

PSYCHOSOCIAL EFFECTS OF THE FLOODS. PERCEPTION AND ATTITUDES

Ciprian CEOBANU & Adrian GROZAVU

University Al. I. Cuza, Iași, Bld. Carol I, no 11, 700506, Iași, Romania, email ciprian@uaic.ro

University Al. I. Cuza, Iași, Bld. Carol I, no 11, 700506, Iași, Romania, email

adriangrozavu@yahoo.com

Abstract: The study approaches the problematic of psychosocial effects of the floods, a topic with few researches in Romania, in three different areas in the country seriously affected by the floods occurred in the past years. The research design includes the investigation of the inhabitants (the interview through focus groups) and local authorities (the method of the questionnaires), the data processing being realized through qualitative interpreting methods and through the statistical method – the descriptive graphic. Three main themes are proposed and developed, as follows: (i) causes of the disaster, warning systems and intervention plans; (ii) the authorities' reaction and (iii) the citizens' reaction. The results' study demonstrates significant differences of the perception and in the attitudes between the inhabitants and the local authorities, the relationships gap between them. As main causes of the floods and of the consequent losses, the inhabitants indicated the weak reaction of the authorities and the bad management of the hydrological resources while the authorities invoked the meteorological factors, thus covering up their own responsibilities. Regarding the existence and knowledge of the intervention plans in case of a disaster it is evident the formalism in the authorities' reaction and in creating and applying the intervention plans with definite roles and responsibilities. Regarding the authorities' reaction the inhabitants considers it as "slow and non-transparent" while the authorities invoked a big lack of means at the local level. The results of the third theme demonstrates that the population was often unprepared and its reaction is slow while the authorities have the tendency to "underestimate" the community and to ignore its self-organizing potential, considering that the individual reaction of the inhabitants didn't even exist and that they were all waiting for help. We consider that the communities should benefit from a serious training regarding how to face such calamities. A better communication between the authorities and the community would be ideal; it should also take into account the psycho-emotional factors manifested during such crisis situations. Among the possible solutions and approaches of the disasters, besides drawing a holistic model having as main point the "Plan to prepare the community for a disaster", we also have the option of rebuilding the community spirit and the local solidarity.

Key words: floods, psychosocial effects, perception, attitudes

1. INTRODUCTION

It is well known that calamities, natural or anthropologic, may cause emotional traumas having short-term and long-term effects; most of the time, their intensity and consequences are not even taken into consideration. The occurrence of the natural and anthropologic extreme phenomena during the last periods of time makes us pay more attention to this particular field.

The study of risks presupposes an entire approach that permits an objective analysis of the phenomenon, starting with the rigorous observation of the hazards and ending with the evaluation of the material costs in order to diminish the consequences and the reconstruction of the damaged goods and of the environment.

Generally, the risk represents the probability of exposure of the activity territory of the human society at a certain hazard's action, of a certain size. The risk rests with the hazard potential to produce disasters of different degrees, supported by the environment and society (material losses and human victims).

In the risks' equation, the vulnerability (that is the degree of exposure of man and his goods to hazards) represents the most important predictive variable and one of its compounds that must be taken into consideration is the psycho-social vulnerability.

Recent studies in the Romanian literature are dedicated to the study of natural hazards and risk (Ianoş, 1994; Bălteanu, 2004; Goţiu & Surdeanu, 2007), the concept of vulnerability (Bălteanu & Costache, 2006; Sorocovschi, 2007), the evaluation of the natural risks that may threaten a certain territory (Brânduş & Grozavu, 2002; Goţiu & Surdeanu, 2008), the analysis of the impact of mans' interventions on the environment (Szücsné-Murguly, 2007; Mihnea et al., 2008), the conception of flood risk map for watersheds (Napradean & Chira, 2006), the prognosis of excess water inundation upon geological conditions (Kuti et al., 2006), the role of the amount of high resistant rocks to the transport in fluvial regime (Mureşan, 2009), the evaluation of the migration and of the impact of different contaminants on the ground water (Hajdu & Füleky, 2007; Rădulescu, 2009).

The psychological researches on the effects of calamities are, for the moment, limited in Romania and the results are rather heterogeneous. Lately, there are studies that approach the problem of perceiving natural hazards (Floca & Reteşan-Floca, 2002; Cheval, 2003; Bădilă, 2007; Armaş, 2008) and especially of risk floods (Sorocovschi & Mac, 2006; Bălteanu & Costache, 2007; Conţiu & Conţiu, 2007; Goţiu, 2007).

In the past years in the international literature we can mention some studies dedicated to the problematic of people's vulnerability (Heijmans, 2001; Cannon & Davis, 2004), risk perception and human reaction to environmental hazards (Gardner & Stern, 1996; Sjöberg & Rundmo, 2004), or the inclusion of public perceptual values in the decision-making process (Chesney et al., 2002).

Other special researches put into evidence important correlations and variations regarding the psychological effects of calamities and/or the emotional vulnerability, determined by a series of factors, such as: age (Shannon et al., 1994), sex (Peek & Miletti, 2002), race (Aptekar, 1990; Grean et al., 1990; Shoaf, 1998), ethnicity (Garrison, 1985), socio-economic status, and form and type of the disaster (easily/difficultly predictable in time and space).

Referring to psychic reactions towards calamities, most precisely their short-

term consequences, the studies indicate their association with a growth of psychiatric symptomatology such as: anxiety, depression, despair, indignation, somatic dysfunctions and nightmares, while the studies regarding the long-term effects suggest that there may be a latent or delay period for the beginning of the symptoms; also, the symptoms may appear and disappear, or we can have a psychiatric symptomatology for very long periods of time (Bland et al. 1996).

In essence, all persons that go through a calamity, as victims, or as persons responsible for help and support, are affected by this type of experience some way or another. Not all persons will develop psychic conditions, even though, as individuals, they will develop a specific form of emotional response in the given circumstances.

Generally, the individual responses towards calamities are different from the collective ones, being influenced by several factors – the physical and psychic proximity of the event, witnessing grotesque, unusual situations, decreasing the health state, the type and amount of losses, previous traumas etc – in the first case; the degree of dissipation and atomization of the community, the training before the disaster and the community's stability, the quality of the community leadership, cultural particularities of the community etc – in the second case.

Among the natural hazards with serious risks for people and their activities, the floods constitute the most encountered such hazard on Earth, being the first when it comes to losses, causing huge annual damage and the death of ten thousands of people.

For Romania, the statistics indicates that only during 1992-2008, the floods caused almost 80% of the damage resulted from natural disasters, being the cause of hundreds of dead people and the injury of other tenth of thousands.

Even though, in most of the cases, the floods are caused by natural incidents (as the climatic particularities and the morpho-hydrographic features of rivers), we can see that the human factors contributes more and more to the effects of the calamities (by the degree of anthropologic features, the way of using the fields, the presence/absence of the hydrologic engineering works, of intervening and supporting structures etc).

The year 2005, is known of being one of the most unusual years in the Romanian meteorological history; upon the statistical and meteorological data offered by the profile institutions, from April until September, the country's territory was struck by six successive waves of floods, mostly due to huge quantities of precipitations during short periods of time (two or three days) or even during extremely short periods of time (a couple of hours). The flows of big rivers multiplied by ten or more, and on the smaller rivers, the amount increased by hundreds or thousands of times.

In this context, besides the studies dedicated to the floods, approaching this problematic from the psychosocial consequence appeared as a true necessity.

The research has as goal several aspects regarding training the communities for calamity situations and also the inhabitants' responses to disasters.

The research included three villages in three different areas in the country, as follows: the village of Foeni (department of Timiș), Crîmpoia (Olt) and Nănești (Vrancea) (Fig. 1). The data source regarding the flood effects in the three communities was "*The report regarding the floods produced in April-May, July and*

August 2005” released by the Ministry of Administration and Internal Affairs and also authors own field observations after the calamities.

The village of Foeni, situated in the south-west of the department of Timiș, in the Timiș plain, traversed by the Bega Mică channel and bordered in the south by the river of Timiș, was completely flooded in April 2005 and suffered from important material damages. The causes

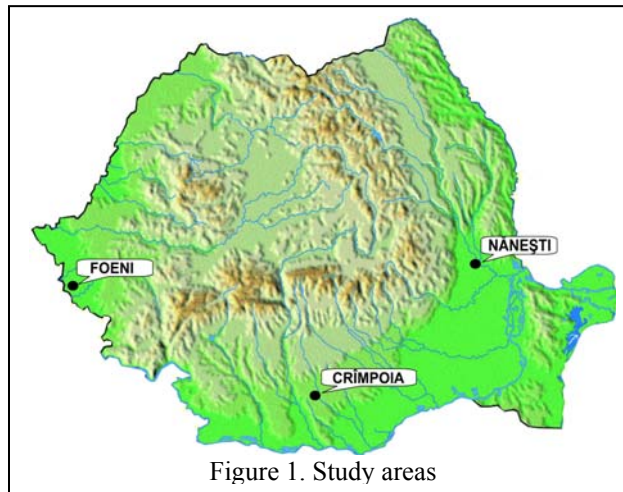


Figure 1. Study areas

of the disaster were attributed to the huge amount of precipitations, combined with the melted snow in the Banat mountains, with producing huge additional floods (on the river of Timiș, united with Bega through the Topolovăț node, there was the hugest flood) and mostly with the breakage of the Crai Nou-Rudna dam on the Timiș, on the 20th of April. The balance sheet of the disaster: almost 5000 acres of land flooded, roads flooded or blocked, 237 buildings flooded (of which 146 severely damaged), 800 inhabitants evacuated (of a total of 1200).

The village of Crîmpoia, situated in the department of Olt, in the north of the Boianului plain, on the inferior course of the Dorofeiul river (affluent on the right of Vedea), had severe floods in the month of July of the same year. Their causes were the record quantities of precipitations for this month, their torrential character (196 l/m² in just a few days, of which 85 l/m² in less than three hours), the breakage of the Brăneasa dam, situated right next to the village. In the region, about 1400 acres of arable field were flooded, about 300 houses were damaged, and 17 were totally destroyed.

The village of Nănești, situated in the south-east of the department of Vrancea, in the Inferior Siret plain, in the confluence area of Putna with Siret, also suffered from huge floods in the month of July, in the same year. The big quantities of precipitations (in Vrancea, on the 12th of July there were 92 l/m² in just two hours and a half) led to unusual increases in the amounts of the rivers. The amount of Siret river increased 30 times (from 200 m³ in normal conditions to 6.000 m³), and the supplementary waves of flood, with heights from two to four meters, broke the protection dams on the inferior course, its waters melting with those of Putna and Milcov, creating a real interior sea.

2. THE RESEARCH METHODOLOGY

Our research had as goal finding data regarding the evolutions in the three villages after the floods, more precisely, knowing all the details regarding the ways the disasters had really been perceived. The research design included the investigation of several inhabitants and of local authorities, in order to put into evidence certain opinions regarding the disasters.

In order to get the information, we used the *method of the interview through a*

focus group (in order to know the citizens' opinion) and *the method of the questionnaires* (in order to put into evidence the role of local authorities), and the data processing was realized through qualitative interpretation methods and through the statistical method – the descriptive graphic.

Through the focus group guide, taking into account the methodological exigencies, we proposed and agreed with three main themes, as follows: I – *Causes of the disaster, warning systems and intervention plans*; II – *The authorities' reaction*; III – *The citizens' reactions*. For each of the three villages, we organized two such focus groups that had a different number of persons (8 and 11 persons at Foeni, 9 and 10 persons at Crîmpoia, 7 and 9 persons at Nănești), randomly selected from three samples (between 70 and 97 persons) composed by citizens of the three villages. The focus-groups usually lasted for one hour and a half; the focus groups were conducted by a moderator; an independent observer noted the reactions of the participants. The conversations were recorded and then they were transcribed. The data interpreting was realized following the three basic themes that we already mentioned. We obtained a series of qualitative data that allowed us to bring out several interesting aspects from the psychosocial point of view.

In order to punctuate the local authorities' opinion for the three communities, and to try to maintain each member's independence, to avoid the alteration of personal opinion by agreeing with the boss or the chiefs' domination over any discussion, we choose the anonymous questionnaire method, self-administered. The questions within, were related to the same three themes proposed to the focus-groups, in order to get some sort of a comparative perspective. Thus, there were 18 questionnaires for the personnel and the functionaries within the town halls in Timiș, 15 questionnaires in Olt and 15 questionnaires in Vrancea. The application was due for half an hour.

The data obtained were both quantitative and qualitative, allowing a true comparative perspective regarding the three themes.

3. THE RESULTS OF THE RESEARCH

3.1. Theme I. Causes of the disaster, warning systems and interventions plans

This theme demonstrates the first differences in the opinions regarding the interpretation of the *causes of the disaster*, by the inhabitants on one side, and the local authorities on the other side.

The inhabitants' answers, gathered during the focus-group (with one exception at Nănești), indicated as main causes of the floods and of the consequent losses, the weak reaction of the authorities, the meteorological factors and the bad management of the hydrological resources. In all three cases, the authorities were blamed as they did not acted to avoid the floods or at least to diminish it by breaking dams. Moreover, the situation is a lot more complex; often, the decision of breaking or not breaking the dams was taken by superior authorities; we talk here about a sort of moral dilemma. In essence, in order to avoid the flood for other villages or bigger towns (sometimes having more population), the three villages were not sufficiently protected. The thing is that people in the villages thought that the authorities could have done a lot more in

order to help them.

The authorities' answers regarding the causes of the floods were a lot more different. The quantitative data allowed us to use the descriptive statistic methods in the questionnaires (Fig. 2).

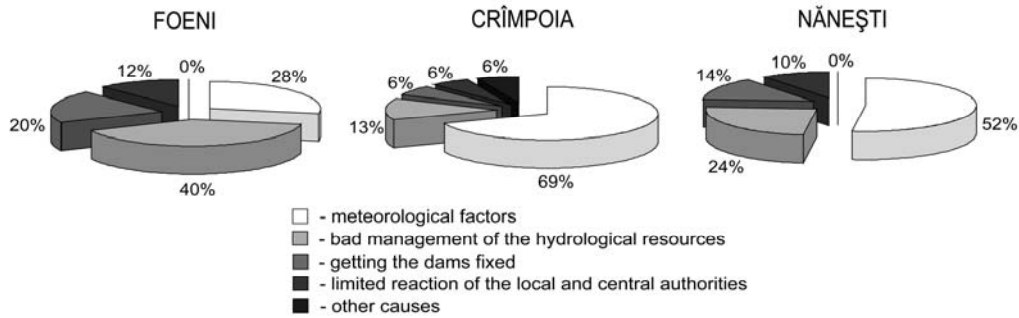


Figure 2. The authorities' answers regarding the causes of the floods

The second category of questions within the same theme referred to the *existence and knowledge of the intervention plans* in case of a disaster. Again, we saw the same difference in the opinion.

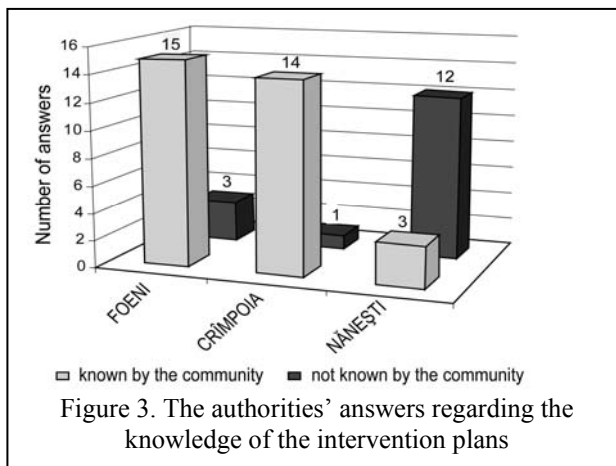


Figure 3. The authorities' answers regarding the knowledge of the intervention plans

The quasi-unanimous answer of the inhabitants was the fact that the authorities did nothing in order to make these plans public, while the authorities, in two of the three villages, said there had been preoccupations regarding the population's training in case of a disaster (Fig. 3); only the Nănești authorities stated that there had not been sufficient trainings in order to prepare the population for such a disaster.

In regards to the *knowledge and use of the warning systems*, the situation is rather unitary. Both the inhabitants and the authorities indicated that, in general, the warning systems are relatively known and that there had been several alarming exercises with all three communities. On the whole, the effort to train the communities in order to face a disaster should really continue.

All these elements allow us to underline a series of *conclusions* regarding the first theme (Table 1). The most important are the very different opinions regarding the causes of the disaster, the warning systems and intervention plans.

We can thus see that the inhabitants tend, in a right way or in a wrong one, to blame the way the authorities prepared in order to limit and to prevent the consequences of such a disaster. Also, there is still the idea of the "protective authorities" that should take care of all the inhabitants. On the other side, the

authorities don't seem to be able to go beyond the administrative formality when getting the population ready, and this can be somehow related to the late reactions when facing the disasters.

Table 1. Summary of theme I

	What the INHABITANTS say	What the AUTHORITIES say
1. Causes of the disaster	a. Limited reaction of the authorities; b. Meteorological factors; c. Bad management of the hydrological resources	a. Meteorological factors; b. Bad management of the hydrological resources; c. Limited reaction of the authorities
2. Knowledge of the intervention plans	The population was not well-informed; the intervention plans were just formal.	The population was well-informed; the intervention plans were known to the citizens (excepting the Nănești authorities)
3. Warning systems	The population knows the systems, but the alarming exercises were too general.	The population knows the systems, the alarming exercises did take place.

There is also a tendency of covering up the problems referring to communities' training in order to prevent disasters; they just present the facts, good or bad, and they don't examine the problems themselves.

3.2. Theme II. The authorities' reaction

The problem of the authorities' reaction was and still is rather sensitive. It is because of that that we benefited from the parallelism between the two instruments that we used; we could thus confront the inhabitants' opinions with those of the local authorities.

Unlike the first theme, the opinions are more alike. On one side, the inhabitants, although accusing a certain easy-going reaction in the days after the disaster, they do admit that the authorities made noticeable efforts. If the authorities' reaction is seen as more rapid, the central authorities' reaction is considered to be rather slow. Moreover, even though there had been numerous promises concerning help for the distressed, they materialized after a very long period of time.

Using the statistical method of calculating the *average* levels for each of the actions and representing them as diagrams in bands allowed us to compare the opinion of the three local administrations. We have to remind that the average level for a certain variant is calculated as being the rapport between the sum of the choices (e.g, appreciation through notes) for that variant and the number of the subjects who made the choice (Radu et al., 1993). For example, in order to appreciate the variant "capacity to manage on a short-term and on an average-term basis", each respondent offered a note, from 0 to 4. By making the sum of the notes and then by dividing it to the number of respondents, we obtained an *average* choice regarding the variant mentioned above.

When we asked the authorities' opinion regarding the administration' reactions towards the disaster, the opinions were positive (Fig. 4). They thought the intervention had been rapid, limited by the material means, extremely poor. As in the case of the

inhabitants, the local authorities' reaction has a better evaluation than the central authorities' reaction.

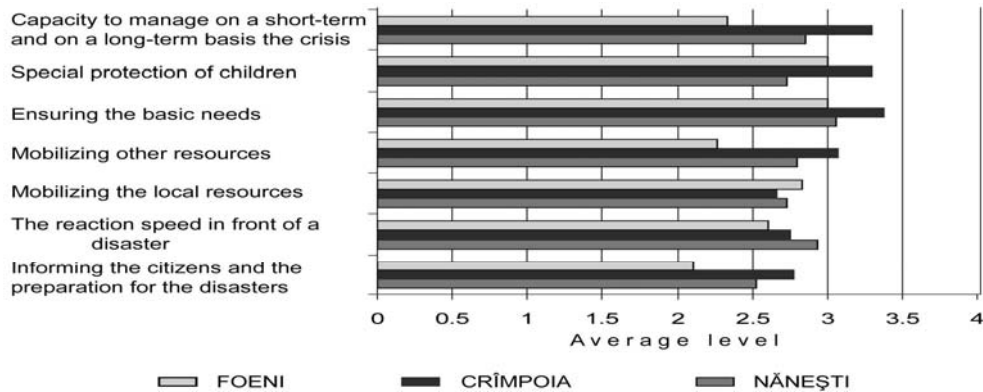


Figure 4. Local authorities' opinion about themselves – a comparative perspective

Thus, the most self-appreciative are the local authorities in Crîmpoia and the least self-appreciative those in Foeni. And if those in Foeni agree with the inhabitants, it appears that the authorities in Crîmpoia tend to overestimate themselves, as the inhabitants don't have the same opinion at all.

The central authorities' reaction is also differently interpreted (Fig. 5). Again, we see that the local authorities in Foeni don't quite appreciate the central authorities' efforts, while the local authorities in Crîmpoia seem to be the most pleased.

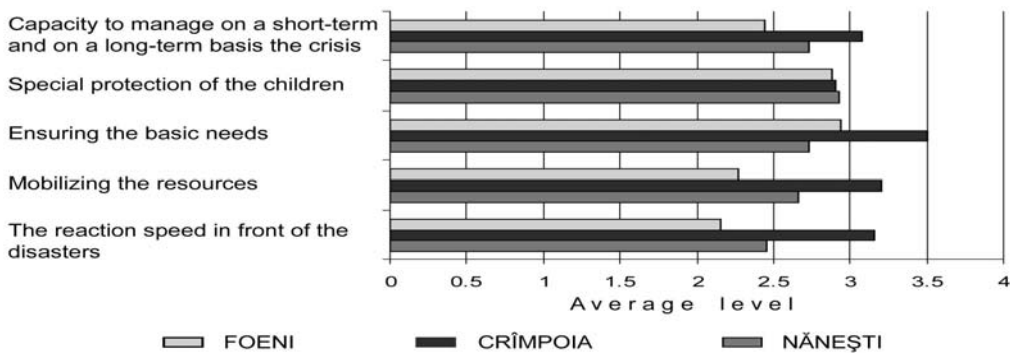


Figure 5. Local authorities' opinion about central authorities – a comparative perspective

The explanations for the phenomena are numerous and sometimes contradictory. The negative remarks that central authorities got from people in Foeni are quite strange, if we think at the fact that, due to the great emotional impact at the beginning, this region got the most consistent help of all Romania's communities affected by the floods in 2005. On the other side, from the chronological point of view, the first major floods in 2005 did occur in Timiș, which explains why the inhabitants find the reaction late. In Olt and Vrancea, the reaction was better appreciated, which is normal, as the central authorities had already a previous solid experience regarding the

intervention in the distressed areas.

It is amazing, though, that the authorities in Foeni don't appreciate the mobilization of resources. From a statistical perspective, the most important material and financial resources in order to prevent the consequences of the flood were directed towards Banat, thus, towards Foeni.

It is still here that the government helped building most of the houses. The explanations may be retrieved in a series of psychosocial reactions of the inhabitants (the learned helplessness, the development of the always-assisted mentality, the self-induced lack of motivation). This theme's summary (Table 2) allows us to draw several *conclusions*.

Table 2. Summary of theme II

What the INHABITANTS say	What the AUTHORITIES say
1. Local authorities tried to promptly react, but did not always manage to. 2. Generally, the reaction was seen as "slow and non-transparent, mostly regarding the so-called help". 3. There had been communication difficulties between the different levels of the authorities. 4. On a long-term basis, the situation "went back to normal".	1. The local apparatus' reaction was good and very good. 2. The local authorities reacted faster than the central ones. 3. On a long-term basis, central authorities proved to be better than local authorities. 4. There is a big lack of means at the local level.

We can see that, for the inhabitants, there is the same tendency to judge the authorities even though there had been many efforts during and after the disaster. We also have to mention "the social laziness", manifested in these villages and also in others. In the inhabitant's opinion, the solution for problems that could be solved was always suppose to come from somewhere else not from within their own communities; many inhabitants in the villages affected did not even try to help the authorities in order to limit the damages (like getting the dams fixed), as they were waiting for the others to do it. We can also notice the fact that evaluating the local factors depended a lot upon the community-authorities relationship, and sometimes even upon the political factor.

As regards the authorities, this theme's conclusions are as follows: formalism in doing the intervention plans in case of disasters also manifests in their reaction; there are no clear communication means with the inhabitants and with the superior authorities; there is also a tendency to overestimate the activities and there had not been an effective collaboration with the inhabitants.

3.3. Theme III. The citizens' reaction towards the calamities

The third theme refers to the citizens' reaction towards the calamities that affected their villages and it reveals the same difference between local authorities and the citizen's opinions. As a general tendency, the authorities don't really appreciate the potential and the will to get involved of the citizens. On the other side, the citizens themselves said that they had not reacted very well at the challenges brought along by

the disasters.

Interpreting Figure 6 (which refers to the authorities' opinion in the three villages concerning the citizens' reaction) points out several general tendencies. First of all, we see that the average levels are rather small comparing to the evaluation of other items of the same theme, which indicates a weak appreciation of the communities by the authorities. Again, the administration of Crîmpoia seems to be the most optimistic, or maybe the most capable when getting help from the community.

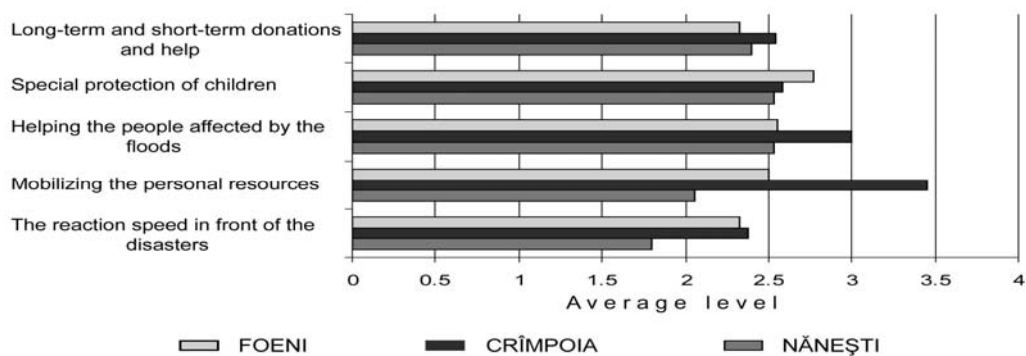


Figure 6. Authorities about citizens' reaction – a comparative perspective

Beyond the differences in the opinions, we can point out several aspects that characterize a certain part of the population.

We mention first of all the surprise factor, more precisely the way in which the floods stroke. There were areas affected which had never suffered from such a disaster before. In the recent history, there had not been any floods in the three villages, which could explain the population's slow reaction towards the calamity. We may also find here the explanation for the fact that few houses in the areas affected had been insured.

A negative aspect worth mentioning refers to the so-necessary collaboration between the authorities and the communities during such emergency situations. Except for the staff within the administration at Crîmpoia, who declared that there had been a good collaboration between the authorities and the population, the other authorities believe that the population did not properly collaborate with them. On the other side, at all the focus-groups, the participants declared that, despite their will to collaborate, the authorities had not asked for their intervention. This is a clear division at a social level, as well as an accentuated lack of communication inside the community.

More generally, for the three villages, the situation is similar with many other Romanian villages, characterized by a social atomization and by a lack of community spirit. In the focus-groups, the atomization came out clearly; almost all the participants declared that, when saving what they could save from the flooded houses, each family took care of its own property, without helping the others. The same two social phenomena explain the constant lack of mutual helping behavior among the distressed persons.

Thus, the inhabitants' opinions regarding this theme point out the necessity of a better mobilization of the personal resources inside the community, in order to eliminate the negative effects, to raise the community support, the mutual helping

feeling among the citizens, and also of the existence of better intervention plans, with definite roles and responsibilities at citizens' level, which could really lead to a decrease in the whole chaos.

As regards the authorities, they have the tendency to “underestimate” the community and to ignore its self-organizing potential.

Table 3. Summary of theme III

What the INHABITANTS say	What the AUTHORITIES say
1. The population was often unprepared and its reaction slow. 2. Generally, there was no chaos, the community managed to deal with the situation. 3. There was only a sporadic kind of mutual help among the distressed inhabitants.	1. The individual reaction of the inhabitants didn't even exist; they were all waiting for help. 2. There was no collaboration with the inhabitants. 3. The emotional factor was very strong during the first days. 4. On a long-term basis, the inhabitants tries “to talk into” the authorities in order to get help.

A better communication between the authorities and the community would be ideal; it should take into account the psycho-emotional factors manifested during such crisis situations.

4. CONCLUSIONS

The aspects presented above confirm once again that the management of the emergency situations represents an extremely difficult and complex activity, which should be considered as a whole and also as an interdependent activity. The intervention of the authorities or of other factors may lead to the progress of unwanted effects at the individuals' level and at that of the community affected, and our analysis allows us to point out several of them:

- During the first phases after the calamity, we can talk about an *accentuated scission at the level of the relationship between the authority and the population*. The phenomenon becomes more important as the losses are greater. Despite the efforts made by the local and the central authorities, the public perception will be that of a lack in any prompt reaction.

- There is the tendency for the *authorities to ignore the organizing capacities of the citizens*. This potential, often ignored, could have been canalized towards very helpful actions for the community during the period right after the disaster.

- *The local and regional intervention plans should start with several basic principles*: a good integration of the efforts from both the authorities and the citizens, the adequate mobilization of all resources, the active training of the citizens concerning the crisis management.

From the interviews and the discussions within the focus-groups there can be underlined some **psycho-sociological conclusions**:

- *The process of helping and supporting the persons affected by a disaster is an*

extremely sensitive one; during the whole process, the authorities lost people's trust, as there had not been any transparency or involvement in the decision process. Often, the worst conflict situations occurred when distributing goods to distressed families. From the sociological point of view, the bad management of these forms of support may reverse old systems of values, leading towards a particular perspective regarding the approach of disasters. As we could see, the houses were not equally destroyed: the big, solid houses, belonging to the people that manage well their lives, did suffer damages, but they did not fall; it was the houses of poor people in the village that fell, as they were not as solid. That is why the poorest people suffered the most after the flood (minorities, beneficiaries of social allowances, numerous families or families at risk). The rapid evaluation of the situation and the adoption of certain solutions led to an inversion of the community's values.

This means that those who had lost their houses got them rebuilt with help from the government; the new houses are solid, they look far better than the old ones, while the persons whose houses did not fall remained with their old houses. Thus, there came a less acceptable situation for the community: those who had never made any efforts for their lives, those who had not worked, got, with the help of the government and private sponsors, new, comfortable and beautiful homes.

The answers from the focus groups revealed a particular form of the "learned helplessness" (Seligman, 1992): because of a perceived absence of control over the outcome of the situation viewed as a repeated failure, because of a inferior social position, certain people develop an *assisted type of mentality*, always waiting for help and support from the others.

- In the context of natural disaster studies, *offering support to the individuals affected by the stress syndrome is a very necessary and useful activity*, but it does imply certain cautions and abilities. The findings from the focus-group interviews suggest that individual reactions towards the crisis situation are often hard to predict. From a psychological point of view, some persons that may be considered very strong break down in front of natural disasters, while other persons may turn out to be very resistant. The individual rational thinking is modified during emergency situations; their perception is quite altered, so the decisions can be unexpected and often apparently irrational. That is why we may have abnormal, irrational or even wrong behaviors. In order to avoid such decisions during emergency situations, the communities should benefit from a serious training regarding how to face such calamities.

- Among the *possible solutions and approaches of the disasters*, besides drawing a holistic model having as main point the "*Plan to prepare the community for a disaster*", we also have the option of rebuilding the community spirit and the local solidarity.

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