External Project Assessment

“Strengthening of the Regional Tsunami Warning System in Chile, Colombia, Ecuador and Peru”

7th. DIPECHO Action Plan 2011- 2012

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I. Executive Summary

This report intends to evaluate the relevance, efficiency, effectiveness, impact and sustainability of the project “Strengthening of the Regional Tsunami Early Warning System: preparations in Colombia, Chile, Ecuador and Peru”; and to measure the degree of integration of the scientific and educational components and the implementation of the approaches used.

The project is highly relevant as it aims to protect people exposed to the danger of tsunamis through the implementation and improvement of early warning systems and inter-agency protocols. Tsunamis by their very nature cause extensive human and material losses however due to their infrequency people are normally neither informed nor prepared for them.

The key components of this project are coordination and education. For this purpose synergies have been forged between both the institutions directly involved in the project, and others that undertake similar projects within the countries in question.

Major advancements have been made in reaching the proposed objectives and results. The majority of the activities proposed have successfully taken place; this in spite of the financial limitations that the synergies forged in the different countries, have helped to overcome.

The impact of the project includes:

- The institutional capacity building and will of mutual cooperation between scientific and/or specialised tsunami response units.
- Guiding and information to DIPECHO partners who have implemented tsunami related projects as well as their beneficiaries indirectly, by improving local Tsunami early warning systems.
- The students at the 30 schools involved in the competitions and those who took part in the competitions, the proceedings and the event in which the regional network was created.

Notable successes include the synergy forged between the project’s partner institutions and other DIPECHO projects, leading to the consolidation of resources and improvements in tsunami preparation strategies; the cooperation between specialised institutions from each country enabling resources to be pooled and significant advancements to be made. Another point of pride lies in the quality and commitment of the team that has been put together, helping the challenges of this complicated project in terms of the institutional and scientific challenges it faces, to be overcome.

From all the lessons and recommendations, what stands out most is the need to improve the link between the educational sector and the processes that make people vulnerable, experience taken from past disasters and the mechanisms for increasing resilience; the indispensable link between the national and regional early warning systems and the local and community ones; the need to increase the involvement of the media and other networks (students, municipalities, institutions and associations) in order to disseminate educational contents and first-hand experience, to give
continuity and strengthen regional and national networks of students in order to ensure their participation in risk management processes.

Among the most pressing of the challenges and difficulties to be faced in the development of a regional protocol: the current differences between the countries over at which magnitude the earthquake becomes a tsunami and institutional changes and changes in legislation causing delays in on-going proceedings. Another issue is the discrepancy in the importance attached to the flood charts and inadequate differentiation between protocols and operational plans which works against the idea of simplicity involved in the protocols.

Of the challenges we face in the quest for ensuring sustainability, special attention must be paid to the need for the implementation of a strategy for the dissemination of information from the virtual platform implemented and to ensure continued inter-agency cooperation and interchange based on the work plan drawn up and the set of recommendations contained within that document.

ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>CCCP</td>
<td>Pollution Control Centre for the Pacific</td>
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<tr>
<td>CIOH</td>
<td>Oceanographic and Hydrographic Research Centre for the Pacific and Caribbean</td>
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<td>CLOPAD</td>
<td>Local Committees for Disaster Risk Management</td>
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<tr>
<td>COC</td>
<td>Executive Secretariat of the Colombian Ocean Commission</td>
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<tr>
<td>CPPS</td>
<td>Permanent Commission for the South Pacific</td>
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<td>CTN AT</td>
<td>National Technical Committee for Tsunami Warning</td>
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<td>DHN</td>
<td>National Hydrography Authority</td>
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<td>DIMAR</td>
<td>Colombian Maritime Authority</td>
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<td>EWS</td>
<td>Early Warning System</td>
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<td>IDEAM</td>
<td>Institute of Hydrology, Meteorology and Environmental Studies of Colombia</td>
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<tr>
<td>IFRC</td>
<td>International Federation of Red Cross and Red Crescent Societies</td>
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<tr>
<td>IG-EPN</td>
<td>Institute of Geophysics- National Polytechnic School of Ecuador</td>
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<td>IGP</td>
<td>National Geophysical Institute</td>
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<td>INOCAR</td>
<td>The Ecuadorian Naval Oceanographic Institute</td>
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<td>IOC</td>
<td>Intergovernmental Oceanographic Commission</td>
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<td>MEN</td>
<td>National Ministry of Education</td>
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<td>MINEDU</td>
<td>Ministry of Education</td>
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<td>OES</td>
<td>Organisation of American States</td>
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<td>ONEMI</td>
<td>National Office of Emergency of the Chilean Interior Ministry</td>
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<td>PAHO</td>
<td>Pan-American Health Organisation</td>
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<td>PLEC</td>
<td>Local Emergency and Contingency Plans</td>
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<td>RENEGEO</td>
<td>National Geodesy Network</td>
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<td>SHOA</td>
<td>Hydrographic and Oceanographic Service of the Chilean navy</td>
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II. Purpose and methodology of the assessment

The purpose of the consultancy was the assessment of the relevance, efficiency, effectiveness, impact and sustainability of the project “Strengthening of the Regional Tsunami Early Warning System in Colombia, Chile, Ecuador and Peru” and to measure the level of participation of both the scientific and educational elements, and the application of the following approaches throughout the project: natural disaster risk reduction, childhood and gender, lessons to be flood charts for future interventions.

The methodology of the work comprised of:

- Designing and validating a working plan, which was submitted to and approved by the project’s regional coordinator.
- A review of the documents available to the project, including midterm financial and technical reports, materials produced by the project and the DIPECHO partners, workshop reports and working plans.
- Participation in the project’s regional workshops (Quito and Lima) and the regional DIPECHO Action Plan that helped to achieve a broader vision of the relevance of the project.
- Designing and carrying out interviews based on pre-written and recommended questions that were drawn up through revision of documents and materials.
- The initial interviews to answer specific questions. Additional questions came up upon revision of these first interviews, queries that were put to interviewees in new interviews and focus groups.
- A draft of the final report of the assessment was presented for comment and discussion with the team coordinating the project and their recommendations have been incorporated into this document.
- It is worth mentioning that those interviewed included many of those involved in the project, from those implementing it to those benefiting from it, including people involved in other tsunami related projects.

The methodology used to obtain the information required for the assessment and the lessons flood charts from the project began with an action plan and a timetable for the following activities:
a) Meetings with the regional coordinator of the project, enabling analysis and review of the details of the project (diagnosis, LFA matrix, operational plan, budget, activity reports, sources of verification, etc.).

b) Meetings with the national coordinators from Peru, Ecuador, Chile and Colombia (Analysing the intervention procedures in each country).

c) Work meetings and interviews with the members of the representatives of the national scientific offices (seismology and oceanography) and with representatives from the national institutions in charge of risk management.

d) Work meetings with teams from the ministries of education of Peru, Chile, Colombia and Ecuador.

Participation in the regional workshop where the presentation of the results and regional protocol took place, in September 2012, in Lima. Here, opinions were shared about developments in the project in each country and about the link between national protocol and the regional plan proposed.

The Regional Workshop of DIPECHO projects in South America which took place in Buenos Aires, Argentina 25th to 27th October, played host to the collecting and exchanging of information by those involved with and responsible for the project in each country.

III. Project design

3.1. Assessment prior to the Project design

The results, findings, pending tasks and lessons flood charts identified in the 6th. DIPECHO project implemented by UNESCO: “Learning and adaptation to tsunami in Ecuador, Colombia, Peru and Chile.”

The contents of the “Situation Analysis of the Tsunami Early Warning Systems in the South Pacific”, which formed part of the project mentioned in the above paragraph were also considered.

In the case of Chile, also taken into consideration was the progress assessment in relation to the Hyogo Framework for Action – HFA, carried out by the inter-agency evaluating team and coordinated by the Office for Natural Disaster Risk Reduction – UNISDR in November 2010, carried out by experts from UNESCO and other UN and IFRC agencies. The mission visited six of the 15 administrative regions, carrying out interviews with a broad range of representatives from the community, the private sector, staff from national, regional and local agencies, donors and UN agencies in Chile.

In the meeting about "Inter-institutional and Regional Coordination Mechanisms for Tsunami Early Warning Systems" (Santiago, 12 – 14 October, 2010), participants identified gaps and challenges for putting in place a regional early warning system, for which UNESCO prepared a situation analysis of the national early warning system which identified the areas needing improvement on a national and regional level.
During the project design process, meetings were carried out with DIPECHO partners from the countries, reaching prior consensus through the signing of letters of understanding between Plan International, Oxfam and UNESCO, for the implementation of joint coordinated actions for Plan 7TH. DIPECHO.

The original version presented to ECHO included a third result referring to the tasks of educating and planning at a local level, which was eliminated upon the suggestion of ECHO seeing as there were other proposals in the Action Plan referring to tsunamis on a local level.

3.2. Definition of the problems to be faced

Following the assessment of the current situation of tsunami early warning systems and meetings with the bodies of the Peruvian, Chilean, Ecuadorian and Colombian national systems, the following key issues were identified and prioritised:

- Limited coordination between the national tsunami early warning systems (Colombia, Chile, Ecuador and Peru).
- A lack of coordination between the national institutions that form part of said system within each country.
- The mechanism for exchanging information about national tsunami early warning systems between the different countries and institutions was non-existent.
- As tsunamis do not happen very frequently, they tend to be underestimated. However they are highly destructive and are capable of causing serious damage and loss of life.
- ECHO’s Action Plan for South America identified the following priorities for the intervention against the risk of tsunamis:

  For Chile, the whole Pacific coast was identified as a geographical priority, bearing in mind that there have been over 20 earthquakes of magnitude 8 or over, with their respective tsunamis over the past 400 years.

  For Colombia, The Nariño region was identified. Although both Colombian coasts (Caribbean and Pacific) are liable to suffer tsunamis, the analysis available for tsunamis refers only to the Pacific coast, which is at greater risk.

  For Ecuador, the coastal regions were identified.

  For Peru, the coastal regions were identified.

It was also recommended that the following be taken into consideration:

- Assessments of risk, training and preparation of the community to ensure adequate response to tsunami alerts.
- Weaknesses in tsunami warnings in the different countries.
- The improvement of the existing procedures and protocol to facilitate the exchange of information between the relevant institutions and to reduce the length of time between an alert being generated and it reaching the general population.
• The necessity for communication and standardisation of the procedures of tsunami early warning systems on a national and regional level.
• Although all of the institutions involved in tsunami warnings recognise the importance of education, national ministries of education have had only marginal involvement.

Among the problems not considered within the project:
- The processes which generate the conditions of vulnerability, specifically the identification of said conditions, such as a greater population density exposed to tsunamis in some regions than others.
- The vulnerability of livelihood.
- The existence of varying abilities of different communities and local institutions, and the mechanisms that increase resilience, considering that the local component was eliminated from the original proposal.
- The history of disasters triggered by tsunamis which may be useful for analysing the behaviour and interaction between institutions and people, allowing for identification of and ultimate solution to early warning system coordination problems such as:
  • The Valdivia earthquake (also known as the Great Chilean Earthquake), which happened on May 22nd 1960, and the Pacific Ocean tsunami it unleashed where a lack of public awareness about tsunamis proved to be a decisive factor in the deaths of numerous people.
  • The December 12th 1979 earthquake which affected Colombia and Ecuador and the ensuing tsunami which was responsible for the destruction of at least six fishing villages along with the deaths of hundreds of people in the Nariño department of Colombia. This disaster left behind 259 people dead, 798 injured and 95 missing people.
  • The 1996 and 2007 earthquakes in the region of Ica in Peru and the localised tsunamis like that which affected Camana in 2001.
  • The Bio Bio earthquake in Chile on February 27th 2010 that reached a magnitude of 8.8Mw according to the Chilean Seismological Service and the United States Geological Service, and the ensuing tsunami that battered the Chilean coast destroying various communities already in a state of devastation caused by the earthquake.

The relevance of the media in as much as their influence may either be an additional risk factor or a key ally for early warning systems.

3.3. Relevance of the proposal
The proposal is of great relevance as it seeks to find answers where there are only gaps and necessities, which currently limit the effectiveness of national and regional tsunami responses in the countries in question.

The most outstanding ones were the following:
• The identification and prioritisation of tsunami threats.
• The differences that exist between the creation of flood charts and their use.
• The lack of communication mechanisms to ensure early warnings rapidly reach populations.
• The need to strengthen the capacities of scientific institutions through the exchange of knowledge and methodology.
• The existence of different guidelines and procedures in different countries resulting from the varying levels of knowledge about tsunami risks and the developments in warning systems.
• The importance of education in schools on appropriate response to tsunami warnings and alerts.
• The difficulty within the countries to generate and disseminate early warning tsunami alerts at the speed required.

These “gaps and necessities” were identified using:

The recommendations from the inter-agency assessment team coordinated by UNISDR that visited Chile in 2010, and identified difficulties, severe deficiencies and shortcomings in early warning for tsunamis.

The results, findings, pending tasks and lessons flood charts identified in the 6TH. DIPECHO project implemented by UNESCO: “Learning and adaptation to tsunami in Ecuador, Colombia, Peru and Chile.”

The analysis of the difficulties faced by the institutions included in the national early warning systems and the education sector.

3.4. The role players

According to the document “Proposal for Regional Standard Operating Procedures for the Southeast Pacific Region: Colombia, Chile, Ecuador and Peru” the main role players in an efficient early warning system are:

• The communities, particularly the most vulnerable
• Local authorities
• National governments
• Regional institutions and organisations
• Non-governmental organisations
• The private sector, in particular the media, corporations’ staff and resources
• The scientific and academic communities

The parties in this project are:

▪ CPPS (Permanent Commission for the South Pacific), as the sub-regional maritime agency for maritime policy coordination
▪ The ministries of education
▪ National disaster risk reduction agencies
▪ National maritime authorities
▪ National seismological centres
▪ DIPECHO partners working on emergency tsunami preparation at a local level

The coordination between the regional UNESCO project and the DIPECHO partners who carry out tsunami related projects within the countries has helped
to reach beneficiaries at a local level as well as working on preparation with local 
governments, schools and communities. 
The parties not included in the project are the private sector and the media. The 
media is in fact vital in the strategy for raising awareness, making an impact and 
disseminating information.

3.5. Beneficiaries
The direct beneficiaries are:
- Staff at local and national partner institutions, meaning national maritime 
  authorities, ministries of education, national and sub national disaster risk 
  reduction and emergency response organisations, which add up to around 150 
  participants in the four recipient countries.
- 2000 children and young people through a regional tsunami preparation 
  campaign.
- The Chilean coastal population: 7,876,843 (Compendium of Statistics 2007); 
  Colombia: 543,594 inhabitants of the Pacific Coast (INVEMAR 2002); Ecuador: 
  6,362,486 inhabitants of islands and coastal areas (information from the 
  Ecuadorian consulate in Chile); Peru: 14,973,264 coastal inhabitants (according to 
  the 2007 census)
- This would make a total of 29,756,187 beneficiaries of which 2,150 would be 
  directly involved in the project, the rest constituting the sector of the population 
  who would benefit through the operation of the early warning system, and 
  through participation in drills.

It should be pointed out that varying degrees of benefit could be assumed, in 
particular if we take into consideration the population that could be affected their 
homes or properties being destroyed, whom we distinguish from those who could be 
affected by the interruption of services or other general activities. This differentiation 
can only be made by making flood charts more reliable and including in them areas 
with the potential to be affected, something that does not currently happen.

3.6. Objectives and results
The project objectives are:

General objectives: “Increased preparation for facing tsunami threats and thoroughly 
improving tsunami early warning systems on a national and regional level.”

Specific objective
Strengthen the sub-regional and national tsunami early warning systems through 
interconnected strategies at a sub-regional, national and local level.

Two results of the project are:
Result 1: Maximum coordination achieved between national counterparts and 
DIPECHO partners in Colombia, Chile, Ecuador and Peru.

Result 2: Exchange of information and the setting up of a regional network between 
oceanographic institutions, seismological institutions, ministries of education and each 
country’s national risk management office. Regional protocol for the communication 
of early warning for Pacific Coast tsunamis.
The project deals with four of the five priorities of the Hyogo Framework for Action:

**Priority 1**: “Ensure that natural disaster risk reduction is a national and a local priority with a strong institutional basis for implementation”. In that it seeks the involvement of national authorities in risk reduction, in particular from an educational standpoint, in the decision to institutionalise early warning systems and above all, through the installation of networks for information exchange.

**Priority 2**: “Identify, assess and monitor risk of natural disaster and enhance early warning” in that early warning systems imply prior identification, assessment and monitoring of tsunami risks. The development of a methodology for flood charts, will allow for a greater degree of risk assessment. This is also referred to in result 1, detailing the effort to obtain maximum communication between all parties involved and therefore bolster the early warning system.

**Priority 3**: “Using knowledge, innovation and education to build a culture of safety and resilience at all levels”. The project seeks to involve the educational sector, as is stated in result 2, through the activities proposed, set to be carried out in schools.

**Priority 5**: “Strengthen disaster preparedness for effective response”. This refers to the various elements that make up the early warning system, but in particular to the preparedness of the schools, institutions and the relevant.

### 3.7. Relevance of the indicators in relation to the objective and the results

The specific objective: “Strengthen the sub-regional and national tsunami early warning systems through interconnected strategies on sub-regional, national and local levels”

**Indicators:**

1. At least one regional document about tsunami warning protocol has been developed and adopted
2. At least four national documents about tsunami warning protocol have been developed and adopted

These indicators are relevant in that the protocols established and adopted strengthen regional and national early warning systems and promote cooperation between them.

The indicators for the project results are:

**Result 1**: Maximum coordination achieved between national counterparts and DIPECHO partners in Colombia, Chile, Ecuador and Peru.

**Indicators:**
- Four country documents from (Chile, Colombia, Ecuador, and Peru) have been developed / updated with UNESCO’s inputs.
- UNESCO activities have been coordinated with national and regional DIPECHO partners through coordination, planning and participation in regional and national DIPECHO meetings.
- Regional, national and local counterparts have received quarterly newsletters detailing the progress of the project.
- All national and regional authorities are officially informed of the main results and recommendations (including government and parliament).
- At least 2,000 children and young people have participated in the regional campaign.

The analysis of these indicators shows that they represent greater levels of collaboration than those stated in the results, which to a certain does not acknowledge what we consider to be the most important element of the project if we take into consideration the importance of raising awareness among children and young people and the dissemination of information. It could therefore imply that it would have been convenient that the result cover both raising awareness and information dissemination.

Result 2: Exchange of information and the setting up of a regional network between oceanographic institutions, seismological institutions, ministries of education and each country’s national risk management office. Regional protocol for the communication of early warning for Pacific Coast tsunamis.

**Indicators:**
1. A regional protocol on early tsunami warnings has been established
2. One SOP document (*Standard Operating Procedure*) per country has been written in each country.
3. A regional working plan for 2012 and 2013, has been developed and adopted
4. An online platform to obtain and exchange information about early tsunami warnings has been set up
5. A UNESCO-IOC advisory mission took place in each country
6. All local, national and regional authorities are officially informed of the main results and recommendations (including government and parliament)

Analysing these indicators we can conclude that with these role players the aforementioned result can be actively achieved.

1. Regional and national protocols can be key tools in the institutional networks if they include the necessary preparation and updating procedures, particularly when the members of the institutions and the authorities involved are in place for a limited time span.
2. While the countries already had some procedures in place, they were neither standardised nor had they been validated.
3. The creation and implementation of the 2012-2013 plan was a key factor to ensure the continuity of the activities by achieving long-term formal commitments with the institutions that have longer duration in time.

4. The online platform would facilitate the coordination and exchange of information necessary for the operation of the regional institutional networks. Its effectiveness and accessibility to the general public is of utmost importance in order to ensure it is broadly used and that the information contained on it is widely disseminated.

5. The indicator related to the UNESCO-IOC mission lacks the necessary explanation of the achievements aimed at.

6. Sharing information on the progress achieved with risk reduction agencies, ministries of education and scientific institutions is relevant and helpful to ensure the formal continuity of the processes.

3.8. Relevance of the indicators in relation to the objective and results

From result 1

A1. Organisation of both planning and regular work meetings with counterparts on a national level
A2. Participation in regional and national DIPECHO meetings, as well as in campaigns and collaborative events
A3. Tsunami preparation campaigns for children and young people under the umbrella of the worldwide campaign “One million safe schools and hospitals” (in conjunction with DIPECHO partners)
A4. Contributing to the Chilean, Colombian, Ecuadorian and Peruvian country documents, participation in general DIPECHO public events
A5. Systematisation of the project experiences

Through analysing the proposed activities the following conclusions can be drawn for each:

A1: The project only included regional and national levels so the alliances with DIPECHO partners at a community level were essential in order to ensure that exchange and feedback really do happen between these levels.

A2: The participation in the regional and national meetings of DIPECHO partners facilitated the way the national partners related with and complemented each other.

A3: The activities with children and young people forged participation in the global campaign in schools and hospitals while strengthening their ties and the synergy between national tsunami related projects.

A4: Collaborating on the country documents and regional events ensured that the threat of tsunami, the exchange of experiences and supplementary collaborative agreements were both included and prioritised.
A5: This contributes to the end result as long as the systematisation is shared and disseminated among DIPECHO partners.

All together the activities contribute to result 1 providing they allow for a maximum coordination between DIPECHO partners and the project. They also promote a free flow of information and collaborative agreements.

From result 2
A1. Development of a communication protocol on a regional level for tsunami alerts
   A1.1 Two regional workshops featuring the participation of the relevant institutions of the countries involved
   A1.2 Establishing the priorities for a regional working plan for 2012 to 2013
A2. Advisory services / technical assistance for each of the recipient countries through IOC / UNESCO
   A2.1 An IOC staff training mission to each country including long-distance follow-up support.
A3. Strengthening of inter-agency coordination between national tsunami warning systems in each participant country.
A4. The exchange of information and experiences in the recipient countries.
   A4.1 National team study visits for the purpose of picking up practical knowledge and experience from neighbouring countries.
   A4.2 The establishment of an online forum about tsunami early warnings
   A4.3 Training on how to use the regional online portal “Education and risk management”; contributions to the portal from all recipient countries.

While all together these activities do contribute to the exchange of information and regional networking between the specialised institutions involved and regional protocol, we find activity 4 to be very similar to part of the wording of the result. Considering that the exchange of information is an activity that contributes to networking it could be excluded from the section about the results of networks and protocols.

3.9. Security measures
Possible situations which could present risks for the security of the project teams or the areas where the project is being implemented are considered in the project design. Firstly, reference is made to the danger of earthquakes, tsunamis and other potentially destructive phenomena that could affect the team or project partners as well as limiting the ability to complete activities within the time frames established. Activities could become interrupted due to local partners finding themselves obliged to respond to emergency situations or difficulties stemming from any cut in communications.
The project does not specify situations of social upheaval or delinquency that could have taken place but it does take into account security measures that may be effective against such threats.
Neither does it specify nor set out the measures to be adopted by project partners, something that may be convenient to consider in future projects.

The standard procedures of both the United Nations and this current project are:
- For all staff trips, the travelling official must obtain security clearance to travel.
- All travelling officials must notify UN staff of their arrival and departure even when travelling to countries that are not currently unstable.
- To inform and advise about the security situation in each country and on security measures that should be taken.
- Emergency contact details should be presented prior to travelling.
- Prior to any trip, those travelling should have taken and passed two obligatory training courses "Basic Security in the Field" and "Advanced Security in the Field".

The following measures have been planned in the event of disasters affecting teams and project partners, limiting the completion of activities in the established time frame, including:
- Reprogramming activities
- If reprogramming is not an option within the time frame of the project, the funds that cannot be used in the affected countries will be assigned to follow-up activities in the unaffected countries.
- Other security measures would be strengthened according to United Nations recommendations.
- Against the possibility of changes in the governmental agencies the following is considered necessary:
  - All agreements and commitments made with national authorities and regional counterparts should be in writing-
  - Agreements and commitments should be of an institutional and non-personal nature to avoid them being affected by personnel changes.
- Against situations of insecurity in the field:
  - UNESCO should comply with the United Nations Department of Safety and Security’s own safety measures and procedures.
  - The UN’s Security Level System has 6 levels: 1 (minimal), 2 (low), 3 (moderate), 4 (substantial), 5 (high) y 6 (extreme).

The following information was received from the United Nations on the countries studied in this proposal:
- **Colombia**: The security level in the city of Bogota is moderate (3).
- **Ecuador**: The security level for the whole country is minimum (1), with the exception of the northern borders, the Sucumbios Province and part of the Esmeraldas Province where the level is 4 (substantial).
- **Peru**: The security level for the coastal region including Lima is 2 (low).
- **Chile**: The security level is 2 (low).
IV. Main findings

4.1. Efficiency of the intervention

4.1.1. Relevance of the project design

The Project design is relevant because:

- It contributes to reducing the vulnerability of the population facing tsunamis through the formulation and implementation of protocols and by improving early warning systems.
- It includes activities to raise awareness, communication and training to prepare the population and students, in coordination with DIPECHO partners.
- It boosts cooperation between countries to respond to tsunami-generated emergencies.
- It foments the sharpening of knowledge through exchanging experiences and knowledge between the alert systems of the different countries.
- It provides expert advice for the preparation of key tools such as models and flood charts.
- It generates mechanisms for learning (virtual platform) and for sustainable cooperation (working plans).
- The UNESCO Regional Bureau for Education was responsible for the proposal that was implemented in close collaboration with the UNESCO Intergovernmental Oceanographic Commission, the Permanent Commission for the South Pacific (CPPS), the UNESCO focal points in Lima and Quito and the ministries of education of the four countries involved.

4.1.2. Strategy and methodology used

- The implementation of the project takes place at regional, national and local levels. On a local level it is articulated with other DIPECHO projects.
- The initial planning meetings include the participation of the national coordinators and leaders from other DIPECHO partners, ensuring collaboration and cooperation between the projects.
- A regional course on numerical modelling allows the representatives of the national systems to exchange methodologies and experiences in creating nautical charts.
- UNESCO technical assistance missions were carried out at various points and included participation in national Standard Operating Procedures (SOP) workshops, thereby helping to improve national protocols.
• At the workshops working committees were organised, improving inter-agency co-operation in each country.

• Inclusion of tsunami related material in national risk management policy and planning processes (Colombia and Ecuador) and contribution made in national initiatives (assessment of tsunami alert drills in Peru and Chile).

• Institutional resources were pooled thereby improving results. For example training activities were co-financed in each country as well as on a regional level, as were collaborations with DIPECHO partners.

• Development of the project’s dissemination mechanisms through newsletters produced in written and virtual formats.

• Pre-existing procedures in place in each institution were taken into consideration in order to develop collaborative procedures to reach protocols that:
  - Specify roles thereby avoiding overlapping of responsibilities. For example: During emergencies information is put out by institutions specialising in preparation and response, rather than by scientific institutions.
  - Strengthen the link between local and national agencies. National institutions present protocols to their sub-national and local agencies that use them to direct and give a framework to their own protocols.
  - Scientific institutions are encouraged to share their knowledge with communities through the civil defence services or the educational sector.

The intervention process trigger activities such as the following:

- The creation of a regional network of students from the regional awards ceremony for innovative educational projects.
- The implementation and dissemination of educational tools and materials designed at previous DIPECHO and by scientific institutions and by the Chilean Ministry of Education.
- Inter-agency dynamics for planning and following up activities following the completion of the project (virtual platform, validation and follow-up of regional protocol).

4.1.3 Multilateral approaches to the project

The central pillars throughout the project are:

**Gender**

We aimed to achieve equal levels of active participation from men and women in the different activities involved in the project as well as in the training courses (Diploma course, SOP workshops, numerical modelling, and regional meetings amongst others). The active participation of women from scientific institutions was invaluable and immensely important in terms of technical ability for helping define national protocols.

No analysis has been carried out of the project’s impact differentiated by gender nor of the differential roles in tsunami preparation and response.
Childhood
The project design includes approximately 2000 children and young people, through work with schools in the regional competition of educational projects and the tsunami drills carried out in close collaboration with the national projects of DIPECHO partners.
A student network was created following the regional meeting that took place in Colombia.

Children and young people participated in the meetings to develop and plan the workshops about prevention, and campaigns to raise awareness. Participation happened through student organisations and the educational department of the civil defence unit.

4.1.4 Progress in relation with the objective

The specific objective: “Strengthening of regional and sub-regional tsunami early warning systems with inter-connected strategies on sub-regional, national and local levels.”

Indicators:
1. At least one regional document on tsunami early warning protocol has been drawn up and adopted.
2. At least four national documents on tsunami early warning protocol have been drawn up and adopted.

1. There is a current Regional Protocol proposal for tsunami warnings, which was debated and improved upon by Peruvian, Chilean, Ecuadorean and Colombian scientific entities during the regional workshop that took place in Lima in September 2012. The document defines criteria and procedures to be adopted in order that the region’s national tsunami alert centres share information related to the occurrence of tsunamis.

The document was presented to the foreign affairs ministries of Colombia, Chile Ecuador and Peru for it to be made into official regional tsunami warning protocol. This is still work in progress, we hope that the ministries all adopt it and sign up.

However the following matters that came up through the analysis of the documents and interviews and could be included in future agendas for the standardisation of tsunami early warning systems are mention worthy:

- There is no agreement over the specific magnitude necessary for an earthquake to generate a tsunami; this difference lies with Peru that considers magnitudes of between 8 and 8.5 worthy of alert for far-field earthquakes. This is in contrast with Colombia, Chile and Ecuador who generate alerts for magnitudes from 6.5. These are minor differences in the case of far-field tsunamis where each country considers a different minimum of between 6 and 7.8 in
magnitude. Other determining elements for the occurrence of a tsunami are, the depth of the hypocentre, and the morphology of the tectonic plates involved. With regards to depth, all countries believe the depth necessary to be less than 60km, except Ecuador that maintains less than 70km.

• There are different criteria for near-field tsunami alerts. The most simple criteria is that any earthquake of great intensity triggers an immediate warning to move away from areas close to the sea; in other cases seismic movement may prevent people to move, as may the intensity, even though this may vary within the same city depending on the quality of the ground.

• The countries are in agreement that the flood charts are useful tools but they are used differently in each country. For some specialists they should only be used for guiding land occupancy, while for others they are useful for guiding and helping the general public before or during an emergency.

• The warning system for tsunamis generated by near-field earthquakes should operate following the initial warning bearing in mind that the destruction caused by a near-field earthquake may create difficulties in the functioning of the system. Its continuing use is based on the need to prevent the population from returning to areas prone to flooding before the risk of tsunami has subsided. In the case of tsunamis caused by earthquakes or other far-field occurrence, the regional warning system tends to work in a more jointed way, with the main aim being communication and the mechanisms for evacuation in the interior of each country.

2. National protocols
There are four national tsunami alert protocols; two are still in the final stages of elaboration. (Ecuador and Colombia).

The Hydrographic and Oceanographic Service of the Chilean navy (SHOA) is the institution in charge of administering the National Tsunami Warning System of Chile (SNAM). Its principal function is the permanent monitoring of sea conditions, and in the event of a tsunami, transmitting the corresponding messages to ONEMI, for both the shipping and naval sectors. In the last 18 months significant progress has been made in the creation and revision of a POE which clarifies and integrates responsibilities, definitions, thresholds for defining and deciding on SNAM and ONEMI activities. Through this, a protocol has been established between ONEMI and SHOA for jointly dealing with tsunamis on the Chilean coast. The objectives of this protocol are:
- To define levels of responsibilities for the measures and decisions to be made within the tsunami alert or warning process.
- To establish the guidelines, processes and responsibilities that correspond to each agency so as to inform the population in the case of a possible tsunami risk in the fastest possible time.
- To establish the guidelines for communication between the institutions that make up the national tsunami warning system in the face of an earthquake of tsunami generating characteristics, taking into consideration context, flow language and means of communication.
The Hydrographic and Oceanographic Service of the Chilean navy (SHOA) and the National Office for Emergency presented the national protocol to the authorities of the National Emergency Committee in March 2012.

The **Directorate of Hydrography and Navigation (DHN)** of the Peruvian Navy is the official representative of the national tsunami early warning system. The Geophysical Institute of Peru (IGP), via the National Seismic Network (RSN), is the agency in charge of informing the national tsunami early warning system on details of the epicentre and magnitude of earthquakes that have taken place, in order to evaluate the risk of a tsunamigenic event.

In the case of far-field tsunamis, the DHN receives information from the PTWC. For near-field tsunamis, the DHN receives information from the PTWC and the IGP, through the National Seismic Network, and transmits the alert following the communication protocol; the information is transmitted to the media.

**Colombia** is going through a process of change in institutional responsibilities related to tsunami early warning systems that will have implications for the delay in the protocol being validated. However at the Lima meeting its operational procedures were stated:

- For a near-field tsunami National Disaster Risk Management–CLOPAD–emits the alert and is in charge of informing the population.
- For a far-field tsunami INGEOMINAS is the national entity responsible for channelling and processing their own information, and that of international seismic networks, which allow the location, magnitude and depth of telluric movement to be defined and communicated to the MDN-DIMAR.
- The MDN-DIMAR, in accordance with its responsibility as a Tsunami Warning Focal Point, will analyse the information from the international organizations and decide whether to issue an Alarm, an Alert or a Warning.

- The MDN-DIMAR will then communicate the state of the alert to the UNGRG who will in turn communicate: to the CREPAD, who activate their communication protocol with Mayors who are ultimately responsible for activating the Contingency Plan for Tsunamis; and the President of the Republic who will activate the SNPAD action protocols.

The **Ecuadorian Naval Oceanographic Institute (INOCAR)** constitutes the National Tsunami Warning Centre, which will communicate, immediately with the National Secretariat for Risk Management (SNGR) and Port Authorities and Naval Bases on the Coastal and island regions.

We can conclude that significant steps forward have been taken towards the project goal, in fact a Regional Protocol has been proposed and national protocols have been improved in each of the countries in question, paving a clear and precise route for communication between scientific and risk reduction institutions.
It is worth pointing out that during the process of drawing up the protocols, there have been differences between the approaches, with precedence being given to regional protocol on matters related to communication between countries.

### 4.1.5. Proposed results versus results achieved

**Result 1:** Maximum coordination achieved between national counterparts and DIPECHO partners in Colombia, Chile, Ecuador and Peru.

**Indicator 1:** 4 country documents (Chile, Colombia, Ecuador, Peru) have been developed / updated in collaboration with UNESCO

The UNESCO project has participated in the elaboration of the Chilean, Colombian, Ecuadorian and Peruvian country documents through national coordinators, the co-financing of national workshops and / or contracting consultants for the task.

**Indicator 2:** UNESCO activities have been coordinated with national and regional DIPECHO partners through joint planning and participation in regional and national DIPECHO meetings

Activities were coordinated with national DIPECHO projects which have tsunami related activities.

- **Chilean Red Cross** – Strengthening the regional system for civil protection system and risk reduction of earthquakes and tsunamis in the northern region of Chile.
- **UNDP Chile** - Planning of a natural disaster reduction project with regional and local governments, and local fishing and farming communities and civil society organisations from the Maule and Bio Bio regions.
- **Plan Internacional Colombia** - Preparing and coordinating communities and institutions to respond to disasters in the Department of Choco.
- **Intermon Oxfam Ecuador** - Integrated national disaster preparation in the province of Esmeraldas.
- **UNDP Peru** - Preparation, early response and recovery against tsunamis in selected zones of the Peruvian Coast.

**Indicator 3:** Regional, national and local counterparts have received quarterly newsletters about the progress of the project

Four newsletters have been made and circulated to DIPECHO partners and various institutions with the aim of sharing technical information and the activities of the project.

**Indicator 4:** All authorities on a national and regional level are officially informed of the main results and recommendations (including government and Parliament).
Meetings took place between representatives from each country’s national tsunami early warning system, at which attendees were informed of progress in the project. Updates on the project’s progress were shared at national events.

**Indicator 5: At least 2,000 children and young people have participated in the regional campaign**

This campaign developed through the regional competition “Students on Tsunami Alert” and the regional meeting. Thirty schools participated in the competition, including at least 2,000 students. A regional meeting of students also took place in Bogota with the winning teams from the 4 countries. At the event, the leading students in the promotion for risk reduction against tsunamis at their schools, had the opportunity to share and exchange experiences.

While progress in relation to the indicators is certainly evident, there was also sound coordination between project and DIPECHO partners and in the dissemination of information and influence over the national and regional DIPECHO action plans.

**Result 2: Information exchange and establishment of a regional network between oceanographic institutions, seismological institutions, ministries of education and each country’s national risk management office. A Regional protocol of communication for Pacific Coast tsunami early warning.**

**Indicator 1: 1 Regional protocol on tsunami early warnings established**

A regional protocol on tsunami warnings has been drawn up by a consultant. The active national protocols were cross-referenced for the creation of the regional one, and contact was made between those responsible at the scientific institutions charged with putting out alerts in each country.

Following the regional workshop on “Standardised operating procedures for the strengthening the Regional Early Warning System in the Pacific Southeast”, a Simplified Protocol was drawn up, the following table details a summarised version:

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**Regional Protocol for Communication between the National Tsunami Warning Systems of the Pacific Southeast.**

**Procedures in the face of the threat of tsunamis**

When an earthquake that could generate a tsunami in the region occurs, each country will activate their national protocols for the detection, assessment and dissemination of the relevant local reports.

For regional dissemination, the following criteria will be applied:

- Share the national bulletin with the Alert Centres of the other countries in the region as quickly as possible. This will launch the “Communication to the Regional National Warning Centres” in the national protocols without affecting the guidelines previously established by each country.
These bulletins should contain the following information as a minimum:

i. The name of the country and institution broadcasting the bulletin
ii. The correlative number of the bulletin
iii. The time the bulletin was broadcasted (GMT)
iv. Information about the event: details about the earthquake, variations in sea level, arrival time of waves and any other relevant information.

Should any country have additional information about the event, they should emit further bulletins, including updated information, or any additional information that may be of use to regional counterparts.

All available means will be used for communication, including but not limited to the following amongst others: Email, CPPS Virtual Platform, Fax, and Satellite Telephone.

This protocol will be evaluated via annual exercises organised by the Working Group and from its results when real events happen. Any weaknesses identified will be corrected subject to consultation with the signatories of the protocol.

The Presidency of the Pacific Southeast Tsunami Warning working group should annually formulate an Action Plan to practice communicating and implementing the protocol.

With the aim of continually improving the contents and the reach of the protocol, the aforementioned Action Plan should consider activities that may enhance the capabilities of the institutions forming part of the Tsunami Warning Systems of the region.

The protocol includes specific activities for the Seismographic, Oceanographic, and risk reduction components, which has been analysed and discussed in depth by the national representatives.

**Indicator 2: One SOP document per country has been written**

Four national SOP workshops took place to strengthen tsunami early warning systems (one per country). This has made the development and standardisation of national protocols possible.

The workshop in Chile took place in May 2012 with the participation of 65 people. At the event the existing inter-institutional tsunami protocol was revised and updated. A technical committee was formed, made up of the National Office of Emergency of the Chilean Interior Ministry (ONEMI), the Hydrographic and Oceanographic Service of the Chilean Navy (SHOA) the University of Chile Seismological Service, the Chilean Ministry of Education and UNESCO via the Intergovernmental Oceanographic Commission and the Regional Bureau for Education in Latin America and the Caribbean.

The workshop in **Colombia** took place in May 2012 and boasted the technical expertise of Dr. Victor Huerfano, director of the Puerto Rico Seismic Network. It was attended by representatives from the agencies that make up the National Technical Committee for Tsunami Warning (CTNAT), the directors of the Oceanographic and Hydrographic research Centres for the Pacific and Caribbean zones (CCCP and CIOH) and the coordinators of the Departmental Councils responsible for the Tumaco, Buenaventura and Choco areas. A total of 30 people were present.
Workshop goers were trained on standard operating procedures. Progress in the current National (inter-agency) Protocol was reviewed and a timeline was drawn up. This information will be used to revise local and/or departmental protocols in the Tumaco and Buenaventura departments.

In January 2012, the first National Workshop for the Strengthening of the Tsunami Early Warning System and Standard Operating Systems was held in Lima, Peru, bringing together the institutions which form part of the system: the Peruvian Geophysical Institute (IGP), the Hydrography and Navigation Department of the Peruvian Navy (DHN) and the Peruvian National Civil Defence Institute (INDECI). UNESCO Intergovernmental Oceanographic Commission representative Bernardo Aliaga was in attendance, speaking to the representatives of the national institutions comprising the Tsunami Early Warning System who were in attendance, on drawing up timelines to define protocols, as well as on how to delegate roles and responsibilities in the system for generating tsunami alerts.

Officials from 10 local governments from the coastal region were also in attendance. They had the opportunity to exchange information about experiences of handling coastal alerts. The workshop brought together 60 officials from the national system and local governments, 4 of who have been working on SOP under the guidance of DIPECHO partners.

Following the workshop, the leaders of the Hydrography and Navigation Department of the Peruvian Navy, in its position as system leader, convened working meetings with the aim of applying the knowledge flood charts in order to improve the existing tsunami early warning system protocol. In close collaboration with the INDECI and the IGP, the roles and responsibilities of each institution were revised and a protocol was developed following the timeline for checking information, sharing the information and generating the alarm. Currently there exists a version of the protocol that has been both checked and approved by the INDECI, DHN and IGP. This official protocol was presented on November 20th 2012.

In September 2011, the National Workshop on Standard Operational Procedures (SOP) in the case of Tsunamis took place in the city of Esmeraldas, Ecuador in collaboration with the National Secretariat for Risk Management and including the participation of international specialists. The aim of the event was to both optimise and standardise the existing operational protocols for tsunamis. The authorities were in attendance as were key role players from the tsunami early warning system, and DIPECHO partners such as Intermon Oxfam, the Ecuadorian Oceanographic Institute of the Naval Forces (INOCAR), the Geophysical Institute, the Ministry of Education and the Permanent Commission for the South Pacific (CPPS).

**Indicator 3: 1 Regional working plan for 2012 and 2013 has been developed and adopted**
The working plan developed with the institutions and national ministries of education allows for the follow up, with the support of the UNESCO offices in each country. The aim of this is to maintain the cooperation between the scientific institutions, risk reduction bureaus and ministries of education. This plan is vital for ensuring the continuity, cooperation and effectiveness of the protocols through the institutions working hand in hand with the public.

**Indicator 4: An online platform to obtain and exchange information about early tsunami warnings**

The goal of the virtual platform is to create a permanent link between the DIPECHO partners of the four countries, which can also serve as a tool for exchanging documents, information and experiences.

The virtual platform is currently under construction; information is in the process of being uploaded. The page includes a public space that is freely accessible to any Internet user as well as having an open and closed access area, depending on the public and the type of information sought. The page can be accessed via http://www.cpps-int.org

The publically accessible space includes the following information:
- Each country’s SOP and other important reports
- Regional SOP and other documents of relevance for regional coordination.
- Maps
- Other elements including links and videos.

The private space, to which only the institutions making up the national tsunami early warning systems of Ecuador, Chile, Peru and Colombia will have access, will include the following functions:
- A forum for discussion hosted either by the CPPS or guest hosted (at least 2 forums a year)
- Inter-agency chat
- Confidential information (Regional Protocol)
- The space will be set up within the structure of the CPPS http://www.cpps-int.org

This platform is to be operated by the Permanent Commission on the South Pacific (CPPS), guaranteeing its sustainability, access to technical assistance and that it will be kept up to date. The online platform represents a tool that facilitates the coordination and exchange of information thereby forging improved coordination between the regional networks.

**Indicator 5: One UNESCO-IOC advisory mission per country**

The IOC advisory mission was led by Mr. Bernardo Aliaga and took place in each country. The visits took the form of national workshops on Standard Operational Procedures.
Specialist guidance was given at the course on “numerical modelling” for developing a methodology for flood charts. The event boasted the participation of experts from the oceanographic organisations, and took place in Chile on November 11th. 2011. Twenty representatives from academic, scientific and national risk management institutions were present. The IOC specialist has maintained permanent contact with the national authorities of the four countries with the aim of supporting the strengthening of regional and national tsunami alert systems.

**Indicator 6:** All authorities at a local, national and regional level are officially informed of main results and recommendations (including government and Parliament)

This indicator is the same as 4 from Result 1.

**Activities R1**

**A1. Organization of planning and regular work meetings with counterparts at national level**

- There was an exchange of experiences among DIPECHO projects and risk reduction institutions of the countries, as well as coordination with other DIPECHO partners, which have been appointed to analyse all things related to indicator 2 in result 1.

**A2. Participation in regional & national DIPECHO meetings, as well as campaigns & joint events**

- Participants of national and regional DIPECHO workshops have included UNESCO representatives as well as representatives of institutions that participate in the project execution. The workshops included the presentation of the progress made by the project and joint actions with DIPECHO members.

**A3. Campaign for children and youth on tsunamis preparedness within the framework of the global campaign on "One million safe schools & hospitals" (in coordination with DIPECHO partners)**

There was a regional encounter of student-promoters for tsunami response, who participated and won the “Students on Tsunami Alert” Sub-regional competition.

The methodological proposal of the encounter included two moments:

**The first one**, related to training students for them to become prevention and risk mitigation promoters in their own communities, and the presentation of the winners of the project competition and experience exchange of all four countries.
Each student and teacher explained in detail how they created and implemented their proposals which participated in the Regional Students Contest.

They also presented the most relevant products and results along with ways of replicating them.

The second moment was the phase in which agreements and commitments were negotiated and accepted to enable the monitoring of this activity. In order to ensure the sustainability of agreements and commitments, a junior network was created to facilitate the exchange of information, experience, documents and knowledge. This network will strengthen risk reduction concepts in response to tsunamis for students, educational entities, and the community.

A4. Contribution to country documents in Chile, Colombia, Ecuador & Peru, participation in general DIPECHO public events.

The UNESCO project has participated actively in the making of country documents about Chile, Colombia, Ecuador and Peru, through its national coordinators, co-funding of national workshops and/or the hiring of consultants for their development.

In Chile, the country document incorporated UN recommendations, as part of an inter-agency mission; in Ecuador the United Nations’ consultant - EIRD prepared a document in coordination with other DIPECHO partners; in Peru terms of reference were drafted to prepare the Country document in close collaboration with INDECI and DIPECHO partners; in Colombia there has been collaboration with DIPECHO partners and the risk-reduction office.

Besides the previously mentioned national and regional workshops, there have been shared events with other DIPECHO projects, among them:

- Communication Strategy Presentation Event (PERU)
- Communicators’ Regional meeting in Quito - Ecuador aiming to elaborate a communication strategy of the South America DIPECHO Project.
- Visits to DIPECHO projects seeking experience exchange among them.

A5. Systematization of all tsunami-related experiences in the 7th. DIPECHO
A document is being elaborated to systematise the experiences of the project.

Activities R2
   A1.1. Two regional workshops with the participation of relevant institutions in all countries concerned

The first workshop took place in June 2011, and it coincided with the DIPECHO Regional Project Planning Workshop (Quito- Ecuador). The
The project’s action plan was adjusted, and the agreements assumed in the project design phase with DIPECHO partners were fulfilled.

The second workshop took place in Lima in September 2012 and it enabled the evaluation of activities in each of the countries as well as the presentation of the Regional Protocol for Tsunami Alerts. Bernardo Aliaga participated in the workshop via internet, and he presented the international progress achieved. He revised and adjusted protocol contents to the recommendations made by the National Tsunami Alert Systems member institutions.

A1.2. Establishing Priorities for a Regional Work Plan for 2012-2013

The Plan of Action 2012-2013 which is summarised in the table below was developed in the Regional Workshop of September 2012:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Commentaries/ People Responsible / Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Seismic Component</strong></td>
<td></td>
</tr>
<tr>
<td>Making of a coordination committee between seismic services</td>
<td>A request is made for the setting up of a forum on the online platform, for</td>
</tr>
<tr>
<td>and members of the working group</td>
<td>the coordination of the seismic network. Coordinator: Diana Mendoza –</td>
</tr>
<tr>
<td></td>
<td>Colombia (<a href="mailto:dimendoza@osso.org.co">dimendoza@osso.org.co</a>)</td>
</tr>
<tr>
<td>First forum among seismic services to define protocols for</td>
<td></td>
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<tr>
<td>sending seismic data</td>
<td></td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>Trial sending of the National Services newsletter in order</td>
<td>Short term: e-mail. For medium and long term: other means for sending and</td>
</tr>
<tr>
<td>to test the communication system of the other countries.</td>
<td>receiving data.</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic parameters for a regional newsletter</td>
<td>Sending country and time of sending - event identifier (a single event).</td>
</tr>
<tr>
<td></td>
<td>Time of origin, latitude, longitude, depth and magnitude.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Defining a list of contact data for coordination</td>
<td>Instituto Geofísico del Perú: <a href="mailto:consuelo.aguero@igp.gob.pe">consuelo.aguero@igp.gob.pe</a></td>
</tr>
<tr>
<td></td>
<td><a href="mailto:sheila.yauri@igp.gob.pe">sheila.yauri@igp.gob.pe</a></td>
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<td></td>
<td>Geofísico del Ecuador: <a href="mailto:ltroncoso@igepn.edu.ec">ltroncoso@igepn.edu.ec</a></td>
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<tr>
<td></td>
<td>RSCN: <a href="mailto:jraigosa@ingeominas.gov.co">jraigosa@ingeominas.gov.co</a></td>
</tr>
<tr>
<td></td>
<td><a href="mailto:svaca@igepn.edu.co">svaca@igepn.edu.co</a></td>
</tr>
<tr>
<td>Sharing of National Seismic Services Newsletters for events</td>
<td>E-mail. A more efficient means of communication to be defined later.</td>
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<tr>
<td>of a magnitude above 5.0</td>
<td></td>
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<td></td>
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<tr>
<td>Identify which Broadband stations are we interested in</td>
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<tr>
<td>having available in each country.</td>
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<td></td>
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<tr>
<td>Technical support for the exchange of seismic data</td>
<td></td>
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<tr>
<td>Revision of possible stations for sharing:</td>
<td>Reach agreements to define stations</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td><strong>2. Risk Management Component</strong></td>
<td></td>
</tr>
<tr>
<td>Verifying the availability of the virtual platform for</td>
<td>Person Responsible: SNGR</td>
</tr>
<tr>
<td>Situational Room systems with CPPS</td>
<td>Date: 4th week of October</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Making a contact agenda to define operational focal points</td>
<td>Person Responsible: ONEMI</td>
</tr>
<tr>
<td></td>
<td>Date: 5th week of October</td>
</tr>
</tbody>
</table>
External Project Evaluation of the “Strengthening of the Regional Tsunami Warning System in Chile, Colombia, Ecuador and Peru” – UNESCO Project

<table>
<thead>
<tr>
<th>Activity</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional meetings between civil protection agencies to discuss various matters especially those regarding tsunami events.</td>
<td>Each country</td>
</tr>
<tr>
<td>Quarterly Regional Video-conference.</td>
<td>The Cooperation Bureau of each IGR in each country. First week of December 2012</td>
</tr>
<tr>
<td>Annual IGR Encounter.</td>
<td>The IGR rotating coordination Secretariat. Final date to evaluate the viability of this proposal: March 2013.</td>
</tr>
</tbody>
</table>

### 3. OCEANOGRAPHIC COMPONENT

Establishing bimonthly exercises among the CNATs employing the Regional Communication Protocol. This will take place once the protocol has been approved by the National Sections of all countries.

Request the CPPS to manage resources for the annual “face-to-face meeting with the representatives of the National Tsunami-Alert Systems.

Establishing means for information exchange regarding Bathymetry and Topography within framework of the International Technical Cooperation Agreements.

Managing the execution of at least one semestral workshop (face-to-face or virtual) inherent to technical tsunami information.

Exchange of results of Numeric Models employed by each institution.

### 4. EDUCATION COMPONENT

To have a virtual space for the exchange of material, experiences, education practices - bibliographical alert - CPPS Platform. Date: January 2013

Bimonthly forum debate by theme - CPPS Platform. Dates: From January to November 2013

Updating the CRID portal - bibliographical alert. Dates: January – December 2013

Disseminate the JICA virtual education programme to all countries. Dates: July – October - December 2013

Proposing a regional workshop with all 4 countries to JICA: to articulate the network of young student-promoters in response to tsunamis. Date: October 2013

Making campaigns of Students in State of Alert in response to Tsunamis, in each country. In the context of the International Day of Disasters, making links with the ministry of education, risk management offices, NGOs, civil society. Date: October 2013

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**A2. Technical assistance/support services is given to all the recipient countries through IOC/UNESCO**
A2.1. A consultative mission of IOC staff to every country, including support for distance monitoring.

Advisory missions were conducted by COI members to all four countries within the SOP workshop framework. Victor Huerfano was sent to Colombia as consultant. The Regional Course about **number modelling** was organized as part of the assistance service provided by the UNESCO project. This course will enable the preparation and improvement of flood charts of highly vulnerable coastal areas in case of tsunami. There were 20 representatives of the Latin American Early Alert system against tsunamis and other scientific institutions.

This Regional course had logistic support from SHOA and responded to a request by national institutions of the South Pacific.

A3. **Strengthening inter-institutional coordination within national anti-tsunami alert systems in each participant country**

Each national coordinator defined a working plan in order to strengthen coordination among national authorities and SATs. We highlight the work plans of those countries where the elaboration and approval process of the protocols is about to be completed.

In Colombia, a work plan was devised along with national institutions, the project and the UNGRD which included:

- Preparing the action plan of the National Plan for Risk Management in case of Tsunami (PNGRT).
- Socializing risk studies and PNGRT at a national level.
- Supporting two tsunami drills (Buenaventura and Tumaco).
- Supporting two drills in Nuqui and Bahía Solano lead by the DIPECHO plan project.
- Meeting in the Pacific Coast in accordance to the tsunami risk reduction line.
- Supporting the National Policy for the Ocean and Coastal AREAS Plan of Action (PNOEC) specifically in the tsunami line.
- Strengthening the PNGRT activation protocol.

One of the key results of the National Workshop in Ecuador was the agreement for the establishment of a SATT National Committee. This committee will be composed by four main institutions: the National Risk Management Secretariat, the Oceanographic Institute of the Navy of Ecuador, the Geophysical Institute and the Ministry of Education. UNESCO and the Permanent Commission for the South Pacific are in charge of providing technical support within the committee. Also, it was agreed that there will be monthly meetings from February 2012 onwards in order to revise and strengthen existing protocols, defining inter and intra
A4. Information and Experience exchange among recipient countries

A4. Visits for National Teams to obtain practice and knowledge on a neighbouring country's experience

Study visits for national teams were replaced by a Diploma course on "Tsunami and the South American Pacific Coast: scientific basis, threat and vulnerability". The activity emerged as a response to the growing demand for training on tsunami-related themes for professionals related to alert systems in the western coast of South America. The course was made up of four modules: the first module was centred on the phenomenon and the latest scientific progress made for a deeper understanding. The second one defined and developed the threat a tsunami implies, it's forecasting (long and short term) and early alert and response systems. The third one dealt with the concept of structural and non-structural vulnerability and to the importance of education in preparing vulnerable populations. Risk management methodologies and territorial planning as a strategy for diminishing vulnerability in tsunami events were analysed. The fourth module involved analysing tsunami cases both recent and historic events.

A4.2 Establishing an online forum on early alert for tsunami response.

An online forum was created for information exchange among Education ministries, national tsunami alert systems, and seismology and oceanography institutes, National Systems for Disaster Risk Management, of all four recipient countries.
In September 2011 there was a teleconference between CPPS and UNESCO in order to define the characteristics of this forum line. UNESCO elaborated an executive summary for the online platform in order to define the content of this electronic tool. CPPS elaborated a platform which was presented to the countries and shall be soon launched online.

A4.3. Training for the use of the regional portal on "Education and Risk Management".

UNESCO has given visibility to the CRID's and "Education and Risk Management" websites in almost all of the project's events, in an effort to make this source of information known by the project's beneficiaries and participants.
Also, a teleconference was organized with the CRID in order to expand the information available on preparation for tsunami response.

CRID has supported the spreading of information on the 7th DIPECHO project through an electronic newsletter on the project.

More than 100 educational documents for preparation in response to tsunamis are available online for public use. The virtual library "Education Materials for Preparation in Response to Tsunamis" was built in the context of the cooperation agreement between UNESCO and CRID. There is a section of reference and audio-visual materials within this document basis which may be used in training workshops and activities for rising awareness on tsunami risks.

These documents are available at: http://www.cridlac.org/esp_recursos_unesco_new.shtml

4.1.6 Main Products (documents, newsletters, agreements)

Among the main products to stand out of the project we can mention:

a. Regional Tsunami Alert Protocol.
b. SOP documents or national protocols
c. Virtual platform for the exchange of information
d. Four newsletters for the diffusion of the project's activities.
e. Regional Course on "Numerical modelling".

4.1.7 Relevant Activities (campaigns, contests, events, guidance)

Apart from the previously mentioned activities there was an Online and Onsite Diploma Course.

It was organized by the Sea Sciences School of the Pontificia Universidad Catolica of Valparaiso (ECM-PUCV) and UNESCO within the framework of the 7th DIPECHO project. Fifteen experts from different institutions shared their knowledge with 27 professionals from all four countries.

Production of educational material

In the previous DIPECHO project of UNESCO, educational materials were developed in accordance to the curricula of each of the four countries. Materials made in Chile were reproduced with funding from the Swiss Mailing company and along with the Ministry of Education a series of training workshops were organized for teachers of the 144 schools which are tsunami-vulnerable in the North of Chile. This has been a very high quality activity and it has obtained the first price on the contest organized by ECHO in the category of "Experience Replicability" for the following reasons:
• Contents elaborated by scientific institutions specialized in earthquakes and
tsunamis have been developed in a didactic manner which is accessible for
teachers and older students.
• Conceptual approaches are not limited to understanding risk as a situation,
instead they analyse the processes that determine risks and risk-management
which makes it possible to link them to the development.
• Tsunami experiences which have been lived by people are mentioned, and the
importance of those testimonials in the future saving of lives is highlighted.
• Different written pieces, made by children and teenagers (stories, poetry, etc.)
have been used. Contents and didactic tools of very high quality have been
developed insofar they are meant for different educational grades.

4.1. Effectiveness

4.2.1. Visibility and communication: The visibility of the project and ECHO's
contribution have been very significant and directly linked to the products and
activities developed. The most important among these are:
• Dissemination of the project's activities by virtual, written and radial means.
Newsletters, newspapers and promotion of activities in social networks
(HFAPedia and the Facebook pages of DIPECHO and UNESCO Santiago)
• Regional and National events for the socialization of the projects results.
• Press conferences in the countries for the presentation of the project's results.
• Publishing of web articles of OREALC/UNESCO, UNESCO Quito and webs of
other DIPECHO partners.

4.2.2. Alliances and coordination
The alliances and coordination that have enabled important achievements of the
project have been previously mentioned. In addition to those we highlight:
• Articulation with UNESCO's educational projects in order to strengthen actions
in education and preparation in response to tsunamis (printing of manuals and
development of training strategies) in coordination with the Ministries of
Education of all four countries.
• Participation in the validation of the school security index, along with UNICEF.

4.2.3. Financial and Administrative Management

Staff and Relations
• The project had a Regional Coordinator which also served as the National
Coordinator of Chile due to the fact that the project was being managed from
UNESCO Santiago/Regional Bureau of Education for Latin America and the
Caribbean. There were also three national coordinators (Peru, Ecuador and
Colombia). In spite of the fact that the project implied coordinating with the
different national institutions and articulating with other DIPECHO projects, the
staff was very limited, and at times there has been work overload, this is more clearly seen in the Chilean case.

- Good teamwork and identification with the job has been observed as well as good relations among the regional coordination, DIPECHO partners, scientific institutions and Ministries of Education. The tasks/roles of each team member were established from the beginning, which enabled the objectives and results of the project to be successfully fulfilled.

Monitoring System

- Annual operative plans have been elaborated which have been monitored by the project’s regional coordination, and whose activities have been developed as planned.
- National and Regional Coordinators have complied with delivering monthly progress reports on the scheduled dates.
- The Regional Coordinator has produced a mid-term ECHO technical and financial report within timeframes established by the financing agency. They also prepared two informal reports for the donor during the implementation phase.

Financial Management

- Echo's initial proposal was cut short both in activities and funds. The proposal that was accepted had a budget of almost EUR 300,000. Some activities could be expanded through coordinating with other DIPECHO partners.
- Already during the implementation phase, UNESCO received co-funding from the Norwegian Refugee Trust (NRC) who financed the regional coordinator of the project during 15 months within the DIPECHO project framework. Funds originally allocated for the salary of the regional coordinator were used to strengthen activities of the project and to reprint educational material (of Ecuador and Chile) developed within the framework of UNESCO’s 6th. DIPECHO project.
- Expenses and monthly budgets have been controlled by UNESCO's regional office (Chile), which created difficulties in administrative procedures due to the delay in its implementation on national activities.
- Financial operative decisions scheduled within the project were in charge of the Project's Regional Coordinator.

4.3. IMPACT

4.3.1. Achievements

Among the main achievements of the project we may mention:

- The protocol for regional information and communication exchange among the countries
• Two national protocols (Peru and Chile) formalized, and two in process of being formalized (Ecuador and Colombia)
• A larger knowledge of instruments and scientific institutions for creating protocols and flood charts which have highlighted the advantages of the NEOWAVE model.
• Local protocols inspired particularly in workshops organized by UNESCO have enabled the identification and partial overcoming of existing communication difficulties already in their design phase, and have been shared with national authorities.
• Mobilising and Organizing the educational community (students, teachers and authorities) to be prepared and respond to situations caused by tsunamis.
• Inter-institutional strategies and plans to respond to tsunami threats (Ecuador)
• A larger and better access to tsunami-related information material through the CRID virtual platform, which has enabled the organization of information about tsunamis.
• Recognition of UNESCO as an institution specialized in risk management, and particularly in knowledge management.
• Strengthening of links and synergy among the institutions involved in the preparation and response to tsunamis. These institutions have currently been developing joint actions aimed at the population (tsunami awareness raising workshops, for example)
• Joint work and a better work coordination among the scientific institutions that make up the SNATT
• Impact achieved in DIPECHO documents and plans both national and regional, were relevance is given to tsunami risk.

4.3.2. Success Factors
• The earthquake and tsunami in Chile increased the countries’ concern on improving their protocols and alert instruments.
• Alliances between NGOs and DIPECHO projects enabled a more coordinated, efficient and complementary intervention.
• Additional contribution by scientific institutions and other DIPECHO partners.
• Willingness to work in an articulate and coordinated manner on the part of scientific institutions (Seismic, Oceanographic, and Risk reduction)
• Political will on the part of the institutions that make up the national system of early alert in response to tsunamis.
• The implementing team’s ability to achieve the necessary synergy.

4.4. Sustainability
4.4.1. Continuity and replicability
• The inclusion of training contents in formal and non-formal education processes is key for replicability. To achieve this, there could be more direct work with the decentralized instances in charge of education in the most vulnerable
territories, which in some countries are subnational or municipal governments and not only inside the central offices of the Ministry of Education. According to some interviewees, cooperation mechanisms among institutions specialized on earthquakes need to be strengthened. In order to achieve these inter-institutional cooperation mechanisms in place need to be previously evaluated. Nowadays it is possible to get funding for institutional and community/local capacity building programmes which would enable the use of tools and contents already developed.

- Replicability of this project could be achieved by involving networks of mayors and regional governments.
- Scientific institutions of preparation and response to disasters have budgetary resources, in some countries, to replicate or give continuity to processes produced by the project.
- Established protocols are susceptible to improvements and updates which should be part of the work plans of the inter-institutional networks that sustains them.
- Online communication platforms are a mechanism for accessing, updating and exchanging information.
- Working Plan 2012-2013 is a key instrument for continuity.
- Contents and methodologies for the Diploma Courses can be incorporated to those that are already being developed in several countries.
- We suggest giving continuity to the elaboration of educational materials for teachers and students taking into account the progresses in Chile (where materials elaborated in previous DIPECHO Peru projects were used).
- In order to give sustainability to agreements and commitments a regional educational network was made up by students and teachers which will enable information exchange and shall implement the work plan according to the decisions made at the meeting.

5. **Difficulties, Recommendations and Lessons**

5.1. **Difficulties**

- There are no dissemination strategies for the virtual platform, even though the website will be hosted on the CPPS.
- Protocols have not been validated in two of the countries, the regional protocol needs to be validated by the participation of the 4 countries of the region. It isn’t a failure of the project’s execution, it is a consequence of the institutional dynamics and the changes taking place in the countries.
- There are still some flaws in tsunami warning systems, particularly the difficulty to access them at a community level.
- Protocols have not managed to eliminate the differences in place in each country regarding the required magnitude of tsunamis, the use of flood charts or of alert mechanisms facing near-field events. Some of these issues are being considered in the regional work plan.
5.2. **Recommendations**

- The regional protocol must respond to the communication needs between countries, but they must also serve as a channel for attempting the standardization of some procedures based on specialized counselling and inter-institutional dialogue between the countries. A standard procedure is required for the elaboration of flood charts, and it must be appointed with the agreement of all national institutions. Even though there have been some improvements in methodology, it is important to formalise procedures.

- Future projects should consider analysing disaster experiences throughout history in the countries involved, and particularly in intervention zones, in order to gather lessons from them and involve people in the generation of knowledge and validation of flood charts.

- Even though the nature of the project itself limited the possibility to define gender roles, we suggest future projects make gender and generation differences explicit, including specific needs in disaster response, in their risk analysis. Also the implications of gender and generation differences could be incorporated in some training actions of SAT.

- To design a training strategy so that decision makers, and staff from national scientific institutions, Risk Reduction and the Ministry of Education can constantly take possession of knowledge.

- To promote exchange visits among various scientific institutions aiming to strengthen their capacities and mechanisms of cooperation, seek their regional integration and create learning communities.

- Train journalists and create communication protocols with the media in order to avoid misunderstanding of scientific information and/or misleading information.

- To work in areas where a larger probability of major earthquakes has been identified such as the border between Peru and Chile.

- To seek a better synergy among educational projects without limiting it to tsunami-specific projects. Synergy between UNICEF and UNESCO could have enabled a greater impact on the education sector.

- There are some features of SAT which could be standardized such as signage, which in several areas is being used in different colours.

- To clarify the role of the Ministry of Education regarding alert systems. In this sense the educational system could generate a greater knowledge of alert systems before the occurrence of emergencies in order to provide students with elements for a better behaviour in case of tsunami. Also, schools can be a key sensitizing element for the community. A better complementarity between universities and scientific institutions should be sought in order to develop joint actions of risk evaluation (flood charts, etc.) in as many tsunami-vulnerable settlements as possible.

- Flood charts may be used for guiding occupation and use of the land, taking into account tsunami-threats while being useful for organizing evacuations because they establish floodable areas and therefore, safe areas.

- Coordination among local and national protocols is a necessity made evident by the lack of adequate mechanisms for national and sub-national communication at a local level.
• To make regional student networks and national networks continuous and strong in order to ensure the participation of students in risk-management processes.

5.3. Lessons Flood charts

• National and regional protocols are key instruments for the operation of networks inasmuch as they require preparation and updating, which is even more necessary if people and institutions implied have a limited time set in office.
• The inclusion of educational contents can be carried out in several countries taking into account the decentralization of education and therefore the possibility to work with local or sub-national authors building on curricular flexibility.
• The division of responsibilities and functions must be based on capabilities. Scientific institutions provide information that must be translated into a user-friendly version by instances specialized in response.
• It is important to exchange experiences and knowledge for learning. This must be considered a permanent action of the projects, which creates greater expectations once the project has been concluded.
• Protocols must build on existing procedures in each country and on the need to count with standardization and validation levels. It is not possible to totally standardize criteria and procedures for protocols but information and experience exchange contributes to their gradual improvement.
• Technical support is still a necessity felt, particularly by seismic institutions. Preference or prioritisation for modelling courses does not imply that the importance of technical support is not appreciated.
• Local relevance of near-field tsunamis is recognized.
• It is necessary to evaluate the requirements for the arrival of SAT to the locations; which are the main limits and how they may be overcome.
• It is not always possible to differentiate adequately protocols and emergency operation plans. It is possible to simplify protocols only to the extent that this differentiation is achieved.
• Analysis of processes and factors which create vulnerability conditions should be incorporated as well as the ability of people and local institutions to respond.

6. Attachments

Annex 01: List of people interviewed

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Position</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giovanna Santillan</td>
<td>UNESCO</td>
<td>Regional Coordinator of the project</td>
<td></td>
</tr>
<tr>
<td>Hollander, Astrid</td>
<td>Unesco</td>
<td>Programme Specialist</td>
<td>Chile</td>
</tr>
<tr>
<td>Cedeño Oviedo,</td>
<td>Secretaría Nacional</td>
<td>Oceanographer</td>
<td>Ecuador</td>
</tr>
<tr>
<td>Jonathan</td>
<td>de Gestión del</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Riesgo</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annex 02: Question Guide

Effectiveness
4.2. Mechanisms used to determine beneficiaries, intervention areas and lines of intervention.
4.3. Level of participation on the part of local, regional and national institutions of both public and private sectors in the implementation of actions.
4.4. Difficulties found in the process of implementation of the project
4.5. How to integrate education and scientific sectors. How to speak a common language.

Efficiency
4.6. Project's operation structure
4.7. How was the Regional protocol for Tsunami alert developed?
4.8. How are scientific institutions coordinating with GRD’s governing body in the country?
4.9. Links of the project with other DIPECHO projects at a national and local level as well as with other institutions. Links to the MINEDU
4.10. What is the connection between the national protocol and the school where the project is being developed?
4.11. Level of linkage and coordination among UNESCO and MINEDU teams and with other partner institutions
4.12. What is the project's contribution towards preparation and population response actions?
4.13. What is the nature of UNESCO's intervention in DIPECHO partner projects? Is it to strengthen actions or does it add new activities?
4.15. Visibility

Impact
4.16. What is the most felt problem in the process of implementation of the project?
4.17. What would you not do if you had to implement the project again?
4.18. What action would you do again if you had the same project?
4.19. Which do you believe is the project’s most important accomplishment?
4.20. Results achieved by the intervention by type: foreseen in the short term, at the different levels (micro, meso and macro)
4.21. Unforeseen results: positive, negative, internal and external factors which have influenced those results
4.22. Positive or negative results in terms of dependency on humanitarian aid
4.23. What improvements have been made on protocol since Chile's Tsunami. Is it still the same? What progresses has the project made?
4.24. How are SAT-Protocols operated at a local level

Sustainability
4.25. Degree of appropriation of benefits achieved within the project's framework by the beneficiaries/institutions
4.26. Level of contribution of the project towards regional/national development
4.27. Level of approval from the project’s authorities and funding and provision prospects
4.28. Level of approval of the project on the part of organizations and institutions of the local civil society and prospects of co-responsibility.
4.29. Relevance of the project’s continuity within the DIPECHO framework
4.30. Sustainability of the project. Process of transfer

Annex 03: Project Filing Card

<table>
<thead>
<tr>
<th>Name of the project</th>
<th>“Strengthening of the Regional Tsunami Early Warning System in Chile, Colombia, Ecuador and Peru”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Entity</td>
<td>ECHO – Dipecho program</td>
</tr>
<tr>
<td>Implementing Entity</td>
<td>UNESCO Chile</td>
</tr>
<tr>
<td>Location</td>
<td>Colombia, Chile, Ecuador and Peru</td>
</tr>
<tr>
<td>Threats</td>
<td>Earthquakes, Tsunamis</td>
</tr>
<tr>
<td>Vulnerability</td>
<td>Populations located in tsunami flood areas</td>
</tr>
<tr>
<td></td>
<td>Little preparedness of the population to respond to tsunami alerts</td>
</tr>
</tbody>
</table>
**Activities sector or type**  
Risk reduction and preparedness in case of disaster  
Education  
Advocacy and institutional arrangements  
Enhancement of the capabilities of authorities/officials of national Tsunami early warning systems.  
Development of the SATT Regional Protocol  
Development of the SATT National Protocol

**Aims**  
Strengthening sub-regional and national Tsunami early warning systems, through interconnected strategies at a sub-regional, national and local level.

**Results**  
Objectively Verifiable Indicators

1. Maximum coordination achieved between national counterparts and DIPECHO partners in Colombia, Chile, Ecuador and Peru.

- At the end of the project 4 country documents from (Chile, Colombia, Ecuador, and Peru) have been developed / updated in collaboration with UNESCO.  
- Regional, national and local counterparts have received quarterly newsletters detailing the progress of the project.  
- All national and regional authorities are officially informed of the main results and recommendations (including government and parliament).  
- At least 2,000 children and young people have participated in the regional campaign.

Exchange of information and the setting up of a regional network between oceanographic institutions, seismological institutions, ministries of education and each country’s national risk management office. Regional protocol for the communication of early warning for Pacific Coast tsunamis

- A regional work plan has been established and adopted for 2012-2013  
- An online platform to obtain and exchange information about early tsunami warnings set-up and organized by CPPS  
  - A UNESCO-IOC advisory mission per country  
- All national and regional authorities are officially informed of main results and recommendations (including government and parliament).