

lanımı tercih edilmelidir. İlk etap konutlarda sadece briket çimento oranı iyileştirilmiş ve yağma sistem kullanılmış, ikinci etap için ise aynı briketlerle yarı-karkas sistem kullanımı öngörülmüştür.

Yeniden tasarlanması gereken unsurlar arasında ise temeller ve çatılar sayılabilir. Kit- le üretimine uygunluğu ve kolayca tekrar edilebilmeleri açısından betonarme temel (taşıyıcı sistem türüne bağlı olarak sürekli ya da münferit) tercih edilebilir. İlk etap konutlarda sürekli beton (arme değil) temel kullanılmıştır. Çatılarda ise ahşap taşıyıcılar, ısı ve su izolasyonu ve metal çatı kaplaması olan kırma çatı tipi tercih edilmiştir.

SONUÇ

Tüm dünyada giderek yaygınlaşan teknolojik afetler, milyonlarca kişinin köy, kent ya da metropollerde afet koşullarında yaşamasına neden olmaktadır. Bunların tümüne ulaşmak henüz mümkün değildir. Bu kişi ya da ailelerin yerleri, mekan üzerinden okuma yöntemi ile belirlenebilir ve kaç aile oldukları sayılabilir.

Burada tanıtlığı biçimi ile mekan üzerinden okuma yöntemi, "*evrensel yapı bilgisi ve minimum barınak standardı bilgisini, yerel hakim teknoloji, yer ve yaşam biçimine dair enformasyonu, insani düzlemi korumak amacı ile önceki yaşam biçimi ile ilişkilendiren gerçeklikle de birleştirir*" bir yöntemdir. Hedef yaşam standardının "en az'a indirilmesinin kabulü değil, tüm dünyada giderek artan afet durumlarına karşın "*görece asgari yaşam standardı'nın korunabilmesidir.*

Yöntem, afetzedeler arasında gözetilebilecek tüm kimlik ayrımlarını engelleyecek, kimlik tartışmalarını ise erteleyecek ve gelişmekte olan ülke gerçeklerine uygunluğu açısından gerçekçi bir yöntemdir. Ancak yoksul insanlar üzerinde yoğunlaşmış olduğu için, "bilimsel ideolojik" bir yönelimi olduğundan sözedilebilir.

Artan küresel hareketliliğe paralel olarak benzer tespitlerin yaygın olarak yapılması, kenttsel, ulusal ve küresel ekonomi-politiği bunların belirlenmesi gerekirken, sadece küçük çaplı yardımlar sözkonusu olabilmektedir. Bu ölçek düşmesine rağmen, bu ve benzeri yöntemler, mesleki örgütlenme ya da sivil toplum örgütlerinin alternatif politikalarının belirlenmesindeki yararlılığı açısından ümit vericidirler.

(*) Bu çalışmada tanımlanmış olan "yerel kriterler", TMMOB Mimarlar Odası Ankara Şubesi Van Temsilciliğinden Halil Guleryüz'ün bilgi ve emekleri sayesinde belirlenebilmiştir.

METHOD OF READING SPATIAL INDICATORS OF TECHNOLOGICAL DISASTERS (*)

Yonca Harol Al

Disaster, which depends on an exterior reason, is the loss of at least one of basic requirements to live, in such a situation that acting with solidarity does not help. Wars and their results are accepted as "technological disasters" and consequently as emergency conditions. *Different from natural disasters, it is more difficult to reach victims of technological disasters. Because both technological disasters and migrations that have fast population movement character, highly mobilize people. They must be found and located at the new places they try to live in.*

According to I.Davis (1978), because of poverty, 95 % of deaths due to disasters are in developing countries. Although I.Davis deals with natural disasters, it is known that the same is true when technological disasters are considered.

Being forced to produce illegal huts because of economic reasons, war and / or compulsory migration, opens especially the poor's spaces to the effects of disasters and "*forms the technological disaster even by itself*". Most of these buildings, which are at dangerous places are hastily and badly constructed with nonload-bearing materials, are unsafe and unhealthy. They even "*form a danger by itself*".

The aim of this study is to introduce the "method of reading spatial indicators of technological disasters", which is being used at "Van Project" to select the victims of compulsory migration in Van. This method was developed depending on the "*visu-*

al interpretation and evaluation techniques" of selecting usable and dangerous, repairable and unrepairable buildings after earthquakes (Gılason, Kocagil, Demir, 1996). And it depends on the assumption that: "space quality is a sufficient indicator of disastrous conditions". The validity of this assumption was accepted depending on the thought that people who had a safe and healthy house with the help of solidarity can also satisfy their other needs with the help of same mechanism.

The aim of "Van Project" is to consider employment, nutrition, health and education requirements of victims of war and compulsory migration who are determined with the help of the "method of reading spatial indicators of disasters" and are settled together at the "migrant housing".

GENERAL PRINCIPLES AND LOCAL CRITERIA

One of the general principles of this method that is being used at "Van Project", is the "necessity of determining local criteria which define disastrous conditions systematically". Similar approaches were used by M.Davis (1990,1993a,b) and D.Harvey (1990,1993) in the form of observation. M.Davis reads ghettos and D.Harvey reads symbolic capital through space quality.

The former and later living conditions must be known, compared and "spatial changes which may be dangerous" must be determined by considering previous life styles.

In Van there are dangers of earthquake, flood and landslide. Although nearly all buildings are in danger in this city, or even in Turkey, "only the buildings which are dangerous by themselves must be selected".

The steps of the method can be listed as following:

- First the "places where settlement is forbidden" must be determined. The assistance of local professionals is very important during this step.
- The "districts where child health is problematic" must be learned from the "local" doctors.
- The "dominant building technologies and types of production processes" especially at forbidden places and problematic districts must be learned.
- "Criteria of being unsafe and unhealthy" of these dominant technologies which are preferred by the poor, must be determined according to building-science and with the help of observations.

- Unhealthy and unsafe buildings of the city must be determined according to these criteria.

It was seen that tent, flood and landslide area settlements and illegal migrant districts exist in Van. Especially the preferred technologies and building qualities at Yaçort district, where police and army security precautions are dense, were considered. It was also seen that, the damaged buildings near Van lake, have already been evacuated.

There are three dominant building technologies and building production processes in Van and these can be accepted as the indicators of economic power of their users. The first of them is 3-7 storeys high buildings that have reinforced concrete skeletal structural systems. The second is the 2 or 3 storeys high semi-skeletal buildings. The last dominant technology is formed by single storey, cement brick masonry buildings, which have flat earth roofs. These correspond to migrants' shelters. These buildings do not have foundations. The cement brick used as load-bearing material is hollow, the cement ratio of it is very low and earth mortar is used to bound them. Also the workmanship of these walls is very bad. The flat earth roofs of them can not be constructed as it was in the village. There is no clean, dirty water and sewage systems. Use of electricity is illegal. Wastes are thrown to the old irrigation canals. The districts where this technology is preferred, seem like a monstrous village (TMMOB...1996).

Depending on the research results, it can be stated that the spatial indicators of disastrous conditions in Van depend on "transfer from village space to city space with economic impossibilities and transfer from the usage of traditional technology to the use of a semi-traditional hybrid technology".

Because of the economic impossibilities, migrants;

- could not buy appropriate land in the city, and preferred dangerous places like flood areas and this brought the illegality at the beginning,
- since it is difficult to find required amount of traditional materials in the city and construct with them quickly, they preferred the cheapest or collected construction materials. The quality of these materials is very low.
- although the village craftsmen do not know the new technology, the assistance of professionals could not be bought (Arslan, Hürol A1.1996).

In the buildings which were built by themselves and with the help of existing

"knowledge and workmanship", because of the lack of knowledge and skill;

- no additional precautions could be taken against the low quality of the material. (For example the hollow parts of the cement bricks could be filled with mud.)
- Material was used in a wrong way. Hollow cement bricks are used together with earth mortar to form load-bearing walls.
- Workmanship is very bad. Bricks could not be placed appropriately to form a safe structural wall.

Clearly the dangerous buildings are among these masonry buildings. Although, they are all contrary to building science and they may become dangerous because of the lack of maintenance in the future, even some of these buildings can be accepted as relatively safe and healthy. These are the houses of self-sufficient families or the families who are supported by the others. But near them exist such buildings that may collapse any time without any exterior effect and which have such a building envelope that may produce important health problems. These are the houses of such families who are "not supported by the others and who are not self-sufficient". You can watch that the "visual relative unhealthiness of children" accompanies the determination of these dangerous buildings. The death of 18 children at the tent settlements during winter according to the report prepared by Union of Turkish Medical Doctors (TTB.,1995), also supports this observation.

According to the research results, "determining criteria peculiar to Van, which can be widened when necessary" are:

- not to have any shelter, to live in tents or in cartoon and nylon huts,
- to live in a unhealthy shelter,
 - extreme humidity in the house,
 - dirty water inside or around building, sewage water mixed to drinking water,
 - buildings that cannot form a good envelope against wind, water, heat and cold "and / or"
 - no safe heating method against cold,
- to live in an unsafe shelter.

The criteria of determining the unsafety of a building can be developed with the help of methods of determining usable-dangerous, repairable-unrepairable buildings after earthquakes that are used to satisfy urgent need for shelter or to decrease economic losses. During the use of similar methods for the cases of technological

disasters, used technology starts to represent the locality. According to ATC method, which depends on "visual examination and evaluation", only the safety of buildings are studied in three stages as exterior, interior and detailed examination. During this process all buildings of the settlement are marked with green, yellow and red. The buildings which are marked with red are the ones which are partially or completely destroyed, slide on their foundations; which have out of plumb-line walls or slabs, weak mortar bondage, cracked walls, excessively deflected slabs, separated roofs or slabs from the other parts, building components tending to fall down (like chimneys, parapets and division walls); which can be affected from other previous collapses, soil cracks, slope changes, previous possible landslides, deformed electric and gas lines (Gilason,Kocagil, Demir,1996).

According to the observations in Van, the local building properties that indicate danger were determined as follows:

- out of plumb-line walls,
- clear weak mortar bondage or deformed walls,
- extremely deflected roof slab,
- having the probability to be affected from "existing" exterior effects "and / or"
- extreme water penetration at structural members.

The first four of these criteria depends on bad workmanship, use of low quality construction materials and choosing the wrong system. The latter two can be defined as "dangerous deformations occurred at the existing building" because of choosing the wrong place.

Although determination of the repairable defects and making necessary maintenance is an economic approach, the users of these buildings must still be accepted as victims of the disaster. Except for the criteria of determining the unsafety of the building, all other criteria of determination must be evaluated by considering the previous life forms of the families. For example, the "nomads" must not tried to be settled, the ones who can use dried dung as fuel must not be accepted as victims.

The determining judgments during these evaluations, which can be made by everybody are the following.

- The person or the family does not have a shelter,
- When compared with the previous life form, the existing building may produce

*important health problems that may result with death "and / or"
• building is so unsafe that it may collapse without any exterior effect.*

By using these criteria and in order to reach the ones that can be located as quickly as possible, the stages of "migrant housing" project were determined as follows.

- the 258 families who live at the tent camps at National Park, Edremit Highway and 100th Year University campus,
- the 150 families who have houses at riversides,
- the unhealthy and unsafe huts that are scattered in the city.

CHOOSING TECHNOLOGY WITH THE HELP OF THE SAME METHOD

The technology that will be used at the new shelters may be chosen by using the information gathered with the help of method of reading spatial indicators of technological disasters. *"To produce the necessary amount of shelter as quickly as possible, non-traditional technology have to be chosen during the design process, the city based components of the dominant technology must be preserved, but bettered. The semi-traditional components must be eliminated, and they must be replaced with repeatable components, which are also appropriate to form examples."*

The non-traditional components of dominant technology of the existing migrant houses in Van are the cement brick masonry walls. The required changes are the increase of cement ratio of the material and the decrease of the void ratio of the units. Otherwise, the use of reinforced concrete skeletal system must be preferred. In "Van Migrant Housing Project", cement ratio was increased during the first stage and the use of semi-skeletal system was preferred for the second stage.

The semi-traditional components that must be designed again are the foundation and the roof. The types of reinforced concrete foundations may be preferred depending on the type of superstructure. These must be appropriate both for mass housing and can be repeated. In the project's first stage continuous concrete foundations (not reinforced) and pitched roofs, which were constructed with wooden load-bearing members, heat and water insulation materials and metal roof covering were preferred.

CONCLUSION

The technological disasters that are continuously increasing, cause millions of people to live in disastrous conditions both in villages, cities or metropolises. It is

impossible to reach all of them yet. These people or families can be found and selected by using the method of reading spatial indicators of technological disasters.

As it is described here, *this method unites universal knowledge of building science, knowledge of minimum standards for shelters, information about local dominant technologies, form of place and life with relativity relating to previous forms of life in order to preserve the humane approach.* The aim is not to accept the decrease of life standards, but *"to preserve relative minimum life standards"* against the increasing technological disasters of the world.

The method eliminates all effects of identity differentiation during its application and postpones all discussions about identities to later stages. It is realistic when the "realities" of the developing countries are considered. But since it is concentrated on poor people, it can be stated that its position is "scientific-ideological".

The widespread application of such methods in order to determine both urban, national and global economy-politics with the help of such information is necessary. But it is possible to use such approaches only during small aid projects like "Van Project". Although there exists such a decrease of scale, such methods can be accepted as helpful due to the effectiveness of "alternative politics" of professional organizations and civilian public organizations.

(*) The "local criteria", which are defined in this study, were developed with the help of Halil Gülerüz, from Van Branch of UCEAT Chamber of Architects.

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