

# **"Second Thematic UN Special Session on Water and Disasters"**

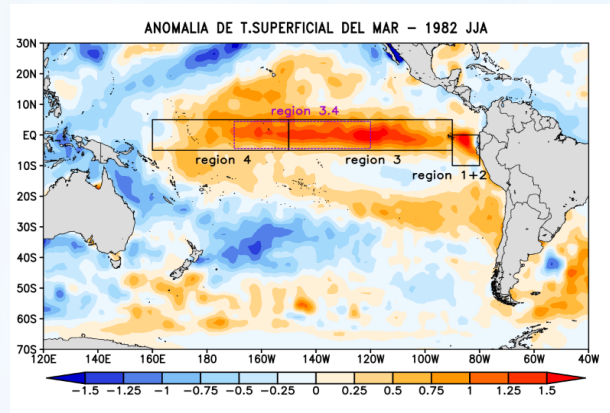
## **RISK SCENARIO OF EXCESS (FLOODING) AND DEFICITS (DROUGHT) BY EL NIÑO 2015-2016**

**Ing: ENA JAIMES ESPINOZA**

NEW YORK, 18 NOVEMBER 2015

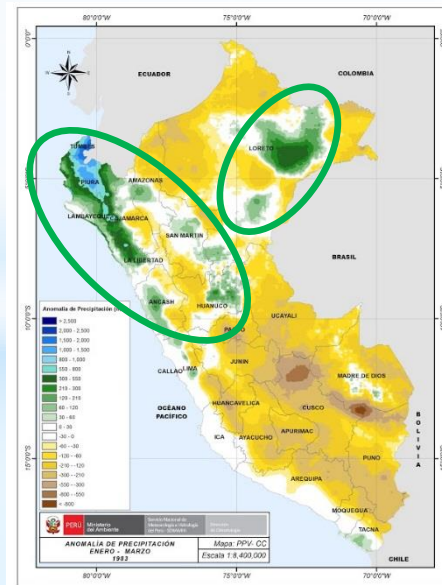
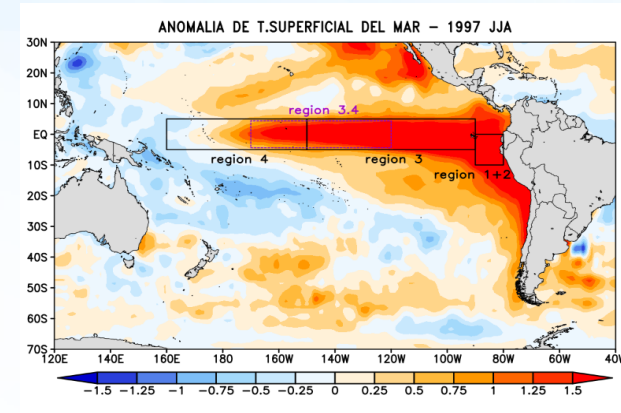
## EXTRAORDINARY EVENTS OF EL NIÑO

1982/1983

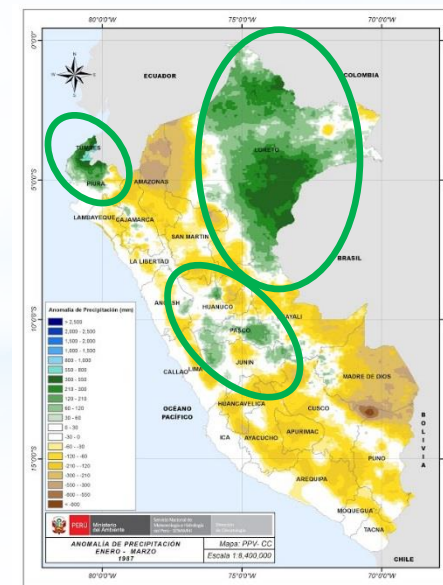


NOAA

1997/1998



SENAMHI



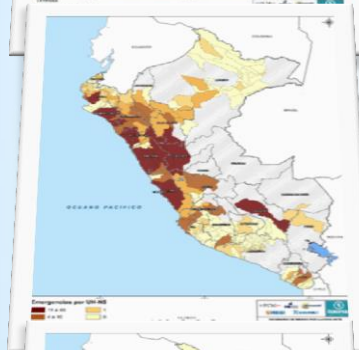
# RISK SCENARIO BY HEAVY RAIN IN THE EVENT OF EL NIÑO WITH SIMILAR CHARACTERISTICS OF THE EVENTS OF 1983 AND 1998

## DETERMINANTS

SUSCEPTIBILITY MAP  
FLOODING.  
INGEMMET



EMERGENCY  
BECAUSE OF  
RAINFALL JANUARY  
TO MARCH 1998.  
INDECI



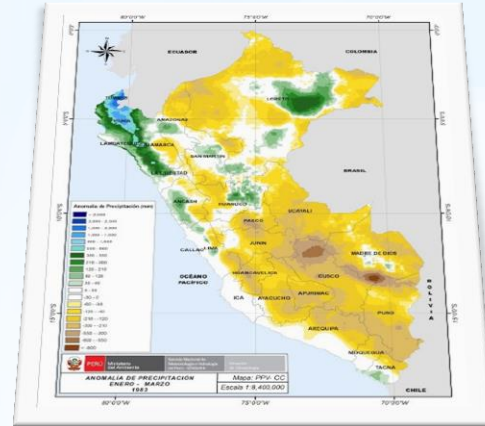
GEOLOGICAL HAZARDS  
IN EVENTS OF "EL  
NIÑO"  
INGEMMET



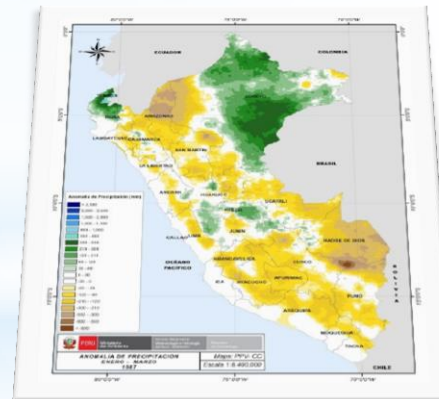
CRITICAL SPOTS  
WHEN FLOODING  
OCCURS  
ANA



## TRIGGERS

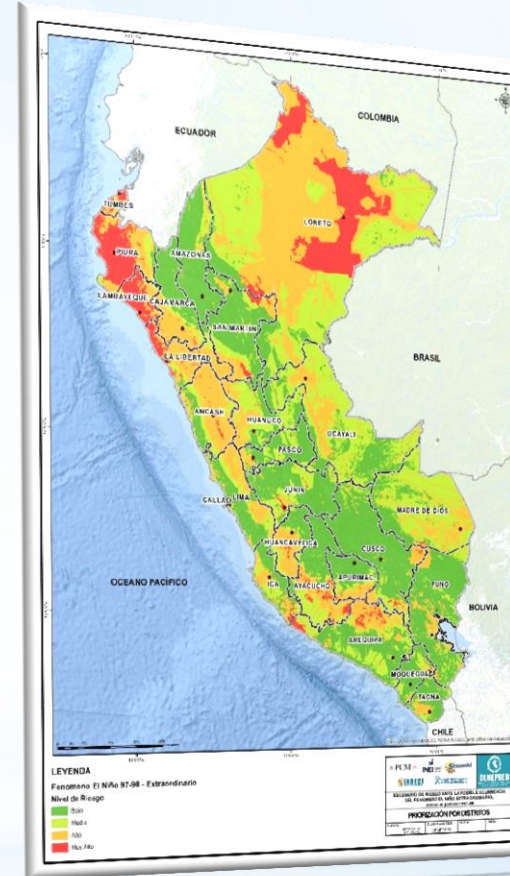


AREAS WITH RAINFALL  
EXCESS  
E-M 1983

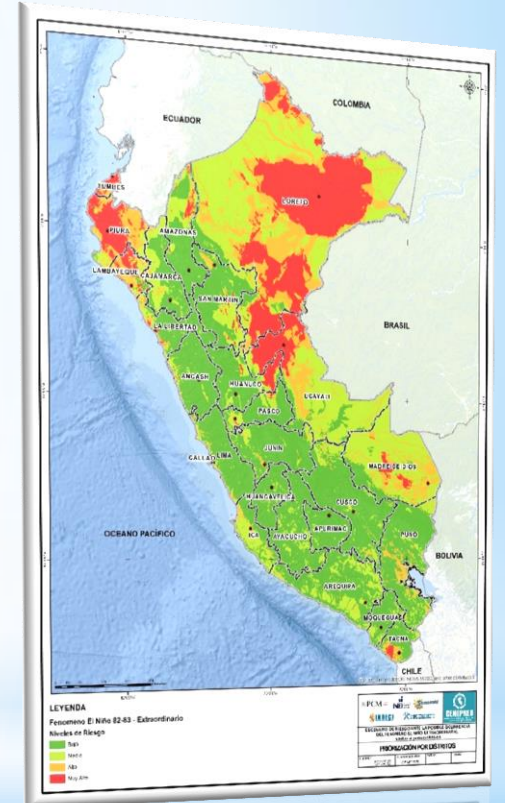


AREAS WITH RAINFALL  
EXCESS  
E-M 1998

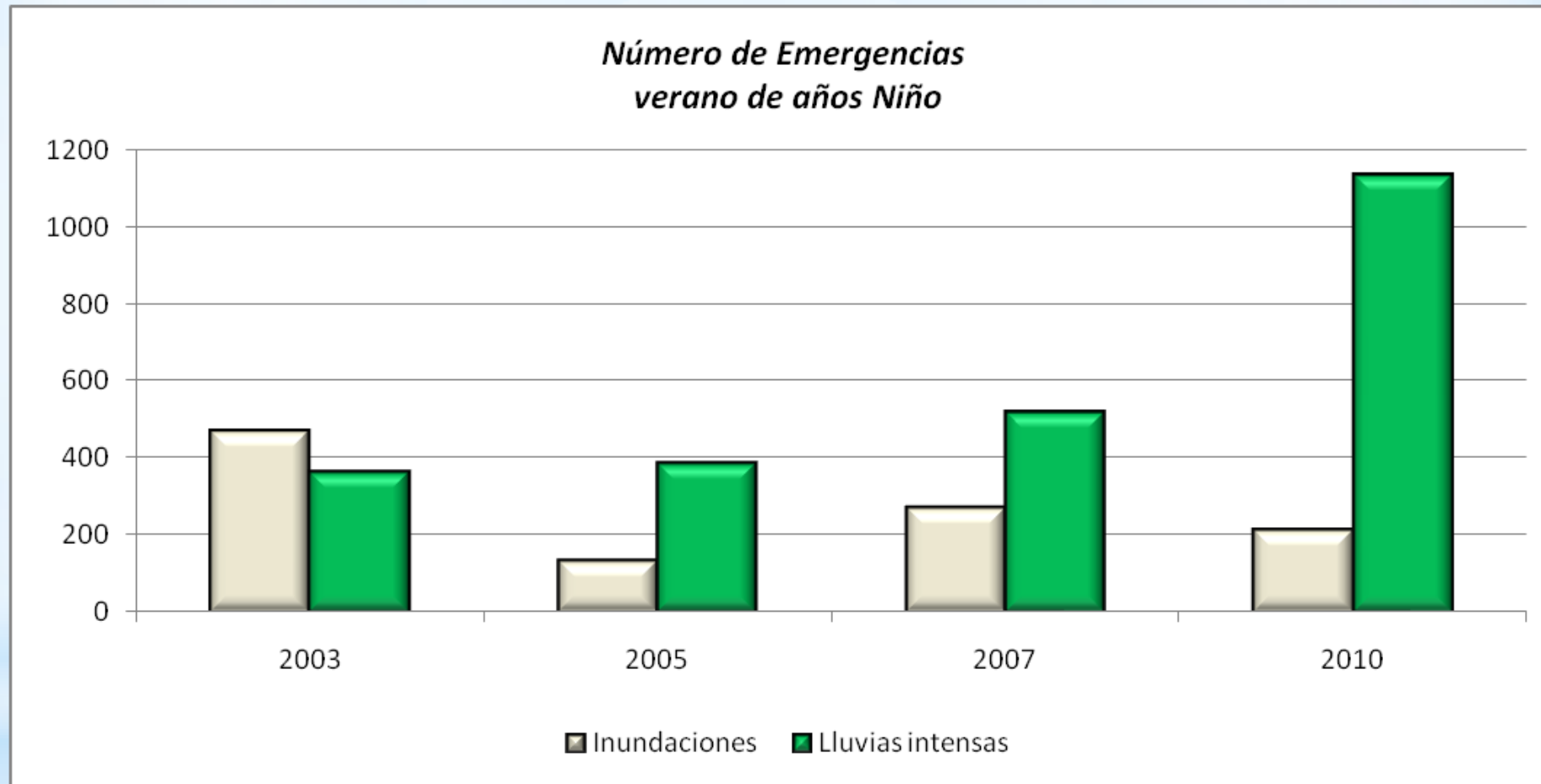
SENAMHI



Map: Risk by rainfall in events of "El Niño" with similar characteristics of the events of 1983 and 1998



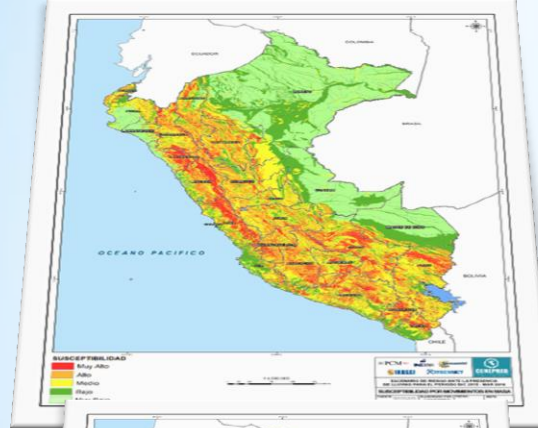




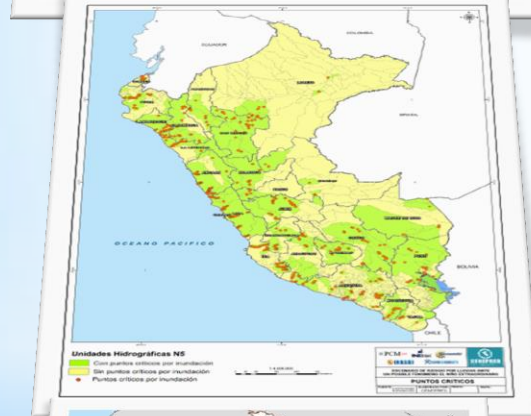
# RISK SCENARIO BY HEAVY RAIN, ACCORDING TO THE BEHAVIOR OF THE LAST 15 YEARS

## DETERMINANTS

SUSCEPTIBILITY MAP  
REMOVAL OF MASS  
INGEMMET



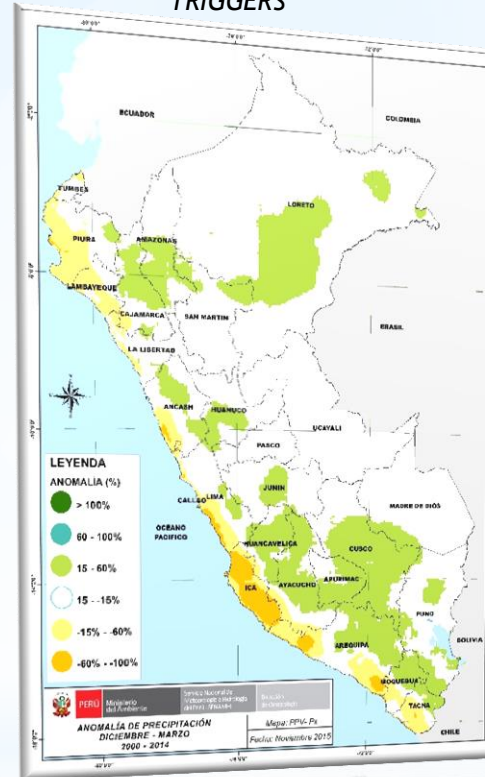
CRITICAL SPOTS  
WHEN FLOODING  
OCCURS  
ANA



HISTORICAL RECORD  
OF DAMAGES  
INGEMMET, ANA

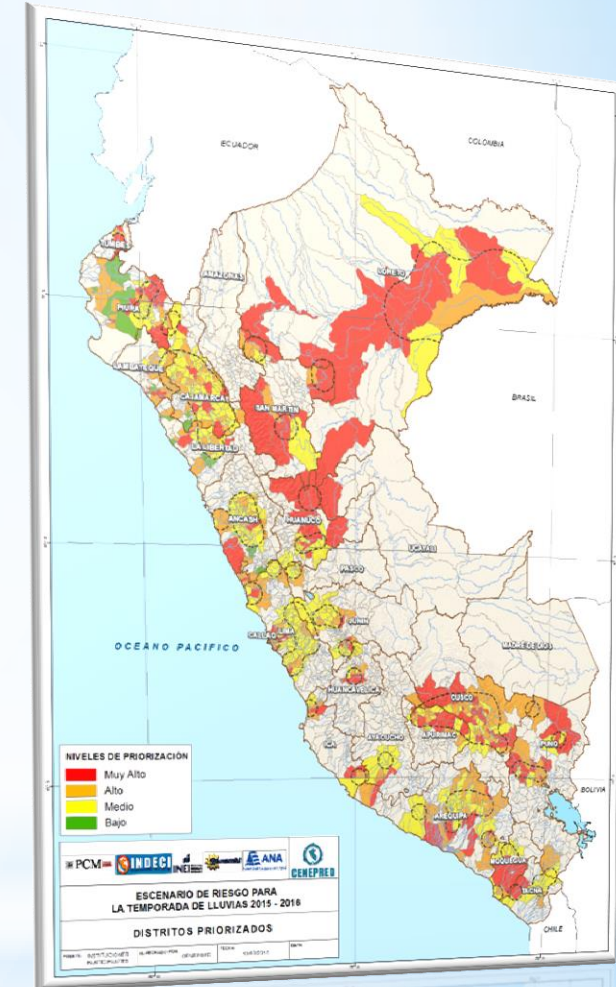


## TRIGGERS



Anomalies of rainfall in the last 15 years

SENAMHI

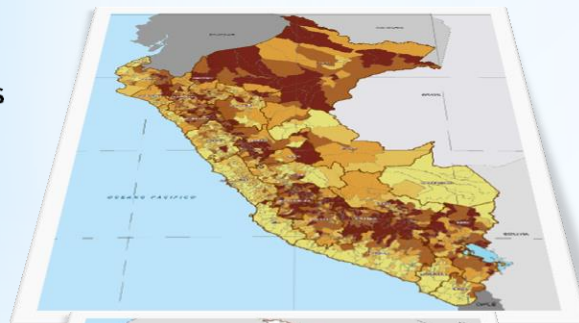


Risk map on heavy rain

## EQUIPO MULTIDISCIPLINARIO: ENTIDADES ESPECIALIZADAS Y TÉCNICAS

INDICADORES  
SOCIOECONÓMICOS

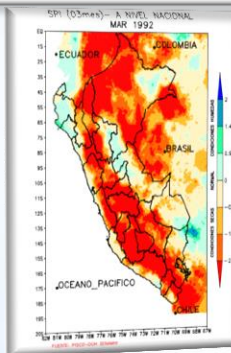
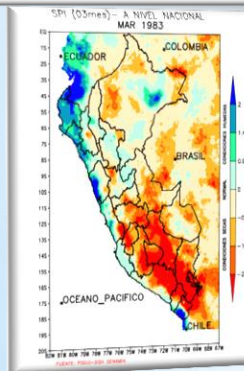
DETERMINANTS



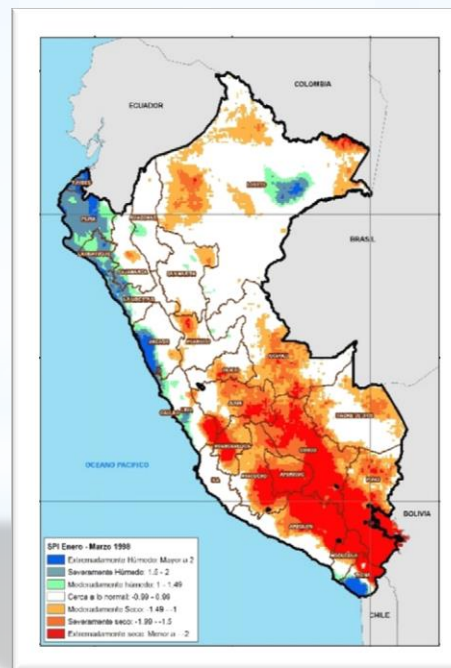
HISTORICAL RECORD OF  
DAMAGES  
INGEMMET, ANA,  
AGRICULTURA (SENASA,  
DIA, AGRORURAL)



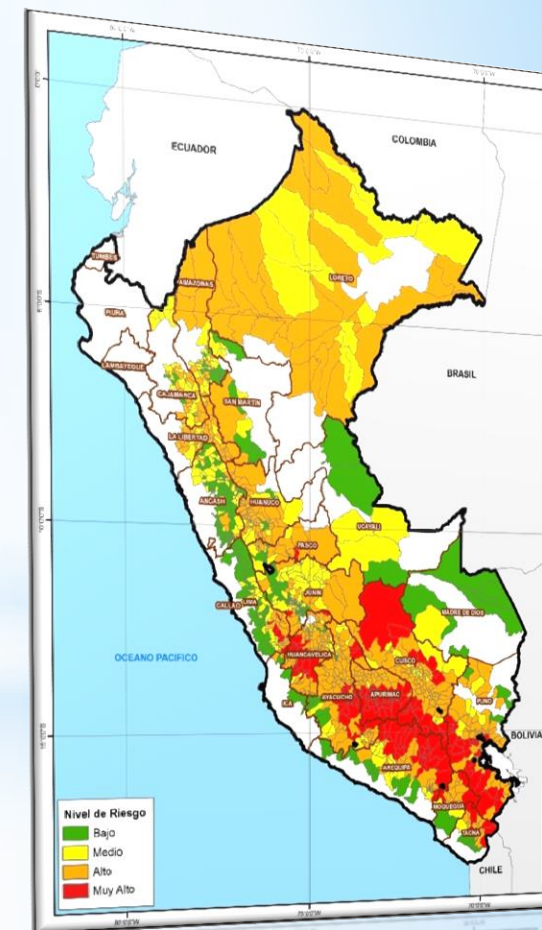
WEATHER  
INFORMATION  
SENAMHI



TRIGGERS



COMPOSIT  
SENAMHI



*Risk map by drought during El Niño*



### IDENTIFICATION OF PRIORITY AREAS FOR THE INTERVENTION OF THE NATIONAL SECTORS

NIVEL DE RIESGO	N° CUENCAS	ELEMENTOS EXPUESTOS					
		POBLACION EXPUESTA	VIVIENDAS EXPUESTAS	ESTABLECIMIENTOS DE SALUD	CENTROS EDUCATIVOS	AEROPUERTOS, AERÓDROMO Y HELIPUERTO	PUERTOS
Muy Alto	14	1,424,392	459,207	2,382	511	22	27
Alto	59	13,935,759	5,994,815	39,115	3,718	12	38
Medio	39	3,293,680	965,563	4,300	1,287	3	1
Bajo	243	6,030,708	1,835,100	5,650	3,130	13	14
Total general	355	24,684,539	9,254,685	51,447	8,646	50	80



#### RESULT: DEVELOPMENT OF TECHNICAL INSTRUMENTS

##### PLAN TO REDUCE RISK:

**Central Government (Ministries)**  
**Regional Governments**  
**Local Governments**

### IDENTIFICACIÓN DE ÁMBITOS PRIORIZADOS PARA LA INTERVENCIÓN DE LOS SECTORES NACIONALES

Nivel de Riesgo	Cantidad de Distritos Expuestos	Población Expuesta
Muy Alto	187	777740
Alto	550	4511774
Medio	294	2258741
Bajo	252	2244539
Total	1283	9792794



#### RESULT: DEVELOPMENT OF TECHNICAL INSTRUMENTS

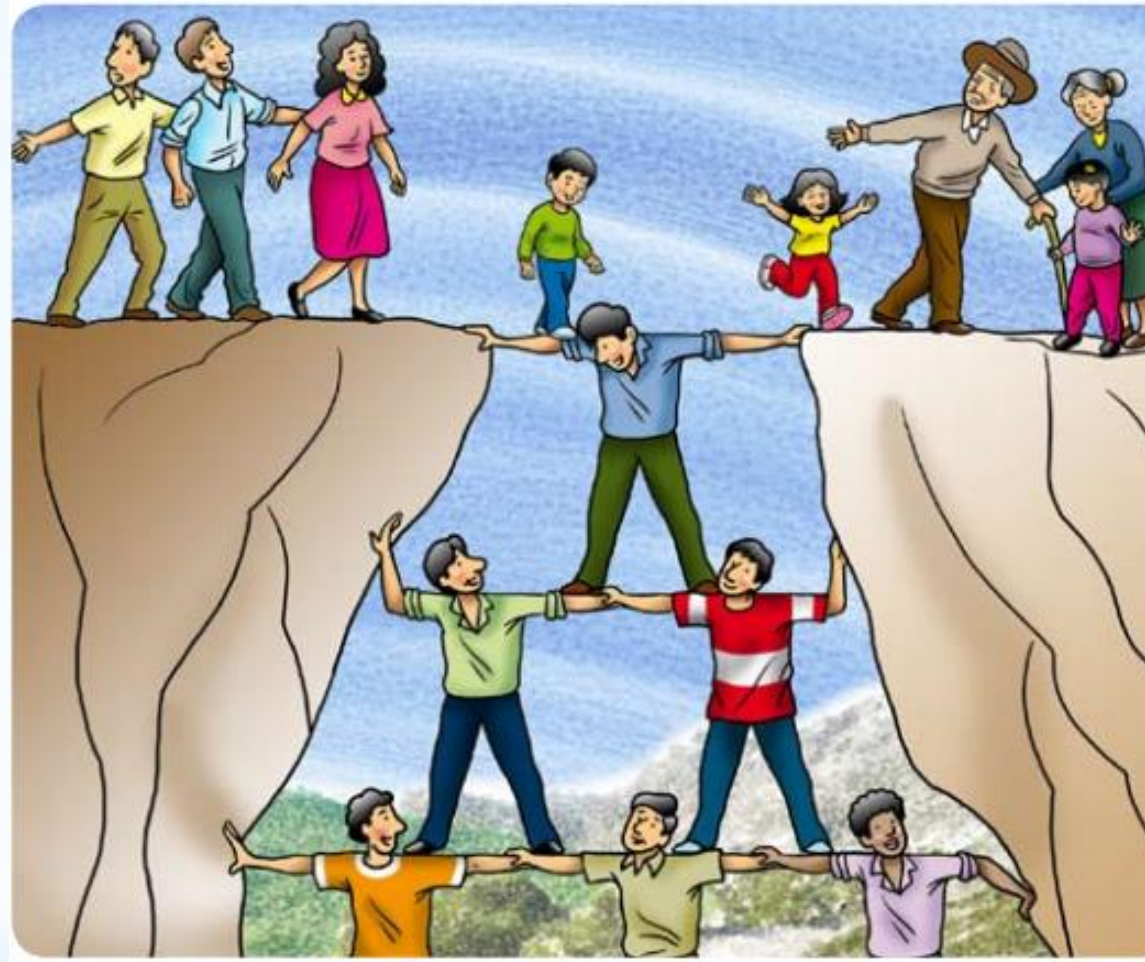
##### PLAN TO REDUCE RISK:

**Central Government (Ministries)**  
**Regional Governments**  
**Local Governments**

EMERGENCY DECLARATION ON 14 REGIONS OUT OF 23.

BUDGETS TO REGIONAL AND LOCAL GOVERNMENTS FOR ACTIONS SUCH AS

- CHANNELLING THE RIVERS LIMPIEZA DE DRENES Y ALCANTARILLADO
- Limpieza de Cause
- DRAINS AND SEWER CLEANING



**PROMOTE** a culture of prevention at all levels will enable  
us to have a **SAFER** future