DG ECHO Support to UNESCO efforts to establish the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and connected seas (NEAMTWS).

Olimpia Imperiali,

DG ECHO, Deputy Head of Situational Awareness Sector

19 February 2021

Legal basis at EU level recognising the need to develop a NEAMTWS

- European Council Conclusions of December 2007 (15479/07) on the development and establishment of Early Warning Systems in the EU, on the establishment of an Early Warning System for tsunamis in the North-East Atlantic and the Mediterranean region
- European Council Conclusions on Reinforcing the Union's Disaster Response Capacity – towards an integrated approach to managing disasters of June 2008 (7562/08).

For an effective TWS at least the following conditions must be met:

- the **monitoring and detection system** has to be rapid and reliable
- the **warning and alert system** has to be rapid, reliable and operational to reach the local coastal population
- a pre-established evacuation plan has to be established;
- Population and stakeholders are aware of the risk and countermeasures are part of the local coastal zone management.
- Regular **exercise and training** testing the system
- **Education and raising awareness campaign**

DG ECHO support to UNESCO - 1

On **monitoring and detection system**, within the UCPM framework, DG ECHO has financed:

- GDACS
- The Tsunami Scenario database
- The Tsunami Analysis Tool (TAT) that has been shared with Turkey, Greece, Italy and Romania to develop their National Tsunami Centres
- The Sea Level Database
- NEARtoWARN (Prevention and Prep Projects) developing a prototype of a local tsunami system applicable in areas threatened by near-field tsunami (travel time less than 30 minutes)
- TSUNAMAP (Prevention and Prep Projects) developing Tsunami Modelling to support the impact assessment at the target coastline of the tsunamis corresponding to all the earthquake scenarios considered in the earthquake model.

DG ECHO support to UNESCO - 2

On **warning and alert system including education and raising awareness**, it is a primary responsibility of EU MS/PS, but to support EU MS/PS DG ECHO in the framework of the UCPM giving a clear mandate to the Commission to complement EU MS/PS capacities, has developed via the JRC:

- The Tsunami Alerting Device (TAD)
- The Sea Level Instrumentation activities
- NEAMTIC Project aimed at public awareness dissemination of good practices and developing the NEAMTIC website (direct Grant)
- Tsunami Last Mile Project Phase 1 + Phase 2
- Joint DG ECHO-UNESCO cooperation the Tsunami Last Mile Phase 3, including IDSL maintenance

DG ECHO support to UNESCO - 3

On **training and exercise, DG ECHO** has developed via the JRC:

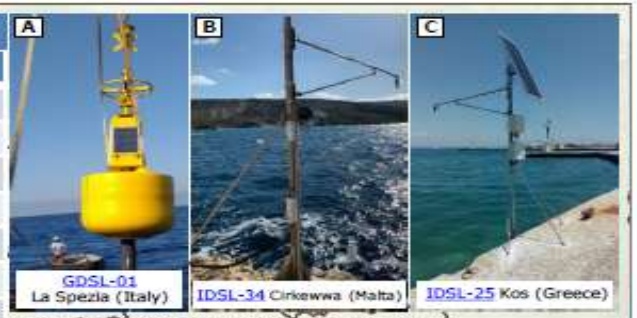
- Exercise NEAMWAVE14 (direct grant)
- 5 Exercises to enhance emergency management system in case of tsunami (Poseidon 2008; EU Command Post (2011; Twist 2011; Westsunami 2014: Richter 2015)

Emergency Response Coordination Centre (ERCC) – DG ECHO Daily Map | 02/10/2020

EC Contribution to Tsunami Early Warning System in the NEAM region

European Commission

Earthquake-induced tsunami 2000-2020		
Date	**Location**	**Mag**
21 May **2003**	Boumerdès (Algeria)	6.7
8 Jan **2006**	Kythira (Greece)	6.5
14 Feb **2008**	Peloponnese (Greece)	6.9
24 May **2014**	Lesvos (Greece)	6.5
17 Nov **2015**	Lefkada (Greece)	6.5
20 Jul **2017**	Kos/Bodrum (Greece/Turkey)	6.7
25 Oct **2018**	Ionian Sea (Greece)	6.8
26 Nov **2019**	Mamurras (Albania)	6.4
2 May **2020**	Crete (Greece)	6.6



CENALT: French National Tsunami Warning Centre
INGV: National Institute of Geophysics and Volcanology
IPMA: Portuguese Institute of the Sea and the Atmosphere
KOERI: Kandilli Observatory and Earthquake Research Institute
NOA: National Observatory of Athens

The European Commission contributed to the efforts of establishing a regional Tsunami Warning System in the North East Atlantic, Mediterranean and connected seas region (NEAMTWS). In particular it has contributed developing the following:

- Global Disaster Alert and Coordination System (GDACS) which includes tsunami modelling;
- Tsunami Scenario database;
- Tsunami Analysis Tool (TAT) shared with Turkey, Greece, Italy, Spain, Morocco, and Romania to develop their National Tsunami Centres;
- Tsunami Alerting Device (TAD) to quickly display tsunami warning messages (local or national);
- Sea Level Database and connected Sea Level Instrumentation network (IDSL/GDSL network).

EU CONTRIBUTION (*Source: JRC, DG ECHO*)

- Installed IDSL (38) Inexpensive Device for Sea-Level Measurement
- Planned IDSL (2) Marshaxlook (Malta)
- Installed TAD (3) Tsunami Alerting Device Setubal (Portugal), Kos (Greece)
- Planned TAD (2) Marshaxlook (Malta)
- GDSL (IDSL-GPS) La Spezia (Italy)
- Other sea-level measurement instrument (3) Paleochora, Koroni, Kapsali (Greece)
- Tsunami Analysis Tool (TAT)
- EU-supported civil protection tsunami exercises

Probabilistic tsunami hazard
calculated along the bathymetric of the 50m
Source: TSUMAPS-NEAM
Max. inudation height (m) for 2500-Years Return Period[1]
0.1 1 2 3 4 5 >5

[1]*Map produced using the 84th percentile of the epistemic uncertainty.*

ICG/NEAMTWS Programme[2]

Tsunami Services Providers

[2]*Three regional Tsunami exercises in the NEAM region were held under the ICG/NEAMTWS Programme on 2012, 2014, 2017, and a further more is planned for 2021.*

Earthquake-induced tsunami 2000-2020
Source: GDACS

Landslide-induced tsunami
Stromboli (Italy), 2002 and 2018
Source: INGV

BIH: Bosnia and Herzegovina, CHE: Switzerland,
MNE: Montenegro, MKD: North Macedonia.

**This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.*

***This designation shall not be construed as recognition of a State of Palestine and is without prejudice to the individual positions of the Member States on this issue.*

Thank you!

European Commission