

# TEMPORARY ACCOMMODATION AS BASIC PROTECTION OF REFUGEES OF WARFARE AND HUMANITARIAN DISASTERS

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## Abstract

In this article, the authors have attempted to present issues related to the planning and construction of temporary accommodation for people affected by warfare (Ukraine) and humanitarian disasters (earthquake in Turkey). The damage to the housing infrastructure is often quite extensive and its reconstruction takes several years, during which time it is necessary to provide basic living conditions to refugees and disaster victims until they have the opportunity to move into temporary or permanent housing facilities. The article also describes the planning process that should be carried out before disasters, as well as types of temporary accommodation and the use of local resources in post-disaster reconstruction. In recent years, we have observed a significant increase in the occurrence of natural disasters and local armed conflicts. In most cases, infrastructure in disaster areas is severely damaged or completely destroyed. Houses and residential buildings are highly vulnerable to damage and are the most visible aftermath of disasters. At the same time, for the people affected by these disasters, these are very traumatic experiences. The article describes the key role of temporary housing during reconstruction after war or humanitarian disasters, identifies common problems and suggests some recommendations on how to handle and overcome them.

**Keywords:** war refugees, temporary accommodation, migration crisis, UNHCR (United Nations High Commissioner for Refugees)

## Introduction

Since the beginning of the Russian-Ukrainian conflict over 9,711m of refugees have crossed the Polish border (data from 08.02.2023) and 2m of those have decided to stay in the Republic of Poland (data from Polish Border Guard Headquarters). No country is prepared to accommodate so many people within such a short time

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span. Therefore many levels of public administration have engaged contingency plans, which ought to provide procedures indicating which actions should be undertaken by country and its authorities to contain the situation. Providing fast and adequate help for refugees requires imposing additional tasks on State Fire Service of Poland (SFS) and Voluntary Fire Departments (VFD) that significantly exceed the requirements specified in legal acts concerning them. At the beginning substantial means and forces were engaged in operation related to the migration crisis and help to Ukraine. As an example at the turn of February/March 2022, 41 480 firefighters and 19 198 vehicles of Firefighting and Rescue Units (FRUs) were engaged in relief activities (Sołowin, 2022), currently this number is steadily decreasing. Unfortunately the situation beyond our eastern border does not seem to stabilize and analysts suggest additional flow of refugees for December 2022.

## 1. Polish help in first year of Ukrainian conflict

Between 200k and 500k of Ukrainians could, according to prof. Maciej Duszczyk (Żółciak, Osiecki, 2022), arrive in Poland in the winter time of 2023. This is caused by Russians systematically destroying the basic infrastructure, as an effect of which thousands of people are not being able to access heating. Poland would however have a problem with accepting another large wave of refugees. According to the latest data already over 1.3m of Ukrainians were assigned with PESEL identification, which allows them to access benefits such as 500+ or get employment. The statistics may significantly change soon, prompted by winter time and no access to heating in the Ukraine causing a large amount of people to migrate towards Poland.

According to an expert, Poland is nearing its limits in the ability of accepting new refugees. If the winter wave were greater than 200k, the challenge may prove too much. We have to consider that we would not be able to resolve the problem by ourselves. We could relocate the arrivals within our borders, yet we should accommodate them within the EU in accordance with the member states, should it prove to be impossible. This should still be a voluntary relocation, never a forced one. This scenario should have already been kept in the drawer, emphasises the researcher. Additional challenge during the winter stay of refugees, which should be taken into consideration, is the elevated cost of living.

Professor Duszczyk estimates that in the end of August 2022 there were between 2.0 and 2.2m of Ukrainians in Poland. This group consisted of people living in Poland before the war (circa 1.1–1.2m) and war refugees (circa 900k–1m) (Żółciak, Osiecki, 2022).

Data of the Ministry of Internal Affairs and Administration (MSWiA) and the Polish Border Guard concludes that since the beginning of war up to November 25th (<https://300gospodarka.pl>), 7.959m Ukrainians have crossed Polish border, of whom 75% were adults. Most of them returned back: the balance between entries and departures is 1.715m people (it needs, however, to be taken into consideration

that certain people could cross the border multiple times). Analysts of the Polish Economic Institute report that 1.4m PESEL numbers have been issued to Ukrainian refugees in Poland (as of October 20<sup>th</sup>, 2022), of which ca. 650k are people at a working age.

Most refugees live with Polish families or rent flats on their own. By mid-August, the Poles submitted 1.4m applications for co-financing the stay of Ukrainians at a rate of PLN 40 per day, of which 1.2 million have been approved. 400k refugees in turn found shelter in accommodations organized by local governments or non-governmental organizations (NGOs). According to surveys conducted among people living there, not everyone is interested in a longer stay in Poland and some want to return to Ukraine as soon as possible. Unfortunately, on the anniversary of the outbreak of the conflict, the military situation in Ukraine does not encourage much optimism: more than 20% of its territory is controlled by Russian troops. Because of that, there is a need of developing appropriate solutions for accommodation of families who want to stay longer in our country. One of the most vital aspects is the design of architectural solutions for facilities intended to accommodate refugees and provide them with the necessary comforts. Housing as a shelter is the basis for family life to develop while ensuring a sense of security and privacy. Solving the housing problem is very important because the loss of housing means more than material loss, entailing a loss of dignity, identity and privacy (Barakat, 2003).

The issue of temporary accommodation facilities to be used in the aftermath of natural disasters or armed conflicts has raised awareness of the problem and drew attention to the need of taking up measures to reduce their impact in the face of possible disasters. Many proposals based on comprehensive studies of the current state of the issue have been presented in the literature (Félix, Branco, Feio, 2013). International organizations such as UNHCR (United Nations High Commissioner for Refugees) or SPHERE (Sphere, 2018) have prepared standards to define the minimum conditions that must be met to secure living conditions in temporary facilities. The Sphere Project establishes a set of universal minimum design standards, resulting from the collective experience of many experts and international organizations such as the Red Cross and Red Crescent Movement.

The facilities for emergencies must have specific features that make them useful for solving emerging housing problems. Firstly, they should be mobile to make transport to the destination easy, fast and economical. For this purpose the building must be as light and compact as possible. All this should be consistent with the need of providing a large number of housing units that can serve the community in need. In addition, the scale of the problem often overwhelms, leading to hasty solutions. Therefore, solutions are often more “feasible” than “sufficient” to meet basic social requirements (Davidson et al., 2007; Davidson, Lizarralde, Johnson, 2008). The deployed solutions should take into account the negative psychological effects, i.e. inhumane solutions such as the accommodating of victims for example in transport containers (Caia, Ventimiglia, Maass, 2010). It is therefore necessary

and reasonable to prepare scenarios and design assumptions before the disaster, and not when the situation is impossible to be remedied and other factors than purely utility ones are considered.

The solutions proposed were often developed on the basis of overly general criteria, without taking the specific conditions of each individual situation and ethnic reality into account (Aquilino, Marie, 2010). Therefore, while in many cases short-term solutions may be sufficient, they would not be suitable for situations that persist over a prolonged period of time (Barakat, 2003; Twigg, 2006). Moreover, these solutions may even be a source of social conflicts if they do not take into account the cultural conditions of the refugees accommodated (Pérez-Valcárcel et al., 2021). Solutions based on the criteria of modern architecture were completely alien to the culture of displaced people in Spain in 1982, as well as in France, in the so-called “Calais jungle”, which had to be dismantled in February 2016.

The emergency solutions are typically considered in two phases. Firstly, it is necessary to provide immediate shelter to refugees. In this first phase, a textile tent or other solutions based on it must allow quick, economical and easy assembly (Pérez-Valcárcel et al., 2021). The main disadvantage of such shelters is poor quality and low durability. It is then necessary to provide more permanent solutions, as it is very likely that the affected population would have to remain in a precarious situation for some time. Until a permanent solution becomes possible, provision of temporary accommodation with adequate standards of comfort and safety is necessary. It is desirable that such objects can be dismantled and stored when they are no longer needed because they have been replaced with a permanent solution. The definition and determination of the positive characteristics of temporary housing is not easy, as there is no unanimous definition among experts in this area. As defined by UNDRP (UNDRP, 1982) there are eight types of disaster shelters, including a special section for temporary housing.

## **2. Temporary housing after disaster or conflict**

### **2.1. General aspects**

First of all it is necessary to classify potential housing solutions that can be provided in the event of a humanitarian emergency. A commonly used classification has been created by Enrico Quarantelli (Quarantelli, 1995), an American pioneer in the sociology of disasters who defines that a shelter indicates a place of residence for the immediate period after a disaster and describes four distinct stages after a disaster. These types of solutions can be adapted to possible post-disaster stages and reconstruction/rebuilding period:

- emergency shelter – a place where survivors stay for a few days. It can be family, friends, shelter usually organized by local government or non-governmental organizations;

- temporary shelter for a short stay up to several weeks after the disaster, such as a tent (depending on the weather) or a shelter organized by local government or self-built. A public utility building, private family or friends' homes or other building assigned for this purpose;
- temporary housing providing a stay from six months to three years, so that people returning to normal activities can function in a similar way as before the disaster (raising children, work, education, etc.). These can comprise, for example, houses built of prefabricated elements or rented accommodation;
- permanent housing, i.e. returning to a rebuilt house or settling in a new building, which will allow restoring the situation as it was before the humanitarian disaster or warfare, in one's own or a new community. The issue has gained the attention of international agencies such as the United Nations Refugee Agency, UNHCR (United Nations High Commissioner for Refugees), International Federation of Red Cross and Red Crescent Societies and OCHA, national agencies such as FEMA as well as NGOs, i.e. the Shelter Centre and Oxfam International, which have prepared a wide range of response procedures. In these guides/manuals, disaster accommodation solutions are broken down by the length of stay that has elapsed since the event. The IRC Shelter after Disaster Handbook simplifies the process to a three-phase strategy (emergency shelter, transitional shelter and permanent housing) and a two-phase strategy (extended shelter and transitional housing), creating differentiated strategies and solutions for each phase (IFRC, OCHA, 2015).

In developing countries, prefabricated structures are not always considered the main option when responding to an emergency. The reasons are high production and transport costs, delays in deliveries or difficulties in assembly due to lack of knowledge and new technologies. These factors are often transferred onto developed countries with sufficient technological resources. It is clear that housing solutions poorly adjusted to the needs of the population using them have been sometimes imposed, even when modular buildings are not considered a temporary housing. This does not exclude such solutions, it simply enforces the implementation of a project that takes other sociological factors into account. The evolution of construction systems of this type of architecture suggests that prefabrication is not only an option for temporary and emergency housing, but is now used as an option to be considered for high standard permanent housing. There are projects, such as "Healthy Housing for Displaced" from the University of Bath, which study the problem from this new perspective (Klansek, Coley, Paszkiewicz et al., 2020).

Most of the recently developed solutions in the field of temporary or transitional shelters, regardless of the production technologies and materials used, ensure the reversibility of use (Bologna, 2004). In many cases, temporary housing is used for long periods of time that may exceed its theoretical lifespan. The facilities should only be used for the time necessary to replace them with permanent residence. In this case, temporary housing should be easy to remove, dismantle and store and, if necessary, ready for reuse.

## **2.2. Solutions adapted for modular housing**

The vast majority of developed proposals for transitional housing concerns family flats. For militarized units, barrack-type housing models have also been proposed, which can be easily relocated to the site of a humanitarian disaster. Organizations such as Sphere have highlighted the need for a detailed analysis of the type of tenants for whom this type of shelter is intended.

It should be noted that the architectural proposals for housing determine the type of grouping of residential modules. Proposed structures with openings (doors or windows) in all walls require insulation and residential units may only be grouped if their geometry and the absence of openings in the walls allow it. An analysis of available solutions evaluated from this perspective allows us to assume that most of them are designed as singular elements/modules, although there were designs the arrangement of which allowed stacking in pairs and rows, with the expected improvement in terms of their thermal characteristics, safety and space utilization rate. The standards of the Sphere Project adopted area norms (3.5–4.5 m<sup>2</sup>/inhabitant) which, in the case of a family of 5, gives 44 units/ha or a density of 222 people/ha, which means a large land utilization and this limiting free space (Sphere, 2018).

By applying appropriate solutions, it is possible to increase the degree of use of building space by grouping prefabricated apartments on several floors, which is of considerable significance in Europe and Japan. In the literature one can find a number of examples of stationary and mobile solutions implemented by Dutch, German, Turkish, Spanish and Japanese companies.

## **2.3. Infrastructure and utilities**

Infrastructure and utilities are the basic elements of any habitat. It is also necessary to ensure water supply and sanitary facilities, which can be designed as underground or over ground networks, using the free space of the house. Electricity supply is also necessary, but in this case self-sufficient solutions may be considered if conditions permit. Useful elements in such situations would be solar thermal collectors and solar panels, which are a good solution for heating domestic hot water and lighting, at least as a complementary solution. For two- or three-storey buildings, there is enough space on the roof for their installation.

## **2.4. Types of housing units**

When designing different types of housing, it is necessary to take into account, among others: the psychological state of people after trauma they have just experienced (Caia, Ventimiglia, Maass, 2010), as well as social conditions of the population. It is also important to consider economic and sustainability aspects, because the available resources must be distributed so they reach everyone



requiring them, and be as durable as possible. These must also be reasonable and optimized solutions (Kronenburg, 2009). Therefore, international organizations define minimum requirements to be met to accommodate the population in a dignified, but at the same time cost-effective manner (Hany Abulnour, 2014). In the proposals, the contractors prefer container systems made of a steel structure with layered sheathing.

When designing housing of this kind, it is preferable to take into account structural factors that allow deep building with a narrow front. This enables setting up of facilities with fewer access roads and shorter infrastructure networks (Fig. 1.), such as water/plumbing lines, electricity and sewage. Also, the fact of having row-houses (terraced houses) connected along the long side improves thermal conditions and can result in significant energy savings. Grouping residential modules on one floor requires a large area, increasing development costs. According to specialists, two- and three-storey complexes should be designed (Fig. 2).

A good solution is to provide access to the upper floors through an external passage with staircases every few modules. Accessibility for people with reduced mobility can be solved by making available premises located on the ground floor of residential housing dedicated to refugees. A relatively recent proposal is the solution suggested in the project implemented by the University in A Coruna School of Architecture (Perez-Valcarcel et al., 2021). The project proposes the use of two types of wooden residential modules with different interior development, executed industrially with the use of digitally controlled (CNC) machine tools that ensure high accuracy and ease of assembly. The advantages and disadvantages of the proposed design solutions were discussed, with rationales for the presented proposals.



**Figure 1.** <https://www.morizon.pl/blog/dom-z-kontenerow/>



**Figure 2.** <https://module-t.com/modular-prefabricated-buildings/>

Staircase cores/panels can perform two important functions. Firstly, they allow grouping group modules of different heights. This means that they can be adapted to slopes without the need for large earthworks (Fig. 3).

Secondly, they allow rotating the alignment of particular levels without the need of modifying the prefabricated modules, which would be complicated and expensive.



**Figure 3.** <https://www.containex.com//m/resize?quality=80&image=https%3A%2F%2Fwww.containex.com%2F-%2Fm%2Fpicturepark%2Fctx%2Fstart%2Fcontainer-und-module%2Fcontaineranlagen-test%2Fcontent%2Fcarousel-cards%2F1%2Fimage%2F8d-978f9666a7ea7.jpg%3Fh%3D1739%26w%3D2320%26la%3Dpl%26rev%3D1b8d1dbc6a-735f174eaf84b3cc5e1b1b>



### **3. Auxiliary/support activities for temporary accommodation**

In the current situation, the movement of such a large number of refugees requires undertaking systemic solutions (Johnson, 2008) intended to assure temporary accommodation at least for the duration of the armed conflict in Ukraine or the reconstruction of housing resources after the earthquake in Turkey. To bridge the gap between losing one's home or house to permanent relocation, a solution in form of a temporary accommodation is required (Félix et al., 2015). Therefore, with regard to re-inhabiting one's own home, one of the most important issues in post-disaster recovery is the provision of buildings or facilities for temporary accommodation (Aragón et al., 2019).

Temporary housing is a solution that allows bridging the time gap between temporary shelter and the completion of reconstruction or building housing resources for victims from the grounds up. Temporary accommodation solutions have the necessary space to allow people to return to their normal daily activities from before the humanitarian disaster. We can distinguish two main ways of erecting temporary housing solutions (Félix, Branco, Feio, 2013):

- factory-made ready to use elements that are transported to the place of their future location, on site they may require a few simple assembly works as they are placed,
- supplies for the housing kit comprising of all the components that make up the building to be completely assembled on site. Regardless of the type of building, they are usually similar to a permanent house, being larger and more weatherproof than temporary shelters, providing the necessary infrastructure such as water supply, sewerage, electricity, etc.

### **4. Organization of temporary shelters based on German experience**

Using the existing facilities, with limited financial outlays, it is possible to obtain a significant number of accommodations in a relatively short period of time. An example may be the undertakings carried out by the German fire brigade (Klonowski, 2017) useful in humanitarian activities. Firefighters from Hanover build temporary shelters for refugees in a thoughtful, methodical manner and in accordance with a previously developed procedure, especially since these activities turn out to be much more universal and the knowledge and experience gained during its implementation can also be used in other humanitarian activities. Naturally there is a possibility that this practice could also be used by Polish firefighters. Since August 2015 the Professional Fire Brigade of Hanover has been responsible for the organization of temporary refugee shelters in the city. A "Temporary Shelters" plan has been developed, which comprises rules for creating ad hoc shelters to accommodate a large number of people. It was assumed

that the refugees would spend no more than a month in those facilities – after that time they were to be moved to lodging facilities.

The process of creating temporary shelters began with the search for all possible locations that could accommodate a large number of people. Facilities like abandoned supermarkets, office spaces, cargo halls and warehouses were investigated. If evaluation indicated the place as being suitable for accommodating people, the stage of shelter planning followed. The facility was required to equip it with the necessary installations (e.g. electrical, water and sewage systems) as well as infrastructure of specific standards (sanitary, sleeping and dining areas). Upon completion of those stages, the control and care of the building has been transferred to the appropriate department of the city administration.

Special staff for refugee shelters, appointed on the basis of a procedure aimed at eliminating the consequences of disasters, is responsible for the implementation of the above activities. Its organization is based on the structure of a standard crisis headquarters (whose headquarters are also located at the fire brigade headquarters). This staff consists of several divisions: human resources management, logistics, control and inspection activities, operational activities and media service. In addition to firefighters, it also included advisers from the health office and city officials dealing with municipal management.

#### **4.1. Standards and rules**

The staff develops a detailed plan, describing the basic requirements related to minimum construction, technical, organizational and equipment standards for temporary shelters. It was postulated that shelters would not be built in the open due to safety and climatic conditions.

In terms of building requirements and infrastructure, it has been assumed that the total usable area of the shelter would be approximately 10 000 m<sup>2</sup>. The facility could be connected to the water and sewage system, as well as be heated, for example by using additional mobile heating units. The requirement was also natural and artificial lighting (at least two-stage), ventilation (natural or mechanical) with a set efficiency, as well as operational fire detection devices. The shelter was required to have convenient access for trucks, a separate fire road, designated evacuation assembly points and places for outdoor activities.

The division of the floor space has also been established. The shelters have separate zones with an area of about 300 m<sup>2</sup> (16 × 19 m), intended for 30–32 refugees, fenced with an opaque fence with single side open entrance. The shelter has designated rooms for serving and eating meals, with a minimum area of approx. 1 m<sup>2</sup> per person. Container systems were used for sanitary rooms' organisation. All locks are opened with a single universal key. A separate location has been designated for washing machines and dryers. There are also utility rooms (warehouses), rooms for social workers (equipped with first aid kits, landline telephone and Internet connection), premise for a security company, premise for

a technician/building caretaker, as well as separate toilets for service employees and a place for segregated waste. Escape routes have been designated in the facility and it has been equipped with portable firefighting equipment.

The standard for arrangement of each zone assumed four tents with lighting ( $6.0 \times 5.5$  m each), equipped with a fire extinguisher, a smoke detector and a litter bin, a secured connection with electrical sockets, 32 bunk beds with mattresses, pillows and bedding, 32 metal cabinets (lockable), two refrigerators, and hangers and hooks for clothes. Designating a common social area with tables and chairs (benches) for about 30 people was also provided.

Hygienic standards which must be tightened and strictly observed in field conditions have been defined. Regular cleaning at least once a week and ongoing removal of all dirt was adopted as the guiding principle. The guidelines include a provision imposing the need of immediate disinfecting garbage containers in the event of staining with blood or other physiological fluid. Great emphasis was placed on isolating sick residents – it was advisable for them to avoid shared spaces, use separate toilets and frequent and thorough hand washing. Instructions were prepared on how to store food: it should be kept in closed containers and in cupboards or refrigerators and marked with expiration date. Refrigerators are inspected every two days, the expiration dates and the condition of the food in the containers were checked.

The organization of temporary shelters in a modular system turned out to be the perfect solution, as it enables quick and flexible expansion of the living space and adaptation to the current number of people requiring accommodation. Its most important advantage is the ease of assembly of ready-made components (tents, fences, furniture). More importantly, these solutions have proven themselves in practice, and the Hanover firefighters quickly built temporary shelters at four locations for a total of 2,000 people. Due to strict technical requirements and the time pressure these tasks were entrusted to fire brigades; no one else could possibly meet the requirements. In the Polish reality, this task could theoretically be successfully carried out by the army, but complicated procedures outlining the rules for deploying the armed forces to carry out non-military tasks in peacetime appear to be in the way. The city authorities are responsible for the safety of the residents of Hanover and they make all key decisions autonomously and take responsibility for them as well. The appointment of the emergency staff for the construction of temporary shelters, whose task was to plan all activities, coordinate their implementation and create procedures, worked very well.

Thanks to the preparation of shelters, the Hanover fire brigade has gained a logistics base that can be used for other rescue and humanitarian activities in the future. It should also be noted that the firefighters were responsible only for the construction of temporary shelters and then their dismantling. They were managed by non-governmental organizations (including the German Red Cross), acting on behalf of the city hall.

All temporary shelters, due to climatic conditions and safety issues, were built inside other facilities, e.g. in market halls, old train stations or supermarkets.

In recent years, many solutions and strategies in the area of refugee accommodation have been developed and implemented, but not all methods have been positively evaluated. Many of the proposed solutions provide conditions similar to permanent housing (Kronenburg, 2009). Further difficulties included among the possible problems of temporary accommodation solutions are economic and environmental issues. The financial resources allocated to temporary buildings are high due to the relationship between the large investments for their purchases and their short lifespan. These amounts are comparable to the construction of permanent houses and flats, and in some cases are two- or threefold higher (Hadafi, Fallahi, 2010). The next problem seems to be environmental issues: after fulfilling their purpose, the quarters, not needed and usually in good condition, become dismantled after use. Often, local authorities have no idea how to utilize them, the structures are stored in warehouses without plans for their future use, which unfortunately appears to be a significant mismanagement (Arslan, Cosgun, 2007). In addition, after dismantling of tents, modular and temporary houses, the area in which they were deployed is often polluted, the installed infrastructure and foundations are not removed and the site not restored to its original condition from before the disaster. These economic and environmental problems are much more common in temporary housing, probably due to the relatively longest period of residence, extensive infrastructure and consumption of their resources. The uttermost number of problems with temporary accommodation is the result of certain misunderstandings as to the circumstances refugees encounter after a disaster (Kronenburg, 2009). Those difficulties are mainly due to the solutions used in formal projects, which are developed by governments, NGOs, international aid agencies, etc. Most of these solutions are not implemented in the disaster area, but often in another country and developed by specialists in this field who therefore are unfamiliar with the local reality. It is not uncommon that local input is not taken into account, and consultations aimed at defining needs and expectations as well as cultural differences between beneficiaries and authors of projects may cause misunderstandings and misguided solutions (UNDRO, 1982). What is more, most of these solutions are based on the designs of standardized, mass-produced and prefabricated elements. However, the concept of a standard architectural solution may not be appropriate as it ignores local specificities and contexts, climatic conditions, differences in cultural values, differences in family size and other issues (UNDRO, 1982). It is likely that these designs emphasize structural safety, rapid production and prompt delivery, at the same time neglecting the needs and expectations of refugees.

Even though these are makeshift and often unstable structures, the concept of temporariness is associated with a certain stage of stabilization, a period of gradual return to normality. While contingency solutions are often based on

basic survival needs, temporary solutions should indeed provide conditions for a return to normal life, even in a temporary location. Such return to everyday life in most cases involves not only the makeshift buildings themselves, designed to provide each family with the necessary space and privacy, but also the appropriate infrastructure, facilities, amenities, utilities and common outdoor spaces necessary to maintain the normal order during the day and social contacts.

Despite the undeniable importance of these buildings and facilities, as well as various different available solutions, there are still certain important problems that need to be solved. Often the implemented strategies are not the most accurate and sometimes even inappropriate from the cultural and local point of view, causing unsustainable effects in the economic and environmental spheres. These problems arise mainly due to misunderstanding and misconceptions about the post-disaster situation and the local specificity of a given place, which, combined with the crisis, tension and lack of resources, often leads to improper decision-making and choices of inapt variants. The conclusions resulting from the analysis of the literature on the subject indicate that the need to change the approach to the problem is more important than the development of new solutions and technological innovations:

- 1) Instead of developing solutions and strategies after a disaster occurs, it is very important to prepare and have proven strategies in place before a possible disaster does occur;
- 2) Instead of focusing on standardized solutions and solutions borrowed from other places, the use of local resources and solutions appropriate to a given place and situation should be preferred;
- 3) Instead of a technocratic approach, it is much better to use more flexible strategies dedicated to the local labour market, its material resources and the needs of locals.

## Conclusions

As various armed conflicts and disasters are expected to be steadily on the rise, and with other numerous imminent threats, the aspect of temporary housing for the population will certainly remain a key issue in humanitarian disaster recovery programmes, and the aim of this article is to attempt to discuss useful methods for developing and designing better solutions and strategy. One of the most important issues in rebuilding after a humanitarian disaster or time of war is to provide buildings or facilities for temporary accommodation for the affected populace. Despite the fact that these structures are makeshift and often unstable, the concept of temporality connects the stage of uncertainty with the stage of stabilization and the period of slow return to normality (Cygańczuk, Roguski, Tępiński, 2022). As it is known from media reports, this year, as a result of military operations in Ukraine and the earthquakes in Turkey and Syria, the demand

for temporary accommodation may even amount to several hundred thousand residential premises. Thus, the international community, including the EU and UN agencies, face a great economic and logistical challenge to ensure minimum living conditions until they can live in permanent housing.

## References

1. Aragón, J., Gómez Santiago, M., Hermo, V., Mosquera Rey, E., et al., (2019). Modular housing for situations of humanitarian catastrophe. In: *Structures and Architecture – Bridging the Gap and Crossing Borders*. Proceedings of the Fourth International Conference on Structures and Architecture (ICSA 2019), July 24–26, 2019, Lisbon, Portugal. DOI:10.1201/9781315229126-93.
2. Arslan, H., Cosgun, N., (2007). *The evaluation of temporary earthquake houses dismantling process in the context of building waste management*. International earthquake symposium. Kocaeli, Turkey.
3. Aquilino, M.J. (2010). *Beyond shelter: architecture and human dignity*. Architecture and human dignity. New York: Metropolis Books. 9781935202479.
4. Barakat, S., (2003). *Housing reconstruction after conflict and disaster*. London: Overseas Development Institute.
5. Bologna, R., (2004). *Transitional housing for emergencies: temporariness and reversibility of the building process*. In: Proceedings of the 2004 international conference “Improving post-disaster reconstruction in developing countries”.
6. Caia, G., Ventimiglia, F., Maass, A., (2010). Container vs. dacha: the psychological effects of temporary housing characteristics on earthquake survivors. *Journal of Environmental Psychology*, 30, 60–66. DOI:10.1016/j.jenvp.2009.09.005.
7. Johnson, C., (2008). Strategic Planning for Post-Disaster Temporary Housing. *Disasters*, 31(4):435–58. DOI: 10.1111/j.1467-7717.2007.01018.x.
8. Cygańczuk, K., Roguski, J., Tępiński, J., (2022). Temporary Accommodation Facilities for People Affected by an Emergency or Humanitarian Disaster. *SFT*, Vol. 59, issue 1, 42–57. DOI: 10.12845/sft.59.1.2022.2.
9. Davidson, C.H., Johnson, C., Lizarralde, G., Dikmen, N., Śliwiński, A., (2007). Truths and myths about community participation in post-disaster housing projects. *Habitat International*, 31, 100–115. DOI:10.1016/j.habitatint.2006.08.003.
10. Davidson, C., Lizarralde, G., & Johnson, C., (2008). *Myths and realities of prefabrication for post-disaster reconstruction*. In 4th International i-Rec conference 2008-building resilience: Achieving effective postdisaster reconstruction. Christchurch, New Zealand.
11. Félix, D., Branco, J. M., Feio, A., (2013). Temporary housing after disasters: A state of the art survey. *Habitat International*, 40, 136–141. DOI:10.1016/j.habitatint.2013.03.006.
12. Félix, D., Monteiro, D., Branco, J.M., Bologna, R., Feio, A., (2015). The role of temporary accommodation buildings for post-disaster housing reconstruction. *Journal of Housing and the Built Environment*, 30 (4), 683–699.



13. Hadafi, F., Fallahi, A., (2010). Temporary Housing Respond to Disasters in Developing Countries – Case Study: Iran-Ardabil and Lorestan Province Earthquakes. World Academy of Science, *Engineering and Technology*, 66, 1536–1542.
14. Hany Abulnour, A., (2014). The post-disaster temporary dwelling: Fundamentals of provision, design and construction, *HBRC Journal*, 10(1), pp. 10–24 <http://dx.doi.org/10.1016/j.hbrj.2013.06.001>.
15. <https://300gospodarka.pl/news/uchodzcy-z-ukrainy-w-polsce-liczba>. [16.02.2023].
16. <https://www.containex.com>. [16.02.2023].
17. <https://module-t.com/modular-prefabricated-buildings/>. [16.02.2023].
18. <https://www.morizon.pl/blog/dom-z-kontenerow/>. [16.02.2023].
19. IFRC. OCHA (2015). *Shelter after disaster*. Second Edition. Ginebra: International Federation of Red Cross and Red Crescent Societies.
20. Klansek, T., Coley, D.A., Paszkiewicz, N. et al., (2021). Analysing experiences and issues in self-built shelters in Bangladesh using transdisciplinary approach. *Journal of Housing and the Built Environment*, 36, 723–757. [doi.org/10.1007/s10901-020-09783-z](https://doi.org/10.1007/s10901-020-09783-z).
21. Klonowski, R., (2017). Dorażny dom, *Przegląd Pożarniczy*, 3. <https://www.ppoz.pl/czytelnia/za-granica/Dorazny-dom/idn:1540>.
22. Kronenburg, R.H., (2009). Mobile and flexible architecture: solutions for shelter and rebuilding in postflood disaster situations. In blue in architecture 09\_Proceedings\_IUAV Digital Library <http://rice.iuav.it/351/1/KRONENBURG.pdf> (29 December 2011).
23. Pérez-Valcárcel, J., Muñiz, S., Mosquera, E., Freire-Tellado, M., Aragón, J., & Corral, A., (2021). Modular Temporary Housing for Situations of Humanitarian Catastrophe. *Journal of Architectural Engineering*, 27(2), 05021004. [https://doi.org/10.1061/\(ASCE\)AE.1943-5568.0000471](https://doi.org/10.1061/(ASCE)AE.1943-5568.0000471). [16.02.2023].
24. Quarantelli, E.L., (1995). Patterns of sheltering and housing in US disasters. *Disaster Prevention and Management*, 4, 43–53.
25. Sołowin, R., (2022). Na kryzysy straż pożarna, *Przegląd Pożarniczy*, 4. <https://www.ppoz.pl/aktualne-wydanie/index/Na-kryzysy-straz-pozarna/idn:2429>.
26. Sphere (2018). *Humanitarian Charter and Minimum Standards in Disaster Response*. <https://spherestandards.org/wp-content/uploads/SphereHandbook-1998.pdf>.
27. Twigg, J., (2006). Technology, post-disaster housing reconstruction and livelihood security. Disaster Studies Working Paper No. 15. DOI:10.13140/RG.2.2.25469.59367.
28. UNDRP (1982). *Shelter after disaster: Guidelines for assistance*. New York: United Nations.
29. Żółciak, T., Osiecki, G., (2022). Zimą przyjadą następni uchodźcy z Ukrainy. Nawet pół miliona. Czy jesteśmy na to gotowi? *Dziennik Gazeta Prawna*. <https://www.gazetaprawna.pl/wiadomosci/kraj/artykuly/8532461,uchodzcy-z-ukrainy-masowy-przyjazd-ukraincow-sezon-zimowy-relokacja-specustawa.html>.

## TYMCZASOWE ZAKWATEROWANIE JAKO PODSTAWOWA OCHRONA UCHODźCÓW Z TERENÓW OBJĘTYCH DZIAŁANAMI WOJENNYMI I KATASTROFAMI HUMANITARNYMI

### Abstrakt

W niniejszym artykule autorzy podjęli próbę przedstawienia zagadnień związanych z planowaniem i budową tymczasowych obiektów mieszkalnych dla osób poszkodowanych w wyniku działań wojennych (Ukraina) i katastrof humanitarnych (trzęsienie ziemi w Turcji). Zniszczenia infrastruktury mieszkaniowej są często bardzo duże, a jej odbudowa trwa kilka lat, w tym czasie konieczne jest zapewnienie podstawowych warunków bytowych uchodźcom i ofiarom katastrof do czasu, gdy będą mieli możliwość przeniesienia się do tymczasowych lub stałych obiektów mieszkalnych. W artykule opisano również proces planowania, który powinien być przeprowadzony przed katastrofami, a także rodzaje tymczasowego zakwaterowania oraz wykorzystanie lokalnych zasobów w odbudowie po katastrofie. W ostatnich latach obserwujemy znaczny wzrost występowania klęsk żywiołowych i lokalnych konfliktów zbrojnych. W większości przypadków infrastruktura na obszarach dotkniętych klęską żywiołową jest poważnie uszkodzona lub całkowicie zniszczona. Domy i budynki mieszkalne są narażone na uszkodzenia i stanowią najbardziej widoczne następstwa katastrof. Jednocześnie dla osób dotkniętych tymi katastrofami są to bardzo traumatyczne doświadczenia. Artykuł opisuje kluczową rolę tymczasowego zakwaterowania podczas odbudowy po wojnie lub katastrofach humanitarnych, identyfikuje wspólne problemy i sugeruje kilka wskazówek, jak je przezwyciężyć i pokonać.

**Słowa kluczowe:** uchodźcy wojenni, tymczasowe zakwaterowanie, kryzys migracyjny, UNHCR (Wysoki komisarz Narodów Zjednoczonych do spraw uchodźców)