San Julian Diagnostic Report 2011

25th October-5th November 2011

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UNES

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PROGRESSIO

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Also thank you to the community leaders that agreed to welcome us into their communities and open up to us, sharing the information they collected.

Finally, we would like to thank the individuals who took part in our research, for your cooperation and willingness to share your personal stories in this difficult time and the difficult conditions which were caused by the Storm 12E.

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1. INTRODUCTION

Extreme climate events are increasing across the world. Natural disasters are occurring more frequently and causing greater desolation. In previous years, evidence of climate change and its effects have become more apparent in El Salvador, the smallest and most densely populated country throughout the Americas. In October 2011 Tropical Storm 12E hit El Salvador and this incident has highlighted just how vulnerable the country and its population are. Heavy rains of around 1256mm swept the country causing floods, landslides and a trail of devastation in its wake including; collapsed houses, bridges and roads, crop loss, injuries, illness and in some cases death.

2. AIM AND OBJECTIVES

2.1 AIM

This report compiles a variety of case studies and other forms of collected data to assess the damages to the department of San Julián, El Salvador in the following communities: Aguachucas, Las Mercedes, Colonia El Milagro, El Sauce Canton Petacas, Parcelacion San Jose, Colonia Praveras Cantón Petacas, El Achotal, San Jorge Pena Blanca, Petacas, El Cedro, El Palmar and Guadaloupe.

2.2 OBJECTIVES

- To provide an overview of the damages which have occurred over the last three weeks.
- To recommend steps needed for repairing the damages and to encourage damage prevention and mitigation in case of future disaster.
- To raise awareness amongst NGOs of the current situation in El Salvador and promote international media coverage.

3. METHODOLOGY

The data collection in this report has been conducted by Progressio. Progressio is a UK based charity that works internationally to enable people in developing countries to challenge and change the situations that keep them poor. They currently work in eleven countries around the globe in Africa, Asia, the Middle East and South and Central America.

The ICS Empower team's role in the diagnostic report has been to gather the information required with the support of ACUDESAJ with their local knowledge and expertise, as well as to record and analyse the information to create this final report.

Various methodologies were used to create this diagnostic report; including site visits and interviews with some of the effected communities in the area of San Julián. The interviews were open to all and were facilitated in conjunction with community leaders. We composed a questionnaire to standardize our findings when interviewing the community leaders, individuals, schools and clinics.

ACUDESAJ, a grassroots organisation, fulfilled a dual role; firstly by acting as a communication bridge between us and the community and secondly by providing their office as a location for those interviews which community leaders were required to travel to. This necessity was a consequence of security and financial constraints that prohibited us from visiting all the communities.

This report serves a precedent as the only diagnostic evaluation which has been conducted to date assessing the level of damage which has occurred in the communities of San Julián following the flooding of October 2011. All interviews were audio recorded and archived for transparency and verification of answers.

There are a number of limitations that hinder the findings of this report; the predominant factors are listed below.

Data Collection: It is not apparent how the communities collected their data so this has the potential to limit the accuracy of this report, especially when drawing correlations and conclusions between the communities affected.

Distance: Numerous communities were required to travel outside their respective areas for the interviews due to security issues which prevented us from gathering primary evidence, such as photographic documentation. However, having people travel to us gave us the capacity to organise and conduct interview sessions with more communities in the time frame provided. However the time constraint and lack of resources meant that not all communities could be sampled, also damage to key transportation nodes from landslides rendered these routes impassable preventing many communities from reaching researchers.

Sample size: Limitations with regards to distance and the sheer number of communities affected, required us to focus on communities that were of close proximity to San Julián town and this may be an unfair representation when documenting the wide spectrum of damage. It may be misleading as it assumes all the communities in San Julián have a lot of similarities due to their close proximity and means that we may not have captured evidence of the damages on a larger scope.

4. REPORT STRUCTURE

The main body of this report has been split into the two issues of floods and landslides

The first chapter provides a general introduction to the findings of the report before moving on to assess the damage in each individual community.

The main findings of the report can be grouped into the following issues;

- Dietary requirements. This includes information on crops, animals and loss of any other dietary needs. This point is to gage how these communities have been affected or will be affected in the future.
- Water. To assess the impact of flooding on sanitation and portable water, and contamination. This also includes people's access to water due to the floods.
- Health. To understand the range of health issues that have come from the rains, not just illness, death and injuries, but also mental wellbeing that the rains may of contributed to.
- Amenities. To look at the infrastructure of the communities and assess the damages to infrastructure. We have also included case studies to highlight the impact of such damage on the communities.

5. CHAPTER 1

5.1 ABOUT SAN JULIÁN

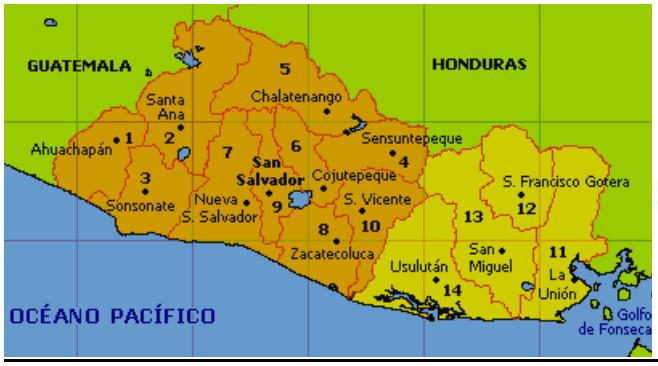

Figure 1. A map highlighting the division of El Salvador into departments. The department of Sonsonate is numbered 3. Figure 2. The towns within the department of Sonsonate.

Sonsonate is 1 of 14 departments in El Salvador and has an area of 1,225.2 sq.km and a population of 438,960 people, according to the 2007 census. Within the department there are 16 administrative units, San Julián being the eighth largest in terms of population size, with an area of 81.6 sq.km and a population of 18,642 as according to the 2007 census. [1]

The municipality of San Julián is divided into 9 counties and 30 villages and is located 40 km from the capital, San Salvador. The town is small but has basic services including water, electricity, sewage, telephone, internet, post office, police and a magistrates' court. The population is engaged in agriculture and livestock.[2] 80% of the population of San Julián live in rural areas and, in contrast to the town, the vast majority of these people live without access to electricity or water. The region is marked by a high infant mortality rate and inadequate living conditions.[3]

As noted in The Nations Encyclopaedia, the traditional grains grown in El Salvador include white corn, sorghum, rice, and edible beans. These crops make up the fundamental diet for most

[1] http://www.geohive.com/cntry/elsalvador.aspx?sub=y&levels=Sonsonate&diacrit=1

[2] http://www.seguridad.gob.sv/observatorio/Iniciativas%20Locales/WEB/Sonsonate/snJulián.htm

[3] Feizbein, A. and Lowden, P. *Working Together for Change: Government, Business, and Civic Partnerships* for Poverty Reduction in Latin America and the Caribbean. (The World Bank. Washington DC 1999) pg.111

Salvadorans and are produced on virtually all small farms, with those in San Julián being no exception.[4]

NGO's working in this area of El Salvador have noted that weather cycles, such as drought or the recent rains, cause loss of traditional corn and bean production every three to four years. Key barriers inhibiting change in this situation include: the cost of crop diversification, lack of training, access to capital and control of the wholesale markets, which make crop diversification difficult for the rural farm family. The continued agricultural production of corn and beans on small plots of land impedes and inhibits income growth resulting in worsening impoverishment.[5]

[4] http://www.nationsencyclopedia.com/Americas/El-Salvador-AGRICULTURE.html
[5] http://www.esnavillages.org/wherewework/where-we-work-sonsonate.html

6. GENERAL FINDINGS

6.1 ALIMENTATION

The alimentation of the communities surveyed is one of the main concerns arising from the October flooding. Many animals have died or been carried away by the floods and a very large proportion of the crops have rotten.

6.2 CROPS AND ANIMALS

The tropical storm 12E brought above-average rain fall over a prolonged period and, coupled with the already high level of vulnerability of the population that has accumulated over past decades, has created severe damages.

Most of the communities in El Salvador have always been self-sufficient when it comes to the production of beans and corn for internal consumption. Over the past weeks however, the impact of these heavy rains has threatened the agriculture sector in El Salvador and the livelihood of most communities. According to the survey carried out in San Julián the majority of the corn harvest is at risk, as well as the bean harvest. Damage to other commercial crops such as coffee one of the country's main exports is also likely to be affected and will reduce income.

Consequently, because of the current destruction of bean and corn crops, the agricultural economy of El Salvador may suffer in the coming months and could force the country to import these produces in the coming years. People around the country are already worried about the possible effects on the economy as the price of produces will rise.

For those living in the rural areas, damage is already a reality. As one community member said: “many people have lost all their crops, they have absolutely nothing, and their land is now empty”.[6]

The yearly harvest provides families with food and income for the following twelve months. However, the impact of Tropical storm 12E has meant that water has inundated all the fields and there are little of the crops that can be saved. This has left families vulnerable to food shortages and communities without the seeds required for planting the crops next year.

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Therefore many supplies will be required for the coming year to allow the communities to restart production. The main demands are seeds, which are usually obtained from the current harvest, and fertilisers/compost to help improve the condition of the soil which has been left contaminated.

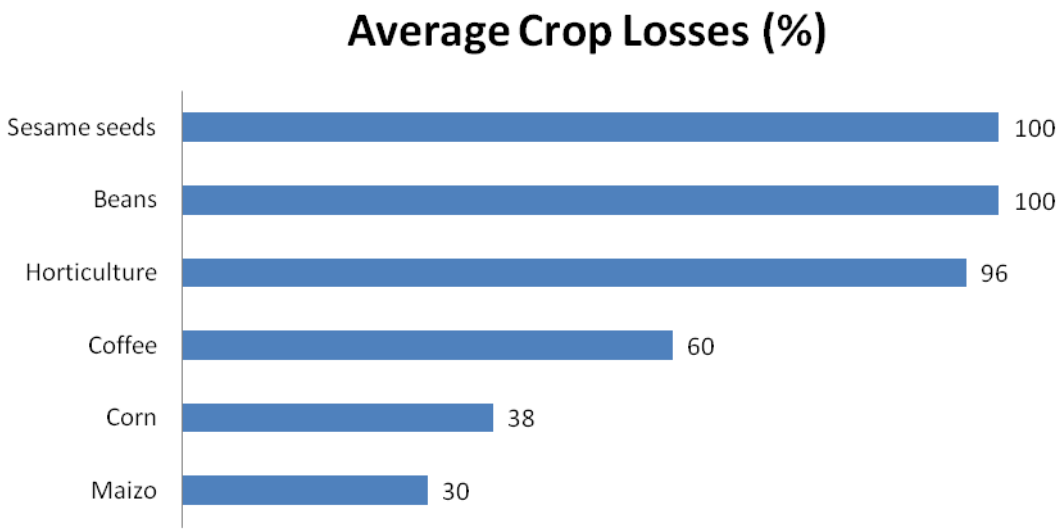

Figure 3: Average crop loss (%) for all communities surveyed

Figure 4 and 5: Rotten corn from the flooding, found in Emilia del Carmen pleitez Ruiz corn field, 26th October 2011

Additionally, there has been a large loss of domestic animals on which the communities rely on for alimentation. Many animals were carried away by the floods particularly smaller animals such as chickens and ducks, whilst others died from the cold as a direct result of the flooding.

6.3 INFRUSTRUCTURE

Figure 6: Flooded pedestrian crossing **on the edge of San Julián, 24th October 2011**

As well as agricultural damages, infrastructure and housing have been massively affected by the recent flooding. This record-breaking rainfall levels caused the nation's entire infrastructure to reach its maximum capacity levels. The rains resulted in severe flooding, and the large amount of rain on already saturated soils in a short period of time caused mudslides in most of the country's departments, washed-out roads, collapsed bridges, flooded homes and contaminated water filters.

A variety of materials are required to rebuild infrastructure. Materials to construct cement septic tanks which will prevent future water contamination are needed, as well as materials to reconstruct houses such as corrugated iron and concrete for floors to stop the water springs. The consequences of this disaster will be long-lasting and repairing the damage and tackling the long-term effects will be difficult and costly.

6.4 HOUSING AND SANITATION

Many houses have been destroyed during the recent storms. Some houses have been washed away by the rising rivers while others have been damaged by water springs coming through the flooring and falling trees. Amongst all the communities the loss of personal belongings was widely reported particularly mattresses, clothes and electrical items. As one respondent in Aguachuca mentioned: "Some people lost everything because the river took their houses, they lost everything, every single thing"[7]

Many families in San Julián were sent to shelters for protection from the floods and landslides.

Figure 7: House destroyed by the flooding on the edge of San Julián, 24th October 2011

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Figure 8: San Julián shelter during the floods, 15th October 2011

As well as housing, the October rains heavily contaminated many of the water sources which the communities rely on for drinking water. The main problem which was seen in every single community, with the exception of El Achotal, was that septic holes filled up with water and overflowed into nearby water resources.

The most impacted communities are located along the coastline and the volcanic chain, which have historically been the most vulnerable to natural disasters. Additionally, the consequences of this vulnerability have also been driven by the lack of risk prevention policies, land-use planning and environmental management.

6.5 SCHOOLS

Damage has also occurred in several schools throughout the communities around San Julián. The schools have experienced infrastructure damage as well as damages to materials, text books and archives. Most schools were closed for around 10 days but have now been reopened. Children's behaviour has been reported to have changed significantly, in a negative way, as a result of anxiety of the floods.

6.6 HEALTH

The population of San Julián has experienced large health problems as a result of the flooding, coupled with the high level of contaminated water and dampness. Although there was no sign of any physical injuries, main illnesses have included foot fungus, depression, colds, flu, pulmonary problems and fever. As well as physical illness, psychological problems are also a major problem in the communities affected by flooding.

During the flooding, the public hospital of San Julián (Unidad de Salud Luis Poma) was able to provide most communities with medical services and illness prevention advice such as educational materials on how to chlorinate water, sanitation and food preparation. Health promoters with basic health training were also able to assist and detect signs of illnesses in those outlying communities.

However, the hospital health workers could not reach all the communities in the area due to poor access roads such as Canton Palo Verde and Peña Blanca, where many roads were blocked and isolated by flooding and landslides. Also the only psychological facilities which the main public hospital of San Julián has the capacity to provide are four hours a week counselling service, which is staffed by only one psychologist.

The flooding has created fear and anxiety for many citizens of San Julián. For example in Aguachucas some women reported experiencing difficulty sleeping due to fear of a large rock that is now suspended by a tree as a result of the landslides. Should the rock fall, their fear is that their houses will be damaged and their children injured.

The main concerns in the respective communities centres on the issue of food security particularly its production and yield for the forthcoming year. Periodically the month of October is a transition from autumn, the rainy season, to summer, a notably desiccated period, in which seeds are not deposited nor crops cultivated. This caused the feeling of frustration in the El Sauce community; as there remained only 15 days until the beans were due to be harvested, so when the rains impacted a majority of the yield was lost. This loss has perpetuated poverty in the country as it is highly dependable on agriculture mainly on corn and bean.

Shared emotions unite the communities surveyed; a collective sadness, angst and depression prevail. For example in Las Mercedes most respondents collectively channelled feelings of being overwhelmed well as feelings of uncertainty with regards to their future as they are unsure of how they would provide for themselves and their families in the upcoming year.

This loss of crops has the potential to result in wide scale famine in the country as well as an associated rise in illnesses such as epidemics, malnutrition, deficiency in minerals and rickets, affecting the entire family unit, but especially the most vulnerable groups; pregnant women, elderly and young children. This will requires a close monitoring to insure that communities in risk receive much needed health care such as vitamin supplements for both pregnant women and young children and psychological support. Psychological problems may also continue to arise as a direct implication of the current physical illnesses.

7. CHAPTER 2: INDIVIDUAL COMMUNITIES

7.1 AGUACHUCAS

Population Facts:

Number of families who live in the community?	**150**
Number of women who live in the community?	**150**
Number of men who live in the community	**150**
Number of girls who live in the community	**420 children in total**
Other information	**60 people are older than 65**

During the period of rains, Aguachucas experienced four landslides and severe flooding. In total two houses were carried away by the river and 50% of the population have experienced illnesses as a result of the flooding. The most common illnesses in the community are foot funguses, swollen feet, colds and fevers. The flooding and landslides led to the evacuation of 75% of the population to shelters for 10 days. There has been a large loss of crops in the community as highlighted below.

Crop/animal	**Total % loss**
Beans	100
Coffee	80
Corn	60
Chicken	50
Cow	60

There are some streets which are damaged as a result of water springs and the foot paths are completely destroyed. Areas of patrimony were also lost for example a park which was widely used by children was washed away by the flood water, including iron swings and a slide.

The water has also become highly contaminated, and is reported to have turned yellow which has led to illness in those using it. Both land and water contamination is thought to have developed from the septic hole fills up with water and overflow leading.

A new area of risk has also developed; a large rock which has been loosened by the landslide, the rock is suspended up on a hill by a tree. The community fears that this rock may become slack and descend downhill, damaging everything in its trajectory including houses and the Reino de Espana school in El Milagro where the children of this community study, as one community member notes:

> *"There is a danger because there is a huge stone has slipped down the hill and is only stopped by a tree and is in the direction of the school, behind the school has been a mudslide. The students have been coming to school with little motivation and have lost their notebooks. The children's parents are afraid of the hill which is behind the school."*

7.2 LAS MERCEDES

Number of families who live in the community?	**129**
Number of women who live in the community?	**311**
Number of men who live in the community	**305**
Other information	**Children Under 1 = 2 Age 1-2= 4 girls and 6 boys. Age 2-4= 19 boys and 22 girls. Age 5-9= 39 boys and 41 girls. Age 10-14= 48 boys and 49 girls. Age 15-19= 39 boys amd 38 girls. Age 20-29= 49 men and 57 women. Age 30-39= 30 men and 34 women. Age 40-49= 25 men and 25 women. Age 50-59= 13 men and 18 women. Age 60+ =36 men and 22 women. There are 616 people in total. 104 male heads of the household and 24 women head of the household.**

Las Mercedes experienced four landslides and flooding where the river ran out of its course in Mina Flores causing the houses in Las Mercedes houses to become flooded with water springs. Eighty houses were damaged by floods and as a result of trees falling on them.

The population experienced a range of illnesses including intestinal infection, foot fungus, vomiting and colds. 166 individuals were evacuated and spent a total of 11 days in shelters in San Julián.

Community members lost all of their clothing. In the houses that had water springs the families lost all the electrical items. In total the community lost about 50% of personal possessions. Yet the main hardship in the community is the loss of crops, as one community member told researchers:

> *"Those of us who have horticulture lost everything, I had jalapeño peppers, tomatoes, cabbage, cucumber and I lost absolutely everything. We need compost, seeds, fertiliser; the fertilisation of horticulture is quite expensive. There have been landslides and we have been cut off from other communities for several days, we need machinery"*

A complete list of lost crops and animals can be found below:

Crop/animal	**Total loss**
Beans	100%
Coffee	50%
Corn	50%
Horticulture	80%
Sesame seed	100%
Chicken	10%
Cow	3 individuals
Horse	1 individual
Turkey	5%
Periguey	3 individuals

It was reported that many of the cows lay down and were too cold to get back up. These cows reportedly had flu and died as a result. As well as animals and crops the community lost a lot of patrimony value form the balsam trees which were also affected by the flooding.

"The problem is, in relation to the balsam trees, is that many of the leaves have fallen, the production is going to be very low because the trees will use all their energy to grow leaves again, and they wont produce sap."

Following such devastating loss, the community no longer wants to be reliant on crops. Instead they want to plant fruit trees. Thus, in order to begin production they need to develop a strategy and to construct ponds to catch rain water for use for watering the trees. They also want to construct greenhouses to grow vegetables. To achieve these aims the community requires technical assistance, materials and assistance to help organize the people within the community.

Newly identified areas of risk are the houses in proximity to the trees as there is a concern that the trees would collapse. In Las Mercedes safe areas also need to be identified in order for secure shelters to be constructed for future disasters; the shelters where the community stayed were also in danger of being buried by landslides.

Case study from Las Mercedes 25th October 2011. Emmanuel de Gesus Garcia Portillo

While Emmanuel and his family were sleeping in their house, the river which runs behind the house burst its banks and flooded the back yard. The family quickly left for the shelter. When Emmanuel returned to the family home to check the condition, he found his bed and all their possessions floating in water, one meter in depth. While he stayed at home, the rest of the family were evacuated to a shelter. He noted that the shelter was in a dangerous position and was vulnerable to landslides. This caused those who were staying there to feel unsafe, however, he also said, it was better there than at home.

While inspecting the house Emmanuel could see people attempting dangerously to cross the river. He assisted them by placing a rope across the river to help them cross unharmed. The people in the community now see him as a local hero.

Emmanuel said the whole experience has been sad for him because he has seen how, in the national agricultural school where he works, there were no damages because of the technology and greenhouses that they used. This caused him to think that the same technology could have been used in his own community so they wouldn't have lost everything. He wants to now see that same technology being applied in his own community.

7.3 El MILAGRO

Number of families who live in the community?	**71**
Number of women who live in the community?	70
Number of men who live in the community	73
Number of children who live in the community	120
Other information	there is 43 children 0-5, 19-35 = 99,

El Milagro did not experience any landslides as a result of the rain; however, flooding was severe as the river overflowed allowing between 60cm and 1m of water to enter the houses. Common illnesses which have resulted from this include feet fungus, colds and headaches. 90 individuals stayed for 11 days in the shelters

The main crops and animal losses are listed below:

Crop/animal	**Total loss**
Beans	100%
Coffee	70%
Horticulture	100%
Sesame seed	100%
Chicken	50%
Cow	10 individuals

One major area of damage was in the community school (El Centro escolar Reino despan), where children from surrounding communities are educated. Parts of the roof collapsed meaning that water entered into the classrooms. An interview respondent from the community stated that:

> *"The school was closed for 10 days, the roofs are cracked because of the humidity and the roof has begun to crack everywhere. In the first classroom, there are cracks in the roof so quite a lot of water comes in. There is land subsidence and the bricks have cracked, the earth is loose*. " (see Figure…)

Figure 9 and 10: School in El Centro escolar Reino despan books drying and damage to t School roof

The school children were also affected by the flooding:

> *"A week later from 90 students that we have in the afternoon, only 45 have come, so half of them haven't attended, It is because they don't have shoes, don't have uniforms and their clothes are still wet."*

Case study: Ellena marivere Allala, El Milagro

"The roads are damaged, and because of it the bus on which my son was travelling tried to avoid a hole. My son fall off the bus and got his ribs broken and had an injury in his back, so I was living both things at the same time. There were two days when I couldn't go to the hospital with him and then I had to take him to the shelter and he had to be there all these days. It has been a total suffering; there were moments when the people was fainting and the doctors said that they had anxiety attacks because of all the things they have seen, now we are very sad, I feel very, very sad, It has been really difficult."

7.4 EL SAUCE, CANTON PETACAS

Number of families in the community	100
Number of individuals in the community	**377**
Number of women who live in the community?	**79**
Number of men who live in the community	**85**
Number of boys who live in the community	**45**
Number of girls who live in the community	**38**
Other information	**Age 0-5= 14 boys and 18 girls. Age 6-11= 31 boys and 20 girls. Age 12-17= 26 boys and 29 girls. 15 elderly men and 10 elderly women**

This community has experienced devastating flooding and damage from the 8 landslides which occurred in October 2011. The landslides cut off and destroyed 6 roads and paths, including the main road which acts as an access point to the community. This road remains damaged due to subsidence, and the land has fallen though. Most of the houses filled with water up to calf level and the roads were like rivers.

The rain caused major damages in 10 houses, and everything in relation to clothes and mattresses was lost. 10 people were injured from the landslides and many more contracted illnesses and infections, the most common being feet fungus and swollen limbs. 7 families were evacuated to the shelter in San Julián where they spent 8-11 days.

Overall the community lost 200km2 of crops and specific losses included:

Crop/animal	**Total loss**
Beans	100%
Coffee	40%
Corn	50%
Horticulture	80%
Rice	20%
Chicken	3%
Cows	5 calves and 6 individual cows
Horses	8 individuals
Periguey	1 individual

The river water swelled into their water source pond plus the septic holes filled with water so now the soil is contaminated.

The community voiced concerns regarding the possibility of further landslides. Their community is surrounded by hills and all of these are risk areas. As one informant noted:y

> *"The land is really loose, with the effect of the rain and the winds which are coming, what's going to happen to the houses? They are going to fall down. We need some help to repair our houses"*

7.5 PARCELACION SAN JOSE

This community encountered both landslides and flooding where the water was 1.5m throughout the community. This has left behind a variety of damage in terms of infrastructure, the roads and paths are badly damaged, as well as 10 houses. 1 person broke their arm and many members are ill. A plethora of illnesses have appeared as a result of the flooding including anxiety, feet fungus, respiratory problems, sickness, fever, headaches and depression.

The community was largely evacuated; 250 individuals spent 11 days in shelters and many more sheltered with family members in homes which had not been so badly affected by the floods. Because of the height of the water in the houses of the community, all mattresses and a lot of clothes, electrical equipment and cooking utensils were lost. The community also lost a lot of crops and animals including:

Crop/animal	**Total loss**
Beans	100%
Coffee	50%
Corn	10%
Horticulture	100%
Chicken	100%
Cows	2 individual cows
Ducks	50%
Periguey	10 individuals

The potable water and the land in the community is now thought to be contaminated as a result of the flooding as the wells have filled with rain water and the septic tanks have over flown.

There is a new private property that has been built with a large wall around the perimeter. This wall traps the water in the community contributing to the intensity of flooding. As it is a private wall the community feels they cannot do anything about it, however it is this wall that has brought a new and great risk to the whole community.

7.6 CANTON PETACAS, CALONIA PRAVERAS

Number of families who live in the community?	**35**
Number of women who live in the community?	40
Number of men who live in the community	26
Number of boys who live in the community	22
Number of girls who live in the community	25
Other information	there is 43 children 0-5, 19-35 = 99,

This community was not affected by landslides, only by flooding which caused water to enter many houses and springs to develop inside houses. Specifically, 2 houses were completely flooded by the rising water and a variety of possessions were lost including mattresses and clothes. The flood water has caused many illnesses including respiratory problems, headaches, flu and foot fungus and caused the evacuation of 5 individuals who spent 9 days in shelters. Again, crops and animals were the main losses in the community, a list of these loses are noted below:

Crop/animal	**Total loss**
Beans	100%
Coffee	30%
Maizo	30%
Horticulture	100%
Chicken	75%

The latrines in the community filled up with water and flooded the land and contaminated the water. As well as this, a major risk has arisen; the main road in the community subsided by 3 meters to reveal water pipes. These pipes have been damaged by the floods resulting in water openly flows from the pipes into the community, further increasing the saturation levels of the soil.

Figure 7: Water pipes damaged by the floods along the Calle central alsause road (along the border of Malaga and Traveras), 26th October 2011

The subsidence which has occurred has left one household in particular danger (see Figure 8 below).

Figure 8: The road outside this house has collapsed.

The community are in need of many things, as one member noted:

> *"We would need seeds and fertilizer for the new cycle, but the biggest problem is that we only work in winter, we do not have irrigation water for summer work. The needs are many, regarding infrastructure, support is needed for roofing sheets, wood, families evacuated their homes did so because they are in poor condition, we need something practical to improve our homes."*

7.7 EL ACHOTAL

Number of families who live in the community?	**94**
Number of women who live in the community?	90
Number of men who live in the community	94
Number of boys who live in the community	70
Number of girls who live in the community	55
Other information	13 elderly people (65 and above)

The community was mainly affected by the 20 landslides which occurred during the rains. Due to the high altitude of the community there was little flooding in the house as a result of the rising river, but rather, water springs in the houses flooded the houses in the community. As a result no houses have been completely destroyed but a lot have been damaged. Inside the houses there was little loss of possessions but the landslides swept away all the personal possessions which were outside the houses. The main loss in the community has been crops:

Crop/animal	**Total loss**
Beans	100%
Coffee	20%
Corn	20%
Horticulture	100%
Chicken	2%

The rains caused 12 individuals to be evacuated to shelters where they spent 11 days. The community as a whole suffered from blisters, feet fungus, fever, high temperatures and respiratory problems as a result of the flooding.

The roads have been badly damaged by 3 landslides on the roads which left a total of 75sqm of earth on the roads. This damage also extends to the paths where trees fell down as a result of the landslides. Balsam trees have fallen in the landslides as well as some of the coffee trees in the area. Significantly, the potable water pump has been damaged in a landslide.

One community member relayed the basic needs of the community and a new area of risk which has developed as a result of the rains:

> *"To survive, people need food and medicine because the weather is changing and there are more respiratory illnesses in children and older people. There are new areas of risk because cracks have formed, and the wind is too strong and these winds pound the earth. The water resources are contaminated. There are houses with completely damaged roofs, and the damage could get worse because of the wind"*

In the community leaders noted that they cannot continue to keep livestock, in particular cows as they eat the grass, destabilizing the soil increasing the risk of landslides. There are many new cracks and craters in the earth and these have created new risk areas; there is a greater risk of landslides in these areas because when the land is like that even the wind can cause a landslide not just the rain. Imelda del Carmen Garcia du Duarte of the community also commented that those houses in which the roof is broken now present a greater risk for the families living there especially the young and older members, and especially considering that strong winds are now expected.

Case study from EL Achotal 27th October 2011. Dabid Noe Banilla (youth leader)

Dabid is a leader of a Youth group in El Achotal, a place that was affected by the 2011 floods in El Salvador. The youth group consisted of around 50 people between the ages of 16 and 24.

The youth group decided that they wanted to help in the emergency response. They started helping in shelters, for example; they helped the priest in San Julián Catholic church which had been temporarily converted into a shelter. They worked in various areas of the emergency response including cooking traditional food to the population of the shelter and handing out Rosaries.

7.8 SAN JORGE, PENA BLANCA

Number of families who live in the community?	**43**
Other information	**less that I years old = 18.**

The community has been affected by 10 landslides, yet no flooding has affected the community. Springs have developed in 22 houses and one house was completely taken away by a landslide. Loss has been small except in the houses which have been flooded where. The roads and paths have been damaged by the landslides.

Losses of crops include:

Crop/animal	Total loss
Beans	100%
Coffee	75%
Corn	20%
Horticulture	100%
Cows	1 cows
Horses	2 horses

10% of the population have foot fungus, flue and a temperature and 35 families comprising of 135 individuals were evacuated to shelters where they spent 5 days.

7.9 PETACAS

Number of families who live in the community?	**92**
Other information	Children below 5 = 36, 6-10=21 Boys, girls = 20. 10-19 =52 boys and 45 girls, 20-29 = 35 men and 14 women, 30-39 + 20 men and 23 women, 40-49 men and 11 women, 50=59 = 12 men and 11 women, 60 and above = 25 men and 20 women

This community was mainly affected by landslides (10 in total) but saw little flooding. The landslides damaged 4 houses and also walls in the community. There has been no loss of personal possessions. Many of the population were evacuated to shelters where they spent 5 days due to the risk

associated with the landslides. Vomiting, fever, diarrhoea and colds are seen throughout the population. The loss of crops and animals is listed below:

Crop/animal	Total loss
Beans	100%
Coffee	100%
Corn	100%
Horticulture	100%
Cows	3 cows
Horses	70%

One of the main damages which were reported is the blockage of the main road from La Gloria to Petacas which the children use to get to school. This road has been destroyed meaning that children cannot pass to get to school.

Petacas noted that their water piping had affected the transport of clean water to the community. The pipes which brought clean water villages including were broken when the land collapsed as a result of the flooding, causing the piping to get damaged and the clean water to mix with dirty water. As well as this the toilet latrines have filled up with water and the toilet waste has contaminated the land.

In the school in Canton Petacas, Centro Escolar, flooding was also severe. The school, including the director's office was flooded. The computer in that office became wet, and archives were lost including many accounts from the previous years and information and data about the students. 30% of the text books and 40% of the stationary were also lost due to flooding. The floods also destroyed the sanitary system in the school.

The teachers have reported that the flooding has affected the students as now they are sad and some are violent. Generally the children have little enthusiasm to study since the flooding occurred. The children are also concerned about the lost classes (as the school was closed for 10 days) and how these classes will be recuperated.

7.10 EL CEDRO

Number of families who live in the community?	56
Number of women who live in the community?	44
Number of men who live in the community	47
Number of boys who live in the community	64
Number of girls who live in the community	67
Other information	22 elderly people (50 and above)

El Cedro did not experience any flooding however it was affected by a landslide that resulted in 10 people being relocated to shelters. Also various people in the community became ill with the flu. The main road has been completely destroyed as well as the road which joins the community to San Julián. The quality of the paths has also deteriorated rapidly. Both water and land have been contaminated due to the overflowing water from latrine holes saturating the nearby water sources and land.

The destruction of the main road in El Cedro means that children can no longer go to school using the main road. Rather, children have to go to school using small paths for 4km through rural areas. This increases risks as the children do not have protection when there are walking there. It also means that adults have to take extra time to take the smallest children to school. If this is not possible, some children cannot go to school. One member from this community told the researchers about this immediate need:

> *"The immediate need which is required is that access is opened, our children walk four kilometres to go to school and now they are not going as the road is blocked. There are places where there were crops but because of the landslides we can no longer cultivate there […] the children walk three miles on foot in rural roads in lands without supervision."*

The main losses of crops and animals are as follows:

Crop/animal	Total loss
Beans	100%
Coffee	80%
Corn	50%
Horticulture	100%
Chickens	30%
Ducks	25%
Horses	2 horses

7.11 EL PALMER

Number of families who live in the community?	**11**
Number of women who live in the community?	100
Number of men who live in the community	100
Other information	19 elderly people (50- 59)

In El Palmer there have been 14 landslides. This has been the primary threat to the community, for which 36 individuals and 13 families were evacuated to shelters for 6 nights. The high ground topology on which the community is situated had no risk of flooding but they experienced problems with spontaneous springs bursting from the floors of their homes; 10-12 houses have been affected by the springs. The heavy rains caused the septic tanks to overflow meaning that water and soils became contaminated. These variables contributed to the prime aliments of flu and foot fungus. There has been little loss of personal possessions due to the floods but many houses were looted after people went to shelters

The road infrastructure is damaged from the landslides and poses hazard and obscurity for the community.

The status of livestock and crops are as follows;

Crops/Animals	Total loss
Beans	100%
Coffee	30%
Corn	40-60%
Horticulture	100%
Rice	100% (some areas)
Other	30-40%
Chickens	5%

7.12 GUADALOUPE

Number of families who live in the community?	365
Other information	2920 inhabitants

The community is located on lower ground so there is a constant threat of landslides from the higher ground. During the peak of the torrential rain, water levels in the lower part of the community rouse to half a meter in all houses; the force of the river swept away two houses whilst the other homes endured water springs. There were 16 people evacuated to shelters for duration of 5-6 days. Many people have contracted fungus on their feet and a fever which has not subsided even with medication.

The main losses are to crops, with not so much loss of possessions with the exception of food and clothes which have gone mouldy from exposure to water.

The main road became a river so the community was isolated but it has since been cleared. Some of the paths have eroded with over exposure to water and are in a bad condition. The burst water pipes meant that the polluted water has mixed with the clean water. Subsequent to the rains the fruit trees mainly mandarin, orange and papaya are falling down and this might be due to soil contamination or because the ground is frozen.

Crop/animal	Total loss
Beans	100%
Coffee	N/A

Corn	50%
Horticulture	100%
Chickens	100%
Ducks	100%
Cows	100%

Case study from Guadeloupe, 1st October 2011: Esperanza Bonilla

"What has affected me is that my house was flooded, there is mud in the house so when you arrive you don't feel comfortable, I feel depressed, we are ill, I feel like I'm going to die and I lost all my crops and chickens. My children are ill with pains in the chest and throat. I have 5 children and they are all ill. We went to the clinic and unfortunately there was no medicine but all the people are in this situation, well some still have houses but some lost everything."

As a consequence of the floods Esperanza lost her hens and mattresses but the main loss was her crops. She highlighted that in Guadeloupe they live off their crops and they have really big families in that community so there are a lot of mouths to feed. The children are always asking about what they are going to eat, she said, but no one knows; they are not sure what's going to happen in the future. The whole family is very worried about the food situation.

Esperanza's greatest need at the moment is food and basic grains.

8. CONCLUSION

In summary, this survey has looked at the consequences of the floods/landslides which have occurred in the past weeks for a prolonged period in San Julián. The main findings show that the affected areas had been alimentation and food security areas, which are heavily threatened. 2012 may mark a period of famine, due to the near complete loss of crops. This means that firstly the communities don't have any sources of alimentation and most importantly they are lacking seeds to start any plantation in the following year. This could result in wide scale famine in the country as well as an associated rise in illnesses such as epidemics, malnutrition, deficiency in minerals and rickets, affecting the entire family unit, but especially the most vulnerable groups; pregnant women, elderly and young children. It is possible that psychological problems will arise as a direct implication of the current physical illnesses.

El Salvador is one of the most vulnerable countries in the world in the face of climate change. This threat will continue to worsen as the effects of climate change progress. In order to prevent another catastrophic climate event, all parties including international organizations, NGOs, the El Salvadorian government and civil society should play a part firstly in addressing the immediate needs of the country, as highlighted in this report, but also in recognizing that the crisis which El Salvador currently faces is the result of man kinds actions and government policy choices, particularly in the developed world.

This report urges the reader to take note and understand the urgency of this situation. The consequences of the most recent disaster will be long-lasting and repairing the damage and tackling the long-term effects will be difficult and costly. Thus, solidarity is required from northern countries and any assistance that will benefit people in those affected communities who are the most vulnerable in the face of natural disasters.

REFERENCES

Websites:

http://www.geohive.com/cntry/elsalvador.aspx?sub=y&levels=Sonsonate&diacrit=1

http://www.seguridad.gob.sv/observatorio/Iniciativas%20Locales/WEB/Sonsonate/snJulián.htm

http://www.nationsencyclopedia.com/Americas/El-Salvador-AGRICULTURE.html

http://www.esnavillages.org/wherewework/where-we-work-sonsonate.html

Books:

Feizbein, A. and Lowden, P. *Working Together for Change: Government, Business, and Civic Partnerships* for Poverty Reduction in Latin America and the Caribbean. (The World Bank. Washington DC 1999)