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Ecuador: Extreme rainfall related to the El Niño phenomenon

Early Action Protocol summary

 International Federation of Red Cross and Red Crescent Societies

EAP APPROVED:
November/ 2020

of people to be assisted: 1,000 families

EAP timeframe: 5 years

EAP NUMBER 02

Amount Swiss francs budgeted:
CHF 249,983

Early action timeframe: 3 months

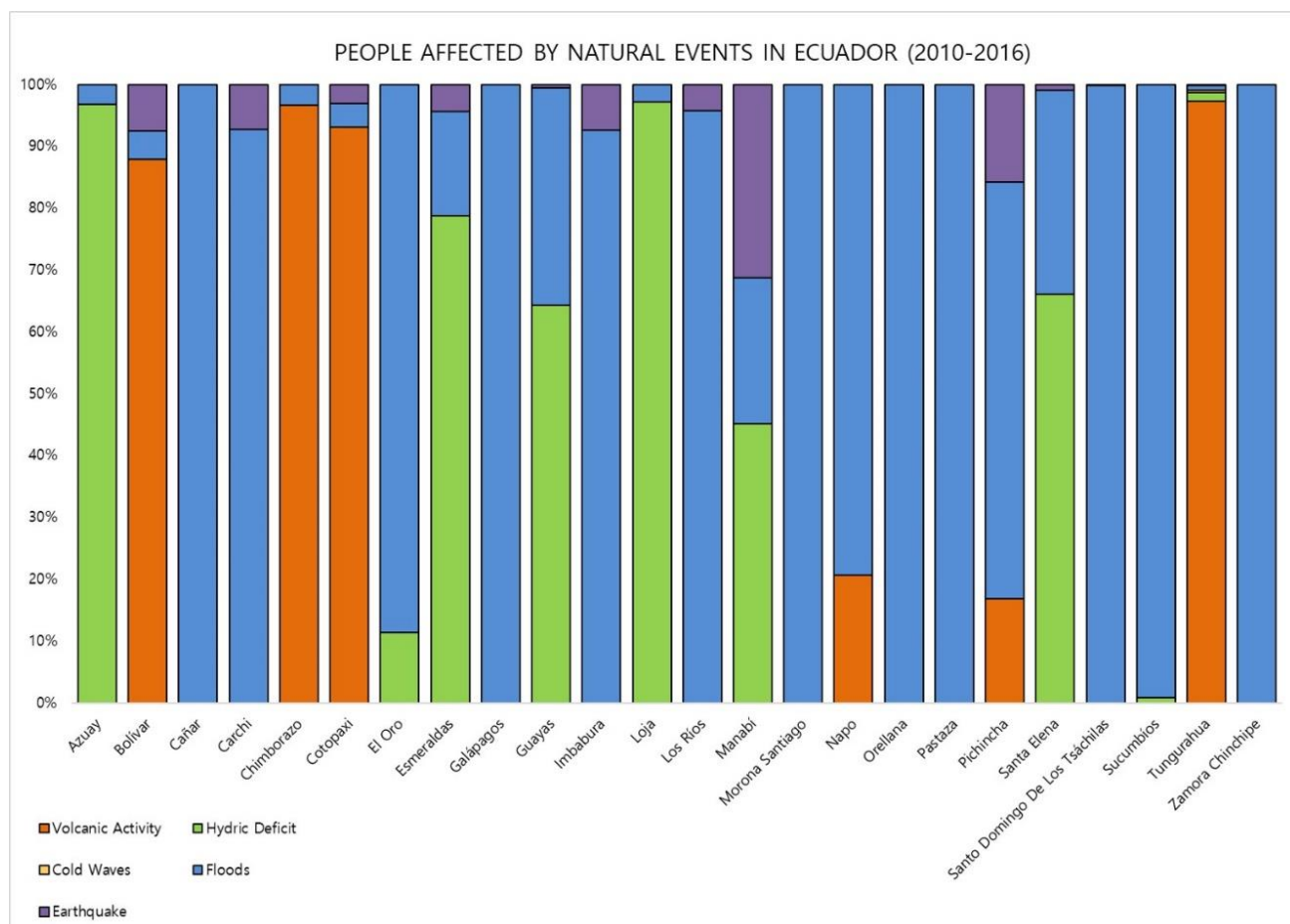
The IFRC Disaster Relief Emergency Fund (DREF) has approved a total allocation of CHF 249,983 from its Forecast-based Action (FbA) mechanism for the Ecuadorian Red Cross (ERC). The approved amount consists of an immediate allocation of CHF 135,565 for readiness and prepositioning and CHF 114,418 automatically allocated to implement early actions once the defined triggers are met.

The FbA by the DREF is a forecast-based financing mechanism managed by the DREF. Allocations for FbA by the DREF are made from a separate financial component of the DREF (MDR00004) and do not affect the reserves of DREF appeal code MDR00001. Unearmarked contributions to the FbA by the DREF are encouraged to guarantee that enough funding is available for the Early Action Protocols created.

SUMMARY OF THE EARLY ACTION PROTOCOL

Ecuador faces multiple threats because of its geophysical features, geographical location and the atmospheric systems that directly or indirectly affect the country. Figure 1 below shows the people affected by natural hazards over a six-year period (2010 to 2016) as well as the percentage of people, by province, affected by hazards such as earthquakes, extreme rainfall, volcanic activity, droughts, frost and others. One of the most significant are the extreme rains in provinces located along the Ecuadorian coast (e.g., El Oro, Los Ríos, Manabí).

Figure 1: People affected by natural hazards, by province, during the 2010 – 2016 period.



Source: SNGRE, 2010 – 2016. Prepared by the Ecuador FbF team.

Ecuador has experienced several episodes of the El Niño Southern Oscillation (ENSO) phenomenon: 1982-1983 and 1997-1998, according to records. The latter caused the greatest impact, causing loss of human lives, damage to housing, public infrastructure, economic activities, in addition to the numerous cases of disease resulting from the extreme rainfall. In 1982, 950,000 people (5,700 homes in rural areas and 8,000 in urban areas) were affected by ENSO. While in 1997, three deaths were reported, 3,700 people were evacuated, 10,000 were affected and nearly 2,000 homes were damaged.

According to an assessment report by the Economic Commission for Latin America and the Caribbean (ECLAC), the socioeconomic effects of the El Niño phenomenon in 1997-1998 amounted to \$2,882 million US dollars.

Hazard

The extreme rainfall caused by El Niño along the Ecuadorian coast causes rivers to overflow and flash floods in vulnerable communities.

Early Action Protocol (EAP): Extreme rainfall (El Niño phenomenon)

The Ecuadorian Red Cross created the Early Action Protocol for extreme rainfall related to the El Niño phenomenon along the Ecuadorian coast. It is a tool to guide the timely and effective implementation of early actions based on weather forecasts predicting a high chance of rains generated by an El Niño event that would cause a negative impact to people and property. The window of opportunity enables actions to be taken to avoid the possibility of a humanitarian crisis in vulnerable areas.

This plan has been designed with technical contributions from the National Meteorology and Hydrology Institute (INAMHI), the Navy's Oceanographic Institute (INOCAR), the National Risk and Emergency Management Service (SNGRE) and the Regional Study of the El Niño Phenomenon (ERFEN). All actors involved in this protocol play an essential role during readiness and activation for implementation of early actions.

The Early Action Protocol refers to actions that will be implemented in the event of extreme rains that cause rivers to overflow and floods, which are triggered by seasonal, sub-seasonal and medium-term forecasts issued by the ERFEN bulletin, INAMHI seasonal forecast (three-month) and INAMHI forecasts (one month, five to seven days), respectively.

Target population

1,000 families targeted to receive humanitarian assistance, of which 300 of the most vulnerable will be prioritized to be reached by a cash transfer programme (CTP), based on analysis and definition of criteria.

The coastal provinces of Esmeraldas, Manabí, Guayas, Santa Elena, Los Ríos, El Oro and Santo Domingo are potential high-risk areas where the forecast-based readiness mechanism (El Niño phenomenon EAP) could be activated. These localities have historically been directly affected by intense rains caused by the El Niño phenomenon.

Impact

Based on historical records and community assessments conducted in the field in sectors recurrently affected by floods, the Ecuadorian Red Cross decided to work along intervention lines in areas of Water, Sanitation and Hygiene (WASH) and Livelihoods. For the purposes of this EAP, the ENSO in Ecuador is considered a long-term phenomenon from its onset, evolution and impact.

Forecasts

The forecasts to be used define three different lead times:

- Seasonal forecast: three seasonal months of extreme rainfall (INAMHI). The criterion will be backed by the consensus of experts in the ERFEN bulletin.
- Sub-seasonal forecast: one month, with forecast of extreme rainfall (INAMHI).
- Medium-term forecast: five to seven days, with a forecast of meteorological hazard (INAMHI).

The EAP assumes that:

- The seasonal forecast gives a three-month preparation time
- The sub-seasonal forecast gives a one-month preparation time and specifies the region potentially most affected by extreme rainfall.
- ERC national headquarters and branches are operational and can count on at least 20 active volunteers (current or newly recruited) per branch for response.
- There is access to vulnerable communities in the days prior to the event (accessibility by road notwithstanding weather, road conditions or absence of strikes and other socio-political disruptions).
- Accessibility of funds from this financial mechanism once activated can be available in the field within 48 hours.
- Mayors are available seven days a week for mobilization and coordination, and respond quickly in the event of an emergency.

The operational strategy – How the EAP will be implemented

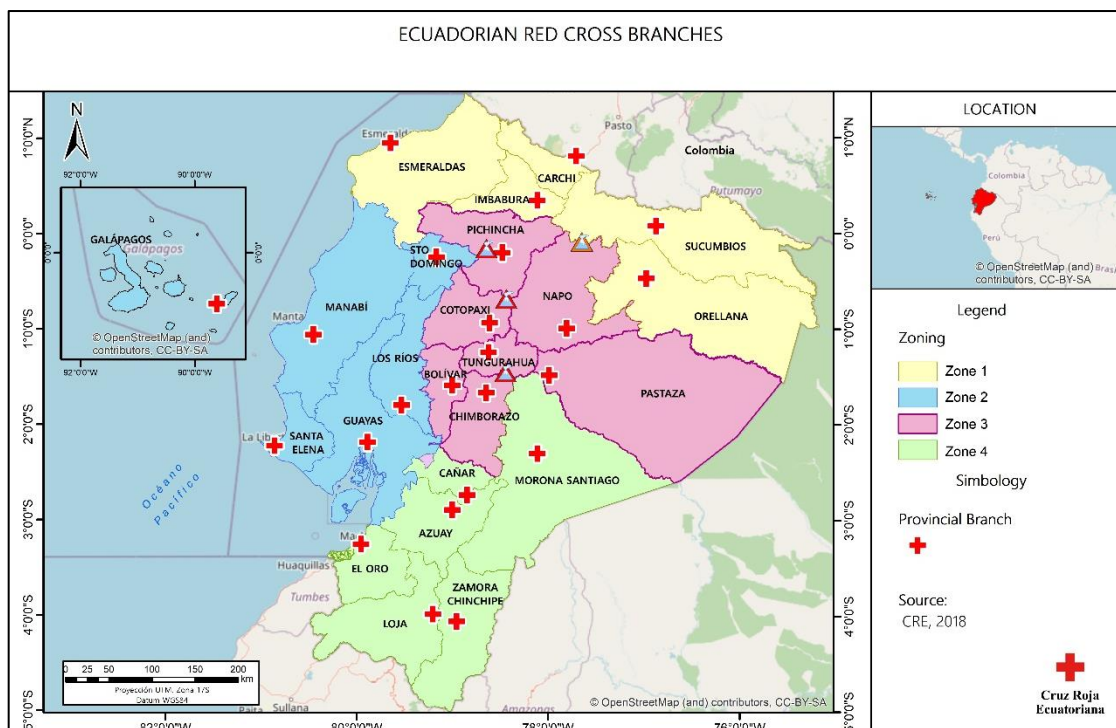
1) Who will implement the EAP – The National Society

The Ecuadorian Red Cross prepared the institutional National Response Plan that has been socialized at the national level; furthermore, it allowed conducting a drill in 2018 under IFRC's supervision. This plan is perfectly anchored to

activities carried out by the FbA, project as several activities constitute first steps for response actions. This reflects an understanding of the cyclical nature of risk management.

Geographic area

The Ecuadorian Red Cross is present in 24 provinces in Ecuador through 24 provincial councils and 83 canton councils.



Overall capacity and human resources

- According to National Volunteer Coordination records, there are 7,904 volunteers distributed nationwide.
- The ERC's structure at the national level allows each provincial board to coordinate its own actions given each board's organic and financial autonomy.
- Boots, coats, personal protection equipment (PPE) and other items will be distributed to ensure the safety, health and visibility of the volunteers activated for this EAP (supplies for 100 people is planned). Based on the capacity of the ERC volunteer network, a total of three annual project meetings will be held with national headquarters and branches starting in 2021. Annual pre-activation technical meetings (four in total) have also been planned to enable everyone to share technical capacity to lead the response, as well as annual EAP review meetings starting in 2021, which will allow the National Society to hold a total of four meetings.
- The National Intervention Team (NITs) members are activated and mobilized by the National Presidency and managed by the NIT Coordination office. It is divided into two macro axes: 1) Operations, which carries out activities in the field to benefit the community; and 2) Support, which supports and ensure the actions carried out by mobilized teams. The four lines of action are: Relief, with two teams; Health in Emergencies, with three teams; Humanitarian Advocacy, with two teams; and support teams, with five teams.

Relief and Humanitarian Assistance NIT	25
General NIT (New training map)	30
Psychosocial Support (PSS) NIT	30
Emergency Medical Unit (UME) NIT	50
Telecoms	25

WASH NIT	30
Total	351

The Ecuadorian Red Cross implements various lines of action that could be considered in early activities pursued by this EAP:

Health Management and Community Development

- Psychosocial support
- Health in emergencies
- Safe water provision
- Sanitation and good environmental practices
- Vector and epidemic control
- Prevention and health promotion

Risk Management

- Risk Reduction
- Dangerous event management
- Community projects

Principles and Values Management

- Promotion of International Humanitarian Law and Human Rights
- Restoring Family Links (RFL) and Human Mobility
- Operational Security

Livelihoods Management

- CTP specialists
- Livelihoods specialists

Community Engagement and Accountability

- Volunteer and NIT training
- Transparent communications
- Target populations' meaningful participation
- Appropriate, efficient, effective and responsible assistance

Telecoms Management

- 1,150 volunteers trained in Telecoms
- 24/7 Monitoring Room

Financial capacity

Per internal procedures, the ERC has prepositioned stock in strategically located warehouses nationwide that can be used when an EAP is activated. In addition, there is a \$ 60,000 US dollar emergency fund available that allows advancing funds if necessary.

Readiness activities

Prepositioning

ERC's network of strategic warehouses will be used for this EAP, emphasizing strategic warehouses for activations and prepositioning of stock due to their location and accessibility, such as the one located in the city of Guayaquil, Ecuador's main port. The national headquarters' warehouses that are located in Quito, Ecuador's capital, will be used as backups. Prepositioned humanitarian assistance stock includes safe water kits, household cleaning kits and vector control kits, in addition to four chlorinators.

Readiness

- The following activities will be carried out in the months prior to seasonal rain events:
- Periodic monitoring by the risk management team, and activation of ERC's network of volunteer extreme event observers. There will be support from the Zonal 2 coordinator (coastal) as well as coordination with managers of ERC Risk and Emergency Management programmes operating within each Provincial Board.
- With seasonal forecasts, volunteers in ERC branches will be part of a strengthening process dealing with care and protection of water sources according to their coastal region of origin, the benefits of using containers (buckets or jerrycans) and the identification of appropriate water sources (participatory hygiene and sanitary transformation- PHAST).
- Development and implementation of tools aimed at changing hygiene-related behaviour and improving water and sanitation services in communities (PHAST).
- Sanitation capacities will be transferred and basic sanitation and hygiene knowledge will be transmitted to the community brigades formed in the territory. Brigades will also be trained in the use of the household cleaning kit and the vector control kit (repellent and mosquito net).

The development of the EAP through the FbF mechanism allows Ecuadorian Red Cross to strengthen fundamental components of its actions at the national level. Implementation is supported by:

- International Federation of the Red Cross and Red Crescent
- German Red Cross
- IFRC's Climate Centre
- FbF Regional Team

2) **How will the EAP be activated - The Trigger**

The triggers will be forecasts that are defined for three different lead times: seasonal, sub-seasonal (monthly) and weekly (from five to seven days), and per consensus and advice of climatology experts. The forecasts' content is explained below.

In three months -

There will be two conditions:

- A bulletin is received from ERFEN confirming the presence of El Niño (70 per cent probability) based on information from international agencies
- INAMHI's seasonal forecast shows a higher than 70 per cent probability of occurrence of rains, exceeding the 90th percentile

INAMHI creates the forecast based on a CPT statistical tool. The judgement of ERFEN experts, delivered via a bulletin updated on a monthly basis, also will be considered. Ecuadorian Red Cross actively participates in ERFEN meetings as an observer. Another probabilistic weather forecast that will be used by this EAP is the three-month seasonal extreme rain forecast developed by INAMHI, which complements the forecast provided by ERFEN.

In one month -

The forecast that will activate early actions at one month will be based on a sub-seasonal extreme rain forecast issued by INAMHI.

These forecasts will activate with higher than 70 per cent probability of occurrence of rains, exceeding the 90th percentile. Defined by INAMHI.

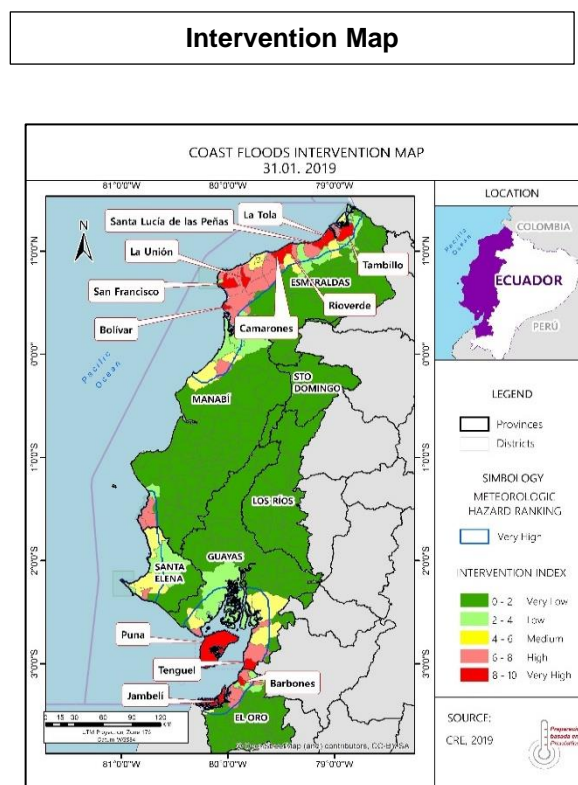
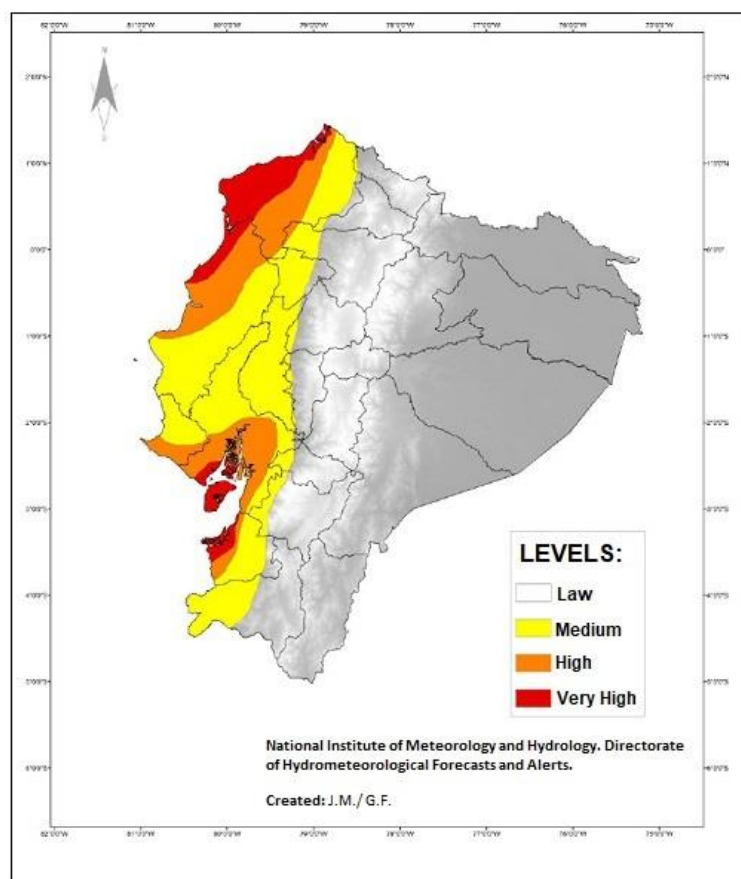
These forecasts are updated by INAMHI on a monthly basis. Calculations using different metrics, mainly centred in the coastal area where the impact of extreme rainfall related to El Niño is greatest (Recalde-Coronel et al 2014), are used to calculate verification of these forecasts¹.

In the mid-term (five to seven days)-

Medium-term forecasts are forecasts of accumulated extreme rainfall for five to seven days. These are prepared by INAMHI based on its numerical models (WRF and ECMWF), which is the input used by forecasters to prepare high-threat weather warnings. These forecasts (WFR) were verified by a study carried out by INAMHI² in 2016. A verification was conducted of the warnings issued by INAMHI from 2018 (which is when high-threat forecasts began to be issued) to May 2020, finding that no (red) alert for very extreme rainfall had been issued.

This forecast will be activated when a (High-Threat) warning for very extreme accumulated rains (Level Red) is received.

Below is an example of a very high-threat extreme rain forecast used by ERC in an activation drill conducted in 2019. An intervention map is prepared to identify the localities to be targeted based on the high-threat extreme rain forecast.



¹ Predictability of December–April Rainfall in Coastal and Andean Ecuador 2014.

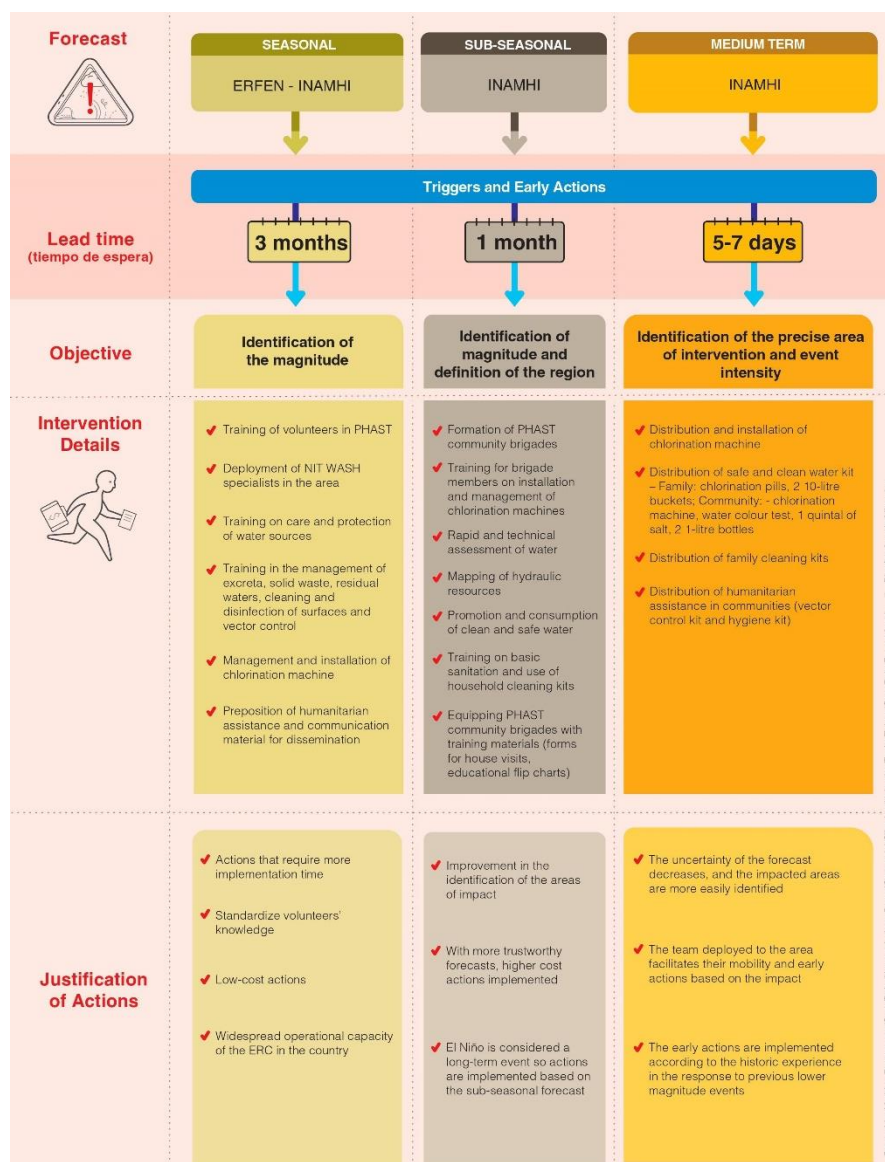
² Verification of forecasts using the WRF mesoscale numerical model for the Ecuadorian territory in 2016

3) How will the EAP reduce the impact on the population – The early actions

The early actions were selected based on reduction of historical impacts, visits to the field to gather information from the community, a review of bibliography on ENSO, a review of government action in response to events of lesser magnitude, and progress in terms of readiness.

Selection is based on national-level experience gained by national entities and Ecuadorian Red Cross from historical response to extreme rainfall and floods causing medium and severe impact in Ecuadorian coastal areas.

Based on the theory of change and the EAP's objective, the overall aim is “to reduce future impacts on the Ecuadorian coast within an ENSO context through interventions in safe water, sanitation and hygiene, cash distributions (CTP/cash-based interventions) and appropriate internal and external coordination”. Early actions focus on water, sanitation and hygiene and multipurpose CTP for the most vulnerable families in the Ecuadorian coast. This also places importance of implementing community awareness-raising and strengthening actions focused on health-related preventive measures, as well as working on actions that allow communities to meet their priority needs.



Livelihoods

With a sub-seasonal forecast (one month), information gathering will begin with a census of families conducted by branches in each province. Five days of deployment have been planned for, especially focusing on the areas that are the most likely to be chronically affected by future El Niño events.

The ERC will identify the families with the highest level of vulnerability (evacuees or those who remain in areas of possible impact) will be able to receive a one-off, multipurpose household financial voucher that will enable them to meet their main food, housing or transport needs for 15 days or restore their livelihoods. The allocated amount will protect household economies until economic activities are re-established with a medium-term forecast. The CTP will be delivered through cash transfers that can be withdrawn from ATMs without having to use a card.

Water, sanitation and hygiene

- Development and implementation of tools aimed at changing hygiene-related behaviours and improving water and sanitation services in communities (PHAST).
- The dissemination of key messages to the community.
- Progressive deployment of NITs specialized in WASH and volunteers based on how soon the event will occur (ten days).

Safe water

- With a seasonal forecast, ERC branch volunteers will take part in a capacity strengthening process focused on care and protection of water sources, as well as receive training in topics related to excreta, solid waste and wastewater management, cleaning and surface disinfection and vector control.
- Regarding water use and treatment, guidance on correct use of chlorinators will be provided to enable communities to operate them once these are transferred to said communities.
- Kits (household cleaning kits, vector control kits and safe water kits) and communications materials will be prepositioned.
- With a sub-seasonal forecast, volunteers' capacities will be transmitted to the community through the training of brigade members, who will be trained in the use of the household cleaning and vector control kits (repellent and mosquito net). With a medium-term forecast, kits will be delivered to communities identified in the intervention map.

Intervention Sectors

Overall objective: To reduce future impacts on the Ecuadorian coast within a context of ENSO through interventions in safe water, sanitation and hygiene, cash distributions and appropriate internal and external coordination. Early actions focus on water, sanitation and hygiene and multipurpose CTP for the most vulnerable families on the Ecuadorian coast, given the importance of implementing community awareness-raising and strengthening actions focused on health-related preventive measures while working on actions that allow communities to meet their priority needs.

Priority Sectors



Livelihoods and basic needs

People targeted: 300 families (1,500 persons)

Male: 750 persons

Female: 750 persons

Requirements (CHF) 55,061

Risk analysis: In these cases, the interruption of household income is one of the main problems for families living in ENSO-affected areas. It temporarily prevents people from engaging in normal activities, causing serious financial damage to families. The main impact for communities in ENSO-affected areas is the interruption of income from livestock and agriculture, since it temporarily prevents families from engaging in their normal activities, causing serious financial damage.

Population to be assisted: 1500 persons (750 men and 750 women)

Programme standards/benchmarks: Based on the community context, coastal profile and on records of ENSO's effects, studies were conducted on the scope of the response to the 2016 earthquake in Ecuador, in addition to a 2018 feasibility study on cash as an early action and the National Society's readiness to implement cash transfers. The CTP will be delivered via cash transfers that can be withdrawn from ATMs without using a card. Ecuadorian Red Cross has its own distribution mechanism through its financial provider (Banco Pichincha), and the CTP will be provided to the most vulnerable families based on technical selection criteria.

P&B Output Code	Livelihoods and Basic Needs Outcome 1: The basic needs of the population most vulnerable to potential impacts at the community level are met through multipurpose financial support	300 families whose livelihoods and basic needs are protected from extreme rainfall related to El Niño									
	Livelihoods Output 1.1. The most vulnerable households who have been evacuated from or remain in areas of potential impact receive financial assistance	300 assisted families have sufficient income to meet their main needs and protect the household economy prior to the emergency.									
	Planned activities	Timeframe (semester)									
	Readiness activities	1	2	3	4	5	6	7	8	9	10
AP081	National Society readiness	X									
	Early action activities	Timeframe (semester)									
AP081	CTP training for communities with a community engagement and accountability (CEA)/ protection, gender and inclusion (PGI) approach		X		X		X		X	X	
AP081	CTP training for volunteers with a CEA/PGI approach		X		X		X		X	X	
AP081	Mobilization of volunteers for CTP training with a CEA/PGI approach		X		X		X		X	X	
AP081	Deployment of CTP team to targeted sectors to provide training to families reached with the CTP		X		X		X		X	X	
AP081	Registration and distribution of CTP to the most vulnerable families		X		X		X		X	X	
AP081	Intervention assessment		X		X		X		X	X	



Water, sanitation and hygiene

People targeted: 1,000 families (5,000 persons)

Male: 2,500

Female: 2,500

Requirements (CHF) 113,256

Risk analysis: Vector- and water-borne diseases (cholera, dengue, malaria, leptospirosis) are some of the main issues seen in communities in areas affected by ENSO-related extreme rainfall; however, their direct or indirect, or immediate or delayed effects can be mitigated through preventive measures at the community level.

Population to be assisted: 1,000 families (2,500 men and 2,500 women)

Strategies for Implementation

Requirements (CHF): 75,383

P&B Output Code	SI Outcome 1: National Society capacity building and organizational development objectives are facilitated to ensure that National Societies have the necessary legal, ethical and financial foundations, systems and structures, competences and capacities to plan and perform.	<i>One early action plan for extreme rainfall related to El Niño (approved and/or activated) in Ecuadorian coastal provinces.</i>									
	SI Output 1.1: The National Society has the necessary resources and talent in place to implement the Early Action Plan	<i>National Society strengthened on issues related to extreme rainfall related to El Niño in Ecuadorian coastal areas</i>									
	Planned activities	Timeframe (semester)									
	Readiness activities	1	2	3	4	5	6	7	8	9	10
AP040	Annual socialization and pre-activation technical meetings		X	X							
AP042	Technical team for implementation, follow-up, evaluation and monitoring	X	X								
AP042	Communications and reporting	X	X								
AP042	EAP Review Workshop			X	X						
AP042	Coordination, monitoring and follow-up trips					X	X				
AP049	Financial monitoring and support	X	X	X	X	X	X	X	X	X	X
	Prepositioning activities	Timeframe (semester)									
AP040	Personal protection equipment (coats, raincoats, boots and other implements)	X	X								
AP029	Logistics management for prepositioning of stock in strategic warehouses	X	X								
	Early action activities	Timeframe (semester)									
AP029	Transport of humanitarian assistance from ERC warehouses to communities. WASH		X		X		X		X	X	
AP002	Mobilization of national headquarters' technical team to targeted sectors		X		X		X		X	X	
AP029	Monitoring of activation activities		X		X		X		X	X	

<i>AP029</i>	Evaluation of intervention during activation		X		X		X		X	X	
<i>AP040</i>	Lessons learned workshop		X		X		X		X	X	

Budget

To implement the Early Action Protocol (EAP) Ecuador: Extreme rainfall related to the El Niño phenomenon, CHF 249,983 have been disaggregated for readiness, pre-positioning of stock and early action. The following budget table details the budget lines per the area of intervention:

<u>Budget by Area of Intervention</u>				
Area of Intervention	READINESS	PRE- POSITION STOCK	EARLY ACTION	EAP Budget CHF
AOF1 Disaster Risk Reduction				0
AOF2 Shelter				0
AOF3 Livelihoods and Basic Needs			55,061	55,061
AOF4 Health				0
AOF5 Water, Sanitation and Hygiene		68,846	44,411	113,256
AOF6 Protection, Inclusion and Gender				0
AOF7 Migration				0
Strengthen National Societies'				
SFI1 Capacities	53,832	6,603	14,947	75,383
Ensure effective international				
SFI2 disaster management	6,284			6,284
Influence others as leading strategic				
SFI3 partners				0
SFI4 Ensure a strong IFRC				0
TOTAL	60,116	75,449	114,418	249,983

* Readiness activities and prepositioning of stock will be included in the IFRC Operational Plan that includes Ecuador. The reporting against this plan is done annually. In case of an Early Action Trigger, the annual readiness funding allocation is terminated with a 12-month notice, allowing the National Society to conclude its third party financial and legal commitments and liabilities under the Early Action Protocol.

Contact information

Reference documents

- Complete EAP

For further information specifically related to this Early Action Protocol, please contact:

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How we work

All IFRC assistance seeks to adhere to the **Code of Conduct** for the International Red Cross and Red Crescent Movement and Non-Governmental Organizations (NGO's) in Disaster Relief and the **Humanitarian Charter and Minimum Standards in Humanitarian Response (Sphere)** in delivering assistance to the most vulnerable. The IFRC's vision is to inspire, **encourage, facilitate and promote at all times all forms of humanitarian activities** by National Societies, with a view to **preventing and alleviating human suffering**, and thereby contributing to the maintenance and promotion of human dignity and peace in the world.

The IFRC's work is guided by Strategy 2020 which puts forward three strategic aims:



Save lives,
protect livelihoods,
and strengthen recovery
from disaster and crises.



Enable **healthy**
and **safe** living.



Promote **social inclusion**
and a culture of
non-violence and **peace**.