
AN INCREASE OF THE INVOLVEMENT IN EDUCATION

Non-structural methods for reducing the risks in case of disasters

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Introduction

Our “cohabitation” with the hazard modifies the reference points of stability, compelling us to a receptive and anticipative permanent dynamic action, represented by the new type of risk managerial approach, a risk which aggress the architectural ecosystem – a symbolic expression of the existential space potentate towards a permanent reconstruction.

1. Disseminating the new concepts of reducing the risks in case of disaster through the educational system

Both educational systems – the general culture system and the specialty system – should assimilate and disseminate disaster knowledge by a permanent transfer of information from researchers, practitioners and officials to the civil communities.

2. The education on reducing the risks in case of disaster will have to be a component of the development program, by organizing well -informed groups with educational role on various levels: on the political level (national planners, management administrators); on the community level (community leaders, public, didactic staff, students, local lay and religious leaders) and on voluntary level (voluntaries in case of disaster, spontaneous leaders).

3. Activating all the educational components by intertwining the formal education (school) with non -formal (extracurricular) and informal (direct experience) education.

4. Developing special educational programs of behaviour sociology

It was noticed that, in case of disaster, the people's behaviour differs according to race, ethnic group, religion, education (in the community, at school and in the family).

One's reaction to a disaster depends on the development of one's feeling of belonging to a habitat, to a group coagulated around one's home or block, which develops and supports the feeling of security.

The idea that one is cohabiting with hazard should turn from an attitude of resignation into one of involvement. This change in the urban attitude is only possible by education.

5. Developing specific university specializations regarding risk management in case of disaster, by architecture and city planning strategies with the following structure:

5.1. Dissemination of specific scientific terminology (hazard at source, hazard at emplacement, elements exposed to hazard, vulnerability, risk) in order to its right usage by all the decision and informing factors, as it is ascertained a confused superposition of senses.

5.2. Introducing some new concepts able to enter into relation more scientific multidisciplinary departments – such as the principle of ecosystem approach also applied in the constructed environment.

This perception of the space organization establishes a hierarchy of the relationship of the individual - collectivity (the anthropogenesis) with the environment (the biotope), fact that creates behavioral reference points that are fundamentally necessary to reconstruct in case a disaster occurs.

5.3. The relation between the university discipline of the theory and architectural history of urbanism with that of management of risk reduction by implementation of a strategic system of global risk protection by developing the concept of a security patrimonial habitat.

The habitat is a special-functional network where the home – as a basic structure coexists with the complementary public structures, commercial, educational, health and leisure facilities. The configuration of the habitat is an expression of the geo-climatic, social-political and religious determinations of each community as a result of its organic development. This characteristic forms a historical as well as a cultural dimension of the community. The brutal destruction of the habitat as a result of natural or anthropical disasters represents one of the major losses of a collectivity.

The assimilation, the sedimentation of constructed gesture will create a conservative definition of the space, which will interact with the future act of construction, with the resistance of the "tradition". The impulse generated by the couple architect-beneficiary and the response of the biotope (natural environment, architectural environment) will form a biunique relationship – one of self-adjustment. Analyzing the result of this interaction, we find at the level of



Fig.2. Modular Temporary Habitat - Japan

the biotope an accumulative sedimentation, the one keeping with the patrimony, and at the level of the anthropogenesis an essentialization of mentality – conceptualizing the identity and the tradition.

Identification of patrimonial habitat structure decodes the composition that determines the stability behavior into the relation of the person, collectivity with the support space.

The habitat – reference point, container, place

After the destructions caused by World War II, starting from the existing problem of city reconstruction, the architect Kevin Lynch set on to demonstrate that existential and architectural space as imagined by humans are the result of a mental process by which the exterior world is perceived.

According to Lynch's research on citizens and the perception of constructed environment, he points out that each individual carries with himself an "image map", a mental projection of the reality marked by physical, cultural and psycho-social components, by "places".

Localization is connected to the memory of certain emotions and feelings experienced in a certain space. Identification of a spirit of the place – generator of affinity, familiarity, sadness, joy etc.

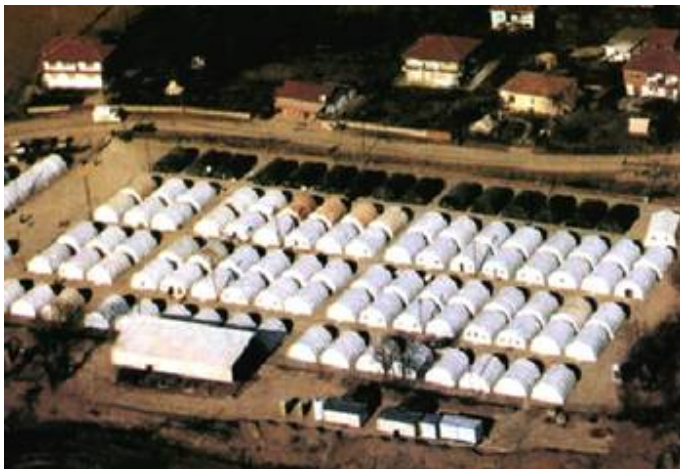


Fig.3. Temporary Habitat – Izmir, Turkey, after the earthquake – august 1999

The built-in space proposes to every receiver its particular representation, knowledge of the perceptive images is obtained only by analyzing the individual spatial representations, which are closely connected to the mental representation that the individual has of his environment and the way in which he receives the information as a message from the built-in and social space. The mental image of the city, configured as a mental "map", is partly sequential and sectorial, the known areas being connected to one another by linear visual flows corresponding to the axes of movement. In the relationship of the individual with the built-in space, the transfer and reflection of the mental "map" on the level of the subjective image is made by means of some main perceptive criteria, that is – scale, landmarks, visual sequences, alongside with distance, duration and speed of perception. These criteria have been identified and made evident as means of connection between the mental and the real space, as constitutive components of the architectural space.

Possible spatiality

The moment when the habitat gets destructured pursuant to a hazard, the collectivity loses its “orientation”, the affiliation to the space of the “mental map” requires a recreation, a reconstruction of the disappeared landmarks in order to give the community a behavioral stability.

- 5.4. Transmission of the knowledge of architectural strategies and urbanism in the reduction of the calamity risk.
- 5.5. Urban strategies of risk reduction and reconstruction.
 - a. Definition-formation and implementation of the concept of secure habitat on all the levels of special organization: object, neighborhood, surrounding district, city, territory.
Implementation of a multilevel safety plan through strategies of architecture and urbanism;
- local safety, safety of the family and of the work place, safety of the neighborhood and of the building, intermediary safety of the zone and territorial safety.
The notion of safety-bearing building imposes: more efficient technical norms to various hazards, application of new technologies and diminution of the object's specific vulnerability. The safety-bearing complex of buildings is a concept based on the different behavior of the individual buildings appertaining to the complex, which buildings may interact, fact that imposes the calculation of the behavior of a heterogeneous building complex to hazards. The safety-bearing town/city must become a safe polycentric network, the safety-bearing territory is a safe area of globality.
 - b. Identification of the specific components of the patrimonial habitat – landmarks, routes, architectural, cultural, religious and affective sequences which can be reconstituted and able to create the mental map of the community.

6. The territorial planning and urban design within the limits of an accepted insurance percentage in case of disaster.

It is necessary that every single village, town and city, especially those rated with “high” and “very high” risk levels should have zoning maps that should take into account the implications of the risk over the planned development.

The zoning maps must indicate the direction of the positioning of the different building categories (residential, social, industrial), the reserved zones and the special zones (for special risk buildings). The consideration given to the seismic risk elements in town zoning also leads to the reduction of the investment expenses, by eliminating the necessity of some supplementary protection measures, which as a rule are very expensive.

VILLAGE / TOWN / CITY TERRITORY ZONING FROM THE POINT OF VIEW OF THE RISK ANALYSIS (Risk analysis)

- a) Hazard maps – geological, climatic, hydro-geological, technological, environmental; the maps will also indicate the zones of influence.
- b) Maps of the risk elements.
- c) Vulnerability maps.
- d) Risk maps (direct and indirect losses).
- e) Assessment of the accepted risk.

The zones that require priority interventions are to be identified on the plans of the respective village/town/city on the basis of the data resulting from the carried out inventory, depending on the level of vulnerability and on the type of elements exposed to risk (buildings, population, buildings with essential functions).



Fig.4. Temporary Habitat – San Giuliano di Puglia, Italy (Foto: R. Langenbach)

PROVISIONS OF URBANISM REGULATIONS ON A TOWN/CITY LEVEL

a) Setting out construction interdictions in very high-level risk zones. The zones characterized by major seismic risk will be distinctly delimited on the town/city plans and will be used for parks, gardens, green areas, sports grounds and leisure activities. These areas can be dedicated under the reserve of public utility:

- to the creation of strategic nodes;
- as locations for the emergency temporary habitat.

Mapping of the town/city territory into strategic areas, according to criteria of protection in case of disaster, areas whose dimensions are to be established in accordance with the risk class and especially with the possible number of the affected population that is likely to be evacuated towards a given point, named safety node independent from an energetic and utilitarian points of view and equipped with sanitary, food and hosting supplies, and which can ensure emergency accommodation, medical and social assistance, an alternative communication system, fact which will contribute to the diminution of the intervention costs. This security node can be associated to some public functions supplementary protected and equipped with open platforms, green areas, having therefore land reserves able to be used as support for the emergency habitat and then for the temporary one.

Identification of the post-disaster reconstruction possibilities generated by the emergency support habitat system.

The damages suffered by the habitat can generate migrations of the population to other zones and the appearance of the subintegrated habitat. The intervention in the calamity-stricken zones must ensure the population a climate of life security, a revitalization and stimulation of the economic development and an increase in quality of the proposed habitat, including the quality of life by restructuring. Reconstitution of the elements representing patrimonial landmarks, identification of the identity-defining spatial strategies, which generate psycho-social security by reference to the memory of the “mental map”.

7. Introduction in the academic curriculum of the problems concerning the temporary or emergency habitat.

The problems of the emergency dwelling do not concern only the minimal functional conformity, the modern building techniques or the use of some traditional systems of patrimonial type.

The problems of temporary habitat constitute in fact an extension in the urban of everything that represents a constructed support – services, utilities, maintenance – and in this sense we can speak of the appearance of a new type of urbanism: the emergency urbanism.



Fig.5. Building of the Temporary Habitat – Umbria-Marche, after the earthquake – 1997 (Foto: A. Dusi)

Fig.6. Proposal for a temporary habitat into a high school



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