



ISTITUTO DI ISTRUZIONE SUPERIORE

“DELLA CORTE – VANVITELLI”

INDIRIZZO : AMBIENTE COSTRUZIONE E TERRITORIO

COMENIUS “GREEN BUILDING” : AUSTRIA 6-12 OTTOBRE 2013

Let's present

“DISASTERS ? NO, THANKS, NO MORE !”

We have called our work “Disasters? No, thanks, no more ” because our main aim is to focus people attention on our territory hazards in order to prevent future disasters in our town, region, country, in the world. Our territory is affected by many problems but we have decided to discuss about a natural hazard that has very often caused many victims . We would like you to guess what is it. So please help us .

1. Firstly we are going to reproduce a noise, please listen to it, then try to guess what it is caused by.



12 - TERREMOTO FRANA.MP3

NOISE :

Now we are showing you two photos:

1) The first one is this.....

PHOTO N. 1



2) This is the object through which we intend to describe our natural hazard.

We have chosen it for its symbolic shape.

WHAT IS IT?

IS IT A PASTIME?

It is a structure used by children to go down it as a pastime.

But it represents a natural hazard too.

The second one is another object.

PHOTO N. 2



WHAT IS IT?

It is a sandcastle . It is very fragile.

We are sure it will help you in guessing our issue.

What happens if it rains?.....It will be destroyed by water.....and of course it will collapse.

It will do the same movement of the children using the slide.

It will go down.

What is the natural hazard we are going to discuss?

Now can you answer our question?

As you have just guessed , it is a hydrological hazard and precisely “Landslides”



BUT WHY HAVE WE CHOSEN IT?

WE WANT TO START FROM THE TERRITORY WHERE WE LIVE .

WHERE IS OUR TOWN?



CAMPANIA

Our territory and our town are located in Campania, a region in the south part of Italy, characterized by hills, valleys and engravings. Its geological and geomorphological features, the recent orography and relieves in the process of lifting, together with the ecological fragility of the soil, makes the risk of natural disasters high; they are earthquakes, landslides, floods and volcanic eruptions. In this work we will focus on hydraulic risk in particular on landslides and floods because they are very frequent in our area as it is proved that in the past, they caused many victims. As a matter of fact Campania is one of the regions that has experienced the largest number of tragic events: 3.152 landslides have hit 1.855 localities, and 1.640 floods have affected 843 localities. For these reasons we have to learn how to protect ourselves, our town and prevent such tragic disasters.

Now let's define some important key words

What does “hazard” mean?



The hazard is a thing that can be dangerous or cause damage . Whether it is a minor damage or a serious harm, it should always be avoided.

It is important to understand that , sometimes the dangers are caused by natural factors but man's behavior may protect people and things from hazard.

AND WHAT ABOUT THE WORD

RISK?

WHAT IS
IT??



It is the real possibility of something bad happening at some time in the future; a situation that could cause a damage.

The Parameter ($R=H*V*W$) is very important

Risk = ***Hazard-Vulnerability- Worth of elements at risk***

Vulnerability is the tendency of a building, a city, a bridge, a population, to be damaged if there is a disaster (an earthquake-proof house will be less damaged than a building without earthquake rules, a population of many older people will be more vulnerable than a young population)

The exposure (the worth of elements at risk) is the "quantity and quality" of goods that may be exposed to the risk (industry, agriculture, cultural heritage).

The "Hydrogeologic risk" in our Region is very high as you can see in the following chart:

- R4 (very high),
- R3 (high),
- R2 (medium),
- R1 (moderate).

<u>Risk</u>	<u>Type</u>	<u>Territory</u> <u>(Km²)</u>	<u>Territory</u> <u>(%)</u>
Hydraulic	R3 - R4	638	4,7
Landslides	R3 - R4	1.615	11,8
Total		2.253	16,5

BUT WHY LANDSLIDE AND FLOOD RISK IS SO HIGH ?

NATURAL CAUSES:



THE FRAGILE QUALITY OF OUR SOIL



Landslide in San Pietro (Cava de' Tirreni)



HEAVY RAIN



Our region is covered by unsaturated cohesionless pyroclastic deposits subjected to rainfall-induced landslides, formed by past Vesuvius explosive eruptions.



Vesuvius is an active volcano, one of the most dangerous in the world with a very high destructive impact as it is in a very populated area.

The volcano Vesuvius in Naples.

The most catastrophic landslides are liquefied debris flows which periodically occur on steep slopes, causing death and destruction in areas located downslope.

ANTHROPIC CAUSES :



DEFORESTATION



LANDFILL



**UNAUTHORIZED BUILDING
(Positano)**



**Transformation of natural
environment to meet
human needs**



Forest Fire (Decimare -Cava)



Inadequate agricultural techniques

Human action has caused and will cause many disasters. Digging at the foot of a slope or hillside to build roads or buildings can cause the ground subsidence.

SARNO



Just some tragic events occurred in our territory

Flood in Salerno (10 km far from Cava de' Tirreni) on 25th October 1954



318 victims, 250 injured,
and about 5.500
homeless people.

The devastations were very serious: landslides, chasms, collapsed bridges, destroyed roads and railways everywhere, houses wiped out and flooded basements.

Calculated damages was more than 45 billion.

The raging waters caused extensive landslides, one of which came down from the slope of a mountain just deforested, wiped out Molina's village and a monumental nearby bridge aqueduct, called "Devil's Bridge".

The two streams Bonea and Cavaiola, coming from Cava de' Tirreni dragged into the sea such a large amount of debris to create the actual Vietri's beach.

In all, there were 318 victims, 250 injured and about 5,500 homeless.

MUDSLIDE IN SARNO 4, 5 and 6th MAY 1998

159
VICTIMS



On the mountainous east side in the province of Avellino about ten slides occurred, the first one occurred on the 5th may 1998, in the afternoon without causing casualties, the second one occurred at about 7.00 O'clock and wiped out some buildings and a church.

The drains, which dated back to the Borbonic period (the so called regi magni) were filled with debris because of the degradation and the state of neglect in which they had been for years, becoming lahars(mud slides). Where the banks had collapsed, the mud invaded streets and basements and cars, trees and people were swiped out.

A miracle, however, was the rescue of a 22-year-old who was buried under an avalanche of mud 74 hours and came out alive thanks to his friends who did not surrender.

LANDSLIDE IN ATRANI (Amalfi Coast) on 9th September 2010

1 victim



Overflow of the river Dragone with mud and debris caused by heavy rain, flooded the main square of Atrani, sweeping away a 25 years old young lady and some parked cars that were dragged into the sea. The body of the girl was found in Sicily sea after some days.



MEASURES OF PREVENTION

HOW CAN WE PREVENT AND AVOID THESE TRAGIC EVENTS?

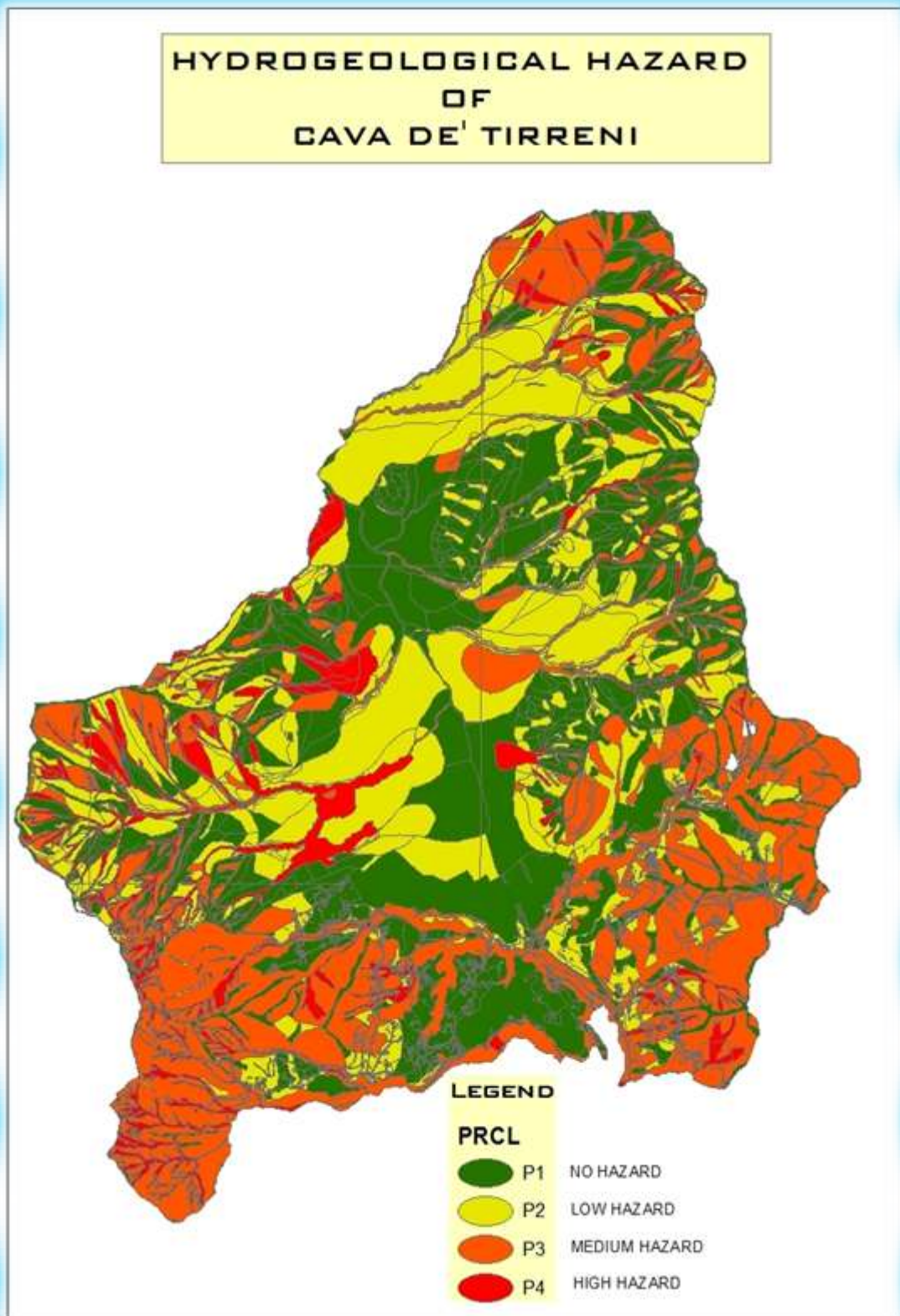
- Study and analysis of environmental factors and zoning of the areas which can be the source of liquefied debris flows
- mitigation measures of the risk
- regulatory constraints

The landslide prevention starts from the study of geology of the area.

Maps of soils should be created; sediments, types of rocks, previous landslides and areas of potential instability as tools for the risk planning should be studied.

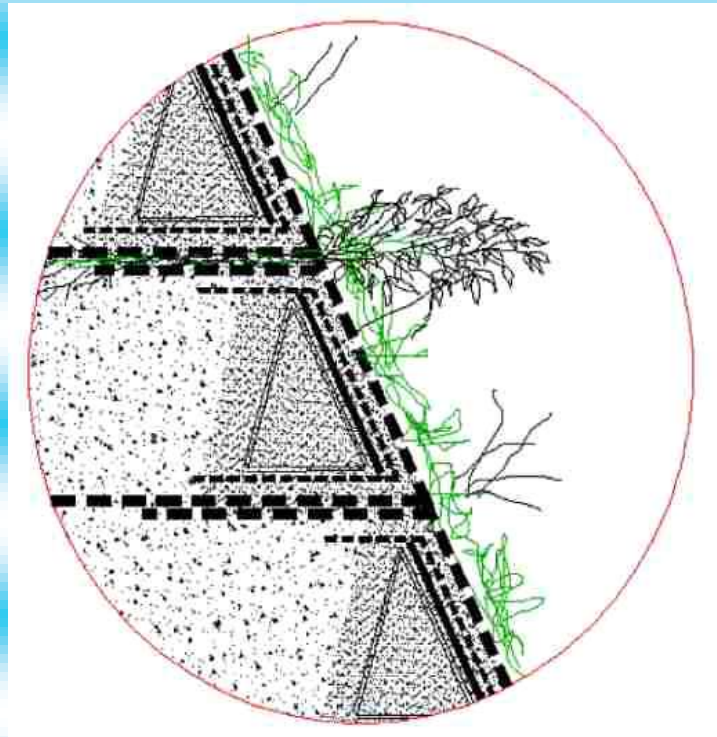
The prevention of landslides is related to identify the causes of the risk.

This is a map of hydrogeological hazard in our town



In the construction of roads along the slopes it should be taken into account the construction of horizontal shelves or walls of containment and support along the roads.

To Look after the slopes with piling works.



Piling IN WOOD

The piling works are widely used in timber work in the consolidation of slopes, bank protection, recovery landslides. The stabilizing action is given by a wooden structure realized by means of scaffolding wooden poles alternately arranged in longitudinal and transverse direction and connected together by means of rivets with iron rods. Inside it rooted plants, cuttings of shrubs or trees, herbaceous plants can be inserted.

If landslides are caused by the effect of heavy rain, they could be avoided thanks to structures used for draining water and the clusters of materials that can be transformed into landslides.



The combination of road construction and removal of vegetation produces situations conducive to landslides: to reduce them, new trees, grass and bushes should be planted to help the vegetation to grow.



- a) Landslides and Landslips
- b) Water scarcity in groundwater
- c) Floods and over flowings



- a) Hilly terrains don't slide down thanks to trees.
- b) Aquifers fill for a long time
- c) Rivers do not overflow

THANKS FOR YOUR ATTENTION

ITALIAN COMENIUS TEAM