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ELABORATION OF COMMON STRATEGY



Giarmata Commune



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ELABORATION OF A COMMON STRATEGY IN COLLABORATION WITH THE BENEFICIARY - GIARMATA COMMUNE CITY HALL, ROMANIA AND OUR PROJECT PARTNER - BOR CITY, REPUBLIC OF SERBIA. ADEQUATE PREVENTION AND PROTECTION IN CASE OF FIRE AND NATURAL DISASTERS (EARTHQUAKES, FLOODS, EARTHQUAKES, ETC.).



Beneficiary: Giarmata commune town hall, Timis county.

Developer: SC PRO-PREVISION SRL, Timisoara.

Giarmata 2020

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CHAPTER I

The need for a joint strategy on collaboration between the town hall of Giarmata commune, Romania and the town hall of Bor town, Republic of Serbia.

Taking into account the evolution and trends in the production of fires and natural disasters (earthquakes, floods, dangerous weather events, landslides, etc.) with major consequences on people's lives and their property, on infrastructure, the activity of economic agents , of the cultural heritage objectives, it was clear that changes are needed in the approach to the problem of defense against them, moving from defensive forms of action to those of management, risk management caused by emergencies.

Risk management in fires, floods and other dangerous meteorological phenomena must be the result of intersectoral and interdisciplinary activities that include, forest, water management, land use planning and urban development, nature protection, agricultural and forestry development, transport infrastructure protection, construction protection and the protection of tourist areas, the protection of the community and the individual.

In this context, it is necessary to consider ensuring a balance between structural and environmental protection measures, reorganization of the infrastructure in the area of Giarmata commune and the project partner, Bor town.

A. The purpose of the strategy

In order to manage the risk of fires and natural disasters caused by floods, dangerous weather phenomena, earthquakes, landslides, etc., the strategy adopted by Giarmata City Hall must establish the application of policies, procedures and practices aimed at identifying risks, analysis and assessment. treating, monitoring and re-evaluating them in order to reduce the negative effects, so that human communities, all citizens, can live, work and meet their needs and aspirations in a sustainable physical and social environment.

The reduction of damage and loss of life as a result of fires and natural disasters caused by floods, dangerous weather, earthquakes, landslides, does not depend only on the response actions taken during their development.

The strategy is the result of a broad combination of measures and actions prior to the occurrence of the phenomena, those of management during their development and those undertaken post-disaster, ie removal of consequences, reconstruction and lessons learned from the occurrence of phenomena.

The strategy adopted by the Giarmata City Hall on managing the risk of fires and natural disasters caused by fires, floods, dangerous weather events, earthquakes, landslides, must include a set of actions at the level of the entire administrative-territorial unit, regarding the education of the population. areas at risk, training and training through protection plans of the Voluntary Service for Emergency Situations, alarming - warning and informing the population, financing these measures and those for the rehabilitation of affected areas.

This strategy aims to define the framework for the coordinated, inter-sectoral orientation of all actions, in order to prevent and reduce the consequences of emergencies on socio-economic activities, human life and health and the environment.

In conclusion, this strategy comprises a set of actions at the level of the Giarmata Territorial Administrative Unit, which includes planning, coordination and local actions, such as educating the population in risk areas, training, regulation through disaster protection plans, reporting, forecasting, alarming-warning and informing the population in areas at risk. To these are added the insurance, evaluation, financing of actions, as well as the rehabilitation of areas affected by natural disasters.

B. Basic concepts of strategy

The strategy on adequate prevention and protection in case of fires and natural disasters (earthquakes, floods, landslides, etc.), is based on the following concepts of risk management:

• Natural disasters are natural phenomena that have always existed and will continue to exist.

• They are the consequence of climatological phenomena under the influence of geological, geomorphological, relief, soil and vegetation conditions;

• Human society is increasingly vulnerable to natural disasters, anthropogenic activities and human influence on natural processes producing strong changes in all areas of human life and security of property owned by them;

• Living with natural disasters takes into account the fact that their prevention cannot be limited to events with medium and high frequency of occurrence, that rare events must also be taken into account.

• It is necessary to fully address natural disasters, taking into account the entire space of Giarmata ATU.

• The strategy in this area must promote coordinated development and integrated management of activities on water, land and adjacent resources.

• Because "zero risk costs infinitely", there is no absolute protection against natural disasters. As a result, only a certain degree of defense against their effects can be ensured; the question that arises is that of the degree of protection possible and the costs involved in achieving that degree of protection, that is, how high the risk accepted by the community is;

• All those who may suffer from floods must complete the general measures, taking their own precautions.

C. Reference normative acts.

The main normative acts that regulate the management of emergency situations that may occur in Romania are:

1. Law no. 307/2006 on fire protection;
2. Law no. 441/2004 on civil protection;
3. Law no. 107/1996 - Water Law, with subsequent amendments and completions;
4. GD no. 2288/2004 for the approval of the distribution of the main support functions

provided by the ministries, the other central bodies and the non-governmental organizations regarding the prevention and management of emergency situations;

5. GD no. 1489/2004 on the organization and functioning of the National Committee for Emergency Situations;
6. GD no. 1491/2004 for the approval of the Framework Regulation regarding the organizational structure, attributions, functioning and endowment of the committees and operative centers for emergency situations;
7. MIA Order no. 163/2007 regarding the approval of the General Normrlot of fire protection;
8. Joint Order no. 638/420/2005 of the Minister of Administration and Interior and of the Minister of Environment and Water Management for the approval of the Regulation on the management of emergency situations generated by floods, dangerous meteorological phenomena, accidents at hydrotechnical constructions and accidental pollution.

D. The international context of collaboration between the town hall of Giarmata commune, Romania and the town hall of Bor, Serbia.

The Conference on Environment and Sustainable Development took place in Rio de Janeiro in 1992, and a number of international agreements and two declarations were established, including major actions related to the expansion of sustainable development, which also concern the management of natural disasters.

These documents are:

- Rio Declaration on Environment and Development;
- Agenda 21;
- Statement of principles for guiding management, conservation and development sustainable development of all types of forests;
- United Nations Framework Convention on Climate Change;
- Convention on Biological Diversity.

In 2000, it was the International Strategy for Disaster Reduction (ISDR focusing on increasing population involvement, correlating with sustainable development, developing partnerships and networks.

The objective of ISDR is to educate the public for an increase in collaboration with public authorities in order to achieve resilient structures in the face of potential disasters that threaten them.

In 2002, the World Summit on Sustainable Development was held in Johannesburg, South Africa. On this occasion, a new section was included - "An integrated, multi-hazard concept on vulnerability, risk assessment and disaster management".

In 2004, in Istanbul, Turkey, the Complex Risk Management Strategy was adopted, which mentions systemic integration (risk assessment, emergency preparedness, disaster prevention and financing of actions aimed at reducing disaster risks), as well as reducing exposure. countries to economic losses.

In 2005, the World Conference on Disaster Reduction was held in Hyogo, Japan, and the Hyogo Framework for Action 2005-2015 for building the resilience of nations and communities to disasters was adopted.

The EU Civil Protection Mechanism includes all EU Member States, as well as several other non-EU participating countries, namely Iceland, Norway, Serbia, Montenegro and Turkey.



RescEU logo - the EU response mechanism in the field of civil protection.
Source: ziare.com

Since its launch in 2001, the EU Civil Protection Mechanism has monitored more than 400 disasters and received around 250 requests for assistance. This mechanism can be activated to respond to natural or man-made disasters, but also provides support for disaster preparedness and disaster preparedness.

A key element of the proposal is the creation of RescEU, a European-level reserve of civil protection capabilities, including forest firefighting aircraft, special water pumps, urban search and rescue teams, field hospitals and medical teams. emergency intervention.

These capacities will complement national capacities and will be managed by the European Commission in order to provide assistance to disaster-stricken countries such as floods, forest fires, earthquakes and epidemics.

In 2017 alone, more than 200 people lost their lives in Europe due to natural disasters and more than one million hectares of forest were destroyed.

Following the frequent natural disasters in the European Union, the EU President declared in 2017: "Europe cannot assist when our Member States are hit by natural disasters and need help. No country in Europe is immune to natural disasters, which have unfortunately become the norm.

Every time a disaster strikes, we want the European Union to offer more than condolences. Europe is a continent of solidarity and we need to be better prepared than ever before and mobilize faster to come to the aid of our frontline Member States. "

In recent years, extreme weather conditions and new emerging threats have maximized the ability of Member States to help each other, especially when several Member States are facing the same type of disaster simultaneously.

In such cases where there is limited availability or scarcity of resources, RescEU acts to provide additional capacity to manage disasters in Europe.

„The EU Civil Protection Response Reserve (RescEU) will consist of resources and equipment for civil protection interventions, and will be provided to Member States in the event of a disaster, when national capacities are overburdened.

RescEU will include resources and equipment such as firefighting aircraft and water pumping equipment, which will complement national capabilities.

All RescEU costs and capabilities will be fully covered by EU funds, and the Commission will ensure operational control of these resources and equipment and decide on their deployment in the field.

In parallel, the Commission will support Member States in their efforts to strengthen their national capacities by financing the costs of adapting their existing resources, as well as repair, transport and operational costs, of which only transport costs are covered in present.

Resources and equipment would be part of the common emergency response resources within the European Civil Protection Reserve and could be mobilized in the event of a disaster.

In 2020, the EU is funding seven EU Member States for pooling aircraft and helicopters in the firefighting fleet, which is easy to mobilize in other countries when needed.

The RescEU fire reserve consists of 2 firefighters from Croatia, 2 firefighters from Cyprus, 1 firefighter from France, 2 firefighters from Greece, 2 firefighters from Italy, 2 firefighters from Spain, 2 aircraft and 6 firefighting helicopters from Sweden.

Another important measure is that Member States will have to communicate their national prevention and preparedness strategies so that any deficiencies can be identified and remedied collectively.

This will simplify administrative procedures so as to reduce the time required to provide vital assistance.

All these measures and directions of action, fully concern the cross-border cooperation projects Romania-Republic of Serbia, and the present project of the town halls of Giarmata commune and Bor city, is a component part of them.

E. The zonal context and the relations Romania - Republic of Serbia, in the field of emergency management.

Currently the collaboration with the Republic of Serbia in the field of natural disasters is regulated by the Agreement between R.P. Romanian and R.P.F. Yugoslavia on hydrotechnical problems on hydrotechnical systems and watercourses on the border or intersected by the state border, signed on April 7, 1955, in Bucharest, which is no longer relevant.

As a result, a new Agreement between the two countries is being finalized, a document that will strengthen cooperation in the field, on a legal basis.

In 2019, the Romanian Government adopted a Memorandum in this regard.

Under the Agreement, Romania and Serbia will be able to assist each other, upon request, in the event of the imminence or occurrence of a disaster whose consequences could not be fully removed by the efforts and means of the State whose territory is threatened or affected.

The agreement will regulate the principles and technical modalities for carrying out actions to forecast, prevent, assess, limit and eliminate the effects of disasters, in a manner harmonized with the requirements and recommendations on international cooperation in this field.

The document will also contain provisions related to:

- Romanian-Serbian Joint Commission for the implementation of the Agreement;
- Ways of providing assistance;
- Coordination and management of assistance operations;
- Temporary evacuation of the population in danger or affected by disasters;
- Crossing the state border;
- Cross-border aid, use of ships and aircraft, compensation, cooperation with international organizations.

The competent authorities responsible for implementing the Agreement are:

- from the Government of Romania - Ministry of Internal Affairs - Department for Emergency Situations, through the General Inspectorate for Emergency Situations,
- from the Government of the Republic of Serbia, Ministry of Interior - Emergency Management Sector.

So far, the cooperation activity between Romania and the Republic of Serbia in the field of disaster prevention, limitation and elimination has been carried out based on cooperation agreements concluded between the local councils of the main border cities, as well as within the Danube-Cris-Mures-Tisza Euroregion. (DKMT).

The European Commission approved on March 27, 2008, for the period 2007 - 2013 the IPA Cross-Border Cooperation Program Romania - Republic of Serbia.

This is the continuation of the cross-border cooperation programs between Romania and Serbia carried out in the previous period and was developed on the basis of Council Regulation (EC) No. 1085/2006 establishing a Instrument for Pre-Accession Assistance (IPA) ("IPA Regulation"), Commission Regulation (EC) No 1085/2006 718/2007 implementing the IPA Regulation ("IPA Implementing Regulation") and Decision C (2008) 1076 of 27 March 2008 adopting an "IPA Romania-Serbia Cross-Border Cooperation Program" for Community assistance in the cooperation component cross - border assistance instrument for pre - accession.



Logo of the INTERREG-IPA CBC program, Romania - Serbia.
Source: ziare.com.

The existence of the basic conditions for cross-border cooperation, offered by the two previous programs, favored the implementation of the new integrated instrument of cross-border cooperation,

implemented at the external borders of the European Union, with the candidate and potential candidate states, starting with 2007.

The program involves Community support for certain regions of Romania and Serbia, located along the common border between the two states, namely Timiş, Caraş-Severin and Mehedinţi counties and the Serbian regions Severnobanatski, Srednjebanatski, Južnobanatski, Braničevski and Borski.

The general objective of the program is to achieve a sustainable and balanced economic and social development of the Romania-Serbia border region, by increasing the global economic competitiveness of this region and by improving the quality of life of communities in the border area of both countries.

The program is structured on 4 priority axes, financing projects regarding:

- economic and social development;
- environmental protection and emergency preparedness;
- promoting "people-to-people" activities.

Fire Service in cross-border cooperation - is a project that highlights the main problems facing the two cross-border partners involved when it comes to natural disasters.

The project focuses on the measures to be taken to prevent these disasters, by developing and implementing an effective plan that will describe the current situation and identify risk areas, by conducting a campaign that will inform residents about natural disasters, will raise public awareness of environmental risks and last but not least, by purchasing innovative systems, tools and equipment to minimize the negative effects of floods, fires, earthquakes, landslides, etc.

The project has two parts:

- the town of Bor - the administrative center of the Bor district in eastern Serbia,
- and from the Romanian side: Giarmata - a commune from Timiș County.

The reason for the development of these partnerships lies in the similarities that the partners share in terms of climate, soil, vegetation, culture, desire to protect the environment and, most importantly, both partners face the same significant common challenges regarding the risks to environment and emergency.

The overall objective of this project is to improve the protection of our area in the cross-border region against natural disasters, as well as to reduce the negative effects when these events occur, by raising awareness of environmental risks, acting on an effective basis and strategy. accurate and using modern equipment and tools that will improve the emergency response and results.

During this net income generating project, we aim to minimize the uncontrolled negative impacts that natural disasters have on our project area and to protect the environment in a safe way, by involving all people - local authorities, residents and volunteers in the names of both partners.

The project refers to the acquisition of:

a. tangible goods that will be used to protect and react when disaster strikes,

b. intangible assets - a study that will determine the areas of risk, the challenges we address and the best way to act in order to prevent and react against disasters.

The investment also involves the acquisition of an innovative climate monitoring system that will measure our results and also play the role of a prevention tool.

The end result will be a clear x-ray of risk areas, a strategy that will allow us to intervene quickly and effectively, and special equipment that has the potential to protect both the environment and the people who use this life-threatening equipment. to save others.

This cooperation is necessary, given that both partners face similar challenges and share similar characteristics (climate, vegetation, etc.), so that in order to protect our project area, we need a common commitment, based on a common vision and a common set of measures.

CHAPTER II

Relevant general information on the situation of risks caused by natural disasters in Romania.

Romania is affected by risks, whose magnitude, intensity, frequency and mode of manifestation generate a negative impact on social and economic development, requiring the allocation of important material, financial and human resources to restore normalcy.

According to Law 481/2004 - chap. I, art. 9 by disaster is meant the event due
triggering certain types of risks, due to natural or man-made causes, generating human losses, materials or changes in the environment and which, by magnitude, intensity and consequences, reach or exceed the specific levels of severity established by the regulations on emergency management.

Types of disasters are defined according to the O.U.G. no. 21/2004, approved by Law 15/2005 as fires, earthquakes, floods, accidents, explosions, damages, landslides or landslides, mass illnesses, collapses of some constructions, installations or arrangements, the failure or sinking of some ships, falls of objects in the atmosphere or in the cosmos, tornadoes, avalanches, the failure of public utilities and other natural disasters, serious accidents or large public events determined or favored by specific risk factors.

The main types of risk generating emergency situations in Romania, grouped according to their nature, are included in Government Decision no. 557/2016 on the Management of risk types, in force since August 26, 2016.

In accordance with the provisions of the Strategic Study of the Inspector General for Emergency Situations (I.G.S.U.), they are:

a. Fire risk

b. Natural risks

1. Dangerous meteorological phenomena: storms - strong wind and / or massive precipitation and / or hail;
2. Floods;
3. Tornadoes;
4. Drought;
5. Frost, ice bridges and dams, massive snowfalls, frost, frost.
6. Forest fires, dry vegetation or straw cereal crops.
7. Avalanches.
8. Destructive phenomena of geological origin: landslides; earthquakes.

c. Technological risks

1. Accidents, damages, explosions and fires in industry, transport and storage of dangerous goods, transport - land, air and naval transport, including subway, tunnels and cable transport, nuclear;
2. Water pollution
3. Collapses of constructions, installations or arrangements.
4. Failure of public utilities - vital and large-scale public utilities: important radio, television, telephone, communications, electricity, gas, central heating, water supply, sewerage and wastewater treatment plants .
5. Falling objects from the atmosphere or the cosmos

d. Biological risks

1. Epidemics
2. Epizootics.

Analyzing the information and statistical situations contained in the Activity Reports of the General Inspectorate for Emergency Situations from 2012-2018, the following conclusions are obtained:

- Most intervention actions of firefighters - 81%, were carried out to ensure fire protection measures, cracking of gas pipes, traffic accidents, water drainage, sanitation of wells, trees or other materials;
- For rescuing people and animals - 14%;
- For environmental protection - 5%.

Very frequent were the interventions at pyrotechnic missions, about 20%, removal of the effects of floods and landslides - 14%, dangerous weather, other than floods - 13%.

The situation is also relevant at the level of ATU Giarmata in 2019-2020, in the sense that 36 intervention missions were executed, of which:

- Fire at personal home = 8;
- Vegetation fire = 17;
- Fire caused by defective vehicles = 3.

Total fires = 28, about 78%.

- Yards and construction floods = 4;
- Animal rescue during floods = 2.

Total floods = 6, about 17%.

a. Fire risk in Romania and Giarmata ATU.

In Romania, fires are the most common type of risk, causing about 200 deaths annually and between 400,600 people injured.

The fires occurred both in personal homes and in the forest fund, in tall and very tall buildings, warehouses and industrial halls, ships and sea platforms located in territorial waters, in road or railway tunnels.

The main causes of fires are:

- Operation of electrical installations with improvisations or failures - about 26%;
- Using open fire without complying with the rules - about 15%;
- Checking and non-maintenance of chimneys - about 14%;
- Intentional actions (arson) - about 10%.

The risk of fire is characterized by high frequency, affects economic and social areas such as construction of all kinds, forests, facilities, public transport, agricultural crops.



Fires in ATU Giarmata.
Source: ziare.com; the S.V.S.U. Giarmata.

According to the data provided by the Voluntary Service for Emergency Situations of Giarmata commune, the situation of SVSU interventions in the fires produced in the years 2019-2020 is as follows:

The nature of the event		**Interventions in the year**		**Total**
		2019	**2020**	
Total interventions 2019-2020, of which:				**36**
Interventions	Fire at personal home	5	3	**8**
	Vegetation fire	10	7	**17**

at	Fire caused by defective vehicles.	2	1	**3**
Total fire interventions		17	11	**28**

The following conclusions can be drawn from the analysis of the interventions of SVSU Giarmata and ISU Timiș within the Giarmata ATU:

• The event with the highest degree of risk is constituted by fires of all types, 28 out of 36 interventions, which represents a percentage of 69%;

• Floods and their associated phenomena occupy a percentage of 17%;

• Other events account for 14%

b.Risk of floods in Romania and Giarmata ATU.



Flood interventions in Giarmata ATU.
Source: ziare.com

Eloquent examples for Romania are represented by the succession of years in which major floods were registered: 1926, 1970, 1975, 1991, 1997, 1998, 2004, 2005.

In order to better visualize their impact in 2005, on society and the environment, we will present some aspects of the annual report of the Ministry of Environment and Water Management, for 2005:

- all counties in Romania were affected (1734 localities);

- the total value of the damages is estimated at RON 5,975,201.5 th;
- 76 people died;
- 93,976 houses and household annexes were damaged; 1063 social objectives and economic;
- 656,392 ha of agricultural land were severely affected.

It is manifested almost annually by water accumulations caused by runoff from slopes, discharges of rainwater collection systems, floods and significant increases in flow in floodplains.

The phenomenon occurs on an area of about 1.3 million hectares where about 500,000 people live.

The data presented were taken from the "Strategy for consolidation and development of the General Inspectorate for Emergency Situations for the period 2016-2025", year 2016, page 6-7.

c. Risk of dangerous weather events in Romania and Giarmata ATU.



1. Violent storms. 2. Torrential rains. 3. Tornado. 4. Strong storms. Source: ziare.com .

They are forms of violent manifestation of the weather, in a short time, on relatively large areas of land, causing, in the medium and long term, loss of human lives, material damage and environmental degradation.

Considering the geographical location of Romania and the Republic of Serbia, the dangerous meteorological phenomena characteristic of Romania are manifested with the same intensity and repeatability in the Republic of Serbia.

These are:Torrential rains; heavy snow and sleet; drought; heat; tornadoes; the fog; strong winds (blizzard, hail, etc.); frost.

The main characteristics of these phenomena are:

- the affected land area;
- duration of manifestation of the phenomenon;
- the period of predominant manifestation of the phenomenon (season, month, etc.);
- the amount of water that fell in 24 hours;
- thickness of the snow layer;
- maximum and minimum temperatures;
- low visibility;
- wind speed and direction, etc.

The effects that can be generated by this type of disaster are:

- human losses and material damage;
- soil erosion;
- total or partial destruction of roads;
- serious accidents on roads;
- flooding of vulnerable areas;
- causing panic;
- destruction or damage to gas, water, etc .;
- destruction or damage to electrical and telecommunications networks;
- landslides;
- interruption of the educational process;
- isolation of human communities;
- danger of epidemics;
- causing panic;
- destruction of fauna and flora;
- interruption of production processes.



Risks caused by dangerous weather phenomena in ATU Giarmata.
Source: ziare.com

In Romania, droughts (climatic hazards) have a higher share in Dobrogea, Bărăgan and in the south of the Moldavian Plateau.

In the last hundred years there have been three periods of drought, the driest years being 1946, 1947, 1982, 1996 and 2000.

The drought in the summer of 2000 affected 2.6 million ha and caused damage valued at 6.5 trillion lei.

Climate warming and rising temperatures during the summer, associated with frequent droughts, can lead to an intensification of tornadoes and an increase in their frequency in some accidentally affected places.

Romania has been affected in recent years by strong tornadoes such as:

- the tornado from Făcăeni (Ialomița county) from August 12, 2002, which resulted in 3 dead, 18 injured, 400 houses destroyed, railway and road traffic blocked;
- tornado from Ghindărești commune, Constanța county;
- the tornado from Movilița, Ialomița county,
- violent storms in Timisoara and Arad, in August, 2017. and so on.

d.The risk of destructive phenomena of geological origin in Romania and Giarmata ATU.

The earthquake is the biggest risk, among those related to natural disasters, to which Romania could be subjected in the next four years, it is shown in the Report on the macroeconomic situation of Romania for 2018 and its projection for 2019-2021.

The 1977 earthquake in Bucharest had a cost that was estimated at about 7% of Romania's GDP.

Based on existing statistics from 1977 (World Bank Report of 1978), the material damage recorded was $ 2.048 billion.

Taking into account an additional coefficient of 20% compared to this value - determined by factors such as the age of the buildings, the partial implementation - due to insufficient funds - of the National Construction Consolidation Program, increasing the number of buildings with crowds, increasing costs generated by inflation, etc., it can be estimated that an earthquake currently produced, similar in parameters to that of 1977 would generate losses of about 1.8 billion EURO.



1. Seismic zoning of the Romanian territory. Banat place and western area.
2,3,4. Images from post-disaster interventions.
Source: ziare.com

The earthquakes in Banat have a polycinetic character, with numerous aftershocks in the event of major events.

Recent major earthquakes in Banat and the West:

- 12.07.1991, Intensity = 8 (Banloc - Timiș area)
- 18.07.1991, Intensity = 8 (Herculane - Offsenița area).

ATU Giarmata is exposed to seismic hazard with a magnitude of at least VII, expressed in degrees MSK (Mercalli)

CHAPTER III

GENERAL AND SPECIFIC OBJECTIVES OF THE COMMON STRATEGY, FOR ADEQUATE FIRE PREVENTION AND PROTECTION AND NATURAL DISASTERS (EARTHQUAKES, FLOODS, EARTHQUAKES).

The general objectives of the natural disaster defense strategy are economic, social and environmental.

The social objectives have in view the protection of the population and of the community in general, against fires and natural calamities, by ensuring an acceptable level of protection, but also of a good development capacity, in the conditions of the assumed risk of their production.

Environmental objectives aim for risk management to maintain a balance between economic and social development and specific environmental objectives.

The general objectives refer to:

• Increasing the quality of life by reducing the damage caused, but being prepared for the production of similar phenomena in the future;

• Adequate use of resources for the construction, maintenance and operation of infrastructure to reduce the risk of natural disasters;

• An effective control of land use, by prohibiting the location of new constructions and the development of activities in areas frequently exposed to fires and natural disasters;

• Reduction of indirect economic losses, by rapid resumption of activity after natural disasters;

• Improving the collective response in the event of a natural disaster and strengthening the capacity to adapt and return to functional level, as soon as possible, after the event;

• Reducing the impact of fires and natural disasters on the flora and fauna of the area.

The general objectives find their equivalent in objectives specific to the 3 categories stated above, respectively: economic, social and environmental.

The specific economic objectives aim at protecting against fires and natural disasters, the existing infrastructure within the commune of Giarmata and guaranteeing development opportunities for future generations.

These refer to:

• Prevention or minimization of economic losses, by reducing the risk of fires, floods and in the event of an earthquake, populated areas, economic objectives and population assets.

• Prevention or minimization of economic losses by controlling land use, promoting agriculture with low vulnerability in exposed areas and creating protection systems in case of floods.

The specific social objectives take into account the protection of the population and the community in general, against fires and natural disasters, by ensuring an acceptable level of protection, but also a good capacity for development, given the risk of producing these phenomena.

These refer to:

• Reducing the risk of floods and other natural disasters for human communities, through better preparedness, effective forecasting and warning of floods, ensuring professional assistance during production and after floods, to return to safe and normal living conditions ;

• Informing, consulting and participating the exposed population, regarding the strategy

and plan for managing the risk of fires and natural disasters.

• Prevention and reduction of the risk of fires and natural disasters for public goods (hospitals, schools, etc.), vital infrastructure (water supply networks, gas, electricity, etc.), public utilities, public facilities and recreational areas;

• Ensuring access to critical infrastructures (sources and systems of water supply, gas, energy, bridges, footbridges, bridges, airport, hospitals, schools, population protection works, etc.) during natural disasters;

• Safe evacuation and ensuring the necessary conditions for survival.

Specific environmental objectives aim for risk management to maintain a balance between economic and social development and specific environmental objectives.

These refer to:

- taking into account the ecological functions of floods, by recharging aquifers, ensuring lateral connectivity, necessary for the reproduction of aquatic species;
creation and / or conservation of space for rivers, avoiding defense works and rectification of long-distance watercourses (local and cumulative);
- application of sustainable techniques that combine environmental efficiency with cost efficiency (application of best practices);
- protection and improvement of land quality, and where possible, encouraging changes in agricultural practice, to prevent or minimize the flow of torrents and associated floods, as a result of intensive agricultural work.

CHAPTER IV
EXPECTED RESULTS FOLLOWING THE IMPLEMENTATION OF THE COMMON STRATEGY

As a result of the implementation of the Joint Strategy for the prevention and protection in case of fires, floods and other natural disasters, the expected results will be fine in accordance with practical measures taken by Giarmata City Hall, Giarmata Local Council, Giarmata Voluntary Emergency Service, supplemented with those of other institutions with attributions in the field: Timis County Council, Banat Water Administration, Timis County Prefecture. Inspectorate for Emergency Situations "Banat" Timis (Professional Firefighters), etc.

These measures concern:

- Preliminary assessment and improvement of knowledge of the risk of fires and natural disasters;
- Preparing the population, permanent feedback with its interests and needs, for achieving a climate of trust in the activity of the authorities;
- Strict control of the granting of authorizations for land use and construction of personal dwellings, as well as of buildings for economic, social, tourist purposes, etc .;
- Improving the management of flows and watercourses on the administrative territory of Giarmata commune;
- Strengthening the fire and flood defense capacity through special procurement programs for firefighters, machinery, materials, equipment, etc .;

- Reducing the vulnerability to natural disasters of agricultural lands and road and railway communications infrastructure;
- Reducing the vulnerability to natural disasters of environmental infrastructure and protected ecosystems.

Therefore, for the commune of Giarmata, the expected results can be:

- Strengthening the role of Giarmata City Hall, as a responsible institution, regarding the management of emergencies caused by fires and natural disasters and ensuring a timely intervention with the forces and means of the Voluntary Service for Emergency Situations;
- Observance and application by citizens, institutions and the private environment, of the provisions in the field of flood emergencies in the area of Giarmata commune;
- Reducing the number of people and goods affected by emergencies;
- The exact application of the urban provisions from the construction permits issued by the Giarmata City Hall;
- Ensuring the endowment with state-of-the-art intervention technique, with modern alarm-warning means of the Voluntary Service for Emergency Situations and its preparation for efficient interventions.

CHAPTER V
IMPLEMENTATION OF THE COMMON STRATEGY.

A. Proposals for the implementation of an efficient management of emergency situations at the level of Giarmata commune.

1. Including the issue of disaster protection in the development strategy of potentially affected communities;
2. Carrying out defense works specific to floods, especially of the Beregsău and Behela rivers;
3. Optimizing the activities of the structures that ensure the management of the defense activity against natural disasters;
4. Training the population on the norms of behavior in case of fires and natural disasters;
5. Exercises and applications with the forces and means intended for the intervention;
6. Preparation of decision makers;
7. Making complete agreements on humanitarian assistance in case of disaster, between localities that have twinning agreements.
8. Testing of standardized operational procedures.
9. Direct participation of intervention teams and persons with responsibilities in the field, in "Training and Simulation Exercises and Applications, on the line of Emergency Situations", organized on the territory of Giarmata-Romania commune and Bor-Republic of Serbia.
10. Development and updating of the computerized database on risks of natural disasters and the real capabilities of response structures.

The information regarding the emergency situations is transmitted between the two town halls, on electronic support and text (graphic) and includes:

- Sources of risk on the territory of the two communities, which may have

manifestations and negative effects on the population, its assets and the environment;

- Risk factors that can trigger, maintain or aggravate the evolution of an emergency situation;
- Contact persons and institutions, with attributions in the management of emergency situations.

B. Procedures for cross-border and regional cooperation between the commune mayor's office Giarmata and Bor City Hall aim to:

- Creating a monitoring system, which would allow direct relations between the two communities, fast and correct information in the management of emergencies in case of fires and natural disasters and the implementation of prevention actions;
- Informing the population in order to make citizens responsible for their self-defense and preparation for the prevention and removal of the effects of disasters;
- Building a climate of trust between participants, based on common ideas and new initiatives, such as: creating a joint group of experts, conducting joint workshops, and joint training programs;
- Shortening the time of transmission of the flow of information, data and decisions by using computer means: internet, television, radio, mobile and fixed telephone networks;
- Optimizing the decision-making process and managing the intervention by the authorities of the two localities.

CHAPTER VI
IMPLICATIONS FOR THE BUDGET OF GIARMATA TOWN HALL.

The funds allocated by Giarmata City Hall must respect the principle: "The costs of prevention are current, and the benefits are future."

Given that prevention is a permanent activity, logistics must ensure the development of all stages of disaster defense, as follows:

1. Ensuring the financing of programs for reducing / eliminating the risks on the life and health of the population, the environment, material and cultural values;
2. Ensuring the financing and development of endowment improvement programs for disaster management;
3. Ensuring the necessary resources for the functioning of the structures with activity in the field of disaster prevention and management, respectively the Voluntary Service for Emergency Situations of the locality.
4. Financing programs for population training;
5. Establishment, through the budget, of funds for intervention, management of emergency situations;
6. Completing and refreshing the stocks of materials needed in disaster situations, at the disposal of the Giarmata commune City Hall.

CHAPTER VII
RULES OF BEHAVIOR FOR FIRE, NATURAL DISASTERS (FLOOD AND EARTHQUAKE).



Giarmata fire station. Public alarm siren.
Source: SVSU Giarmata archive.

This chapter is dedicated to the set of rules that must be observed by the citizens of Giarmata commune, in order to self-protect life and personal property, during fires and natural disasters.

These rules must be found in the communication strategy of Giarmata City Hall with the citizens of the commune.

For all emergencies, citizens must be trained to prepare their emergency surveillance equipment in advance, which must include the following:

1. Flashlights and spare batteries;
2. Portable radio and spare batteries;
3. Extinguisher with powder and inert gases;
4. First aid kit;
5. Food stock (sufficient for at least three days);
6. Drinking water: at least one liter for each adult / day.

Details are presented in Annex no. 1



Electronic siren for public alarm in disaster situations.

Obligations of citizens in emergency situations.

Citizens are obliged to:

- to observe and apply the norms and rules of civil protection established by the central and local public administration authorities, as well as by the heads of public institutions, economic agents or non-governmental organizations, as the case may be;
- to carry out the civil protection measures ordered, in accordance with the law, by the competent authorities or by the personnel invested with the exercise of public authority within the public emergency services;
- to inform the competent authorities or emergency services, by any means, including by telephone, by calling 112, of the imminence of the occurrence or of the occurrence of any emergency situation of which they become aware;
- to inform the professional emergency services or the police, as the case may be, including by telephone, by calling 112, about the discovery of ammunition or ammunition items left unexploded;
- to participate in the training of civil protection at the place where they carry out their activity;
- to participate in the maintenance of the shelters in the personal property buildings and, in case of necessity, in the arrangement of the shelter spaces in the land;
- to ensure their individual means of protection, sanitary kit, food and water supply, as well as other essential materials for the protection of their families;
- to allow, in situations of civil emergency, the access of the forces and the means of

intervention in the premises or on privately owned lands;

- to allow the installation of alarm means on the buildings privately owned or belonging to the associations of tenants or owners, as the case may be, without payment, as well as the access of the authorized persons, in order to maintain them;
- to accept and carry out the evacuation from the areas affected or endangered by disasters, according to the measures ordered and brought to the notice of the competent authorities;
- to request the approvals and authorizations regarding the civil protection, in the cases provided by law.

The fulfillment of the obligations provided above returns, corresponding to the situation in which they are also to the foreign citizens who carry out activities, have their residence or are in transit, as the case may be, on the Romanian territory.

Citizens declared unfit for work for medical reasons are exempted, during the intervention in support of the civil protection forces, from the provision of services or from participating in the execution of works, evacuation of goods and the like, which require physical effort.

The rule of conduct in the event of fires in personal homes

The rules below are in the form of messages, which can be transmitted to the population through modern means - radio, TV, internet - or through brochures, posters, flyers, etc.

a) Before the fire:

- Hide matches and lighters in the children's area;
- Do not keep flammable products (alcohol, gas cylinders, paper, clothes, etc.) close to heat sources.
- Avoid, do not overheat electrical appliances. For example, do not cover TVs and heating equipment.
- Take care of the candles. Turn them off before leaving the room.
- Also watch out for ashes. May contain charcoal for several days.If you want to keep it, put it in a non-flammable container.
- Never smoke in bed.
- Use only ashtrays made of non-combustible materials and wait a few hours before emptying them into a trash can or a garbage bag.
- Do not leave the kitchen when heating butter or oil on a hob.
- Before leaving your home, check that all heated hobs are switched off.
- Save the phone name from the emergency services. (firefighters, police, ambulance).

b) During the fire

- Act calmly and thoughtfully, avoid panic.
- Ask for assistance and give them your address very precisely.
- Turn off the gas and electricity supply.
- Use the means available to fight the fire.
- Never try to extinguish flammable liquids with water.
- When the electrical equipment catches fire, disconnect it from the mains.



Images of ongoing fires. 1. Crowded urban area.2. Rural zone.
Source: ziare.com

a) After the fire



Images with the effects of fire. 1-2 Consequences for personal housing.
Source: ziare.com

- *Follow the orders of the rescue team;*
- *Check your house;*
- *Help your neighbors and people in need (first aid kit).*

Rules of conduct in the event of forest fires

a) Before the fire



- Observe the instructions regarding the prohibition of lighting fires and smoking in forests, plantations, agricultural complexes, wooden houses, etc., in dry weather or strong winds.
- Keep the fence and fencing (within a radius of at least 50 m) clean, free of bushes or dry wood, paper, straw and flammable materials that fuel ground fires.
- Keep matches and lighters out of the reach of children and warn them of the dangers of fire.
- Memorize the telephone numbers of firefighters, civil protection or police services.
- Check your roof: missing or misplaced tiles can allow the fire to spread if a fire breaks out nearby.
- Clean dry leaves and conifer needles from the roof and gutters.
- Check the condition of all openers: if the shutters cover completely, if you have

closed the doors and windows.

b. During the fire

b.1 If the fire started

- Attack the fire from the bottom.
- Use water, or if the fire burns smoldering, hit it with a branch or smother it with clothes.

- Alert the emergency services (firefighters, civil protection, police) and people living in the vicinity of the affected area.
- Open the gates of your property to facilitate access to emergency services.
- Close all gas cylinders located outside and move them away from the house.



Forest fires. 1. Litter fire. 2. Litter fire intervention.
Source. Ziare.com

b.2 If you are inside:



Forest fires. 1. Fire in the house. 2. Major forest fire.
Source: ziare.com

- Bring garden hoses, they could be useful for extinguishing residual fires after extinguishing the main fire.
- You are a refugee inside.
- Close shutters and windows, cover ventilation windows and fan outlets with damp cloths.
- Try to avoid running (air).
- Keep calm even if smoke enters the house despite sealing doors and windows.
- Do not leave your home until the rescue authorities or services send you an evacuation order.

A well-protected house provides the best shelter!

b.3 If you are outside:



Forest fires. 1-2 Litter fire.
Source. ziare.com

- Never approach a burning area.
- Move away in the opposite direction of the fire.
- If you are caught in the middle of a fire, be careful of clothes, they can ignite easily.
- Look for a screen (rock, wall or earth wave).
- If you have water, moisten your clothes and cover your mouth and nose with a damp cloth to protect yourself from smoke and hot air.

b.4 If you are in the vehicle:

- Drive slowly.
- If there is time, look for a clean area and stop.
- If the fire front passes, do not leave your vehicle.
- Check that your vehicle is closed.
- Always keep water in the car to moisten a cloth that can be used to cover your mouth and nose.

b.4 If you are in the vehicle:

- Drive slowly.
- If there is time, look for a clean area and stop.
- If the fire front passes, do not leave your vehicle.
- Check that your vehicle is closed.
- Always keep water in the car to moisten a cloth that can be used to cover your mouth and nose.



Car fires. 1-2 Vehicle fire in traffic.
Source. agenda pompierului.ro

Rules of conduct in the event of natural disasters (floods).

a. Before the flood.



Danger of flooding. 1-2 Placement of dwellings in flooded areas.
Source: ziare.com

- Assess the risk of flooding, depending on the location of the field.
- Find out about warning signs and evacuation procedures.
- In case of eminent risk of flooding, switch off the heating and supply devices gas and electricity.
- Move your furniture, electrical equipment and other personal items to the floors higher.
- Put toxic substances, such as pesticides and insecticides, in a safe place to avoid pollution.

a. During the flood

a.1 If you are inside:



Floods in homes. 1-2. How to evacuate in flood situations. Source: Agenda pompierului.ro

- Be calm.
- Warn your neighbors and help, especially the disabled, children and the elderly.
- Find out about the danger and its evolution. Listen to the radio.
- Do not use the phone to avoid charging the network.
- Leave your home as soon as possible when required by those in charge of emergency operations.
- Use the itinerary indicated by those responsible. Do not take shortcuts, you risk getting into a trap yourself or entering a dangerous place.
- Make the necessary arrangements for pets
- Take with you only what is absolutely necessary (first aid kit, personal identity documents and medicines)

a.2 If you are in a car:

- Avoid driving on flooded roads, you risk being caught by the current.
- Always evaluate the risk of floods, in case of persistent rains or short-term dangerous weather phenomena.
- If you are trapped in a flooded area and your car does not start, leave it, ask for help for you and your passengers.
- Take only important documents from the car.



1-2 Cars hit by floods.
Source: pompierului.com agenda

a. After the flood,



Actions after the floods. 1,2,3,4 Participation in removing the effects.
Source: ziare.com

- Help the injured. Bring your first aid kit.
- Listen to the radio and follow the instructions of those in charge of rescue operations.
- Be careful before entering the house. Check the solidity of the structure (cracks in walls, ceilings, broken windows and other dangerous debris)
- Immediately pour about 2 liters of disinfectant into standing water.
- Do not drain all water at once (this can damage the foundations). Remove only one-third of the volume of water per day.
- Do not live in a house where there is stagnant water.
- Be careful not to get electrocuted. Wear rubber boots when the water level is over 5 cm above the floor.
- Make sure that no electrical cables come into contact with water. In flooded areas, switch off the mains immediately if it is not already switched off.
- If the floor next to the safety panel is damp, place a blanket so that it sits on a dry surface and uses a dry tool to turn off the power.
- If you suspect that the water intended for consumption has been contaminated,

use bottled water or boil the contaminated water for 5 minutes. You can also add two pieces of disinfectant for each liter of contaminated water. Leave it for 30 minutes, after which you can consume it.

- Wash or sterilize pots and utensils. Use boiled water or a sterilizing solution (about a teaspoon of disinfectant in a sink full of water).
- Do not heat your house to a temperature above 40 Celsius until all the water from the flood has dried up.
- Empty the house of all dirty and damp materials and debris.
- Wipe off any remaining mud and dirt and remove contaminated furniture, household appliances, clothes and bedding.
- Clean and polish all surfaces and structures with disinfectant.
- Participate in the actions of volunteers, with what you can.
-



The aftermath of the floods. 1. Disaster camp. 2. Evacuation of the elderly and children. Source: ziare.com

Rules of composition
in the event of destructive phenomena of geological origin (earthquake).
a.Before the earthquake.

- Be informed about the measures you can take to survive and to know what to do during and after the earthquake.
- Prepare your emergency backpack: it contains: water, compact and light food: cans, dehydrated food, biscuits, juices, coffee, tea, baby food; clothing and footwear; a sleeping bag or blankets; a first aid kit: personal medicines, analgesics, antiseptics; useful devices: radio with replacement batteries, flashlight, mobile phone, whistle; hygiene items: toilet paper, soap, toothpaste, toothbrushes; personal documents: identity cards, medical insurance cards, money.
- Purchase insurance policies for goods, health and life.
- Find out where water, electricity and gas stop and how to do it.
- Secure bookcases, shelves and shelves firmly.
- Place heavy objects as low as possible.



Safe places in earthquake situations.1. Under a sturdy table.2. In the door frame.

b.During the earthquake.

b.1. If you are inside.

- You have to keep calm. Lucidity brings you more chances to escape unscathed.
- The greatest danger comes from objects falling from above you.
- If you are in a building, stay put.
- Do not try to go outside or walk on the balcony.
- Sit under a solid table or squat next to an interior wall.
- Protect your head and face.
- Stay away from windows, windows, mirrors, bookcases, tall furniture and lighting fixtures.
- If you are in a wheelchair, lock the wheels and protect your head and neck.
- Do not use the elevator or stairs.



Safe places in earthquake situations. Source: ziare.com

In public places (shop, cinema, restaurant).



- Do not run up the stairs.
- Sit under a solid table or squat next to a wall.
- Stay away from windows and tall furniture.
- Do not use the elevator.
- Don't rush to the exit.
- Don't be scared if the light goes out or the siren sounds.
- Don't rush out. You are safer inside.
- Take shelter in a door, under a table, under a bench, under a desk and hold on to it to follow its movements.

b.2. If you are out:

- If you are on the street, stay there, away from buildings.
- Move quickly to open ground.



Earthquake protection procedures, if you are in an open place (free).
Source: ziare.com

- Stay away from structures, buildings, high walls, suspended cables, electrical cables and other structures that may collapse.
- If you are caught in an earthquake near a tall building or on a narrow street, take shelter under the porch or inside a door so that you can protect yourself from falling objects.

b.3 If you are in the vehicle:



Protection procedures in the event of an earthquake, if you are in a car.
Source: ziare.com

- Stop the vehicle and stay in it.
- Avoid bridges, viaducts and other structures that can collapse.
- If you are in a moving car, brake lightly and stop in an open place.

- Do not get out of the car.
- If he catches you in public transport, do not break the windows, do not run to the door.
- Drivers will stop cars and keep their doors open.

b.4 If you are injured

- Don't panic, stay calm.
- Get attention by all means (use a whistle, knock on the walls, etc.)



b.5 If you are not injured.

- Stop any source of fire.
- Switch off all heating sources.
- In case of damage, turn off the electricity, water and gas supply.
- Do not use matches or lighters due to the risk of gas leaks.
- Listen to the radio and follow the instructions of those in charge of rescue operations.
- Give first aid to those who need it (first aid kit)
- Use the phone only if you are in danger. This is in order not to overload the telephone network which is very important for rescue and medical services.
- Do not enter damaged buildings, even if you think they are safe.
- In case of aftershocks stay where you are and protect yourself.
- Streamline your food and drinking water stocks.

c.After the earthquake.

- Do not leave immediately the space, the room, the apartment, the building where the earthquake caught you.
- Give first aid to those affected by the earthquake.
- Calm panicked or frightened people, especially younger children.
- Help those injured or trapped under furniture, objects or light construction elements to break free.
- Do not move the injured seriously - unless they are in immediate danger of being

further injured by others causes - until the granting of a qualified sanitary-medical aid.

- Take care of the safety of children, the sick, the elderly, providing them with clothing and footwear corresponding to the season in which the earthquake started, in view of a possible evacuation from the house or building for a certain period, from a few hours to a few days.



Rescue operations in earthquake situations.
Source: ziare.com

- Do not use the telephone except for rescue calls, firefighters or the body in charge of post-disaster response, in justified cases, so as not to block the telephone circuits.
- If a fire has started, try to put it out on your own.
- Preliminarily check the condition of the electrical, gas, water, sewer installations, visually check the condition of the construction inside.
- In case of damage, close the local or general power supply of the respective installation and notify the unit for intervention.

- Do not use open fire.
- Calm down the building calmly, without taking with you. unnecessary things, but first check the stairs and the way out so as not to expose yourself to dangers.
- For any eventuality, prevent the injury caused by the fall of some plasters, bricks, etc. when leaving the building using a safety helmet or in its absence a chair / stool or other protective object: bag, backpack, thick books, etc.
- If you encounter locked doors at the exit, act without panic to unlock.
- If you fail and they have glazing, proceed calmly to break the glass and clean the frame and the area of shards, using a chair, a vase, etc. If it is found that there are people trapped in the elevator, calm them down first, then ask for the help of authorized persons.
- Avoid severely damaged buildings, except in cases of help or rescue, which should be taken with a minimum of safety measures and without unnecessary risks. Avoid being confused with the evildoers who have entered such buildings, do not crowd the disaster areas in vain.
- Help intervention teams for help or rescue.
- Listen only to national radio and television announcements and recommendations immediate action of the law enforcement bodies.
- Be mentally and physically prepared for the eventuality of shocks after the first seismic movement (so-called aftershocks), without panicking. Do not believe the rumors that occur frequently immediately after earthquakes, even if they are apparently circulated by so-called specialists.
- In evacuation, give priority to the injured or children, the elderly, women and listeners

exactly the recommendations of the rescuers.

- Experience of previous earthquakes has shown that it is useful to have the knowledge necessary to survive until the intervention of rescue teams in case of an extreme situation in which, for example, you would be caught under some rubble, overturned furniture or in a room, enclosure, elevator and so on blocked, by jamming the doors or for other reasons.
- First of all, you must be calm, calm the shocked, do not allow panic reactions, give first aid to the injured and if you or another person in the group has the opportunity to move to make a small rescue plan .
- Oblocking the access path can only be attempted if this does not worsen the situation (for example by moving the rubble or furniture).

S.C. PRO-PREVISION S.R.L.

Engineer Ioan Sasu

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7. Joint Order no. 638/420/2005 of the Minister of Administration and Interior and of the Minister of Environment and Water Management for the approval of the Regulation on the management of emergency situations generated by floods, dangerous meteorological phenomena, accidents at hydrotechnical constructions and accidental pollution.

Annex no. 1

FAMILY PLAN FOR EMERGENCY SITUATIONS.

It represents a foreshadowing of the main actions that are considered by family members, in the event of any emergency situation.

The role of this plan is to prepare the family, psychologically and practically, with what is absolutely necessary to act, so that the incidence of disaster on people and property is minimal.

In principle this plan may contain:

- Information about the main risk factors in the community (locality) and in the household (home);
- The mode of action of each family member, in the event of an emergency;
- Safe places in the household (house) and nearby, for self-evacuation;
- The way in which the connection between the family members is kept, when an emergency situation occurs;
- The place and content of the "Family Survival Kit";
- The place of reunion of the family after the cessation of the effects of the disaster;
- Telephone numbers of institutions with responsibilities for managing the effects of a disaster.

Standard contents of the Family Survival Kit.



1. Water and food.

- Water-approx. 5 liters / person.
- Non-perishable food, with adequate utensils;
- Specific foods for children.

2. Medicines and materials for medical use.

- Absolutely necessary medicines for people with chronic diseases;
- Analgesics and antiseptics;
- Disinfectant and bandages;
- Gloves, sterile mask.

3. Hygiene products.

- Antibacterial gel;
- Handkerchiefs, wet wipes, towels, toilet paper, soap, baby diapers, etc .;
- Disposable bags;
- Changing clothes.

4. Essential materials.

- Blanket / sleeping bag;
- Whistle;
- Knife / knife;
- Flashlight with replacement batteries;
- Radio with batteries;
- Gas lighters / matchboxes, candles.
- Durable footwear.

5. Documents and money.

- Copies of important documents, kept in plastic bags, hermetically sealed (identity card, birth certificates, house contract, medical tests, property and life insurance, etc.);
- Amounts of money.

SC PRO-PREVISION S.R.L.

Engineer Ioan Sasu

Interreg - IPA CBC
Romania - Serbia

EUROPEAN UNION

Cooperation beyond borders.

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PROCEDURES USED IN CASE OF NATURAL DISASTERS





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ELABORATION OF PROCEDURES USED IN CASE OF NATURAL DISASTER, BUT ALSO AFTER THE INTERVENTION FOR CLEANING THE AFFECTED PLACES.

Beneficiary: Giarmata commune town hall, Timis county.
Developer: SC PRO-PREVISION SRL, Timisoara.

Giarmata 2020

Study on risk assessment in terms of the influence of fire outbreak and spread and analysis of the characteristics of the area, depending on the prevention and adequate protection against fires and other natural disasters, with proposals for measures for the local community and population of Giarmata commune, Timiș county, Romania.

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Introduction.

The purpose of developing procedures to be used in emergency situations caused by natural disasters, which may occur in the municipality of Giarmata, is determined by the need to protect the population and its assets, as well as the proper management of intervention activities before, during and after the occurrence of these phenomena.

The procedures used in case of natural disaster, but also after the intervention for cleaning the affected places consist in:

• Establishing a unitary set of rules for regulating the activities that is carried out by the mayor of Giarmata commune and the Operational Center for Emergency Situations, before, during and after the occurrence of emergency situations generated by fires, floods, dangerous weather phenomena or destructive phenomena of geological origin;

• Establishing the mode of intervention of the Voluntary Service for Emergency Situations of Giarmata commune, but also of the components of the County System for Emergency Situations, in case of occurrence of emergency situations generated by disasters.

In accordance with GD no. 557/2016 of August 3, 2016 on ,, Management natural risk types ", the following terms will be used in this study:

a. prevention - all actions carried out by the responsible authorities, aimed at identifying, assessing and reducing the risks of emergencies, in order to protect life, the environment and property against their negative effects;

b. preparation - the set of measures and preliminary actions, subsumed prevention and response activities, on a permanent basis, carried out by the responsible authorities;

c. response - all actions carried out by the responsible authorities for the planning, organization, coordination and operational management of the capabilities involved in the operative intervention actions for limiting and removing the negative effects of the emergency situation, until the restoration of the provisional state of normality;

d. post-event investigation / evaluation - the set of actions carried out by the authorities responsible for establishing and quantifying the effects, causes and circumstances which led to the occurrence of the emergency or associated events;

e. restoration / rehabilitation - all planned measures and actions, prioritized and carried out as a result of the post-event investigation / evaluation process to restore normalcy

Chapter I
Intervention procedures used in case of natural disaster in the area of Giarmata commune.

The authorities from Giarmata commune, responsible for the planning, organization, coordination and operational management of the forces and means involved in the operative intervention actions, for limiting and removing the negative effects of the emergency situation caused by a natural disaster are:

- The Mayor of Giarmata commune;
- The local council of Giarmata commune;
- Voluntary Service for Emergency Situations of Giarmata locality;
- The legally constituted operative center, by written order of the commune Mayor Giarmata.

Following the identification of natural and technological risk factors in the Giarmata ATU area, the procedures used during the planning, organization and operational management of the intervention will refer to:

a. Fire.
b. Floods and dangerous meteorological phenomena
c. Destructive phenomena of geological origin. Landslides and earthquakes.

a. Fire.

The procedure is applied in case of emergencies generated by fires, regardless of their magnitude, in order to maintain and accentuate the normal climate, in order to prevent the population, as well as to limit its consequences.

a.1 Prevention phase in vulnerable periods.




Pictures of house fires. Source: ziare.com

In order to avoid the manifestation of risks, to reduce the frequency of production or to limit their consequences, at this stage, the mayor and the Local Council of Giarmata commune will order the following actions:

- permanent monitoring of risk factors and transmission of data to competent authorities (including the County Operational Center);
- organizing and carrying out preventive activities;

• informing the population on the identified fire risks and processing the behavior to be adopted in the event of a danger to human life and property.

DESCRIPTION OF THE PROCEDURE.

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities
1	Elaboration or updating of the Risk Analysis and Coverage Plan.	The mayor of Giarmata commune
2	Decision approving the risk coverage plan for Giarmata locality	Local council of Giarmata commune
3	Establishment of specific rules and measures related to the level and nature of risks.	Local council of Giarmata commune
4	Ensuring the training of its own staff, of the Emergency Situations Service and of the citizens regarding the observance of the fire prevention and extinguishing norms.	The mayor of Giarmata commune
5	Analiza capacității de apărare împotriva incendiilor de pădure, de vegetație uscată, la agenții economici și la populație.	The mayor of Giarmata commune
6	Informing the citizens about the danger posed by drought, for lands with forests, dry vegetation and straw cereal crops.	The mayor of Giarmata commune and the Operative Center
7	Realization of reports, films, interviews broadcast on local and national programs throughout the dry period, exposure to fire danger, popularization of fire protection rules. The mayor of Giarmata commune and the Operative Center	The mayor of Giarmata commune and the Operative Center
8	Execution of the recognition, in several directions, by groups equipped with means of connection, which immediately communicate to the mayor, the result of the field observation: At recognition it is established: - Type of fire: litter, canopy, etc .; - Propagation speed and wind direction; -Areas with shoots, with droughts, with wooden warehouses; - Danger for some constructions in the forest, for populated centers or cereal crops; - Fire limits reached; -Possibility to change the direction of fire propagation depending on the change of wind direction; - Possibilities to use the fighting technique; -The existence of different obstacles in the direction of propagation or alignments, on which	Head of the Voluntary Service for Emergency Situations of Giarmata locality

	obstacles must be made, if they do not exist; -In the case of canopy fires, a complex reconnaissance is required, directed in several directions; - The need to use military subunits.	
9	Control of the observance of the fire protection measures at forests and specific to the public or private domain of the administrative-territorial unit as well as to the local public institutions	The mayor of Giarmata commune The head of the Forest District
10	Ensuring the maintenance in operation of the warning, alarm and water supply systems, the state of intervention of the Voluntary Service for Emergency Situations of Giarmata commune.	The mayor of Giarmata commune
11	Carrying out fire information and education activities for the population.	The mayor of Giarmata commune
12	Implementation of the Cooperation Plan between the forces foreseen to participate in the firefighting action. The mayor of Giarmata commune	The mayor of Giarmata commune

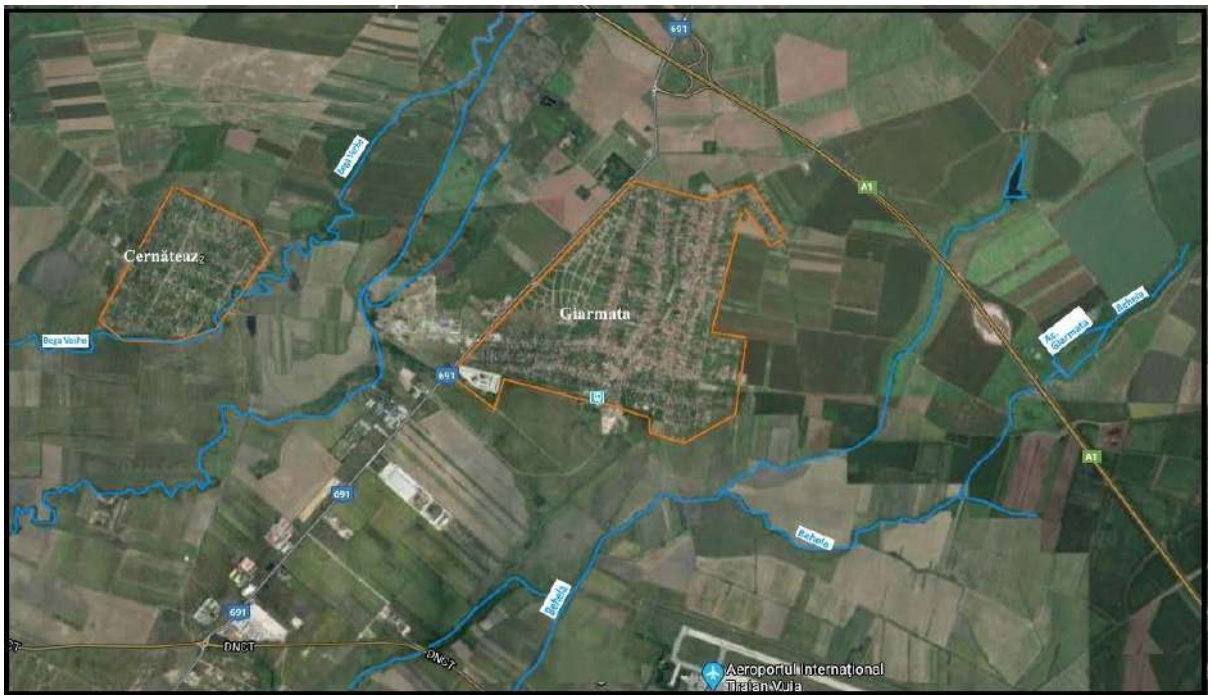
a.2 Phase during the occurrence of the fire and the extinguishing action

DESCRIPTION OF THE PROCEDURE

Nr. crt.	**Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality**	**Responsibilities**
1	Receiving notification of a fire	Permanence at the City Hall
2	Alarming the Voluntary Service for Emergency Situations of Giarmata commune and of the intervention subunit, within the Inspectorate for Emergency Situations "Banat" of Timiș County (1 Timișoara Fire Brigade).	Permanence at the City Hall
3	Informs the Mayor of Giarmata commune about a fire.	Permanence at the City Hall
4	Analyze the operational situation and implement the Intervention Plan.	Permanence at the City Hall
5	Alert the Operational Center for Emergency Situations of the locality.	The mayor of Giarmata commune
6	Coordinates the organization of the intervention in case of forest fire, dry vegetation or the population and economic agents, of the forces at its disposal, until the arrival on the spot of the ssububit of intervention of professional firefighters.	The mayor of Giarmata commune Giarmata City Hall Operations Center
7	It immediately informs, by any means, the Inspectorate for Emergency Situations and the County Prefecture about the outbreak of the fire in the forest and with what own forces it acts to extinguish the fire.	The mayor of Giarmata commune

8	Concentration at the place of fire of the inhabitants of the neighboring villages (nearby).	The mayor of Giarmata commune
9	It provides the means of transport necessary for the movement of the troops to the place of intervention.	The mayor of Giarmata commune
10	Providing tools for work detachments.	The mayor of Giarmata commune Giarmata City Hall Operations Center
11	Ensuring the connections at the place of intervention with the military firefighters and with the Timiș County Prefecture, as well as between the participating forces.	The mayor of Giarmata commune Giarmata City Hall Operations Center

b. Floods and dangerous meteorological phenomena



Map with the hydrographic network of Giarmata commune, Timiș county. Source: Google maps.

The procedure applies in case of emergencies generated by floods due to natural overflows of watercourses or by runoff from slopes, as well as in case of storms, tornadoes, droughts, hail, etc., in order to maintain and accentuate the climate. normality, in order to prevent the population and limit the consequences of these phenomena.

The procedure will be used to protect against floods and dangerous weather events, but also to manage emergencies generated by them.

By defense against dangerous meteorological phenomena is meant the application of:

a) prevention measures and preparation for interventions;

b) urgent operative intervention measures after the onset of dangerous phenomena with serious consequences;

c) subsequent intervention measures for recovery and rehabilitation.

By managing emergencies generated by dangerous meteorological phenomena is meant:

- identification and monitoring of risk situations;
- notifying stakeholders about the occurrence of risk situations;
- warning the population about the imminent occurrence of risk situations;
- evaluating, limiting, removing or counteracting the effects risk factors.

At the level of Giarmata City Hall, an operative Center for Emergency Situations, with temporary activity, is set up by the mayor's order.

The Operative Center consists of the staff of Giarmata City Hall according to the "Regulation on the management of emergencies caused by floods, dangerous weather events, accidents at hydrotechnical constructions, accidental pollution on watercourses and marine pollution in the coastal area", approved by Order joint of the Minister of Administration and Interior and the Minister of Environment and Forests no. 192/1422 of 2012, it is necessary to define the characteristic sizes of defense in these situations.

For the non-dammed areas of the watercourses, applicable in case of flood production by the Beregsău and Behela streams, these sizes are:

a) **Attention quota (YELLOW CODE**) - the level at which the danger of flooding is possible after a relatively short period of time, requiring increased vigilance in case of carrying out activities exposed to floods;

b) **Flood quota (ORANGE CODE)** - the level at which important floods occur that can lead to flooding of households and socio-economic objectives;

c) **Danger quota (RED CODE)** - the level at which special measures are needed to evacuate people and goods, restrictions on the use of bridges and roads, as well as taking special measures in the operation of hydrotechnical constructions.

Steps that may occur during emergency management

They are triggered when reaching certain thresholds, specified in special instructions and defined by warning criteria specific to the analyzed phenomenon (floods, dangerous meteorological and hydrological phenomena, etc.)

THE ATTENTION SITUATION has the significance of a special situation and does not necessarily represent a danger. Measures taken in the situation of attention:

- the thickening of the observations and measurements that are made to follow the phenomenon and to predict its evolution;
- checking the constructions with defensive role and following the ensuring of the high water drainage conditions;
- information about the possibility of accidental pollution.

THE ALARM SITUATION is characterized by a possible dangerous evolution of the phenomena, manifested by**:**

- further increase of levels on the watercourse;
- increasing the intensity of precipitation or wind speed;
- confirmed accidental pollution that requires interventions and others.

- The triggering of the alarm state leads to the entry into the operative situation of the emergency committees.
- The activities carried out are both the type of those meant to control the phenomenon, as well as preparatory activities for the eventuality of triggering the danger situation.

THE DANGER SITUATION is triggered when the danger becomes imminent and it is necessary to take exceptional measures to limit the effects of floods, such as:

- evacuation of the population, animals or material goods;
- special measures in the operation of hydrotechnical constructions with flood protection role**;**
- traffic restrictions on some roads and bridges, as well as on waterways);
- combating accidental pollution with serious effects on the ecosystem (modification of water quality parameters, destruction of fauna and ichthyofauna, environment and others, or exceeding the territory of competence).

• traffic restrictions on some roads and bridges, as well as on waterways);

• combating accidental pollution with serious effects on the ecosystem (modification of water quality parameters, destruction of fauna and ichthyofauna, environment and others, or exceeding the territory of competence).

b.1 Pre-disaster phase

DESCRIPTION OF THE PROCEDURE.

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities and actions.
1.	Coordinates the actions of periodic verification of the functioning of the hydrometeorological information flow for warning - alarming the population;	Checking the means of observation - measurement;
2.	Ensures the updating of the information flow scheme from the defense plans and establishes the telecommunication means that will be used;	Periodic development of simulation exercises to verify the flow of information at the locality level.
3.	Coordinates the activities of periodic verification of the technical and functional condition of all constructions with flood protection role within the administrative-territorial unit regardless of the owner as well as the actions of verification of the maintenance of watercourses and torrents;	Urmărirea modului de întreţinere şi exploatare a construcţiilor şi amenajărilor hidrotehnice, şi a modului de întreţinere a cursurilor de apă şi a torenţilor.
4.	Ensures the preparation of the defense plan against floods, ice and accidental pollution;	Verification of the viability and implementation of the flood defense plan.

5.	Ensures the preparation, verification and updating of the "Flood Plan".	Periodic verification and updating of the inventory of the means provided in the plan for the evacuation of the population, as well as their functionality.
6.	Ensures the endowment of the Local Committee for Emergency Situations as well as of the intervention formations with specific materials.	Verification of the functionality of the command point of the local committee, as well as the endowment with specific technical and material means of the intervention formations.
7.	Ensures the establishment of stocks of materials and means of intervention in case of floods, in accordance with the Norm of endowment.	Periodic inventory of stocks of materials and means of intervention set up at the local emergency committee and its completion.
8.	Provides the necessary means to warn and alarm the population in areas at risk of floods	Verification of the existence, functionality and efficiency of the means of warning the population.
9.	It follows the elaboration of the flood risk map of the locality and its introduction in the General Urbanism Plan as well as the observance of the construction regime in the floodable areas.	Organizing field reconnaissance actions in order to update the flood risk map.
10	Approves / approves the training plans of the population regarding the knowledge of the warning-alarm signals, of the measures and rules of behavior through periodic trainings and exercises for simulating the emergency situations.	Elaboration and follow-up of the implementation of the population training plan regarding the knowledge of the warning-alarm signals as well as of the behavior in case of floods
11	Follows the accomplishment of the works of arrangement of the slopes for the prevention of floods.	Periodic field verification for the inventory of points vulnerable to floods within the territorial administrative unit.
12	Coordinates the realization / verification of the works for the drainage of the rainwater in the localities (ditches, ditches, collecting channels, non-permanent valleys).	Periodic verification of the manner of accomplishment and maintenance of the works for rainwater drainage.
13	Periodically checks the existing sources of risk on the territory of the locality and ensures the updating of the flood defense plan.	Field verification of flood risk sources (undersized bridges and footbridges, areas without gutters or drainage ditches, bank erosion).
14	Ensures the permanence at the mayor's office based on the hydrometeorological warnings received.	Ensuring the permanent operation of the operative center within the mayor's office during

		the occurrence of dangerous hydrometeorological phenomena
15	Provides measures to clean the banks of watercourses in order to avoid blockages at bridges and footbridges with various materials	Provides measures to clean the banks of watercourses in order to avoid blockages at bridges and footbridges with various materials

b.2 Phase during the disaster.

ATTENTION. Phase I of the dam defense. YELLOW code.

DESCRIPTION OF THE PROCEDURE

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities and actions.
1.	Ensures the immediate convening of an extraordinary meeting of the Local Committee for Emergency Situations.	Presentation of the necessary measures to avoid flood emergencies.
2.	Ensures the functioning of the information flow between the local committee for emergency situations and the operational center of the county inspectorate for emergency situations as well as with the operative center of the water management system.	Tracking the transmission / reception of information regarding the unfolding of events.
3.	Ensures the transmission / reception of warnings and forecasts to all objectives in potentially affected areas.	Tracking the way of keeping in touch with the objectives within the localities.
4.	Ensures the taking of measures to limit the effects of floods by their own intervention formations, owners of works with flood defense role, specialized economic operators, etc.	Organizing actions to limit the effects of floods and verifying implementation through field inspections.
5.	Ensures permanent information of the population with the urgent measures to be applied (through the media)	Informing the population, through the alarm warning system, about the priority activities they have to carry out.
6.	Provides measures to avoid blockages, especially in areas of bridges, footbridges, water intakes, drains and other critical areas.	Tracking the flow of large waters, in order to avoid blockages with different materials of riverbeds.
7.	Ensures the permanent supervision of watercourses and hydrotechnical constructions with flood protection role and, as the case may be, the elevation and	Establishing the modalities, forces and means necessary for the supervision of constructions and watercourses as well as for the

	consolidation of dams and banks corresponding to the maximum forecasted elevations.	accomplishment of the works of consolidation, elevation of the banks and dams.
8.	Coordinates the distribution of forces and means of intervention in the affected areas.	

ALARM situation. Phase II of dam protection. ORANGE code.

DESCRIPTION OF THE PROCEDURE

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities and actions.
1.	Ensures the permanence at the mayor's office in case the state of alarm is set directly.	Ensuring the permanent operation of the operative center within the mayor's office.
2.	Ensures the functioning of the information flow between the local committee for emergency situations and the operational center of the county inspectorate for emergency situations as well as with the operative center of the water management system.	Tracking the transmission / reception of information regarding the unfolding of events.
3.	Implement the measures established when declaring the state of alarm at the locality level, in endangered areas and verify the implementation of the measures provided in the flood defense plan.	Establishing the state of alarm and taking preliminary measures to carry out the intervention.
4.	Ensures the transmission / reception of warnings and forecasts to the localities and objectives in the affected areas.	Maintaining the connection with the affected localities.
5.	It ensures the permanent information of the population with the urgent measures that must be applied.	Informing the population, through the alarm warning system, about the priority activities they have to carry out.
6.	Coordinates the implementation of measures to avoid blockages, especially in areas of bridges, water intakes, drains and other critical points on watercourses	Implement measures to avoid blockages, especially in areas of bridges, water intakes, drains and other critical points on watercourses.
7.	Introduce restrictions on the consumption of water and food from the affected area.	Establishing the way to monitor the application of measures to restrict water and food consumption.

8.	Take warning-alarm measures of the objectives that can be flooded or located in the flooded area in case of imminent danger of damage to the hydrotechnical constructions	Announcing, in case of imminent danger of flooding, through the alarm warning system, the population and targets in potentially floodable areas.
9.	Organizes self-evacuation and preventive evacuation of people, animals and property outside potentially flooded areas.	Immediate coordination of evacuation actions.
10.	Calls for law enforcement to guard the evacuated property. Ensuring the realization of the guarding device of the material goods through the commander of the law enforcement forces.	Calls for law enforcement to guard the evacuated property. Ensuring the realization of the guarding device of the material goods through the commander of the law enforcement forces.
11.	Organizes the securing of goods that cannot be evacuated by raising them to higher levels or anchoring. Establishing priorities for the evacuation of goods and animals as well as measures to protect those who cannot be evacuated.	Organizes the securing of goods that cannot be evacuated by raising them to higher levels or anchoring. Establishing priorities for the evacuation of goods and animals as well as measures to protect those who cannot be evacuated.
12.	Take measures to interrupt the supply of electricity and gas in flooded areas in order to prevent electric shock or intoxication, technological accidents, etc.	Cessation of the supply of electricity, natural gas and heating agent in flooded areas, in order to prevent electric shock, intoxication or technological accidents.
13.	Establishes the bypass routes of the flooded area and ensures order during evacuation and rescue operations with the help of law enforcement	Execution of reconnaissances in order to establish the access and escape routes capable of ensuring the flow necessary to carry out the intervention.
14.	Coordinates actions to save people, animals, equipment, machinery and materials.	Establish priorities for action to save people, animals, technology, quipment and materials.
	It orders the raising and consolidation of dams and banks according to the maximum forecasted elevations.	Establishing the modalities, forces and means necessary to carry out the consolidation works, raising the banks and dams, limiting the extension of the breaches and other intervention actions in the affected areas.
15.	Organizes actions to limit the spread of breaches in dams and dams by performing temporary works.	
16.	It aims to implement measures for the evacuation of water from spills, infiltrations and precipitation, as well as the evacuation of water from affected buildings and	The evacuation of water from buildings, households, economic and social objectives and in case the own resources are insufficient,

	technological canals.	the request for support from the institutions with attributions in the field..
17.	Organizes the distribution of aid to the affected population.	Distribution of drinking water, food and humanitarian aid to the affected population.
18.	Coordinates the application of sanitary-epidemic measures necessary to prevent epidemics.	Requesting specialized institutions and persons for the execution of sanitation and application of sanitary-epidemic measures in the affected areas.
19	Provides shelter, feeding and veterinary assistance to evacuated animals.	
20	Ensures the application of sanitary-epidemic measures necessary to prevent epidemics.	

DANGER situation. Phase III of dam protection. RED CODE

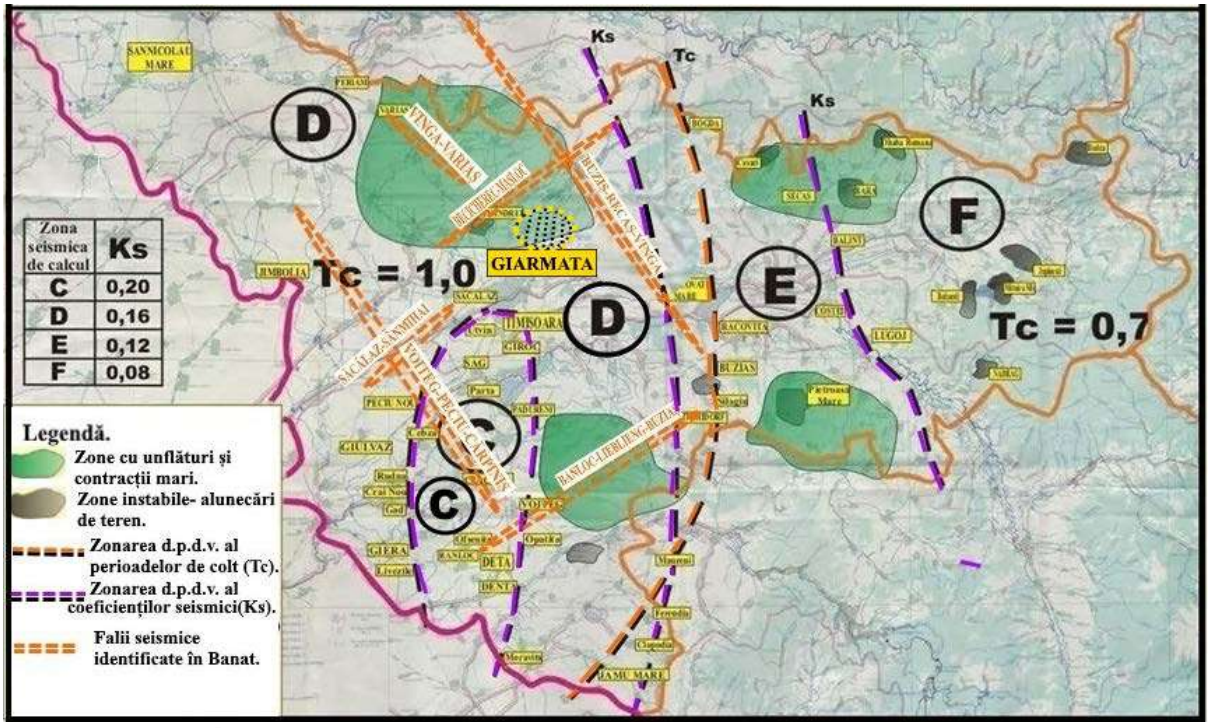
DESCRIPTION OF THE PROCEDURE

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities and actions.
1.	Ensures the functioning of the information flow between the local committee for emergency situations and the operational center of the county inspectorate for emergency situations as well as with the operative center of the water management system.	Tracking the transmission / reception of information regarding the unfolding of events.
2.	Maintains the state of alert at the level of the locality, in the endangered areas and verifies the way of carrying out the measures provided in the plan.	Maintaining the state of alert based on the information received, and ensuring new measures for intervention.
3.	The application of warning-alarm measures of the objectives that can be flooded or located in the floodable area in case of imminent danger of damage to the hydrotechnical constructions continues.	In case of imminent danger of flooding, the announcement through the warning-alarm system of the objectives from the potentially floodable areas.
4.	Ensures the transmission of warnings and forecasts to all localities and objectives in the affected areas.	Maintaining the connection with the possibly affected localities.
5.	It ensures the permanent information of the population with the urgent measures that must be applied	Informing the population, through the alarm warning system, about the priority activities to be carried out

6.	Ensures the continuation of measures to avoid blockages, especially in areas of bridges, water intakes, drains and other critical points on watercourses.	Implement measures to avoid blockages, especially in areas of bridges, water intakes, drains and other critical points on watercourses.
7.	. Introduce restrictions on the consumption of water and food from the affected area.	Establishing the application of measures to restrict the consumption of water and food.
8.	Organizes self-evacuation and preventive evacuation of people, animals and property outside potentially flooded areas.	Direct coordination of preventive self-evacuation actions.
9.	Calls for law enforcement to guard the evacuated property.	Realization of the device for guarding the material goods through the commander of the law enforcement forces.
10.	Organizes the securing of goods that cannot be evacuated by raising them to higher levels or anchoring.	Establishing measures to protect goods that cannot be evacuated by raising them to higher elevations or anchoring.
11.	Take measures to interrupt the supply of electricity and gas in flooded areas in order to prevent electric shock or intoxication, technological accidents, etc.	Cessation of the supply of electricity, natural gas and heating agent, when the situation requires it.
12.	Establish the bypass routes of the flooded area and ensure order during evacuation and rescue operations with the help of law enforcement.	Execution of reconnaissances in order to establish the access and evacuation routes able to ensure the flow necessary for the intervention.
13.	Coordinates actions to save people, animals, equipment, machinery and materials.	Sets priorities for action to save people, animals, equipment, machinery and materials.
14.	It orders the raising and consolidation of dams and banks according to the maximum forecasted elevations.	Establishing the modalities, forces and means necessary to carry out the consolidation works, raising the banks and dams, limiting the extension of the breaches.
15.	Coordinates the distribution of forces and means of intervention in the affected areas	Analyzing the intervention capacities and establishing the priorities for action, for the evacuation of water from buildings (households, economic and social objectives), in case the own resources are insufficient, the request for support from the institutions with attributions in the field.
16.	Organizes actions to limit the spread of breaches in dams and dams by performing temporary works	
17.	It aims to implement measures to evacuate water from spills, infiltrations and precipitation as well as water evacuation from affected buildings and technological canals.	
18.	Provides accommodation for victims, water	Identifying the possibilities of

	supply, food, basic necessities and medical assistance.	temporary accommodation of the affected persons;
19.	Provides shelter, feeding and veterinary assistance to evacuated animals.	Organizing the distribution of drinking water, food and humanitarian aid;
20.	Ensures the distribution of aid to the affected population.	
21.	Ensures the application of sanitary-epidemic measures necessary to prevent epidemics.	Directing to the disaster camps, the formations and the means of granting the first medical and sanitary veterinary aid.
22.	Ensures the identification of victims, victims and the preparation of the situation with missing persons.	Organizing search and identification activities for victims and missing persons.
23.	Organizes the provision of religious assistance and the burial of victims.	Organize the provision of religious assistance and burial of victims.
24.	Follows the collection, transport and incineration of dead animals.	Making available to the representatives of the sanitary veterinary directorate, the personnel necessary for the collection, transport and incineration of dead animals.

c. Destructive phenomena of geological origin. Earthquakes and landslides.



Map with seismic zoning in Banat.
Source: The Plan of Analysis and Coverage of Territorial Risks in Timiş county

Unlike other risks, landslides and earthquakes are difficult to locate, both on a macro scale and on a micro scale.

According to the Timis County Landscaping Project, December 2011 edition, prepared by the Timis County Council, page 99, the Giarmata ATU territory is as follows:

• Landslide potential = low-:

• Type of landslides, according to Law 575 / 1998-2006: landslide Primary=NO;

• The maximum degree of an earthquake in the area of Giarmata commune and Cernăteaz village is level VII, on the Mercalli scale.

As a result, the measures taken are part of the category of measures in the pre-disaster phase and refer to:

- Monitoring areas with landslide potential, for assessment the equilibrium conditions of the earth masses, respectively their stability as well as the evolution of the earth mass movement, element in relation to which the works to be executed for the prevention or stabilization of landslides are established;

• Tracking the behavior over time of stabilization works performed in areas where the land has undergone changes.

The protection and intervention actions will be carried out in three distinct stages as follows:

1. During the prevention period
2. In the incidence stage
3. In the post-disaster stage.

1. During the prevention period.

DESCRIPTION OF THE PROCEDURE.

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities and actions.
1.	It orders the updating of the nominal component of the local emergency committee annually and whenever the situation requires it.	Updating the nominal component of the local emergency committee - annually and whenever the situation requires it.
2.	Coordinates the actions of periodic verification regarding the functioning of the informational - decisional flow for the notification, notification, transmission of data, information as well as their processing and storage, of the transmission of decisions by the factors with attributions and responsibilities in the field to those interested.	Periodic verification of the functioning of the informational - decisional flow regarding the notification, notification, transmission of data, information as well as of their processing and storage, of the transmission of the decisions by the factors with attributions and responsibilities in the field to the interested ones.
3.	Establishes short-term and long-term action	Preparation and approval of short

	programs that include measures to reduce the seismic risk of buildings, especially those with vital functions for the city and villages (technical expertise of buildings and their classification in seismic risk classes 1, 2and 3).	and long term action programs that include measures to reduce the seismic risk of buildings, especially those with vital functions for the city and villages.
4.	Ensures through the Construction Inspectorate the observance of the provisions of Law 10 with the subsequent modifications, regarding the quality in constructions.	Verification by the Construction Inspectorate of the observance of the provisions of Law 10 with the subsequent modifications, regarding the quality in constructions.
5.	It orders the elaboration of the anti-seismic education materials of the presented population.	Technical coordination of the elaboration of anti-seismic education materials for the population.
6.	Ensures operating conditions in case of earthquake of the Local Council for Emergency Situations: spaces, utilities, structure, endowment, etc.	Ensuring and verifying the operating conditions in case of an earthquake of the Local Council for Emergency Situations: spaces, utilities, structure, endowment, etc.

2. In the disaster incidence stage.

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities and actions.
1.	He immediately activates the Temporary Activity Operative Center of the Local Committee for Emergency Situations and the Voluntary Service for Emergency Situations.	Immediate activation of the Temporary Operational Center of the Local Committee for Emergency Situations and of the Voluntary Service for Emergency Situations.
2.	Informs and alarms the population on the created situation, with the specific means of these types of actions, as well as with the technical means of alarm from the endowment of the civil protection system.	Informing and alarming the population on the created situation, with the technical means of alarming the endowment of the civil protection system

3.	Carries out the management of the entire intervention operation in case of public emergency generated by earthquakes / landslides considering: • unblocking the access roads and a shelters; • limiting the negative effects in the case the imminent risk of collapse of some constructions; • rescuing victims; • providing emergency medical assistance; • limiting and removing damages to communal household networks; • evacuation and provision of measures shelter for the population and the victims in risk areas; • extinguishing fires; • decontamination of personnel, land, buildings and equipment (if applicable); • ensuring the means of subsistence.	Ensures the management of the entire intervention operation in case of public emergency generated by earthquakes / landslides.

Chapter II.
PROCEDURES USED AFTER THE INTERVENTION TO CLEAN THE AFFECTED AREAS IN THE PROJECT AREA.

a. After extinguishing fires.



Pictures of house fires.
Source: ziare.com

DESCRIPTION OF THE PROCEDURE.

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities and actions.
1	Cleaning of fire-affected areas of other combustible materials to remove their re-ignition.	The mayor of Giarmata commune
2	Removal of partially charred remains from the area where the fire occurred.	The head of the Voluntary Service for Emergency Situations of the locality
3	After extinguishing the fire, it is recommended that the area be put into operation immediately in order to eliminate the danger of re-ignition of the fire.	Landowners and property owners.

4	Evacuation of material goods, people and animals from the area affected by the fire	The mayor of Giarmata commune
5	Preparation of the Fire Report and its transmission to the Inspectorate for Emergency Situations of Timiș County.	The mayor of Giarmata commune The head of the Voluntary Service for Emergency Situations of the locality

b.After the occurrence of floods and dangerous meteorological phenomena.





Images. Flood Tornadoes. Violent Storms.
Source: ziare.com

DESCRIPTION OF THE PROCEDURE.

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata locality	Responsibilities and actions.
1.	Ensures the permanent operation of the operative center within the mayor's office.	Operation of the operative center with in the Giarmata town hall.
2.	It ensures the continuation of the permanent information of the population with the urgent measures that must be applied.	The mayor of Giarmata commune Announcing the population, through through the alarm warning system, on the priority activities to be carried out.
3.	Take measures to avoid blockages, especially in areas of bridges, water intakes and drains.	Mayor of Giarmata commune Tracking the drainage of a water, in order to avoid blocking the watercourses with different

		materials.
4.	Maintain restrictions on water and food consumption.	Mayor of Giarmata commune Monitoring the application of the restriction measures a ater and food consumption.
5.	Maintains the security of the evacuated material goods.	Mayor of Giarmata commune Realization of the guarding device of the material goods.
6.	It orders the maintenance of the bypass routes of the flooded area (where applicable) and the maintenance of order during evacuation and rescue operations.	The mayor of Giarmata commune Directing the traffic on the established routes.
7.	Follows the implementation of water evacuation measures in the affected areas.	Mayor of Giarmata commune. Analysis of the capabilities of intervention, establishing priorities for action for the evacuation of water from buildings (households, economic and social objectives). In case the own resources are insufficient, support is requested from the institutions with attributions in the field.
8.	Provides accommodation for disaster victims, water supply, food and medical assistance for the affected population.	Mayor of Giarmata commune Organization and distribution of drinking water, food and humanitarian aid; Identifying and directing to the disaster camps the formations and the means of granting the first medical and sanitary veterinary aid.
9.	Provides shelter, feeding and veterinary assistance for evacuated animals.	Mayor of Giarmata commune Monitoring the organization of housing, feeding and veterinary assistance of evacuated animals
10.	Ensures the distribution of aid to the affected population.	Mayor of Giarmata commune Organizing and distributing aid to the affected population, according to precise criteria.
11.	Take measures to clean up water supply sources and installations and lands that have been affected.	Mayor of Giarmata commune Identification of institutions and specialized persons for the execution of sanitation and application of sanitary-epidemic measures in the affected areas.
12.	Follows the application of the necessary sanitary-epidemic measures prevention of epidemics and epizootics.	

13.	Take measures to restore the affected infrastructure (roads and bridges, repair of telecommunications and electricity lines, damage to water and gas pipelines).	The mayor of Giarmata commune Identifying the financial resources necessary to restore the infrastructure. Concrete establishment of forces and means.
14.	Identifies the material and financial resources needed to restore damaged or destroyed homes.	Mayor of Giarmata commune Establishing the granting priorities of material and financial aid in order to restore the affected households.
15.	Coordinates the damage assessment activities (physical and value) caused by floods and ways to restore the affected objectives.	Mayor of Giarmata commune Monitoring the activity of the commission for damage assessment.
18.	Ensures the identification of victims, victims and the preparation of the situation with missing persons.	Giarmata police station. Organization of search and identification of victims and missing persons.
19.	Organizes the provision of religious assistance and the burial of victims.	The priests of the cults in Giarmata Organizing assistance religious and burial of victims.
20.	Provides for the collection, transport and incineration of dead animals.	The veterinarian. It makes available to the representatives of the sanitary-veterinary directorate the personnel necessary for the collection, transport and incineration of dead animals.
21.	Ensures the elaboration of the synthesis report regarding the protection against floods, dangerous meteorological phenomena and its submission to the County Inspectorate for Emergency Situations and to the operative center of the water management system.	Mayor of Giarmata commune Verification and approval of summary reports on disasters.
22.	Organizes the restoration of the action capacity of the protection - intervention system.	Mayor of Giarmata commune. Carrying out the balance of activities carried out and the organization of the restoration of the protection capacity - intervention.

a After the production of destructive phenomena of geological origin.




Images with the effects of the earthquake.
Source: ziare.com

DESCRIPTION OF THE PROCEDURE.

Nr. crt.	Actions carried out by the Mayor of Giarmata commune, the Operational Center for Emergency Situations and the Voluntary Service for Emergency Situations of Giarmata .	Responsibilities and actions.
1.	Ensures the permanent operation of the operative center within the mayor's office.	The mayor of Giarmata commune.
2.	It ensures the continuation of the permanent information of the population with the urgent measures that must be applied.	The mayor of Giarmata commune. Announcing the population, through alarm warning system, on the priority activities to be carried out.
3.	Carries out the management of the entire intervention operation, in case of public emergency, generated by earthquakes / landslides.	The mayor of Giarmata commune. Management of the entire intervention operation in case of public emergency generated by earthquakes / landslides
4.	Organizes cooperation between the forces participating in the intervention	Mayor of Giarmata commune Direct cooperation between the forces participating in the intervention.
5.	Evacuate people, animals and property (if necessary).	The mayor of Giarmata commune. Leading the evacuation of people, animals and material goods (if necessary).
6.	Ensures the housing and accommodation conditions of the victims and their food supply.	The mayor of Giarmata commune. Arranging the application of the shelter and accommodation

		plan for the victims in the established locations. Supply of basic necessities.

Chapter III.
GENERAL AND SPECIFIC OBJECTIVES OF THE COMMON STRATEGY, FOR THE ADEQUATE PREVENTION AND PROTECTION IN THE EVENT OF FIRE AND NATURAL DISASTERS (EARTHQUAKES, FLOODS, EARTHQUAKES).

The general objectives of the strategy for defense against natural disasters are of an economic, social and environmental nature.

The social objectives have in view the protection of the population and of the community in general, against fires and natural calamities, by ensuring an acceptable level of protection, but also of a good development capacity, in the conditions of the assumed risk of their production.

Environmental objectives aim for risk management to maintain a balance between economic and social development and specific environmental objectives.

The general objectives refer to:

• Increasing the quality of life by reducing the damage caused, but being prepared for the production of similar phenomena in the future;

• Adequate use of resources for the construction, maintenance and operation of infrastructure to reduce the risk of natural disasters;

• An effective control of land use, by prohibiting the location of new constructions and the development of activities in areas frequently exposed to fires and natural disasters;

• Reduction of indirect economic losses, by rapid resumption of activity after natural disasters;

• Improving the collective response in case of a natural disaster and strengthening the capacity to adapt and return to the functional level, as soon as possible, after the event;

• Reducing the impact of fires and natural disasters on the flora and fauna of the area.

The general objectives find **their** equivalent in objectives specific to the 3 categories stated above, respectively: economic, social and environmental.

The specific economic objectives aim at protecting against fires and natural disasters, the existing infrastructure within the commune of Giarmata and guaranteeing development opportunities for future generations.

These refer to:

• Prevention or minimization of economic losses, by reducing the risk of fires, floods and in the event of an earthquake, populated areas, economic objectives and population assets.

• Prevention or minimization of economic losses by controlling land use,

promoting agriculture with low vulnerability in exposed areas and creating protection systems in case of floods.

The specific social objectives have in view the protection of the population and the community in general, against fires and natural disasters, by ensuring an acceptable level of protection, but also of a good development capacity, in the conditions of the assumed risk of producing these phenomena.

These refer to:

• Reducing the risk of floods and other natural disasters for human communities, through better preparedness, effective forecasting and warning of floods, ensuring professional assistance during production and after floods, to return to safe and normal living conditions ;

• Informing, consulting and participating the exposed population on the strategy and plan for managing the risk of fires and natural disasters.

• Prevention and reduction of the risk of fires and natural disasters for public goods (hospitals, schools, etc.), vital infrastructure (water supply networks, gas, electricity, etc.), public utilities, public facilities and recreational areas;

• Ensuring access to critical infrastructures (sources and systems of water supply, gas, energy, bridges, footbridges, bridges, airports, hospitals, schools, population protection works, etc.) during natural disasters;

• Safe evacuation and ensuring the necessary conditions for survival.

Specific environmental objectives aim for risk management to maintain a balance between economic and social development and specific environmental objectives.

These refer to:

- taking into account the ecological functions of floods, by recharging aquifers, ensuring lateral connectivity, necessary for the reproduction of aquatic species;
- creation and / or conservation of space for rivers, avoiding defense works and rectification of long-distance watercourses (local and cumulative);
- application of sustainable techniques that combine environmental efficiency with cost efficiency (application of best practices);
- protection and improvement of land quality, and where possible, encouraging changes in agricultural practice, to prevent or minimize the flow of torrents and associated floods, as a result of intensive agricultural work.

EXPECTED RESULTS FOLLOWING THE IMPLEMENTATION OF THE COMMON STRATEGY

As a result of the implementation of the Joint Strategy for prevention and protection in case of fires, floods and other natural disasters, the expected results will be fine in accordance with practical measures taken by Giarmata City Hall, Giarmata Local Council, Giarmata Voluntary Emergency Service, supplemented with those of other institutions with attributions in the field: Timis County Council, Banat Water Administration, Timis County Prefecture. Inspectorate for Emergency Situations "Banat" Timis (Professional Firefighters), etc.

These measures concern:

- Preliminary assessment and improvement of knowledge of the risk of fires and natural disasters;
- Preparing the population, permanent feedback with its interests and

needs, for achieving a climate of trust in the activity of the authorities;

- Strict control of the granting of authorizations for land use and construction of personal dwellings, as well as of buildings for economic, social, tourist purposes, etc .;
- Improving the management of flows and watercourses on the administrative territory of Giarmata commune;
- Strengthening the fire and flood defense capacity through special procurement programs for firefighters, machinery, materials, equipment, etc .;
- Reducing the vulnerability to natural disasters of agricultural lands and road and railway communications infrastructure;
- Reducing the vulnerability to natural disasters of environmental infrastructure and protected ecosystems.

Therefore, for Giarmata commune, the expected results can be:

- Strengthening the role of Giarmata City Hall, as a responsible institution, regarding the management of emergencies caused by fires and natural disasters and ensuring a timely intervention with the forces and means of the Voluntary Service for Emergency Situations;
- Observance and application by citizens, institutions and the private environment, of the provisions in the field of flood emergencies in the area of Giarmata commune;
- Reducing the number of people and goods affected by emergencies;
- The exact application of the urban planning provisions from the construction permits issued by the Giarmata City Hall;
- Ensuring the endowment with state-of-the-art intervention techniques, with modern alarm-warning means of the Voluntary Service for Emergency Situations and its preparation for efficient interventions.

The need for a joint strategy on collaboration between the town hall of Giarmata commune, Romania and the town hall of Bor town, Republic of Serbia.

Taking into account the evolution and trends in the production of fires and natural disasters (earthquakes, floods, dangerous weather events, landslides, etc.) with major consequences on people's lives and their property, on infrastructure, the activity of economic agents , of the cultural heritage objectives, it was clear that changes are needed in the approach to the problem of defense against them, moving from defensive forms of action to those of management, risk management caused by emergencies.

Risk management in fires, floods and other dangerous meteorological phenomena must be the result of intersectoral and interdisciplinary activities that include forest, water management, land use planning and urban development, nature protection, agricultural and forestry development, transport infrastructure protection, construction protection and the protection of tourist areas, the protection of the community and the individual.

In this context, it is necessary to consider ensuring a balance between structural and environmental protection measures, reorganization of the infrastructure in the area of Giarmata commune and the project partner, Bor town.

Basic concepts of strategy

The strategy on adequate prevention and protection in case of fires and natural disasters (earthquakes, floods, landslides, etc.), is based on the following concepts of risk management:

• Natural disasters are natural phenomena that have always existed and will continue to exist.

• They are the consequence of climatological phenomena under the influence of geological, geomorphological, relief, soil and vegetation conditions;

• Human society is increasingly vulnerable to natural disasters, anthropogenic activities and human influence on natural processes producing strong changes in all areas of human life and security of property owned by them;

• Living with natural disasters takes into account the fact that their prevention cannot be limited only to events with medium and high frequency of occurrence, that rare events must also be taken into account.

• A complete approach to natural disasters is needed, taking into account the entire space of the Giarmata ATU.

• The strategy in this area must promote coordinated development and integrated management of activities on water, land and adjacent resources.

• Because "zero risk costs infinitely", there is no absolute protection against natural disasters. As a result, only a certain degree of defense against their effects can be ensured; the question that arises is that of the degree of protection possible and the costs involved in achieving that degree of protection, that is, how high the risk accepted by the community is;

• All those who may suffer from floods must complete the general measures, taking their own precautions.

Zonal context and relations Romania - Republic of Serbia,
in the field of emergency management.

Currently the collaboration with the Republic of Serbia in the field of natural disasters is regulated by the Agreement between R.P. Romanian and R.P.F. Yugoslavia on hydrotechnical problems on hydrotechnical systems and watercourses on the border or intersected by the state border, signed on April 7, 1955, in Bucharest, which is no longer relevant.

As a result, a new Agreement between the two countries is being finalized, a document that will strengthen cooperation in the field, on a legal basis.
In 2019, the Romanian Government adopted a Memorandum in this regard.

Under the Agreement, Romania and Serbia will be able to assist each other, upon request, in the event of the imminence or occurrence of a disaster whose consequences could not be fully removed by the efforts and means of the State whose territory is threatened or affected.

The agreement will regulate the principles and technical modalities for carrying out actions to forecast, prevent, assess, limit and eliminate the effects of disasters, in a manner harmonized with the requirements and recommendations on international cooperation in this field.

The document will also contain provisions related to.

• Romanian-Serbian Joint Commission for the implementation of the

Agreement;

- Ways of providing assistance;
- Coordination and management of assistance operations;
- Temporary evacuation of the population in danger or affected by disasters;
- Crossing the state border;
- Cross-border aid, use of ships and aircraft, compensation, cooperation with international organizations.

The competent authorities responsible for implementing the Agreement are:

- from the Government of Romania - Ministry of Internal Affairs - Department for Emergency Situations, through the General Inspectorate for Emergency Situations,
- from the Government of the Republic of Serbia, Ministry of Interior – Emergency Management Sector.

So far, the cooperation activity between Romania and the Republic of Serbia in the field of disaster prevention, limitation and elimination has been carried out based on cooperation agreements concluded between the local councils of the main border cities and the Danube-Cris-Mures-Tisza Euroregion. (DKMT).

The European Commission approved on March 27, 2008, for the period 2007 - 2013 the IPA Cross-Border Cooperation Program Romania - Republic of Serbia.

This is the continuation of the cross-border cooperation programs between Romania and Serbia carried out in the previous period and was developed on the basis of Council Regulation (EC) No. 1085/2006 establishing a Instrument for Pre-Accession Assistance (IPA) ("IPA Regulation"), Commission Regulation (EC) No 1085/2006 718/2007 implementing the IPA Regulation ("IPA Implementing Regulation") and Decision C (2008) 1076 of 27 March 2008 adopting an "IPA Romania-Serbia Cross-Border Cooperation Program" for Community assistance in the cooperation component cross - border assistance instrument for pre - accession.

The existence of the basic conditions for cross-border cooperation, offered by the two previous programs, favored the implementation of the new integrated instrument of cross-border cooperation, implemented at the external borders of the European Union, with the candidate and potential candidate states, starting with 2007.

The program involves Community support for certain regions of Romania and Serbia, located along the common border between the two states, namely Timiş, Caraş-Severin and Mehedinţi counties and the Serbian regions Severnobanatski, Srednjebanatski, Južnobanatski, Braničevski and Borski.

The general objective of the program is to achieve a sustainable and balanced economic and social development of the Romania-Serbia border region, by increasing the global economic competitiveness of this region and by improving the quality of life of the communities in the border area of both countries.

The program is structured on 4 priority axes, financing projects regarding:

- economic and social development;
- environmental protection and emergency preparedness;
- promoting "people-to-people" activities.

The project has two parts:

- the town of Bor - the administrative center of the Bor district in eastern Serbia,
- and from the Romanian side: Giarmata - a commune from Timiș County.

The reason for the development of these partnerships lies in the similarities that the partners share in terms of climate, soil, vegetation, culture, desire to protect the environment

and, most importantly, both partners face the same significant common challenges regarding the risks to environment and emergency.

The overall objective of this project is to improve the protection of our area in the cross-border region against natural disasters, as well as to reduce the negative effects when these events occur, by raising awareness of environmental risks, acting on an effective basis and strategy. accurate and using modern equipment and tools that will improve the emergency response and results.

During this net income generating project, we aim to minimize the uncontrolled negative impacts that natural disasters have on our project area and to protect the environment in a safe way, by involving all people - local authorities, residents and volunteers in the names of both partners.

The project refers to the acquisition of:

a. tangible goods that will be used to protect and react thenwhen a disaster happens,

b. intangible assets - a study that will determine the areas of risk, the challenges we address and the best way to act in order to prevent and react against disasters.

The investment also involves the acquisition of an innovative climate monitoring system that will measure our results and also play the role of a prevention tool.

The end result will be a clear x-ray of risk areas, a strategy that will allow us to intervene quickly and effectively, and special equipment that has the potential to protect both the environment and people who use this life-threatening equipment. to save others. .

IMPLEMENTATION OF THE COMMON STRATEGY.

A. Proposals for the implementation of an efficient management of emergency situations at the level of Giarmata commune.

1. Including the issue of disaster defense in the development strategy of potentially affected communities;
2. Carrying out defense works specific to floods, especially of the Beregsău and Behela rivers;
3. Optimizing the activities of the structures that ensure the management of the defense activity against natural disasters;
4. Training the population on the norms of behavior in case of fires and natural disasters;
5. Exercises and applications with the forces and means intended for the intervention;
6. Preparation of decision makers;
7. Making complete agreements on humanitarian assistance in case of disaster, between localities that have twinning agreements.
8. Testing of standardized operational procedures.
9. The direct participation of some intervention teams and of the persons with attributions in the field, in “Training and Simulation Exercises and Applications, on the line of Emergency Situations”, organized on the territory of Giarmata-Romania commune and of Bor-Republic of Serbia.
9. Development and updating of the computerized database on risks of

natural disasters and the real capabilities of response structures.

The information regarding the emergency situations is transmitted between the two town halls, on electronic support and text (graphic) and includes:

- sources of risk on the territory of the two communities, which may have manifestations and negative effects on the population, its assets and the environment;
- risk factors that can trigger, maintain or aggravate the evolution of an emergency situation;
- contact persons and institutions, with attributions in the management of emergency situations.

B. The procedures for cross-border and regional cooperation between the town hall of Giarmata commune and the town hall of Bor town aim at:

- Creating a monitoring system, which would allow direct relations between the two communities, fast and correct information in the management of emergencies in case of fires and natural disasters and the implementation of prevention actions;
- Informing the population in order to make citizens responsible for their self-defense and preparation for the prevention and removal of the effects of disasters;
- Building a climate of trust between participants, based on common ideas and new initiatives, such as: creating a joint group of experts, conducting joint workshops, and joint training programs;
- Shortening the transmission time of the flow of information, data and decisions by using computer means: internet, television, radio, mobile and fixed telephone networks;
- Optimizing the decision-making process and managing the intervention by the authorities of the two localities.

Chapter IV.

Conclusions and proposals.

The existence of risks caused by natural and technological factors within the Giarmata ATU, determines the decision makers to give maximum importance to measures to prevent their occurrence, to prepare the population for behavior during an emergency, but also to ensure the logistics necessary for intervention. specialized forces, first of all of the Voluntary Service for Emergency Situations Giarmata, with modern means, of high capacity.

In order to implement an efficient management of emergency situations at the level of Giarmata commune, the following measures are proposed:

1. Including the issue of disaster defense in the development strategy of communities possibly affected;
2. Acquisition of modern means of intervention: fire trucks, drainage pumps, etc., in accordance with the risks identified in Giarmata commune.
3. Carrying out flood protection works, both at the Beregsău and Behela, as well as inside the locality.
4. Optimizing the activities of the structures that ensure the management of the defense activity against natural disasters, respectively of the Voluntary Service for Giarmata Emergency Situations;
5. Training of the population on the norms of behavior in case of fires and natural disasters, especially of children, the elderly, the homeless.
6. Periodic development of exercises and applications with the intended forces and means intervention, involving the schools in the commune and the religious communities.
7. Preparation of decision makers, by participating in courses, seminars, exchanges of experience, thematic visits, etc.
8. Making comprehensive agreements on humanitarian assistance in the event of a disaster, between Giarmata commune and the localities with which it has twinning agreements - the city of Hogstaten, Belgium and the commune of Rusza, Hungary or with which it carries out cross-border projects - the city of Bor, Serbia.
9. Testing of standardized operational procedures, in accordance with the risks identified in Giarmata ATU level.
10. Direct participation of some intervention teams and of the persons with attributions in field, for joint training and simulation exercises and applications, on the line of Emergency Situations, organized on the territory of Giarmata-Romania commune and Bor-Serbia city, as well as with the twinned localities.
11. Development and updating of the computerized database on risks to natural disasters and the real capabilities of the response structures, the intervention during their production, as well as for the liquidation of the damages caused to the population and its goods.

Engineer SASU IOAN

Interreg - IPA CBC
Romania - Serbia

EUROPEAN UNION

Cooperation beyond borders.

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Environmental protection and risk management

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Study

on risk assessment in terms of the influence of fire outbreak and spread and analysis of area characteristics, depending on prevention and adequate protection against fires and other natural disasters, with proposals for measures for the local community and population of Giarmata commune, Timiș county, Romania .

Beneficiary: Giarmata commune town hall, Timis county.

Developer: SC PRO-PREVISION SRL, Timisoara.

Giarmata 2020

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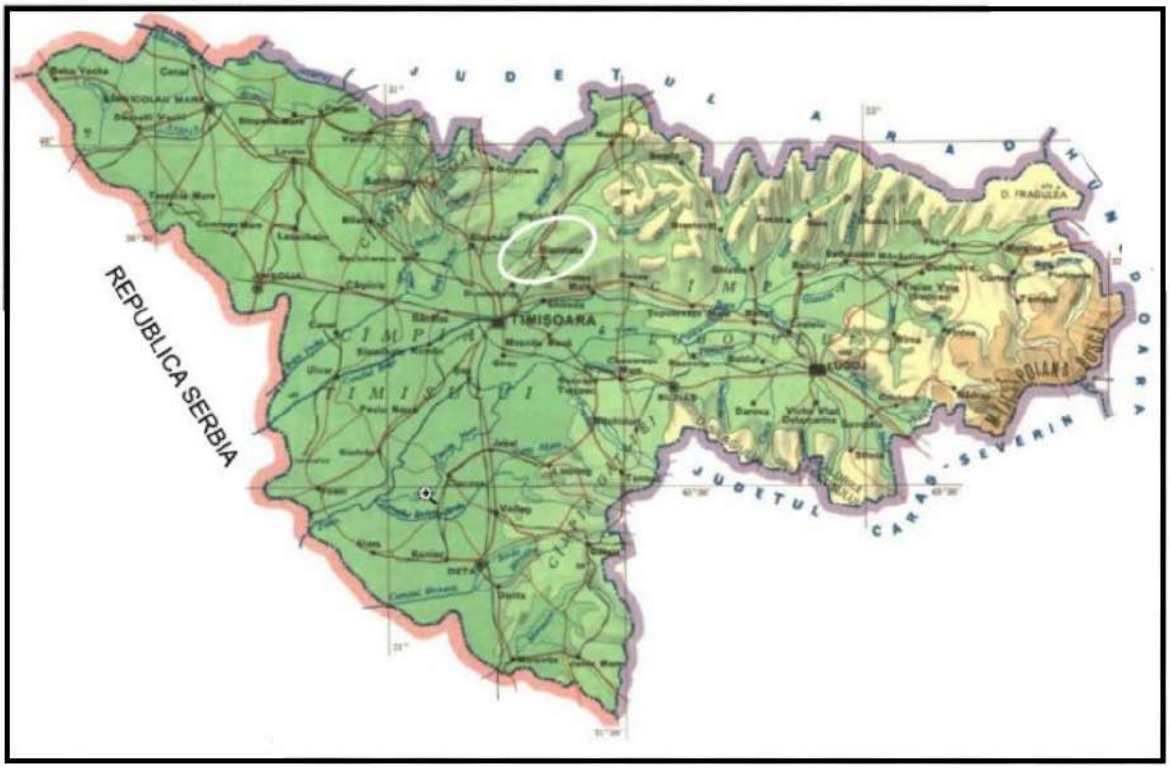
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CHAPTER 1.

Identification of natural and other risks that may occur in the project area: Giarmata commune and Cernăteaz village.

a. Framing in the territory.

Giarmata commune is one of the large localities of Timiș county, both in terms of the sizeof the occupied land area and in terms of population number.



Map with the geographical position of Giarmata commune, Timiș county
Source: Territorial Risk Analysis and Coverage Plan in Timiș County

The geographical position of Giarmata is characterized by the following geographical coordinates:

- 45o 50 ’50” - North latitude;
- 21o 18 ’53” - Eastern longitude.

The geographical position of Cerneteaz is characterized by the following geographical coordinates:

- 45o 50 ’50” - North latitude;
- 21o 18 ’48” .- Eastern longitude.

Compared to the main landmarks of Timiș County, the commune is located as follows:

- 12 km, north-east of Timisoara;
- 2km south of the A1Bucharest-Timișoara Arad-Hungary Highway,

intersection with DJ 691 Timișoara-Lipova;

- 2.4 km north-west of the international airport "Traian Vuia" Timisoara;
- 42 km southwest of Lipova;
- 41 km from Romania's border with the Republic of Serbia.

The neighbors of the commune are:

- In the northern commune of Pișchia;
- To the east - Remetea Mare commune;
- To the south - Ghiroda commune and Dumbrăvița commune;
- To the west - Sânandrei commune.



Map with the neighbors of Giarmata commune, Timiș county
Source:Google maps.

The land area owned by Giarmata commune, according to the Local Development Strategy of Giarmata commune for the period 2015-2020, page 62, is 6349 ha, of which:

- 80% arable land,
- 20% pastures and hayfields.
- Cultivated area = 5,000ha

Regarding the types of cultivated plants, they are in descending order, but variable - wheat, barley, rapeseed, sunflower, corn, soybean, technical plants.

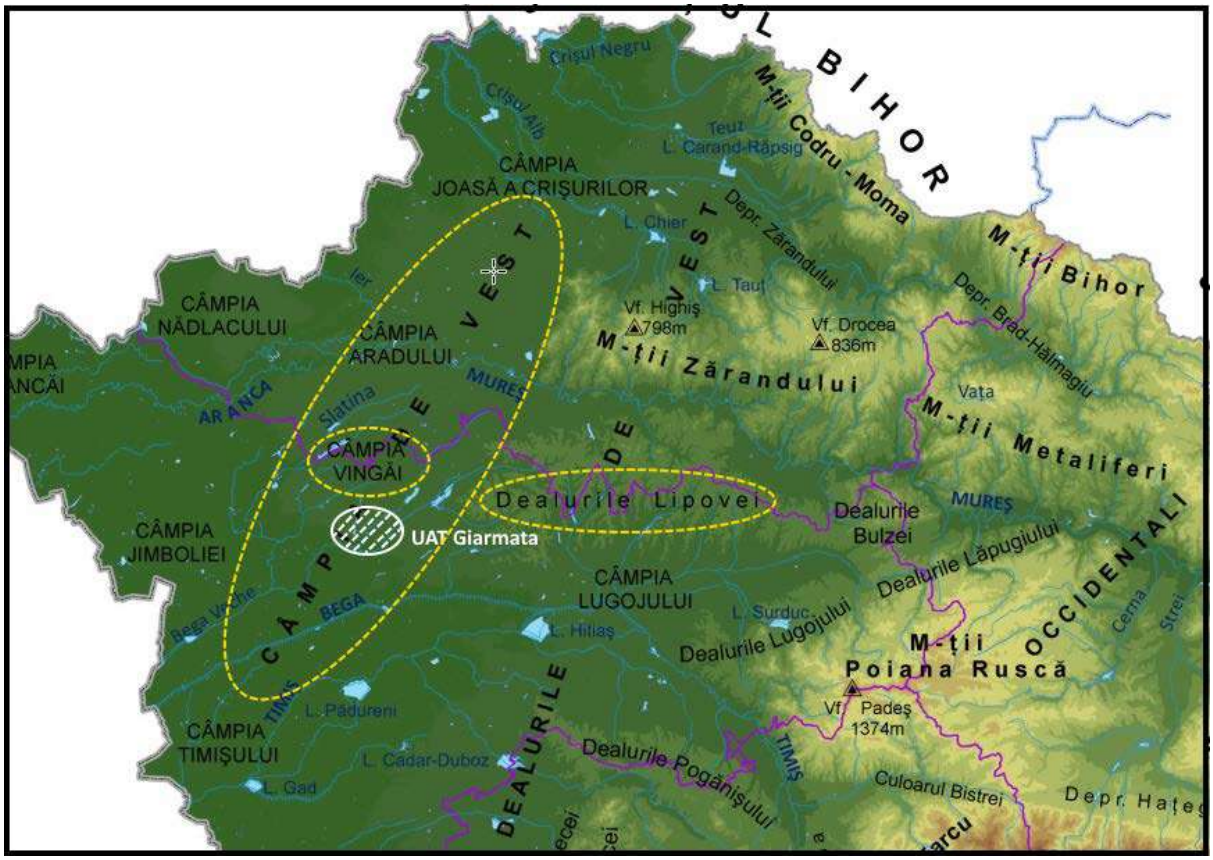
The population of the commune, according to the Monograph of Giarmata commune, pag. 12, is presentedthus, (Monograph of Giarmata commune, p. 12):

- at the level of the year .2002 = 5407 inhabitants;
- at the level of 2011 = 6,502 inhabitants;
- at the level of 2014 = 7034 inhabitants.

The population of Cerneteaz village was in 2002 of 1,002 inhabitants, with a tendency of accentuated growth in the last years.

b. Predominant forms of relief.

The Territorial Administrative Unit (ATU) Giarmata, is part of the unit physical-geographical BANAT-CRIȘANA.



Map with dominant relief forms.
Source. Google maps.

It is located in the Western Plain, which in turn is part of the SeaTisa Plain, which is bounded on the east by the Western Carpathian Mountains (Apuseni), on the south by the Danube River and on the west by the Tisza River.

The western plain is presented from north to south, as a succession of low areas and slightly higher areas, each with its own aspects.

The lower areas include Jimbolia Plain, Aranca Plain, Timiș Low Plain, while the higher area includes Arad Plain, Gătaia Plain, Cermei Plain, Vinga Plain, all being located right at the contact with the Western Hills.

The territory of Giarmata commune falls geographically, at the foot of the Lipova Hills, in the southern part of the Vinga Plain, being arranged towards the terminal forms of both relief forms.

The Vinga Plain is a distinct form of land within the Western Plain, with general orientation North-East to South-West, with average altitudes between 100 m and 150 m, with very wide interfluves, sprinkled with small areas of depression.

The geotechnical studies carried out have built the next soil stratification from studied area:

- Vegetable soil with depths between 0.2 m and 0.8 m;
- Vegetable soil with a depth of 1.2 m locally, in the perimeter of the localities;
- Clay soils containing clays, dusty clays, clay powders, strong, moist and very humid dust in the habitable suburbs.

As a result, the deposits that make up the field are covered with a layer of loess, and the solification process has led to the formation of leached chernozems.

The characteristic of valley soils is alluvial soil.

In the relief unit is found the presence of numerous swampy lands, formed at the base of the slopes or due to water sources.

There is a big difference between the extension of the areas occupied by the swamps currently facingdue to the drainage and sewerage works of the riverbeds, as well as the damming of their banks, which determined the recovery of the marshy lands and their entry into the agricultural circuit.

c. Hydrographic network.

The area of Câmpia de Vest, with the sectors Câmpia Vinga and Câmpia Timișului, being generally made up of sands, gravels and covered with clays and loess, is characterized by the presence of the water table at a shallow depth of 5-10m.

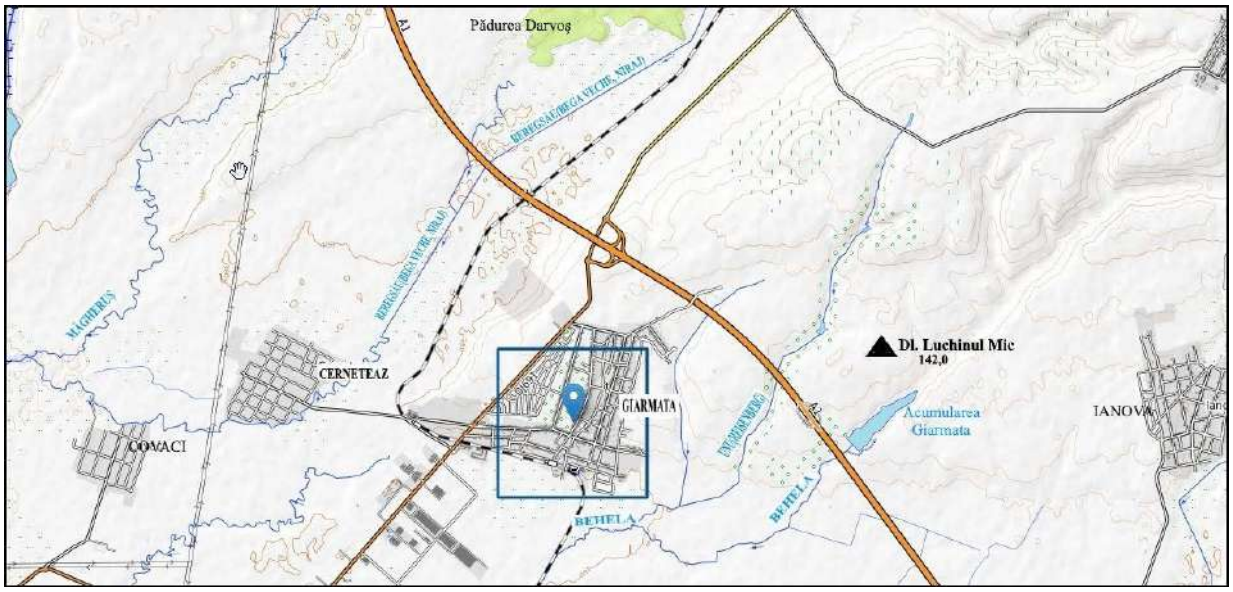
The drainage is oriented towards the axes of the valleys they have intersected or towards the lowest area, which causes puddles on contact with the plain.

The water is usually drinkable, being intensively exploited by the inhabitants of Giarmata commune.

The watercourses in the Banat plain were regularized since the 18th century and the arrangement works continued in the following centuries.

Therefore, the former rivers have now been incorporated into drainage systems, which have significantly altered the natural hydrographic network.

On the territory of Giarmata commune there are the following watercourses:



Watercourses on Giarmata ATU.
Source: Google maps.

Beregsău River.

It is also called Niraj, and on the last part of the course regularized it is called Bega Veche, although it is not an old riverbed of the river Bega before the sewer.



The Beregsău River north of Cerneteaz. Source: own archive.



Beregsău River south of Cerneteaz.
Source: own archive.

The length of the river on the territory of Timiș County is 107 km.

It has its source in the Lipova Hills, in the area of Bogda commune, Timiș county.

The left tributaries are: Hamoș, Honoș, Sumanda, Băcin, Valea Dosului.

The right tributaries are: Fibiș, Măgheruș, Apa Mare and Hetin.

The localities crossed are: Comeat, Sintar, Bogda, Altringen, Charlotenburg, Remetea Mică, Fibiș, Pișchia, Cerneteaz, Covaci, Săcălaz, Beregsău, Bobda, Cena, Romanian-Serbian border on a 1.8 km stretch.

The river flows into Serbia and joins the current Bega Canal near Zrenjanin(Republic of Serbia).

The low plain through which it flows has soils with a loamy-clay texture and very small slopes, which favors the stagnation of rainwater and frequent puddles.

The river drains an area of 2,108 km2.

Multiannual runoff varies with altitude, with values between 2.0 l / s / km2 and 18.0 l / s / km2.

It has landscaping works, together with the tributaries, on about 39 km of embankments and 201 km of regularizations.

The landscaping works are part of class IV of importance.

The Behela River, also called the Luchin River, 26 km long, has its source nearby from Bencecu de Sus locality, Timiș county.

Right tributary of the river One, near the town of Giarmata.

Crossed localities: Ianova, Giarmata, Dumbrăvița, Timișoara.

River One, also called Reisenberg, is 8 km long and has its source 1 km north of Giarmata locality, at the foot of Luchin hill.

Its course is entirely on the territory of Giarmata ATU, until the confluence with the river Behela.



River One and the River Behela. View of Ianova.
Source: own archive.



River One and the river Behela close to the confluence. View to Timisoara Airport.
Source: own archive.

The Nameless Valley is the course of a tributary of the river Unu, which originates 500m north of the A1 motorway, crosses the highway through a concrete pipe and continues on the eastern edge of Giarmata.



The Nameless Valley. View from the highway passage.
Source: own archive.



The Nameless Valley. Eyes of water and vegetation.
Source: own archive.

Natural lakes.

They do not represent a characteristic of the analyzed space and on the territory of Giarmata ATU they have a high degree of clogging.

Giarmata Reservoir is located on the course of the Behela brook, about 3 km east Giarmata locality and 14 km northeast of Timișoara.

It covers an area of 45 hectares, representing one of the areas of recreational sport fishing in Timiș County.



Giarmata water accumulation, on the Behela river.
Source: Banatour.

d. Vegetation and fauna.

The vegetation of the Giarmata ATU territory, from a geobotanical point of view, is the one specific to the forest-steppe, which characterizes the whole Pannonian Plain.

The landscape is diversified by the appearance of meadow vegetation, along the rivers Brga VECHE (Beregsău), Behela and Unu, rivers that cross the studied area.

To the north, at the border of Giarmata ATU with Pișchia ATU, is the Darvoș forest, being a relic from the great oak forests that existed until the XVIII-XIX century, on these places.

The predominant tree essences are: oak (Quercus robur), elm (ulmus glabra), ash (Frasinus excelsior), Banat jug (Acer campestris), wild hair (Pirus ppiraster), wild apple (Malus silvestris).

The forest subtree contains, among others: hawthorn (Crataegus monogyna), blood sausage (Cornus sanguineus), hazelnut (Corylus avelana), hornbeam (Cornus mas), buckthorn (rhamnus frangula), dove (Prunus spinoza) dogwood (Lygustrum vulgare).

The meadows and streams along the Bega veche, Behela and Unu rivers have as dominant species: willow (Salix alba, Salix fragolis), red wicker (Salix purpurea), rosehip (Rosa canina) and acacia (Robinia pseudacacia).



Beregsău River. Meadow vegetation.
Source: own archive.



Luchinul Mic Hill. Steppe vegetation.
Source: own archive.

The forest-steppe and steppe fauna, although less varied than the forest one, has a higher number of species of hunting interest (rabbit, deer, quail, partridge, pheasant, etc.).






Specific forest-steppe fauna: poplar, deer, pheasant, fox.

Within the fish fauna, the carp species is dominant, next to which live the bream, the bream, the babushca, the sebiţa, the pike, being a natural support for sport fishing.



1. Carp. 2. Pike. 3. Talk.

e.Climate and precipitation.

The area of Timiș County is characterized as a territory with a moderate temperate-continental climate, characteristic of the south-eastern part of the Pannonian Depression, with Mediterranean and oceanic influences.

The local aspect of the temperate-continental climate is given by the western maritime air masses, with a high degree of humidity, then by the influence of the subtropical air masses from the south and the continental ones from the east.

On the territory of Giarmata ATU, the average temperatures are 10ºC, the average temperature for the coldest month of the year (January) being between 2˚ and 1˚C, and the average temperature for the warmest month of the year (July) being close to 21˚ C.

As a result, winters are quite mild due to the Mediterranean influence, and the frost period occurs later, compared to other plains.

At the same time, the last day of frost occurs later, on average in the last decade of April. The maximum annual temperature was measured on July 23, 2009, in Sânicolau Mare, in the amount of 36.70˚˚and the temperature the minimum was registered on December 21, 2009, in Timișoara, in the amount of -21.4˚C.

The air masses of oceanic origin are those that bring significant precipitations over the studied area.

The total amount of precipitation is high, an example being the precipitations from 2009, registered at the Timișoara meteorological station, amounting to 624 l / m2.

From the analysis of the multiannual precipitation quantities, a rainfall maximum is found in May and June, as it was in 2020, after which the precipitation level decreases until September.

During the autumn-winter period, the precipitations increase in October-November, being decreasing during the following winter months.

The frequency, duration and speed of winds are influenced by the general atmospheric circulation and the configuration of the Giarmata ATU relief.

Being located in the high plain area, the influence of the relief on the air mass circulation is insignificant.

As such, on the territory of the commune, the winds from the North-West, North-East and South-West directions predominate, the average wind speed having close values.

Over the years, winds from the west have had high speeds, falling into the category of storms, causing significant property damage.

f. Position towards the main tectonic faults

From a seismic point of view, the Banat area is the second seismic area both in terms of the number of events and the energy released.

The earthquakes produced in the county represent a series of specific characteristics:

• the depths of the outbreaks are small, between 5 and 15 km;

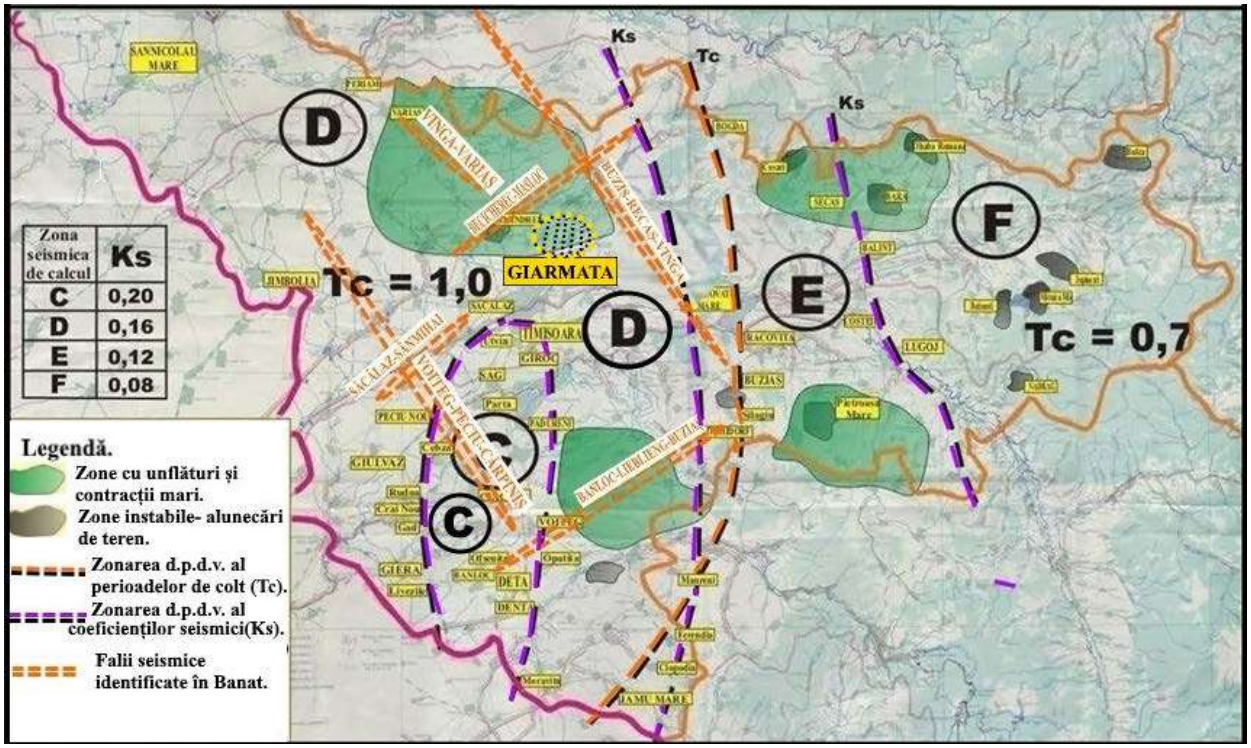
• the surfaces of the epicentral areas, where the effects are maximum, are very small;

• isoseists have slightly elliptical to circular shapes;

• has a relatively small number of shocks, followed by a very large number large lines or aftershocks;

• the main delimited faults have different orientations and depths;

• the outbreaks of the main earthquakes in the county are at the intersection or in the proximity of the intersection between geological faults of different ages.



Map with seismic zoning in Banat.
Source: The Plan of Analysis and Coverage of Territorial Risks in Timiş county

The spatial distribution of the epicenters of these earthquakes highlights a number relatively large areas of high seismic risk, as follows:

• areas with earthquakes with an intensity in the epicenter of 8 ° Mercalli: Banloc-Offense; Voiteg; Sag-part; Vinga -Variaș

• areas with earthquakes with an intensity of 7 ° Mercalli: Periam, Sânnicolau Mare, Sânmihaiu Român, Jimbolia and on the border with Serbia; Timişoara, Săcălaz, Peciu Nou, Ciacova, Recaș and Buziaș.

8 main seismic faults are defined:

- Timisoara West;
- Săcălaz-Sânmihaiu Român;
- Banloc-Liebling- Buziaș;
-Voiteg-Peciu Nou-Cărpiniș;
-Vinga-Variaș;

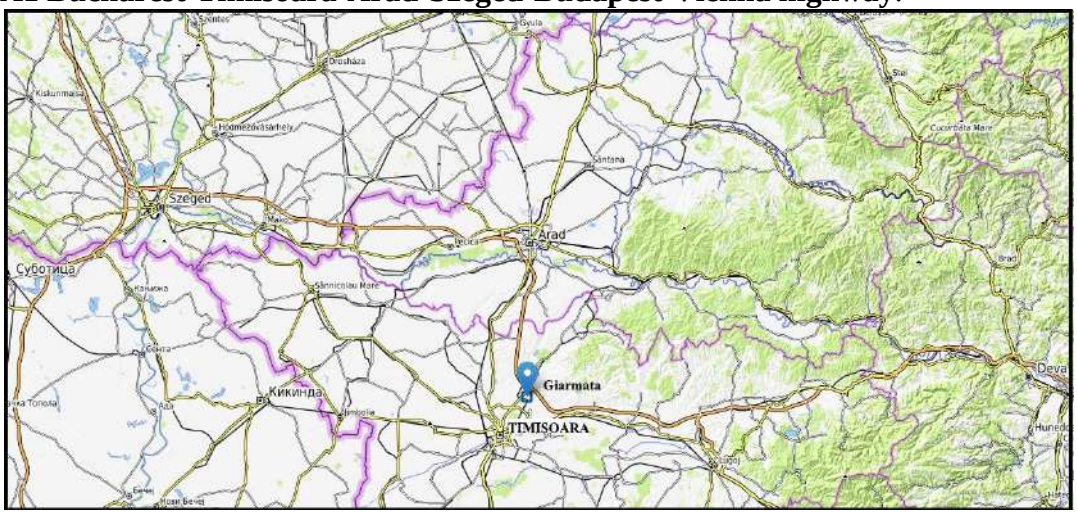
The area of Giarmata commune is exposed to seismic hazard with a magnitude of at least VII, expressed in degrees MSK (Mercalli).

g. Existing communication routes on the territory of Giarmata ATU.

g.1 Road transport routes

The terrestrial communication ways, that cross the territory of the commune are:

A1 Bucharest-Timisoara-Arad-Szeged-Budapest-Vienna highway.



Map with the Deva-Timișoara-Arad –Szeged highway.
Source: Google maps.

It is the first highway in Romania, part of the Pan-European Transport Corridor IV, 443.7 km long, which makes the fast connection between Romania and Western Europe.

Currently, works are being carried out on the Sibiu - Curtea de Argeș-Pitești segment.

The motorway has two one-way traffic lanes, separated by a median area, each with two traffic lanes, without level crossings with other traffic lanes and accessible only at certain specially arranged points, called unloadings.



A1 motorway. View from the Giarmata-Bencecul de Sus passage.
Source: own archive.

It is provided with parking and rest areas, gas stations, toilets, etc.

It has accidental parking lanes along the entire length of the highway, marked with uninterrupted lines, next to unidirectional paths.

On the entrance or exit sectors of the highway has accelerator lanes or deceleration systems, which are generally carried out in place of the stationary or emergency lanes.



Positioning of Giarmata commune, towards the A1 Motorway. View from the Giarmata-Bencecul de Sus passage. Source: own archive.

The speed of the motorway is limited to 130 km / h, depending on traffic safety, visibility and weather conditions or other traffic regulations.

At the end of the works, the highway will connect Bucharest with Pitești, Sibiu, Sebeș, Deva, Lugoj, Timișoara, Arad and Nădlac, connecting with the M43 highway from Hungary, to Seghed and Budapest.

On the territory of Giarmata ATU, the highway has a length of about 5 km, crosses the space from east to west, fits very well in the landscape crossed, has an aesthetic appearance and achieves high optical comfort.

On this section, the A1 motorway is provided with:

• A road junction arranged at the intersection with the county road DJ 691 Timisoara-Lipova;

• Two service spaces, one in each direction, served by PETROM Romania on the direction of Arad-Lugoj and by MOL Hungary, on the direction of Lugoj-Arad.

• A crossing for the communal road DC 60/61 Giarmata-Bencecu de Sus.



Infrastructure arrangements on the A1 Motorway, in the Giarmata commune sector. Source: Google maps.

County road DJ 691 Timișoara-Lipova.

It is the main way of connecting Giarmata commune with Timișoara municipality, and through the road junction to the A1 Motorway, it has easy access both to the whole territory of Romania and to the states of Western Europe.



County road 691 Timișoara-Lipova, at the entrance to Giarmata.
Source: own archive.

It is a county road, which has a roundabout with the communal road DC 58, for access to Giarmata and Cernăteaz.

It is provided with two traffic lanes, one in each direction, without an emergency lane, bicycle or pedestrian lane.

On the part of the Giarmata crossing, it has rainwater collection ditches and access bridges to private homes.

It is an extremely busy road all year round.

The non-existence of an access road for agricultural equipment determines the circulation of tractors, combines, seed drills and animal-drawn carts in this segment, being a major risk factor for road traffic.

Communal road DC 61 Giarmata- Bencecu de Sus.



Communal road DC 61 Giarmata- Bencecu de Sus.
View from the passage over the A1 Motorway. Source: own archive.

It is the connection between the two localities, modernized after the construction A1 motorway and the positioning of the overpass.

It is paved to the neighborhood, being used mainly for agricultural activities.

Communal road DC 58 Giarmata-Ianova.

It is an agricultural road, used for the purpose of carrying out specific activities**.**



View on the Giarmata Ianova road. Source: own archive.

It is an agricultural road, used for the purpose of carrying out specific activities.

It is provided with a partial layer of stone, up to the river One, after which it is the east road earth.

In rainy weather it is extremely difficult to intervene in emergency situations.

Communal road Dc 58 Giarmata-Cerneteaz-Covaci- Timișoara North Ring Road.



View towards Cernăteaz, at exit of Giarmata. Source: own archive.



View from the entrance to Cernăteaz. Source: own archive.

It is the only access road from the commune center in Cernăteaz village.

It is an asphalt road, provided with rainwater collection ditches and provided with drainage bridges.

After leaving Cerneteaz, to Covaci, the road continues as an agricultural road.

g.2 Railway transport routes.

The Timișoara –Radna (Lipova) railway, with the Giarmata cf station.

It is a normal railway, used by commuters working in Timisoara or Lipova.

It is currently served by passenger trains belonging to the company INTERREGIO.

g.3 Air transport routes.

"Traian Vuia" International Airport Timisoara.

Although it is not located on the UATA GIarmata land, the “Traian Vuia” International Airport in Timișoara will be analyzed in this studio, due to the impact on the inhabitants of Giarmata commune.



Traian Vuia International Airport Timisoara. Source: ziare.com

In fact, the airport is commonly called Giarmata Airport.

It is the third airport in Romania by the number of passengers, serving a population of 2.5 million inhabitants.

Starting with January 6, 2003, the airport is named after the Romanian inventor Traian Vuia, born in Timiș County.

The airport serves as the operational base for Wizz Air and is considered a reserve airport for Bucharest (OTP), Budapest (BUD) and Belgrade (BEG), being the most important airport in the DKMT Euroregion.

It has, among others, a runway with dimensions of 3,500 m × 45 m, 18 aircraft parking positions and light beacon and air navigation systems: ICAO CAT II / III on both landing directions: CAT IIIA on landing direction 29 and CAT II on landing direction 11. (Source: Wikipedia)

Terminal 1 is the oldest airport terminal, built in 1964 and modernized in 2002.

The initial construction was small, but at the end of 2010 the surface of the terminal doubled by the inauguration of the construction extension (2,000 m²). The expansion was necessary due to the increase in traffic but also for the separation of passenger flows, a necessary condition for entering the Schengen area.

The terminal will be dedicated to flights to destinations in non-Schengen areas, with an estimated annual traffic of 180,000 passengers. It currently operates as a terminal for domestic flights and has a processing capacity of 500 passengers per hour and three boarding gates. This is where the majority of Romanian airlines operate from here.

Terminal 2 was inaugurated in 1980, then expanded and modernized in 2004. It is the largest terminal at the airport, with a processing capacity of 800 passengers / hour and nine boarding gates. It is at the same time the terminal from which most companies operate but also the terminal with the largest variety of passengers (in terms of ethnic structure).

With the country's entry into the Schengen area, the international status of the terminal will be lost, as flights departing from and arriving at this terminal will be considered domestic flights. Currently, the airport is only intended for international flights.

In 2018, the administration of the “Traian Vuia” International Airport started extensive modernization works aimed at building two new terminals: one for internal arrivals and one for external departures.

Another important work that will be started in the airport area is the widening of the four-lane road, an investment that will be made by the Timiș County Council.

Moreover, it is desired to create an Airport City, a complex concept, innovative for Romania, through which will be built in addition to air, road and rail transport facilities and hotels, restaurants, shops, conference centers and exhibition halls, with sources of public and private funding.

h. Water supply of Giarmata and Cerneteaz localities.

The water source in the two localities is the drilled wells.

In the locality of Giarmata are drilled 4 deep drillings and a drinking water tank of 100m.c.

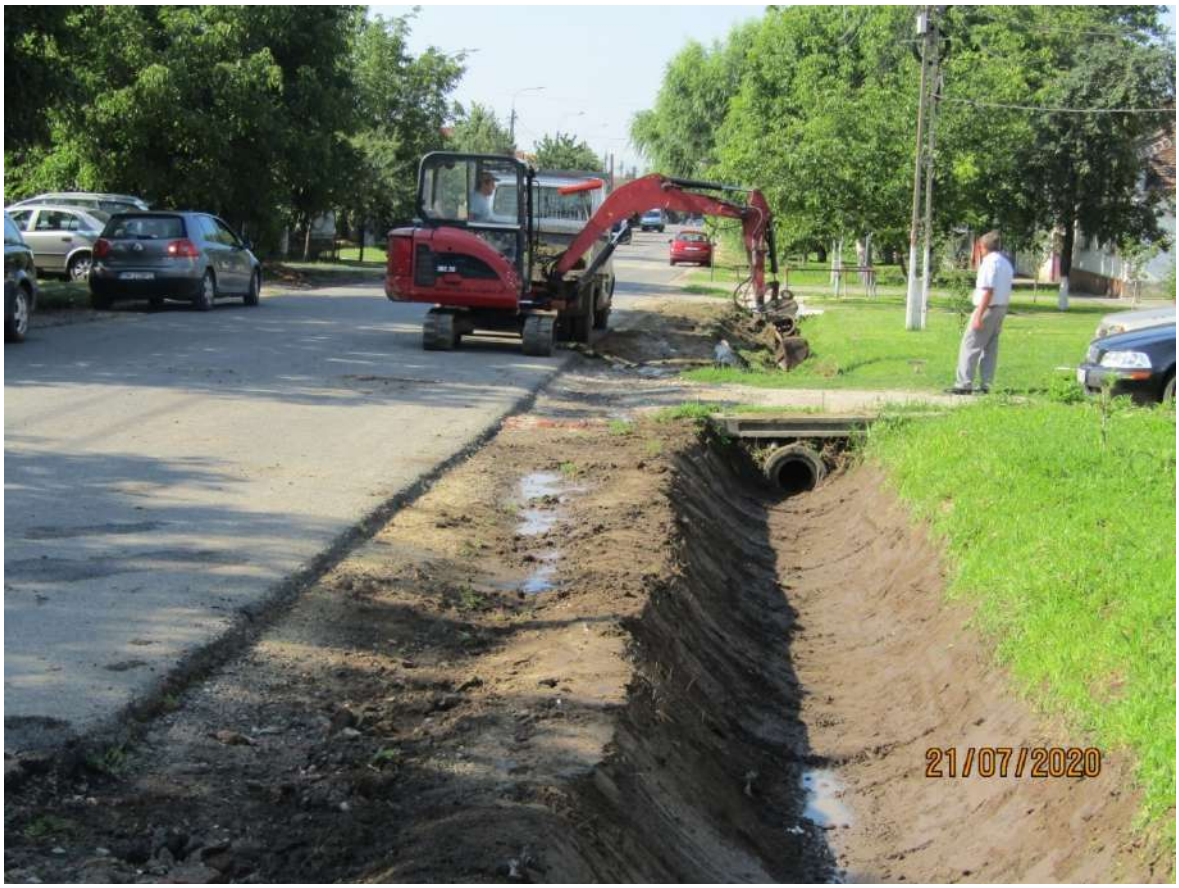
In the locality of Cerneteaz there is only one deep drilling and a drinking water tank of 100m.c.

In Giarmata locality, rainwater is collected through collection ditches, arranged along the streets, with north-south orientation, according to the slope of the land and directed through collecting channels in the main emissary-Behela, at the southeastern edge.

Access to personal households is made on concrete bridges, with variable diameters, which allow water to drain in situations of heavy rain.

The collecting ditches are partially concreted, the rest being grassy and with the possibility of clogging, due to both vegetation and the abandonment of various household items.

Periodically, they are subject to mechanical cleaning activity, through specialized economic agents, by contract with Giarmata City Hall.



Periodic maintenance of rainwater collection ditches. Source: own archive.

i. Economic activity in Giarmata ATU.

According to the data provided by the specialized services of Giarmata City Hall, the agencies located in the territory of ATU Giarmata, carry out non-polluting activities and have emergency intervention plans.

The activities carried out by the main economic agents are presented in the situation below.

Chapter II Identification of natural risks that may occur on the territory of ATU Giarmata.

According to the data provided by the Voluntary Service for Emergency Situations of Giarmata commune, the situation of SVSU interventions in the years 2019-2020 is as follows:

The nature of the event	Interventions in the year		Total
	2019	2020	
Fire at personal home	**5**	**3**	**8**
Vegetation fire	**10**	**7**	**17**
Fire caused by motor vehicles (malfunctions, accidents, etc.)	**2**	**1**	**3**
Floods yards and buildings	**1**	**3**	**4**
Animal rescue during floods	**2**		**2**
Damage to the electrical network due to road accidents.	**-**	**2**	**2**
Total	**20**	**16**	**36**

The following conclusions can be deduced from the analysis of the interventions of SVSU Giarmata and ISU Timiș within the Giarmata ATU.

- The event with the highest degree of risk is fire

of all types, 28 out of 36 interventions, which represents a percentage of 69%;

- Floods and their associated phenomena occupy a percentage of 17%;
- Other events account for 14%

A. Fires

1. Forest fires at the forest floor.

On the territory of ATU Giarmata there are very few places with real forest.

The only part of the forest is the one in the north of the ATU, respectively the Darvoș forest which belongs organically to the Timișoara Forest District.

Also, at the northwestern edge of Giarmata there is a compact edge, planted in order to mask some military installations.

Along the Beregsău, Behela and Unu rivers, there is a compact area with trees and shrubs, which also produces a significant amount of shoots, which dry up after the vegetation periods.

The risk of forest fires is high at the beginning and end of the vegetation period, as well as in periods of prolonged drought.

Forest fires can be:

-litter fires;
- canopy fires;
-fires under the blanket.

A fire in the Darvoș forest or in other forested areas, during critical periods, can cause great damage to agricultural crops, orchards and homes arranged in the direction of fire propagation.

The causes that give rise to forest fires can be:

- Negligent use of fire for food preparation or heating;
- Cigarettes thrown at random;
- Burning of wood residues resulting from the exploitation parquets;
- Creating agricultural areas by burning or improving pastures;
- Lightning;
- Premeditated fires.

2. Dry vegetation fires.



North Giarmata vegetation fire intervention.
Source: ISU Banat archive

According to the existing data, on the territory of ATU Giarmata are identified important portions of land, producing dry vegetation, after the expiration of the vegetation period or after prolonged droughts.

Such parts of land with dry vegetation, where fires may occur, may be:

• on Luchinul Mic Hill (elevation 142.0m) north of the A1 Motorway, with major implications for motorway traffic;

• at the northern and southern edge of Cernăteaz village, with direct implications

on the health of the inhabitants of Cernăteaz village;

• at the southeastern edge of Giarmata locality, up to the Airport area Timisoara, with major risks for the safety of air traffic and passengers at the airport:

The risk of dry vegetation fires is high during the summer and at the beginning of vegetation periods and the end of the vegetation period (March-April (spring) and August-October (autumn), as well as in periods of prolonged drought.

3. Fires in cereal crops

According to those presented in chapter one, the territory of ATU Giarmata is covered in proportion of 80% of agricultural crops such as wheat, rapeseed, barley, corn, etc.

As a result, there is a risk of fire in straw crops.

It is large during the summer during the period of ripening and harvesting of straw cereals, as well as in periods of prolonged drought.



Stubble fire intervention.
Source: ISU Banat archive

Such parts of land with cereal crops, where fires may occur, may be:

• on Luchinul Mic Hill, north of the A1 Motorway, in the passage area on Giarmata-Bencecu de Sus communal road, with major implications for highway traffic;

• at the western edge of Giarmata locality, on the valley of the Beregsău river;

• at the eastern edge of Giarmata locality, up to the Airport area Timisoara, with major risks for the safety of air traffic and passengers at the airport.

4. Fires in personal property homes.

The heating of the houses is done, mostly with solid fuel in the stoves, with or without heat accumulation, the evacuation of the smoke from the stoves is done through chimneys that pass through or next to the combustible elements of the roofs or with uninsulated metal pipes.

The heating of the feed is done in open hearths, inside the household annexes.

The risk of fire in personal homes is higher in cold periods, due to the negligence of users.

A common cause of home fires is improvisations in electrical installations and the use of faulty appliances.



Fire at his personal home in Giarmata.
Source: ISU Banat

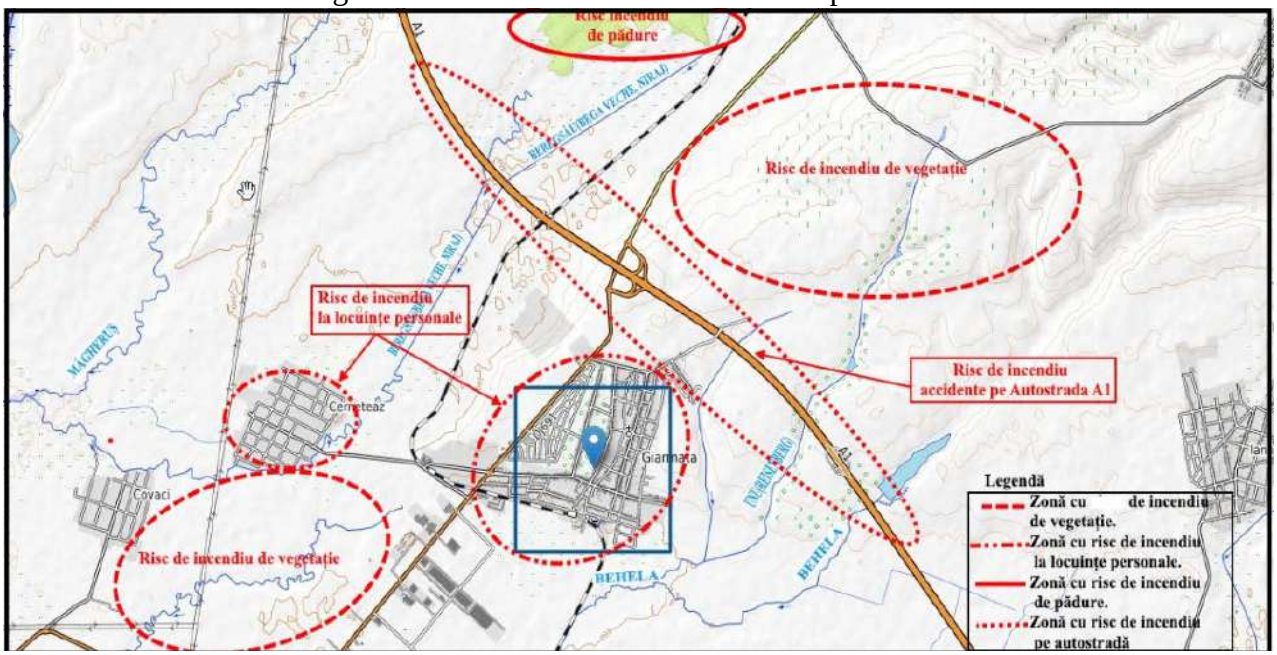
5. Fires for economic purposes.

The economic agents located on the studied territory, have Fire Safety Authorizations, issued by ISU ..Banat ”of Timiș County and have the necessary means to intervene in the event of a fire.

As of the date of the documentation, no fire was reported to the economic agents from industrial area.

6. Conclusions.

The fire risk zoning in Giarmata ATU is shown in the map below.



Map with fire risk on the territory of ATU Giarmata.

B. Dangerous meteorological phenomena

1. Storms and blizzards

Storms with strong winds and / or heavy rainfall and / or hail can occur throughout the year, especially in the warm season (April-September).

Storms and storms were recorded that had a speed between 12 m / s and 20 m / s.

The tornado-like storm of September 2017, of unprecedented violence, which left five dead.

The main effects of dangerous weather phenomena are:

- Destruction of agricultural crops;
- Interruption of the electricity supply of the localities.



The consequences of the violent storm of September 17, 2017, in Timiș County. Source: ISU Banat archive

2. Flooding.

The localities of Giarmata and Cernetez are exposed to the risk of floods caused by the overflow of the waters of the Beregsău river, respectively Unu and Behela, which determined the local authority, respectively the mayor of the commune, to issue Disposition no. 64 of March 12, 2020 on updating the Local Committee and the Temporary Emergency Task Force in the Flood Defense Plan.



Beregsău River, in the area of the stone bridge, the area with high risk of floods. Source: own archive.



Behela River, in the southern area of Giarmata. Source: own archive.

The flood risk areas identified during the documentation are:

• The inhabited area of Cernăteaz locality, especially the houses arranged on Veseliei street,of the overflow of the waters of the Beregsău river, which does not have protection dams. About 10 households are affected and 25 people are required to be evacuated.

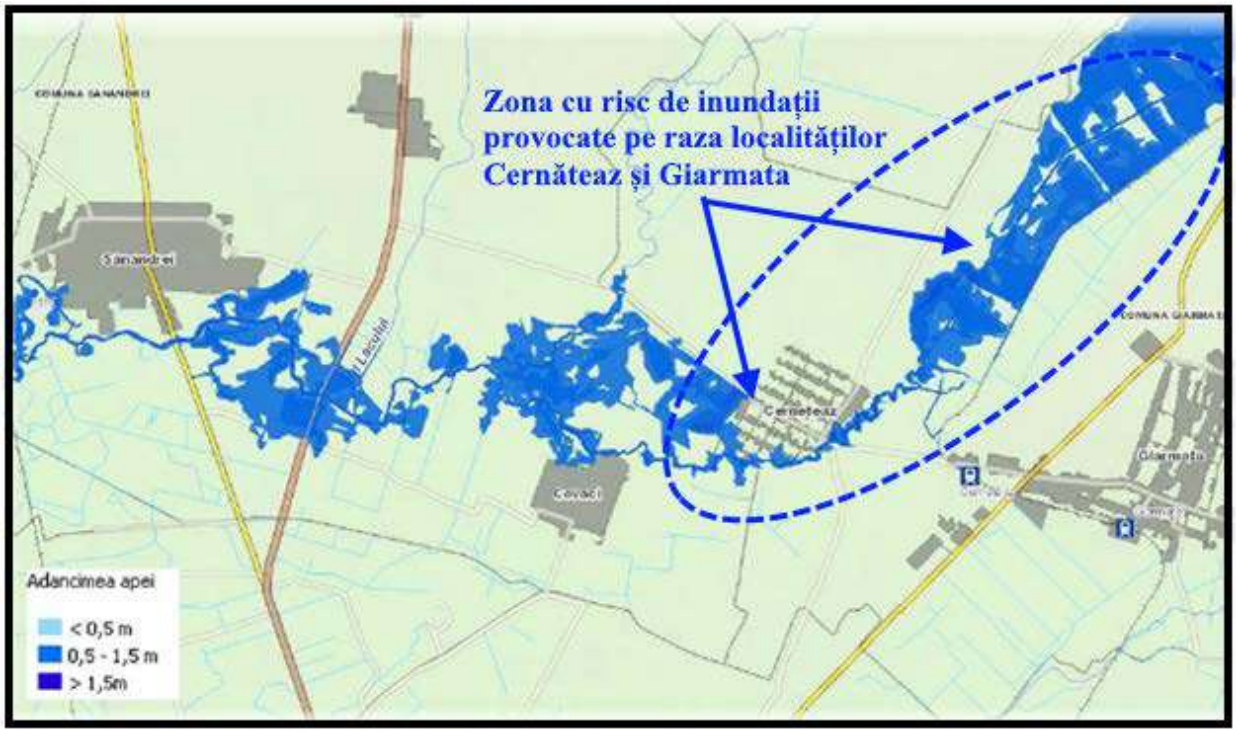
• The inhabited area of Giarmata locality, on the southern edge, due to the repression through canals of the waters of the river Unu and Behela. About 6 households are affected and it is necessary to evacuate about 18 people;

• The inhabited area of Giarmata locality, on the southern edge, due to the repression through canals of the waters of the river Unu and Behela. About 6 households are affected and about 18 people are required to be evacuated.

The following are directly or indirectly exposed to the effects of floods:

• The population, as well as their movable and immovable property;
• Social objectives;
• Productive capacities (commercial companies, agro-zootechnical farms);
• Road communication routes;
• Electricity supply networks;
• Natural environment:meadows, agricultural lands, urban areas of localities,etc.

The latest flood risk assessment of the Beregsău River is carried out by the National Company for Road Infrastructure Management, in the study on the construction of a road connecting the A1 Arad - Timișoara Highway with DN 69 Timișoara-Arad, a road that will also affect the west of UAT Giarmata. details on the risk of floods are shown on the map below.



The floodplain of the Beregsău river at Cerneteaz and west Giarmata.

Source: National Company for Road Infrastructure Management „ Connection road A1 Arad - Timișoara Highway - DN 69 Adequate evaluation study.

The evaluation is extremely important for the activity of economic agents whose object is agriculture because it presents the risk of floods caused by the Beregsău river, on a large area of land.

At the same time, the assessment presents the risk of housing near the floodplain, especially in the eastern part of Cernăteaz.



Constructions in the village of Cernăteaz, erected in the flooded area of the river Beregsău. Source: own archive.



Constructions in the village of Cernăteaz, erected in the flooded area of the river Beregsău. Source: own archive.

A high risk of floods, especially due to the danger of puddles of water from the Behela River, is the industrial area in the south of Giarmata, because the drainage and drainage system does not ensure the takeover of water in a short time.

The area is located between the Timișoara-Radna railway and the Timișoara ring road, at the foot of the hill on which the Giarmata locality is located and in the flooded area of the Behela river.

In 2012, the water puddled for 3 weeks, causing discomfort to the population and difficulties in carrying out the economic activity of companies on this site.



Location of the industrial area to the south of Giarmata locality.
Source: own archive.

3. Massive snowfalls

Although they are very rare lately due to climate change, they cannot be ruled out.

It causes short-term disturbances on the transmission system, electricity and gas supply, roofs of houses and old outbuildings.

When the temperature suddenly rises, the water in the melted snow causes floods.

4. Tornadoes.

Tornadoes are violent, small-scale atmospheric disturbances with a character vortex, in the form of a narrow column that rotates very quickly or of a turned funnel that reaches ground level. It is common in late spring and early summer.

They occur when currents of hot and cold air collide and create an area ofrotation, with low atmospheric pressure.

The effects are extremely serious, both on people and on the community,due to wind speed, dust and tornado objects thrown and thrown back.

There is a possibility of this meteorological phenomenon.

5. Drought.

Drought is a natural phenomenon that occurs when rainfall is lower than usual, resulting in disturbances of the hydrological balance, which negatively affects the productive systems of land resources.

Drought occurs when the average annual rainfall is below the area average, and their distribution is not synchronized with the vegetation phases of crops.

Meteorological drought means a period of 10 days without precipitation in April - September or 14 days without precipitation in October - March.

The effects of drought can be:

- movement of agricultural production;
- reducing the quality and existence of drinking water;
- reducing food reserves for both humans and animals;
- Increasing the risk of fire in dry crops and in personal households;
- Increasing the risk of disease of the population by reducing its nutritional status.

6. Hail

Hail is a form of precipitation in which water particles in the atmosphere fall on the surface of the ground in the form of ice.

It is formed when raindrops pass through layers of air with low temperatures (below 0 ° C).

Ice particles generally have an irregular shape, the average diameter being generally 5 - 50 mm, but can be much larger in the case of electrical storms.

Hail occurs mainly in the hot season, being associated with showers, wind and lightning.

The effects of hail:

- can cause major damage to agricultural crops;
- may damage the roofs of buildings or car bodies;
- may cause injury or death to animals in the field and a homeless people.

7. Ice, ice bridges and dams, heavy snowfall, frost, frost

During the winter there can be frost and massive snowfalls, especially in November-December.

Frost can affect power and overhead lines with the possibility of breaking them.

The pole that is formed both in winter and in spring, can cause injuries and accidents on roads, respectively on the A1 Motorway and DJ 691.

C. Destructive phenomena of geological origin. Earthquakes.

Giarmata and Cerneteaz localities can be affected by surface earthquakes that occur frequently in the Banat seismic area.

The effects can be material, by falling tiles on the roofs and bricks from the walls without resistance, endangering people's lives.

The panic effect is automatically installed on sick people, the elderly, women, especially at night.

Identification of the types of risk and the associated risks from the Giarmata ATU area, Timis county, according to Annex no. 1 / HG 557/2016.

Nr.	Name of risk		Risk area identified in ATU Giarmata
	Type of risk	Associated risk	
1.	**Storms and blizzards**	**Blizzard**	Inhabited area Giarmata-Cernăteaz. Unloading the highway with DJ Timisoara-Lipova Meaning of roundabout Giarmata
		Strong wind storms.	Inhabited area Giarmata-Cernăteaz
		Massive rainfall	Inhabited area Giarmata-Cernăteaz
		Hail falls	Inhabited area Giarmata-Cernăteaz
2.	**Floods**	**Floods due to natural overflows of watercourses caused by increased flows from precipitation and or sudden melting of the snow cover.**	The course of the Bega Veche river-Cernăteaz inhabited area, Veseliei street
		Floods due to natural overflows of watercourses due to blockages caused by insufficient dimensions of the drainage sections of bridges and footbridges.	Inhabited area Giarmata-Cernăteaz
		Floods caused by rising groundwater level	The industrial area of Giarmata locality.
3.	**Massive snowfalls**	**Heavy snow**	Inhabited area Giarmata-Cernăteaz
		Road and railway blockages	Road communications sectors in Giarmata ATU
4.	**Tornadoes**		Agricultural crops area. Inhabited area Giarmata-Cernăteaz
5.	**Drought**	**Hydrological**	Agricultural crops area
		Pedologist	Agricultural crops area
6.	**Extreme temperatures**	**Ice deposits, frost, early or late frosts.**	Inhabited area Giarmata-Cernăteaz Agricultural crops area
		Veneer	Road and pedestrian paths
7.	**Fires**	**Forest fires**	Darvoș Forest
		Fires of grassy and / or shrubby vegetation.	The area of meadows and pastures
		Straw cereal fires	Agricultural crops area

		Personal property fires.	Inhabited area Giarmata-Cernăteaz
		Fires for economic purposes	Giarmata Sud industrial area.
8.	**Earthquakes**		Agricultural crops area
9.	**Accidents, damages, explosions and fires in transport activities**	**Land transport routes** **Air transport routes**	A1 motorway Local roads.
		Air transport routes	. "Traian Vuia" International Airport Timisoara.

Chapter III

Essential aspects regarding the elaboration of the map of the environmentally protected and risk areas in the project area-Giarmata commune and the Cernăteaz village.

Given that Romania is considered a country with severe risks in terms of floods and earthquakes, to which are added other risks, such as fire risk, risk of technological accidents, risk of epidemics, epizootics, etc., results in objectively, the need to identify them and make maps, which should be working tools for the implementation of risk management plans, at the level of each Territorial Administrative Unit (ATU) of common type, city, county.

In accordance with the Decision of the Romanian Government no. 557/2016 on the Management of Risk Types in Romania, this activity involves both identifying the types of risk and associated risks, but also establishing the responsible authorities, by type of risk, establishing the areas of action of the responsible authorities, for prevention, preparation and response to event and recovery / rehabilitation of the situation, as well as the distribution of support functions.

For the purposes of the normative act, the responsible authority with the main role is the entity with competences and capabilities, which integrates and coordinates the actions carried out to ensure the management of risk types.

This entity at the level of Giarmata commune is the City Hall of the commune, represented by the Mayor.

The maps of the protected areas and of the risk areas in the project area constitute documents on which are represented the potential areas with fire risk, dangerous weather phenomena, floods and destructive geological phenomena, which have occurred and can occur in the commune area. Giarmata and the village belonging to Cernăteaz.

The purpose of elaborating these maps is the need for a useful working tool for the mayor, the Local Council of Giarmata commune, as well as the Local Committee for Emergency Situations for:

- Correct decision support in assessing the events produced and elaboration intervention plans, in case of an emergency situation;
- Monitoring specific hazards and risks, as well as effects their negatives;

• Awareness of the population on the existing risks, both in the community and and in their own households;

• Safe placement and correct sizing of constructions of anything kind;

• Evacuation of threatened population or property, in safe places, in advance established, in the event of an imminent risk;

• Searching for and rescuing people caught in special events;

• Allocation of funds, means of intervention and modern special vehicles, for the endowment of the Voluntary Service for Emergency Situations of Giarmata commune.

The maps were made for the perimeter of the Territorial Administrative Unit (ATU) Giarmata, as it appears from the cadastral documentation of the locality.

The veracity of the information was verified by studying the existing documents in the specialized offices of Giarmata commune town hall, information and field documentation, photographing all risky sites, together with specialists from Giarmata commune town hall, as well as discussions with competent persons from Giarmata commune administration. .

A. Fire risk map for Giarmata ATU.

According to the data provided by the Voluntary Service for Emergency Situations of Giarmata commune, the situation of the interventions in 2019-2020 is as follows:

The nature of the event	Interventions in the year		Total
	2019	2020	
Fire at personal home	**5**	**3**	**8**
Vegetation fire	**10**	**7**	**17**
Fire caused by motor vehicles (malfunctions, accidents, etc.)	**2**	**1**	**3**
Floods yards and buildings	**1**	**3**	**4**
Animal rescue during floods	**2**		**2**
Damage to the electrical network due to road accidents.	**-**	**2**	**2**
Total	**20**	**16**	**36**

The following conclusions can be deduced from the analysis of the interventions of SVSU Giarmata and ISU Timiș within the Giarmata ATU.

• The event with the highest degree of risk is fire of all types, 28 out of 36 interventions, which represents a percentage of 69%;

• Floods and their associated phenomena occupy a percentage of 17%;

• Other events account for 14%.

Using the method of statistical fire risk assessment, for the fires produced in Giarmata ATU, the following risk elements can be deduced:

Darvoș Forest, existing at the border of ATU with Pișchia commune, represents the source of risk for a forest fire, especially in periods of prolonged drought, due to natural causes, but also due to the negligence of residents or tourists.

These fires can manifest themselves as litter fires, fires under the blanket, fires in the area with felled trees or canopy fires.

Dry vegetation in meadows and pastures located near Giarmata localities and Cernăteaz, is a source of risk for fires and can pose a high risk to both humans and other nearby crops.

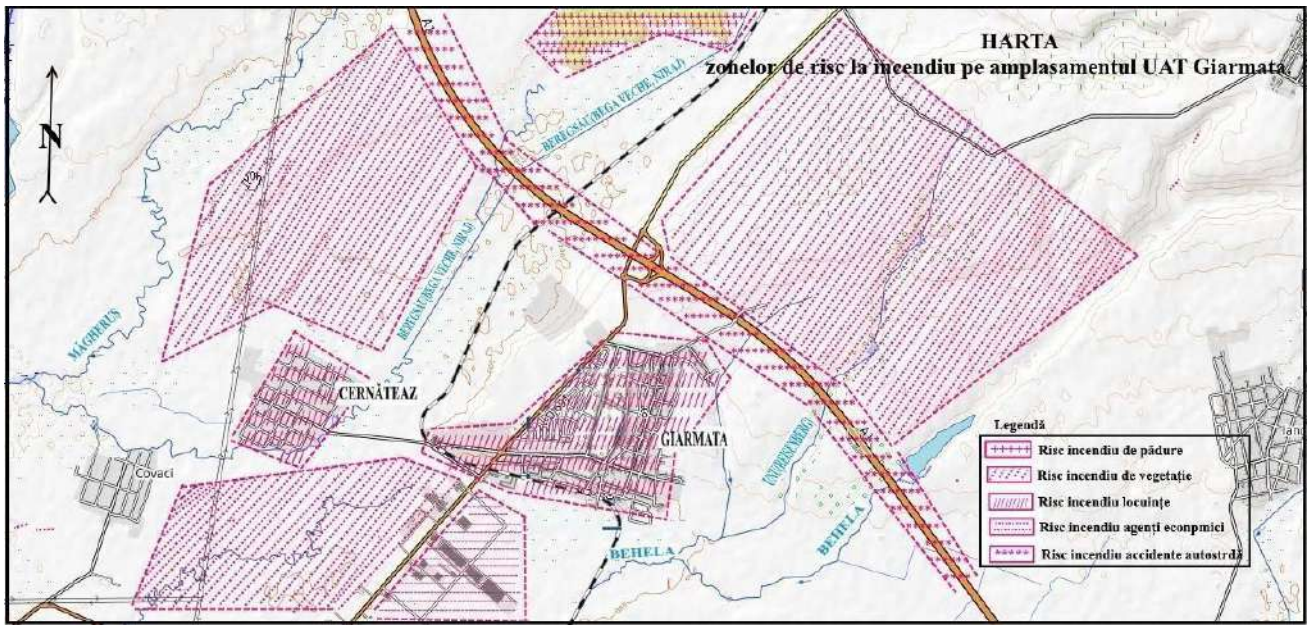
Cereal crops, especially straw crops, located near the localities Giarmata and Cernăteaz, represent the source of risk for a fire and can present a high risk, primarily due to the negligence of the inhabitants.

The personal households of the inhabitants of the two localities, represent the source main risk for a fire throughout the year, both due to negligence in the supervision of open fire and improper use of improvised installations, with technical failures, etc.

The most important economic agents on the territory of the Administrative Unit (UAT), in particular holders of flammable materials, such as timber and furniture depots, plastics depots, tires, etc., are a source of risk for a major fire if the rules on the use of fire are not strictly observed. open, smoking, safe handling of petroleum products during their transfer or storage.

The A1 motorway, as a high-speed road, on which it is obviously transported and flammable materials or substances, is a major risk factor for fire in the event of traffic accidents involving motor vehicles carrying these types of materials.

Gas stations and other places for services to traffic participants on the A1 motorway is a source of fire risk, especially in the event of non-compliance with smoking rules, working with open fire or vehicles with defects in the electrical system.



Map of fire risk areas on the Giarmata ATU site.

B. Flood risk map

It constitutes the documentation that indicates the floodable areas along the existing watercourses in the Giarmata ATU, namely:

Beregsău River.

It is also called Niraj, and on the last part of the regularized course it is called Bega Veche, although it is not an old riverbed of the river Bega, before the sewer.

The river flows into Serbia and joins the current Bega Canal near Zrenjanin.

The low plain through which it flows, has soils with loamy-clay texture and very small slopes, which favors the stagnation of rainwater and frequent puddles.

The river drains an area of 2,108 km2.

The multiannual runoff varies depending on altitude, with values between 2.0 l / s / km2 and 18.0 l / s / km2.

It has landscaping works, together with the tributaries, on about 39 km of embankments and 201 km of regularization area, but not on the part of crossing the territory of Giarmata commune.

The landscaping works are part of class IV of importance.

The flood risk areas caused by the Beregsău river, in ATU Giarmata are:

a. The area between the Darvoș forest, the A1 motorway and the railway Giarmata-Pischia.

It is an area of agricultural crops, the river is not provided with dam works, the crossing of the A1 Motorway is made through a concrete tube.

b. The area between the A1 Motorway, the north-east edge of the locality The Giarmata-Pișchia railway is also listed.

It is a mixed area of agricultural crops and pastures, the river is not provided with dam works

c. The eastern area of Cernăteaz locality.

The watercourse is bordered by extremely rich vegetation, composed of willows, reeds, etc., On the right bank there are houses built in the floodplain of the river, which has no flood protection works. The left bank continues with a grazing area.

The crossing of the road DC 58 Giarmata - Cernăteaz is made through two bridges, one historical made of brick, the second made of concrete.

It is the area with the highest risk of flooding for the population located on the entire eastern edge of Cernăteaz.

Behela River

It is also called the Luchin River, 26 km long, it has its source near Bencecu de Sus, Timiș County.

Crossed localities: Ianova, Giarmata, Dumbrăvița, Timișoara.

The watercourse is bordered by extremely rich vegetation, composed of willows, reeds, etc.

The flood risk areas caused by the Behela River are:

a. The area between the A1 Motorway, the south-eastern edge of Giarmata, the Timișoara-Giarmata railway, the Timișoara Ring Road and the Traian Vuia Airport area.

After the confluence with the river One, the flow of the river increases.

The area is of agricultural crops, and the river is not provided with dam works.

It is the area with high flood risk for households located on the entire southeastern edge of Giarmata, due to the combination of the effects of water from the collection ditches on the streets of the town, with the effect of floods in Behela and Unu.

b. The southern industrial area, between the road DJ 691 Timișoara-Giarmata, Timișoara Ring Road and Timișoara-Giarmata railway.

It is an area with a high risk of floods and puddles of water, coming from Behela, which has no flood defense works, and the riverbed is clogged with vegetation on large parts.

The Nameless valley

It is the course of a tributary of the river Unu, which originates 500 m north of the A1 Motorway, crosses the Highway through a concrete pipe and continues on the eastern edge of Giarmata.

The riverbed is clogged with vegetation on large parts.

The risk of floods is for the houses on the eastern edge of Giarmata and it appears in the situation of storms and heavy rains.

Giarmata accumulation lake

It is located on the river Behela, about 3 km east of Giarmata and 14 km northeast of Timisoara.

It does not present a risk of floods, constituting a water reserve for Giarmata locality.

Conclusion.

In all the situations listed above, the material and human damages can be significant, in view of the number of potentially affected inhabitants, of the vulnerable economic activities in the potentially affected area, including infrastructure, but also for the cultural or tourist objectives of Giarmata commune.

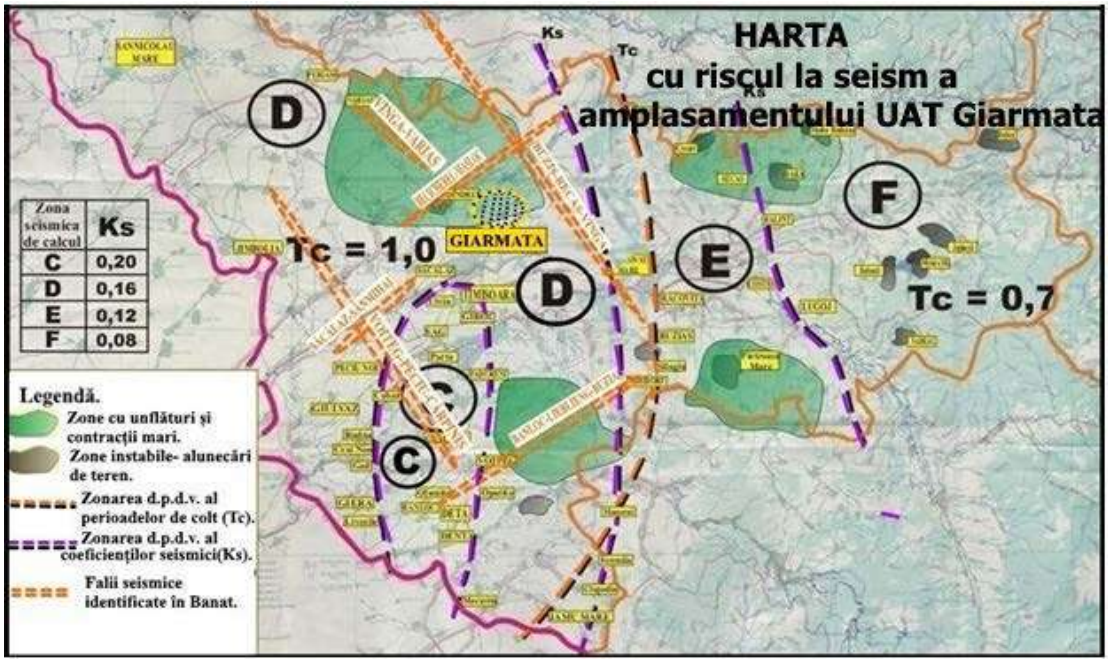
C. Risk map for destructive geological phenomena.

It is the documentation that indicates the main sources of seismic risk, identified in the Banat area and which may affect the localities of Giarmata and Cernăteaz.

Earthquake risks are determined by the following factors:

The position of the Buziaș - Recaș –Vinga tectonic fault, which would include the eastern part of Giarmata site and leads to the production of earthquakes with intensity in the epicenter, of 8 ° Mercalli, in both localities.

The position of the Vinga-Variaș and Săcălaz-Sânmihaiu Român tectonic faults, which it affects the north-west and south-west areas of the Giarmata commune and leads to earthquakes with an intensity of 7 ° Mercalli.



Earthquake risk map in Banat area.
Source: Risk Analysis and Coverage Plan, ISU Banat.

When such an earthquake occurs, the movement is felt by the population, causing panic, the plaster on the walls of buildings falls, there are significant damage to poorly executed buildings, which can cause injuries to people caught and unprotected.



Fig. 1. Distributia epicentrelor cutremurelor de pământ cu $I_0 \geq$ VI MSK, produse în regiunea seismică Banat şi zonele învecinate.

1. Map with seismic zoning in Banat area. Source: AGIR Bulletin, No. 2/2011
2,3,4 The effects of the disaster. Source ziare.com.

D.Map with environmental risks for protected areas.

The conclusions for this chapter were based on the provisions of the Natura 2000 program,

Which is the main tool for conserving the natural heritage on the territory of the European Union.

The Natura 2000 network consists of so-called sites of Community importance (Natura 2000 sites), which fall into two categories:

• Special Areas of Conservation / Sites of Community Importance (SAC - Special Areas of Conservation / SCI - Site of Community Importance) - established under the Habitats Directive of the European Union (Directive 92/43 of 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora);

• Special Protected Areas (SPA) -established under the Birds Directive of the European Union (Directive 79/409 of 1979 on the conservation of wild birds.

On the territory of ATU Giarmata, no protected areas are identified, registered as protected areas within the NATURA 2000 project.

E. General map with environmental and risk protected areas, in the Giarmata ATU area

Represents the materialization on the same support, of the elements presented in the special mapsdeveloped for each risk identified in the study.

This map, together with other existing data at the level of the Voluntary Service for Emergency Situations of the city of Recaș, will be the basis for a complete documentary, intended for the mayor and staff with responsibilities in the field of emergency situations, from Giarmata City Hall.

Annexes.

Annex no.1 Map with fire risk in the area of Giarmata commune, Timiș county.

Annex no.2 Map with flood risk areas in the area of Giarmata commune, Timiș county.

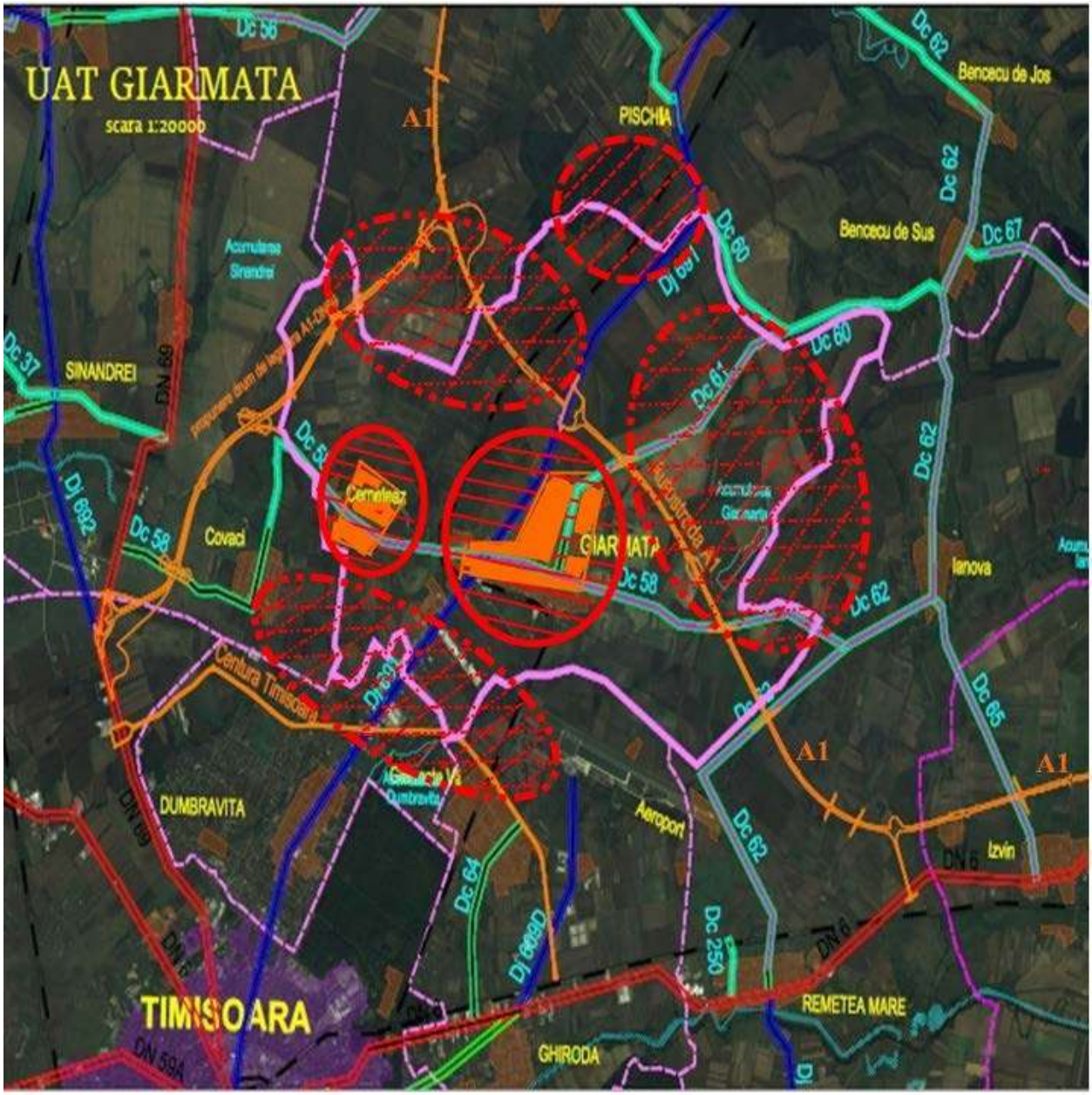
Annex no.3 Map with the classification of Giarmata commune, Timiș county in the seismic area.

Engineer IOAN SASU

Annex no.1

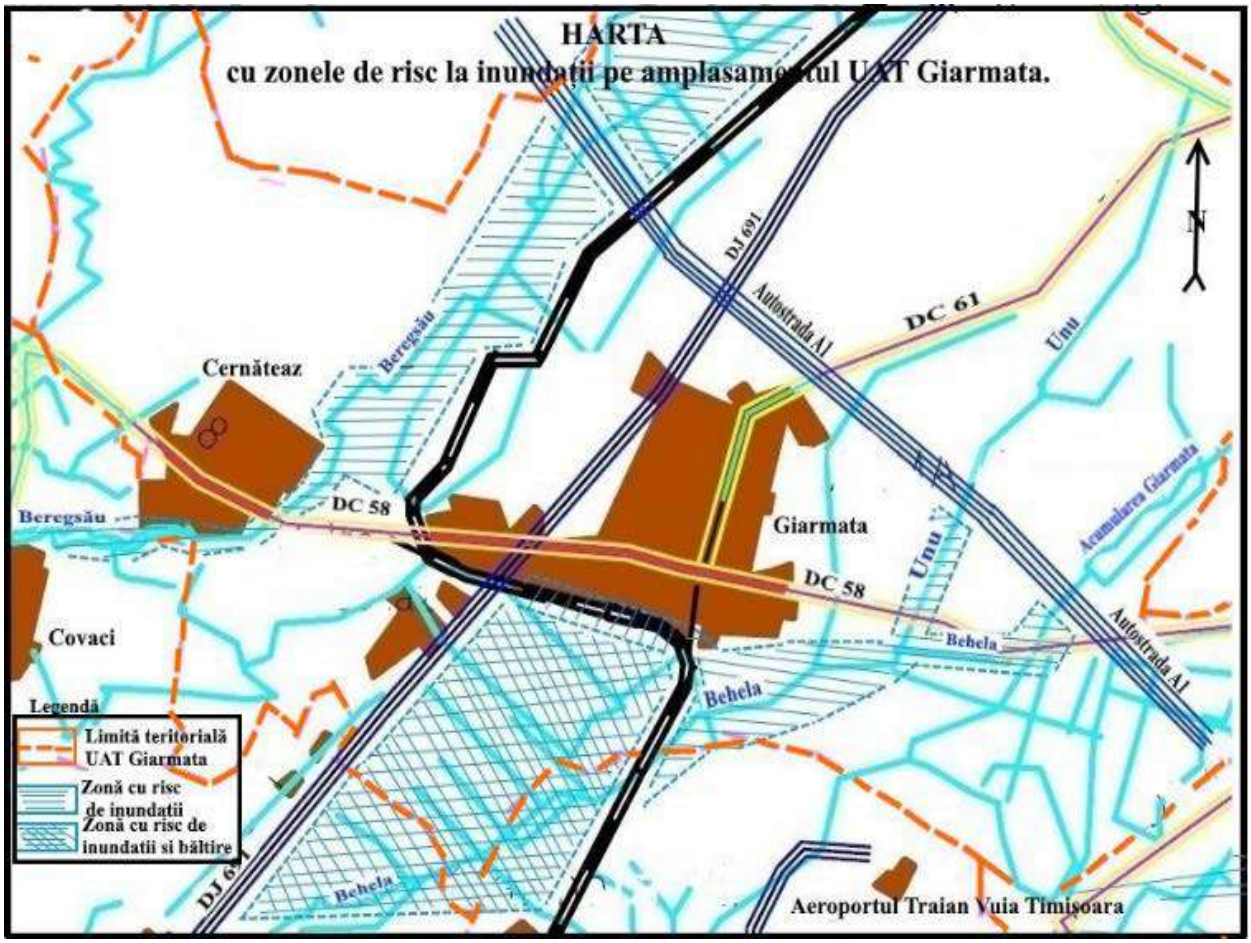
Fire risk map

in the area of Giarmata commune, Timiș county



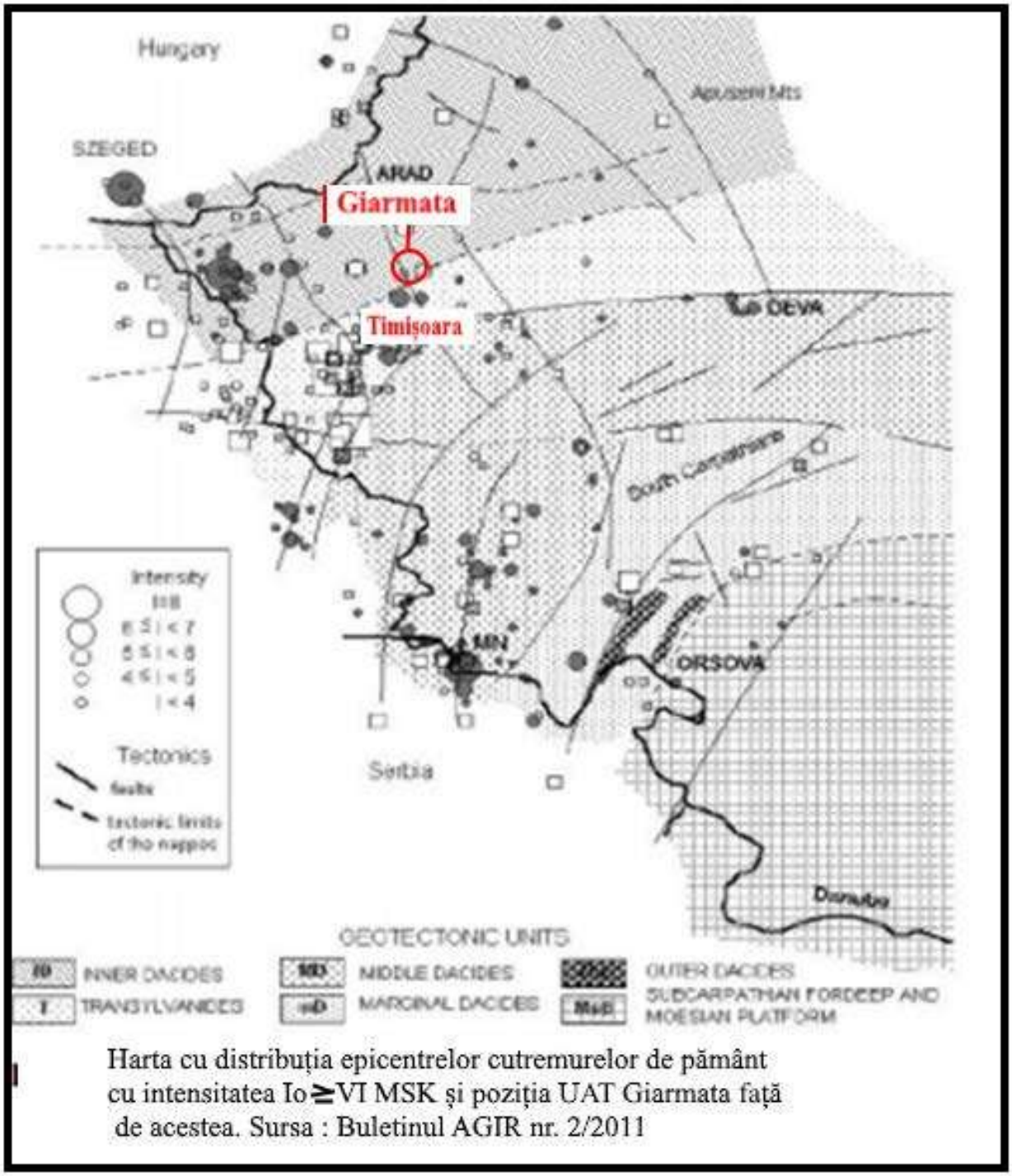
Annex no. 2

Map with risk areas
at floods in Giarmata ATU, Timiș County.



Annex no. 3

Map
with the inclusion of Giarmata commune, Timiș county in the Banat seismic area



Harta cu distribuția epicentrelor cutremurelor de pământ cu intensitatea Io≥VI MSK și poziția UAT Giarmata față de acestea. Sursa : Buletinul AGIR nr. 2/2011

RULES OF BEHAVIOR FOR FIRE, NATURAL DISASTERS (FLOOD AND EARTHQUAKE).

This chapter is dedicated to the set of rules that must be observed by the citizens of Giarmata commune, in order to self-protect life and personal property, during fires and natural disasters.

These rules must be found in the communication strategy of Giarmata City Hall with the citizens of the commune.

For all emergencies, citizens must be trained to prepare their emergency surveillance equipment in advance, which must include the following:

1. Flashlights and spare batteries;
2. Portable radio and spare batteries;
3. Extinguisher with powder and inert gases;
4. First aid kit;
5. Food stock (sufficient for at least three days);
6. Drinking water: at least one liter for each adult / day.

Details are presented in Annex no. 1

Obligations of citizens in emergency situations.



Electronic siren for public alarm in disaster situations.

Citizens are obliged to:

- to observe and apply the norms and rules of civil protection established by the central and local public administration authorities, as well as by the heads of public institutions, economic agents or non-governmental organizations, as the case may be;
- to carry out the civil protection measures ordered, in accordance with the law, by the competent authorities or by the personnel invested with the exercise of public authority within the public emergency services;
- to inform the competent authorities or emergency services, by any means, including by telephone, by calling 112, of the imminence of the occurrence or of the occurrence of any emergency situation of which they become aware;
- to inform the professional emergency services or the police, as the case may be, including by telephone, by calling 112, about the discovery of ammunition or ammunition items left unexploded;
- to participate in the training of civil protection at the place where it takes place activity;
- to participate in the maintenance of the shelters in the personal property buildings and, in case of necessity, in the arrangement of the shelter spaces in the land;
- to ensure their individual means of protection, sanitary kit, food and water supply, as well as other essential materials for the protection of their families;
- to allow, in situations of civil emergency, the access of the forces and means of intervention in the premises or on privately owned lands;
- to allow the installation of alarm means on the buildings privately owned or belonging to the associations of tenants or owners, as the case may be, without payment, as well as the access of the authorized persons, in order to maintain them;
- to accept and carry out the evacuation from the areas affected or endangered by disasters, according to the measures ordered and brought to the notice of the competent authorities;
-to request the opinions and authorizations regarding the civil protection, in the cases provided by law.

The fulfillment of the obligations provided above returns, corresponding to the situation in which they are also to the foreign citizens who carry out activities, have their residence or are in transit, as the case may be, on the Romanian territory.

Citizens declared unfit for work for medical reasons are exempted, during the intervention in support of the civil protection forces, from providing services or from participating in the execution of works, evacuation of goods and the like, which require physical effort.

Engineer
IOAN SASU

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Romania - Serbia

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Cooperation beyond borders.

Interreg-IPA Cross-border Cooperation Romania-Serbia Programme is financed by the European Union under the Instrument for Pre-accession Assistance (IPA II) and co-financed by the partner states in the Programme.

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STUDY ON RISK ASSESSMENT



Giarmata Commune



e-MS Code: RORS 375
Total budget of the project: 1.725.386,60 euro
EU Cofinancing: 1.466.578,60 euro
Implementation period: 20.09.2019 - 19.05.2021

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ELABORATION OF COMMON PROCEDURES



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ELABORATION OF COMMON PROCEDURES FOR BOTH PARTNERS, THE MAIN BENEFICIARY - GIARMATA TOWN HALL, TIMIȘ COUNTY, ROMANIA AND OUR PROJECT PARTNER- THE CITY OF BOR, REPUBLIC OF SERBIA, IN CASE OF FIRE AND DISASTER, ETC.



Beneficiary: Giarmata commune town hall, Timis county.
Developer: SC PRO-PREVISION SRL, Timisoara.

Giarmata 2020

Summary

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Chapter I

The need to develop common procedures for both partners, the main beneficiary - Giarmata commune town hall, Timiș county, Romania and our project partner - Bor town, Republic of Serbia, in case of fires and natural disasters (earthquakes, floods, landslides, etc.)

Risk management in fires, floods and other dangerous meteorological phenomena must be the result of intersectoral and interdisciplinary activities that include, forest, water management, land use planning and urban development, nature protection, agricultural and forestry development, transport infrastructure protection, construction protection and the protection of tourist areas, the protection of the community and the individual.

In this context, it must be considered to ensure a balance between structural measures and those of environmental protection, reorganization of the infrastructure in the area of the two localities.

In order to manage the risk of fires and natural calamities caused by floods, dangerous weather phenomena, earthquakes, landslides, etc., the strategy adopted by Giarmata City Hall and Bor must establish the application of policies, procedures and practices aimed at identifying risks. , their analysis and evaluation, their treatment, monitoring and re-evaluation in order to reduce the negative effects, so that human communities, all citizens, can live, work and meet their needs and aspirations in a sustainable physical and social environment.

The purpose of developing common procedures for both partners.

The purpose of developing procedures to be used in emergency situations caused by natural disasters, which may occur in the commune of Giarmata, Timiș / Romania / and the city of Bor / Serbia, is determined by the need to protect the population and its assets, as well as the correct management of intervention activities before, during and after the occurrence of these phenomena.

The procedures used in case of natural disaster, but also after the intervention for cleaning the affected places consist in:

- Establishing a unitary set of rules for regulating the activities that is carried out by the administrations of the two localities, before, during and after the occurrence of emergency situations generated by fires, floods, dangerous weather phenomena or destructive phenomena of geological origin;
- Establishing the intervention mode of the Emergency Servicesfrom the two cities, but also from other components specific to each country, in case of emergencies generated by natural disasters.

Chapter II
Relations ROMANIA-REPUBLIC OF SERBIA in the field of cooperation in emergency situations.
Legal framework.



Map with the geographical positioning of the project partners Giarmata / Români-Bor / Republic of Serbia.

Source: Google maps.

The Preamble to the European Framework Convention No. 106/1980 on "Cross-Border Cooperation of Territorial Communities or Authorities" highlights the importance it can have in pursuing this objective - cooperation of border communities or territorial authorities on issues such as: regional development , urban and rural areas, the protection of the environment, the improvement of the infrastructure and services provided to citizens and the mutual assistance in the event of disasters,

According to art. 2 paragraph 1 of the Convention - "cross-border cooperation is exercised within the competences of local authorities or territorial authorities, as defined by domestic law".

For Romania, this is the Law on local public administration 215/2001 published in the Official Gazette 204 / 23.04.2001 (art.11-14), which provides in Article 15, the following:

(1) The administrative-territorial units bordering the border areas may conclude between them cross-border cooperation agreements with similar structures from the neighboring states, in accordance with the law.

(2) The administrative-territorial units, through mayors, respectively the presidents of the county councils, send to the Ministry of Foreign Affairs, for compliant approval, the draft cooperation agreements that they intend to conclude with the administrative-territorial units from other countries.

The inconsistency of the national legal framework of the cooperation partner states constitutes a barrier to cross-border cooperation and can only lead to a slowdown in the degree of interaction between the parties.

Therefore, Romania and the Republic of Serbia, involved in cross-border cooperation initiatives, must take measures to harmonize national legislation.

Currently the collaboration with the Republic of Serbia in the field of natural disasters is regulated by the Agreement between R.P. Romanian and R.P.F. Yugoslavia on hydrotechnical problems on hydrotechnical systems and watercourses on the border or intersected by the state border, signed on April 7, 1955, in Bucharest, which is no longer relevant.

As a result, a new Agreement between the two countries is being finalized, a document that will strengthen cooperation in the field, on a legal basis.

Under the Agreement, Romania and Serbia will be able to assist each other, upon request, in the event of the imminence or occurrence of a disaster whose consequences could not be fully removed by the efforts and means of the State whose territory is threatened or affected.

The agreement will regulate the principles and technical modalities for carrying out actions to forecast, prevent, assess, limit and eliminate the effects of disasters, in a manner harmonized with the requirements and recommendations on international cooperation in this field.

The document will also contain provisions related to the Joint Commission, the modalities of assistance, coordination and management of assistance operations, temporary evacuation of people in danger or affected by disasters, crossing the state border, crossing aid across the border, use ships and aircraft, compensation, cooperation with international organizations.

The competent authorities responsible for implementing the Agreement are:

- from the Government of Romania - Ministry of Internal Affairs - Department for Emergency Situations, through the General Inspectorate for Emergency Situations,
- from the Government of the Republic of Serbia, Ministry of Interior – Emergency Management Sector.

The geographical positioning of the project partners is shown in Annex no.1.

The usefulness of an Agreement between the 2 states and a Protocol (agreement, program, etc.) between the town hall of Giarmata commune and the town hall of Bor, is extremely current, in the conditions of major climate changes in our area, at the beginning of the 21st century. on large areas of land in Timș County and Central Banat (Vojvodina) -2005,

catastrophic floods in Zagubica-2018, prolonged drought in Romania -2020, medium intensity earthquakes in the Romanian and Serbian Banat area-Banloc / Romania 1991, intensity M = 5.7, Topleț-Herculane / Romania 1991, intensity M = 5.6, Voiteg / Romania 1991 intensity M = 5.7.

Moments captured during these events are shown in the collage below.

a. Floods in the Romania-Serbia border area, 2005:



1. Map with flooded areas in the Timiș-Vojvodina cross-border region.
2,3,4. Images of the disaster. Source: ISU Banat Archive.

b. Floods in the Zagubica / SERBIA 2018 area.



1,2,3,4 Images of the disaster in the Zagubica area, Serbia 2018. Source: ziare.com

c. Earthquakes in the Banat area.



1. Map with seismic zoning in Banat area. Source: AGIR Bulletin, NR.2 / 2011

2,3,4 The effects of the disaster. Source ziare.com.

d. Earthquakes in Vojvodina / Serbia.



1. Map with Romania-Serbia seismic zoning. Source: Soil Dinamics and Erthquake Engenering nr.98 / 2017. (Soil dynamics and earthquake engineering no. 98/2017).

2,3,4 Images of the Kraljevo earthquake disaster, Serbia 2010. Source: ziare.com

Chapter III
Relevant general information on the situation of risks caused by fires and natural disasters in Romania and the area of Giarmata commune.

Fire risk
a. Forest fires

On the territory of ATU Giarmata there are very few places with real forest.

The only part of the forest is the one in the north of the ATU, respectively the Darvoș forest which belongs organically to the Timișoara Forest District.

Also, at the northwestern edge of Giarmata there is a compact edge, planted in order to mask some military installations.

Along the Beregsău, Behela and Unu rivers, there is a compact area with trees and shrubs, which also produces a significant amount of shoots, which dry up after the vegetation periods.

The risk of forest fires is high at the beginning and end of the vegetation period, as well as in periods of prolonged drought.

Forest fires can be:

-litter fires;
- canopy fires;
-fires under the blanket.

A fire in the Darvoș forest or in other forested areas, during critical periods, can cause great damage to agricultural crops, orchards and homes arranged in the direction of fire propagation.

b. Vegetation fires and cereal crops.

According to the existing data, on the territory of ATU Giarmata are identified important parts of land, producing dry vegetation, after the expiration of the vegetation period or after prolonged droughts.

Such parts of land with dry vegetation, where fires can occur, can be:

• on Luchinul Mic Hill (elevation 142.0m) north of the A1 Motorway, with major implications for motorway traffic;

• at the northern and southern edge of Cernăteaz village, with direct implications on the health of the inhabitants of Cernăteaz village;

• at the southeastern edge of Giarmata locality, up to the Airport area Timisoara, with major risks for the safety of air traffic and airport passengers:

c. Fires in personal homes.

The heating of the houses is done, mostly with solid fuel in the stoves, with or without heat accumulation, the evacuation of the smoke from the stoves is done through chimneys that pass through or next to the combustible elements of the roofs or with uninsulated metal pipes.

The heating of the feed is done in open hearths, inside the household annexes.
The risk of fire in personal homes is higher in cold periods, due to the negligence of users.

A common cause of home fires is improvisations in electrical installations and the use of faulty appliances.

The map with fire risk, for the localities belonging to Giarmata commune, is presented in **Annex no.2.**

Flood risk

The localities of Giarmata and Cernetez are exposed to the risk of floods caused by the overflow of the waters of the Beregsău River, respectively Unu and Behela, which determined the local authority, respectively the mayor of the commune, to issue Disposition no. 64 of March 12, 2020 on updating the Local Committee and the Temporary Emergency Task Force in the Flood Defense Plan.

The flood risk areas identified during the documentation are:

- The inhabited area of Cernăteaz locality, especially the houses arranged on Veseliei street,of the overflow of the waters of the Beregsău river, which does not have protection dams. About 10 households are affected and 25 people are required to be evacuated.
- The inhabited area of Giarmata locality, on the southern edge, due to the repression through canals of the waters of the river Unu and Behela. About 6 households are affected and it is necessary to evacuate about 18 people;
- The agricultural area located on the valley of the Beregsău river, starting from the ATU limit Giarmata with ATU Pischia, in two sectors: sector 1 from the Darvoș forest to the A1 Motorway and sector two from the A1 motorway to the village of Covaci, from the Sânandrei ATU.

The following are directly or indirectly exposed to the effects of floods:

- The population, as well as their movable and immovable property;
- Social objectives;
- Productive capacities (commercial companies, agro-zootechnical farms);
- Road communication routes;
- Electricity supply networks;
- Natural environment (meadows, agricultural lands, urban areas of localities).

The latest flood risk assessment of the Beregsău River is carried out by the National Company for Road Infrastructure Management, in the study on the construction of a road connecting the A1 Arad - Timișoara Highway with DN 69 Timișoara-Arad, a road that will also affect the west to UAT Giarmata.

Evaluation is extremely important for the activity of economic agents who have as an object agriculture because it presents the risk of floods caused by the river Beregsău, on a large area of land.

At the same time, the assessment presents the risk of housing near the floodplain, especially in the eastern part of Cernăteaz.

A high risk of floods, especially due to the danger of puddles of water from the Behela River, is the industrial area in the south of Giarmata, because the drainage and drainage system does not ensure the takeover of water in a short time.

The area is located between the Timișoara-Radna railway and the Timișoara ring road, at the foot of the hill on which Giarmata is located and in the flooded area of the Behela river.

In 2012, the water puddled for 3 weeks, causing discomfort to the population and difficulties in carrying out the economic activity of the companies on this site.

The map with flood risk, on the localities belonging to Giarmata commune, is presented in **Annex no.3.**

Risk of dangerous weather events

Dangerous meteorological phenomena are forms of violent manifestation of the weather, in a short time, on relatively large areas of land, causing, in the medium and long term, loss of human lives, material damage and environmental degradation.

The dangerous meteorological phenomena characteristic of Romania, and implicitly of the Giarmata commune area, are manifested with the same intensity and repeatability.

These are: torrential rains, heavy snow and sleet; drought, high temperatures; lightning; hail; the fog; strong winds (storm, tornado, etc.) freeze.

The main characteristics of these phenomena are the affected land area; duration of manifestation of the phenomenon; the period of predominant manifestation of the phenomenon (season, moon, etc.);

Other technical characteristics of the phenomena refer to the amount of water that fell in 24 hours, the thickness of the snow layer, maximum and minimum temperatures, visibility, speed and direction of wind propagation, etc.

The effects that can be generated by this type of disaster are human loss and material damage, soil erosion, total or partial destruction of roads, serious accidents on roads, flooding of vulnerable areas, causing panic, destruction or damage to networks gas, water, etc. destruction or damage to electricity and telecommunications networks, landslides, disruption of education, isolation of human communities, danger of epidemics, panic, destruction of fauna and flora; interruption of production processes.

The risk of destructive phenomena of geological origin.
Earthquakes

The spatial distribution of the epicenters of earthquakes in the area highlights a relatively large number of areas with high seismic risk, as follows:

• areas with earthquakes with intensity in the epicenter of 8 ° Mercalli: Banloc-Ofseniţa; Voiteg; Şag - Part; Vinga - Variaş

• areas with earthquakes with an intensity of 7 ° Mercalli: Periam, Sânnicolau Mare, Sânmihaiu Român, Jimbolia and on the border with Serbia; Timişoara, Săcălaz, Peciu Nou, Ciacova, Recaş and Buziaş.

8 main seismic faults are defined: Timisoara West; Săcălaz-Sânmihaiu Român; Banloc-Liebling- Buziaş; Voiteg-Peciu Nou-Cărpiniş; Varias-Vinga; Becicherecu Mic-Maşloc; Sacoşu Mare-Arad.si Buziaş - Recaş - Vinga.

In the Buziaş - Recaş - Vinga fault the territorial administrative unit of Giarmata commune is also included.

The area of Giarmata commune is exposed to seismic hazard with a magnitude of at least VII, expressed in degrees MSK (Mercalli).

Some brief characteristics of this seismic area:

- earthquakes with crustal foci, at average depths of 5-10 km;
-distribution of epicenters in several areas located in mountain Banat (on Valea Cernei-HERCULANE area), in the Danube area (with maximum seismicity near MOLDOVA NOUA) and in the plain area of Timis county, respectively in Arad.

In the mountainous and Danubian Banat the strongest earthquakes occurred in NEW MOLDOVA on October 10, 1879 (Mw = 5.6 and maximum intensity VIII) and at BAILE HERCULANE on July 18, 1991 (Mw = 5.6 and intensity VIII).

In the plain area, the most active outbreaks are around TIMISOARE, west of the city, but also in the Timis Plain to the south to the border with Serbia (BANLOC, VOITEG areas).

Near TIMISOARA there is a strong outbreak at SAG, which manifested itself on May 27, 1959 through a local earthquake of magnitude 5.0 and maximum intensity VII-VIII, produced at a depth of only 4.5 km.

In the south of the Timis Plain there were important earthquakes at BANLOC (July 12, 1991, the most violent earthquake in Banat in the last 200 years, comparable to the one in NEW MOLDOVA in 1879, with a magnitude of 5.7 M) and at VOITEG (December 2, 1991, magnitude 5.6M).

The BANLOC earthquake of 1991 triggered a series of secondary movements, on several faults in Banat; it was followed by many lines, the most intense occurring on July 19, 1991 (magnitude 5.1 and intensity VII).

The earthquake of July 12, 1991 was a big surprise for the locals, because the last major earthquake in the BANLOC area had taken place on October 19, 1915 (moment magnitude Mw = 5.4 and maximum intensity VII). Hundreds of homes suffered major damage, damage exacerbated by numerous aftershocks.

The earthquakes continued in the area with a fairly high frequency and in the following years, for example in 1994 in the BANLOC-VOITEG area there were 3 earthquakes with magnitudes of 4-4.3 degrees, events followed by another earthquake of magnitude 4.7 produced on March 24, 1996 in the same area.

In the last 100 years, Banat has had many earthquakes in other outbreaks, for example west of TIMISOARA or further north, somewhere on the PERIAM-VINGA line in Arad County; for example, on April 17, 1974, a magnitude 4.9 earthquake occurred on this fault, intensely felt in PERIAM, VINGA and ARAD.

The maps with the classification of Giarmata commune in the seismic area and with the position of Giarmata ATU towards the epicenters of the earthquakes in Banat, are presented in **Annex no.4.**

Chapter IV
Common procedures for both partners, the main beneficiary - Giarmata town hall, Timiș county and the project partner - Bor town, Republic of Serbia, in case of fires and natural disasters

The general purpose of the procedures.

The establishment of procedures to be followed, during the interventions determined by the emergency situations, is extremely important both for the personnel from the Operative Center, and for the members of the intervention forces. These procedures consist of:

a) establishing a unitary set of rules for regulating the activities that are carries out following emergencies caused by fires and natural disasters;

b) establishing the intervention mode of the Operative Center as well as those in the components of the county system emergency situations.

Responsibilities for persons using the procedure:

- applies the operations that must be performed to carry out the activities specific, according to the procedure;
- propose whenever the procedure needs to be updated, depending on changes in regulations in the field;
- applies the provisions of the normative acts in force that regulate the activities carried out during the intervention;
- collaborates with other persons or work compartments designated by leading the participating structures, in order to organize the intervention;
- complies with the deadlines for carrying out the specified activities.

A. Procedures used in case of forest fires.

The procedure is applied in case of emergencies generated by fires, regardless of their magnitude, in order to maintain and accentuate the normal climate, in order to prevent the population, as well as to limit its consequences.

The purpose of this procedure:

• establishing a unitary set of rules for regulating the activities that are carries out following emergencies caused by fires;

• establishing the mode of intervention of the Voluntary Service for Situations of Emergency of the cities and of the components of the County System Emergency Situations in case of occurrence of emergency situations caused by fires.

The intervention procedures in case of forest fires are presented in **Annex no.5.**

B. Procedures used in case of floods and dangerous meteorological phenomena.

The procedure applies in case of emergencies generated by floods due to natural overflows of watercourses or by runoff from slopes, as well as in case of storms, tornadoes, droughts, hail, etc., in order to maintain and accentuate the climate. of normality, in order to prevent the population and limit the consequences of these phenomena.

The procedure will be used to protect against floods and dangerous weather events, but also to manage emergencies generated by them.

By defense against dangerous meteorological phenomena, is meant the application of:

a) prevention measures and preparation for interventions;

b) urgent operative intervention measures after the onset of dangerous phenomena with serious consequences;

c) subsequent intervention measures for recovery and rehabilitation.

By managing the emergency situations generated by dangerous meteorological phenomena it is understood:

- identification and monitoring of risk situations;
- notifying stakeholders about the occurrence of risk situations;
- warning the population about the imminent occurrence of risk situations;
- assessment, limitation, elimination or counteracting of risk factors.

At the level of the town halls, an operative Center for emergency situations, with temporary activity, is set up by the mayor's order.

The operative center consists of the staff of both City Hall's own apparatus. According to the Regulation on emergency management generated by floods, dangerous meteorological phenomena, accidents at hydrotechnical constructions, accidental pollution on watercourses and marine pollution in the coastal area, approved by the joint Order of the Minister of Administration and Interior and Minister of Environment and Forests no.192 / 1422 of 2012, it is necessary to define the characteristic sizes of defense, in these situations.

These sizes are:

For dammed areas of watercourses.

a) Level of defense phase I (YELLOW CODE) - when the water level reaches the foot of the outer slope of the dam on a third of its length;

b) The elevation of the second phase of defense (ORANGE CODE) - when the water level reaches half the height between the elevation of the first phase and the third of the third phase of defense;

c) Elevation of the third phase of defense (RED CODE) - when the water level reaches 0.5-1.5 m below the elevation of the known maximum water levels or below the elevation of the maximum level for which the respective dam was dimensioned or when exceeding a critical point.

For non-dammed areas of watercourses,

applicable in the event of flooding by the rivers.

a) Attention quota (YELLOW CODE) - the level at which the danger of flooding is possible after a relatively short period of time, requiring increased vigilance in case of carrying out activities exposed to floods;

b) Flood quota (ORANGE CODE) - the level at which important floods occur that can lead to flooding of households and socio-economic objectives;

c) Danger quota (RED CODE) - the level at which special measures are needed to evacuate people and goods, restrictions on the use of bridges and roads, as well as taking special measures in the operation of hydrotechnical constructions.

Steps that may occur during emergency management.

a. **THE ATTENTION SITUATION** has the meaning of a special situation and not it is necessarily a danger. Measures taken in the situation of attention:

- the thickening of the observations and measurements that are made for the follow-up the phenomenon and for predicting its evolution;
- checking the constructions with defense role and following the insurance

high water drainage conditions;

- information about the possibility of accidental pollution.

b. THE ALARM SITUATION is characterized by a possible dangerous evolution of the phenomena, manifested by:

- further increase of levels on the watercourse;
- increasing the intensity of precipitation or wind speed;
- confirmed accidental pollution that requires interventions and others.

The triggering of the alarm state leads to the entry into the operative situation of the emergency committees.

The activities carried out are both the type of those meant to control the phenomenon, as well as preparatory activities for the eventuality of triggering the danger situation.

c. THE DANGER SITUATION is triggered when the danger becomes imminent and it is necessary to take exceptional measures to limit the effects of floods, such as;

- evacuation of the population, animals or material goods;
- special measures in the operation of hydrotechnical constructions with the role of flood protection;
- traffic restrictions on some roads and bridges, as well as on roads waterways);
- combating accidental pollution with serious effects on the ecosystem (modification of water quality parameters, destruction of fauna and ichthyofauna, environment and others, or exceeding the territory of competence).

The procedures used in case of floods are presented in **Annex no.6.**

A. Procedures used in case of destructive phenomena of geological origin.

Unlike other risks, landslides and earthquakes are difficult to locate, both on a macro scale and on a micro scale.

The measures taken are part of the category of measures in the pre-disaster phase and refer to:

• Monitoring the areas with slip potential, in order to assess the conditions of balance of the earth masses, respectively their stability as well as the evolution of the earth mass movement, element in relation to which the works to be executed for the prevention or stabilization of landslides are established;

• Tracking the behavior during the stabilization works performed in the areas where the land has changed.

The protection and intervention actions will be carried out in three distinct stages as follows:

• during the prevention period;
• in the incidence stage;
• in the post-disaster stage.

The intervention procedures in case of an earthquake are presented in **Annex no.7.**

Chapter V
Expected results following the elaboration of common intervention procedures in case of fires and natural disasters (earthquakes, floods, landslides, etc.)

As a result of the elaboration of common intervention procedures in case of fires, floods and other natural calamities, the expected results will be in accordance with the practical measures taken by Giarmata City Hall and Giarmata Local Council, supplemented with those of other institutions with responsibilities in the field, from the Romanian side and by the President of the municipality of Bor / Serbia with the president of the Municipal Assembly, completed with those of the institutions in the area, who have attributions in this field, from the Serbian side.

These measures refer to:

• Preliminary assessment and improvement of fire and disaster risk awareness Natural on the territory of the two administrative units;

• Training the population on how to behave during the production of some emergency situations and permanent feedback with its interests and needs, for achieving a climate of trust in the activity of the authorities;

• Strict control of the granting of authorizations for land use and construction of personal housing, as well as buildings for economic, social, tourist purposes, in areas identified as at risk;

• Improving the management of flows and watercourses on the administrative territory of the two cities, in order to prevent the occurrence of emergency situations caused by floods;

• Strengthening fire and flood defense capacity through procurement of high performance technique and protection materials;

• Reducing the vulnerability to natural disasters of agricultural land and road and rail communications infrastructure;

• Reducing the vulnerability to natural disasters of infrastructure, environment and protected ecosystems, through systematically implemented protection measures.

Therefore, for, the expected results can be:

• Consolidation of the role of the Giarmata commune City Hall and of the Self-Government structures Bor / Serbia, as responsible institutions, for the management of emergencies caused by fires and natural disasters and for ensuring timely intervention with the forces and means available;

• Observance and application by citizens, institutions and the private environment, of the provisions laws and regulations in the field of emergency situations, in the area of Giarmata commune and Bor / Serbia city;

• Reducing the number of people and goods affected by emergencies;

• The exact application of the urban planning provisions from the construction permits issued by the Mayors of Giarmata commune and the city of Bor / Serbia;

• Equipping the logistics departments of Giarmata and Bor / Serbia town halls, with state-of-the-art intervention techniques, with modern alarm-warning-communication devices, with efficient means of citizen protection;

• Preparation of the Voluntary Service for Giarmata Emergency Situations and of the intervention structures in the city of Bor / Serbia, according to the mutually agreed procedures, for efficient interventions in the area of responsibility**.**

Chapter VI
Implications for the budget of the town hall of Giarmata commune and the city of Bor/ Serbia, following the elaboration of common intervention procedures in case of fires and natural calamities (earthquakes, floods, landslides, etc.)

The funds allocated by the City Hall of Giarmata commune and the city of Bor / Serbia, must respect the principle: "The costs of prevention are current, and the benefits are future".

Given that the prevention of loss of life and destruction of property is a permanent activity, the logistics of prevention and intervention must ensure the development of all stages of disaster protection.

To this end, the major implications for the budgets of the two administrative units refer to:

1. Ensuring the financing of programs for diminishing / eliminating risks on the life and health of the population, the environment, material and cultural values;
2. Ensuring the financing and development of endowment improvement programs for disaster management;
3. Ensuring the necessary resources for the functioning of the structures with activity in the field of disaster prevention and management, both within the town halls and the specialized intervention services.
4. Financing the programs for the preparation of the population, in order to implement the response procedures in case of natural disasters caused by fires, floods, earthquakes;
5. Establishing, through the budget, funds for intervention and emergency management;
6. Completing and refreshing the stocks of materials needed in situations of disasters, at the disposal of the City Halls of Giarmata / Romania and Bor / Serbia.

Annexes.

Annex no.1. Map with the geographical positioning of the project partners.

Annex no.2 Map with fire risk in the area of Giarmata commune, Timiș county.

Annex no.3 Map with flood risk areas in the area of Giarmata commune, Timiș.

Annex no. 4 Map with the classification of Giarmata commune, Timiș county in the seismic area.

Annex no.5 Procedures used in case of forest fires

Annex no.6 Procedures used in case of floods

Annex no.7 Procedures used in case of destructive geological phenomena (earthquake)

Engineer IOAN SASU

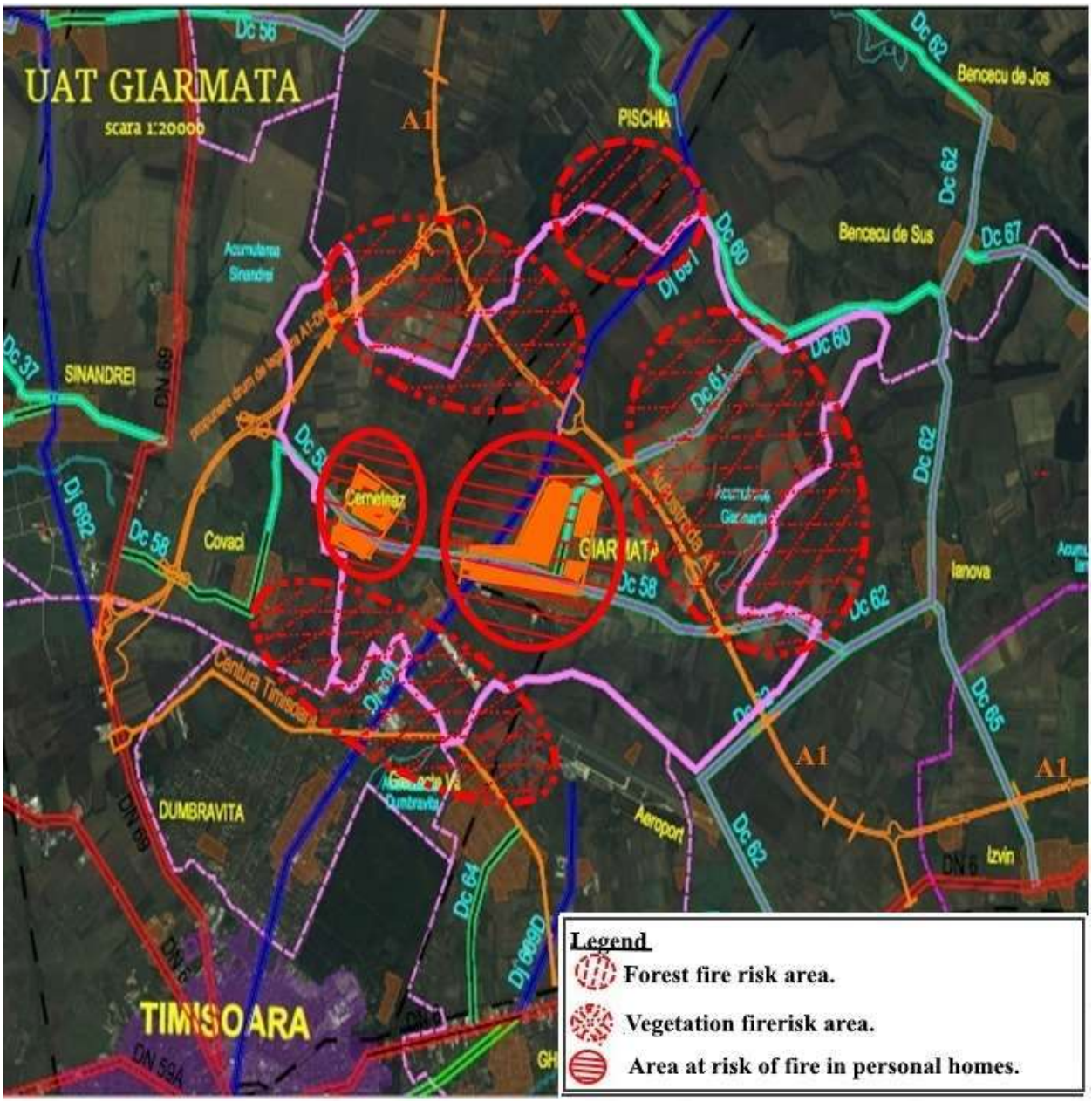
Annex no.1

Map
with the geographical positioning of the project partners.



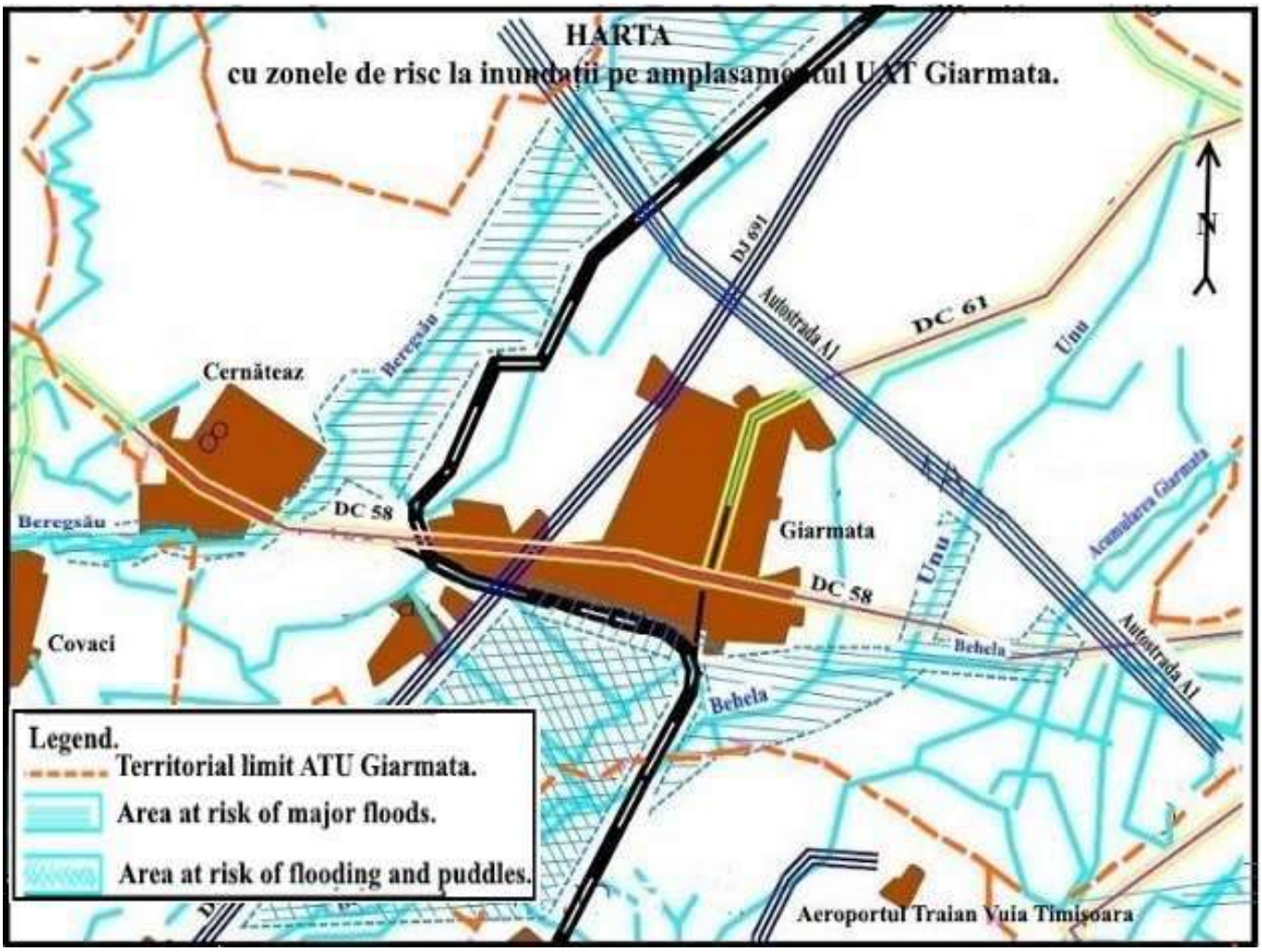
Annex no.2

Fire risk map
in the area of Giarmata commune, Timiș county.



Annex no. 3

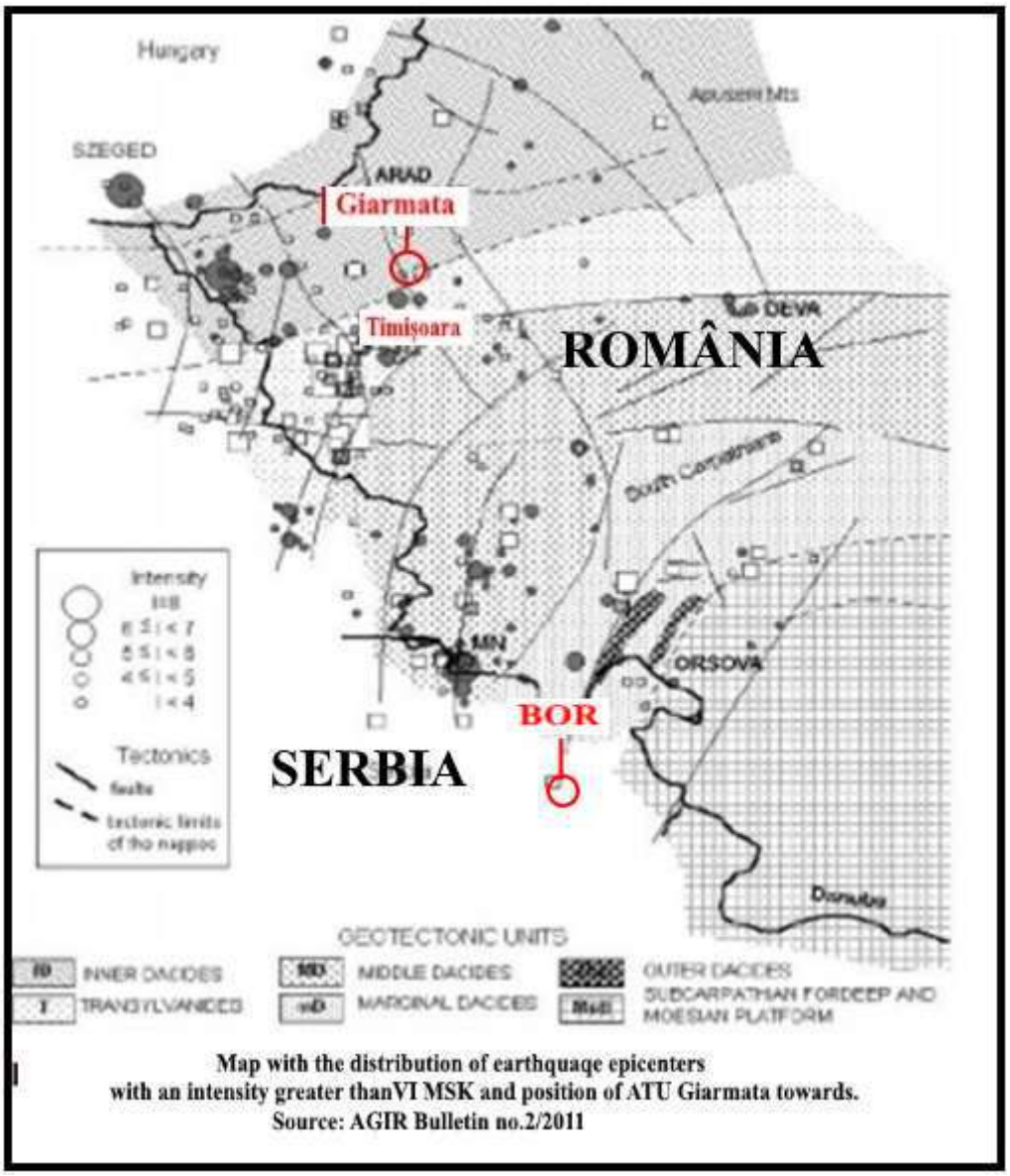
Map with risk areas
at floods in Giarmata ATU, Timiș County.



Annex no.4A

Map
with the inclusion of Giarmata commune, Timiș county in the Banat seismic area.

A. The position of Giarmata commune towards the epicenters of the earthquakes in Banat

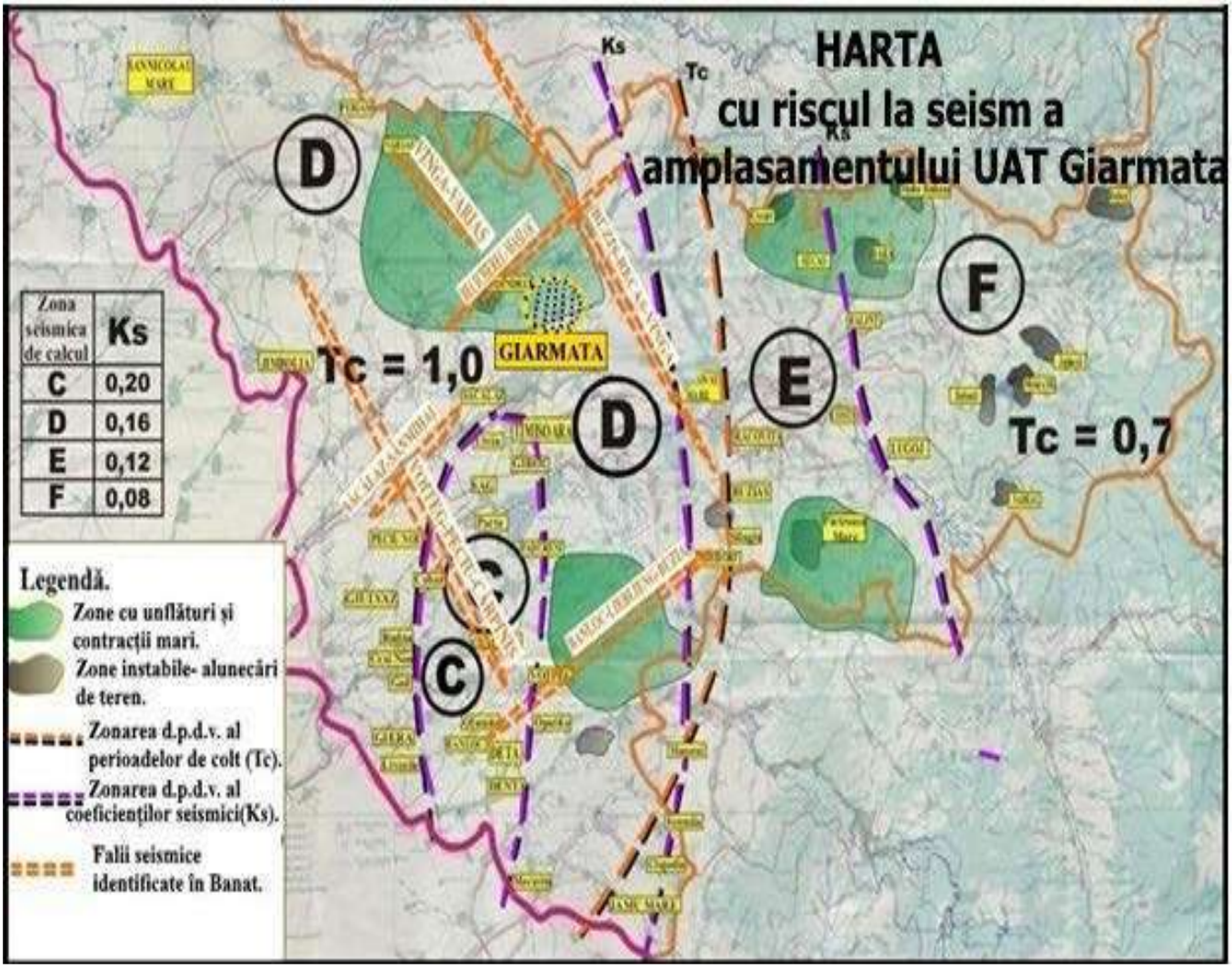


Map with the distribution of earthquaqe epicenters with an intensity greater thanVI MSK and position of ATU Giarmata towards.
Source: AGIR Bulletin no.2/2011

Annex no.4 B

Map
with the inclusion of Giarmata commune, Timiș county in the Banat seismic area.

B. The position of Giarmata commune with respect to the seismic faults in Banat.



Annex no.5

Procedures used
in case of forest fires

a.1 Prevention phase in vulnerable periods:

Description of the procedure.

No. crt.	The activity of the mayor, the Local Council and the Emergency Situations Operational Center	Details and responsibilities
Necessary preventive actions:		
1	Informing the citizens about the danger posed by drought, for lands with forests, dry vegetation and straw cereal crops.	Local council, Local middle schools Local churches
2	Realization of reports, films, interviews broadcast on local and national programs throughout the dry period, exposure of forests to fire danger, popularization of fire protection rules.	Mayor. Local council
3	Execution of the recognition, in several directions, by groups equipped with means of connection, which immediately communicate to the mayor, the result of the field observation: At recognition it is established: - Type of fire: litter, canopy, etc. - Propagation speed and wind direction - Areas with shoots, with droughts, with wooden warehouses - Danger for some constructions in the forest, for populated centers or cereal crops - Fire limits reached - Possibility of changing the direction of fire propagation depending on the change of wind direction - Possibilities to use the fighting technique - Existence of different obstacles in the direction of propagation or alignments on which obstacles must be made, if they do not exist. - In the case of canopy fires, a complex reconnaissance is required, directed in several directions. The need to use military subunits.	Head of the Voluntary Emergency Service

Mandatory activities, in accordance with legal provisions.		
1	Elaboration or updating of the Risk Analysis and Coverage Plan.	Mayor. Head of the Voluntary Emergency Service
2	Making the decision to approve the risk coverage plan.	Mayor.
3	Establishment of specific rules and measures related to the level and nature of risks	Mayor.
4	Ensuring the training of its own staff, of the Emergency Situations Service and of the citizens regarding the observance of the norms of prevention and extinguishing of forest fires	Head of the Voluntary Emergency Service
5	Analysis of the capacity to defend against forest fires, dry vegetation, economic agents and the population.	Mayor.
6	Ensures the control of the observance of the fire protection measures at forests and specific to the public or private domain of the administrative-territorial unit as well as to the local public institutions.	Mayor. Head of the Voluntary Emergency Service
7	Ensuring the maintenance in operation of the warning, alarm and water supply systems, the state of intervention of the Voluntary Service for Emergency Situations	Head of the Voluntary Emergency Service
8	Ensures the development of information and fire education activities for the population	Mayor.
9	Verify and implement the Cooperation Plan between the forces expected to participate in the forest firefighting action.	Head of the Voluntary Emergency Service

a.2 Phase during the occurrence of the fire and the extinguishing action

Description of the procedure.

Nr. crt.	The activity of the mayor, the Local Council and the Emergency Situations Operational Center	Details and responsibilities
1	Receiving notification of a forest fire..	Mayor.
2	Alarms the Voluntary Service for Emergency Situations and the intervention subunit within the Inspectorate for Emergency Situations	Mayor.
3	Informs the Mayor of Giarmata Commune/Bor City about the occurrence of a forest fire within the locality.	Head of the Voluntary Emergency Service
4	Analyze the operational situation and implement the Intervention Plan	Mayor. Head of the Voluntary Emergency Service
5	Alert the Operational Center for Emergency Situations of the locality	Mayor.
6	Coordinates the organization of the intervention in case of forest fire, dry vegetation or to the population and economic agents, of the sheets available to them, until the arrival on the spot of the intervention sububit of professional firefighters	M**ayor.** Head of the Voluntary Emergency Service
7	Inform immediately, by any means, the Inspectorate for Emergency Situations and the County Prefecture about the outbreak of the fire in the forest and with what own forces act to extinguish the fire	Mayor.
8	Informs the head of the Forest District, the head of the Police station and the Environmental Guard about the forest fire	Mayor.
9	Alarming and concentrating forest workers near the area affected by the fire.	The head of the Forest District
10	Concentration at the place of fire of the inhabitants of the neighboring villages (nearby)	The head of the Forest District
11	Provides the means of transport necessary for the	Mayor.

	movement of troops to the place of intervention (buses, etc.).)	
12	Providing tools for work detachments	Mayor.
13	Providing medical care and food for forest firefighting staff	Mayor. Local council
14	Ensuring the connections at the place of intervention with the military firefighters and with the County Institutions, as well as between the participating forces.	Mayor.
Forest fire extinguishing:		
1	**<u>Components of the intervention action:</u>** a) Action of the forestry body - Rapid concentration of personnel present at the fire site or in nearby areas (which can ensure the location and liquidation of the fire in the initial phase (of its development) b) Concentration of forces provided for in the "Mass Fire Protection Plan" using any means of transport in the area c) Directing the work detachments on the main directions of intervention. First of all, it is necessary to ensure the location of the fire within the limits found, or in situations of rapid evolution, on a limit to be established by the fire chief.	
2	**<u>Extinguishing litter fires can be performed by:</u>** **1. Mechanical procedures,** which refer to: • Beating the burned parts with shovels, rakes, or broomsticks; • Smothering the fire with earth or sand; • Making strips by cleaning the wood with a width variable (1 - 2 m); • Digging ditches, creating mineralized dams or belts, on direction of fire propagation. This process is effective, but requires a lot of labor and time. It is necessary to ensure continuity in action (by exchange) otherwise the interruption of the activity will lead to the resumption of the fire. It is performed when the fire does not advance quickly, with hand tools or with mechanized means (plows or bulldozers). Surrounding the fire with detachments of people and concentrating the main forces on the direction of fire development **2. Water extinguishing** - when possible fighting techniques from the endowment of the Emergency Service of the locality or from the endowment of the professional firemen who arrived at the place of the fire. **3. Chemical procedures**, which relate to spreading solid or liquid chemicals in the combustion zone with ground equipment (tools or other aggregates) or with utility	

	aviation (airplanes or helicopters specially designed for the spreading of chemicals from agricultural units or specialized companies).
3	**Extinguishing fire fires has the following features:** • The disaster area (with demolition) is isolated with fire arrest belts throughcleaning of any vegetation that could contribute to the development of the fire; • Extinguishing must begin during a fire; • Carefully check each felled tree trunk and will extinguishes all foci that are hidden in roots, holes, etc .; • If there are sufficient forces with the fire extinguishing operation clean the area of charred trees to remove their re-ignition; • The location and liquidation of the fire is done on sectors.
4	**Extinguishing underground fires (under foliage) has the following features:** • Determining the route of the fire according to the smoke and heat given off by the fire; • Locate the fire by encircling using a wide mineralized area; of 1 - 2 m, performed by deep digging and filling the ditch with water, or spraying the walls with chemicals to increase fire resistance; • Uncovering underground fires by digging and liquidating them by beating and ground.
5	**Extinguishing canopy fires has the following features:** 1. Methods and procedures adapted to the rate of fire are used. Due to the high speed of travel, the canopy fire cannot be stopped within the limits found and must be encountered on a natural or artificial obstacle. Stop dams are made by deforestation of trees. The felled trees are removed from the deforested area, and this area is cleared of vegetation. 2. If it is not possible to remove the trees, they are oriented with the trunk in the direction where the fire is expected to come from. This dam must be supervised by people equipped with technical means to extinguish sparks that may fall on the canopies. 3. Use of the procedure: "fire against fire" only if the canopy fire is very strong and there is no certainty that the other processes lead to the location and subsequent liquidation of the canopy fire. 4. This extinguishing procedure is used only as a last resort. **Conditions:** - The counter-fire should be triggered at a sufficiently large distance in front of a natural or artificial dam, so that there is the possibility of deforestation by burning a portion large enough to find an area without vegetation when the fire reaches; - The starting point of the counter-fire must be chosen very carefully;

	- To have surveillance personnel on the entire surface triggers the counter-fire; - There should be the possibility of directing the fire against the fire; - At the meeting place of the fire with the counter-fire to exist or to created a surface to be cleaned by fire; - Triggering the counter-fire to be done in a moment of calm a fire; - The counter-fire is triggered only after all measures have been taken surveillance of the area and its surroundings; - It is mandatory to be insured on the spot of all means of necessary intervention.

Annex no.6

Procedures used
in case of floods.

b.1 Pre-disaster phase

Description of the procedure.

Nr. crt.	The activity of the mayor, the Local Council and the Emergency Situations Operational Center	Details and responsibilities
1.	Coordinates the actions of periodic verification of the functioning of the hydrometeorological information flow for warning - alarming the population;	Mayor. Head of the Voluntary Emergency Service
2.	Ensures the updating of the information flow scheme from the defense plans and establishes the telecommunication means that will be used;	Mayor. Head of the Voluntary Emergency Service
3.	Owns and updates the map with the flood zones related to the localities	Mayor.
4.	Coordinates the activities of periodic verification of the technical and functional condition of all constructions with flood defense role within the administrative-territorial unit regardless of the owner as well as the actions of verification of the maintenance of watercourses and torrents;	The mayor Local Council
5.	Ensures the preparation of the defense plan against floods, ice and accidental pollution;	The mayor o Local Council
6.	Ensures the preparation, verification and updating of the "Flood Disposal Plan"	The mayor Local Council
7.	Ensures the endowment of the Local Committee for Emergency Situations as well as of the intervention formations with specific materials.	Local Council
8.	Ensures the establishment of stocks of materials and means of intervention in case of floods, in accordance with the Norm of endowment	The head of the S.V.S.U. Local Council
9.	Provides the necessary means to warn and alert the population in flood risk areas	The head of the S.V.S.U. Local Council
10.	It follows the elaboration of the flood risk map of the	Mayor.

	locality and its introduction in the General Urbanism Plan as well as the observance of the construction regime in the floodable areas.	Head of the Voluntary Emergency Service
11.	Approves / approves the training plans of the population regarding the knowledge of the warning-alarm signals, of the measures and rules of behavior through periodic trainings and exercises for simulating the emergency situations.	The mayor
12.	Follows the accomplishment of the works of arrangement of the slopes for the prevention of floods.	The mayor
13.	Coordinates the accomplishment / verification of the works for the drainage of the rainwater in the localities (ditches, ditches, collecting channels, non-permanent valleys).	The mayor
14.	Periodically checks the existing sources of risk on the territory of the locality and ensures the updating of the flood defense plan.	The mayor
15.	Ensures the permanence at the mayor's office based on the hydrometeorological warnings received.	The mayor
16.	Provides measures to clean the banks of watercourses in order to avoid blockages at bridges and footbridges with various materials	The mayor

b.2 Phase during the disaster

ATTENTION. Phase I of protection to dams. YELLOW code

Description of the procedure

Nr. crt.	The activity of the mayor, the Local Council and the Emergency Situations Operational Center	Details and responsibilities
1.	Ensures the immediate convening in an extraordinary meeting of the Local Committee for Emergency Situations.	The mayor
2.	Ensures the functioning of the information flow between the local committee for emergency situations and the operational center of the county inspectorate for emergency situations as well as with the operative center of the water management system.	Head of the Emergency Situations Operations Center
3.	Ensures the transmission / reception of warnings and forecasts to all objectives in potentially affected areas.	Head of the Emergency Situations Operations Center
4.	Ensures the taking of measures to limit the effects of floods by their own intervention formations, the holders of works with flood protection role, specialized economic operators, etc.	Head of the Emergency Situations Operations Center
5.	Ensures permanent information of the population with the urgent measures to be applied (through the media)	Head of the Emergency Situations Operations Center
6.	Provides measures to avoid blockages, especially in areas of bridges, footbridges, water intakes, drains and other critical areas.	Head of the Emergency Situations Operations Center
7.	Ensures the permanent supervision of watercourses and hydrotechnical constructions with flood protection role and, as the case may be, the elevation and consolidation of dams and banks corresponding to the maximum	Head of the Emergency Situations Operations

	forecasted elevations.	Center
8.	Coordinates the distribution of forces and means of intervention in the affected areas.	

ALARM situation. Phase II of dam protection. ORANGE code.

Description of the procedure

Nr. crt.	The activity of the mayor, the Local Council and the Emergency Situations Operational Center	Details and responsibilities
1.	Ensures the permanence at the mayor's office in case the state of alarm is set directly.	The mayor
2.	Ensures the functioning of the information flow between the local committee for emergency situations and the operational center of the county inspectorate for emergency situations as well as with the operative center of the water management system.	The mayor Emergency Situations Operations Center
3.	It implements the measures that are established when declaring the state of alarm at the level of the locality, in the endangered areas and verifies the way of carrying out the measures provided in the flood defense plan.	The mayor Emergency Situations Operations Center
4.	Ensures the transmission / reception of warnings and forecasts to the localities and objectives in the affected areas.	Emergency Situations Operations Center
5.	It ensures the permanent information of the population with the urgent measures that must be applied.	Emergency Situations Operations Center
6.	Coordinates the implementation of measures to avoid blockages, especially in areas of bridges, water intakes, drains and other critical points on watercourses	Emergency Situations Operations Center
7.	Introduce restrictions on the consumption of water and food from the affected area.	Emergency Situations Operations Center

8.	Take warning-alarm measures of the objectives that can be flooded or located in the floodable area in case of imminent danger of damage to the hydrotechnical constructions	The mayor Emergency Situations Operations Center
9.	Organizes self-evacuation and preventive evacuation of people, animals and property outside potentially flooded areas.	Emergency Situations Operations Center
10.	Calls for law enforcement to guard the evacuated property.	The mayor
11.	Organizes the securing of goods that cannot be evacuated by raising them to higher levels or anchoring.	Emergency Situations Operations Center
12.	Take measures to interrupt the supply of electricity and gas in flooded areas in order to prevent electric shock or intoxication, technological accidents, etc.	Emergency Situations Operations Center. Electricity supplier Gas supplier.
13.	Establish bypass routes of the flooded area and ensure order during evacuation and rescue operations with the help of law enforcement.	Emergency Situations Operations Center. Police station.
14.	Coordinates actions to save people, animals, equipment, machinery and materials.	Emergency Situations Operations Center. S.V.S.U.
15.	It orders the elevation and consolidation of dams and banks corresponding to the maximum forecasted elevations.	Emergency Situations Operations Center . Water Department. S.V.S.U
16.	Organizes actions to limit the spread of breaches in dams and dams by performing temporary works.	
17.	It aims to implement measures for the evacuation of water from spills, infiltrations and precipitation, as well as the evacuation of water from affected buildings and technological canals.	Emergency Situations Operations Center. S.V.S.U
18.	Organizes the distribution of aid to the affected	Emergency Situations Operations Center S.V.S.U

	population.	
19.	Coordinates the application of sanitary-epidemic measures necessary to prevent epidemics.	Emergency Situations Operations Center Local medical offices.
20.	Provides shelter, feeding and veterinary assistance to evacuated animals.	Emergency Situations Operations Center. Local veterinary offices.

DANGER situation. Phase III of dam protection. RED CODE

Description of the procedure

No. crt.	The activity of the mayor, the Local Council and the Emergency Situations Operational Center	Details and responsibilities
1.	Ensures the functioning of the information flow between the local committee for emergency situations and the operational center of the county inspectorate for emergency situations as well as with the operative center of the water management system.	Emergency Situations Operations Center. S.V.S.U
2.	Maintains the state of alert at the level of the locality, in the endangered areas and verifies the way of carrying out the measures provided in the plan.	The mayor
3.	The application of warning-alarm measures of the objectives that can be flooded or located in the floodable area in case of imminent danger of damage to the hydrotechnical constructions continues.	Emergency Situations Operations Center. S.V.S.U
4.	Ensures the transmission of warnings and forecasts to all localities and objectives in the affected areas.	Emergency Situations Operations Center. S.V.S.U
5.	It ensures the permanent information of the population with the urgent measures that must be applied.	Emergency Situations Operations Center. S.V.S.U
6.	Ensures continued measures to avoid blockages, especially in areas of bridges, water intakes, drains and other critical points on watercourses.	Emergency Situations Operations Center. S.V.S.U Water Department
7.	Introduce restrictions on the consumption of water and food from the affected area.	The mayor Emergency Situations Operations Center. S.V.S.U
8.	Organizes self-evacuation and preventive evacuation of people, animals and property outside potentially flooded areas.	Emergency Situations Operations Center. S.V.S.U
9.	Calls for law enforcement to guard the evacuated property.	The mayor Police station
10.	Organizes the securing of goods that cannot be evacuated by raising them to higher levels or anchoring.	Emergency Situations Operations Center.

		S.V.S.U Police station.
11.	Take measures to interrupt the supply of electricity and gas in flooded areas in order to prevent electric shock or intoxication, technological accidents, etc.	Emergency Situations Operations Center. S.V.S.U Electricity supplier Gas supplier
12.	Establish the bypass routes of the flooded area and ensure order during evacuation and rescue operations with the help of law enforcement.	Police station Emergency Situations Operations Center. S.V.S.U
13.	Coordinates actions to save people, animals, equipment, machinery and materials.	Emergency Situations Operations Center. S.V.S.U
14.	It orders the elevation and consolidation of dams and banks corresponding to the maximum forecasted elevations.	Emergency Situations Operations Center. S.V.S.U
15.	Coordinates the distribution of forces and means of intervention in the affected areas	Emergency Situations Operations Center. S.V.S.U
16.	Organizes actions to limit the spread of breaches in dams and dams by performing temporary works	Emergency Situations Operations Center. S.V.S.U
17.	It aims to implement measures for the evacuation of water from spills, infiltrations and precipitation as well as the evacuation of water from affected buildings and technological canals.	S.V.S.U
18.	It ensures the accommodation of the affected persons, the supply of water, food, goods of strict necessity and the provision of medical assistance.	Emergency Situations Operations Center. S.V.S.U
19.	Provides shelter, feeding and veterinary assistance to evacuated animals.	Local veterinary offices.
20.	Ensures the distribution of aid to the affected population.	Emergency Situations Operations Center. S.V.S.U

21.	Ensures the application of sanitary-epidemic measures necessary to prevent epidemics	Local medical offices.
22.	Ensures the identification of victims, victims and the preparation of the situation with missing persons.	Police station. Emergency Situations Operations Center. S.V.S.U
23.	Organizes the provision of religious assistance and the burial of victims.	Priests from local churches.
24.	Follows the collection, transport and incineration of dead animals.	Local veterinary offices.

Annex no.7

Procedures used
in case of destructive geological phenomena (earthquake)

c.1 During the prevention period

Description of the procedure.

Nr. crt.	The activity of the mayor, the Local Council and the Emergency Situations Operational Center	Details and responsibilities
1.	It orders the updating of the nominal component of the local emergency committee annually and whenever the situation requires it.	The mayor Emergency Situations Operations Center.
2.	Coordinates the actions of periodic verification regarding the functioning of the informational-decisional flow for the notification, notification, transmission of data, information as well as their processing and storage, of the transmission of decisions by the factors with attributions and responsibilities in the field to those interested	The mayor Emergency Situations Operations Center.
3.	Establishes short and long term action programs that include measures to reduce the seismic risk of buildings, especially those with vital functions for the localities (technical expertise of buildings and their classification in seismic risk classes 1, 2 and 3).	The mayor Emergency Situations Operations Center.
4.	Ensures through the Construction Inspectorate the observance of the provisions of Law 10 with the subsequent modifications, regarding the quality in constructions.	The mayor Urbanism office of town hall
5.	It orders the elaboration of anti-seismic education materials for the population.	The mayor
6.	Ensures operating conditions in case of earthquake of the Local Council for Emergency Situations: spaces, utilities, structure, endowment, etc .	The mayor
	Organizes and executes public alarm exercises to	The mayor

7.	verify the training of the population and intervention forces	

c.2. In the disaster incidence stage.

Description of the procedure.

Nr. crt.	The activity of the mayor, the Local Council and the Emergency Situations Operational Center	Details and responsibilities
1.	Activate immediately: • Operative center with temporary activity a The Local Committee for Emergency Situations; • Voluntary Service for Emergency Situations.	The mayor
2.	Informs and alarms the population on the created situation, with the specific means of these types of actions, as well as with the technical means of alarm from the endowment of the civil protection system.	The mayor
3.	Carries out the management of the entire intervention operation in case of public emergency generated by earthquakes / landslides. The intervention operations are executed in succession, on emergencies.	The mayor Emergency Situations Operations Center.
4.	**Emergency I:** The tasks to be carried out by the specialized structures are included, in order to prevent the aggravation of the emergency situation, to limit or eliminate, as the case may be, their consequences, and refer to: 1. Unlocking access roads and shelters; 2. Limiting the negative effects in case of the imminent risk of collapse of some constructions; 3. Rescue victims; 4. Providing emergency medical assistance; 5. Limiting and eliminating the damages to the communal household networks; 6. Evacuation and provision of housing	Emergency Situations Operations Center. Local Council. Voluntary Service for Emergency Situations Utility providers (electricity, gas, water, sanitation). Medical and veterinary offices. Priests of religious denominations in the commune.

	measures for the population and victims in areas at risk; 7. Extinguishing fires; 8. Decontamination of personnel, land, buildings and equipment (if applicable); 9. Providing means of subsistence.	
5.	**Emergency II** The actions from the first emergency are continued, concentrating forces and means of intervention at the place of the event, and all the other specific missions are fulfilled, until the intervention actions are completed. These refer to: 1. Dispersion of personnel and own assets outside the areas subject to complementary risks; 2. Evacuation, protection and, as the case may be, isolation of contaminated persons; 3. Ensuring logistical support regarding the arrangement and service of the disaster camps; 4. Establishing the reserve of means of individual and collective protection; 5. Decontamination of personnel, land, buildings and equipment, if the situation requires it; 6. Execution of the control of radioactive, chemical and biological contamination of the personnel and own goods; 7. Execution of the contamination control of drinking water sources; 8. Execution of the sanitary-epidemic control in the areas of action of the own forces and means; 9. Restoration of the alarm system and of the communications and informatics system; 10. Control and establishment of measures to ensure the viability of some means of communication, for the transport and access of forces and means of intervention; 11. Ensuring the means of subsistence; 12. Fulfilling other missions established by law.	Emergency Situations Operations Center. Local Council. Voluntary Service for Emergency Situations Utility providers (electricity, gas, water, sanitation). Medical and veterinary offices. Priests of religious denominations in the commune.
6.	**Emergencies III and IV.** The actions of the first two emergencies continue to be executed, depending on the moment when they	Emergency Situations Operations Center. Local Council. Voluntary Service for

	were declared, with increased forces and means.	Emergency Situations

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