

Perception

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PARTICIPATORY EMERGENCY IN CIVIL PROTECTION PLANNING

TRAINING COURSE BOOKLET

UNIT 1

EMERGENCY MANAGEMENT PLANNING



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UNIT 1 – EMERGENCY MANAGEMENT PLANNING

ACTIVITY 1.1 – EMERGENCY PLANNING: EU & NATIONAL CONTEXT

TOPIC 1.1.1

Slide 3	<p>The European Commission is one of the main European institutions. It is independent, and considered a “technical” body rather than political.</p> <p>It is the executive body of the European Union (EU) and its role is to develop and translate EU strategy into policies and initiative.</p> <p>The Commission is steered by a group of 27 commissioners, known as 'the college'. Together they take decisions on the Commission's political and strategic direction.</p> <p>A new college of Commissioners is appointed every 5 years.</p> <p>The Commission is organised into policy departments, known as Directorates-General (DGs), which are responsible for different policy areas. DGs develop, implement and manage EU policy, law, and funding programmes. In addition, service departments deal with particular administrative issues. Executive agencies manage programmes set up by the Commission. Civil Protection falls under the DIRECTORATE-GENERAL ECHO - European Civil Protection and Humanitarian Aid Operations.</p>
Slide 4	<p>Within ECHO has been established the so-called European Civil Protection Mechanism (UCPM). In this topic we will go over its legal framework, its purpose and how it works.</p>
Slide 5	<p>The EU Civil Protection Mechanism (UCPM) was incepted in 2001.</p> <p>Its presence is foreseen by the main legal framework of the EU: the Treaty of Lisbon which underpins the commitment of the EU to provide assistance, relief, and protection to victims of natural or (hu)man-made disasters around the world, and to support and coordinate the civil protection systems of its member states. It further mandates the European institutions to define the necessary measures for such actions to be carried out.</p> <p>The mechanism has been established by the decision No 1313/2013/EU of the European Parliament and of the Council of December 17, 2013, on a Union Civil Protection Mechanism which is now updated into a consolidated version dated <u>21/03/2019</u>.</p>
Slide 6	<p>To ensure a better response to future challenges, a new legislation on EU Civil Protection – in force as of May 2021 – gives the EU additional capacities to respond to new risks in Europe and the world: the Regulation (EU) 2021/836 of the European Parliament and of the Council of May 20, 2021, amends Decision No 1313/2013/EU on a Union Civil Protection Mechanism (UCPM), under which the EU supports, coordinates and supplements the action of member states in the field of civil protection to prevent, prepare for and respond to natural and (hu)man-made disasters within and beyond the EU.</p> <p>The mechanism has proven to be a useful tool to mobilise and coordinate the assistance provided by the participating states responding to crises.</p> <p>However, the COVID-19 pandemic and now the Ukrainian humanitarian crisis have shown the need for better EU-wide preparedness for future large-scale emergencies, while proving the limitations of the previous framework. The interconnectedness of our societies confronting the same emergency and their resulting difficulty to help each other has demonstrated the need for enhanced action at union level.</p>

	<p>Thus, the new law goes in the direction of strengthening the mechanism by creating more inter-state resources and actions so as to reduce the restriction encountered and mainly due to the fact that today the mechanism fully relies on each member state's resources.</p> <p>In this direction, as an additional asset to the mechanism, the EU established a European reserve of additional capacities (the '<u>rescEU reserve</u>'). The reserve includes a fleet of firefighting planes and helicopters, and a medical evacuation plane, as well as a stockpile of medical equipment and field hospitals that can respond to health emergencies.</p> <p>For example, during the COVID-19 pandemic, the EU has distributed millions of protective masks, medical gloves and ventilators coming from strategic rescEU distribution centres currently hosted by 9 EU member states to European countries in need.</p> <p>In response to a deteriorating humanitarian situation in Ukraine, all 27 EU countries, plus Norway and Turkey, have offered help to Ukraine via the EU Civil Protection Mechanism (UCPM). The assistance includes millions of items such as first aid kits, shelter equipment, firefighting equipment, water pumps, power generators, and fuel.</p> <p>The coordination is the largest ever activation of the mechanism to date. It helps assist people in Ukraine and those who have fled to neighbouring countries such as Poland, Slovakia and Moldova.</p> <p>To efficiently manage this exceptionally high amount of deliveries, logistical hubs have been set up in Poland and Romania with the support of the Emergency Response Coordination Centre. These hubs collected the aid offered by EU countries and dispatched it to Ukraine.</p>
Slide 7	<p>In addition to the EU countries, there are currently 6 participating states in the mechanism (Iceland, Norway, Serbia, North Macedonia, Montenegro, and Turkey). Since its inception in 2001, the UCPM has responded to over 540 requests for assistance within and beyond the EU.</p>
Slide 8	<p>When the scale of an emergency overwhelms the response capabilities of a country, it can request assistance via the mechanism.</p> <p>Disasters know no borders and can hit one or several countries simultaneously without warning. Having a well-coordinated joint response means that when national authorities are overwhelmed, they have one point of contact, rather than multiple to deal and coordinate with. A joint approach further helps to pool expertise and capacities of first responders, avoids duplication of relief efforts and ensures that assistance meets the needs of those affected.</p> <p>By pooling together civil protection capacities and capabilities, it allows for a stronger and more coherent collective response.</p>
Slide 9	<p>Now that we have understood what the UCPM is, we can try to go deeper and learn how it works.</p> <p>The official website of the Mechanism shows quite clearly - through an infographic - how it actually works.</p> <p>We will make use of it and try to explain each step.</p>
Slide 10	<p>So, the first step is the unfortunate case of a disaster hitting inside or outside the EU.</p>
Slide 11	<p>It can be a natural disaster such as a flood or an earthquake.</p> <p>It can be a (hu)man-made disaster like forest fires usually are.</p>

Slide 12	It can be, as we have recently experienced, a sanitary emergency like a pandemic outbreak.
Slide 13	Or, it can be a humanitarian crisis generated by mass migration of people fleeing from wars, persecution or famine.
Slide 14	No matter the risk, if the affected country recognises that it cannot face such an emergency with its own resources it can request assistance from the mechanism through the Emergency Response Coordination Centre (ERCC).
Slide 15	<p>The Emergency Response Coordination Centre (ERCC) is the heart of the UCPM and coordinates the delivery of assistance to disaster stricken countries, such as relief items, expertise, civil protection teams and specialised equipment. The centre ensures the rapid deployment of emergency support and acts as a coordination hub between all EU member states, the 6 additional participating states and the UK during the transition period, the affected country, and civil protection and humanitarian experts. The centre operates 24/7 and can support any country inside or outside the EU affected by a major disaster upon request from the national authorities or a UN body.</p> <p>A well-coordinated response to (hu)man-made disasters and natural hazards at European level can avoid duplication of relief efforts and ensure that assistance is tailored to the needs of those affected. To lessen the burden on contributing states, the ERCC can liaise directly with the national civil protection authorities of the country in need and can also financially support the delivery of civil protection teams and assets to the affected country.</p>
Slide 16	As shown in this infographic made available by the European Commission, the ERCC was activated 114 times in 2021, of which 61% of the times for COVID-19 related crises. The RescEU Reserve played a major role in strengthening the collective European response to disasters, and in its utilisation as a last resort for when member states' capacities are exhausted. The RescEU Reserve has the objective of enhancing both the protection of citizens from disasters and the management of emerging risks. It includes a fleet of firefighting planes and helicopters, medical evacuation planes, as well as a stockpile of medical equipment and field hospitals that can respond to health emergencies, as well as chemical, biological, radiological, and nuclear incidents.
Slide 17	<p>Once the UCPM is activated, member and participating states offer assistance, such as personnel and equipment and, once the affected country has accepted the offers, the ERCC coordinates the deployment and delivery of said assistance.</p> <p>Specialised teams and equipment, such as forest firefighting planes, search and rescue, and medical teams can be mobilised at short notice.</p>
Slide 18	<p>To support the quick deployment of these resources, the mechanism relies on The European Civil Protection Pool, a reserve of resources committed by European states to respond to disasters. The European Civil Protection Pool (ECP) was established in 2013.</p> <p>Resources can be experts, equipment and transportation services.</p> <p>This pool allows for better planning and coordination of response activities at European and national levels which means a faster and more reliable EU response to disasters.</p> <p>The ECP constitutes the backbone of the mechanism.</p>
Slide 19	Satellite maps produced by the <u>Copernicus Emergency Management Service</u> also support civil protection operations. Copernicus provides timely and precise geospatial information that is useful to delineate affected areas and plan disaster relief operations.

	<p>Copernicus EMS - Mapping is provided during all phases of the emergency management cycle and always free of charge for the users. The maps are produced in two temporal modes:</p> <p>Rapid Mapping consists of the provision of geospatial information within hours or days from the activation in support of emergency management activities immediately following a disaster.</p> <p>Risk & Recovery Mapping consists of the on-demand provision of geospatial information in support of disaster management activities not related to immediate response. This applies in particular to activities dealing with prevention, preparedness, disaster risk reduction and recovery phases.</p>
Slide 20	<p>The ERCC also coordinates the deployment of the European Medical Corps enabling quick medical assistance and public health expertise from all EU member and participating states to a health emergency inside and outside the EU. The European Medical Corps gathers all medical response capacities committed by member states to the <u>European Civil Protection Pool</u>. Following a request for European assistance, medical capacities can be drawn from this pool and from other member states response capacities.</p>
Slide 21	<p>The European Medical Corps is part of the EU's comprehensive approach to health disasters and it includes:</p> <ul style="list-style-type: none"> • Emergency medical teams (EMT) provide direct medical care to people affected by a disaster. These teams are certified to ensure they meet quality standards by the World Health Organisation (WHO). So far, Norway, Germany, Belgium, Italy, Spain, Portugal, France, Estonia and the Czech Republic have committed such teams. The Italian, Norwegian, Portuguese, and Spanish emergency medical teams have been classified by the WHO, while an additional 9 other European medical teams are currently in the process of classification. In addition, Germany contributes a specialised infectious disease isolation field hospital from the German Red Cross. • Mobile biosafety laboratories were developed and deployed during the 2014 Ebola crisis. Belgium has since committed its B-Life Lab (Biological Light Fieldable Laboratory for Emergencies) and Germany the European Mobile Laboratory, coordinated by the Bernhard-Nocht-Institute for Tropical Medicine. • Medical evacuation capacities are key for mass casualty disasters requiring the evacuation of EU citizens, and for retrieving humanitarian and medical workers from disaster areas, if needed. Currently, Sweden provides such assets to the European Medical Corps, while Slovakia is in the process of certifying its committed capacity. <p>Work is also ongoing to facilitate the mobilisation and deployment of medical experts with specific profiles under the Mechanism, such as epidemiologists with strong field expertise or burns assessment specialists to help assess the appropriate level of treatment of large numbers of patients.</p>
Slide 22	<p>Having such components working together smoothly and with great coordination calls for a lot of training and exercise. This is what goes under the chapter “prevention and preparedness” within the UCPM.</p> <p>Prevention and preparedness activities mitigate the effects of disasters. A <u>training</u> programme for civil protection experts from EU member and participating states ensures compatibility and complementarity between intervention teams, while large-scale <u>exercises</u> improve capabilities for specific disasters each year.</p>

	<p>The EU supports and complements prevention and preparedness efforts of its member and participating states by focusing on areas where a joint European approach is more effective than individual national actions. These include risk assessments to identify the disaster risks across the EU, encouraging research to promote disaster resilience and reinforcing early warning tools.</p>
<p>Slide 23</p>	<p>To grant this preparation and foster an efficient collaboration and a multi-skilled approach, in 2019, the mechanism created a Union Civil Protection Knowledge Network to bring together civil protection and disaster management experts and organisations, increase knowledge and its dissemination, and support the union's ability and capacity to deal with disasters.</p> <p>Currently under development, the Union Civil Protection Knowledge Network will support experts, practitioners, policy-makers, researchers, trainers and volunteers at every stage of the disaster management cycle through networking, partnerships, collaborative opportunities, and access to expertise and good practices.</p> <p>It will facilitate the active participation of knowledge holders and foster an inclusive approach to ensure that the Knowledge Network addresses key concerns and needs of its members. It will also connect and strengthen cooperation with existing initiatives, such as the <u>Disaster Risk Management Knowledge Centre</u> and relevant international and national structures to increase cooperation, exchange of knowledge, and further expand networking opportunities.</p>
<p>Slide 24</p>	<p>The Union Civil Protection Knowledge Network provides a series of activities:</p> <ul style="list-style-type: none"> • <u>Training programmes</u> for civil protection experts working together on prevention, preparedness, and response activities of the EU Civil Protection Mechanism. • <u>Civil protection exercises</u> aimed at improving preparedness and enhancing collaboration among European civil protection experts and practitioners. • <u>Exchange of experts programme</u>: an exchange programme where civil protection experts spend a period in another member or participating state to the EU Civil Protection Mechanism. The aim is to share experiences and gain in-depth technical skills. • <u>Lessons learnt programme</u>: a broad lesson-learning programme, including the development of good practices. The purpose is to enhance efficiency and effectiveness of practitioners within the mechanism. • <u>Scientific advice and innovation</u>: a connection with scientific networks to provide the EU Civil Protection Mechanism with expertise and stimulate research and innovation. • <u>Thematic workshops & conferences</u>: learning and networking opportunities designed around specific existing or emerging needs and risk management. These initiatives help experts gain cutting-edge knowledge on specific topics. • <u>Community engagement</u>: regular dialogue on civil protection and disaster management between the members of the Knowledge Network community, to create a community-oriented and active network. • <u>Partnership facilitation opportunities</u>: funding of initiatives to bring the civil protection and disaster management communities closer and foster collaboration. <p>Through the above actions, the Union Civil Protection Knowledge Network runs a dynamic and comprehensive <u>training programme</u>, offering experts from all over Europe opportunities to deepen their knowledge of the requirements of European civil protection missions. The training helps experts improve their coordination and assessment skills in disaster response.</p> <p>The training programme offers a wide range of courses from basic training to high-level sessions for future mission leaders. Specialised courses aiming to prepare for specific</p>

	<p>aspects of missions, such as security training or assessments, are also available. Ad-hoc training to address emerging needs such as mass burns teams and support on-site integration of responder teams, provide professional development opportunities for experts.</p> <p>You can find the training programme brochure among the course resources.</p> <p>The <u>Exchange of Experts in Civil Protection</u> programme allows for the transfer of civil protection experts from one UCPM member or participating state to another. Experts from eligible third countries can also take part. Through exchanges on topics like firefighting, communication, search and rescue, or new and emerging threats, participants can gain practical learning experiences and knowledge on all aspects of emergency intervention and the different approaches of national systems.</p>
Slide 25	<p>In regard to civil protection, exercises provide valuable learning opportunities for all involved in operations under the UCPM.</p> <p>The European Commission's Civil Protection and Humanitarian Aid Operations department funds a number of civil protection exercises every year through a <u>call for proposals</u> for full-scale exercises and a <u>call for tenders</u> for modules exercises. In order to broaden the offer, the Knowledge Network also introduces new types of exercises such as plug-in exercises for international learning and experience, and host nation support exercises.</p> <p>Alongside <u>full-scale exercises</u>, which are organised by civil protection authorities of countries and co-financed by the EU, <u>modules field and table-top exercises</u> (EU MODEX) are organised under the supervision of the UCPM. They are conducted to improve preparedness and enhance collaboration among European civil protection authorities and teams.</p> <p>EU MODEX exercises are opportunities for testing specific response capacities as well as the self-sufficiency, interoperability, coordination and procedures of response teams and equipment. Table-top exercises, in turn, focus on in-depth training of key personnel.</p> <p>Contingency planning, decision-making procedures, provision of information to the public and the media are among common examples of what can also be tested during the exercises. Moreover, exercises can help supervisors identify further training needs for their staff involved in operations, while parallel workshops on lessons learned can serve as a forum to identify how response can be improved.</p>
Slide 26	<p>Now that you have a full overview of what the UCPM relies on for delivering assistance and deploying resources, we can go back to the initial infographic and see that when the assistance is delivered and the experts return to their home countries, the end of the emergency response is declared.</p>
Slide 27	<p>The topic of Health & Safety (H&S) at work is managed by the Directorate-General for Employment, Social Affairs and Inclusion (DG-EMPL) which has the task of contributing to the development of a modern, innovative and sustainable <u>European social model</u> with more and better jobs in an inclusive society based on equal opportunities. Within the DG-EMPL operates the European Agency for Safety and Health at Work (EU-OSHA). EU-OSHA is a decentralised <u>agency of the EU</u> with the task of collecting, analysing and disseminating relevant information that can serve the needs of people involved in safety and health at work. Set up in 1994 by Council Regulation (EC) No 2062/94 of 18 July 1994,^{[1][2]} EU-OSHA is based in <u>Bilbao, Spain</u>, where it has a staff^[3] of <u>occupational safety and health</u>, communication and administrative specialists.</p> <p>EU-OSHA collects, analyses and disseminates information related to occupational safety and health across the EU and contributes to an evidence-collection database which policymakers can use to establish future policies regarding occupational H&S. EU-OSHA</p>

	<p>publishes a monthly newsletter, <u>OSHmail</u>, which deals with occupational health and safety topics, and provides in-depth publications,^[5] such as detailed reports regarding occupational H&S information.</p> <p>EU-OSHA works through diverse networks spanning the EU, with its main activities covering three distinct areas:</p> <ul style="list-style-type: none"> a) analysis and research b) prevention c) campaigning and awareness raising
<p>Slide 28</p>	<p>EU-OSHA works in partnership with a wide range of organisations. The DG-EMPL is its reference point at the <u>European Commission</u>. At a national level, EU-OSHA is represented by a network of "focal points"^[9] in over 30 countries across <u>Europe</u>. Focal points is usually the primary H&S organisation of a particular country. Each focal point operates a tripartite national network to ensure that information on H&S at work can be effectively collected and disseminated.</p> <p>EU-OSHA emphasises the importance of a tripartite approach, whereby EU-OSHA works in partnership with governments, employers and workers' representatives. This tripartite structure (Governing Board^[10]) is key to the way EU-OSHA carries out its campaigns. Through its campaigns EU-OSHA also works with companies and associations in the public and private sector, and with the <u>Enterprise Europe Network</u> (EEN), a business support network that aims to help small businesses in the European marketplace.</p> <p>Bulgaria - Ministry of Labour and Social Policy</p> <p>Cyprus - Department of Labour Inspection - Ministry of Labour, Welfare and Social Insurance</p> <p>Italy - The Italian Focal Point is represented by <u>Inail</u>, which coordinates the national network of the European Agency for Safety and Health at Work (National Institute for Insurance against Accidents at Work)</p> <p>Spain - Instituto Nacional de Seguridad y Salud en el Trabajo</p> <p>The Netherlands - TNO Prevention, Work & Health</p>
<p>Slide 29</p>	<p>The European Commission's <u>Strategic Framework on Health and Safety at Work 2021-2027</u> defines the key priorities and actions for improving workers' health and safety, addressing rapid changes in the economy, demography and work patterns.</p> <p>Strategic priorities</p> <p>The Strategic Framework takes a tripartite approach — involving EU institutions, member states, social partners and other stakeholders — and focuses on three key priorities:</p> <ol style="list-style-type: none"> 1. anticipating and managing change in the context of green, digital and demographic transitions; 2. improving the prevention of work-related accidents and diseases, and striving towards a Vision Zero approach to work-related deaths; 3. increasing preparedness to respond to current and future health crises. <p>Implementing the framework — a key role for EU-OSHA</p> <p>The success of the framework depends on its implementation at EU, national, sectoral and enterprise levels, with effective enforcement, social dialogue, funding, awareness-raising and data collection being key. Through its extensive network of partners, EU-OSHA is well placed to facilitate action, cooperation and exchange, and deliver on the ambitions of the framework.</p>

	<p>EU-OSHA's foresight studies and overview projects aim to anticipate risks and identify priorities to inform the development of EU-OSHA practice and policy in areas such as <u>digitalisation</u> and <u>green jobs</u>, and <u>stress and psychosocial risks</u>. EU-OSHA also provides easy-to-use resources to help workplaces put prevention into practice, with a wealth of guidance being produced to help <u>keep workers safe during the pandemic</u>, whether exposed on the frontline or adapting to working from home. Its involvement in the <u>Roadmap on Carcinogens</u> and its <u>Healthy Workplaces</u> campaigns demonstrate the agency's commitment to promoting a culture of prevention across Europe and beyond, a cornerstone of EU-OSHA policy.</p>
<p>Slide 30</p>	<p>The OSH Framework Directive Latest update: 13/12/2021</p> <p>The European Framework Directive on Safety and Health at Work (Directive 89/391 EEC) adopted in 1989 was a substantial milestone in improving H&S at work. It guarantees minimum safety and health requirements throughout Europe while member states are allowed to maintain or establish more stringent measures.</p> <p>Directive 89/391 - OSH Framework Directive</p> <p>In 1989, measures were introduced to encourage improvements on H&S at work - "Framework Directive".</p> <p>Some provisions of the OSH Framework Directive brought about considerable innovation including the following:</p> <ul style="list-style-type: none"> • The term 'working environment' was set in accordance with the International Labour Organisation (ILO) Convention No. 155 and defines a modern approach taking into account technical safety as well as general prevention of ill-health. • The directive aims to establish an equal level of H&S for the benefit of all workers (the only exceptions are domestic workers and certain public and military services). • The directive requires employers to take appropriate preventive measures to make work safer and healthier. • The directive introduces as a key element the principle of risk assessment and defines its main elements (e.g. hazard identification, worker participation, introduction of adequate measures with the priority of eliminating risk at source, documentation and periodical re-assessment of workplace hazards). • The new obligation to put in place prevention measures implicitly stresses the importance of new forms of H&S management as part of general management processes. <p>The Framework Directive had to be transposed into national law by the end of 1992. The repercussions of the transposition on national legal systems varied across member states. In some member States, the Framework Directive had considerable legal consequences due to inadequate national legislation while in others no major adjustments were necessary.</p> <p>In 2004, the European Commission issued a <u>Communication (COM [2004] 62)</u> on the practical implementation of the provisions of some of the directives, namely 89/391 EEC (framework directive), 89/654 EEC (workplaces), 89/655 EEC (work equipment), 89/656 EEC (personal protective equipment), 90/269 EEC (manual handling of loads) and 90/270 EEC (display screen equipment)]. This communication stated that there was evidence of the positive influence of EU legislation on national standards for occupational H&S made up of both nationally implemented legislation and practical application in enterprises and public sector institutions.</p>

	<p>In general, the report concluded that EU legislation had contributed to instilling a culture of prevention throughout the union, as well as rationalising and simplifying national legislative systems. At the same time, however, the report highlighted various flaws in the application of the legislation that were holding back achievement of its full potential. It also noted cases where infringement proceedings had been opened.</p>
<p>Slide 31</p>	<p>In addition to the Framework Directive, a series of individual directives focusing on specific aspects of H&S at work were adopted. Nevertheless, the Framework Directive continues to apply to all areas covered by the individual directives. Where individual directives contain more stringent and specific provisions, these special provisions prevail. Individual directives tailor the principles of the Framework Directive to:</p> <ul style="list-style-type: none"> • Specific tasks (e.g. manual handling of loads) • Specific hazards at work (e.g. exposure to dangerous substances or physical agents) • Specific workplaces and sectors (e.g. temporary work sites, extractive industries, fishing vessels) • Specific groups of workers (e.g. pregnant women, young workers, workers with a fixed duration employment contract) • Certain work-related aspects (e.g. organisation of working time) <p>The individual directives define how to assess these risks and, in some instances, set limit values for certain substances or agents.</p> <p>The EC has announced its top three occupational H&S actions in its Communication <u>Safer and Healthier Work for All - Modernisation of the EU Occupational Safety and Health Legislation and Policy</u>, which is based on the <u>ex-post evaluation of the European Union occupational safety and health directives (REFIT evaluation)</u>.</p> <p>European guidelines</p> <p>Guidelines are non-binding documents which aim to facilitate the implementation of European directives.</p> <p>There are different types of guidelines, such as practical guidelines from the EC setting out best practices for the prevention of risks, council recommendations, EC Communications, EU social partners agreements, and others.</p>
<p>Slide 32</p>	<p>We can watch this video to better understand what EU-OSHA does</p> <p>https://www.youtube.com/watch?v=Nu2fR-J7zxA&t=9s</p>
<p>Slide 33</p>	<p>Check their website to dive deeper into the topics addressed in the video</p> <p>www.osha.europa.eu/en</p>

Exercises	
1	<p>Identify a major disaster that happened in your country which involved one or more enterprises, better if small, and reply to the following questions:</p> <ul style="list-style-type: none"> ➤ Was it caused by natural or (hu)man-made hazards? ➤ Where and when did it happen? ➤ What kind of emergency it was (flood, earthquake, sanitary emergency, accident...)? ➤ Was this emergency managed locally, nationally or did it require an international intervention (e.g. via the mechanism)? ➤ Can you find any news/reports on how the local population and the employees coped with the emergency? How about after the emergency? ➤ Can you find any news on how the situation was improved after the emergency occurred to reduce further risks? <p>Organisation: small groups (4-5 students) Duration: 45 minutes</p>
2	<p>What do you know about the national civil protection</p> <p>What do you know about the national H&S at work system?</p> <p>Organisation: class work: a dialogue between students and teacher to understand their level of knowledge on the topics introduced in the next Activity dedicated to national contexts</p> <p>Duration: 15/20 minutes</p>
3	<p>Are you aware of any national emergency which required the activation of the UCPM and/or international aid? How did it work?</p> <p>Organisation: small groups (4-5 students) do research and see if they find any kind of information. Even no information found is a result to trigger a debate: is it because the activation of the Mechanism is not often required or because it is not properly communicated?</p> <p>Duration: 20/30 minutes</p>

TOPIC 1.1.2

Slide 3	<p>This topic is dedicated to the national civil protection systems and H&S at work systems of the countries involved in this project:</p> <ul style="list-style-type: none"> • Italy • Spain • Bulgaria • The Netherlands • Cyprus <p>Each member state is characterised by a country-based civil protection functioning, with little connections to the H&S at work organisation. This is strictly linked to its administrative system. Some have a very centralised approach where the state takes all the decisions, others have a more decentralised approach, where functions and decision-making is distributed along the administrative chain, from the state, to the regions and the municipalities.</p> <p>Usually the approach implemented in each country reflects historical developments, cultures and legislative frameworks.</p> <p>We will now start our journey throughout some European countries and see how we, Europeans, have different approaches to cope with very similar disasters and emergencies.</p>
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ITALY

Slide 4	<p>We begin our journey in Italy, where the Civil Protection Department has been based in the offices of the Presidency of the Council of Ministers since 1982.</p> <p>The Italian Civil Protection Department has a guiding role - in agreement with regional and local governments, of projects and activities - for the prevention, forecast and monitoring of risks and intervention procedures that are common to the whole system.</p>
Slide 5	<p>Italy is made up of:</p> <ul style="list-style-type: none"> • 20 regions, • 80 provinces; • 14 metropolitan cities • 2 autonomous provinces
Slide 6	<p>The Civil Protection Department operates in strict cooperation with local authorities and with the support of the so-called Civil Protection Components:</p> <ul style="list-style-type: none"> • Fire Brigade • Armed Forces • Police Forces • Scientific community • Italian Red Cross • National Health Service • Volunteering • National Alpine & Speleological Rescue Corps
Slide 7	<p>In particular, the civil protection department promotes the integration of organised volunteering into the National Civil Protection Service.</p> <p>Organised civil protection volunteering listed in the national registry of civil protection volunteering is in fact included among the operational structures of the National Service. In particular, in order to verify and test the organisational models of</p>

	<p>intervention in emergency, the Department and the Regions promote exercises that simulate risk situations in which volunteering organisations participate.</p> <p>Municipalities may promote the establishment, with reference to their own territorial area, of a municipal civil protection group which must be composed exclusively of citizens who choose to join it voluntarily.</p>
Slide 8	<p>The first law on Civil Protection in Italy dates back to 1992, in response to the earthquake hitting Southern Italy in 1980, which has caused nearly 3,000 deaths, over 8,000 injured and 280,000 displaced.</p> <p>A lot has changed since and Italy now has a modern regulation which is the Legislative Decree n. 1 of 2018 which clarifies roles and responsibilities for national and local authorities, sets the funding principles, defines who does what and when and, as we will see, emphasises the active role of citizens.</p>
Slide 9	<p>This decree defines the so-called Civil Protection Authorities, based on the principle of Subsidiarity, meaning the principle that a central authority should have a subsidiary function, performing only those tasks which cannot be performed at a more local level.</p>
Slide 10	<p>The president of the council of ministers, or the prime minister, is the national authority for Civil Protection, having the responsibility of major disasters affecting the country.</p>
Slide 11	<p>As we have said, the National Civil Protection Service is thus made up of national, regional and municipal authorities (also in aggregate form) to which functions and responsibilities, including planning, are delegated. The Regions are called upon to identify the optimal territorial and organisational areas (consisting of one or more municipalities).</p> <p>So, presidents of the Regions and Autonomous Provinces act as territorial civil protection authorities.</p>
Slide 12	<p>Locally, municipal and metropolitan mayors are also civil protection territorial authorities.</p> <p>All territorial civil protection authorities (mayors - including metropolitan mayors - and regional presidents) are responsible with respect to:</p> <ul style="list-style-type: none"> • transposition of the relevant national guidelines; • promotion, implementation and coordination of civil protection activities; • allocation of financial resources to civil protection activities; • allocation of personnel to civil protection facilities; • definition of procedures and organisational arrangements for the operational structures for the management of civil protection events.
Slide 13	<p>Civil Protection authorities are call into action based on the event typology</p> <p>Civil protection events in Italy can be distinguished in:</p> <p>emergencies related to natural and/or anthropic events that can be faced by individual entities on an ordinary basis. This means that, the event can be managed and contained through resources available by a single municipality. This is for example the case when a hailstorm hits locally, creating small size floodings.</p>
Slide 14	<p>The second type includes:</p> <p>A) emergencies connected to natural and/or anthropic events that can be tackled through the coordinated intervention of several entities/administrations with</p>

	<p>extraordinary means and power. This can be the case of major flooding, affecting a river or an entire basin, causing flooding and landslides in more municipalities or even more regions.</p> <p>B) emergencies of national importance connected to natural and/or anthropic events that can be faced with extraordinary means and powers (to be used for limited periods of time).</p>
Slide 15	<p>C) The third typology encompasses:</p> <p>emergencies of national importance connected to natural and/or anthropic events that can be faced with extraordinary means and powers (to be used for limited periods of time). This is usually the case of earthquakes, which although limited in geographical extensions, require major efforts in rescuing and recovery activities.</p> <p>Or, as we have recently experienced, in the case of a pandemic.</p>
Slide 16	<p>What has to be clear in this distinction is that the difference is not rigid and exclusive in terms of responsibilities, in the sense that the occurrence of a national emergency (type C) doesn't mean that territorial authorities such as mayors are not called to coordinate and manage civil protection operations at local level.</p>
Slide 17	<p>One last important topic is that the new Italian Civil Protection law highlights for the first time the concept of resilience and its direct link with citizens' participation in civil protection activities.</p> <p>The aim is to increase resilience through the participation of citizens, individuals or associates.</p> <p>The components of the National Service are called upon to provide guidance and information to citizens on risk scenarios and on the organisation of civil protection services in their territory, also in order to enable them to adopt self-protection measures.</p> <p>Citizens can:</p> <ul style="list-style-type: none"> • contribute to the performance of civil protection activities, acquiring the necessary knowledge to be able to operate in an effective, integrated and aware manner, by joining the organised volunteering sector; • take part on an occasional basis, where possible, in case of emergency situations, acting in a personal and responsible manner for the execution of immediate interventions directly related to one's personal, family or proximity, in competition and coordinating with the activities of organisations operating in the sector.
Slide 18	<p>In Italy, the institutional system of H&S at work comes under the Ministry of Labour and Health, in conjunction with the Regional Coordination Committees and the social partners.</p> <p>Their responsibilities include delivering advice for legislative developments, supervision, promoting health and assisting businesses.</p>
Slide 19	<p>The national information system for prevention in the workplace (SINP) (consisting of: Ministry of Labour and Social Policy, Ministry of Health, Ministry of Interior, regions and autonomous provinces of Trento and Bolzano, INAIL and, with the contribution of the CNEL, the joint bodies and the institutions in the sector) is charged with guiding, planning and evaluating the effectiveness of prevention against accidents</p>

	and occupational diseases and with steering supervisory activity by expanding specific archives and the creation of unified databases.
Slide 20	<p>The Italian Focal Point is represented by <u>Inail</u>, which coordinates the national network of the European Agency for Safety & Health at Work.</p> <p>Each focal point is actively involved in the following key areas:</p> <ul style="list-style-type: none"> • Networking: management of a national tripartite network to support the implementation of the agency's work programme at Member State level; • Consultation: provision of information at national level on project issues included in the agency's work programme, as well as identification of national experts for European working groups; • European Campaigns: promotion of campaigns at national level and organisation of events and initiatives on the theme of campaigns, using own resources and European funding; promotion and collection of Good Practices; • Online Interactive Risk Assessment - OiRA: Following the signing of the "Memorandum of Understanding" between the European Agency for Health and Safety at Work and the Ministry of Labour and Social Policies in 2013, Italy's adhesion to the OiRA project was formalised and a tripartite working group was set up, consisting of representatives of the institutional sector of workers and employers' trade unions with the aim of adapting the software to the characteristics of Italian legislation, providing, for the office activities of small, medium and micro enterprises, an online tool for risk assessment, as well as for the preparation of the relevant Document (Dvr). In response to Article 29, paragraph 6-quarter of Legislative Decree 81/2008, which provides for the identification of support tools for risk assessment, including computerised tools according to the OiRA prototype, the tool developed was approved by the permanent advisory commission for occupational health and safety at the meeting of 3 May 2018 and is the subject of the decree of the Ministry of Labour and Social Policy issued on 23 May 2018.
Slide 21	<p>This law stems from a previous one dated 1994 and builds on its principle of:</p> <ul style="list-style-type: none"> • Analysis of safety issues in system terms • Accident risk becomes a risk that must be assessed in system terms: man - machine - working environment - working procedures. <p>The Safety and Health in workplaces Act in 2008, basically confirms the previous laws better specifying some of its elements.</p> <p>Its objectives are:</p> <ul style="list-style-type: none"> • Reducing injuries • The reduction of social costs incurred in terms of fatalities, temporary and permanent injuries • Raising awareness of safety in the world of work • Protecting the health of workers who are the weakest and th most exposed link in the production system • The co-participation of employers in the costs borne by the community in relation to accidents
Slide 22	<p>The law defines in detail the duties of each component of the safety system within a company. This model applies to enterprises with more than 15 employees. For smaller enterprises, the same law and approach applies, with simplifications.</p>

	<p>Let's have a quick look at the main components.</p> <ul style="list-style-type: none"> • The employer's duties are (can be the owner or a manager): • Responsibility for everything that happens in the company • Responsibility for drawing up the Risk Assessment Document • Responsibility for the implementation of the Programme of Prevention and Protection measures • Appointing and/or selecting the Responsible for the Prevention and Protection Service Manager • Appoints the members of the Prevention and Protection Service • Appoints the competent doctor • Provides workers with I.P.D. - personal protective equipment • Informs and trains workers on the risks in the company • Convenes the Periodic Safety Meeting (at least once a year)
Slide 23	<p>The Responsible for the Prevention and Protection Service (R.S.P.P) duties are:</p> <ul style="list-style-type: none"> • Selects the personnel assigned to the Prevention and Protection Service • Organises the activities of the Prevention and Protection Service (P.P.S.) • Presents proposals and ideas aimed at solving problems relating to safety in the company • Participates in the Periodic Safety Meeting (at least one per year) • Collaborates with the other figures in the Safety System
Slide 24	<p>The Workers' Safety Representative (R.L.S.) activities assigned by legislation:</p> <ul style="list-style-type: none"> • Plays the role of intermediary between employees and the company in safety matters • Talks with employees in order to better understand safety issues • Analyses and evaluates the Risk Assessment Document by reasoning about possible additions • Attends the Periodic Meeting • Verifies that employees receive adequate information and training on the subject of risks and safety • Collaborates in drawing up the training and information programme on risks in the company
Slide 25	<p>Prevention and Protection Service/emergency personnel - activities assigned by legislation:</p> <ul style="list-style-type: none"> • Designated workers cannot refuse the assignment except for justified reasons • They must be correctly informed and trained with respect to their role and competences • They participate in drawing up the Emergency and Evacuation Plans • They look after prevention and protection equipment and material
Slide 26	<p>The competent doctor - activities assigned by legislation:</p> <ul style="list-style-type: none"> • Periodically visits workers • Carries out (at least twice a year) an on-site visit to the company • Checks employees' health with specific clinical examinations • Participates in the Periodic Meeting • Participates in organising and setting up the First Aid Service

<p>Slide 27</p>	<p>Employees' responsibilities: general guidelines</p> <ul style="list-style-type: none"> • Comply with the company regulations issued by the employer regarding the organisation of work activities • Do not perform acts that may endanger their own health or that of their colleagues • Use Personal Protective Equipment (PPE). according to the instructions given by the employer • Use machinery, equipment and tools correctly • Do not remove safety systems and devices • Respect 'working and non-working time'. • Become an 'active participant' in solving safety problems in the company
<p>Slide 28</p>	<p>The RISK ASSESSMENT DOCUMENT</p> <p>The Risk Assessment Document (DVR) is a tool used to identify the possible risks present in a workplace and serves to analyse, assess and prevent hazardous situations for workers. It is a compulsory report required of all companies with at least one employee, in paper or digital format. The DVR demonstrates that the risks associated with the activity in the company have been assessed and must therefore be kept on the premises and be available for consultation by control bodies in the event of a request or inspection. Following the risk assessment, a precise Prevention and Protection Plan is implemented with the aim of eliminating or reducing the likelihood of hazardous situations. The minimum contents of the DVR are established by law and include, for example:</p> <ul style="list-style-type: none"> • Company details: all company data; • organisation chart of the prevention and protection service: details of the professional figures involved in drafting the DVR (RSPP, competent doctor, RLS, managers, supervisors) • Number of employees and identification of the tasks performed: • Description of the work cycle: work phases, list of plant, machinery, equipment, chemical substances used, etc. • All risk assessment reports identifying the hazards present in each work phase and for each task identified, the employees exposed to health and safety risks (noise, vibration, ROA, EMF, MMC, etc.), estimated exposure and severity of damage • Programme of prevention and protection measures with any procedures to be adopted to improve safety levels, implementation times and indication of the personal protective equipment (PPE) to be used • Programme of improvement measures necessary to increase safety levels
<p>Slide 29</p>	<p>How do these two safety systems (civil protection and H&S) dialogue with each other?</p> <p>From a legislative point of view they never overlap nor are forced to meet.</p> <p>From a practical point of view, there are certain 'moments' when these two worlds touch:</p> <ul style="list-style-type: none"> • company evacuation plans take into account external risks, such as an earthquake; • in some specific cases, large companies take into account both internal causes of risk and external ones, including earthquakes, floods, terrorist attacks, health emergencies, etc.

	<p>They also share an increasingly relevant participatory approach.</p> <p>A very specific case are the so-called major-accident hazard industries, subject to the Seveso III directive, which are obliged to draw up external emergency plans, which describe risk scenarios in the areas immediately surrounding the company and which become part of the scenarios of the civil protection plans. These plans are the responsibility of the Prefectures in Italy. We will see this specific case further on in the Activity dedicated to the development of an emergency plan.</p>
Slide 30	<p>An example of an attempt to bring the world of civil protection planning into dialogue with the world of health and safety in the workplace is the cross-border project 'Resilient Heart', within the framework of the Territorial Plan Heart of the Alps, financed by the European programme Interreg Italy France ALCOTRA 2014-2020.</p> <p>Two activities are proposed in this project to activate this dialogue:</p> <ul style="list-style-type: none"> • The drafting of the so-called DVR (Risk and Resilience Assessment Document), in which the aim is to lead companies, even small ones, located in areas at risk, to also take into account risks outside their "perimeter", as elements of safety for their workers, customers and suppliers. • Activation of a debate on the subject of natural risks between local administrators (as local civil protection authorities) and employers (as those responsible for safety in the company) in order to make them understand the mutual help they can give each other to increase internal and external safety and, ultimately, the resilience of an area and its community.

BULGARIA

Slide 3	We continue our journey and fly to Bulgaria
Slide 4	Bulgaria is a country in South-eastern Europe. It is administratively divided into 28 districts, which are further subdivided into 265 municipalities. Sofia – the capital of Bulgaria and the largest settlement in the country, is the administrative centre of both Sofia Province and Sofia City Province.
Slide 5	The main legislative act, regarding the crisis management and the civil protection in Bulgaria is the Disaster Protection Act, adopted in 2006, which established the regulations covering the duty to preserve life and health, and protect the environment and property in the event of a disaster. It stipulates the activities related to the coordination and management of the rescue and emergency recovery efforts among the competent authorities – components of the created Integrated Rescue System – which have to work together in the event of disaster and form units of the Integrated Rescue System.
Slide 6	<p>The national specialised structure, responsible for the performing tasks related to prevention and preparedness, management, reaction and recovery in case of natural and human-made disasters is the Directorate General Fire Safety and Civil Protection to the Ministry of Interior.</p> <p>At central administration level, the DG Fire Safety and Civil Protection –Ministry of the Interior is divided into three main departments, which are: the Operational Activities Department; the Prevention Activities Department and the Administrative Activities Department.</p>
Slide 7	At regional level, 28 administrations of the DG Fire Safety and Civil Protection are established and functioning in each district of the country. There are defined Civil Protection - Interagency Levels of Command, Control and Coordination in case of emergencies and disasters at regional and national levels. Regional governors and mayors are responsible for the coordination and management of the rescue efforts on the territory of the region and in the municipalities.
Slide 8	The Integrated Rescue System denotes the organisation, coordination and direction of the activities of units, services and other operational structures in the process of preparation for response to disasters, in the event of the occurrence of disasters, and in case of the need to conduct simultaneous rescue and emergency repair and recovery by one or more of its components or units.
Slide 9	<p>The principal components of the Integrated Rescue System are:</p> <ul style="list-style-type: none"> • DG Fire Safety and Civil Protection of the Ministry of Interior; • the National Medical Coordination Centre and • the Emergency Medical Aid Centres of the Ministry of Health. <p>These bodies guarantee constant readiness to receive messages, evaluate situations and immediately act in the event of an emergency. The other component of the Integrated Rescue System involves rescue and recovery activities, which can involve the Armed Forces by order of the Minister of Defence should a demand be made by a respective state body that is in compliance with regulations covering rescue and emergency recovery.</p>

Slide 10	<p>There are Operational Communication and Information Centres (OCICs) in all 28 regions. The Situation Centre of the DG Fire Safety and Civil Protection conducts the overall coordination in case of disasters.</p> <p>In order to ensure the coordination of the institutions within the Integrated Rescue System, 28 Regional Communication and Information Centres were established. These centres receive and evaluate the information about emerging disasters or accidents and monitor the process of gaining control over them. They inform the relevant institutions and coordinate the activities of the components of the Integrated Rescue System.</p>
Slide 11	<p>Disaster prevention policies denote a comprehensive range of activities, such as planning of disaster protection, implementation of preventive measures for the exclusion or mitigation of disaster consequences, preventive control etc.</p>
Slide 13	<p>Preventive measures for disaster risk reduction include the establishment and/or modernisation of systems for monitoring, forecasting and early warning. In this context, in 2007 a specialised monitoring structure, namely the Aerospace Monitoring Center (ASMC) was established. It is the first satellite data receiving centre in Bulgaria. ASMC provides support in the process of discovery, monitoring, risk assessment and management of natural hazards and disasters caused by technological hazards, and emergency situations.</p>
Slide 14	<p>Another coordinating body is the National Situational Centre, which is operational 24/7/365 and keeps constant contact with all national and international partners in case of disaster.</p> <p>The Ministry of Interior is also responsible for the maintenance of the National Early Warning and Notification System.</p> <p>In case of a disaster, a headquarters for coordination and control will be established with the competent minister or head of administration by an order of the Prime Minister, with regard to the character of the disaster.</p>
Slide 15	<p>An Interagency Recovery and Relief Committee also functions within the Council of Ministers. The Committee adopts decisions for disbursement of dedicated funds from the national budget, earmarked for preventing, bringing under control and overcoming the impact of disasters, and controls their purposeful spending.</p>
Slide 16	<p>The Bulgarian Volunteering Services functioning in the field of Civil Protection and Humanitarian Aid are regulated by the Ordinance for Establishing and organising the activities of voluntary units to prevent or control disasters, fires and emergencies and their consequences. (adopted by Decree № 123 / 25.06.2012);</p> <p>Voluntary formations are set up on a territorial basis, for independent actions and / or for supporting the main components of the Integrated Rescue System (ESS), performing the following basic activities of the Civil Protection:</p> <ol style="list-style-type: none"> 1. rescue operations; 2. limitation and elimination of fires; 3. search and rescue operations; 4. carrying out emergency recovery works; 5. first aid to the victims of fires, disasters and emergencies; 6. other security-related operations.

	<p>The Voluntary units are established by the mayor of the municipality. Volunteers can be any able-bodied person over 18 who is clinically healthy and has not been convicted.</p>
<p>Slide 17</p>	<p>In the Republic of Bulgaria, public policy on safety and health at work comes under the Council of Ministers. The Ministry of Labour and Social Policy develops, coordinates and implements public policy on safety and health at work. The Ministry of Health manages and coordinates activities for the protection and promotion of health at work. The General Labour Inspectorate Executive Agency is the public body responsible for the overall supervision of compliance with labour law in order to ensure safety and health at work, as well as for the implementation of conditions of employment. The National Social Security Institute (NSSI) provides monitoring of scientific opinion on capacity for work, investigates work-related accidents and maintains a database on work-related accidents.</p> <p>National policy on safety and health at work is developed and implemented on the basis of trilateral cooperation at national, sector and regional level. The National Council on Working Conditions (NCWC) is the standing body responsible for coordination, consultation and cooperation for the development and implementation of occupational safety and health policy at national level. There are regional councils in all local administrative districts to ensure trilateral cooperation for safety and health at work. There are also committees on working conditions in all undertakings, providing a platform for dialogue between employers and employees.</p> <p>The National Focal Point of the European Agency for Safety and Health at Work is situated in the Ministry of Labour and Social Policy.</p>

SPAIN

Slide 3	We go West and continue our journey to Spain
Slide 4	<p>In <u>Spain</u>, there are 17 autonomous communities, first-level <u>political and administrative divisions</u>, with the aim of guaranteeing limited autonomy of the <u>nationalities and regions</u> that make up Spain.</p> <p>Besides these communities, there are also two autonomous cities, Melilla and Ceuta, and around 50 provinces, grouping together different municipalities.</p>
Slide 5	<p>The Spanish legal framework is quite complex and we have to go back to 1976 to see the first decree that explicitly mentioned emergencies.</p> <p>Organic Act 1/1980 on National Defense:</p> <ul style="list-style-type: none"> • Stipulates that the Government shall arrange the contribution of whatever kind of resource is necessary (human, material, etc., public or private) • Defines the Civil Defense concept (Civil Preparedness), i.e. the standing availability of all human, material and non-military resources in order to manage major disasters • Establishes that the Armed Forces will cooperate at the request of civil authorities. <p>One year later, the Organic Act 4/1981 defines warning, exceptions and siege situations, establishing the procedures for declaring those situations and the measures that are to be taken in each case.</p> <p>Act 2/1985 about Civil Protection, actually Defines the Civil Protection concept and establishes guidelines for planning.</p> <p>Prime Minister's National Defense Guideline 1/1986: creates a Crisis Management National System and a Civil Preparedness National System, compatible and comparable with those of the Atlantic Alliance.</p> <p>Royal Decree 2639/1986: creates the Crisis Cabinet, defines its composition and its functions and establishes that it is the leading authority of the Crisis Management National System.</p> <p>The Royal Decree 163/1987 creates a Crisis Management Directorate as a working support of the system.</p> <p>Ministers Council Agreement, dated 15 January, 1988:</p> <ul style="list-style-type: none"> • Creates the National Civil Emergency Planning Committee, its composition and functions and • Creates the Sectorial Working Committees, dependent upon the CNPCE <p>The Royal Decree 1883/1996:</p> <ul style="list-style-type: none"> • Establishes the new structure of the Ministry of Defense. This document defines the functions of the Policy of Defense Directorate, i.e., concerning Civil Preparedness, Civil Emergency Planning and the Armed Forces cooperation in disaster relief operations. <p>Prevention policy aims to avoid, or at least minimise, the adverse consequences and impacts of the pre-identified key risks. Therefore, all levels of the administration are involved in prevention plans.</p>

	<p>The main prevention actions under the scope of civil protection activities are based on public communication and risk awareness, and the self-protection plans developed for all dangerous activities under the regulation of the self-protection rule (Royal Decree 393/2007, 23 March). This regulation involves the national system of civil protection and the private sector.</p>
Slide 6	<p>There is no horizontal organisation responsible for all prevention plans, but prevention policy is organised following a sectorial approach, under the authority of the Ministry (central level) or Regional Government Counsellor (water management, dam safety, meteorology, environment, climate change, chemical industry, nuclear energy).</p>
Slide 7	<p>Despite the sector or the risk, in Spain, civil protection is defined as the physical protection of the population and goods in cases of severe risk, public calamity, or extraordinary catastrophes in which the lives and physical integrity of the people are endangered. The national civil protection authorities are responsible for the overall coordination of emergencies.</p>
Slide 8	<p>The civil protection structure coincides with the administrative structure. The civil protection organisational structure is comprised of:</p> <p>A. The Delegate Commission of the Government for Crisis Situations that was established in 1986. It consists of the prime minister and the deputy prime ministers, and the ministers of foreign affairs, defence, economy and finance, and the interior. The task of the Crisis Cabinet is to direct and coordinate all actions related to the prevention, control and management of crises. Decision-making responsibilities lie with the prime minister.</p>
Slide 9	<p>B. The National Civil Emergency Planning Committee (NCEPC), an interministerial support function to the Crisis Cabinet, is mainly concerned with tasks related to the provision and implementation of resources in situations of crisis or emergency. The committee is subordinate to the ministry for governmental presidency.</p> <p>The NCEPC has a coordinating role in Spanish Civil Protection and sits at the top of Civil Defense's organisational structure. It can meet either in plenary or permanent sessions. The Committee is composed of the Crisis Cabinet Secretary (President), the Director General for Defense Policy (First Vice President), the Director General for Civil Protection and Emergencies (Second Vice President) and the Under Director for Civil Preparedness (Secretary). Some of the other members are the Director of the Crisis Staff Department and the Committee President's Advisor on Defense and Security.</p>
Slide 10	<p>C. The Civil Protection structure at the state level starts at the Directorate General of Civil Protection and Emergencies, under the Minister of the Interior. The representation of this structure in the Autonomous Communities is the responsibility of the delegations and sub-delegations of the government. Each of them has a Civil Protection Unit.</p> <p>Most competences in civil protection (except for nuclear issues) are transferred to the autonomous communities and municipalities, which have their own structure for the protection of citizens and goods. The communities and municipalities are responsible for integrated civil protection planning including risk assessment plans and for operational units.</p>

<p>Slide 11</p>	<p>The relationship between the competent national civil protection authority and the civil protection organisations, such as the fire brigade, emergency medical services, and police are described in the different plans.</p> <p>As far as volunteering is concerned, in Spain we can identify different levels:</p> <p>1) Municipal Civil Protection Volunteer Groups:</p> <p>These are local organisations formed exclusively by volunteers or town hall employees, whose functions, always under the coordination of the competent body, are:</p> <ul style="list-style-type: none"> • Prevention function, collaborating in: Local risk studies, preparation and dissemination of self-protection plans, preparation and maintenance of municipal territorial plans and municipal action plans, preparation and • Implementation of information campaigns and dissemination to the population, participation in preventive operational devices (in large human concentrations, forest surveillance, etc.) • Intervention function, collaborating in support to the emergency operational services
<p>Slide 12</p>	<p>2) Civil Protection Volunteers Associations: Similar to the municipal civil protection volunteer groups (they are also formed by volunteers) they are non-governmental organisations, similar to NGOs, they do not depend on the town halls; they usually have collaboration agreements with the municipal, provincial or autonomous administrations to carry out the same functions as the groups.</p>
<p>Slide 13</p>	<p>3) Civil Protection Volunteers: All those people of legal age or minors with authorisation can be part of a Civil Protection Group or association. The relationship that volunteers have with the municipality is understood to be free and disinterested; even so the volunteer has the right to be insured against possible risks.</p>
<p>Slide 14</p>	<p>4) Disaster Support Units: The Disaster Support Units (DSU) are groups of professionals who are suitably organised and equipped to carry out, on a voluntary and altruistic basis, certain activities to protect people affected by disasters, both in Spanish territory and outside it. The Disaster Support Units (DSU) currently constitute a strategic line of Spanish civil protection policy.</p>
<p>Slide 15</p>	<p>5) Civil Protection Technicians: This is a municipal service that is established by law. Town councils are required to approve self-protection plans, which means that they must have a territorial emergency plan for more than 20,000 inhabitants.</p> <p>Their functions are:</p> <ul style="list-style-type: none"> ○ To create the municipal emergency plans. ○ To create the plans of self-protection of the municipal buildings. ○ To approve, together with the architecture department, the self-protection plans presented to the town hall. ○ To advise the mayor and councilors. ○ To meet the local Civil Protection Commission. ○ To create the municipal risk map. ○ To issue reports. ○ To study events.

	<ul style="list-style-type: none"> ○ To create the catalogue of mobilisable resources. ○ To design the training plans for the grouping of volunteers.
Slide 16	<p>Focal Point of the European Agency for Safety and Health at Work in Spain, occupational risks prevention is regulated by the <u>Law 31/95</u> and it's complementary or developing regulations. Public authorities lead the policy on occupational risks prevention field for the promotion and improvement of working conditions, controlling the activities of the Public Administrations with competences on prevention matters, and the participation of employers and employees in those activities, through their representative organisations.</p> <p>Public Administrations with competence on occupational issues perform the following tasks: promotions of prevention, technical advice, surveillance and control of implementation of the occupational risks legislation and sanctioning infractions against the law. The National Institute for Safety, Health and Wellbeing at Work (<u>INSSBT</u>) is the scientific and technical body of the State General Administration.</p> <p>With regard to the EU institutions and in particular with the European Agency for Safety and Health at Work and its Network, it acts as the national focal point, to guarantee the coordination and dissemination of information at national level.</p>

THE NETHERLANDS

Slide 3	And then we go north to the Netherlands
Slide 4	<p>The Netherlands is divided into 12 provinces (provincies, singular - provincie): Drenthe, Flevoland, Friesland (Fryslan), Gelderland, Groningen, Limburg, Noord-Brabant (North Brabant), Noord-Holland (North Holland), Overijssel, Utrecht, Zeeland (Zealand) and Zuid-Holland (South Holland), which are again subdivided into 431 municipalities.</p> <p>Each province is administered by an elected province council with the Commissioner of the Queen (CdK) as its head. The CdK is appointed by Her Majesty the Queen of the Netherlands. Each province is further subdivided into municipalities with an elected council. The mayor of each municipality is appointed by the Queen.</p>
Slide 5	<p>The constitutional and legal framework has fragmented responsibilities and authority for crisis and disaster management.</p> <p>The following acts provide the administrative and operational framework for the physical aspects of the protection of the population in the Netherlands.</p> <p>The Fire Service Act (1985): The fire brigades in the Netherlands are organisations consisting mainly of volunteers. Professional fire-fighters are in the minority. According to the Act, each municipality shall have its own fire brigade.</p> <p>The Disasters Act: This Act describes a disaster as an incident, which seriously affects public safety and thereby poses a serious threat to the life and health of many people and/or significant financial interests, and which requires the coordinated use of services and organisations within different disciplines. The mayor has the overall command of disaster management and makes the final decision on what measures to take in the event of a serious threat or disaster.</p> <p>The Security Region's Act: This Act substitutes the previous Acts of 1985. By this Act, the mayor is still responsible for a local disaster within their municipality. During a disaster or crisis, which affects more than one municipality at a time, the chair of the security region is in supreme command of the rescue teams and makes the decisions within the region. The chair of the security region is the same as the mayor, who is also in charge of the regional police force.</p> <p>The Security Region's Act concerns quality requirements for the security regions.</p> <p>When preparing for disasters and crises, the CdK can give instructions to security regions when the Inspection for Public Order and Safety (IOOV) acknowledges a lack of preparedness.</p> <p>The Act on Medical Assistance in Times of Disaster: Medical assistance in times of disaster is an integral part of disaster management and is designed to provide the best possible treatment to as many victims as possible. In the event of major incidents and disasters, the director of the designated public health service in the region is in charge of the organisation, coordination and management of medical assistance services. All of these acts are based on the position that the responsibility for disaster management should rest at local (municipal) level.</p> <p>In case of a limited or general emergency, the following emergency legislation can be applied: The Coordination of Exceptional Situations Act, the Extraordinary Competences of Civil Authority Act, the Displacement Act and the War Act.</p>

	<p>(Coördinatiewet uitzonderingstoestanden, Wet buitengewone bevoegdheden burgerlijk gezag, wet verplaatsing bevolking en de Oorlogswet). These Acts will be applied by Royal Decree at the request of the prime minister. According to Article 103 of the constitution, deviation from constitutional regulations and certain human rights is possible during an emergency.</p>
Slide 6	<p>Since 2010, the country has been subdivided into 25 security regions. The security regions are in charge of the police, the fire brigade and the public health institutions on their territory. The security regions are the political link between the local civil protection organisations and the national governmental institutions.</p> <p>Several organisations with crisis-related tasks, like fire brigades and public health institutions, are organised within the security regions. Next to the security regions there are 25 police regions and one national police corps (KLPD).</p>
Slide 7	<p>In the Dutch system of crisis management, each ministry is responsible for crisis management within its own specific area.</p> <p>The overall responsibility rests with the Directorate General for Public Order and Safety within the Ministry of the Interior. The Ministry of the Interior coordinates crisis management preparedness and is responsible for public order and safety. This includes, among other things, the responsibility for fire brigades, disaster management and the organisation of medical assistance in the event of disaster.</p>
Slide 8	<p>The National Information Centre, also within the Ministry of the Interior, handles public information. If a crisis occurs, a crisis centre for decision-making will be set up within the ministry concerned. Apart from the minister concerned, the prime minister may call upon other ministries to become part of the prime minister's crisis decision-making structure. In this case, a National Coordination Centre will be set up. The responsibility for disaster relief and safety in general rests with the municipalities. In the event of a disaster, the municipalities will cooperate regionally. If regional assets should prove insufficient, assistance can be requested from the national level. The minister of the interior is responsible for this coordination.</p>
Slide 9	<p>If a disaster cannot be managed at local level, the Commissioner of the Queen can instruct the mayor (or mayors) about the policy to be undertaken. In this case, the commissioner takes over the operational command of disaster management, and the minister of the interior gives instructions directly to the commissioner.</p>
Slide 10	<p>At the local level, each municipality has a division, which is in charge of civil protection issues.</p>
Slide 11	<p>Volunteers and NGOs are part of the system and provide support during emergencies thanks to a wide network of associations, ranging from the Red Cross to the Salvation Army.</p>
Slide 12	<p>In the Netherlands, it is the employer and employees within a company who have primary responsibility for occupational health and safety policy. They are required to reach an agreement on working conditions and are supported by trade unions and the trade association for the sector in drafting appropriate occupational health and safety measures. A new feature in health and safety in the Netherlands is for agreements on the subject between employers and employees to be laid down in a 'declaration of intent' for the sector as whole. The declaration of intent is a collection of measures and solutions which companies in a particular sector can choose from in order to comply with the rules.</p>

The government (the Ministry of Social Affairs and Employment) is allowing companies greater leeway to customise the way they seek to promote good working conditions. All rules derive from the Working Conditions Act (Arbowet), the Working Conditions Decree (Arbobesluit) or the Working Conditions Regulations (Arboregeling) ([fulltext available](#)). The Inspectorate SZW is responsible for enforcing the legislation. Declarations of intent play an important role regarding enforcement.

The Focal Point is the place where a great deal of knowledge, information and experience comes together. Representatives of employers' organisations and trades unions work together there to make information on safety and health at work coming from Europe accessible and comprehensible to all. The Dutch Focal Point is managed by TNO Innovation for Life.

You can find more detailed information about the Dutch occupational health and safety system, in English and in Dutch, on the website of the Dutch Focal Point.

CYPRUS

OSH in Cyprus	
Slide 3	This topic will explore the designated bodies and basic legislation regarding Safety & Health in the workplace within Cyprus. The objectives are manifold: to familiarise learners with OSH terminology, to become well-versed with bodies relevant to Occupational Safety & Health, to understand the Strategy for Safety & Health at Work 2021-27, to learn about the link between EU-based OSH and national bodies, and to get acquainted with the names and functions of national OSH bodies. This class also covers the learning and testing of the OiRA Tool, a significant resource in this field.
Slide 4:	As defined by the World Health Organisation, 'Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards.' In Cyprus, the EU directives set the minimum requirements which are then translated into national law. This ensures that Cypriot legislation adheres to EU standards. All issues and amendments concerning OSH fall under the Safety & Health at Work Laws/1996."
Slide 5	The Department of Labour Inspection of the Ministry of Labour Welfare and Social Insurance is the responsible public body for OSH in Cyprus, and plays a crucial role. The inspectors, appointed by the Ministry of Labour and Social Insurance, ensure that health and safety regulations are followed in workplaces. The mission of the Department of Labour Inspection is to safeguard appropriate and adequate levels of safety and health at work, aiming for the elimination or drastic reduction of work accidents and occupational diseases, and protecting the public against risks arising from work activities
Slide 6	The table in the slide indicates the structure of the Department of Labour Inspection, which has operations in all districts in Cyprus.
Slide 7	Employers have several primary duties to ensure safety and health at work. These include providing and maintaining a safe working environment, offering necessary information, instruction, and training, implementing and overseeing safety measures, providing safety representatives sufficient exemption to fulfill their duties without loss of remuneration, and observing general principles of risk prevention as set by law. Other responsibilities include ensuring that work equipment is safe, protecting the reproductive function of employees, especially pregnant women, considering employees' capabilities regarding safety, consulting on the introduction of new technologies, and not levying charges on employees for safety compliance.
Slide 8	What constitutes a work accident? 'Any discontinuous event causing physical or mental harm or loss of life to an employee during work or commute.' Notifiable accidents are those either fatal or cause employees to be unable to perform duties for more than four days.
Slide 9	These accidents should be reported as soon as possible to the District Labour Inspection Office for investigation. Fatal or serious accidents must be reported in written form within 15 days.
Slide 10	The roles of Safety Representatives and Safety Officers are vital in workplaces. Safety Representatives, appointed in workplaces with more than two persons employed, represent fellow employees on issues regarding protection from hazards. They usually have two years of experience in the company or a similar job role. Safety Officers, required in workplaces with over 200 employees, focus exclusively on health and safety issues. They must be part of the Internal Protection & Prevention Service and are approved by the Department of Labour Inspection.

Slide 11	Safety Committees play an important role in Cyprus, serving as a response to the limited number of inspectors and engaging workers in designing and implementing preventive measures at workplaces. Established since 1965 in mines and quarries, they now cover all areas of economic activity and have an advisory role in entities that employ more than 10 people. Members include safety representatives, safety officers, work doctors, the employer, or their representative, with terms lasting three years.
Slide 12	A Safety Officer's duties include preparing written Risk Assessments, implementing the Risk Management System, participating in Safety Committee activities, conducting inspections to identify risks, organising training programs and training staff, submitting recommendations to improve safety and health levels, monitoring the implementation of preventive measures, investigating work accidents and dangerous incidents, preparing relevant reports, keeping safety and health records, and acting as the inspector's escort
Slide 13	The Strategy for Safety & Health at Work 2021-27 in Cyprus aims to define directions and priorities for achieving worker protection, focusing on the changing work environment due to European efforts for green, digital, and demographic transitions. The strategy emphasises the risks of psychosocial factors, musculoskeletal disorders, new and emerging risks, and supports micro-enterprises. It also aims to achieve the 'Vision Zero' approach to work-related deaths in the EU.
Slide 14	The results of the 2013-2020 strategy show a decrease in the Accident Frequency Index by 14.7%, 33124 inspections conducted, the introduction of new regulations for health surveillance, and the development of new and revised OiRA tools in 10 areas of economic activity. Campaigns on OSH culture included informative activities for teachers and students on the OiRA tool, issuing special guides on COVID-19 management, and organising awareness campaigns with seminars, workshops, and training programs.
Slide 15	The OiRA Tool, standing for Online Interactive Risk Assessment, is a free resource supporting employers in carrying out risk assessments to ensure the safety and health of employees, reducing costs and negative impacts of work-related accidents and sickness absence. It offers generic, sector-specific, country-specific, EU level, and SME-focused assessments, available in various EU languages, most of them in English. The tool can be accessed online.
Slide 16-18	The OiRA Tool provides sector-specific assessments for a wide range of industries, including agriculture, forestry, fishing, automotive, construction, education, food production, healthcare, hospitality, and many more. This tool is instrumental in helping industries assess and manage risks specific to their sector.
Slide 19	Learners are advised to undertake a 3-week assignment to carry out a risk assessment at their workplace or a family business and share their experience. Another assignment includes to select a topic on OSH for a deep dive. These activities are designed to encourage practical application of the knowledge gained in this session.
Civil Defence in Cyprus	
Slide 21	This side embarks on an insightful journey into the world of Civil Defence in Cyprus. This session is designed to provide a comprehensive overview of the operational and legal aspects of Civil Defence, especially in emergency situations. We will delve into the National Risk Assessment, understanding its critical role in emergency preparedness. Key objectives include developing a deep understanding of the powers and responsibilities vested in the Civil Defence, exploring its structural framework within Cyprus, identifying the spectrum of natural and human-induced risks prevalent in the region, and familiarising learners with national emergency plans. This session aims to equip students with a thorough understanding of Civil Defence's role and significance in Cyprus.

Slide 22	Cyprus is divided since 1974, and the northern part of the island is not under the direct control of the Republic of Cyprus. Thus, for that part, civil defence legislation and operations do not apply. This session focuses on the RoC's jurisdiction, where Civil Defence plays a pivotal role. The division presents unique challenges, especially in managing emergencies on a national and global scale, such as the recent COVID-19 pandemic. The lack of cooperation between the two regions underscores the need for effective strategies and heightened preparedness to handle emergencies effectively
Slide 23	CCD is entrusted with a mission – the protection of civilians from the ravages of conflict and disasters, whether they stem from natural causes or human activities. The CCD's responsibilities don't just end at response; they extend to enhancing civil protection mechanisms, raising public awareness for disaster prevention, and increasing societal resilience. The CCD also works to consolidate basic rules on safety and self-protection. This multifaceted role underlines the organisation's role to safeguarding the population and enhancing community preparedness.
Slide 24	Prevention is a key pillar in the CCD's strategy. This involves drawing up response plans for a variety of emergency scenarios, conducting training for staff, upgrading equipment to stay ahead of emerging threats, and raising public awareness about emergency situations. Furthermore, the CCD is responsible for constructing and maintaining shelters and regularly organising drills to ensure readiness for different emergency situations. This proactive stance is crucial in mitigating risks and ensuring the safety and well-being of the public.
Slide 25	Established back in 1966, the CCD has grown into an organisation with a workforce of approximately 80 individuals, supplemented by a dedicated force of about 400 volunteers. Its structure is comprehensive, encompassing six vital departments: First Aid, Welfare, Neighbourhood Watch, Communications, Search & Rescue, and the Aerial Observation Unit. The CCD also has a network of 40 stations across the island, to support widespread coverage and quick response capabilities. This organisational structure is instrumental in coordinating the wide array of services the CCD provides.
Slide 26	Each department within the CCD is a cog in a larger machine, contributing significantly to the overall mission. The Neighbourhood Watch program focuses on enhancing community safety, Search & Rescue teams are trained to respond to a variety of emergencies, the Communications department ensures effective information dissemination, the First Aid team provides essential medical assistance, Welfare takes care of the needs of affected civilians, and the Aerial Observation Unit plays a crucial role in monitoring and surveying. Understanding the function of each department gives us a clearer picture of how the CCD operates as a cohesive unit.
Slide 27	A national crisis is not just any emergency; it's a situation that affects a substantial portion of the population, disrupts normal life, and has far-reaching economic and psychological impacts. It also poses significant challenges to the state's functioning. Understanding this definition helps us appreciate the complexity and scope of the situations that the CCD prepares for and responds to. It's a broad spectrum that includes various types of emergencies, each demanding a tailored response.
Slide 28	Under the Civil Defence Act of 1996, specific procedures are laid out for declaring a State of Civil Defence. This can be initiated by the Minister of Interior or the Council of Ministers and is subject to a 48-hour duration, extendable with approval from the House of Parliament. This legislative framework is critical in understanding how civil defence operations are authorised, regulated, and executed. It forms the legal basis for the CCD's

	operations and ensures that responses to emergencies are carried out within a defined legal context.
Slide 29	Currently, there are 2250 shelters, capable of accommodating 40% of the population. However, these shelters are mainly designed for protection against bombardment and are not fully equipped to handle chemical or biological disasters. We categorise these shelters into three types: private, which are individual shelters; court or apartment complex shelters; and public shelters. This part of the presentation highlights both the capabilities of our current shelter system and the areas where improvements are necessary.
Slide 30	An essential component of the CCD's emergency response system is its alarm network. Comprising 150 alarms strategically placed across the island, this system is equipped to send out different types of notifications. These include alarms for mobilisation in case of emergencies and voice messages to inform the public about natural disasters or hostile actions. Understanding the operation and importance of this alarm system is crucial for appreciating how the CCD communicates and alerts the public in times of crisis.
Slide 31	In 2018, a comprehensive National Risk Assessment was conducted, identifying key risks such as forest fires, water scarcity, tsunamis, technological accidents, floods, earthquakes, sea-level rise, and complex incidents. This assessment is a cornerstone of Cyprus' emergency preparedness and response strategy. It helps in understanding the types of risks the country faces and guides the development of tailored response and prevention strategies.
Slide 32	Post-emergency evaluation is a critical aspect of the emergency management cycle. However, it currently faces challenges such as a lack of comprehensive follow-up and a dearth of transparency in assessment reports. This slide highlights the need for robust and collective evaluation methods, which are essential for improving Cyprus' overall approach to managing emergencies and learning from past incidents.
Slide 33	The Zenon Plan is a comprehensive crisis management framework that comprises 24 different scenarios. These scenarios range from major disasters to terrorist attacks and regional crises. The plan involves the coordination of various ministries, each responsible for specific scenarios, often in collaboration with other services. However, the full details of the plan are not publicly available, underscoring its strategic importance in coordinated crisis management efforts in Cyprus.
Slide 34	Cyprus also has specific emergency plans in place, such as the Enceladus, Electra, Estia, and Seveso plans. Each of these plans is managed by different ministries and is designed to address specific types of emergencies. For example, the Enceladus plan focuses on earthquakes, while the Electra plan deals with radiological and nuclear incidents. This diversity of plans illustrates Cyprus' comprehensive and multifaceted approach to crisis management.
Slide 35	Activity: The class may engage in a discussion on the 2022 earthquake in Turkey and Syria. This can include an analysis of the coordination of the response, Cyprus's assistance, strategies for impact prevention, and the geopolitical factors affecting support. The discussion may also explore how the earthquake indirectly affected Cyprus. This discussion can provide an opportunity to apply the concepts covered to a real-world example, enhancing learners' understanding and engagement.

Exercises

1

Write down main differences and similarities between two Member States at your choice in the field of civil protection and Health & Safety at work.

- Only to be done if the students had the possibility to see all the national contexts.
- Organisation: class work with a common board to create a kind of synoptic table.
- Duration: 1 hour

ACTIVITY 1.2 – RISK ANALYSIS

TOPIC 1.2.1 – CONCEPT OF RISK

Slide 3	Let's brainstorm with the class.
Slide 4	<p>Risk analysis is applied to different fields and areas in our lives.</p> <p>The following is a non-exhaustive and non-complete list of some kind of risks, that in some way can interact with civil protection issues.</p> <p>We've got: Transportation (airplanes, trains, buses, ships, cars, bicycles, spacecraft).</p>
Slide 5	We've got: work environment (construction sites, offices, factories)
Slide 6	We've got: domestic environment (gas leaks, knife cut, electrocution),
Slide 7	There is the possibility of being killed by animals, plants, bacteria or viruses,
Slide 8	<p>Do you recognise the film clip on the right?</p> <p>Then you know that it is a beautiful film about an asteroid about to hit the Earth. It's Don't Look Up.</p> <p>There are many films about meteorites, although it is actually an incredibly low risk.</p> <p>However, there is another astrophysical risk to pay attention to.</p> <p>Less famous than asteroids, but more dangerous. geomagnetic storms. These are events produced by the solar activity that happen every hundreds or thousands of years. They can be particularly violent and they can create important electric currents in the ground.</p> <p>The last time this event occurred (in 1859), northern lights were seen from Rome and Cuba, and many telegraphs were electrocuted. 150 years ago there were not many electrical infrastructures in the world, so not a big problem, now our society is much more dependent on that kind of infrastructures.</p>
Slide 9	<p>Finally, we've got the main topic of this part of the course natural hazards, which will be discussed in the Activity 2.2,</p> <p>Climate crisis, which has a negative influence on many natural hazards and humanitarian issues.</p>
Slide 10	<p>First rule of the risk: there is no single accepted definition of the risk, because, basically, it's a very recent topic, a very young field of scientific research.</p> <p>So, here are four definitions of risk, taken from important sources. The idea is to provide a broad view of this topic.</p> <p>Let's see the main definitions: [read definitions]</p> <ul style="list-style-type: none"> • Risk is the combination of the probability of an event and its consequences. So, if we have a dangerous event in a given area (that we can call "hazard"), it can become a RISK, if we consider human elements, economic and environmental elements in that area, and the vulnerability of that area. • The probability has to be calculated over a given period of time.

	<ul style="list-style-type: none"> We can talk about risk considering potential loss of life and damages to society, community. We have to consider a period of time, and then hazard, exposure and vulnerability. We have again a combination between Hazard and characteristics of people and places.
Slide 11	<p>So, we can say that Risk is a probabilistic concept.</p> <p>It's the probability of occurrence of a certain event, capable of harming people or damaging property.</p> <p>If we have a source of danger and the possibility of it turning into harm or damage, then we have risk.</p>
Slide 12	<p>Which is the biggest risk? What are the differences? How can we estimate the bigger risk? What does «bigger» mean?]</p> <p>Do you have the chance to compare these kind of risk with no other information? No.</p>
Slide 13	<p>What are the differences? How can we estimate the bigger risk? What does «bigger» risk mean?</p> <p>Here we have two floods. But what is the difference?</p>
Slide 14	<p>Here we have two volcanos. But what is the difference?</p> <p>Do you recognize the one on the left? By the way, in the red zone of the Veusvio live 700.000 people. Almost a million.</p>
Slide 15	<p>To repeat the main concept of Risk: it's the possibility that a natural or a human-made phenomenon may cause harmful effects on the population or damage on production plants, infrastructure, historical and cultural sites or ecosystems, considering a particular area and in a given period of time.</p> <p>The total risk is determined by a complex interaction between its components, that we can simplify in this formula: the risk equation.</p> <p>So, the hazard is the probability of occurrence of an event. For example, Hazard can be the probability of an earthquake of a certain magnitude occurring in the next 200 years in Rome, or the probability of a flood with a certain water level flooding Florence in the next 50 years.</p> <p>The exposure is how many people can be harmed.</p> <p>The vulnerability is the propensity to suffer damage.</p>
Slide 16	<p>Let's see some other definitions and point of view of the hazards:</p> <p><i>“Hazard is the process, phenomenon or human activity that carries the potential to cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.</i></p> <p>Maybe it's banal, but we have to consider not only what has already happened but what has not yet happened. Think of the pandemic crisis before Covid, think of geomagnetic storms.</p>
Slide 17	<p>Often we use the word event to talk about hazards, but sometimes we must use the word phenomenon, because it could be a very long long event, like a drought.</p> <p>Hazards can be natural or human-mad, and some cases, like fifty fifty.</p>

	<p>To be precise, there are certain types of hazards that are more difficult to fit rigidly into the "natural" or "anthropogenic" category, such as forest fires, which are in most cases of anthropogenic origin, or extreme climatic events caused by anthropogenic climate crises.</p>
Slide 18	<p>There are many types of hazards of course, but I think it's clear now.</p>
Slide 19	<p>Exposure it's the amount of elements in a given area, such as human lives, infrastructure, housing, production capacities, factories, species or ecosystems, ecological services, that could be affected by the hazards</p> <p>For example, if an earthquake happens in the middle of the desert it's very unlikely that it would hurt anyone, but if it happens in a very populated town it's very likely to have casualties and damages.</p>
Slide 20	<p>The vulnerability is the propensity or predisposition of an exposed element to suffer damage and be adversely affected. Exposed elements could be individual, community, infrastructure, system or ecosystem).</p> <p>For example, an earthquake-resistant building resists an earthquake better than an ancient church or an old house. A bridge high and with large spans resists a flood better than a low one and with small spans.</p>
Slide 21	<p>Let's see an example of application of the Risk Formula, and let's try to identify the components of the Risk.</p> <p>Earthquake case:</p> <p>Which is the hazard?</p> <p>The hazard is the probability of an earthquake of a certain intensity occurring in a certain area (or the return time of that earthquake).</p> <p>Which is the exposure?</p> <p>Exposure is the amount of houses, industry, infrastructure and, above all, people present in that certain territory.</p> <p>What about vulnerability?</p> <p>Vulnerability is the ability of the exposed assets to withstand an earthquake.</p>
Slide 22	<p>Flood:</p> <p>Hazard is the probability that a certain flood will occur, or that water will reach a certain height. It can be said that areas around the river have a certain level of hazard.</p> <p>Exposure represents what is found in the areas around the river. Who and what can be flooded.</p> <p>Vulnerability is the ability of bridges to resist the passage of the flood wave, or the ability of houses to keep water out, or the presence of emergency generators on floors above the first.</p>
Slide 23	<p>We can use a shorter version of the risk equation:</p> <p>If we combine Exposure and Vulnerability we obtain the Damage</p> <p>So we have to consider just two parameters, and that is useful to represent the risk matrix.</p>

Slide 24	<p>Risk Matrix</p> <p>The risk matrix combines Hazard (or likelihood) and Damage (or consequences). It is intuitive and give the possibility to compare different occurrences or contexts for the same risk.</p>
Slide 25	<p>First rule of risk? Never zero.</p>
Slide 26	<p>The risk is not constant over time. It can change. In particular, the three parameters of risk can change, and so risk can also change.</p> <p>There can be many reasons for this. For example, climate change may modify the frequency of floods or other hydrogeological hazards;</p> <p>Technical and scientific knowledge may, reduce the vulnerability of new buildings to earthquakes;</p> <p>Exposure may also change over time; for example, a tourist site may increase its exposure during the summer period (if it is a seaside resort) or during the winter period (if it is a mountain resort).</p>
Slide 27	<p>Let's see an example.</p> <p>The starting situation (A) involves a certain level of hazard, exposure and vulnerability, which combined together provide a certain level of risk. The blue dotted lines represent the different levels that water can reach for different return periods.</p>
Slide 28	<p>The construction of a levee (B) can decrease the hazard (the probability of a certain flood reaching houses is decreased). Thus, the risk decreases.</p>
Slide 39	<p>The levee can have a dangerous 'psychological - social' effect: the perception of safety. People and local authorities feel safer behind the levee and this can lead to unsafe planning choices. If more houses or infrastructure are built behind the levee (C), the exposure increases, and consequently the risk increases, and can reach a level even higher than before the embankment was built.</p>
Slide 30	<p>With increasing global surface temperatures the possibility of more droughts and increased intensity of storms will likely occur.</p> <p>As more water vapor is evaporated into the atmosphere it becomes fuel for more powerful storms to develop. More heat in the atmosphere and warmer ocean surface temperatures can lead to increased wind speeds in tropical storms.</p> <p>Rising sea levels expose higher locations not usually subjected to the power of the sea and to the erosive forces of waves and currents.</p>

Exercises	
	Exercises on Topic 2.2

TOPIC 1.2.2 - NATURAL AND ANTHROPIC RISKS

Slide 4	<p>Risk is the possibility for humans or human society to be affected or harmed by something. The probability that something bad could happen.</p> <p>We can divide the risk into 3 components, into 3 elements. In this way we can analyse what increases the risk and what we can do to prevent it.</p> <p>The first component is the Hazard, so the probability that a phenomenon or event could occur in a given location and in a given time. Could be the probability to have an earthquake, an accident, a flood, an asteroid impact.</p> <p>The exposure is basically, how many people, how many buildings are exposed or subjected to the risk?</p> <p>And I have the vulnerability, that tell me if something happens and hits me how much I get hurt. Could I die? Or just shocked? Or how big could be the damage to a building?</p>
Slide 5	<p>Let's make an example. Earthquake</p> <p>The general or total risk is the possibility for buildings to get damaged or for people to get hurt. The Hazard depends on the area. For example in Italy the most dangerous areas, so with the higher risk are in the centre and in the south of Italy. And in the north-east too.</p> <p>In Cyprus the south coast is the most dangerous area. The Hazard is how intense and how big an earthquake can be, and also how frequently, so how many times in a century it can happen.</p> <p>The exposure I think it's clear. If I'm in a desert well the exposure is zero, so the total risk could be zero. Because there is no one to hurt and nothing to destroy. If I'm in a city with a lot of people it could be a disaster.</p> <p>Vulnerability. What kind of building do I have? An anti seismic building, or ancient church?</p> <p>Two different responses to the earthquake.</p>
Slide 6	<p>Sometimes, I can merge, or unit, Exposure and Vulnerability and consider only one parameter: the damage. Because, the hazard depends on natural phenomena (in most cases, and if we talk about natural hazards), but the exposure and the vulnerability are very connected to human society.</p> <p>The first one could be a natural parameter, the other two human parameters. Sometimes it is useful to consider them together. Of course, it's not always like that: sometimes human activities have an influence on the hazard.</p> <p>In this way I can draw a Risk matrix, to calculate, and to analyse the risk, and to compare different situations. (L is Low, M is Medium, H is High, E is extreme)</p>
Slide 7	<p>First of all, we have to divide natural risks and anthropic risks. This is a very very simple and short classification, a general overview.</p> <p>We can have geophysical hazards, like volcanic eruptions, earthquakes, and tsunamis. We can have hydrogeological and hydrological risks, like landslides and rockfall, many types of floods, surge storm, coastal flooding.</p> <p>Then we have meteorological risks, like rain storms, ice storm and snow storm, but also avalanche, heat waves, wildfires and droughts.</p>

	We can also have biological risks, like pandemic or epidemics.
Slide 8	<p>Talking about anthropic hazards, there are many.</p> <p>Chemical release, that can happen in many ways, industrial accidents, transport accidents, or the sinking of ships.</p> <p>Nuclear accident. And then, again, wildfire. Do you know why I put wildfires in anthropic hazards?</p>
Slide 9	<p>Floods</p> <p>First thing to know: floods are not good or bad events, they are just natural phenomena. Calling them good or bad it's just watching them from a human point of view. Floods are very important, they are important for the creation of floodplains and for the maintenance of their biodiversity: floods have generated life for millions of years.</p>
Slide 10	<p>What are flood plains?</p> <p>Here is Italy, a few millions of years ago. If we look at the north, we can see the evolution of that part of Italy. The action of the rivers, of the water can destroy, of course, but can also create, and in this case we have flood plains.</p> <p>A flood plain can be a very complex natural system, and we have to keep in mind that the space of the river is not only the space in which it is flowing. The space of the river is larger and bigger.</p>
Slide 11	<p>The danger is real when floods meet human society, and then they bring death and destruction.</p> <p>Every year floods cause damages for 6 billions of euros and affect 250,000 people. They are a problem, a big problem if not managed in the correct way.</p> <p>Flooding causes immediate impacts such as drowning, physical trauma, infections and chemical hazards, damage to critical infrastructures and health and social care services. Flooding can also cause long term damages to health and society.</p>
Slide 12	<p>Hazard is probability to have a certain water flow (how much water), in a certain river and in a certain period of time.</p> <p>In other words: how is the probability to have 1000 cubic metres per second, every 10 years, in Milan, or in Paris under the Tour Eiffel?</p> <p>Let's see an example. I have a river, (the blue shape is the river), and on the sides I have fields, houses, roads, and so on. For example, I can identify areas with different probability of occurrence. For example, in Italy the red area with 5-10% probability every year, the green with 1% probability, and the blue with 0,2% probability every year. So, if I build a house in the red zone, it's almost sure that in the next 10-20 years it will be flooded.</p> <p>The main cause is the rain, of course, but I can have a flood risk also when there is the sun, it's not raining and the temperature is high: melting of snow in spring.</p> <p>Floods can also be generated by infrastructure failure (e.g. dam breaks). There are also longer-term drivers of flood impacts. For example, changes in land use and climate change..</p>
Slide 13	Exposure is the amount of people and buildings that can be flooded.

	<p>Exposure is often the weakest element of the flood risk, because for thousands of years human society has developed close to water.</p> <p>And there is another problem: after the construction of embankments or levees, the perception of risk changes. This could lead to an increase in exposure, because I have more people and more buildings in dangerous areas. If a city or a town steals areas to the rivers, sometimes the river takes back these areas, and that is the problem.</p> <p>The vulnerability of a community depends on structural elements (water defence systems, water-proof buildings and flood-proof bridges) but also on non-structural elements, such as the preparation of civil protection and emergency plans, monitoring and forecasting systems, and the dissemination of the culture of prevention in the population.</p>
Slide 14	<p>Difference between levee and dam.</p> <p>A levee is parallel to the river, on the side of the river, and the idea is to prevent flooding. A levee can be called in different ways.</p> <p>A dam is perpendicular to the river, and I can use it for storage or for hydropower plants.</p>
Slide 15	<p>There are many types of floods. We can use some parameters to distinguish them.</p> <p>Rapidity</p> <p>Indicates the speed of flood wave along the river; it is not the speed of water. It's the speed of the wave, it's how fast the flood is coming. In other words: do I have time to run and evacuate?</p> <p>For small river-basins and short rivers, the most danger is a short and intense rainfall. So a lot of water in a few minutes or in a few hours. In this case the response of the river is very rapid, the flood wave is quick and rapid, and we can use the word "flash flood". No time to escape, no alarm system.</p> <p>For large rivers and large basins, typically the flood wave is slow and the water level rises gradually. The biggest danger is when I have a very long period of rain, so when it's raining for many days or many weeks, the soil and the ground are full of water, saturated, the river keeps increasing, and then flood; in this case usually I have time for action, because I can see the evolution of the event.</p>
Slide 16	<p>When we talk about rivers, we use the word basin to indicate the area where, if it rains, the water that is falling down goes into that river. The main river of that basin. I can have small basins, like on the left, or giant basins: on the right the Danube Basin.</p>
Slide 17	<p>Solid transport indicates the amount of solid material (clay, sand, and even large boulders) carried by the water flow.</p> <p>The presence of boulders can increase the destructive power of the flood wave. The solid transport is what makes possible the creation of flood plains, with tiny grains, and small material.</p> <p>But if I have a lot of solid transport, I can talk about mudflow or debriflow depending on the size of the solid transportation. As I already said before, we have many kinds of floods.</p>
Slide 18	<p>We can also have floods with no rivers.</p>

	<p>For example, this is Palermo, in Sicily (Italy). There's no river in that area, but, that day there was an incredible storm, a very intense rainfall in a very short time, and the water had no chance to be absorbed in the soil, or to be drained by the drainage systems.</p>
Slide 19	<p>The problem of runoff in urban flooding. This is the starting or natural situation.</p> <p>When it rains, the water has the chance to be absorbed with different phenomena, like infiltration in the ground, water storage, evapo-transpiration, and then the runoff is not so intense, it's not a big deal. The runoff is the part that causes the urban flooding, that runs down in the streets.</p> <p>What happens in urban areas? Cementification. So the water has no more chance to be absorbed, no infiltration, no evaporation, no storage, and then I have a very intense runoff, and a high risk.</p>
Slide 20	<p>How can I defend from floods? Yes, I can use levees, and let's see how they work</p> <p>This is my river, flowing from the mountains to the sea. And this is my city (Florence, by the way). I can defend building a levee. Ok, but what happens to the water flow?</p> <p>Let's see from another point of view: before the construction of the levees the water was free to go in the fields and in the spaces beside the river. So, some part of the water was lost during the flood. If I build levees, what happens? The water must follow the river, all the water.</p>
Slide 21	<p>So, after the levee, the flow of the water is bigger than before, I have more water to manage. And if I have another city downstream? Not so good.</p>
Slide 22	<p>So I can act in another way.</p> <p>I can build a storage basin, I can create a space, a new space, in which the water can flow, during a flood. And I have to do this before the city, of course. So, during a flood, some part of the water can go into this basin, and after a while the water comes back to the river, basically when the basin is full of water. I have increased the amount of water that is separated from the main flow, and so the water flow decreases. I have reduced the risk.</p>
Slide 23	<p>First: we have to recognise that flooding will continue to happen. We cannot stop them. It's banal, but it's important. Defending from floods means learning to live with floods.</p> <p>There are many uncertainties in knowing when and where a flood will happen.</p> <p>However, there are many things that we can do to prepare better for floods and manage the risk.</p> <p>We can act during a flood of course, with warning systems, with evacuation, breaking levees to let the water flow in open spaces.</p> <p>But this response must be followed by a recovery phase, with reconstruction of course but also with analysis, so the recovery phase can not just wait for the next event, but it can be and it should be a risk-reduction phase.</p> <p>We need contributions from many different disciplines of knowledge:</p> <p>governance, legal provisions, financial instruments for planning, prevention and crisis management, hazard modelling (so scientific knowledge, meteorological, hydrological), response training, coordination of local assistance, recovery of disrupted services.</p>

	<p>Communication with and engagement of the public</p> <p>It is possible to tell many things about risk communication. Some elements are not just about the floods, but are useful also with other kinds of risk.</p> <p>These elements can be:</p> <p>visualisation of maps of hazard, of exposure, and maps of risk. Because it's a very quick communication, and easy, with no numbers, or complicated maths or expressions, just colours. And watching the city you live in, with a risk map, it changes our perception of the city itself.</p> <p>Watching the graphic representation of the risk changes the risk perception.</p> <p>uncertainties: in the field of risk, there is no chance to be always sure, we cannot always know how, when and where a flood happens. Science is trying to understand this phenomena, but they are very complicated. Understand and accept that not always we can understand and know everything.</p> <p>The European Flood Awareness System aims to provide early flood information to national authorities to support national capabilities, particularly with earlier and probabilistic information.</p> <p>EFAS additionally provides information to support flood disaster response.</p>
Slide 24	Map of flood risk in Nicosia. Map of flood risk in Torino.
Slide 25	Landslides and rockfalls
Slide 26	<p>The word "landslide" is used to indicate many different types of phenomena</p> <p>Landslides are often linked to other phenomena, such as floods, earthquakes, or forest fires. And we will see how they are connected.</p> <p>Factors like climate change, uncontrolled land use, and urbanisation increase the risk of landslides.</p> <p>A key factor for landslides is the topographic setting. So basically, am I on a flat surface or on a slope? This is the first condition.</p>
Slide 27	<p>Causes can be predisposing or triggering.</p> <p>The predisposing causes are factors that create the conditions for landslides that make landslides possible; they can be many. The trigger is always just one, and it gives the "final push" to the movement.</p> <p>We have many different types of causes. Natural causes and Human causes. You are now watching both predisposing and triggering causes. Maybe if you have some questions we can return to this.</p>
Slide 28	<p>Classification is the best way to understand how a landslide works and to understand the many types of landslides.</p> <p>We can classify landslides using many parameters, but the most important are these: the type of material, the type of movement, the speed of movement.</p> <p>The type of material depends on the size of the grains.</p> <p>The size of the grains affects the behaviour of the material.</p>

	<p>In the table you can see how we can move gradually from clay, across silt, sand, to rocks and boulders. And here are some examples of different size grains</p>
<p>Slide 29</p>	<p>Clearly, the type of movement depends on the type of material, but some types of movement can occur with different materials</p> <p>In the images we can see the most used classification in the world. Just to see an example: rock fall of course can happen only with boulders, and big size grain.</p> <p>We can have falling movement, rotational movement, sliding movement. And we can have movement with no water involved, or with a great amount of water inside the landslide.</p> <p>And we can also have flow movement.</p> <p>Look at the F type. Floods and landslides can be really connected, because sometimes it's the same phenomenon. Take for example a flood with a lot of solid transport, or landslides with a lot of water. Basically there is no difference. Flood with no solid transport is an extreme, landslides with no water is another extreme, and they meet somewhere in the middle.</p> <ul style="list-style-type: none"> • Falls: the detachment of soil or rock from a steep slope along a surface on which little or no shear displacement takes place. The material then descends mainly through the air by falling, bouncing, or rolling. • Topples: toppling is the forward <u>rotation</u> out of the slope of a mass of soil or rock about a point or <u>axis</u> below the <u>centre of gravity</u> of the displaced mass. Toppling is sometimes driven by gravity exerted by material upslope of the displaced mass and sometimes by water or ice in cracks in the mass. • Slides: A slide is a downslope movement of soil or rock mass occurring dominantly on the surface of rupture or on relatively thin zones of intense shear strain. The slide can be: <ul style="list-style-type: none"> ○ rotational ○ translational • Spread: Spread is defined as an extension of a cohesive soil or rock mass combined with a general subsidence of the fractured mass of cohesive material into softer underlying material. In spread, the dominant mode of movement is lateral extension accommodated by shear or tensile fractures. • Flow: A flow is a spatially continuous movement in which surfaces of shear are short-lived, closely spaced, and usually not preserved. The distribution of velocities in the displacing mass resembles that in a viscous liquid. The lower boundary of displaced mass may be a surface along which appreciable differential movement has taken place or a thick zone of distributed shear. A flow can happen in rocks or in soil. <p>The following descriptions are by Hungr et al.,2001:</p> <p>Flow in rock</p> <ul style="list-style-type: none"> • Rock flow: Flow movements in bedrock include deformations that are distributed among many large or small fractures, or even microfracture, without concentration of displacement along a through-going fracture • Rock avalanche: Extremely rapid, massive, flow-like motion of fragmented rock from a large rock slide or rock fall. <p>Flow in soil</p>

	<ul style="list-style-type: none"> • Debris flow: very rapid to extremely rapid flow of saturated non-plastic debris in a steep channel • Debris avalanche: very rapid to extremely rapid shallow flow of partially or fully saturated debris on a steep slope, without confinement in an established channel. • Earth flow: rapid or slower, intermittent flow-like movement of plastic, clayey earth. • Mud flow: Mudflow is a very rapid to extremely rapid flow of saturated plastic debris in a channel, involving significantly greater water content relative to the source material.
Slide 30	Speed of movement. Some movements can occur in a few seconds, while others can last for years, or centuries.
Slide 31	<p>How does a landslide work? Main two types of phenomena.</p> <p>In the first case, I can have a normal situation, with a normal water pressure in the soil. In this case the grains are linked, there are forces between grains because they are close and stuck together: stable situation.</p> <p>If I have too much water, the water pressure increases, and water creates distance and spaces between the grains. So it's no longer solid, and the soil is not stable, and becomes mud. It becomes a liquid, and falls down.</p>
Slide 32	<p>In a second case, I can have two layers of soil.</p> <p>The bottom layer is waterproof or impervious to water, and the top layer is a drainage layer. So the water is trapped between the layers. If it rains, or if there is rapid snow melting, I can have a great amount of water that creates a pressure between the layers.</p> <p>And the water pressure can reduce the friction between the two layers and the one on the top can slide down.</p>
Slide 33	<p>Here you can see the exposed population per square kilometre, in Europe.</p> <p>And, on the left, you can see the expected changes in 2030 and in 2050</p>
Slide 34	<p>Climate change and human activities have an impact on the frequency and spatial distribution of landslides.</p> <p>These two phenomena should be considered at two different timescales:</p> <ul style="list-style-type: none"> • the influence of climate change on the spatial and temporal characteristics of landslide risk will be important by the end of the century; • Other factors, like urbanisation and land use can have an influence in a few decades.
Slide 35	<p>Mapping landslides is the main strategy to reduce the risk. But sometimes it is very difficult to understand what is under our feet. In addition to predicting 'where' a slope failure will occur, landslide hazards try to forecast 'when' or 'how frequently' it will occur, and 'how large' it will be.</p> <p>The simplest form of landslide mapping is a landslide inventory map, which shows the location and, where known, the date of occurrence and the types of landslide that have left discernible traces in an area. There is an example for you: in this map you can see with different colours different types of landslides, with the yellow triangles a past event, every landslides has a number.</p>

	And we can see the river and a little village.
Slide 36	How to prevent landslides? Basically I can work in two ways. I can prevent the movement of the landslides, by draining the water in the slope, or with slope stabilisation). I can prevent the impact. So I cannot stop the landslides, but I can defend houses and cars from boulders.
Slide 37	<p>Another way to prevent this is monitoring.</p> <p>Early Warning Systems for landslides are based on monitoring some key indicators (e.g. displacements, rainfall pore water pressure, groundwater level). When values for these indicators exceed predefined thresholds, alarms can be transmitted directly to people in charge of taking action.</p> <p>Of course, the main problem is that only the main landslides, and well-known landslides are controlled in this way. There are thousands of landslides that we don't know where they are.</p>
Slide 38	Earthquakes
Slide 39	<p>The crust of the Earth is moving, very slowly, but is moving.</p> <p>We have gigantic stresses and forces down deep in the Earth. When the stresses exceed the strength limit of the rocks, the energy is released in the form of seismic waves, and we have an earthquake. The fracture that generates the earthquake is called a fault and sometimes is visible at the surface.</p>
Slide 40	There are many kinds of seismic waves. They are important because different seismic waves have different impacts on buildings. Buildings are strong and can resist vertical movements well, but only anti seismic buildings can resist horizontal movement.
Slide 41	<p>An earthquake can be measured by two different values: magnitude and intensity.</p> <p>Magnitude is a physical parameter, used to measure how strong an earthquake was, and how much elastic energy was released.</p> <p>Pay attention: Every time the magnitude goes up by one unit the energy increases not by one, but by about 30 times. In other words, if I have an earthquake with M=4 and an earthquake with M=6, the second is 900 times stronger than the first.</p>
Slide 42	<p>The intensity is used to examine the effects on the environment, buildings and people.</p> <p>So there is an important difference. The same earthquake will always have the same energy, so the same Magnitude. But the same earthquake in Japan has some effects, because there are a lot of earthquake proof buildings, the same earthquake in Syria has a completely different Intensity.</p> <p>If we refer to the components of risk, magnitude indicates hazard, while intensity depends on exposures and vulnerability.</p>
Slide 43	<p>Site conditions are a key element in predicting earthquake impacts</p> <p>Particular combinations of geological and morphological conditions can change the intensity of a seismic wave, or can bounce it back several times. Two buildings with similar vulnerability may experience very different effects, during the same</p>

	<p>earthquake, if site conditions are different. These differences can occur even in a space of a few dozen metres.</p> <p>For example, a particular geological condition can increase the intensity of the wave. Or, a morphological condition, can make many waves converge in a single point. Or, another situation of layers can make the wave bouncing several times under the same building.</p> <p>It's important to do the 'seismic microzonation.</p>
Slide 44	<p>Here you can see the seismic risk in Europe. In this case, this map is useful for national actions, at a national level. The microzonation is needed to take actions at a local scale.</p>
Slide 45	<p>For a local assessment, a building-by-building data collection campaign can be organised.</p> <p>Elements for assessing the vulnerability of a building are materials, number of floors, building shape, age of construction, and presence or absence of earthquake-proof criteria.</p> <p>Emergency rescue reports from several past earthquakes indicate that more than 90 % of successful rescues occur within the first 24-48 hours. So time is life.</p> <p>Successful rescues depend greatly on the preparedness of the local authorities and the efficient allocation of limited resources shortly after seismic events.</p> <p>Interesting project: the USGS PAGER project for estimates of human and economic losses, and the European project ARISTOTELE, not only for earthquakes but for volcanoes and tsunamis too.</p> <p>RISK-EU and LESSLOSS for impact in urban areas and STREST for impact on critical infrastructures</p>
Slide 46	<p>Let's talk about wildfires</p>
Slide 47	<p>In Europe more than 95 % of the fires are man-made, and then the spreading of the fire is driven by natural factors. Fires affect human lives and livelihoods and result in high social and economic costs.</p> <p>Fires cause large increases of atmospheric emissions and pollutants, cause soil erosion, reduce the provision of goods and services by forests, and change land cover patterns and landscape ecosystem dynamics.</p>
Slide 48	<p>Wildfire risk is derived from the combination of fire hazard and fire vulnerability.</p> <p>Fire hazard can be defined as the combination of the presence of ignition sources, fuel availability and conditions for fire ignition and spread.</p> <p>The Fuel is what can burn. So woods, bushes.</p> <p>The conditions for ignition can be temperature, humidity of the air. And for spreading can be wind, of the shape of the forest. Fire can go easily from bottom to top, because the heat and the flames go up.</p>
Slide 49	<p>Let's see the main causes.</p> <p>Prolonged droughts and heatwaves dry out fuels and help to create the conditions for wildfires;. Windstorms can create accumulation of large amounts of fuel. And of course, strong wind is the main driver for wildfire.</p>

	<p>Attacks by insects and phytopathogens the vulnerability of the forest. However, wildfires can also influence other hazards.</p> <p>Also climate change and other human factors like land use can increase the risk of wildfire.</p>
Slide 50	Distribution of wildfire in Europe. As you can see the mediterranean region is particularly hit by wildfires.
Slide 51	<p>How to prevent wildfires? Fire prevention must target the reduction of fire ignitions and the management of fuels, as these are the only factors we can act on</p> <p>Fuel reduction: Some prevention techniques are the elimination of fuel. Managing a forest is very important.</p> <p>Prescribed burning: An intentional fire, controlled fire, that reduces the risk of future wildfires.</p> <p>Cultural education: But, since most fires are caused by humans, fire prevention activities require measures to prevent these ignitions, so basically cultural education.</p> <p>Technology: Modern technologies for the evaluation of vegetation and meteorological conditions allow forecasting of fire danger conditions. Remote sensing can provide almost real time assessment of fire spread, which can be used in decision-making by the firefighting teams and squads.</p> <p>International collaboration: There are bilateral agreements among many EU Member States for fire prevention and, in particular, for firefighting. In addition, at the European level a general agreement for collaboration exists between countries to share firefighting resources during fire campaigns. This agreement is established under the Union Civil Protection Mechanism (UCPM) and is coordinated by the European Commission.</p>
Slide 52	<p>Projects in Europe:</p> <p>The European Forest Fire Information System (EFFIS) and the Group on Earth Observations (GEO) that try to contribute and to create a Global Wildfire Information System (GWIS).</p>

Exercises

1

Identify major risk in your area, following these guidelines:

- Choose a small/medium geographical area referring to where you live or where you work/study; knowing the chosen area well can help in the activity. It can be a city, a valley, a region, a coast, an island.
- Identify the main hazards present in the chosen area, using information available from official bodies (institutional, scientific or professional).
- For each identified risk, identify the hazard, exposure and vulnerability. It may also be useful to identify the factors that influence today, have influenced in the past or will influence in the future the three components of risk.
- If available, find risk maps.

ACTIVITY 1.3 – THE PLANNING PROCESS

TOPIC 1.3.1

Slide 3	<p>Why do we need an emergency plan? The reasons for having an emergency plan go beyond the fulfillment of a legal obligation.</p> <p>First of all, one must start from the concept that no territory is completely safe: this implies that a zero risk condition does not exist. And this is an apparently trivial assessment, but in fact fundamental to fully understand the importance of planning. Having become aware of the more or less widespread presence of risk in the territory in which we live, the study and analysis of methods to mitigate these risks becomes fundamental.</p> <p>Among the tools useful for risk mitigation is emergency planning, which is understood as forecasting, prevention and structuring a system to be activated in the emergency phase.</p>
Slide 4	<p>Take Italy as an example.</p> <p>Italy is one of the European countries most at risk: Hundreds of small basins flank the 5 large natural basins (Po, Arno, Tevere, Piave and Volturno) in drawing an extensive and widespread hydrogeological risk map from North to South.</p> <p>Moreover, the territory is 40 per cent seismic and 65 per cent of the buildings constructed in these areas are seismically unsafe. Approximately 2,000,000 Italians live in volcanic risk areas and live with the risk of volcanic eruptions of great destructive force.</p> <p>Forest fires are widespread throughout the Italian territory, in the summer period for the Mediterranean area and in the winter period for alpine territory: in Italy in 2020 alone, more than 55,000 hectares of wooded area were devastated by fires of various kinds, but mostly of anthropic origin.</p> <p>In addition, the widespread presence of dangerous industrial plants in some areas of the country places the industrial risk at the centre of the Civil Protection bodies' attention.</p> <p>To this we must add the risk associated with transport routes and systems: of hazardous substances by road and rail, or the risk of aviation accidents in an increasingly congested infrastructure network.</p> <p>Finally, we must consider the presence of nuclear plants in neighbouring countries such as France, the risk of terrorist attacks and, of course, sanitary/health emergencies.</p>
Slide 5	<p>An obvious example of how this mechanism can become fundamental was sadly offered to us by Hurricane Katrina in New Orleans, United States (US), where an error (albeit one that can be remedied) in the forecasting systems added to poor maintenance of the defense works (the system of dams) and a too-slow operating machinery generated a disaster of enormous proportions.</p>
Slide 6	<p>The case of Katrina was, fortunately, a unique event in terms of the intensity of the phenomenon and the series of mistakes made, but it is a good example of how inadequate forecasting, prevention and maintenance can lead to disasters. And precisely in the country that has made emergency planning (through the FEMA - Federal Emergency Management Agency) a flagship and, fortunately, there are many examples where this prevention has worked. One only has to think of how an</p>

	<p>event of equal intensity, such as a hurricane, striking territories with different developments, causes decidedly different effects. In the US, the passage of hurricanes in the Midwest is a repetitive phenomenon that humans have learned to live with. The population is aware of the risk in the area and, at the local level, there are specific plans that work automatically with the cooperation of the citizens who have been trained and informed in advance. On the other hand, as the chronicles of recent years have taught us, a similar or even less intense event, which strikes a less economically and socially 'developed' territory, causes an impressive number of victims and leaves entire populations to cope with the re-establishment of conditions of poverty and despair. Obviously, to all these components we must also add the psychological aspect with which these populations face the risks of the territory: on the one hand, the American citizen knows that they can count on a relief machine and an insurance system that covers them from any damage that may be caused by a disaster; on the other, entire families and populations are abandoned to their fate without clear prospects for their future.</p>
Slide 7	<p>And a similar argument can be made for other types of risk, namely earthquakes. Again, recently we have seen entire regions razed to the ground by seismic events of particular intensity. A scourge that Japan, for example, knows well and has learned to live with, constructing even very tall buildings at the cutting edge of earthquake-proof engineering. While the recent earthquake in Pakistan wiped out entire generations.</p>
Slide 8	<p>Ultimately we need emergency planning to save lives.</p>
Slide 9	<p>And this aim doesn't change when we talk about H&S at workplaces.</p>
Slide 10	
Slide 11	
Slide 12	<p>It is evident that the Emergency Management, either Civil Protection or Safety in Workplaces, revolves around three words:</p> <p>PREVENTION</p> <p>PREPAREDNESS</p> <p>RESPONSE</p> <p>But what do they mean exactly?</p>
Slide 13	<p>Let's start with the first one.</p> <p>PREVENTION</p> <p>According to the online Cambridge Dictionary, prevention is the act of stopping something from happening or stopping someone from doing something. The key concept here is "before": we act before something happens in order to stop it.</p> <p>In the field of Civil Protection/Emergency planning, it is similar: we act to prevent a disaster, but we are aware that usually we cannot really stop it, rather we can mitigate its effect.</p> <p>Prevention means building houses able to resist an earthquake.</p>

	<p>Prevention means keeping rivers clean in order to limit floods damages.</p> <p>Prevention means also informing people about the risks insisting in areas they live in or visit.</p>
Slide 14	<p>To simplify, we can say that prevention is based on three concepts: one spatial, one temporal and one typological. In translation, we can speak of three questions: WHERE?, WHEN?, HOW?</p> <p>A complete forecast should provide an answer to all three questions, but often, only some of them are answered. Usually, the main problems are created by the 'when'. Take a landslide, for example: we know WHERE it will break, we probably also know HOW, but what we don't know is WHEN. In other cases, as with hurricanes, we know WHERE they will go, we know WHEN they will come but, as in New Orleans, but we do not know HOW. In other cases, we know approximately HOW (e.g. a plane crash), but we know neither WHERE nor WHEN. Finally, the risk of a river overflowing allows us to know HOW, and with a margin of error even WHEN, but the WHERE remains to be proven. In short, a precise forecast cannot exist: a greater degree of prediction can, however, be achieved by means of proper spatial planning.</p> <p>And this is one of the reasons why even a good provision is often not enough to cope with an emergency.</p>
Slide 15	<p>PREPAREDNESS</p> <p>For the online Cambridge Dictionary preparedness means being prepared for a particular situation. Quite obvious, isn't it? Well, we have just experienced how this can be tricky when an emergency hits.</p> <p>We, as citizens, but also governments, institutions, health services and hospitals (to mention some) were not prepared to face the COVID-19 pandemic. And for civil protection this is a great problem.</p> <p>Being prepared means that all the resources engaged in the civil protection activities are ready to use:</p> <ul style="list-style-type: none"> • Human resources have to be trained and available in case a disaster hits • Material has to be available in sufficient quantity and due time • Means have to be ready to be deployed quickly • Funds need to be easily available in case of emergency <p>If everyone and everything is well prepared, emergency management will be easier. Preparedness is the link between the "before" and the "during", in the sense that preparedness occurs before the disaster (together with prevention" and is deployed and tested during an emergency.</p>
Slide 16	<p>RESPONSE</p> <p>The online Cambridge dictionary defines 'response' as a reaction to something that has happened. In civil protection, response is what happens when a disaster hits, rescuing people is the first thing, securing areas and building, protecting animals and economic activities, but also cultural heritage etc.</p> <p>Here the key concept is during: what do we do when a disaster hits...</p> <p>The end of an emergency is often difficult to determine: usually it happens when all main activities (economy, schools, etc) are back to normal.</p>

<p>Slide 17</p>	<p>These three components of the civil protection process are not rigidly separated, but intertwined in a circular process that needs to be continuously fine tuned and tested. And they all enter into the game when you start planning, despite the many approaches and methodologies existing.</p> <p>They have different names, they are exploded or merged, but they are always there.</p> <p>Let's have a look at some of these planning methodologies.</p>
<p>Slide 18</p>	<p>There are six steps in the emergency planning process:</p> <ol style="list-style-type: none"> 1. Form a collaborative planning team: Using a team or group approach helps organisations define their perception of the role they will play during an operation. One goal of using a planning team is to build and expand relationships that help bring creativity and innovation to planning during an event. This approach helps establish a planning routine, so that processes followed before an event occurs are the same as those used during an event. 2. Understand the situation Hazards and threats are the general problems that jurisdictions face. Researching and analysing information about potential hazards and threats a jurisdiction may face brings specificity to the planning process. If hazards and threats are viewed as problems and operational plans are the solution, then hazard and threat identification and analysis are key steps in the planning process. 3. Determine goals and objectives By using information from the hazard profile developed as part of the analysis process, the planning team thinks about how the hazard or threat would evolve in the jurisdiction and what defines a successful operation. Starting with a given intensity for the hazard or threat, the team imagines an event's development from prevention and protection efforts, through initial warning (if available), to its impact on the jurisdiction (as identified through analysis) and its generation of specific consequences (e.g., collapsed buildings, loss of critical services or infrastructure, death, injury, or displacement). 4. Develop the plan The same scenarios used during problem identification are used to develop potential courses of action. For example, some prevention and protection courses of action can be developed that may require a significant initial action (such as hardening a facility) or creation of an ongoing procedure (such as checking identity cards.). Planners consider the needs and demands, goals and objectives to develop several response alternatives. 5. Prepare, review, and approve the plan The planning team develops a rough draft of the base plan, functional or hazard annexes, or other parts of the plan as appropriate. As the planning team works through successive drafts, the members add necessary tables, charts, and other graphics. A final draft is prepared and circulated to organisations that have responsibilities for implementing the plan to obtain their comments. 6. Implement and maintain the plan Exercising the plan and evaluating its effectiveness involve using training and exercises, and evaluation of actual events to determine whether the

	<p>goals, objectives, decisions, actions, and timeline outlined in the plan led to a successful response. Similarly, planners need to be aware of lessons and practices from other communities. The planning process is all about stakeholders bringing their resources and strengths to the table to develop and reinforce a jurisdiction's emergency management and homeland security programs. Properly developed, supported, and executed operational plans are a direct result of an active and evolving program.</p>
<p>Slide 19</p>	<p>Steps of Emergency Management. Prevention, mitigation, preparedness, response and recovery are the five steps of Emergency Management.</p> <p>Prevention: Actions taken to prevent an incident. Stopping an incident from occurring. Deterrence operations and surveillance.</p> <p>Mitigation: Refers to measures that prevent an emergency, reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies. Typical mitigation measures include establishing building codes and zoning requirements, installing shutters, and constructing barriers such as levees.</p> <p>Preparedness: Activities increase a community's ability to respond when a disaster occurs. Typical preparedness measures include developing mutual aid agreements and memorandums of understanding, training for both response personnel and concerned citizens, conducting disaster exercises to reinforce training and test capabilities, and presenting all-hazards in education campaigns.</p> <p>Response: Actions carried out immediately before, during, and immediately after a hazard impact, which are aimed at saving lives, reducing economic losses, and alleviating suffering. Response actions may include activating the emergency operations center, evacuating threatened populations, opening shelters and providing mass care, emergency rescue and medical care, fire fighting, and urban search and rescue.</p> <p>Recovery: Actions taken to return a community to normal or near-normal conditions, including the restoration of basic services and the repair of physical, social and economic damages. Typical recovery actions include debris cleanup, financial assistance to individuals and governments, rebuilding of roads and bridges and key facilities, and sustained mass care for displaced human and animal populations.</p> <p>https://www.stlouis-mo.gov/</p>
<p>Slide 20</p>	<p>Mitigation</p> <p>This phase includes actions taken to prevent or reduce the cause, impact, and consequences of disasters. Examples of hazard mitigation include:</p> <ul style="list-style-type: none"> ● Tying down homes or barns with ground anchors to withstand wind damage ● Digging water channels to redirect water and planting vegetation to absorb water ● Constructing levees or permanent barriers to control flooding ● Reinforcing fencing to prevent animal escapes ● Buying insurance policies <p>Preparedness</p> <p>This phase includes planning, training, and educational activities for events that cannot be mitigated. Examples include:</p>

	<ul style="list-style-type: none"> • Developing disaster preparedness plans for what to do, where to go, or who to call for help in a disaster • Exercising plans through drills, tabletop exercises, and full-scale exercises • Creating a supply list of items that are useful in a disaster • Walking around a farm and identifying possible vulnerabilities to high winds. <p>Response</p> <p>The response phase occurs in the immediate aftermath of a disaster. During the response phase, businesses and other operations do not function normally. Personal safety and wellbeing in an emergency and the duration of the response phase depend on the level of preparedness. Examples of response activities include:</p> <ul style="list-style-type: none"> • Implementing disaster response plans • Conducting search and rescue missions • Taking actions to protect yourself, your family, your animals, and others • Addressing public perceptions about food safety <p>Recovery</p> <p>During the recovery period, restoration efforts occur concurrently with regular operations and activities. The recovery period from a disaster can be prolonged. Examples of recovery activities include:</p> <ul style="list-style-type: none"> • Preventing or reducing stress-related illnesses and excessive financial burdens • Rebuilding damaged structures based on advanced knowledge obtained from the preceding disaster • Reducing vulnerability to future disasters
<p>Slide 21</p>	<p>What is the all-hazards approach?</p> <p>The all-hazards approach is a comprehensive emergency preparedness framework that takes a full scope of emergencies or disasters into account when planning for response capacities and mitigation efforts. This means that you are not focused on just the most common or most impactful critical events, but you have prepared for “all hazards” that your business might face. The all-hazards approach leads to better overall preparedness and a more resilient business that can withstand disasters of all kinds.</p> <p>Pros and Cons of the All-Hazards Approach</p> <p>One common misconception is that all-hazards planning means planning for everything that can go wrong with a corresponding catalog of minute details. But that’s not exactly it. Instead, all-hazards planning focuses on developing capacities and capabilities that matter when the going gets tough. In other words, it doesn’t zero in on every. single. threat. but instead makes sure businesses have the training, supplies, and leadership to address a broad range of emergencies.</p> <p>The main benefit of the all-hazards approach is that it addresses the resources and steps the business needs to take before and after an emergency happens. It is meant to minimise injury to people and destruction of business property. Businesses can take emergency preparedness to a level that is more effective and scalable and make what seems like a monumental task into a plan that will ensure employees have a standard protocol to follow in case of any emergency.</p> <p>The main con of this approach is that not all emergencies are alike. Something like a power outage will need much less management than a natural disaster that</p>

	<p>destroys an entire building. But remember, the goal of all-hazards planning isn't to plan the exact response for every emergency. It's to make sure you have a foundation of a plan for all emergencies. These plans should be flexible and scalable for all possible emergencies.</p> <p>Here are seven steps—which we'll explore in more detail throughout this guide—to developing and implementing an all-hazards emergency plan:</p> <p>BUILD YOUR TEAM: Assemble your all-hazards preparedness planning team, consisting of core team members, key stakeholders, and an executive sponsor.</p> <p>PERFORM A REGULATORY REVIEW: Identify if there are any legal requirements or industry-specific regulations that your organization must adhere to.</p> <p>IDENTIFY THE THREATS: Determine the threats that your employees and business may face, as well as the likelihood of each threat occurring.</p> <p>ANALYZE THE BUSINESS IMPACT: Evaluate the potential impact of a disaster on critical business functions in order to shape and prioritize your emergency response plans.</p> <p>DEVELOP THE ACTION PLAN: Document specific actions employees should take in an emergency. Share it with staff and outline clear responsibilities for carrying out the plan.</p> <p>TEST THE PLAN: Offer training sessions, perform regular system testing, and conduct tabletop exercises to ensure nobody's caught off guard during a real emergency.</p> <p>COMMUNICATE THE PLAN: Deliver ongoing communication to employees—as well as relevant vendors and third parties—to ensure all parties are in the know, at all times.</p>
Slide 22	<p>Regardless of the type of methodology adopted, contingency plans are all characterised by similar elements, revolving around a series of elements aimed at identifying the risks, defining possible scenarios, understanding which are the main sensitive targets, being clear about the resources available, both material and human, and, finally, clearly defining who does what and when. There are perhaps two elements that are understood as transversal. The first is communication of the plan (including training and information), the other is more nuanced and concerns testing, updating and only partly evaluating the plan and</p>

Exercise

1

Case Study: Why Plan?

Instructions: Read the following case study. As you read, think about how the planning ability of these communities compares with that in your own community. Answer the questions that follow the case study.

At 6:53 p.m. on Friday, October 6, Hurricane Frieda slammed into the Carolinas. A Category 3 hurricane, Frieda dumped 12 inches of rain in as many hours, causing coastal flooding that, combined with wind speeds of 115 m.p.h., demolished 1,000 homes, seriously damaged 25,000 others, and left 150,000 people homeless. Mass evacuation in coastal counties was required. Evacuation in most counties went well. Prior to the hurricane, Green County had conducted a study to estimate the time required to evacuate its population, and the actual time to evacuate was less than planned. Additionally, inland residents were able to survive on their own for several days, thanks to functioning county emergency services. However, evacuation in Washington and Jefferson Counties, which had no emergency plans, was itself a disaster. The decision to recommend evacuation was made too late and was broadcast insufficiently. Furthermore, evacuation routes were not specified. Traffic on westbound two-lane roads crawled to a standstill, and many drivers had to abandon their cars in rising water and proceed on foot in high winds. There were many casualties among those trying to reach shelter. These counties had to request State help immediately to rescue residents. After the storm, these counties were not eligible for the full amount of State aid to rebuild because of their failure to create an emergency plan.

1. What advantages to emergency planning can you list from this case study?
2. What consequences resulted from a lack of planning

Organisation: small groups (4-5 students) work together and then come back with their considerations to the class. Debate follows

Duration: 45 minutes

TOPIC 1.3.2

<p>Slide 3</p>	<p>Exercise</p> <p>Taking the various methodologies we listed in the previous lesson, what common elements do we find? (Organisation: class work with a board to note all the common elements - Duration: 20/25 minutes)</p> <p>Solution- risk analysis- target identification- identification of resources (material and human)- definition of risk scenarios- definition of protocols and procedures for emergency management- communication, training and information for those involved.</p> <p>An emergency plan does not invent anything new. All the information is available: risk studies, urban plans, geological reports for Civil Protection Plans. Information on processes and products within companies for Emergency Plans. What an Emergency Plan has to do is to collect this information, select the most important ones and reread them under a specific lens: that of emergency management and the protection of people and their property, as well as the territory and the environment.</p> <p>The Emergency Plan is a complex document that combines different information and is by nature dynamic and multidisciplinary. So let us see what Emergency Plans look like.</p>
<p>Slide 4</p>	<p>DEFINITIONS:</p> <p>The objective of the Civil Protection Plan is to identify the risks present in a given territory, assess their possible evolution and determine the system capable of assisting the population involved in the event.</p> <p>An organization's health and safety plan is meant to secure the safety of workers. The health and safety plan of a project mainly describes what kind of hazards are involved in a project, how they can be eliminated or controlled, and what sort of equipment will be used to ensure the safety of the workers.</p>
<p>Slide 5</p>	<p>All emergency plans start with a description of WHAT we are addressing, being it a territorial area or a factory.</p> <p>For Civil Protection:</p> <ul style="list-style-type: none"> ● Geographical localisation ● Hydrography Morphological features ● Geological features ● Altitudinal features ● Anthropic framework: Collection of data and information relating to: Human system (demography) Infrastructural system ● Cultural and socio-economic system (buildings, productive activities ...) <p>For H&S</p> <p>Usually a company's emergency plan begins with the description of the facility, its building/s and immediate surroundings.</p>
<p>Slide 6</p>	<p>Although addressed differently, emergency plans describe the risks that are threatening an area or a business.</p> <p>For Civil Protection</p>

	<p>Description of main risks insisting on a specific territory, usually they are divided into natural risks (floods, earthquakes, etc.) and risks linked to human activities (transport, forest fires, terroristic attacks, etc.)</p> <p>For H&S</p> <p>Description of risks caused by the activity performed within the company. It includes the description of productive processes, materials used, etc.</p> <p>When correctly described, this section of the two typology of plans should overlap or in the best-case scenario, dialogue with each other. It is especially the company emergency plan which can take into consideration not only internal causes (accidents, health issues, fires, etc.) but also external causes, such as earthquakes, floods, etc.</p> <p>In a similar way, good Civil Protection plans, should take into consideration private/public facilities evacuation plans at least to know where groups of persons are gathered in case of an emergency.</p> <p>e.g. the regulation in Italy does not impose to business owners to include external causes in their risk assessment, but each building should have an evacuation plan for all causes, including, for example, earthquakes.</p>
<p>Slide 7</p>	<p>There is one domain which private economic activities and civil protection activities do actually meet. It is the case of the so-called Major accident hazards.</p> <p>Major accidents involving dangerous chemicals pose a significant threat to humans and the environment. Furthermore such accidents cause huge economic losses and disrupt sustainable growth. However, the use of large amounts of dangerous chemicals is unavoidable in some industry sectors which are vital for a modern industrialised society. To minimise the associated risks, measures are necessary to prevent major accidents and to ensure appropriate preparedness and response should such accidents nevertheless happen</p> <p>In Europe, the catastrophic accident in the Italian town of Seveso in 1976 prompted the adoption of legislation on the prevention and control of such accidents. The so-called Seveso-Directive (Directive 82/501/EEC) was later amended in view of the lessons learned from later accidents such as Bhopal, Toulouse or Enschede resulting into Seveso-II (Directive 96/82/EC). In 2012 Seveso-III (<u>Directive 2012/18/EU</u>) was adopted taking into account, amongst others, the changes in the Union legislation on the classification of chemicals and increased rights for citizens to access information and justice.</p> <p>The Directive applies to more than 12 000 industrial establishments in the European Union where dangerous substances are used or stored in large quantities, mainly in the chemical and petrochemical industry, as well as in fuel wholesale and storage (incl. LPG and LNG) sectors. It aims to control major accident hazards involving dangerous substances, especially chemicals and contributes to the technological disaster risk reduction effort.</p> <p>Considering the very high rate of industrialisation in the European Union the Seveso Directive has contributed to achieving a low frequency of major accidents. The Directive is widely considered as a benchmark for industrial accident policy and has been a role model for legislation in many countries world-wide.</p>

	<p>The Seveso Directive is well integrated with other EU policies, thus avoiding double regulation or other administrative burden. This includes following related policy areas:</p> <ul style="list-style-type: none"> • <u>Classification, labelling and packaging of chemicals;</u> • The Security Union Agenda including <u>CBRN-E</u> and <u>Protection of critical infrastructure;</u> • Policy on <u>environmental liability</u> and on the <u>protection of the environment through criminal law;</u> • <u>Safety of offshore oil and gas operations.</u> • The Union's <u>Civil Protection Mechanism;</u> <p>One of the main requirements of the Seveso Directive is that, particularly hazardous industries (according to a set of criteria established by the Directive itself) should have a specific Emergency Plan, which is described through areas of impacts that have to be integrated with local civil protection plans.</p> <p>Picture1: Di Sconosciuto - https://www.corriere.it/extra-per-voi/2016/07/04/icmesa-cronistoria-un-disastro-1a6b4de4-4200-11e6-91d1-c0b7aa8f545f.shtml, Pubblico dominio, https://commons.wikimedia.org/w/index.php?curid=113057682</p> <p>Picture2: https://minerva.jrc.ec.europa.eu/EN/content/minerva/87309be0-7ffd-4510-b7ac-6d4288ed49bf/risk_analysis</p>
<p>Slide 8</p>	<p>Once risks and hazards are described and in some way assessed, an emergency plan has to identify SENSITIVE TARGETS, i.e. those buildings, facilities, plants or persons which are most vulnerable or exposed to a specific risk.</p> <p>FOR CP plans it means e.g. schools, hospitals, hospices, but also disabled persons living in risky areas as well as industries subject to the SEVESO Directive.</p> <p>FOR H&S at workplaces, it means especially people: fragile workers or employees working in departments which may be more hazardous than others (think for example to chemical laboratories).</p>
<p>Slide 9</p>	<p>Once you have identified sensitive targets, you need to search for available resources.</p> <p>These can be material (buildings, shelters, materials, etc.) or immaterial (people, training, knowledge bases, etc.)</p> <p>Let's see differences and similarities in the two domains.</p> <p>FOR CP plans, structural resources can be strategic buildings (e.g. Crisis Unit facilities) or shelter areas. Non-material resources are trained volunteers, informed citizens and of course a good emergency plan.</p> <p>For H&S at workplaces, material resources can be fire prevention systems (either automatic or manual), emergency exits, but also an ant seismic building. Again, immaterial resources are made of people: trained workers and a diffused knowledge of risks.</p> <p>Targets and resources are an important part of the emergency planning process, but their distinction is blurred, as a target can be at times a resource and vice versa.</p> <p>For example a hospital can be a very sensitive target in case of an earthquake if it is not safe (i.e. it is not an anti-seismic building) but it's a fundamental resource in case of a sanitary emergency. This depends on the type of scenario you are describing.</p>

<p>Slide 10</p>	<p>A scenario is a description of the dynamics of an event and is realised through the analysis, both historical and physical, of the phenomena characterising the event.</p> <p>In simpler words, a scenario replies to this question: WHAT MIGHT HAPPEN IF...?</p> <p>A scenario uses all the information collected before:</p> <ul style="list-style-type: none"> - The description of the areas and/or the buildings - The evolution of risks and hazards - The localization/presence of sensitive targets - The availability of resources which can mitigate impacts <p>So, in a CP plan, for example a flood scenario can be described through areas that are most likely (based on studies and historic events) to be flooded. This description is completed crossing this information with the presence in the same area of targets, schools, hospices, etc. and by highlighting where and what resources are available. Using a scenario is described through a text and visualized with dedicated cartography.</p> <p>In H&S at workplaces emergency planning, scenarios are often included already in the risk description, but in this case, we usually talk about RISK ASSESSMENT, which is actually the description of a scenario: describing</p> <p>This is the case of: “what happens if a fire starts in the office?”. In a good plan you will have different situations (or scenarios) according to where the fire starts, in what area of the office, which room, etc. The correct scenario will show workers what might happen, where to find the fire extinguisher, etc.</p> <p>Protocols and procedure, instead, will tell us what to do and especially, who does what and possibly when.</p>
<p>Slide 11</p>	<p>Procedures and protocols are based on the evolution of a potential emergency.</p> <p>Whatever the type, the evolution is always the same</p> <p>We go from a state of NORMALITY to an emergency. Sometimes we have the luck of having more time to observe the possible evolution, having a phase of Surveillance generated by a warning (e.g. weather forecast announcing heavy rain). After, precursors can be formed and we are in a phase of ALERT (e.g. it rains so much that the level of water in rivers is increasing and reaching thresholds) when the thresholds are overcome, we actually are in state of emergency (water from rivers is flooding).</p> <p>More often than not, unfortunately, the situation jumps directly from normality to emergency, within seconds. Think about an earthquake: no surveillance nor alert is possible. It just happens.</p> <p>But when you plan an emergency management, you have to simplify complexity in an unpredictable domain considering always the worst case scenario!</p> <p>The better an emergency management is planned, the longer the time between normality and emergency feels longer. And time is crucial as it means saving lives.</p> <p>Taken from another point of view, any event can turn into an emergency when the skills (of knowledge and operation) to contain its damaging effects are lacking. Or WHEN THERE IS A LACK OF RISK AND VULNERABILITY MANAGEMENT.</p> <p>The normality phase is when most of this “lack” can be reduced, via a good prevention, preparedness and planning.</p>

<p>Slide 12</p>	<p>As for key roles and responsibilities, there are not many differences between the two planning levels.</p> <p>Both are made of Decision making and Operative staff.</p> <p>The first usually coincides with who has the legal responsibility (e.g a Mayor for a Municipality or the Owner/Entrepreneur for a company, or their delegates)</p> <p>Operative staff in Civil Protection is made by civil servants appointed by the local, regional and national authorities, together with the operative components (police, fire fighters, etc.) and in large part by voluntary staff.</p> <p>Within a company, the main operative staff is made by the workers themselves, each with a designated role.</p> <p>Other components may come into action in different phases: scientific and technical contributors, experts, consultants, trainers, etc.</p>
<p>Slide 13</p>	<p>But how do we choose key roles and responsibilities?</p> <p>An example comes from the Italian approach of the “Augustus Method”</p> <p>The Augustus method was intended to be a guide to civil protection planning, a guide that would make it clear that the most important element should not be the ability to describe with maniacal precision what will happen, i.e. the risk scenarios, but rather to establish a 'common working method' for managing uncertainty. No matter how hard we try, in fact, reality will always be different from how we try to predict it: emergencies are never the same, even with the same magnitude. The important thing is to know how to work together to overcome them. The guidelines of the Augustus Method are always focused on the concepts of flexibility, user-friendliness and adaptation to unforeseen situations - are inspired by various incidents.</p> <p>The Augustus method wants to break down the old approach of making emergency plans based on the bureaucratic conception of a mere census of useful resources for civil protection interventions, and to strongly introduce the concept of resource availability.</p> <p>In order to achieve this goal, support functions must be introduced into the emergency plans, with managers to keep the plan 'alive', including through periodic exercises and updates.</p> <p>Core principles:</p> <ul style="list-style-type: none"> - Organise the response to an emergency into «support functions» which represent main areas of the community and society in need of an immediate response after a disaster occurrence; - have for each support function the availability of resources provided by all public and private administrations contributing to it; - entrusting a person in charge of the support function with both the control of the specific operation and the updating of this data in the context of the emergency plan. - Furthermore, having the various heads of support functions work in 'peacetime' to update the emergency plan provides the aptitude for collaboration in emergency situations, giving immediacy to the civil protection responses that are coordinated in the Operations Rooms <p>Support functions are the organisation of the responses that need to be made to the different needs present in any type of disaster event. Each individual function</p>

	<p>will have its own manager who will update the data relating to his or her function in peacetime.</p> <p>In the original Augustus method, there are 9 functions:</p> <p>F 1 - Technical and planning</p> <p>F 2 - Health, social and veterinary care</p> <p>F 3 - Mass media and information</p> <p>F 4 - Volunteering</p> <p>F 5 - Essential Services</p> <p>F 6 - Census of personal and property damage</p> <p>F 7 - Local operational structures and roads</p> <p>F 8 - Telecommunications, media and information</p> <p>F 9 - Assistance to the population</p>
Slide 14	<p>Once you have defined who is in charge, you can define what he/she will have to do and when.</p> <p>These are called procedures or protocols and describe the activity that each key role person should do step-by-step.</p> <p>In an emergency, it is in fact essential to apply operational procedures for the definition of roles and responsibilities: the rationalization of operational activities as procedures are the result of assessments, experience and knowledge (planning of intervention activities)the efficiency of interventions by making the best use of available resources.</p> <p>Obviously, these procedures do differ between CP plan and H&S at workplace emergency plans, but the principle and concept at the base are the same.</p> <p>In extreme synthesis a procedure describes what a persona, in a specific role, has to do in each phase of a disaster management (thus including normality) with what recourses and in a specific scenario</p> <p>IMPORTANT: Procedures are not 'static' but can be improved with the collaboration of all actors involved, reporting any criticalities and proposing improvements - (Continuous Improvement Concept)</p>
Slide 15	<p>All plans are supported by tools and documents.</p> <p>The most relevant ones are cartographies and maps.</p> <p>What changes for the two levels (CP and H&S) is the scale.</p>
Slide 16	<p>Last, but not least a relevant part of the planning process is made of</p> <p>TRAINING: it means training civil servants, volunteers, and workers so that they all know the risk they might encounter, what to do in case of an emergency and what is included in the emergency plan, regardless of the scale.</p> <p>Often training includes exercise: large scale exercises in case of the civil protection training, when people and means are deployed to simulate an emergency, such as an earthquake or a flood. Usually the simulation of an evacuation, e.g. in case of fire, for what concerns H&S at workplaces.</p>

<p>COMMUNICATION is probably more relevant in civil protection, when an emergency hits and citizens needs to be informed on what they need to do.</p> <p>But this aspect is only one of the communication process regarding emergency planning...</p> <p>Communication means involving citizens and workers in the process, so that they feel active part of a planning process which touches them directly.</p> <p>In this sense a participatory planning and evaluation approach becomes crucial.</p>

Exercises	
1	<p><i>(before lesson)</i></p> <p>Taking the various methodologies we listed in the previous lesson, what common elements do we find?</p> <p>Organisation: class work with a board to note all the common elements</p> <p>Duration: 20/25 minutes)</p>
2 a	<p>Draft an emergency plan starting from a given situation</p> <p>Guidelines:</p> <p>You have to prepare a home emergency plan for a family composed of 2 parents (adults, aged around 45. Please note that one adult is allergic to gluten) + 3 children (one girl aged 15 and a boy aged 9, an infant - 1 year old - healthy and with no particular needs) + 1 elderly person (aged 85, with minor difficulties to walk) + 1 dog. They live in a two-floors building, with a surrounding garden, without trees. They own one car with 7 seats.</p> <p>Major risk for the area where the house is located is earthquake. The municipality they live in has a public civil protection plan, which can be consulted online. The house is located in a residential area a few kilometers from the city center. The shortest way to reach services such as hospitals or other facilities entails a bridge crossing over a river. There are other routes to reach the city center but they are longer.</p> <p>Tips to create the home emergency plan (<u>these tips can be handed to students or be used by the teacher for the debriefing</u>):</p> <ol style="list-style-type: none"> 1. Consider the family's unique needs: where they live and the specific needs of family members are major factors to consider in a home emergency plan 2. Make a disaster supplies kit: a disaster supplies kit is a great way to have everything you need in one place so you can quickly evacuate. Ideally, your kit should fit in one or two easy-to-carry bags and should contain items to help you survive on your own for at least 72 hours. 3. Know where to go: every emergency is different, so your safe space will vary by situation. First, find safe places in your home for every situation where you would need to take shelter. Second, find a meeting spot right outside the house in case of a fire or other sudden emergency. Third, determine where you would go if you were asked to evacuate or could not return home, and plan the route you would take to get there. 4. Stay connected: create a family communication plan. The plan should include information on how you will receive local emergency alerts (radio, TV, text, etc.), as well

	<p>as information on how to keep in contact with each other. Make sure all family members have emergency phone numbers saved in their cell phone and written on a contact card. Include numbers for each family member, the police station, a nearby hospital and an out-of-area emergency contact. Instruct all family members to keep in touch with this emergency contact to let them know that they are safe.</p> <p>In addition, make sure where reliable information can be found on social media and share the knowledge with all family members.</p> <p>5. Protect the pets: when planning for an emergency, don't forget about the pets! Create a list of pet-friendly hotels and animal shelters along your evacuation route. Also, remember to include items for the pet in the disaster kit.</p> <p>6. Write it down and practice: make sure the emergency plan is down on paper with detailed instructions for each situation.</p> <p>Practice the plan twice a year.</p> <p>Resources: Form for a family emergency plan - American Red Cross</p> <p>AND/OR</p> <p>a) Simulate a scenario building with the approach "What might happen if..." Possible situation: "What might happen if an earthquake hits right now where you currently are?" "What might happen if an unknown virus spreads in a faraway country?"</p> <p>Organisation: small groups (4-5 students) work on the task and return findings in a class discussion</p> <p>Duration: 1 hour</p>
<p>2 b</p>	<p>Analyse a provided case study</p> <ul style="list-style-type: none"> • https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/60913/Community-Resilience-Case-Study-Filey.pdf • https://www.fema.gov/case-study/integrating-and-adapting-plans-throughout-planning-cycle • https://quizlet.com/664457125/natural-disaster-in-a-small-community-hesi-rn-case-studies-flash-cards/ <p>Organisation: small groups (4-5 students) work on the task and return findings in a class discussion</p> <p>Duration: 0/45 minutes</p>
<p>2 c</p>	<p>Simulate a scenario building with the approach "What might happen if..." Possible situation: "What might happen if an earthquake hits right now where you currently are?" "What might happen if an unknown virus spreads in a faraway country?"</p> <p>Organisation: small groups (4-5 students) work on the task and return findings in a class discussion</p> <p>Duration: 25/30 minutes</p>

SOURCES AND INSIGHTS

Activity	Topic	
1	1.1	<p>Bibliography and sites/videos</p> <ul style="list-style-type: none"> ▪ EUROPEAN CIVIL PROTECTION MECHANISM HOME PAGE ▪ TREATY OF LISBON ▪ EMERGENCY RESPONSE COORDINATION CENTRE (ERCC) ▪ EUROPEAN CIVIL PROTECTION POOL (ECP) ▪ COPERNICUS – EMERGENCY MANAGEMENT SERVICE - mapping ▪ EUROPEAN MEDICAL CORPS ▪ Union Civil Protection Knowledge Network ▪ Disaster Risk Management Knowledge Centre ▪ Exchange of Experts portal ▪ List of EU-supported civil protection exercise ▪ EU MODEX ▪ The Civil Protection National systems ▪ The timeline ▪ VIDEO “UPCM – HOW IT WORKS” ▪ OSHA WEBSITE ▪ OSHA VIDEO – WHAT WE DO <p>Documents</p> <ul style="list-style-type: none"> ▪ UPCM Training programme brochure ▪ EU-OSHA 2021-2027 Strategic Framework
	1.2	
2	2.1	<p>JRC – Science for Disaster Risk Management 2017</p> <ul style="list-style-type: none"> ▪ https://drmhc.jrc.ec.europa.eu/knowledge/science-for-drm/science-for-disaster-risk-management-2017 <p>UNISDR (2017) – National Disaster Risk Assessment (Hazard)</p> <ul style="list-style-type: none"> ▪ https://www.unisdr.org/files/52828_nationaldisasterriskassessmenthazar%5B1%5D.pdf ▪ https://www.unisdr.org/files/52828_nationaldisasterriskassessmentpart1.pdf ▪ https://www.unisdr.org/files/globalplatform/591f213cf2fbe52828_wordsintoactionguideline.nationaldi.pdf <p>European Geosciences Union: Natural Hazard risk assessments at the global scale</p> <ul style="list-style-type: none"> ▪ https://nhess.copernicus.org/articles/20/1069/2020/ <p>Springer Science: Natural Hazard Risk assessment and Management Methodologies Review: Europe</p> <ul style="list-style-type: none"> ▪ https://www.researchgate.net/publication/299677343_Natural_Hazard_Risk_Assessment_and_Management_Methodologies_Review_Europe
	2.2	<p>General</p> <ul style="list-style-type: none"> ▪ JRC – Science for Disaster Risk Management 2017 ▪ https://drmhc.jrc.ec.europa.eu/knowledge/science-for-drm/science-for-disaster-risk-management-2017 ▪ Overview of natural and man-made disaster risks the European Union may face - 2014 ▪ https://op.europa.eu/en/publication-detail/-/publication/89fcf0fc-edb9-11eb-a71c-01aa75ed71a1 ▪ EU Commission Staff Working Paper - Risk Assessment and Mapping Guidelines for Disaster Management - 2010 ▪ https://climate-adapt.eea.europa.eu/metadata/guidances/eu-commission-staff-working-paper-risk-assessment-and-mapping-guidelines-for-disaster-management

- European Geosciences Union: Natural Hazard risk assessments at the global scale
- <https://nhess.copernicus.org/articles/20/1069/2020/>
- <https://www.eea.europa.eu/data-and-maps>
- https://www.eea.europa.eu/publications/mapping-the-impacts-of-natural/at_download/file
- <https://op.europa.eu/en/publication-detail/-/publication/89fcf0fc-edb9-11eb-a71c-01aa75ed71a1>

Floods

- <https://www.wired.com/2011/05/flooding-creates-floodplains/>
- <https://www.americanrivers.org/rivers/discover-your-river/why-do-rivers-flood/>
- <https://www.youtube.com/watch?v=fWDPR4c-gew>
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- https://en.wikipedia.org/wiki/Landslide_classification
- [https://www.alexstrekeisen.it/immagini/diagrammi/granulometria\(5\).jpg](https://www.alexstrekeisen.it/immagini/diagrammi/granulometria(5).jpg)
- https://www.researchgate.net/figure/Landslide-classification-based-on-the-movement-velocity-and-water-content_fig1_314691451
- <https://dornsife.usc.edu/news/stories/2922/camp-and-woolsey-fires-mudslides-and-debris-flows/>
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- <https://esdac.jrc.ec.europa.eu/themes/landslides>
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Earthquake

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- <https://earthquake.usgs.gov/earthquakes/map/?currentFeatureId=us7000hhd7&extent=-74.11605,-388.82813&extent=84.9593,173.67188>
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Volcanos

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3	3. 1	
	3. 2	