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SPAIN

Project Kick-Off Workshop

IOC EU ECHO NEAMTWS

17 & 20 December 2021

Strengthening the Resilience of Coastal Communities in the North East Atlantic, Mediterranean Region to the Impact of Tsunamis and Other Sea Level-Related Coastal Hazards Project

SPAIN

Ignacio Aguirre Ayerbe (IHCantabria)

aguirrei@unican.es



INTRODUCTION / BACKGROUND INFORMATION

- *In-country liaison/focal point for the project:*

IHCantabria,
in collaboration with Spanish Tsunami
National Contact Point

- *Identification/confirmation of your nominated
community for Tsunami Ready Recognition:*

Chipiona Municipality – Andalusia, Spain



INTRODUCTION / BACKGROUND INFORMATION

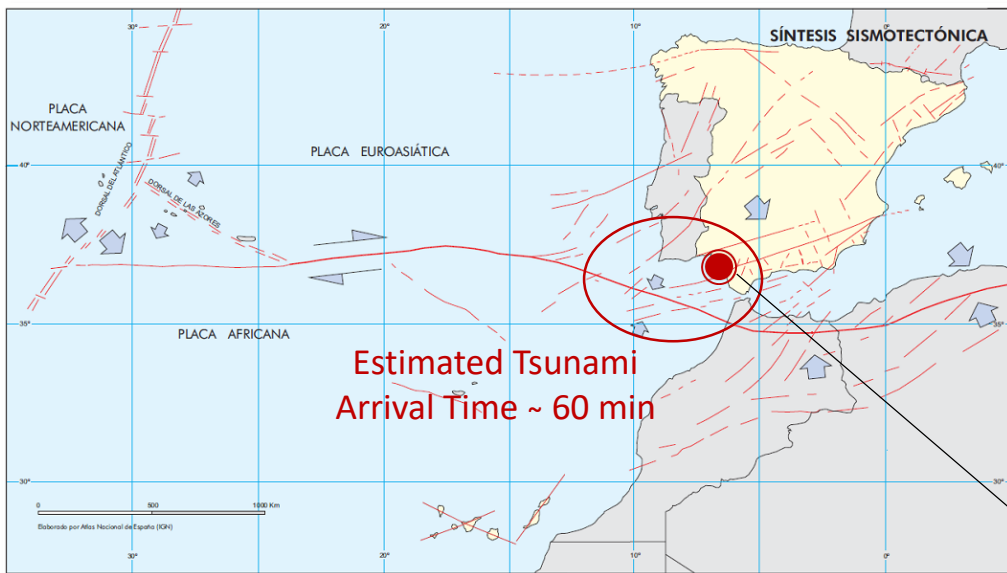
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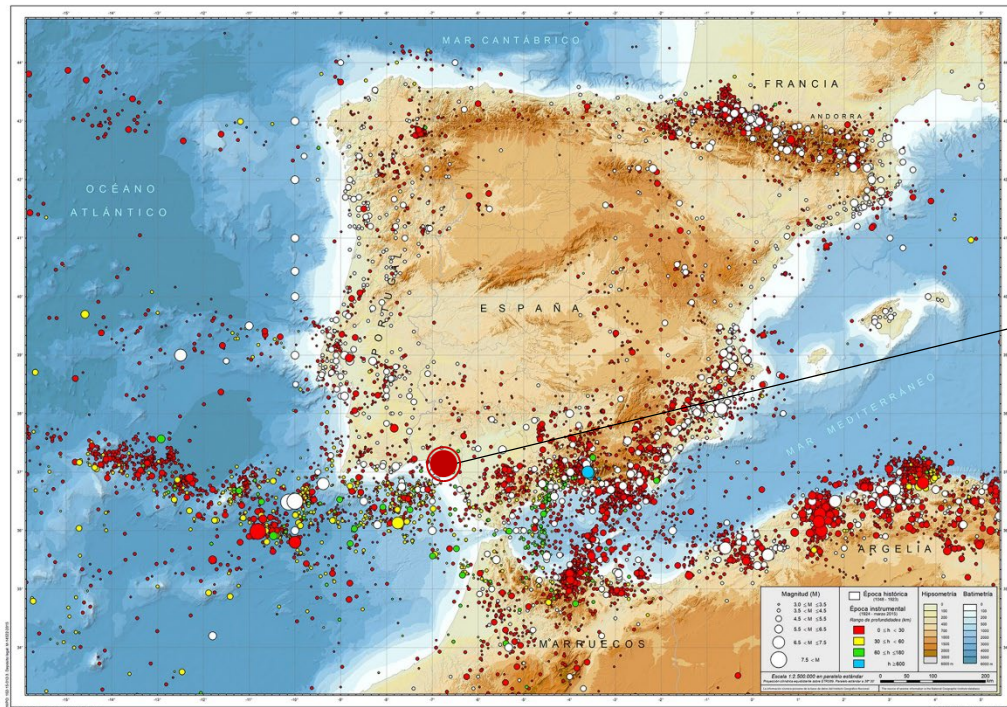
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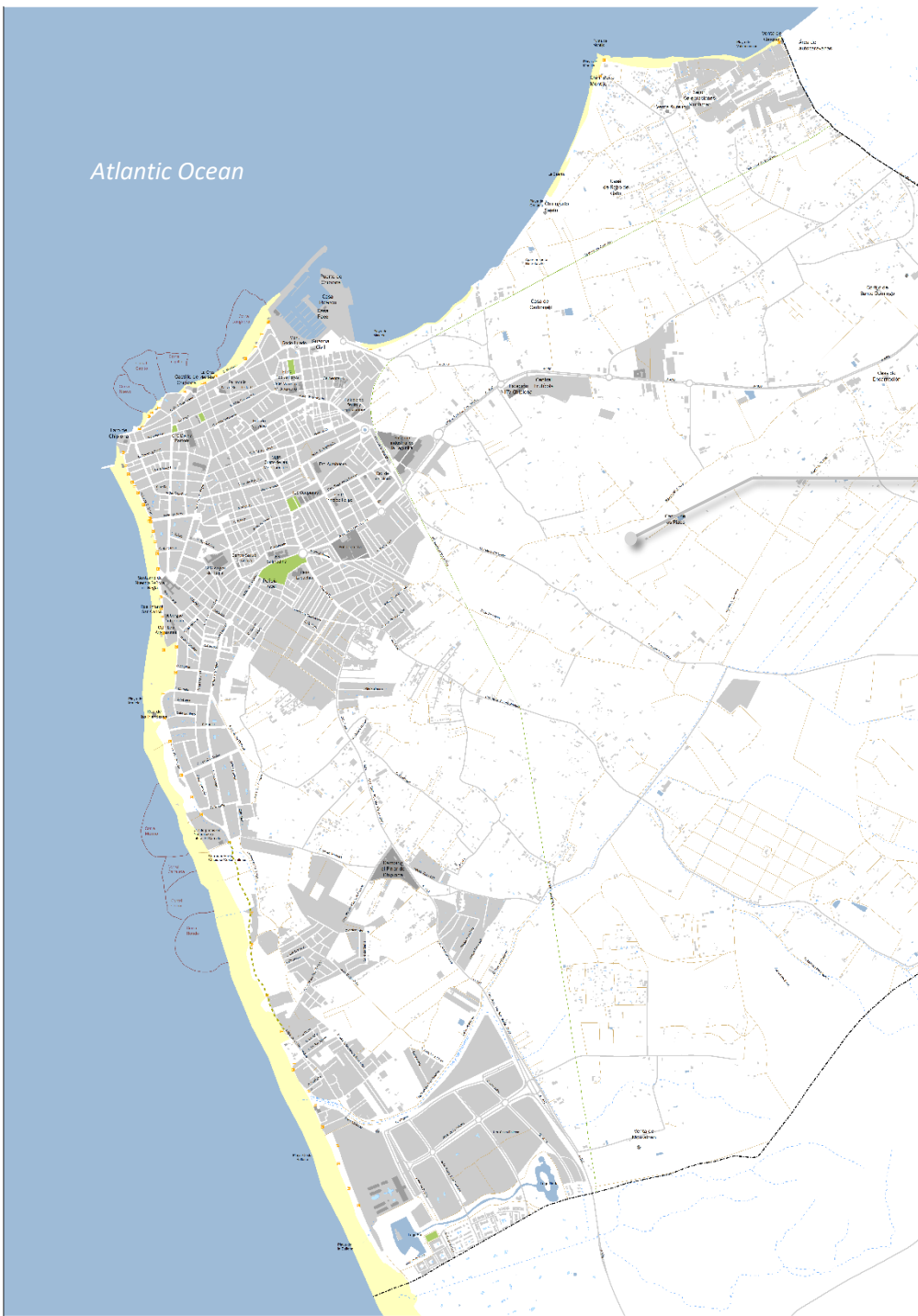
Chipiona Municipality – Andalusia, Spain





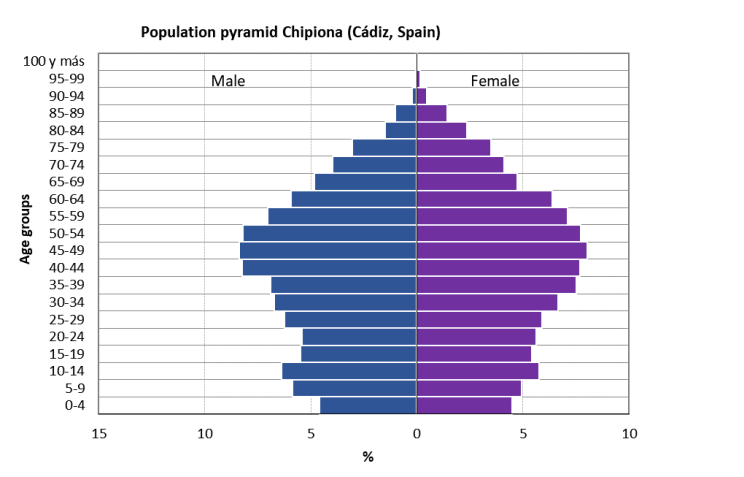
SISMICIDAD DE LA PENÍNSULA IBÉRICA Y ZONAS PRÓXIMAS
SEISMICITY OF THE IBERIAN PENINSULA AND NEIGHBORING ZONES





CHIPIONA MUNICIPALITY

- Population
 - Permanent (census 2020): **19,246** inhabitants



Approx 16% under 15 and 16% over 65 years old

- Temporal (July-Sept.), **approx. X7**,
(around **130,000** inhabitants)
- Extension ~ 32.95 km²
- Population density ~ 585 inhab./km²
- Altitude above sea level (2019): **6 m** from the town hall.

INTRODUCTION / BACKGROUND INFORMATION

WHY Chipiona?

- Geographical **location** exposed to tsunami-generating seismic sources.
- Very significant **increase** in summer **floating population**, which is great challenge for emergency managers.
- **Bottom-up** approach, from municipalities to national government.
- Great **motivation** on the part of the local government and, in particular, its mayor. This has translated, in the early stages of our work in Chipiona, into a strong **commitment** and **involvement** from the very beginning.

INTRODUCTION / BACKGROUND INFORMATION

SPAIN

IHCantabria's proposal to strengthen tsunami preparedness of Chipiona

Agreement adopted by the town council of Chipiona to be included in the IOC UNESCO Tsunami Ready recognition programme.

Letter of interest of collaboration between IHCantabria, UMA and the Municipality of Chipiona, to propose Chipiona as pilot case in Spain and Europe for the Tsunami Ready program to be implemented in the NEAMTWS Zone.



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
COMMISSION Océanographique InterGouvernementale
COMISSION Océanográfica InterGubernamental
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
الجنة الدولية لعلم المحيطات
政府間海洋学委员会
UNESCO - 7 Place de Fontenay - 75332 Paris Cedex 07 SP, France
http://ioc.unesco.org - contact phone: +33 (0) 1 45 66 03 18
E-mail: a.allaga@unesco.org

Ref : IOC/BA /DCS/ 13 August 2020

Subject: Letter in support for the municipality of Chipiona (Province of Cadiz) to participate as pilot Spanish case to achieve the Tsunami Ready program recognition

Dear Excmo Sr. D. Luis Mario Aparcero,

Thank you for your letter dated 14 August 2020 informing the Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO) that the City of Chipiona in the province of Cádiz is a high-risk area to tsunami events and the City Council of Chipiona is willing to be prepared for tsunami events. This is seen as a very encouraging development in terms of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and connected seas (ICG/NEAMTWS).

We take note and welcome the letter of interest of collaboration between IHCantabria (Environmental Hydraulics Institute of the Universidad de Cantabria, Spain), UMA (Universidad de Málaga, Spain) and the Municipality of Chipiona, province of Cadiz, Spain, to propose the Chipiona City as a pilot case in Spain and Europe for the Tsunami Ready program to be implemented in the NEAMTWS Zone.

I am writing to express our strong support of the Intergovernmental Oceanographic Commission (IOC) of UNESCO towards this endeavour.

The IOC Secretariat is planning a meeting with DG-ECHO in mid-September to discuss the second phase of the Tsunami Last Mile project (funded by European Commission Joint Research Centre, JRC) and also Tsunami Ready pilot cases in NEAM (North-eastern Atlantic, the Mediterranean and connected seas) region. We will remain in close contact with you to inform you about the outcome of the meeting and other related developments.

Yours sincerely,

For - Bernardo Allaga
Programme Specialist
Head of IOC Tsunami Unit a.i

Chairperson	Web-Chairpersons
Dr Anne Heine THOM Head, Oceanography Department Navy Hydrographic Service Av. Montes de Oca 2124 01212NAV Buenos Aires ARGENTINA	Dr Maria BRELICH-MORITZ co-Secretariat of German IOC Section Federal Maritime and Hydrographic Agency Bismarckstr. 74 20359 Hamburg GERMANY
Executive Secretary Dr Vladimir RYABININ Intergovernmental Oceanographic Commission - UNESCO 7 Place de Fontenay 75332 Paris Cedex 07 SP	Dr Alexander FROLOV Assistant to the President National Research Center "Kurchatov Institute" Academia Kuratavna st. 1 123152 Moscow RUSSIAN FEDERATION
	Dr Frederic Antonio SARRAIA NOGUEIRA Navy Captain (R) Directorate of Hydrography and Navigation Rua Barão de Albuquerque 519 24048-900 Niterói BRASIL
	Dr Kaim HILALI Head of Oceanography Department Institut National de Recherche Halieutique (INRH) 02, Boulevard Sidi Abderramane Ain Daej 20180 Coquilhan MOROCCO
	Dr Satish Chandra SHENOI Director Indian National Centre for Ocean Information Services (INCOIS) Phulag Nagar, Visakhapatnam P.O. 530020 Hyderabad

ESTABLECIMIENTO DE UN PLAN DE ACTUACIÓN ANTE EL RIESGO DE MAREMOTOS PROPUESTA DE CHIPIONA COMO PRIMERA CIUDAD ESPAÑOLA PREPARADA FRENTE A TSUNAMIS (CASO PILOTO PROGRAMA TSUNAMI READY EUROPEO)



AYUNTAMIENTO D
REGISTRO G
17 JUL 2
SALIDA Nº : 7194

SECRETARÍA GENERAL DE ESCRITORIO Y REGISTRO

Por medio de la presente, adjunto remito acuerdo adoptado de la sesión ordinaria del Pleno del Ilmo. Ayuntamiento de Chipiona, celebrado el 16 de julio de 2020, relativo a:

PUNTO TERCERO.- DICTAMEN DE LA COMISIÓN INFORMATIVA DE FECHA 16 DE JULIO DE 2020 RELATIVA A LA PROPUESTA DE LA ALCALDÍA PRESIDENCIA RELATIVA A LA ELECCIÓN DE LA CIUDAD DE CHIPIONA COMO PRIMERA CIUDAD ESPAÑOLA PREPARADA FRENTE A TSUNAMIS DENTRO DEL PROYECTO PILOTO DENOMINADO "PROGRAMA TSUNAMI READ Y EUROPEO" MEDIANTE EL ESTABLECIMIENTO DE UN PLAN DE ACTUACIÓN ANTE EL RIESGO DE MAREMOTOS. (SG)

Lo que le remito para su conocimiento y efecto oportunos.

Sin otro particular, reciba un saludo

A fecha de la firma electrónica.
El Alcalde-Presidente
D. Luis Mario Aparcero Fernández de Retana



Asunto:
Open Ses

TO: IOC-UNESCO

FROM:
Ayuntamiento de la Ciudad de Chipiona
City Council of Chipiona.

DATE: 14-07-2020

SUBJECT: Interest letter of the municipality of Chipiona (Province of Cadiz), in participate as pilot spanish case to achieve the Tsunami Ready program recognition

The City of Chipiona in the province of Cádiz is exposed to the impact of major tsunami events such as the historic 1755 Lisbon tsunami, being a high-risk area as has already been demonstrated in the European Project TRANSER.

Due to this situation, the City Council of Chipiona is willing to be prepared for tsunami events. In this sense, we have been in contact with IHCantabria (Instituto de Hidráulica Ambiental de la Universidad de Cantabria) and UMA (University of Málaga), who has shown us its research, experience and technical capacity to carry out the preparedness for the tsunami events to which the municipality is exposed, considering numerical modelling, the development of cartographic products and social aspects. In addition, their academic capacity to carry out capacity building and awareness programmes and to engage organizations and individuals at the community level is also of great value to us. We are aware that to be a city prepared for tsunamis, the community must have implemented activities as: defining tsunami flooding zones, producing evacuation maps, installing evacuation route signs, participatory work processes at an institutional and community level for sustained public education, developing and implementing tsunami operations plans and holding public exercises. For these reasons, I subscribe the present letter as a proof of the interest of collaboration between IHCantabria, UMA and the Municipality of Chipiona, province of Cadiz, Spain, to propose the Chipiona City as pilot case in Spain and Europe for the Tsunami Ready program to be implemented in the NEAMTWS Zone.

Signed: Excmo Sr. D. Luis Mario Aparcero
Major of Chipiona Municipal Council



IHCantabria

Documento elaborado por

INSTITUTO DE HIDRÁULICA AMBIENTAL DE LA UNIVERSIDAD DE CANTABRIA



July 2020

August 2020

INTRODUCTION / BACKGROUND INFORMATION

- *Preliminary information concerning key national stakeholders and partners that you envisage for this project:*

- Chipiona Town Council
- Local emergency services (Police, Civil Protection, Civil Guard, Council)
- Local key stakeholders already identified (civil organisations, educational and health sectors, tourism/private sector, sectorial organisations, NGOs)
- TNC – Instituto Español Oceanografía (IEO)
- TWFP - Civil Protection
- National Tsunami Warning Centre – IGN
- National Port Authority (especially re ocean forecasting)
- Ministerio de Interior (IGN + Civil Protection)
- Civil Protection at the regional level - Junta de Andalucía

-
- IHCantabria
 - University of Málaga (UMA)



UNIVERSIDAD DE MÁLAGA

- *Potential national contributions:*

- Preliminary ideas... Iterative consultative process: as key stakeholders, they will be consulted throughout the whole project process on the areas in which they have competences / expertise / knowledge.

(i) Risk Knowledge and Communication Strategies

- *Is there any baseline knowledge, methods, tools and practices concerning sea level coastal hazard risk perceptions and risk communication strategies within the nominated community?*

		PROVIDE AN IDEA OF EXISTING KNOWLEDGE ETC, ON SEA LEVEL COASTAL HAZARD RISK PERCEPTIONS AND COMMUNICATION STRATEGIES WITHIN THE LOCAL COMMUNITY [none/lacking/some]	NEEDS
i	Tsunami	<p>THERE ARE TSUNAMI INUNDATION AND EVACUATION MAPS THAT WE HAVE ALREADY DEVELOPED IN THE PROJECT.</p> <p>THERE IS NO CONSOLIDATED AND DOCUMENTED KNOWLEDGE BASE ON RISK PRECEPTION AND COMMUNICATION STRATEGIES.</p> <p>However, there are some elements that suggest that there may be a certain level of awareness regarding tsunami risk.</p> <p>As part of the work we have already developed in recent months in the community, some members of the community have been informed and have participated in different activities, such as the validation of preliminary evacuation maps, or a walking speed estimation exercise. A permanent exhibition on tsunamis has also been inaugurated and some activities were carried out during the week of 1-5 November 2021, to remember the tsunami of 1 November 1755 and commemorate the WTAD 2021.</p> <p>Although there may be a certain level of awareness of tsunami risk, this has not been analysed and there is a need to work on educating the population. In addition, there is a need to develop/strengthen the warning communication chain and the organisation of emergency services at the local level, in case of a tsunami. This need has been identified during this time of work in the municipality and especially in a communication drill that took place last November 2021.</p>	<p>The proposed risk perception survey will be an important starting point for developing appropriate communication strategies at all levels, tailored to the gaps identified in them.</p> <p>Once the gaps have been identified, it would be necessary to carry out the necessary activities to address them (for example local tsunami SOP).</p>

(i) Risk Knowledge and Communication Strategies

- *Is there any baseline knowledge, methods, tools and practices concerning sea level coastal hazard risk perceptions and risk communication strategies within the nominated community?*

		PROVIDE AN IDEA OF EXISTING KNOWLEDGE ETC, ON SEA LEVEL COASTAL HAZARD RISK PERCEPTIONS AND COMMUNICATION STRATEGIES WITHIN THE LOCAL COMMUNITY [none/lacking/some]	NEEDS
1	Storm Surge	Lacking. There is no consolidated and documented knowledge base on storm surge risk perception and communication strategies for the municipality of Chipiona	<p>The proposed risk perception survey will be an important starting point for developing appropriate communication strategies tailored at all levels, to the gaps identified in them.</p> <p>In terms of risk analysis, there is some work done by the Spanish Government in the frame of Directive 2007/60/EC on the assessment and management of flood risks.</p> <p>To identify additional needs for Chipiona in this regard, a deeper analysis should be made to know the level of detail of the studies at the community level.</p>
2	Sea Level Rise	Lacking at community level. There is no consolidated and documented knowledge base on sea level rise related risk perception and communication strategies for the municipality of Chipiona	

(ii) Early Warning and Mitigation System Status

- *What is the status of early warning and mitigation system (detection, monitoring, analysis, warning, communication, dissemination and response) for tsunami within the nominated community?*
- *What is the current status of the Joint Research Centre (JRC) Inexpensive Device for Sea Level Measurements ([IDSL](#)) stations (if any) ? (Operating? Any Issues?)*









		PROVIDE AN IDEA OF EXISTING CAPACITY/CAPABILITY WITHIN THE LOCAL COMMUNITY [Non-existence/ lacking/ available]	NEEDS
1	Detection	Available at national level.	Detection and monitoring is at National Level in Spain (Preliminarily, no needs have been identified at the local level)
1	Monitoring (e.g. IDSL)	Available JRC- IDSL in Cádiz. There is also a tidal gauge (Port Authority) in Bonanza, very close to Chipiona.	Needs in this regard are focused on offshore monitoring-detection systems, to reduce detection and warning time. A detailed analysis would be necessary to determine the appropriate solution, location, management and maintenance.
2	Warning / Forecast	Available at national level.	Warning and forecasting is at National Level in Spain (Preliminarily, no needs have been identified at the local level).
3	Communication & Dessimination	Lacking There is a procedure to disseminate the warning message from national to local emergency manager in Chipiona. From there, there is no communication strategy nor a strategy for disseminating information to the population.	Support is needed for the creation of a communication strategy and infrastructure to disseminate alerts 24/7/365 in a redundant manner, including signage and sirens.
4	Preparedness and Response	Lacking See TR component (slides below)	See TR component (slides below)

COMMUNITY COASTAL SEA LEVEL HAZARD EARLY WARNING AND MITIGATION SYSTEM CONTEXT/ STATUS (CON'T)

SPAIN

(iii) Status / Elements of Tsunami Ready in the proposed / nominated community site?

- *Are there any Tsunami Ready elements/indicators achieved in accordance to UNESCO IOC Tsunami Ready Indicators (See UNESCO IOC Tsunami Ready Indicators- (Latest Indicators-not published yet). What has been achieved earlier?*
- *E.g. Tsunami Hazards are mapped and designated, Tsunami information displayed etc.*





UNESCO IOC TSUNAMI READY INDICATORS		PROVIDE AN IDEA OF EXISTING CAPACITY AT THE NOMINATED COMMUNITY [NONE/ ONGOING/ ACHIEVED]
I	ASSESSMENT (ASSESS)	
1	ASSESS-1. Tsunami hazard zones are mapped and designated	ACHIEVED 
2	ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated	SOME 
3	ASSESS-3. Economic, infrastructural, political, and social resources are identified	NONE 
II	PREPAREDNESS (PREP)	
4	PREP-1. Easily understood tsunami evacuation maps are approved	ACHIEVED 
5	PREP-2. Tsunami information is publicly displayed	SOME 
6	PREP-2. Outreach and public awareness and education resources are available and distributed	SOME 
7	PREP-3. Outreach or educational activities <u>are held at least three times a year</u>	SOME 
8	PREP-4: A community tsunami exercise is conducted at least every two years	NONE 

COMMUNITY COASTAL SEA LEVEL HAZARD EARLY WARNING AND MITIGATION SYSTEM CONTEXT/ STATUS (CON'T)

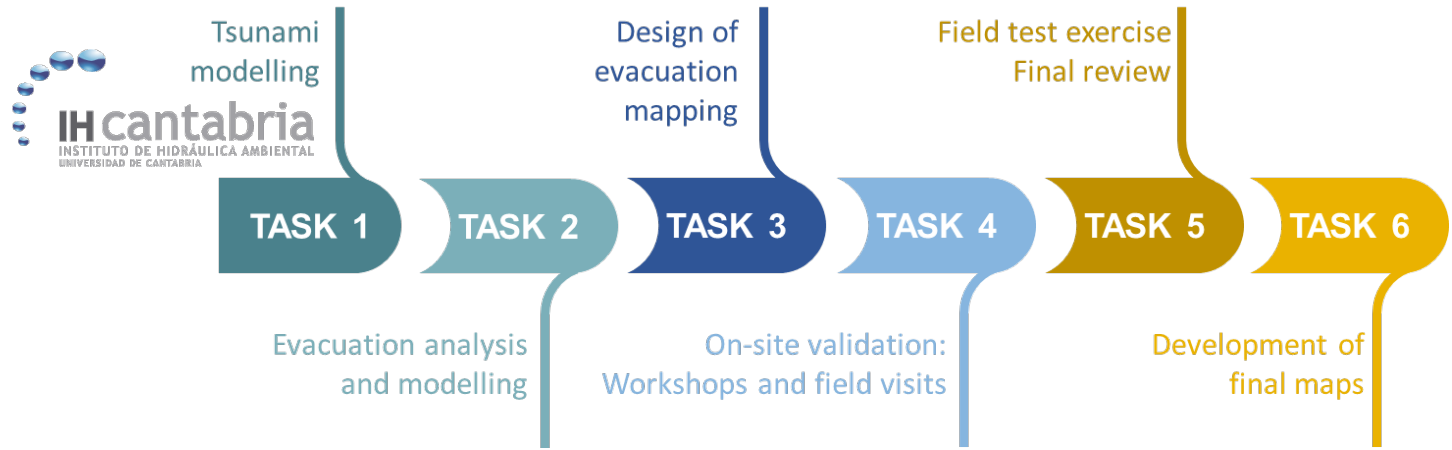
SPAIN

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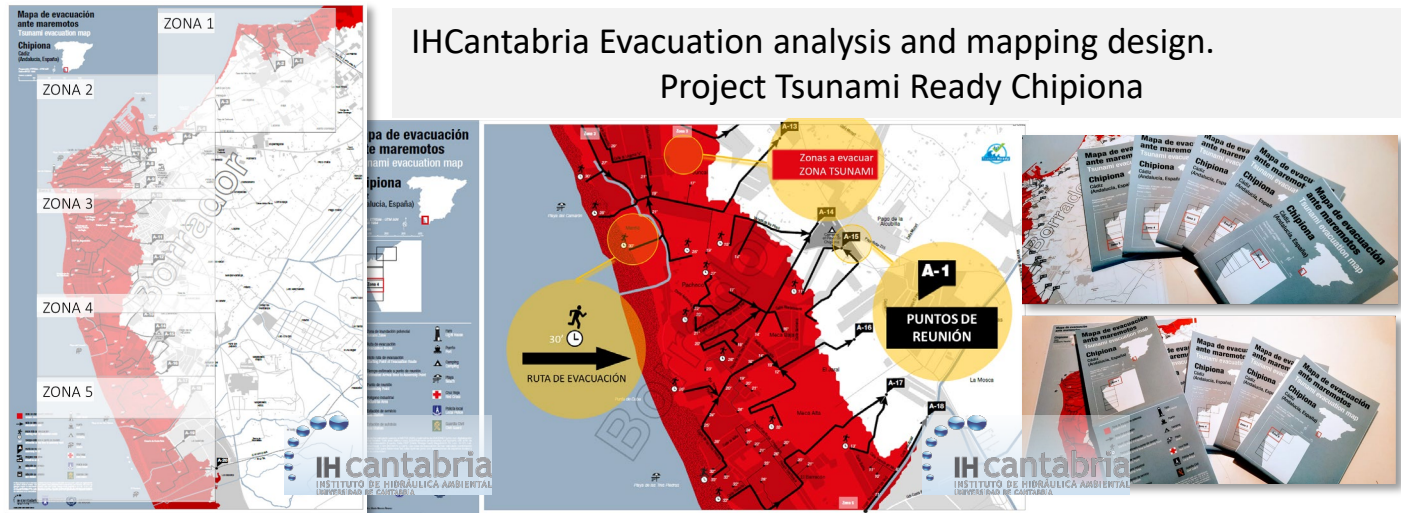
- *Are there any Tsunami Ready elements/indicators achieved in accordance to UNESCO IOC Tsunami Ready Indicators (See UNESCO IOC Tsunami Ready Indicators- (Latest Indicators-not published yet). What has been achieved earlier?*
- *E.g. Tsunami Hazards are mapped and designated, Tsunami information displayed etc.*

UNESCO IOC TSUNAMI READY INDICATORS		PROVIDE AN IDEA OF EXISTING CAPACITY AT THE NOMINATED COMMUNITY [NONE/ ONGOING/ ACHIEVED]
III	RESPONSE (RESP)	
9	RESP-1. A community tsunami emergency response plan (ERP) is approved	NONE 
10	RESP-2. The capacity to manage emergency response operations during a tsunami is in place	NONE 
11	RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place	LACKING 
12	RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place	NONE 

IHCantabria tasks workflow. Project Tsunami Ready Chipiona



IHCantabria Evacuation analysis and mapping design. Project Tsunami Ready Chipiona



INTRODUCTION / BACKGROUND INFORMATION

Validation of preliminary evacuation maps Desk-based workshops

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INTRODUCTION / BACKGROUND INFORMATION

Validation of preliminary evacuation maps
Field visits & Exercise foot evacuation speed analysis

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13_Speed Evacuation Testing Workshop

COMMUNITY COASTAL SEA LEVEL HAZARD EARLY WARNING AND MITIGATION SYSTEM CONTEXT/ STATUS (CON'T)

SPAIN

(iii) Status / Elements of Tsunami Ready in the proposed / nominated community site?

MATCHING NEEDS

- *What are the needs to establish the full cycle of Tsunami Ready Recognized Community?*
- *Where can we focus and intensify project efforts (in reference to project activities)?*

UNESCO IOC TSUNAMI READY INDICATORS		NEEDS
1	ASSESS-1. Tsunami hazard zones	ACHIEVED
2	ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated	An estimate of the total exposed population is made based on the results of the flood model. The estimation of the vulnerable exposed population and the tourism estimation is lacking. Further analysis work is needed
3	ASSESS-3. Econ., infra.,polit., soc. resources identified	An analysis and inventory must be carried out
4	PREP-1. Evacuation maps	ACHIEVED
5	PREP-2. Tsunami information is publicly displayed	There is a need to (i) conduct an analysis to determine the most appropriate location for the signs, (ii) sign posts and installation of signs, (iii) the printing of the materials, (iv) design the infographic/materials on how to act in case of a tsunami, to be included in the final design of the signs
6	PREP-2. Outreach and public awareness and education resources are available and distributed	
7	PREP-3. Educational activities <u>are held at least three times a year</u>	Educational material needs to be developed and, in the case of schools, to incorporate it into the curriculum.
8	PREP-4: A community tsunami exercise is conducted at least every two years	Tsunami drills need to be organised, developed and assessed afterwards.

(iii) Status / Elements of Tsunami Ready in the proposed / nominated community site?

MATCHING NEEDS

- *What are the needs to establish the full cycle of Tsunami Ready Recognized Community?*
- *Where can we focus and intensify project efforts (in reference to project activities)?*

UNESCO IOC TSUNAMI READY INDICATORS		NEEDS
9	RESP-1. Tsunami emergency response plan (ERP)	A tsunami ERP and a SOP need to developed
10	RESP-2. The capacity to manage emergency response operations during a tsunami is in place	There is a need to develop an SOP at both national and local level.
11	RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place	A communication strategy and infrastructure needs to be developed to receive alerts 24/7/365 in a redundant manner.
12	RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place	A communication strategy and infrastructure needs to be put in place to disseminate warnings 24/7/365 in a redundant manner, including signage and sirens.



In addition, monitoring and verification activities need to be established and supported to assess the entire TR process and the level of achievement of tsunami preparedness indicators.



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