined;

4 – the construction of housing for out-migrants was arranged in a not detached way from existing settlements, but as a part of existing settlements which consisted of several quarters or just streets. The construction was carried out not far from the existing villages in new and unoccupied territories, or within already existing village development. The aim of such settling decision was to solve several possible problems of out-migrants: residential, economic-functional and psychological:

– having settled them not separately in new territories, but along with the native population, the goal was to integrate Chernobyl out-migrants into the existing living environment as new members of the community, thus not creating any segregation of out-migrants from the rest of the society (it is known that in the beginning the native people of the villages perceived the out-migrants warily as strangers);

– employment – existing then collective and state farms, which the villages belonged to, could accept a sufficient number of newly arrived farm labour force. It can be assumed that due to the neighbourhood of a large city, at that time, those collective and state farms experienced labour shortage;

– along with the construction of the housing, the community and consumer facilities had been built for out-migrants. It was assumed that the community and consumer facilities of the existing villages could provide the needs of out-migrants at the beginning.

On the other hand, the construction of service facilities for out-migrants had to simultaneously improve the services of the residents of the existing villages. For example, in the village of Arkadiivka, 160 of homesteads, a school, a dining facility, shops, a bathhouse and a consumer services centre had been built [3] for the out-migrants, and the local people of Arkadiivka could also use all of them;

– the engineering infrastructure of the existing villages (electricity, communication facilities, water supply etc.), their source of construction materials, labour resources became an additional support in the construction of quarters for the out-migrants.

The project documentation with master plans of the settlements, the planning of farmsteads including residential buildings and subsidiary facilities, and public facilities had been developed by design institutions in extremely short period, sometimes in parallel with the construction, and designers working in carriages next to the construction sites. Hundreds of construction companies were simultaneously involved in the construction of new settlements. Thus, the first out-migrants from the most radiation-polluted villages entered the newly built homesteads already in September 1986, and in the following years, the construction of dozens of quarters for out-immigrants from the Chernobyl zone was completed.

Thereby, in spite of the emergency, in Ukraine, in the second half of the 80's of the twentieth century there was a complex construction of rural settlements on unprecedented scale. The design and construction had been conducted on the basis of the latest knowledge and ideas of that time with regards to what a Ukrainian village had to be like, on the basis of the newly developed for that time – Republican Construction Standards for Rural Design (RCS/86), in which the construction experience of a number of experimental villages (Vuzlove, Kodaky, etc.), constructed in Ukraine in the 70s of the twentieth century, had been taken into consideration. In view of that the current norms for the design of rural settlements are not much different from those ones which were in force in 1986, the settlements for the Chernobyl out-migrants can be considered nowadays as a large-scale urban experiment in the field of rural construction, the results of which have been tested by lives of one or two generations. Consequently, the results of this experiment can provide valuable material for both scientists who deal with rural architecture problems and development of new design rules, as well as for practicing architects working on master plans of rural settlements.

Streets. The first thing that strikes in the villages for the Chernobyl out-migrants is the space of the streets dividing the settlement into quarters. This space is created by an ordinary 3.5 meter roadway and 3 to 4 meters frontage on both sides of the street, which stretches along the farmstead fences, separating the street from residential buildings. In some settlements (Arkadiivka, Havronshchyna) there are rain ditches up to 40cm deep along one side of the street, which slopes are laid out with large concrete slabs.

On the streets, oneside and straight rows of water pumps were arranged, most of which do not work at present. Former out-migrants remember that water out of them was of bad quality in all times. In addition, at present many of the water pumps are silted up. For these reasons a lot of owners have drilled new wells within their farmsteads.

Nowadays, the planning system of the settlements has been preserved, there is a sufficient number of households which have not undergone any fundamental reconstruction, and on the base of which it is possible to analyze the parameters of the estates, which were taken according to that time rules, and their planning decisions. As a matter of fact, it is possible to imagine a general picture of rural households that were offered by the state at that time. The household areas vary from 0.12 to 0.25 hectares (mostly 0.15 hectares), depending on the adopted directive for a certain settlement and the position of a homestead in the structure of a quarter. The homesteads located within quarters had minimum areas (0.12–0.15 hectares), and those ones located on the quarter outskirts, along the streets, to which land plots were adjoined, had maximum areas of 0.25 hectares. The width of the farmsteads along the street was taken between 24 and 26 metres.

Residents' land plots for the cultivation of agricultural products are located either near their own homesteads or at a considerable distance from the place of living. Therefore, farmsteads bordering on land plots are highly valued by the residents. The owners of such farmsteads believe that they are just very lucky, because they do not need to make any efforts or spend any time on the way to their plots. And they also note that such land plots are much easier to care after than those ones which are far away. Moreover, they emphasize that the immediate vicinity of farmsteads and land plots allows them to hold more poultry and livestock, especially cows, which number is constantly decreasing in Ukrainian villages.

The household development was carried out on the basis of the I or II typical projects of one-storey residential houses, as well as typical household facilities: a cattle shed with compartments for small animals and poultry, a cellar, and a backhouse *(see Fig. 1)*[1].

[1] *All pictures are taken by the author.*

a b

Fig. 1. a–b. A house and household facilities in a farmstead of a Chernobyl out-migrant in the village of Arkadiivka, Makariv distruct, Kyiv region

The local residents confirm that almost all the owners kept small livestock and poultry, although at that time all out-migrants became the farmhands of local collective or state farms.

Residential houses consisted of 3 rooms, a gas-powered kitchen, a verandah and an attic. According to their areas and design, the houses were comfortable enough for one family, if not to take into consideration the lack of sewage, water supply, and the lack of insulation of walls and attic. The residents of new houses told us that they had enough living space and premises and even more than they had had before, which was confirmed by the actual survey – there is no extending of the houses.

The main changes that have affected the houses are the replacement of windows and the insulation of the outer walls and attic floor. Though, the respondents noted that there was a great lack of household facilities, there was a much less number of them than was left in their properties. Therefore, those out-migrants who had some means, they developed their farmstead facilities, and those ones who had neither means, nor health or desire for doing that, gradually minimized the household, having limited it to keeping poultry, a goat or a pig.

The current state and new life of quarters in the settlements for the Chornobyl out-migrants. Nowadays, 30 years later, there are less real out-migrants, many of them are no longer alive, and their descendants have moved to cities, and the parental homesteads are used as country houses. Some of the houses have new owners, most of which are former residents of Kyiv. Reconstructions and expansions of the households made by the new residents sometimes make it difficult to recognize the former homes for out-migrants. Household facilities have been converted into garages, pavilions etc. The quarters of former out-migrants in such villages as Lubianka, Plesetske, Havronshchyna, acquire outlines of suburban housing increasingly due to proximity to Kyiv, as well as due to the good condition of highways (*see* Fig. 2).

But there is another type of owners – these are the local villagers who run their households rather intensively. In this case, farmsteads of former Chernobyl out-migrants undergo radical changes, mostly they are being reconstructed or expanded and new household facilities are being built. In such farmsteads the owners very often keep small livestock and poultry, and only some farm owners breed cattle.

However, the new owners of households with no farming facilities note the extremely high demand for products produced by their neighbours-farmers. Some owners of such farms have agricultural machinery – combines, tractors, etc. Therefore, the frontage at farmstead fences serve as parking for agricultural machinery due to the insufficient area of farmsteads for maintenance of such vehicles.

Some farmstead owners have started small businesses like shops and cafes. In some villages, for example, in Trubivshchyna, the former house was adapted to serve as a church, which could not be done for some reasons in those years of their migration (*see* Fig. 3).

Nowadays, some households are used as country houses. Nothing has changed in such homesteads; houses are maintained in more or less proper conditions. At the same time, household facilities are decaying. And there is one more category of farmsteads – these are abandoned properties. Their broken remains of fences,

closed houses, with broken windows, that gradually are collapsing, sunken and overgrown with grass cellars and sloping household facilities remind that there was once life.

a b

Fig. 2. Samples of reconstructed houses of Chernobyl out-migrants:
a – the village of Lubianka, Vasylkiv district, Kyiv region; b – the village of Plesetske, Makariv district, Kyiv region.

a b

Fig. 3. Sample of the farmstead in the village of Arkadiivka, Vasylkiv district (a);
Reconstruction of the Chornobyl out-migrant house for a church in the village of Trubivschyna, Yagotyn district, Kyiv region (b)

3. Conclusions (on the results of the field studies of the settlements for the Chernobyl out-migrants)

1**.** The out-migrants are people from Polissya region, who used to identify and still identify themselves with the woods, who felt protected from the outside world by those woods, were relocated to open areas where they began to feel uncomfortable and unprotected. Perhaps that was one of the reasons that prompted many out-migrants to come back to their homes which were in the 30-kilometer Chornobyl zone. For others, especially for elderly people, this psychological discomfort resulted in depression, illnesses and increased mortality among out-migrants. Another category, mostly youth, have saved themselves of depression in the cities. That is why it seems fair that the toponym of each land is extremely important for its inhabitants in all aspects of their existence. And perhaps instead of economic arguments that priority had to be taken as the main thing to site the settlements for Chernobyl out-migrants at teretories that would resemble Polissya or at least to recreate the spatial organization of the homesteads.

2. The farmstead areas, though they were much larger than it was usually provided for housing at that time in Ukraine, could not be equal to the spacious households out-migrants had had before the Chernobyl

catastrophe in any way. The sharp reduction of the space of a farmstead to the size of that time standard household contributed to the development of belief among the out-migrants that it was impossible to develop a subsidiary farm in such limited space, and they either curtailed it or not even started it up. Thus it is possible to assume for those out-migrants who wanted to have a developed subsidiary farm, the parcel area for a household (a cottage and a garden) had to be between 0.25 and 0.50 hectares.

3. The household facilities which were built for the out-migrants proved to be insufficient for the set of premises and the area. Also, due to the insufficient width of a homestead, it was difficult to create a comfortable farm yard, sufficient for small livestock and poultry, agricultural machinery parking. These two factors led to the refusal of the owners to conduct developed farm production on their own land plots.

4. To give the out-migrants possibility to develope farm production, it was necessary to minimize the distance between their homesteads and their land plots. The land plots had to be directly adjacent to the household, or they could share the service passage. The unconditional relevance of such a scheme of a village development has been shown by the comparison of some of the unproductive farmsteads of the out-migrant in the village Arkadiivka comparing to the farmsteads of the indigenous inhabitants of the same village. The last ones, due to competent development of the village (being the part of Russian Monarchy), have parcels with an area of up to 0.5 hectares (a farmstead and a garden), so all the households are engaged in farm production, and the village itself looks rather optimistic then resembling a depressed settlement.

And vice versa, land plots (gardens) which are separated from farms at considerable distances require additional time and efforts for getting to them, additional energy, additional transportation costs of products, fertilizers, stock etc. The future perspective of such settlements with distant land plots from homesteads can be outlined as:

- land plots become parts of larger farms or agribusiness;
- farmsteads lose the status of farm producers and, at best, are gradually transformed into cottage settlements, if there is a city nearby or some other kind of production, or in the worst case the village simply disappears;
- the disappearing of small farms may increase prices for agricultural products by monopolists like large farms and agribusiness;
- with the disappearance of villages – the main carriers of Ukrainian identity, the entire country can degrade spiritually and then physically. If migrants from Asia come to our wonderful lands, it would be another country.

A general conclusion for modern development of the village. The town-type settlements (a farmstead with a house and household facilities, and land plots outside the settlement) were designed and built for the out-migrants from the Chernobyl zone, which were quite comfortable from the position of a town dweller. But even after 30 years of life these settlements have not become a real Ukrainian village, evolving from small farms in the distance to a kind of hybrid of cottage development of suburban type, country-zone, and abandoned properties. The reason for this fiasco is in ignoring of the needs and regularities of the successful functioning of a farmstead, especially in neglecting the need for an organic combination of a household and a land plot as the main factor of the farm production.

The further development of master plans of villages and their quarters, as it has been done for the last 70 years with a socialist sight to erase the differences between the city and the countryside, as suburban cottage towns are neat and architecturally perfect, leads directly to degradation of the Ukrainian village. It is the time for the urbanists to understand the difference between the quarter of town households and the street of the Ukrainian village.

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РЕЗУЛЬТАТИ ПРАКТИЧНОГО ВПРОВАДЖЕННЯ ПРОЕКТІВ ВЕЛИКИХ МІСТ В СІЛЬСЬКІЙ МІСЦЕВОСТІ У 80-ті рр. ХХ СТОЛІТТЯ В УКРАЇНІ (НА ПРИКЛАДІ, СІЛ ЗБУДОВАНИХ ДЛЯ ПЕРЕСЕЛЕНЦІВ З ЧОРНОБИЛЬСЬКОЇ ЗОНИ)

Анотація. *Згідно з даними Міністерства регіонального розвитку і будівництва, в Україні склалась ситуація, де села та селища міського типу потребують термінового розроблення генпланів, або їх оновлення. Зараз існує певна частка сіл України, які зовсім не мають генпланів, або є села, для яких генплани вже опрацьовані, а для інших продовжують опрацьовуватись згідно з уже новими проектними нормами.*

Зважуючи усі сторони цієї проблеми, цікавими і корисними видаються результати проектування, будівництва і еволюції сіл для переселенців з чорнобильської зони. Незважаючи на трагічні обставини, що спричинилися до їх появи, ці села фактично являють собою масштабний містобудівний експеримент у сфері сільського житлового будівництва, який уособлює собою втілення найновіших на середину 80-х років ХХ ст. знань у теорії архітектури села, які були інстальовані в чинні на той момент проектні нормативи.

Саме через 30 років після будівництва і заселення цих сіл, постала нагода перевірити, відповідність проектних нормативів на їхню відповідність реальним потребам села, з позицій чинних на сьогодні проектних норм, які принципово нічим не відрізняються від проектних норм 1986 року.

На основі проведених автором в 2016 р. натурних досліджень сельбищних територій сіл, запроектованих і збудованих в 1986–1987 роках ХХ ст. для переселенців з чорнобильської зони, проаналізовано еволюцію поселень протягом всього періоду їх експлуатації на предмет відповідності розпланувальних вирішень забудови, реальним потребам сільських мешканців.

Зіставляючи результати досліджень, на фоні кількісно-масштабних опрацювань генеральних планів сіл, як це робилося останні 70 років з соціалістичним прицілом на стирання відмінностей між містом і селом, проектуючи село як приміські котеджні містечка, автор вбачає закладення складної і болючої проблеми, яка прямо веде до подальшої деградації українського села. І сьогодні, саме на тлі цього явища, настав час урбаністам зрозуміти різницю між кварталом садибної забудови для городян і сільською вулицею українського села.

Ключові слова: *села, житлові райони, поселення для Чорнобильських переселенців, розвиток, вулиця, садиба.*