



## TO INCREASE SAFETY CULTURE OF COMMUNITY – ONE OF WAYS TO MITIGATE CONSEQUENCES OF EARTHQUAKES

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### Abstract

Nowadays strategy of preventive measures to save people from earthquake and mitigation of its consequences in the urbanized territories includes public awareness about residing in zone of risk, psychologic preparedness of people - level of safety culture. Otherwise psycho-social impact of earthquake on a man is very strong and results in inadequate behaviour because of a shock, panic and stress. This leads to the growth of victims. These facts were justified by sociologic studies conducted by the author in Azerbaijan cities: Agdash (1999), Baku (2000), Shamakha (2001) to find out how well people are aware and prepared for earthquake as well as apprehension of seismic events and importance of insurance of dwelling and properties in psychologic rehabilitation of victims.

Emotional perception of the population of earthquake in Agdash of situation in connection with conflict in neighbouring country. A rumble, which accompanied the earthquake, was perceived as a beginning of military actions.

It is necessary to note, that this earthquake on November 25, 2000 in Baku has given a pulse to increase safety culture of community. Mass -media and NGOs (in absence of the state program) have conducted large work among the population on increase of seismic education and safety culture.

The researches which have been conducted in Shamakha in 2001, had the purpose to reveal knowledge of the population about residing in a zone of risk. People in Shamakha city are psychologically prepared to earthquake. This can be explained by large work which was carried out by local authorities of Shamakha. The people trust in seismic stability of individual houses. They have insured their houses and property from the natural hazards. Thus, it is necessary to increase safety culture of community to mitigate natural disasters consequences.

Earthquake causes a great damage. It is characterized by economic and social consequences. Economic and social damages are not comparable due to the priority of the social damage as health and life of a man are individual. People living in seismoactive zone need seismic protection and first of all they should be informed that they live in the zone of risk, they should possess elementary knowledge about the nature of earthquakes as it was provided by IDNDR. Otherwise psycho-social impact of earthquake on people is very strong. The author conducted sociologic studies in Azerbaijan in *Agdash city after earthquake of June 4, 1999 of intensity VI* [1].

Emotional apprehension of this seismic event was due to not only to the lack of information about possible strong earthquake and to the military conflict with the neighboring country. The interviewed people according to a special questionnaire mentioned that there had happened a terrible drone before and after the earthquake. Response of the grown-ups was as if there started a war – tanks were moving along streets (the earth was vibrating), the city was bombed (there was a huge dusty cloud at the foot of the mountains), airplanes were flying; missiles were taking off – in Agdash city and in the adjacent territories. It is known that during earthquake there occurs panics and people's behaviour becomes dangerous and

foolish and they can not take measures to save themselves. All emotional and psychic traumas are consequences of a sudden occurrence of a natural hazard, lack of experience and ignorance of safety regulations. In Agdash many people injured themselves not directly of earthquakes but because they jumped out of windows and balconies thinking that in this way they could save themselves. In the city and in the adjacent territories many building were broken. Under the influence of the event, loss of houses and property many people suffered strong psychic shocks and for a long time they did not want to go back to their places. They needed psychologic assistance of experts.

***On November 25, 2000 in Baku there occurred earthquake of intensity VII.*** It caused panic and shock as a result of a complete unpreparedness of the community to earthquake and lack of information about possibility of event like that in Baku city. ***On December 6, 2000 earthquake of intensity VI*** took place in Baku again. In the middle of December we interviewed people in Baku and in its suburbs to learn the response to the earthquake [2]. It is known that during the interview many social-economic factors are taken into account, namely age, education, sex and whether the interviewed is rural or urban citizen as well as economic status of the interviewed [3, 4]. 350 people were interviewed individually – 213 men and 137 women. We tried to conduct interview in different areas of the city as the impact of the earthquake there was different due to microgeologic conditions, quality of houses, etc.

The public opinion poll demonstrated that the main factor of people behaviour during earthquakes and other natural hazards is fear caused by psychologic unpreparedness to the emergency situation. problem of preparedness of community is a social problem. Russian seismologist N.V. Shebaliv wrote: "Earthquake is not merely a "shaking" of the Earth. It is a strong social shock. There exist another serious problem and its importance should not be diminished, namely it is a problem of interrelation if earthquakes and community, a problem of human behaviour during strong earthquakes. The fear before underground shocks is too strong and now it is difficult to rely on a complete assistance and discipline of the scared people".

Different age groups have individual psychologic peculiarities. Representatives of both sexes at the age of 20-29, 30-39, 40-49 were sensitive. Women replies were more emotional and their psychologic stress was stronger. Children were scared by their parents behaviour, especially of a mother. Education played no role in a "more quiet" approach to the event through there exists an opinion that in the country side less educated people are rather apt to stresses due to the natural hazards. 79% of the interviewed felt nothing before the earthquake. On November 25 and December 6 11.9% had headaches and 9.1% - general indisposition.

During the earthquake people behaved themselves differently - depending n their house "response". The shocks were the most appreciable in the stone houses built at the end of the 19<sup>th</sup> - beginning of the 20<sup>th</sup> century, in the houses located in the territories adjacent to the se coast, in the center of the city, in the upper floors of multistorey buildings. Our respondents described their psychic and physical state during the earthquake like that:

calm - 6.1%

scared - 47.7%

panic - 22.8%

feet were paralysed - 10%

heart attack - 12.9%

Psychic and physical state determined people's behaviour during the earthquake.

3% of the interviewed was completely calm during the earthquake. They were sleeping ad did not awake. 12% (risky people) stayed at home.

35.4% - stood in the door opening (right choice).

22.5% exposed their lives to danger when they ran to the street during the first shock.

26.6% ran after the first shock.

0.5% jumped out of windows.

9.4% immediately moved to their country houses and for a long time did not come back to the city.

60.8% spent the night (despite the cold weather) after the earthquake in the street (the emergency situation united people: they shared warm clothes, made fires, drank tea, etc.).

Health of the most of people deteriorated significantly after the earthquake. People injured themselves - 1.16%; many people had their pressure risen (25.4%); 20% had a heart attacks. For a long time 36.2% were in a state of depression. 0.8% of the interviewed had their family suffered.

Medical assistance was rendered only to 0.9% and some of the interviewed - at home by their relatives. According to the data - 31 men perished: 2 men directly of the earthquake and 29 men - of diseases caused by stress.

Houses of people in Baku were not insured from natural hazards - this demonstrates unpreparedness to earthquake as well.

2% of the interviewed mentioned abnormal behaviour of animals before the earthquake (anxiety of domestic cats and dogs).

*In fact 85% of the interviewed did not suppose that earthquake could occur in Baku. 67.3% answered that they had not known about earthquake safety regulations during earthquake.*

Earthquake of November 25 made the interviewed more experienced and they were able to survive the next event calmly, i.e. earthquake of December 6. However, earthquake of December 6 caused a greater panic (among 47.3% of respondents) than the earthquake of November 25.

In fact people possessed no knowledge in the field of seismology then. For this reason we asked the respondents a questions if they would like to increase the level of their "seismic" culture.

- 81% - would like to be enlightened in the field of seismology;
- 80% - would like to have brochures about safety regulations during earthquake;
- 77% - would like to attend courses on earthquake safety regulations;
- 56% - would like to attend lectures on public awareness of earthquake;
- 84% - said for the demonstrations of training films on TV.

Earthquake of November 25, 2000 in Baku initiated the increase of public awareness about this nature hazard. MM played a great role in it. There were many broadcasts with the participation of seismologists, psychologists and medical workers.

Earthquake of intensity III-IV in Baku of June 1 this year (Richter scale) was rather strong but it did not cause any panic. Probably people in Baku got used to the shocks and they acquired individual experience. Our mini-interview demonstrated that psychologically they reacted calmer now but still they feel anxious themselves. They think that a strong earthquake will take place.

NGOs made their own contribution in public awareness. Their projects provide learning of earthquake safety regulations before, during and after earthquake as well as psychologic training.

Sociologic studies conducted in *Shamakha city and in the mountaneous villages in summer 2001* to determine the level of public awareness (January 2002 was the 100<sup>th</sup> anniversary of a catastrophic earthquake in Shamakha city) demonstrated that people in Shamakha city and in the adjacent villages are rather well informed about the possibility of a strong earthquake in their territory and that they are psychologically prepared to it. This can be explained by a frequent occurrence of catastrophic earthquakes which took place there in the last century (XX century).

We interviewed 98 people - 53 men and 45 women. Their age was from 16 to 99 years. People in Shamakha pay a great interest to the problem of earthquake. During our interview they told us about national signs of earthquake, namely - abnormal behaviour of animals (dogs, horses).

In the remote country there had been conducted a training on earthquake safety regulations.

Psychologic preparedness in Shamakha city very much depends on seismic stability of new-built individual houses. People in Shamakha (56%) insured their houses and property from the natural hazards.

In highly developed countries there exist a positive experience of preparedness to earthquake and good knowledge of regulations of how to behave oneself during earthquake. There were published picturesque brochures, booklets, etc. and there is a great need in all of these in developing countries.

Thus, increase of public awareness about natural hazards is one of the most effective ways to mitigate consequences of natural disasters as the awareness is confidence, protection and readiness to the emergency situation.

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