Red Humanitaria Nacional

Perú

Sistema de Naciones Unidas

Evacuation planning and shelter management experience in Peru

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Peru – General facts

- **Extension:** 1,285,215 square kilometers. Third largest country in South America
- **Population:** 29 million (projected to 2011)
- Great biodiversity and geographic complexity (Andes mountains, Amazonian jungle, dessertic coast, circle of fire of the Pacific Ocean)
- Multi-cultural country (more then 50 ethnic nationalities, pre-Columbian civilizations, and migration processes)
- Disaster prone due both to threats and vulnerability (exposure, fragility and low resilisence)
- Middle income country, economic growth regular rythm
- High inequity index

Peru – Main Natural Threats

- Seismic activity and tsunamis (coastal area and Andes)
- Volcanic activity (south Andes)
- Heavy rainfalls causing floods and landslides (all basins)
- Deglaciation process causing water scarcity and avalanches (Andes)
- Droughts (all basins)
- Ground frosts in the Andes, and non usual low temperatures in the Amazonian jungle

National Disaster Risk Management System

National Level
(normative and subsidiary role)

Prime Minister office (PCM)
INDECI --------- CENEPRED

State Sectors

Humanitarian National Network

Regional Level (sub-national)
(executive role)

Regional/Local Govenments

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Disaster Risk Management Groups

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Local Level
(first response)

Emergency Operation Centers

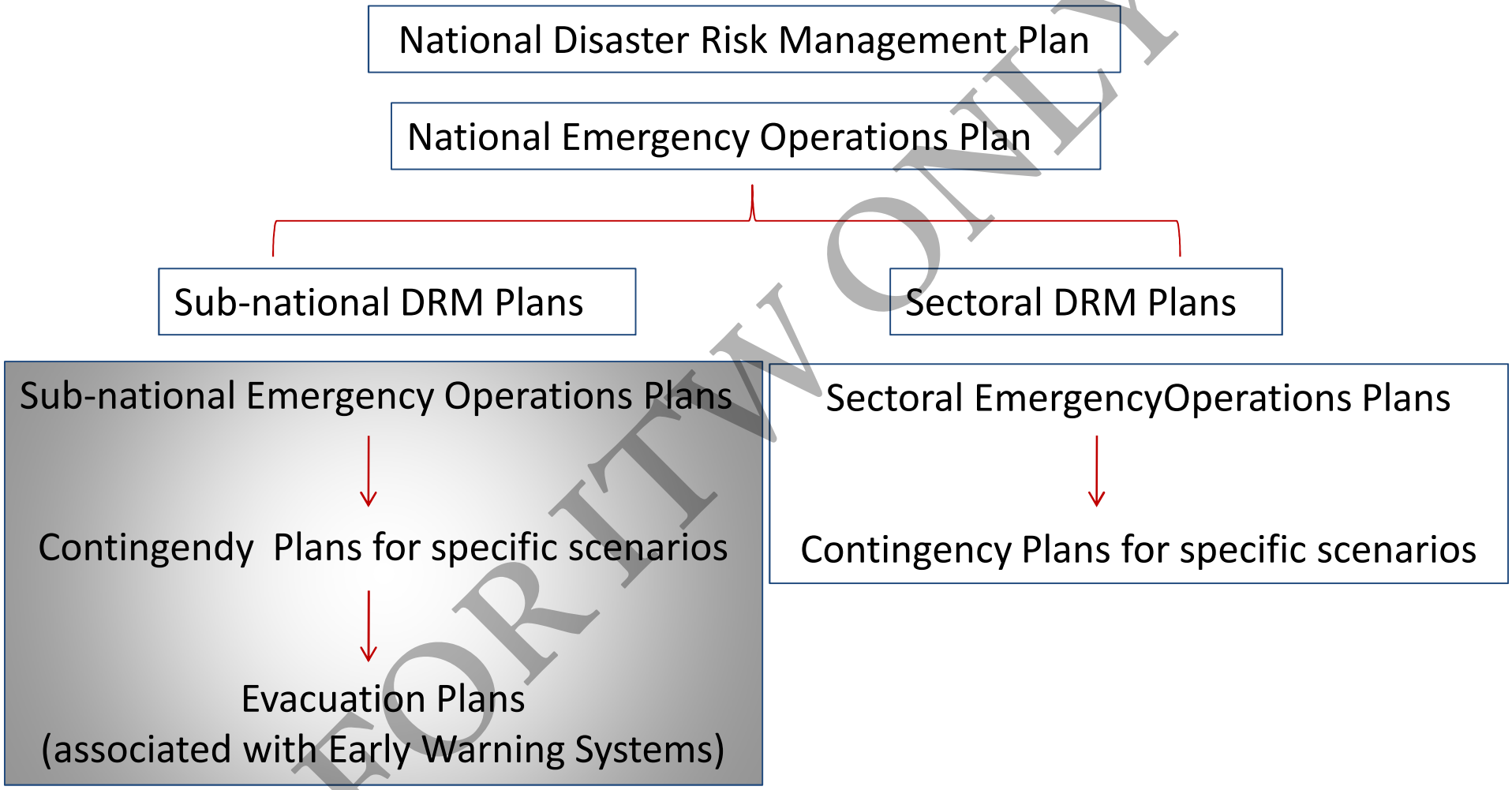
Civil Society

International cooperation

Private Sector

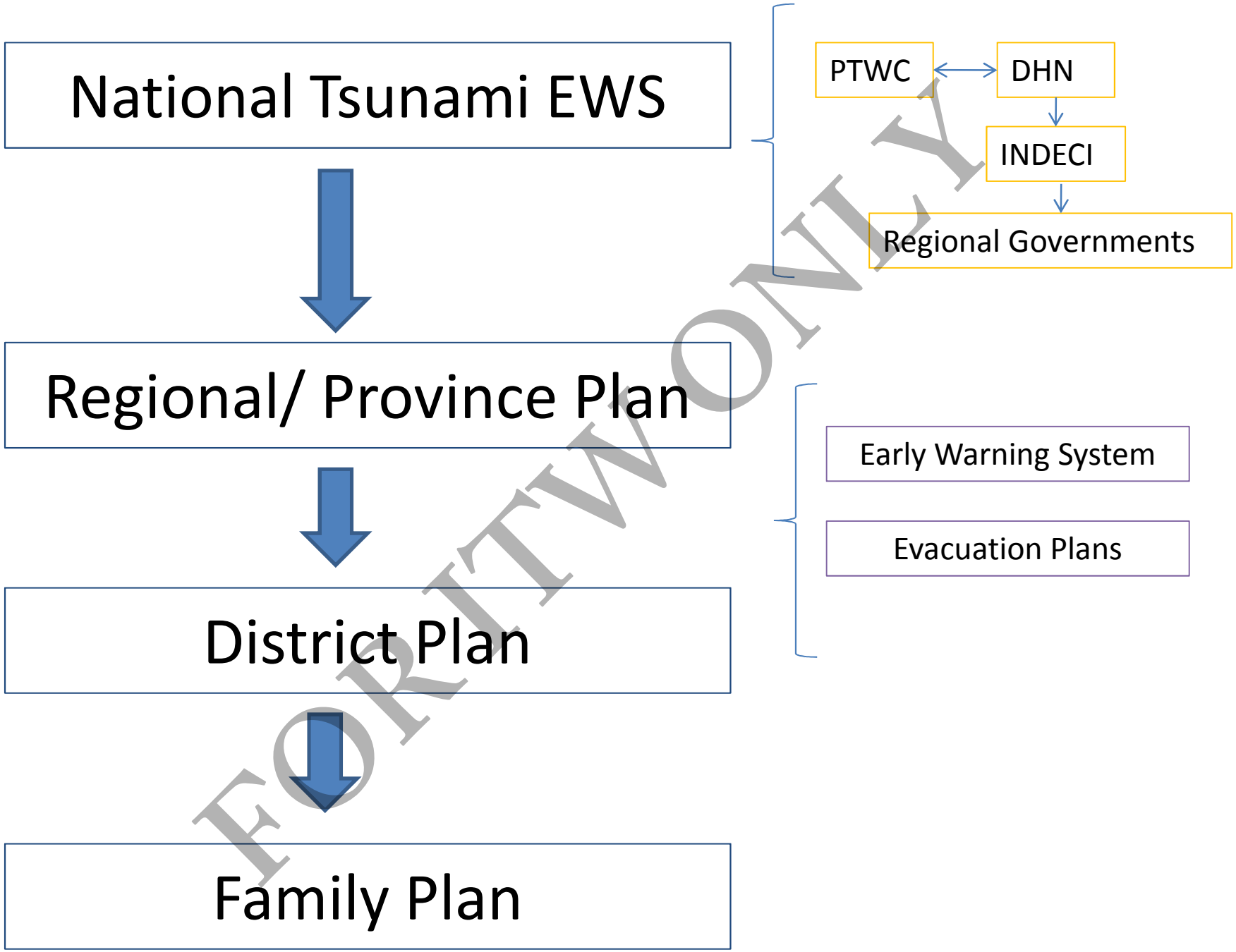
Evacuation Planning

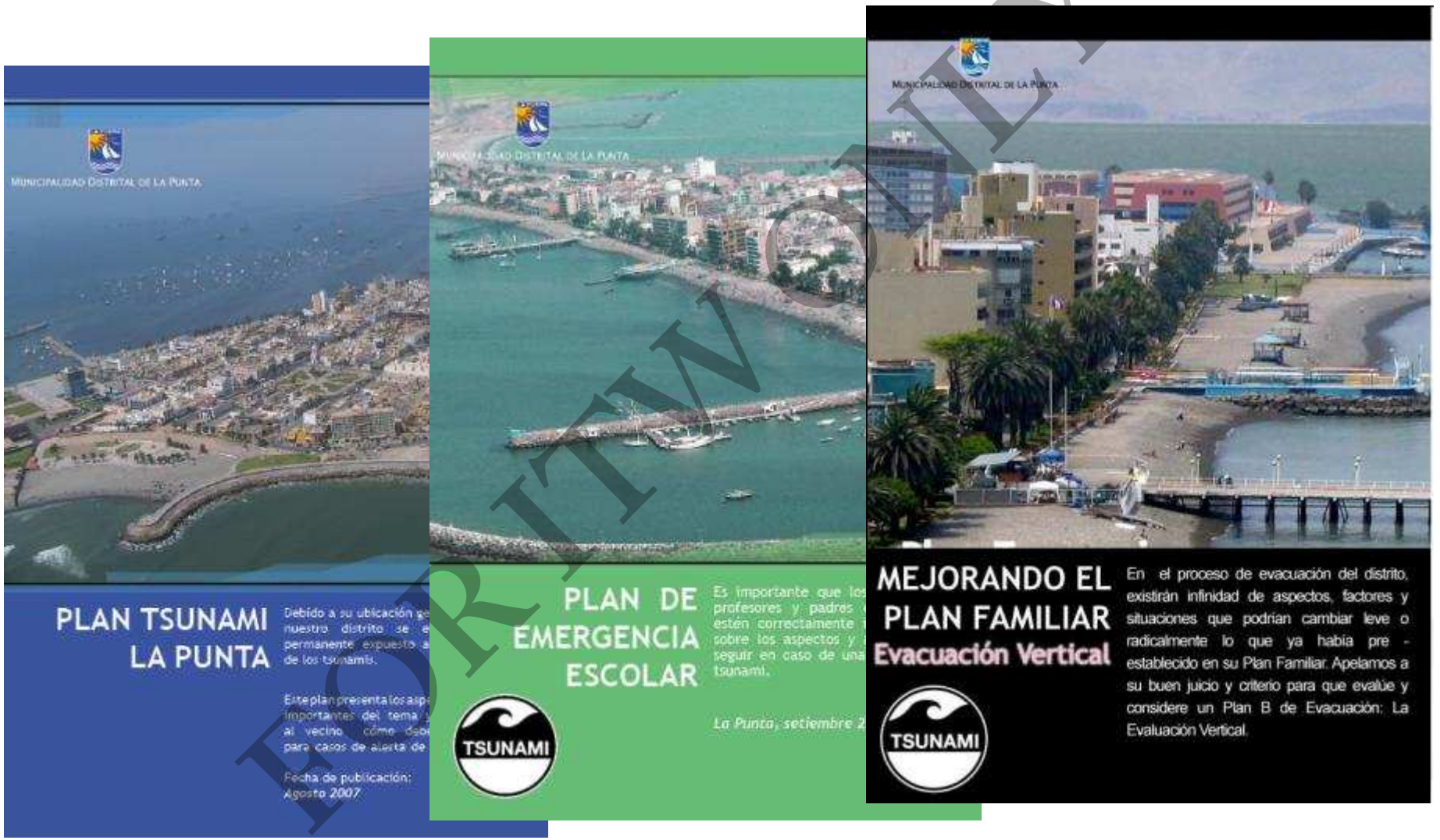
Planning process in Disaster Risk Management



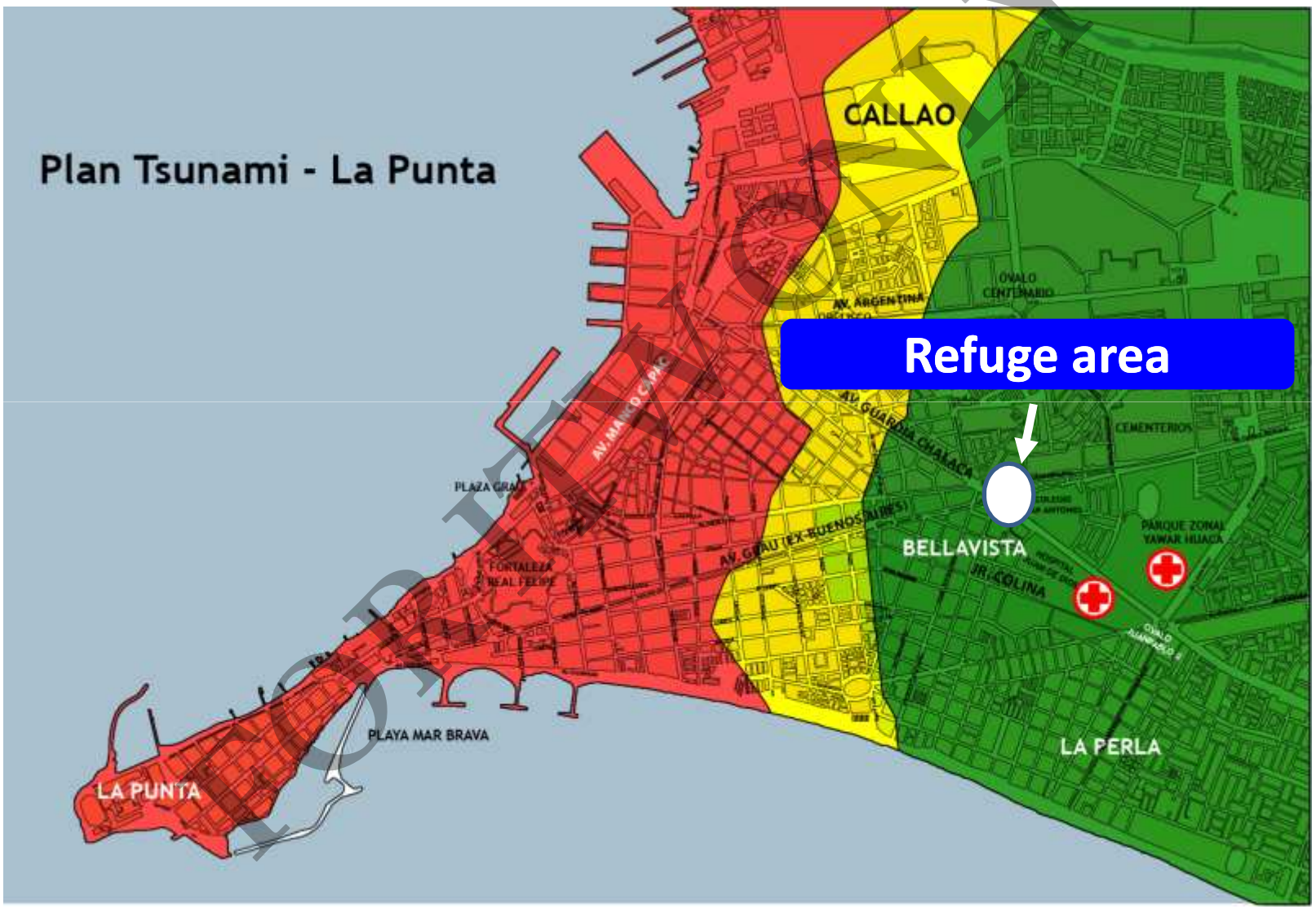
Type of events that forsee evacuation plans: tsunamis, floods, landslides, volcanic eruptions.

Tsunami Evacuation Plan
La Punta district, Callao region

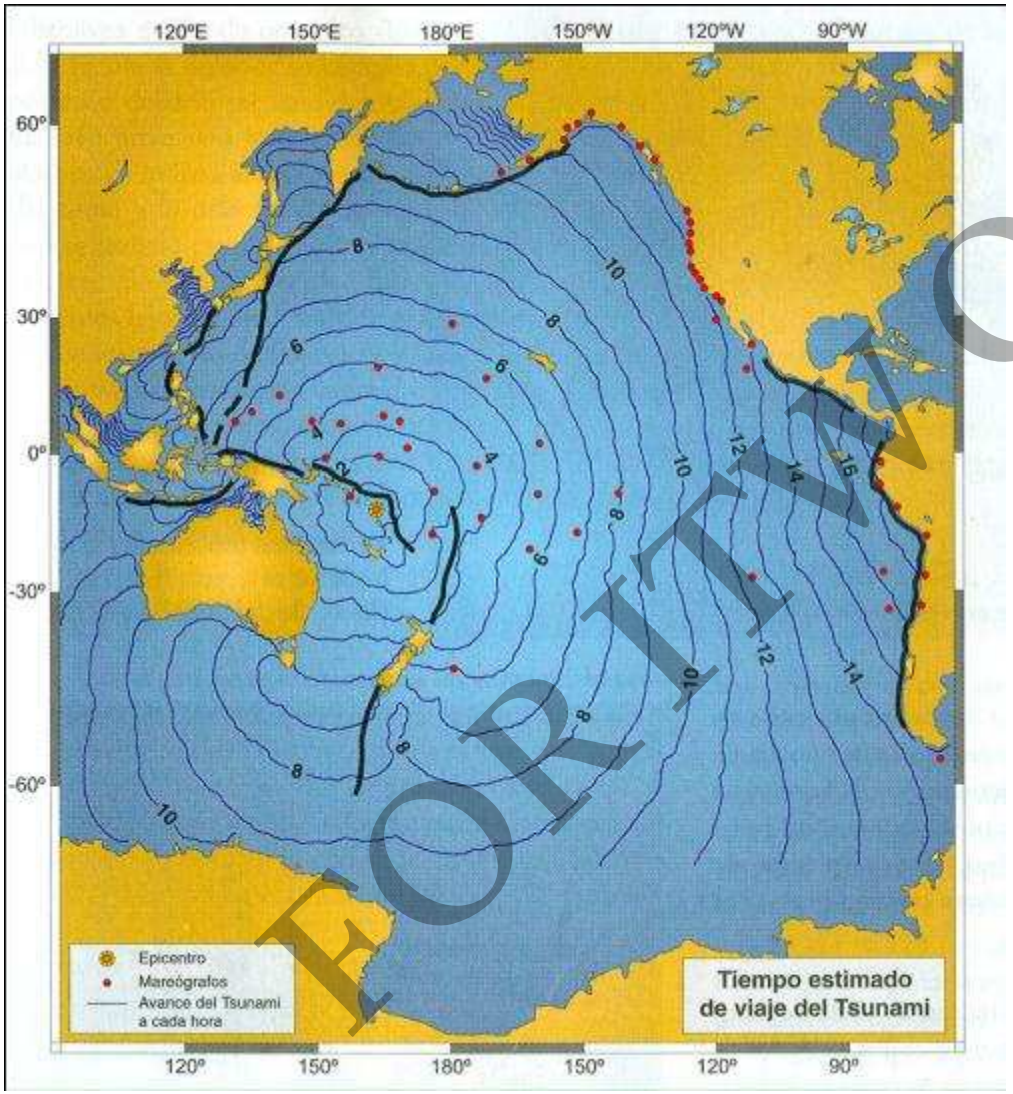

National Tsunami EWS
PTWC
DHN
INDECI
Regional Governments
Regional/ Province Plan
Early Warning System
Evacuation Plans
District Plan
Family Plan


MUNICIPALIDAD DISTRITAL DE LA PUNTA
PLAN TSUNAMI
LA PUNTA
Debido a su ubicación
nuestro distrito se
permanente expuesto
de los tsunamis.
Este plan presenta los asp
importantes del tema
al vecino cómo deb
para casos de alerta de
Fecha de publicación:
Agosto 2007
MUNICIPALIDAD DISTRITAL DE LA PUNTA
PLAN DE
EMERGENCIA
ESCOLAR
Es importante que lo
profesores y padres
estén correctamente
sobre los aspectos y
seguir en caso de una
tsunami.
La Punta, setiembre 2
TSUNAMI
MUNICIPALIDAD DISTRITAL DE LA PUNTA
MEJORANDO EL
PLAN FAMILIAR
Evacuación Vertical
En el proceso de evacuación del distrito, existirán infinidad de aspectos, factores y situaciones que podrían cambiar leve o radicalmente lo que ya había pre - establecido en su Plan Familiar. Apelamos a su buen juicio y criterio para que evalúe y considere un Plan B de Evacuación: La Evaluación Vertical.
TSUNAMI

Tsunami risk map for Callao region



Tsunami with far located epicenter



More time to react

Early warning system coordinated between the Pacific Warning Center of Hawaii and the National Hydrographic Direction, giving the alarm to INDECI.

INDECI gives the alert to the Regional Governments

Tsunami with near located epicenter

- More than 7 grade in Richter scale. epicenter in the sea, less than 60 kms depth
- The alarm sign will be the intensity of the earthquake
- No more than 20 minutes for the first wave,need to react immediately
- No time for all population to get the safe area
- “Vertical” evacuation as an alternative in the plan

Alarm signs of Early warning system in Callao Region include sirenas

Activated by the Callao Regional Emergency Operations Center after the President of the Regional Government order

Alarm sign in a earthquake with near epicenter

The alarm sign cannot wait in that case for the scientific institution information because the first wave will come too soon

The **intensity** of the earthquake will be the immediate sign:

- If it is very difficult to walk
- If windows break, and walls have damages

Sirenas activated by the Regional Government will reinforce, but th e population have the responsibility to evacuate if the intensity is high

There is always a risk of false alarm, but evacuatiion is programmed anyway, the value of testing the plan stil worths the effort.

Considerations of the Evacuation Plan

Earthquake with far epicenter in the sea

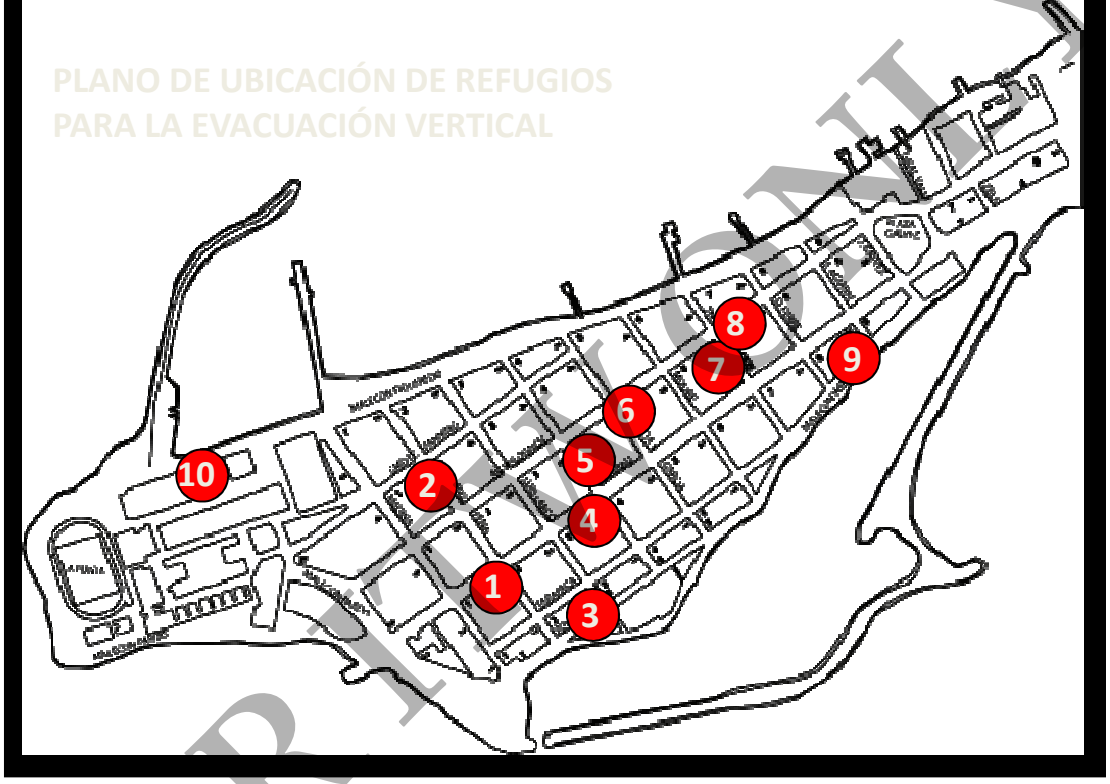
- Organized evacuation will be held to refuge areas pre-determined by the Regional Government of Callao, or according to family plans to other areas in Lima

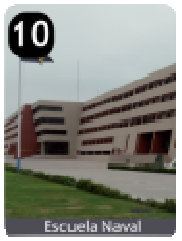
Earthquake with near epicenter in the sea

- The distance to the safe area is 3-4 kilometers. Only nearest population to the safe area is asked to go there
- Vehicles are strongly discouraged to be used in that case in order to avoid saturation of evacuation ways
- Vertical evacuation is recommended for the majority of the population: **Identified buildings** in the district with more than 12 meters high have been selected.

Vertical Evacuation

Buildings higher than 12 meters





Family Plans

Families need to meet and analyze the risk scenarios in order to draw a family plan.

In case of tsunami risk:

- 2 scenarios: a warning that gives **hours of time**, and a warning of an **immediate risk**

- Have more than one plan for each scenario, to face different situations in each case considering:
  - Location of each family member during the earthquake
  - Level of damages that could determine **changes in the plan**.

Limitations for all risks requiring evacuation plans in Peru

Few Regional and Local Governments have designed their plans. It depends on the political will, and leadership capacity.

Vunerable location of most of the rural populations (risk of floods and landslides, earthquakes and tsunamis)

Vulnerable infrastructure due to unobserved building codes

Low awareness of most of the population to disaster risks.

Summary of essential preparedness components

- Ris k mapping: identifying risky and safe areas
- Establishing routes of evacuation
- Signals for safe areas and routes of evacuation
- Early warning system at all levels
- Evacuation plans at local level
- Dissemination of plans and information
- Family evacuation plans
- Drills: periodic exercises

Perspectives

- New legal framework is intended to enforce political responsibilities
- Need to complete contingency planning for specific scenarios
- Challenge to develop early warning systems at national, regional and local level
- Improve dissemination process to stengthen community resilience
- Continue with drills at all levels

Shelter management

Shelter / Camp response in Peru

- **Types of disaster**: earthquakes/tsunami, floods, volcanic eruption

- **Preparedness measures:**
  - Decentralized warehouses
  - Guidelines for camp management: multisectoral and rights approach
  - Emergency Operations Plans

Ubinas volcano eruption

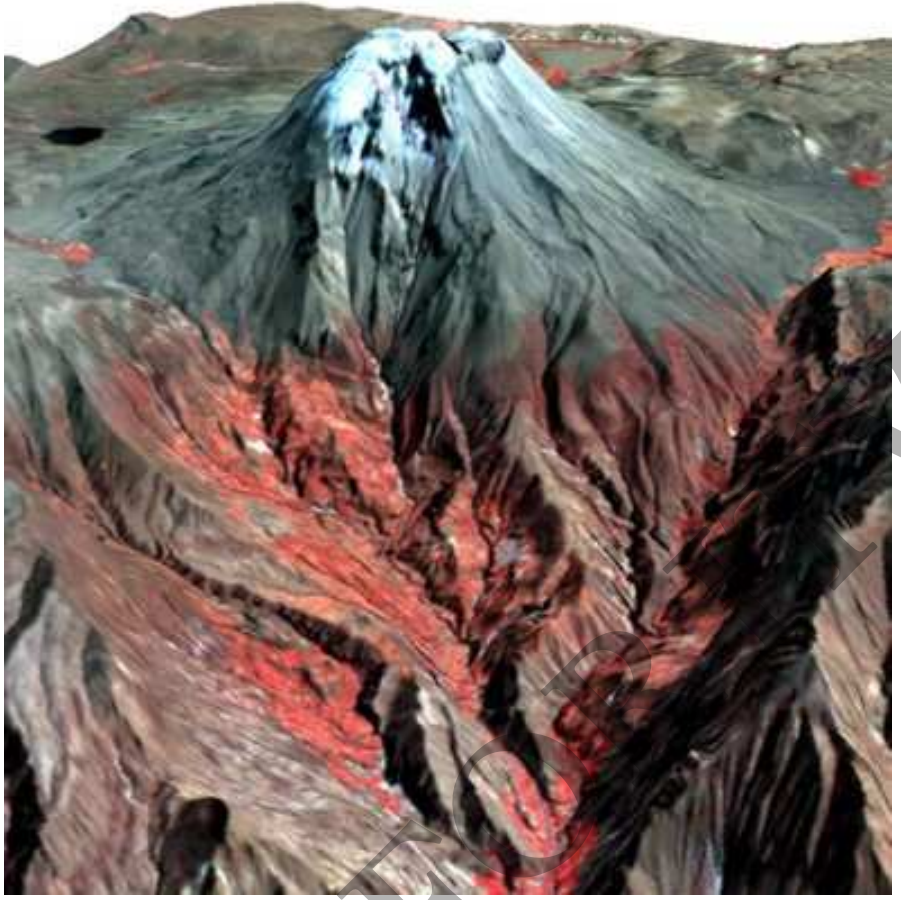
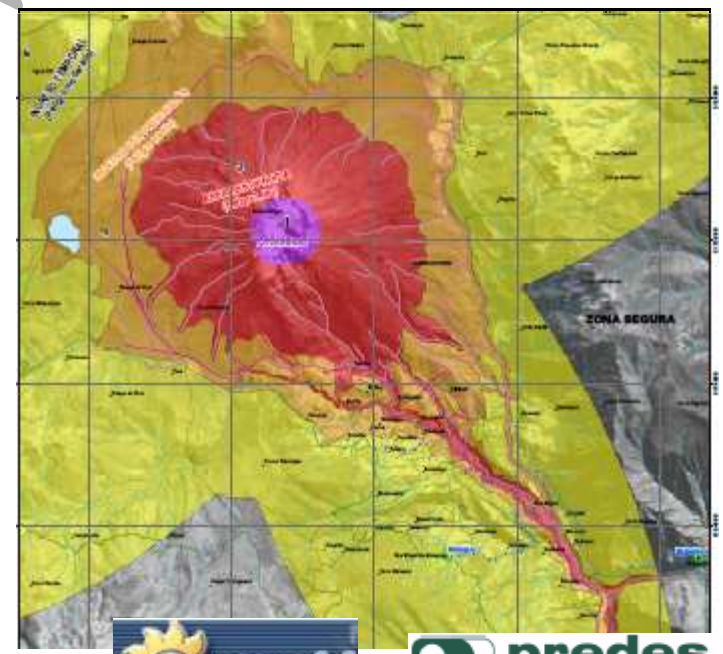


Image ASTER 3D Juan Urbina, INGEMMET, Peru

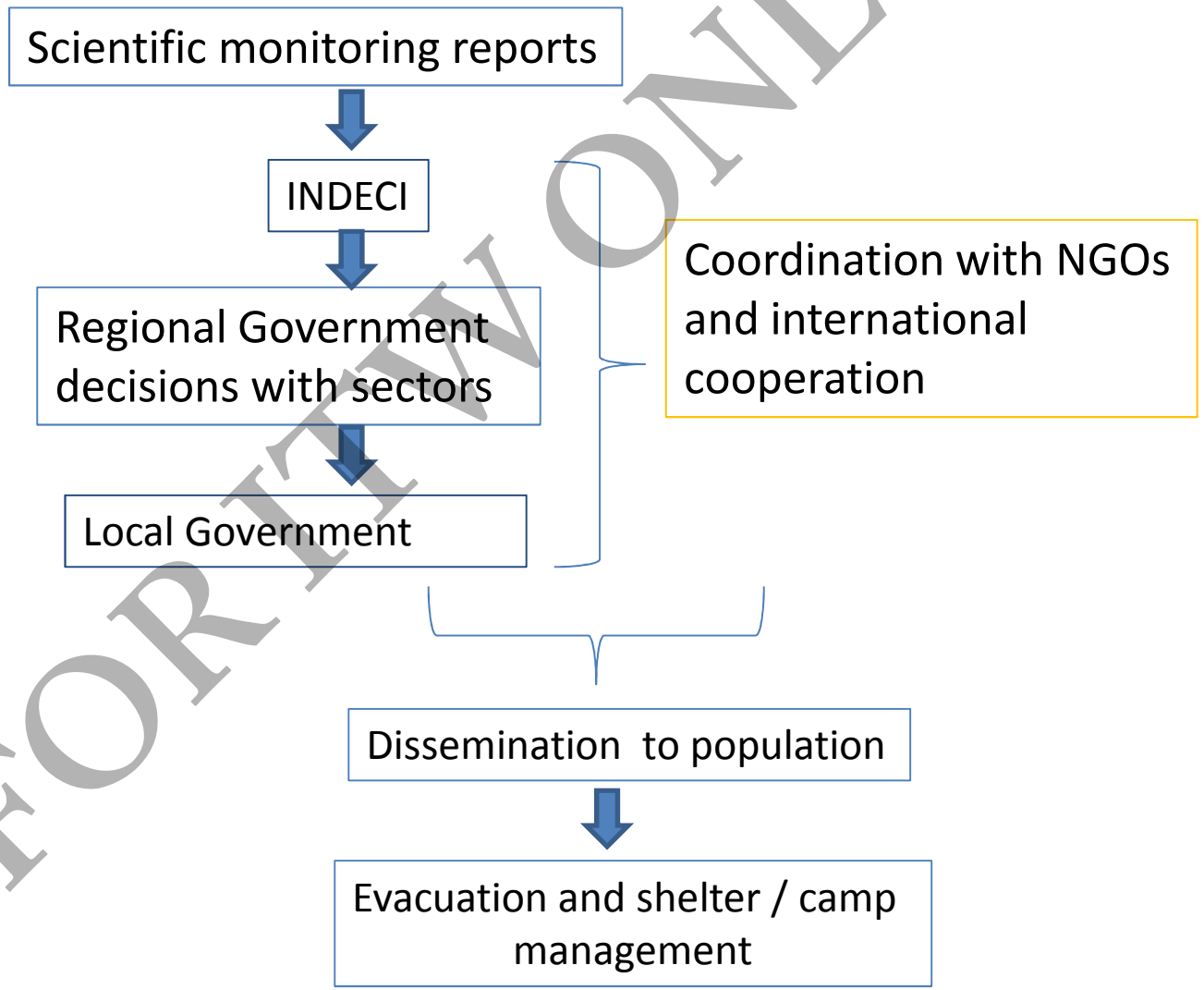
Most active volcano in Peru

From April to June, 2006: Emisions of gas, ashes, explosions and lava

1,045 persons were sheltered in camps (Anascapa and Chacchagen)



From Early Warning to Evacuation and Shelter / Camp Management



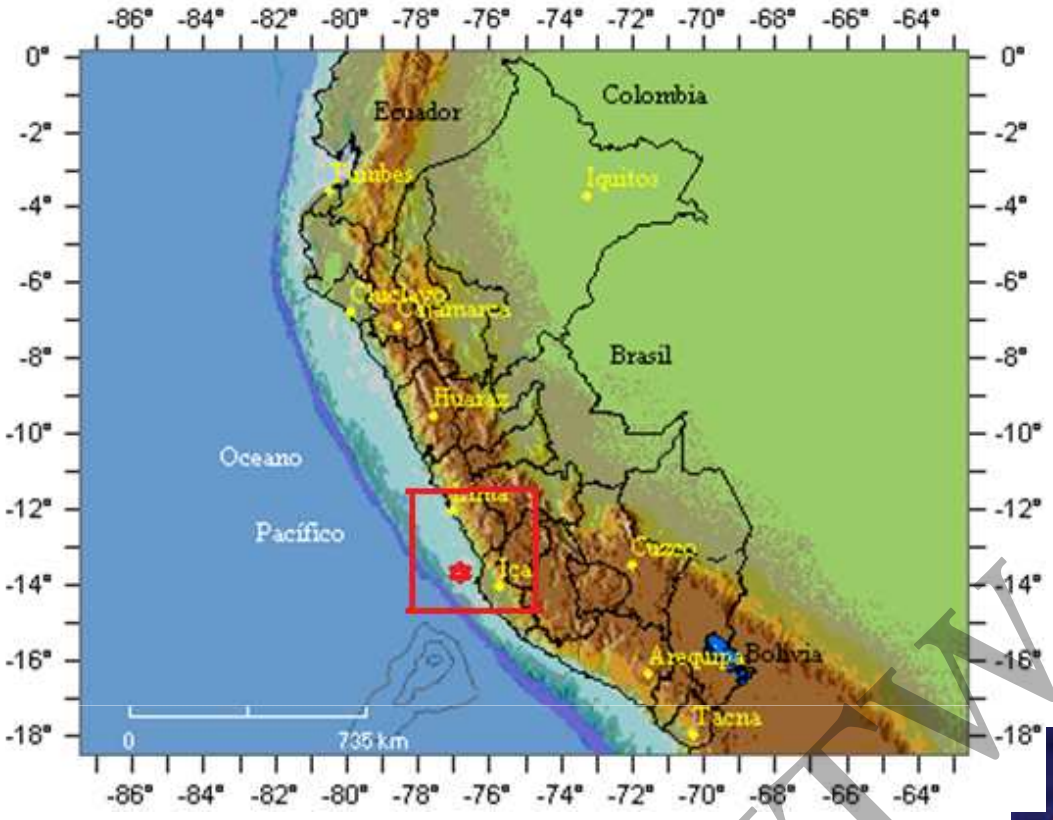
Technical solutions: Transition from tents to modules

First tents with Inadequate materials for the area led to replace them with modules, with water and sanitation instalations:

- Wooden derivative material which gives termic isolation, is non easily flammable, and is accoustic
- Reusable and moveable design

Families lived there during 9 months, returned to risky locations.

Need to transit to a durable solution: Definite relocation to other site which is still in process of legal clearance.



Pisco Earthquake

15 August, 2007

ML 7.0 (Peruvian Geophisics Institute)

Mw 7.9 (United States Geological Service)

- 593 people died, 1,291 seriously injuried.
- 434,614 lost their houses (48,208 destroyed and 45,500 inhabitable)
- 221,060 partially affected

Images and photo from "Lecciones Aprendidas del Sur," INDECI, 2007

Emergency Camps

Region	Province	Camps	Families	Persons
Ica	Pisco	31	3,079	10,184
	Chincha	49	1,872	8,621
	Ica	1	29	98
Lima	Cañete	19	1,034	5,170
Total		100	6,014	24,073

Other strategies for shelter

Families sheltered in camps represented only the 6% of the 93,708 famiies with shelter needs (48,208 houses tottaly destroyed and 45,500 inhabitable)

Other strategies:

- Emergency shelter in their plots (with tents , straw mats, and plastic/tarpaulin)
- Refuge with relatives or friends

Overall response in Shelter sector – Pisco 2007

State warehouses were totally used but needs were much larger.

International aid was necessary. Bilateral and multilateral aid , along with international NGOs responded to cover shelter needs: Tents, emergency shelter materials, wooden modules. IOM, International Federation of the Red Cross and Red Crescent Societies, Oxfam, CARE, ADRA, World Vision, ACT/PREDES, among other organizations implemented shelter strategies.

Community organization was key to deliver aid.

Most **local governments**, as well as **regional governments** had severe difficulties to organize the emergency response.

Coordination between national authorities and international community was established since the first days with the support of the United Nationa. Lessons learned led to improve decisively coordination through the **National Humanitarian Network** created on 2008.

Cusco Floods and landslides (2010)



Rapid response from Regional Government, immediate delivery of support.

A multisectoral and multiagency Mission analyzed the situation and found that needs and damages assessment have to be more effective helping to avoid dupications of efforts, and inefficient outreach to affected population.

There was also inadequate material in the tents for the weather of the area, replaced in some areas with tarpaulin reinforced modules.

USAID, COSUDE, PREDES, Oxfam, Plan International, World Vision, UNICEF, FAO, Caritas, WFP, and UNDP supported the state response complementing with a multisectoral strategy (food aid, health, protection, water and sanitation, agriculture recovery, education, institutional strengthening).

Main preparedness components for emergency shelter and camp management

- Items needed (decentralized warehouses, enough stock of tents and weather adapted emergency shelter modules, kitchen kits, watsan and other non food items)
- Emergency Operations Plans with clear roles and responsabilities
- Site planning for setting camps
- Coordination among humanitarian actors to organize response, both for camp management and emergency shelter (cluster approach in preparedness phase) in a wider multisectoral framework.

Perspectives

- Improved coordination:
  - Thematic Emergency Shelter
  - Mesa Temática de Albergues
- Implementing agreed standards:
  - Guidelines for displacement due to natural disasters
  - Sphere principles and standards
  - Adequate technical solutions for shelter in different areas in the country