



Flow chart emergency common structure

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Specific objective Title	Promoting climate change adaptation and disaster risk prevention, resilience, taking into account eco-system based approaches.
Work Package Number	1
Work Package Title	Digitalization model of civil protection plans and IoT EDSS Platform Development
Activity Number	1.9
Activity Title	Development of a flow chart emergency common structure
Partner in Charge	LP
Partners involved	All partners
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Distribution	public



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About Digital Plan Project

The main objective of the project is the digitalization of civil protection plans, already operative in the territorial areas of competence of the PPs, to improve the capacity of local authorities to investigate the risks present, to define common operational methods of action in the event of a disaster and in particular to share all the emergency planning with other bodies and agencies in charge of rescue, for compress intervention times, and with the population.

Project relevance

The selected theme of digitalization of CP Plans represents a common interest for Italian and Croatian territories that present similar problems and demand common transnational solutions. Fragmentation of the area and different status of civil protection systems create heterogeneity in hazard handling. Yet, risks and disasters, sure enough, do not recognize state borders and other boundaries imposed by human conventions and treaties. Common risks affect the whole area and the need for a homogeneous, interoperable, and EU-integrated approach is a necessity. This means both homogenizing plans and procedures in the area and presenting common tools for civil protection plan digitalization.

Further to homogenization, such a plan, its accompanying capacity building and training, and its adoption by partners will strengthen the administrative and



technical capacities of local authorities in managing hazardous and emergencies. Moreover, partners will benefit from the transnational process of exchange of know-how and from a common basis of knowledge and experience, which will help individual solutions for enhancing resilience in uniformly dealing with natural and man-made hazards within the involved territories. By empowering territorial resilience, the project reduces overall Italian and Croatian programme area vulnerability through extensive information interchange in both vertical and horizontal directions.

The Digital Plan project will contribute to disaster risk reduction, and management efficiency both in the planning phase and in emergencies, collaborating in the building of resilience in the Adriatic region, through the strengthening of cross-border territorial cooperation with the help of innovative technologies both through DSS (Decision Support System) and through the integration of IoT (Internet of Things) sensors.

A poor sharing of emergency planning and management tools and the effects of forecast and ongoing climate change such as extreme weather events, floods, droughts, increased temperatures, and major snow events are a "powder keg" in the world of risk management and the emergency.

The cooperation between the territories of Italy and Croatia, with this project, supports the strengthening of resilience in all sectors of activity in the field of civil protection; then the focus risks of the project, chosen by the PPs, identify



innovative technological tools and to support decisions, also with climate adaptation actions.

The territories of the PPs, given the short distances, also share the impacts of multiple extreme phenomena with meteorological or seismic forcing, for which it is essential to share knowledge, skills, and equipment in the event of disaster response, but also during the other phases of the resilience-building and contingency planning cycle.

Until now, the world of extreme events and climate change has been seen as two separate entities, but this is not correct. The main challenge derives from the assumption that good emergency response planning also makes it possible to identify and apply tools and climate adaptation actions.

This cross-border initiative is particularly needed while the entire Adriatic region is preparing to manage events related to climate change and the management of any emergency crises. Climate change mitigation and adaptation can only be achieved through an integrated approach of territorial cooperation and resilience building by endorsing the entire resilience cycle: planning and preparedness, prevention, response, mitigation, recovery, and adaptation towards a new equilibrium. The Deming cycle, the reference point of emergency planning (planning, execution, control, and adjustment), can be perfectly integrated into this cycle.



Finally, in the Sendai Framework for Disaster Risk Reduction (2015-2030), the project's actions support the ultimate goal of achieving results.

The 2015 Sendai Document and the United Nations International Strategy for Disaster Reduction emphasized the need to address disaster risk reduction and climate change adaptation in setting sustainable development goals.

The project with its actions goes precisely in this direction and specifically aims to improve the understanding of disaster risk, improve disaster preparedness for effective response and rebuild better in the recovery phase by setting some overall objectives in the project actions such as increasing entities with their disaster risk reduction strategies and increasing the availability of and access to multi-hazard early warning systems and disaster risk information and assessments.

WP1: Digitalization model of civil protection plans and IoT EDSS Platform Development

WP1 aims to develop a cross-border model for civil protection plan digitalization. It will be based on a set of activities, starting from collection of data from civil protection plans, selecting the risks affecting the plans, the emergency flow charts, open data sources like public and private platforms, websites and webcams, to carry out at preliminary analysis of the needs of each individual PPs and to study



the local civil protection plans. Furthermore, WP1 also focuses on the development of a scalable and capitalizable IT platform that can achieve several goals: (i) digitization of civil protection plans; (ii) access to geolocated open data sources and IoT sensors; (iii) manage synthetic georeferenced environmental data. Given the ongoing impact of climate change and its potential to increase the frequency and severity of extreme weather events, a key component of the platform will involve conducting multivariate statistical analyses.

Activity 1.9 Development of a flow chart emergency common structure:

Starting Period: Period 2, 01.09.2024 – 28.02.2025

Ending period: Period 3, 01.03.2025 – 31.08.2025

The objective of this activity is to develop a common decisional flow chart emergency format for the platform, which will be connected to one to three identified risks by the PPs in A1.1. LP1 will provide a template to structure decision-making and operational flow charts, which will be included in the platform, supplemented with information from open data institutional databases and synthetic data produced through the cross-border study of specific risks and data from IoT experimental sensors developed and implemented in WP3. The alert



thresholds will be extracted based on the civil protection plans currently in use at the PPs and identified under A1.1 for the construction of specific DSSs to support emergency managers and decision makers in the event of an event.

Each PP defines, according detailed territory study and risk assessment, the alerts and actions thresholds monitored throughout sensors and triggered throughout actuators. Ex: the flood risk: the rain sensor will be deployed in defined area, the alert threshold will be defined as 55mm/1h When the system detects the overcoming of the threshold triggers a message on the advertisement panel to advise the people regarding the specific risk. Finally, the platform will allow possible connections with other platforms/interoperability, such as civil protection center operations room management, already in use at the PPs, structured for the human and instrumental resource management phase and the activation of the management phases of the emergency. Within WP2, training courses will be activated for the staff of the entities involved in drafting and managing the civil protection plan.

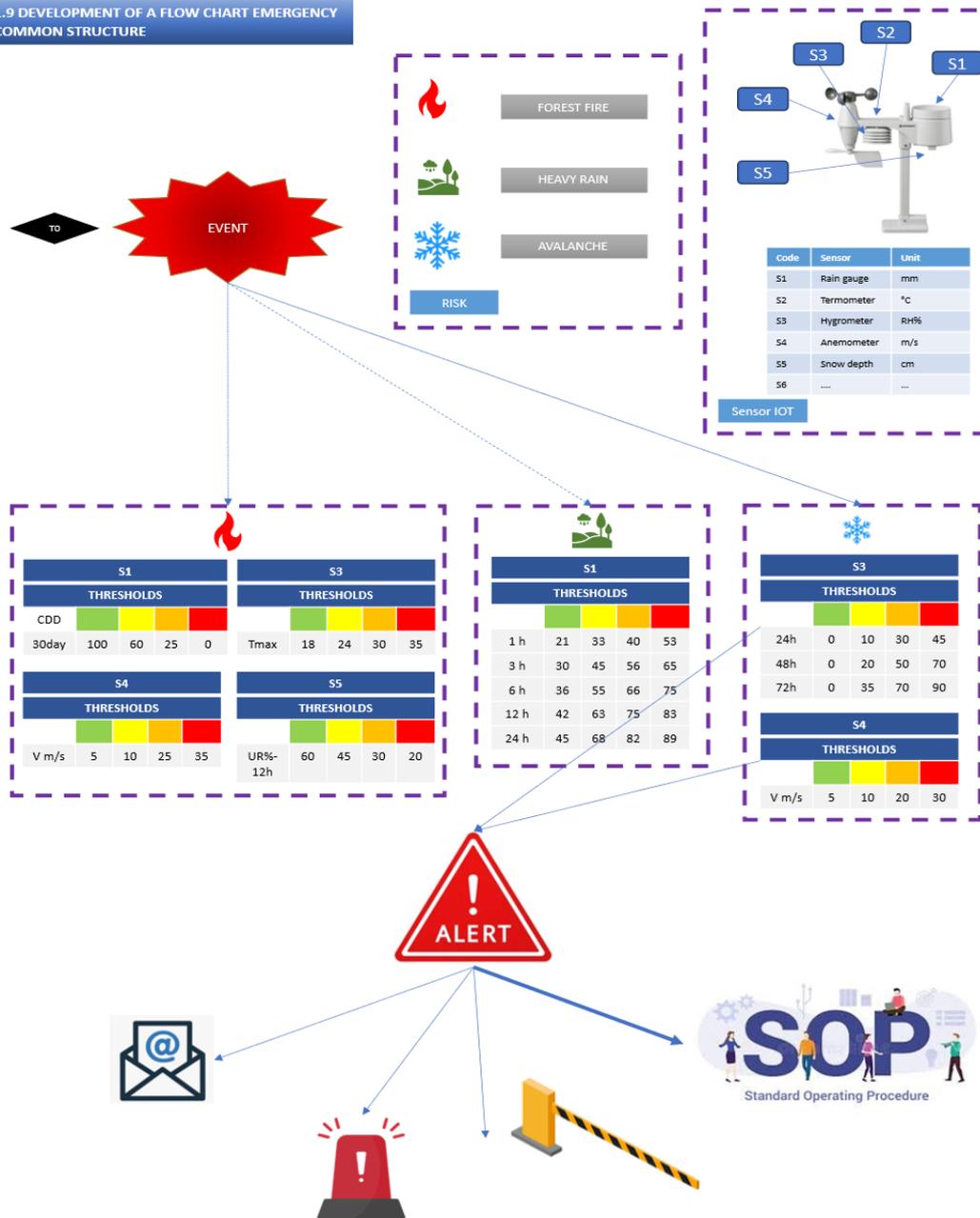
Flow chart emergency common structure

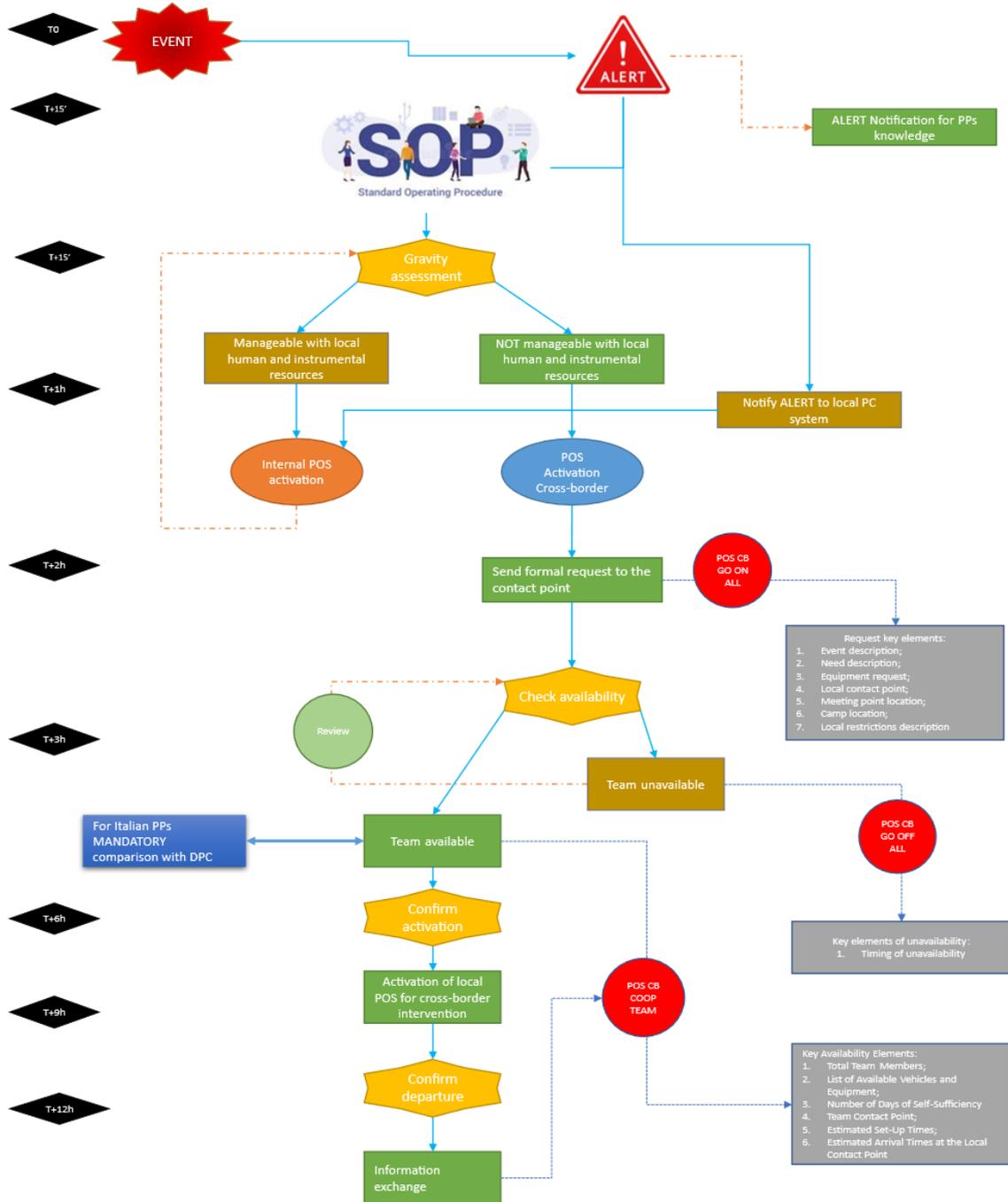
In collaboration with the partners, a model for compilation of the emergency flow diagram will be defined. Each partner, after filling out the model and generated the related PDF, will have to load it through the platform upload function. Using the same upload function it will be possible to update the pdf, replacing it with the



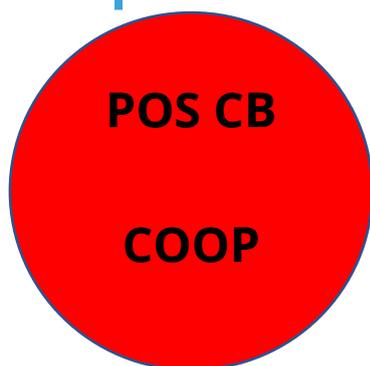
new flow chart. The diagram of the emergency flows of each partner will be exposed on the platform frontend

1.9 DEVELOPMENT OF A FLOW CHART EMERGENCY COMMON STRUCTURE





Cooperation team



Acronyms

SC – Steering Committee

LP – Lead Partner

PP – Project Partner

AF – Application Form

WP – Work Package

DG ECHO - European Commission Directorate-General for Humanitarian Aid and Civil Protection

DG SANTE - European Commission Directorate-General for Health and Food Safety



EU - European Union

IATA - International Air Transport Association

ICAO - International Civil Aviation Organization

NATO - North-Atlantic Treaty Organization

OSCE - Organization for Security and Co-operation in Europe

PPE - Personal Protective Equipment

TTX - Table-Top Exercise

UN - United Nations

UNDRR - United Nations Office for Disaster Risk Reduction

UNEP - United Nations Environment Programme

WHO - World Health Organization

WMO - World Meteorological Organization

DD/GG – Days/Giorni

HH – Hours/Ore

MC – Cubic meters/metri cubi



L – Liters/litri

FF – Forest Fire

HYD – Hydraulic/Hydrogeologic

SV - Special Vehicles

General information

ITEM	Answer
Country	
Contact details	
ID TEAM	
Team – Module Type	
Number Module/Acronym	
Main Components	
Technical equipment	
Ready to departure (hours)	
Available time period (dd)	



Team self-sufficiency period (days)	
Team self-sufficiency period (days)	
Military personell or equipment	
Additional Information	

Operational information

ITEM	Answer
Deployment radius	
Number of personnel	
Number of vehicles	
Weight of equipment (KG)	
Volume of equipment (Mc)	
Type of means	
Fuel Type	
Water Capacity	
Equipment details	
Others requirements	
Additional information	





Medical support	
Maintenance by requesting country	
Average fuel consumption (per day)	
Type of fuel	
Hazardous items	
Specific logistical needs	
Additional information	



Briefing on the current situation and assistant request

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SV - Special Vehicles

Briefing on the current situation

FIRST DESCRIPTION	YES/NO		SEQUENCE NUMBER OF THE REPORT	
NAME OF THE COUNTRY				
REQUESTING AUTHORITY AND CONTACT DETAILS				
ORGANIZATION				
PERSON WHO AUTHORIZED THE REQUEST				
PHONE NUMBER				
EMAIL				
EMERGENCY SITUATION				



Situation overview ¹				
WEATHER AND FORECASTS ² Accurate short and long term forecast				
NATIONAL DISASTER RESPONSE STRUCTURE ³ Brief description of the structure of disaster response				
TRAVEL AND SECURITY ADVICE ⁴				
VACCINATION AND HEALTH REQUIREMENTS ⁵				

¹ Brief description of the situation: what are the problems? International teams already in the country. Preferably in the form of a map of the situation. Preliminary description of the mission task. Security and protection (specific risks).

² Insert Copernicus imagery of the scene. Are there contingencies for changes in the weather and potential need to relocate? Weather risk potential to rescue assets – air, land?

³ Briefly describe the command and control structure of national, regional and local emergencies; the methods of communication; the system of coordination of international assistance. Contacts of other GOs or NGOs. Contacts of other interested parties. Indicate whether the UN/MIC system has been activated. If yes, when and which cluster. EU presence on site: EU delegation (MIC Contact Point (DPC): name, telephone, email

⁴ Point of contact? Entry point? Transportation, logistical support, food, water, fuel? Terrorism/Crime Issues. Road travel risk assessment? Roadblock forecasts? VISA: any special problems? Money: budget, method of payment

⁵ What is the state of existing critical infrastructure – hospitals, doctor surgeries etc. Is this being monitored and updated? What is the state of medical resources – medicines, equipment etc, is this being monitored. What is the current need? Are additional supporting resources on route already – EMT etc. Have you identified locations for survivor reception centres, emergency medical centres etc? Is customs clearance arranged for incoming resources from European countries? Availability of the map of existing health infrastructure, key locations, contact details etc? The necessary vaccines should be done. Mask, glasses, medicines, should be?



Request for international assistant

EVENT LOCALIZATION	LATITUDE	DECIMAL DEGREES, WGS 84	LONGITUDE	DECIMAL DEGREES, WGS 84
TYPE OF REQUESTED ASSISTANCE				
SITUATION OVERVIEW ⁶				
ENTRY POINT				

⁶ Briefly describe the skills and competences required taking into account identifying activities in which the teams are called to self-management and capacity for operational autonomy for the application of the assigned tasks, integration skills in mixed task forces, with staff from different agencies. The Emergency Management System, according to the ICS international mode, ensures integration into the local system and operational coordination coordination. Incident Briefing informs in detail about the situation. The liaison officer and an interpreter will be assigned. The Communication Protocol will be disseminated to all operators and Radio Check, to ensure continuous information on the situation and on indicators of change in behavior.



LAND TRANSPORT				
AIR TRANSPORT				
MARITIME TRANSPORT				
MEETING POINT				
LAND TRANSPORT				
CONTACT PERSON				
CONTACT FREQUENCY				
POSITION	LATITUDE	DECIMAL DEGREES, WGS 84	LONGITUDE	DECIMAL DEGREES, WGS 84



AIRTRANSPORT				
CONTACT PERSON				
CONTACT FREQUENCY				
POSITION	LATITUDE	DECIMAL DEGREES, WGS 84	LONGITUDE	DECIMAL DEGREES, WGS 84
MARITIME TRANSPORT				
CONTACT PERSON				
CONTACT FREQUENCY				



POSITION	LATITUDE	DECIMAL DEGREES, WGS 84	LONGITUDE	DECIMAL DEGREES, WGS 84
BASE CAMP				
MUNICIPALITY				
CONTACT PERSON				
CONTACT FREQUENCY				
POSITION	LATITUDE	DECIMAL DEGREES, WGS 84	LONGITUDE	DECIMAL DEGREES, WGS 84
AVAILABILITY OF HOST NATION SUPPORT ⁷				

⁷ If yes, highlight if the services are free of charge.



FOOD	YES/NO	ACCOMODATION	YES/NO	WIFI/SAT	YES/NO
DIRINKING WATER	YES/NO YES/NO	POWER ENERGIA ELETTRICA	YES/NO YES/NO	LIAISON OFFICER	YES/NO
FUEL	YES/NO	MEDICAL SUPPORT	YES/NO	ITERPRETER	YES/NO
LIABILITY					
<p>Article 36, paragraph 1 of Commission Decision 2004/27712 provides rules for compensation of damage caused by assisting modules/teams to property or service staff of requesting State. For damage suffered by third parties, paragraph 214 of the same article invites the requesting State and assisting State to cooperate to facilitate compensation for such damage. In this context:</p> <ul style="list-style-type: none"> - the HN declares to cover any damage suffered by third parties on its territory caused by assisting international modules/teams where such damage is the consequence of the assistance intervention provided for by this Decision unless it is proven to be the result of fraud or serious misconduct. 					





YES/NO

ADDITIONAL REMARKS (SPECIFY TO WHAT EXTENT AND/OR TO WHAT AMOUNT YOU ARE ABLE TO COVER POSSIBLE DAMAGE)



Unavailability of the request for assistance

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FF – Forest Fire

HYD – Hydraulic/Hydrogeologic

SV - Special Vehicles



General information

ITEM	Answer	
Country		
Contact details		
REASON FOR UNAVAILABILITY		
ABSOLUTE UNAVAILABILITY		
TEMPORARY UNAVAILABILITY	YES/NO	
IF TEMPORARY		
Ready to departure (hours)		
Additional Information		



With a resolution of unavailability you return to the step "check availability"



Summary of the document

The attached documentation, relating to possible cross-border procedures, is intended to represent an initial tool for evaluating and regulating the activities to be implemented for the management of cross-border crises and the coordinated support of the Digital Plan project partners (Deliverable 1.9).

According to the Italian state law, the "Civil Protection Code," civil protection deployments in foreign territories are carried out under the focal point of the National

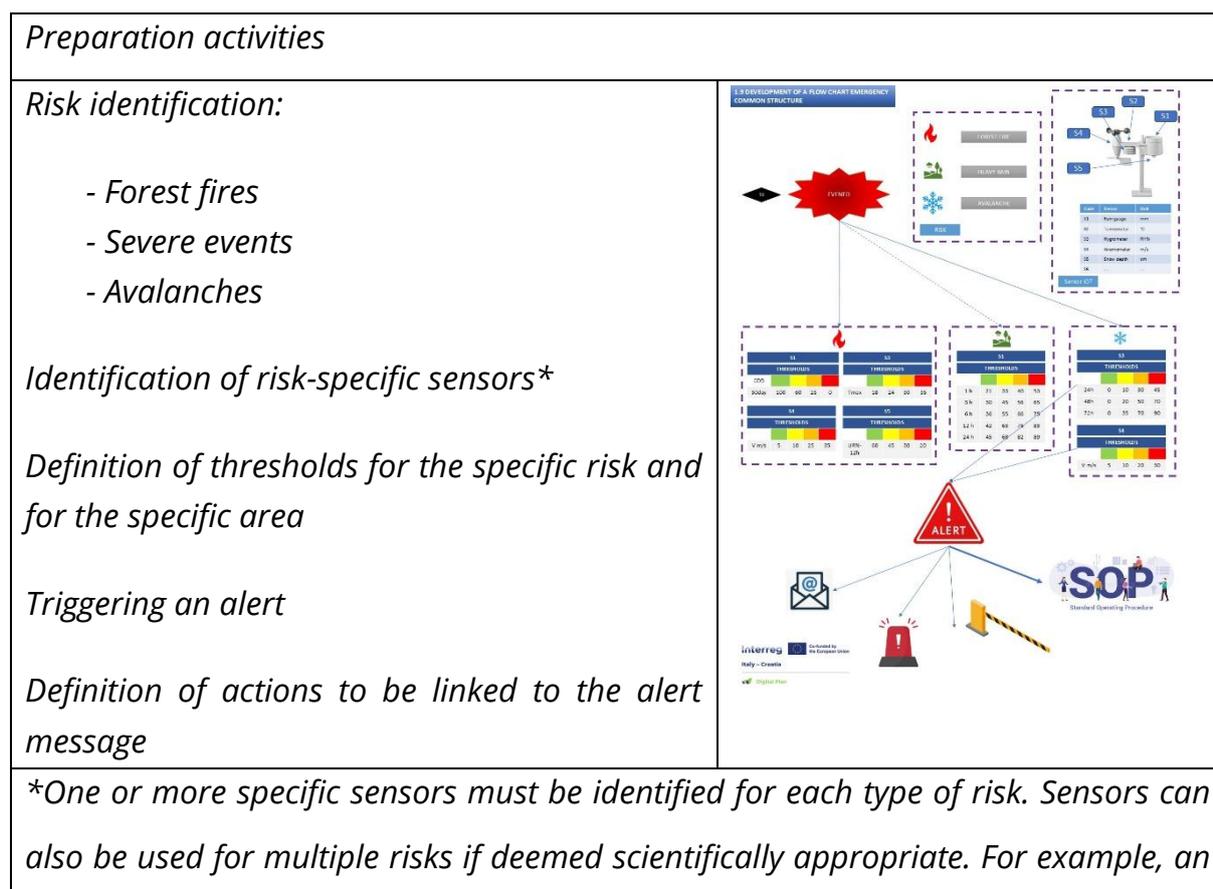


Civil Protection Department, with the authorization of the European Civil Protection Mechanism.

All the attached procedural documentation could form the basis of a specific agreement between the parties, with the support of the Union Mechanism.

The application of the proposed procedures is adapted to project risks, but also to other risks with the same information flow.

The basic procedure outline includes the following phases:



air temperature sensor can be used to connect thresholds for forest fire risk, heavy rainfall risk, and avalanche risk.

1. Procedure Management

At time T_0 , when an event occurs, the data recorded by the sensor is compared with the threshold data.

If the threshold data is exceeded, an alert is triggered.

The alert can take various forms:

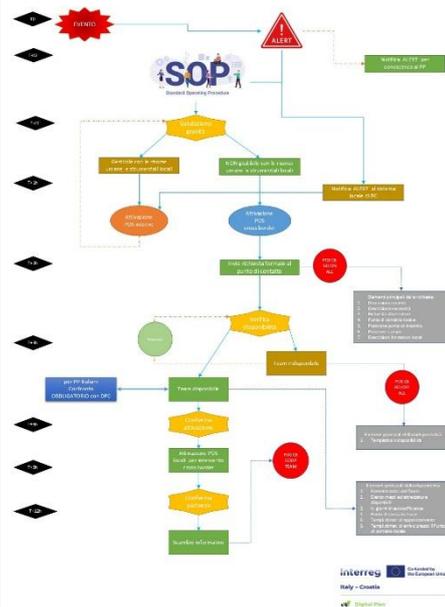
- SMS message
- Email
- Audible message
- Activation of an actuator (barrier, siren, megaphone, light, etc.)

At the same time, an automatic information flow and a controlled information flow are activated.

Both flows involve communications between the PPs using a standardized format, useful for constantly monitoring the actions undertaken and to be undertaken.

Three types of communications have been provided, with specific information tables for the three project risks:

Standard Operation Procedure, Cooperation Team – SOP-COOPTEAM



<i>Standard Operation Procedure, Activation of procedures with team availability – SOP-GO ON ALL</i>	
<i>Standard Operation Procedure, Non-availability of teams – SOP-GO OFF</i>	

Focus of the thresholds

The quantitative definition of thresholds is not a characteristic of this project; numerical values must be derived from pre-existing studies or from test values that will be subsequently applied after the experimental phase.

Operational thresholds are typically defined as cumulative thresholds (e.g., 90 mm in 24 hours) and/or critical intensity thresholds (e.g., 35 mm in 1 hour).

Each operating threshold is associated with a specific level, associated with alert colors:

-  *Green: no risk*
-  *Yellow: ordinary risk*
-  *Orange: moderate risk*
-  *Red: high risk*



When defining operational thresholds, there is always a calibration and validation phase on the ground, which varies in time depending on the complexity of the area being studied. At the local level, thresholds are calibrated on a local scale (micro areas), taking into account:

- *Landform*
- *Land Use*
- *Vulnerability and Population Density*
- *Drainage Capacity of the Hydrographic Network*

These values are updated over time, considering events that allow for their recalculation.

Simplified examples

Considering a 50 square km mountain basin, localized shallow landslides are observed. Analyzing the 3-hour cumulative precipitation data, a cumulative precipitation of over 60 mm is observed. This amount should be considered a rainfall threshold for landslides.



Another way to represent the thresholds could be as follows:

Duration	Yellow Threshold (ordinary criticality)	Orange Threshold (moderate)	Red Threshold (high)
1 hour	40 mm	60 mm	90 mm
3 hours	60 mm	90 mm	120 mm
6 hours	80 mm	110 mm	150 mm

The threshold values indicated can be used, initially by connecting them to a forecasting model, so that the same amount of rainfall represents the threshold value for the cumulative forecast.

In short, alert thresholds are predefined limits that, if exceeded, indicate a potential impact on the territory and activate monitoring, warning, or intervention procedures to reduce damage to people, property, and the environment.

