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INPUT PAPER

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**THE IMPROVEMENTS ACHIEVED BY CIVIL PROTECTION AND EMERGENCY  
SITUATIONS SERVICE (SPESS) OF REPUBLIC OF MOLDOVA**

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## ***1. Acknowledgments***

The authors of this article thank to Civil Protection and Emergency Situations (CPESS) of Republic of Moldova. In particular to Lieutenant colonel Vitali Mutaf.

## ***2. Introduction***

Climate change in recent years have had as a result, negative consequences for Moldova, bringing with them flooding (2008, 2010, 2011), following which there were enormous economic losses and of human lives.

To combat and prevent natural hazards The Government of Moldova has developed a series of measures designed to improve preparation from natural catastrophes: SHS warns where intense rain will occur, Service Operations of CPE and other specialized bodies in the field, which in turn notify the district authorities in 35 districts, afterwards the local authorities through fixed telephone, mobile, internet, mail and through centralized automated notification system announces population in the region (for more information please see Attachments nr.1 and nr.2).

To prevent emergencies in the Prut river basin, along the river were installed 11 stations measuring the water level, allowing early warning to the population, in case the water level rise in a very short period of time.

However, unfortunately the inefficiency of the National Center for Disaster Management is outlined, due to the lack of feedback from the population and its poor financing, which has adverse consequences.

Moldova is a country which is suffering from natural hazards constantly which are very difficult to cope with especially because of the lack of the infrastructure and economic support.

The improvements happening in this field are due to many factors: better hazards forecasting, the spread of new technologies and the international collaboration between CPE ES and similar organizations in the rest of the world, especially with the neighboring countries Ukraine and Romania.

The Civil Protection and Emergency Situations Service (CPESS) is doing a titanic work to cope with hazard situations and to protect the inhabitants. According to a Poll made public at 03.02.2014 the (CPESS) is the highest ranked service (87% compared to 77% a year before) from all other divisions belonging to the Ministry of Internal Affairs. (\*1)

Also one very important issue is that the people do not take advantage of the insurance companies and they have the sense that Government will take care of everything.

### *The History of Civil Protection and Emergency Situations Service (CPESS)*

The proclamation of independence on 27 August 1991 Moldova represented an effort to reform governmental institutions.

In order to regulate the activity of the Moldovan Civil Defense structures and in accordance with the Declaration of Independence of the Republic of Moldova, in 1991, the President of Moldovan Republic wrote the Decree No. 244 of December 24, 1991 "On Civil Defense of the Republic of Moldova" decreed the passage of all institutions and control organs and military units of USSR Civil Defense deployed in the republic under Moldovan jurisdiction of the Civil Defense Staff.

By the decree mentioned above it was established that all goods of Moldovan Civil Defence and subordinated institutions, weapons and material-technical base of military units of USSR Civil Defense deployed in the republic are the property of the Republic of Moldova.

Next by Government Decision nr.265 of May 14, 1993 Civil Defense Staff was subordinated to the Ministry of Defense.

Later, by the Directive of the General Staff of the of Moldovan Armed Forces nr.17/018 from September 1, 1993 the Defense Staff was reorganized into the Department of Civil Protection and Emergency Situations Service.

Considering the fact that civil protection system in most developed countries is separated from the Armed Forces, and in exceptional cases is administrated by the central administrative bodies, local businesses, the Moldova Government wrote the Decision no. 541 of October 2, 1996 and withdrew SPES from the Ministry of Defense, as well as Fire and Rescue Department from the Ministry of Internal Affairs, with all their departmental structures, equipment, property, funds and other base, which were included in the department's composition.

With the approval of the new structure of government under the Government Decision no.357 of 23.04.2005 titled "Measures for the reorganization of ministries and central administrative authorities of the Republic of Moldova" The Department of Emergency Situations was transmitted under the Ministry of Internal Affairs jurisdiction. Civil Protection of the Republic of Moldova is a system of measures and actions taken on state-wide during peacetime and war, to ensure the protection of people and theirs properties against natural calamities, accidents and disasters, disease outbreaks, fires.

The fundamental principles of civil protection in the republic, its duties, the legal framework of activity in this area, are established by the Law "On Civil Protection '271-XIII of November 9, 1994:

### *The main tasks of CPEES*

The main tasks of Civil Protection under Article 4. are (\* 2):

(1) The main tasks of Civil Protection are:

- a) protection of people and property under emergency situations;
- b) execution of rescue and other work when the Emergency Situation occurs;
- c) To perform multilateral training to the population, on the objects of national economy, to the Civil Protection forces for deployment in the event high probability of danger occurrence.

2) Civil Protection, in accordance with its duties:

- a) Organization of required forces, able to protect the people and their property under exceptional Circumstances, Their make-material and special technical training, to keep them in constant preparation for action under Emergency Situations;
- b) Creates and maintain in permanent training condition the Command Center and control systems, notification and communication, organize control and supervision of the radioactive, chemical, bacteriological and fire situation in Moldova.
- c) Accumulates necessary funds for protection construction to keep them in constant state of preparation for hosting persons under threat;
- d) Collects and maintains safe all the means of protection, food and medicines, material and technical resources, financial and autonomous sources of electricity supply and water provided for emergency situations;
- e) protect water sources and water supply systems, food and food raw materials, farm animals, chemical, bacteriological and the environment from radioactive pollution, poisonous, toxic and bacteriological means;
- f) Preparing the evacuation, and in case of risk of immediately, evacuate people and the goods from hazardous areas;
- g) Advise the governing bodies and the population about the dangers and appearance of emergency situation, performs a full a training to state forces and means of Civil Protection and leads the rescue works and other necessary works without any hesitation;
- h) providing multilateral assistance to the victims;
- i) Performs trainings to economic units involved in the prevention and liquidation of emergency situations consequences;
- j) Controls the preventive measures designed to diminish the likelihood emergency situations to reduce impacts on the property, to increase the security, stability and functioning of all branches of the national economy;

k) Organize and carry out training to workers and citizens, defense entities and action processes under emergency situations.

### ***3. Preparedness at different levels***

At the local level (municipalities, districts), regional and state exists the Civil Protection Plan in emergency situations at different levels: the enterprise, universities, Ministries.

These plans are updated annually by the person responsible for occupational safety in the company, which will create the working group will first attend a training where I will explain what risks may occur in the enterprise and how to act in case occurring .

On holidays are determined by the service people who will stand guard and monitor the status of the company, in case an emergency occurs, then announces SPESS which will coordinate the liquidation

The same applies, of ministries, educational institutions, etc..

Every year it publishes the Government's decision on the protection of civilians, then each district does a plan (lessons, training).

#### *Trainings*

Currently, are performed different trainings, seminars, modeling and information using mass media for the population by SPESS in order to minimize loss of life but also materials from natural disasters or any EMERGENCY circumstances, it is obvious function rapid alert system in extreme cases (risk) depending on its origin and necessary measures are taken to remove the impact of these hazards both by specialized institutions in the field of public administration as well as local, regional. However, there are some gaps that present a huge danger to society, such as the poor state of dam reservoirs in the country that requires a major overhaul.

There is a person responsible for renewing the training plans every year.

Special attention is dedicated to preparing the next generation of rescuers for this are performed sport competitions to reward the best and motivate them to continue preparation for the future.



Fig. 1: Programme Young Firefighters-Rescuers

Source: [www.dse.md](http://www.dse.md)

Civil Protection Plan is renewed every 5 years due to several factors: changes in the number and structure of the population or if necessary.

Responsible for the smooth running of civil protection are the Governors of the Regions, City Mayors or Enterprise Directors, aim to create the greatest possible autonomy in order to take decisions in time.

#### ***4. International Agreements***

With the independence, in 1991, Moldova began to establish contacts with various international organizations. First with all neighboring countries: Romania and Ukraine, which have signed bilateral agreements. Under these agreements are collaborating closely to prevent natural hazards, and to eliminate the effects of these phenomena.

Moldova has signed international agreements with the following countries and international organizations: GUAM Black Sea Basin, with the EU, NATO, bilateral agreements with all the neighbors.

Also, According to the Article 6 from Government Decision no. 1076 of 16.11.2010 (\* 2) When own forces and means is not sufficient to remove the Consequences of Emergency Circumstances, the Government Requires for international assistance in two ways: 1. the NATO / EADRCC and 2. from the EU / MIC.



Fig.2: Signing administrative arrangement between Civil Protection and Emergency Situations and European Commission - Humanitarian Aid & Civil Protection

Source: <http://www.dse.md/galerie/semnarea-aranjamentului-administrativ-%C3%AEntre-serviciul-protoc%C5%A3iei-civile-%C5%9Fi-situa%C5%A3iilor-excep>

### *Partnership Moldova - State of North Carolina*

In the frame of cooperation between Moldova and State of North Carolina , USA SPESS has its research area . Thus, during the years of cooperation has attended a number of events that occurred in the country and abroad such as : seminars, study tours, field exercises . In collaboration with experts from the National Guard of the State of North Carolina was organized a field exercise " Forests 2009 " also experts were present at the international field exercise " Forests 2011" , organized with the support EADRCC / NATO . During the years 2013-2014 Civil Protection and Emergencies will have a number of trainings , visits, but most importantly , the Moldovan rescuers will join American counterparts actual liquidation of emergency situations such as floods , hurricanes .

### *International exercise "Georgia 2012"*

Moldova participated together with 32 NATO member states and partner countries to exercise "Georgia 2012", which took place in the city of Tbilisi, Georgia (September 22 to 28, 2012). The exercise aimed to practice internal procedures of ministerial cooperation, given knowledge of local and international participants, as inter-operations capabilities of EADRU (Unit Euro-Atlantic Disaster reactionary) and enrich experience for future activities. Exercise

of land going under the auspices of the Euro-Atlantic Disaster Respons.

Also, Moldova hosted the exercise "Forests 2011", in which participated about 38 countries worldwide.

*Cross Border Cooperation Programme Romania-Ukraine-Moldova "Better Prepared ! Better reaction " - Cross Border Cooperation in complex emergency situation "*

SPESS is actively working in the Cross Border Cooperation Programme Romania-Ukraine-Moldova titled "Better Prepared ! Better reaction ". For the year 2012-2013 was obtained a technical assistance project that will be implemented in collaboration with the Inspectorate for Emergency Situations "Nicolae Iorga" from Botosani, Romania. This project will enable the Service technical intervention equipment performance and capacity building intervention at the border between the two states, Moldova and Romania . 12-13 September in Botosani, Romania held its first working meeting with Romanian representatives for preparation of the project implementation.

*International year EU-HUROMEX 2008*

The European Commission has financed the project simulation exercise civil protection EU-HUROMEX 2008, organized by the National Directorate General for Disaster Management of Hungary, in cooperation with the General Inspectorate for Emergency Situations of Romania. The exercise was focused on issues of cooperation of the Community Civil Protection Mechanism, the general objectives of training and improving existing methods of alerting, mobilization and dispatch teams of civil protection for the onset emergencies.

## **5. Planning for risk analysis**

Planning for risk Analysis

Risk analysis is important because it allows to plan the response to emergencies created.

According to Lieutenant Colonel Vitaly Mutaf:

"When we make risk analysis we take into account the worst case scenario and then plan and act depending on the situation."

All plans are coordinated according to the needs of the country.

Every year are checked 7 Regions, taking into account that in Moldova there are 35 districts where the same district is checked every five years.

During these checks are anthropogenic and biogenic risk simulations (foxes with rabies) training. During a day 10 simulations are performed, the whole procedure takes 3 days in total.

It also evaluates all ministries and institutions of higher education one every 5 years.

Those responsible for implementing the plans are informed about their obligations as well invite the media. It organizes information seminars.

Coordination with NGOs

SPESS works with the Red Cross, NGOs, as different churches give clothing, medicines, water, food and other essentials. All these are coordinated with CPESS.

### ***6. The Use of Technology and Communications***

With the advance of the internet at high speed but also its accessibility to the majority of the population, the alert system has become much faster both at institutional level but also at the social level, due to specialized websites in field and the transmission of information through the media, which has access each and every citizen (TV, radio, etc..).

Media are regularly informed about all activities of CPESS, regularly receive press releases, there is a press officer responsible for cooperation with the media.

There is a Training Centre belonging to the Ministry of Internal Affairs and CPESS headquartered in Chisinau, also there are and South branches (Cahul) and Northern Moldavia (Balti) which provides regular training that is inviting students, directors of schools, universities and enterprises.

There are efforts to use new technologies, especially in the field of Geographic Information Systems (GIS), which will contain the flooded areas and the likely flooding, also information regarding the number of people living in the flooded homes. This information is useful to properly organize rescue work and to know what steps to take.

SPESS started installing Single Centre for Emergency calls, which will contain an emergency telephone number "112", where citizens can call for free and depends of urgency type will relay the call to the responsible organization. This number is already functional in all EU member countries.

### ***7. The budgetary allocation***

There is no precise amount of money allocated to SPESS. Usually, they receive 2 % of Gross domestic product from the National Reserve Fund. At Regional, level, each Regional Council votes the amount of they will transfer to the National Reserve Fund.

### **8. Management of Response**

Being so dangerous and having a disastrous consequences on the inhabitants, natural disasters, are monitored by the competent National Disaster Management (NDMC) Center, composed of the Emergency Situations and Civil Protection and Emergencies (CPE), Ministry of Health, Ministry of Defense and Carabiniery troops which in turn interacts with the Mass Media, State Hydrometeorological Service (SHS), Moldovan State Water Agency, Red Cross and the Government.

*At National level there is a Control Unit, that is activated in case of emergency, also in the National Comision, in which all the Ministries are included and all the actions plans are becoming functional.*

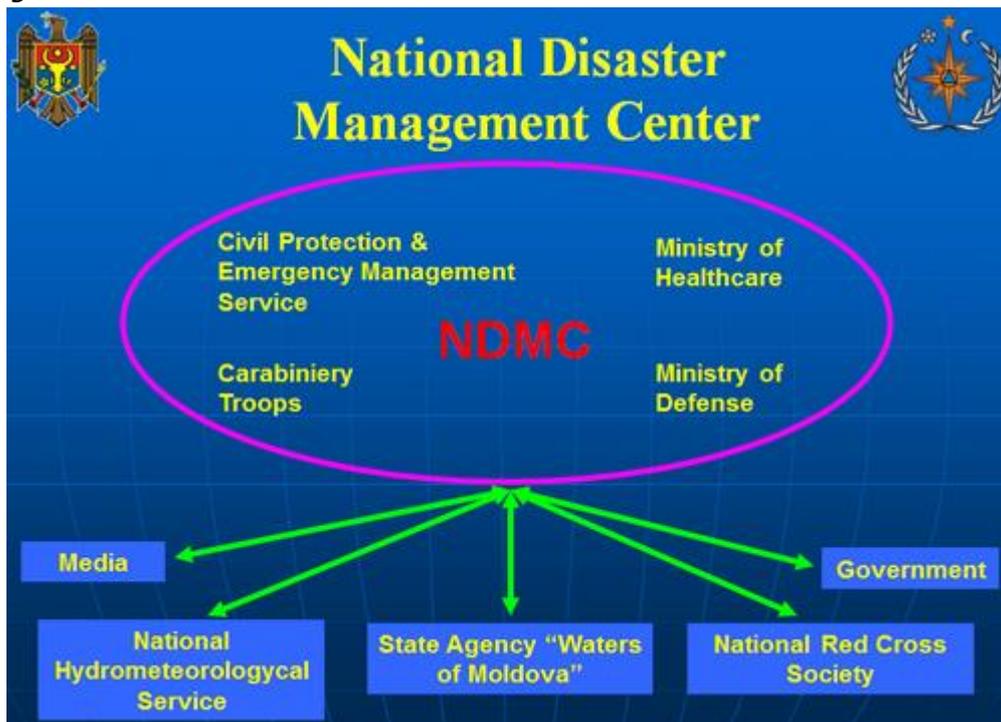


Fig. 3: Activity scheme in case of exceptional situations

Source: SPESS

This NDMC is launched and put into practice once a hazard occurs. The head of NDMC is the Prime Minister of Republic of Moldova which gathers of the members of NDMC at an emergency meeting to discuss the emergency situation created and the necessary steps that need to be done.

Before that the SHS warns competent authorities regarding the occurrence possibility of a hazard and preparation has to be made by the respective authority.



Fig.4: Distribution of the hydrological observations posts

The map above shows the locations where SHS has hydrological stations and when there is a change in the height of the water, than they announce the relevant authority about the changes.

*Example: The way in which have fulfilled their mission CPEES and competent organizations in the field. Floods on the Nistru river*

The dangerous raising of the water level in the greats rivers Nistru and Prut (in the Republic of Moldova territory) occurs due to entry into their riverbeds of surplus quantities of water from rains, sudden melting of snow in the basins superior courses (the territories of Ukraine and Romania). It is known that 90 percent of the flow of these two rivers is formed outside the country.

*In the July - August 2008 Ukraine, Romania and Republic of Moldova were hit by the one of the worst floods in the last two centuries.*

In the period 22-28 July 2008, in Western of Ukraine where are located the upper courses of the rivers Nistru and Prut, ultimately have fallen 63 260mm of rainfall, which is 1-3 monthly norms.

In the northern districts, in some central and southern Moldova rainfall amount per decade was the 85-185mm or 440-800% of decadal norm. The rest of the amount of rainfall has been 15-70mm or 100-420% of decadal norm.



Fig.5: Floods on the Nistru basin.

Source: <http://www.meteo.md/newsait/floods/floods1.htm> (SHS of RM)



Fig.6: Floods on the Nistru basin.

Source: <http://www.meteo.md/newsait/floods/floods1.htm> (SHS of RM)

As a result the flood from July-August 2008 for the Nistru and Prut rivers had a **historical flood** character.

Exceptional floods on the rivers Nistru and Prut of the last four decades to the annual average are represented as graphs in Figures 1 and 2.

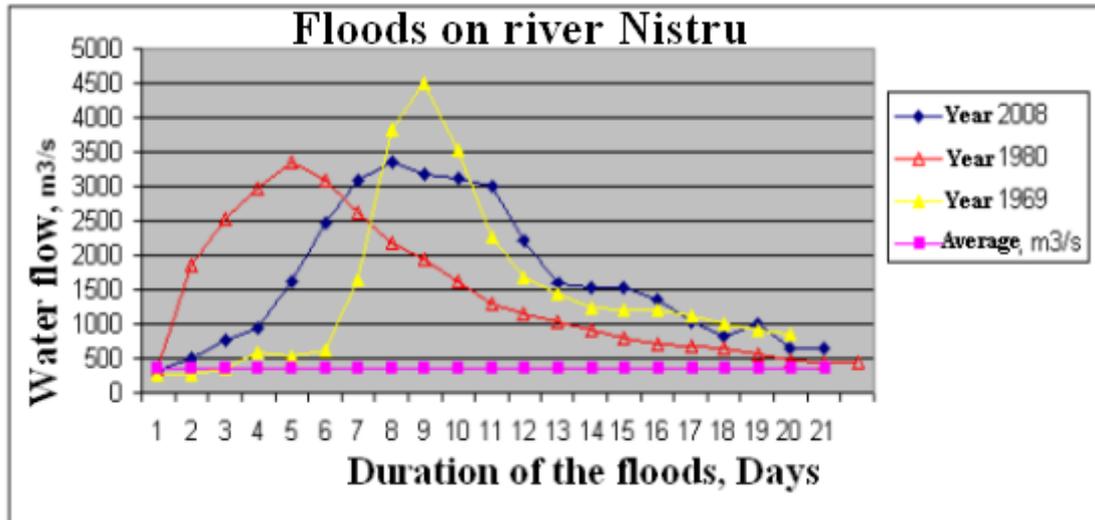


Fig. 7. Exceptional floods in the Nistru river.

As one can see from the graph above the duration of the floods in average is for about 3 weeks and the highest numbers are registered at the beginning of the floods which requires prompt and decisive actions to be taken.

As a result were exceptional and catastrophic floods, causing great damages the economy. According to preliminary estimates it represents \$ 120 million U.S.. After proportions and damage, flooding from July-August 2008 considerably exceeded the previous ones.

In the 22 districts of the rivers flood plain Nistru and Prut, after floods were destroyed not only houses, roads, agricultural lands, but were affected wells (about 3000), waste water collection system. Drowned over 3,000 animals. Were 8473 ha of agricultural land flooded, including 4980ha of pasture.

In total per country 1,183 homes were flooded, 7851 persons evacuated. Most flooded homes were recorded in the districts of Briceni (293) Căușeni (283) Noi (213) Criuleni (145).

Hydrometeorological dates analysis have led to following main conclusions:

- The main cause that produced floods from July-August 2008 is a natural one, being caused by extremely large quantities of precipitation that fell in the third decade of July, especially in basin superior courses of the rivers Nistru and Prut (Ukraine).
- Flood hydrographs shape and volume reflect specific products rains which have caused, noting that large quantities of water have fallen successively for several days in string.

### *Activities*

To prevent, predict and mitigate the consequences of floods is necessary to perform the following activities:

- elaboration and the adoption of the National Strategy by Republic of Moldova and the National Action Plan on the Prevention and Mitigating the impact of natural hazards on the society and the environment;
- the modernization and improving of the National System for monitoring, prediction and prevention of the effects of natural disasters in the State Hydrometeorological Service, through measures of technical assistance and technology transfer;
- preparation and continuous completion of regional data bank "Moldova Hazards", in order to perfecting the prediction methodology of these phenomena;
- mapping floodplains and and preparation of topographic map with drawing the flood boundaries at different insurance.

During the flood event of rain from July to August 2008 SHS has provided non-stop state bodies, authorized institutions, economic agents and the general public operative and qualitative information on hydrologic monitoring, including monitoring that flood propagation ( hydrological notes information, weather hydrological, bulletins hydrological, hydrological warnings).

### *Floods on the river Prut*

The summer of 2010 saw heavy rainfall. As is known, only between 16 to 30 June have fallen almost 6 monthly norm of precipitation (594%) and in the first two weeks of July, another 4 monthly norm. Against this background, in a very short time were registered seven floods. The first three floods, set at 25, 27 and 29 June, led to a much higher level of Prut river water flow discharged through Costesti-Stinca being 800m<sup>3</sup> / s (normal rate for June was more than 130 m<sup>3</sup> / s and in January - just 30m<sup>3</sup> / s). The level of water storage at the dam Costesti-Stinca exceeded with 6 m critical quota. The water level in the river Prut sometimes amounted with more than 4 meters above than normal quotas. In these circumstances, the protective anti flood hydraulic structures, could not cope of the situation. The resilience of these had not been provided for the volume of water dramatically, recorded just in a few days.

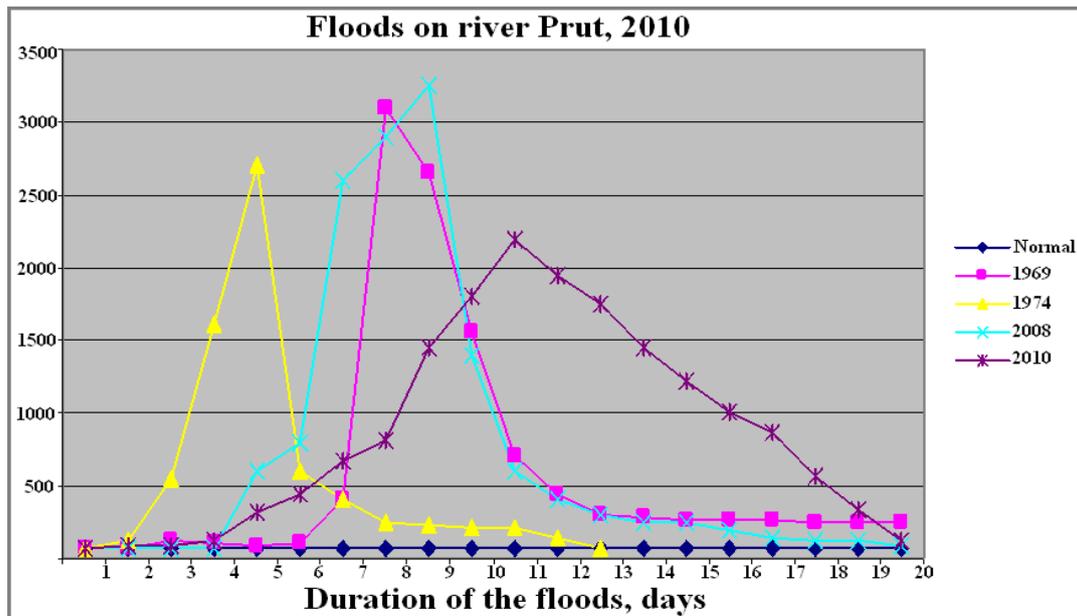


Fig. 8. Exceptional floods r.Prut

On the Prut river the duration of the floods is shorter than on the Nistru river, also is smaller the water flow than on the Nistru river.

*The consequences of floods on Prut River in 2010*

In the period May to July 2010 the Republic of Moldova, Ukraine, Romania and other countries in the region were hit by the one of the longest and worst floods in the last decades.

In the period May to July 2010, in Western Ukraine, where are located the upper courses of the Nistru and Prut rivers, enormous amounts of precipitation have fallen, surpassing the annual average 2-3.

As a result of the huge quantities of rainfall during the last 2.5 months both on the territory of Ukraine West and the Republic of Moldova, the Nistru and Prut rivers high, since May 18, 2010 were formed five flood rain, which partially overlapped and have caused ongoing high levels of water during the 1.5 months of time, causing deep wetting and overthrow of the protection dams. In 2008 was only one flood, soil and subsoil was dry and the Costesti lake until the flood contained much less water.

During the flood event of rain from July to August 2008 SHS has provided non-stop state bodies, authorized institutions, economic agents and the general public operative and qualitative information on hydrologic monitoring, including monitoring that flood propagation ( hydrological notes information, weather hydrological, bulletins hydrological, hydrological warnings).

Currently about 10% of the dams and hydraulic structures existing in the country are damaged condition, presenting enormous danger for the surrounding localities. Under threat of flooding is about 168 settlements with a total area of 1300km<sup>2</sup> and about 160 000 inhabitants.

Moldova's total land area subject to periodic flooding, constitutes about 20% of the total area of the country, or more than 600 000 ha.

The economic loses from the floods in 2010 on the Prut River were estimated to 6 377 878 USD.

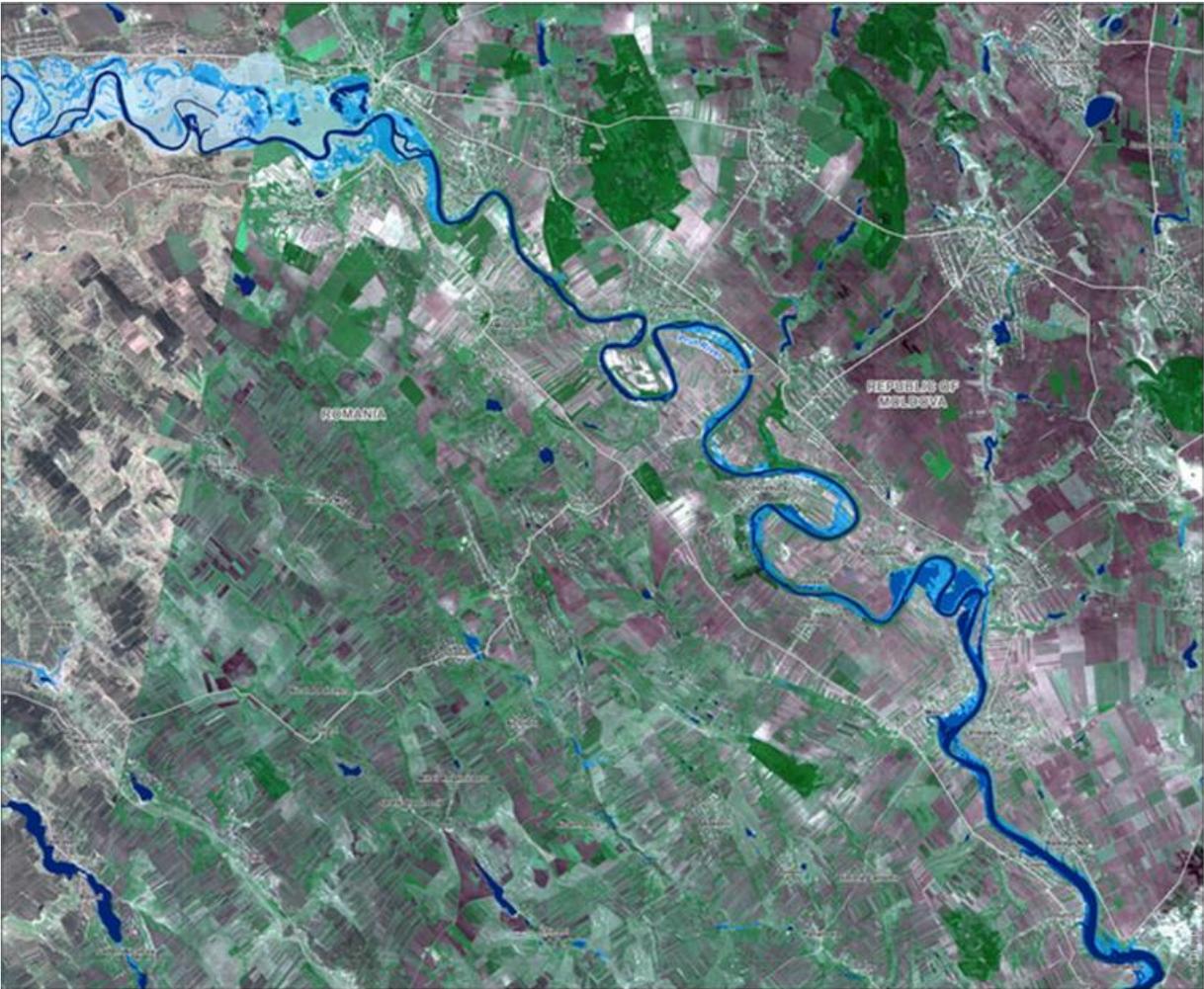


Fig.9: Affected areas in Prut basin. (Romania and Republic of Moldova)

Source: SPESS

As shown in the map above the floods of 2010 affected large areas both in Romania as well as in Moldova. Particularly affected areas were sinusoidal shaped, where the water flow is reduced and so the water spreads out of the river beds to the parcels near by.



Fig.10: Flooding effect in the Republic of Moldova



Fig.11: Evacuation of people and goods.

Source: <http://www.dse.md/galerie/inunda%C5%A3ii-2010>

### *Activities*

Since taking of the first information about possible flash floods and floods, were immediately alerted and deployed in the near settlements of Prut river additional forces Civil Protection and Emergencies, Police, Carabineer Corps, who have undertook actions to monitor de situation, mobilization the local commissions for emergences, the forces and necessary means for prevention and liquidation of consequences, protecting life and and property of citizens. This situation was examined permanent of the National Commission for Emergencies, including trips in territory and staking out specific tasks to central and local public authorities.

Some of the most important problems regarding needed providing assistance were examined in extraordinary meetings of the Government. For direct management situations in the field, throught the Government was created the State Major Force, under the leadership of Minister of State Victor BODIU, while from MAI were seconded the most experienced central office leaders. Was succeeded mobilization and involvement of local authorities and population in the protection dams construction, evacuation of citizens and other activities. Operative and continue information was assured to the population. Additional police posts were installed to take under protection remained property and homes now devoid of owner. In the affected area the police station was created to maintain public order. Was ensured

the security for collection and distribution centers of material aids and temporary placement centers of flood victims.

At liquidation of the consequences and prevent flooding expansion were involved daily up to 1,000 police officers, 500 employees of SPC and SE, 320 carabinieri, 540 militaries of the Armed Forces, 100 of the Border Guard Service, Ministry of Justice - 35 employees and over 300 technical units and special means of intervention.

In record time, were constructed 71.8 km of dams, another 21 km were consolidated. Were carried out projects designed to protect drinking water sources, pumping water from flooded areas, cleaning drain systems and destroyed roads, collecting dead birds and animals etc from the flooded villages. All these measures have ensured to prevent a possible epidemic that could worsen the already difficult situation.

### ***9. Conclusions***

Climate change constantly test the infrastructure, properties and ordinary citizens, causing damage worth millions of USD.

Plans to fight disasters and training of the population are welcome and should be applied regularly by the appropriate institutions.

An important factor plays the collaboration between all institutions involved in this process, and organization, actuation prompt when floods occur and when affecting towns and villages.

Since 1989 when Moldova was part of the Soviet Union until the now when it tends to integrate into the EU , we should mention that there were changes , which still continues to stand out because of infrastructure development , technology, economy but awareness of citizens about the effects and dangers of natural disasters as a result of numerous trainings conducted by SPESS but also the training of students in schools on civil protection .

Thus during the 1990s , when in fact the Republic of Moldova gained its independence , the conditions were precarious because the economy was much influenced by the socialist system, which had bad influences on the technology investment in research , etc. . All these in turn have influenced the SPESS activity , which had limitations in technologies , lack of sufficient finance from the state to purchase new materials, new cars, etc. . Along the way , with the implementation of new projects , the economic growth of the country receiving aid from the U.S., EU experts, also modern equipments and technology. Now SPESS activity is felt by almost every citizen.

Since 2008 when the Republic of Moldova has suffered massive floods on Prut's river meadow were conducted conferences, seminars, simulations, information about the possible risks massive population. But in the years 2010, 2012 due to heavy rains, the water level in rivers rose again flooded villages and farmland, resulting in huge losses of life and material. Here, SPESS, has joined efforts to remove the consequences caused by high waters, conducted various trainings and in particular to inform the population about the effects and

areas at risk from flooding. In this situation SPSS activities were efficient and the results were visible to all citizens who were desperate after heavy rains and tragedies that happened to their relatives.

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