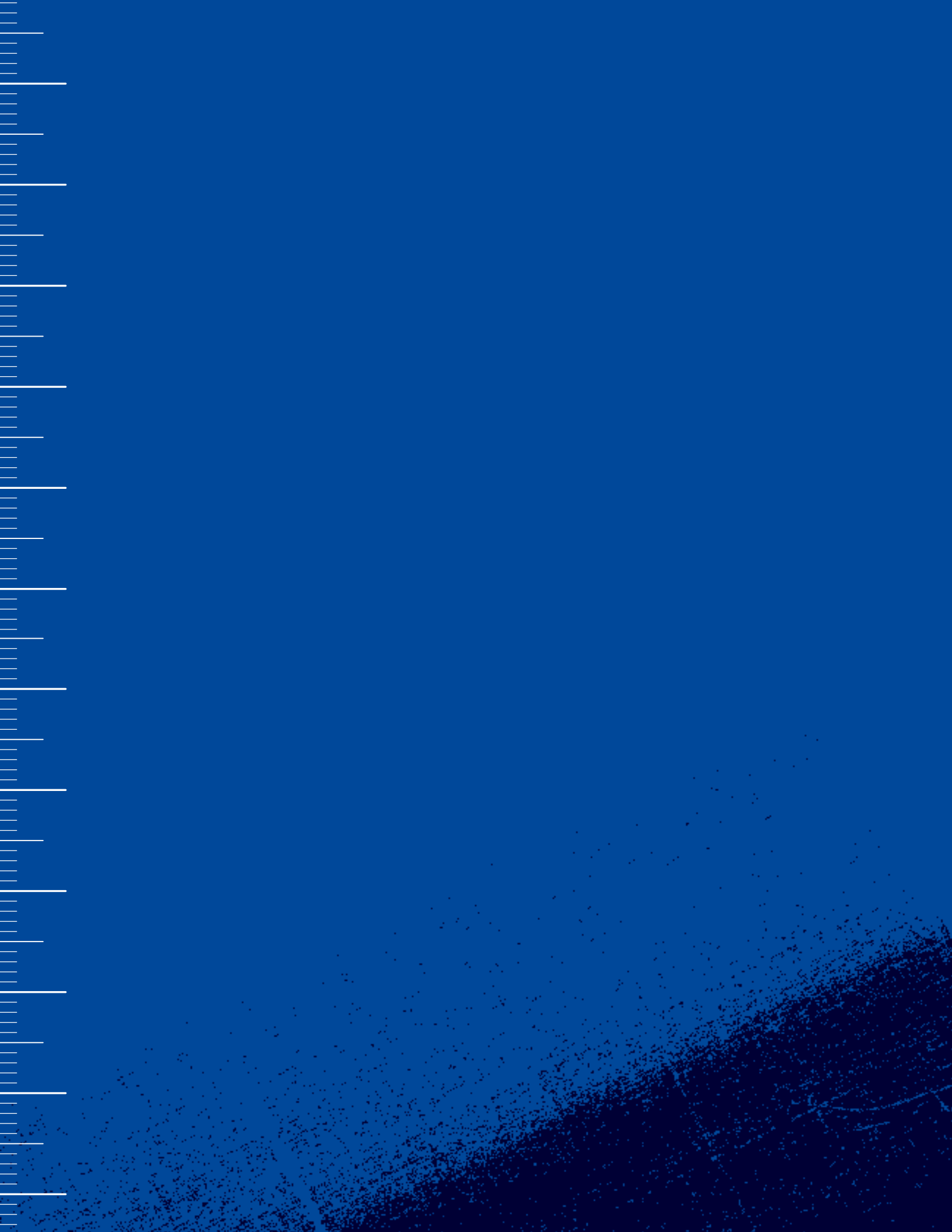# Executive Summary

Results of the post-flood study in Colima and El Majahual after the impact of Storm Amanda-Cristobal May-June 2020 Plan International El Salvador
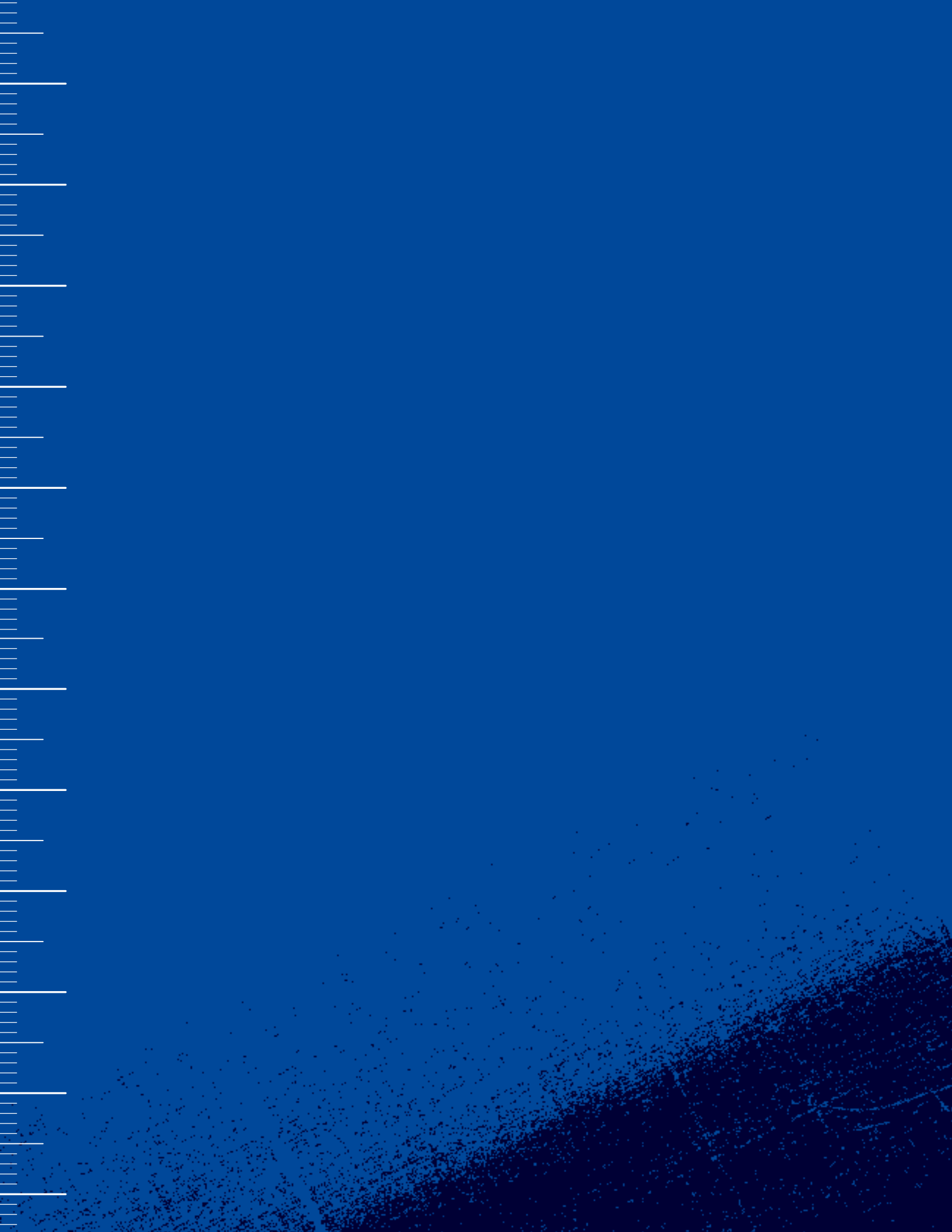

Project: Increasing Flood Resilience in Central America

Contents

Introduction

Tropical storms can evolve into flash floods. The impacts that result depend on the level of quality of disaster risk management processes as well as the level of resilience of the affected communities. Between May 29th and June 7th, 2020, a low pressure system south of the coasts of El Salvador and Guatemala, led to heavy rainfall in El Salvador. According to the preliminary report of damages caused by the storm that became known as "Amanda-Cristobal", prepared by the General Directorate of Civil Protection, at least 53,326 families were affected nationwide. Furthermore, 12,694 houses were severely damaged, 6,230 houses were moderately damaged and 3,496 houses were slightly damaged. A total of 128 bridges were damaged, including 50 footbridges, as were 2,477 streets and roads. A total of e 2,639 at the national level during that time.[1]

As part of the project's activities to enhance resilience to floods in Central America, Plan International implemented two post-flood studies guided through the Flood Resilience of Communities Measurement (FRMC) tool using focus groups, key informant interviews and secondary source analysis as research techniques. Given the context of COVID-19, the study was developed virtually using Zoom and WhatsApp as the main tools. The team analyzed the resilience level of the communities based on 29 outcome variables assigned to the context (community level or enabling environment), seven resilience themes (assets, livelihoods, natural environment, living and health, lifelines, governance, social norms) and a "revealed resilience" category.

With regard to the results of the study, we found that the level of resilience of the El Majahual and Colima communities after the flood has increased by 20% and 23% respectively. This increase is influenced by the implementation of activity plans developed in the community with the objective of strengthening resilience and reducing vulnerability factors. This shows the importance of facilitating processes with the community to enhance their level of resilience under a holistic approach.

Nevertheless, there are still important gaps in the community's overall level of resilience. For example, in the El Majahual community, under the contextual view at the community level, 13% of the variables were still well below good standard, which represents the possibility of imminent material losses Another 27% could be associated with deficiencies but visible improvement compared to the baseline study. In the case of Colima, under the same analysis, 20% of the variables were well below good standard, which represents the possibility of imminent loss, and another 20% were associated with deficiencies but visible improvement. There are still opportunities to help enhance the communities' resilience to floods.

It is important to note that the results obtained in the post-flood studies are also influenced by the context generated by COVID-19 since the families were going through the most critical moment of the pandemic when they were hit by the flood.

---

[1] General Directorate of Civil Protection. (2020). Damage Assessment and Needs Analysis Report of the General Directorate of Civil Protection. San Salvador.

Methodology

The objective of the studies was to analyze the flood impacts in the communities of Colima and El Majahual caused by tropical storm "Amanda-Cristobal" using the FRMC to better understand the flood resilience level reached to-date through comparison with the baseline study results.

The results of the post-flood study include the analysis of 29 outcome variables, 26 of which were scored from A (good practice) to D (below standard). The results were analyzed through three looks: context, revealed resilience, and 7 themes.

Context:

Each source was assigned to either the community level or the enabling environment context. The assigned levels of a given community refer to the community's sphere of influence, while the enabling environment refers to elements outside the community's direct sphere of influence.

Revealed resilience:

The results analysis under the revealed resilience view has four groups of variables:

- Three "hazard trait" variables on flood size and type (not grade).
- Seven direct impact variables graded from "A" to "D". This includes, for example, injuries, household damages, or environmental contamination.
- Ten indirect impact variables graded from "A" to "D". This includes, for example, income loss due to a flooded stores.
- Nine action variables graded from "A" to "D". This includes, for example, the performance of the Early Warning System or community members taking out high interest credits.
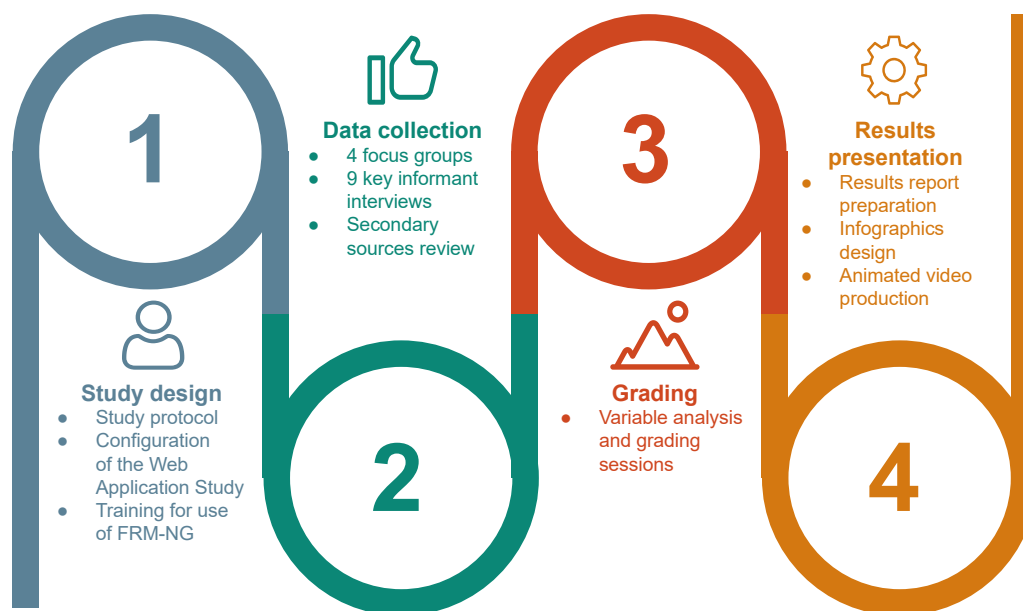
7 themes:

The 7 themes analysis vision is intrinsically associated with the processes involved for development at the community level and can be categorized as follows:

- Assets: Buildings, materials, productive material (Including equipment, machinery and vehicles), land and infrastructure. Governance: External support generated as well as initiatives of community risk management.
- Life and health: Health services and safe water. It covers illnesses, injuries and deaths as well as food quality and food access in general.
- Lifelines: Communication and transport operation as well as the Early Warning System and electricity services.
- Livelihoods: Set of means that enable people to live. It covers the capacities, income and activities that people require to ensure daily needs through income or subsistence as well as education.
- Natural Environment: Living and non-living components that occur naturally (not human-made), including natural features such as rivers, ecosystems and the services they provide.
- Social Norms: Level of crime and insecurity as well as formal support networks at the community level.

Based on the results obtained in the contextual view and 7 resilience themes, a comparative analysis was made between the results obtained in the baseline studies from September 2019 and the post-flood studies from September 2020. This comparative analysis demonstrated the impact of the community interventions developed to date by the Flood Resilience Project that promotes the implementation of activity plans based on the FRMC framework.

The post-flood studies were conducted in the context of COVID-19 attentive to the indications issued by the health institutions to maintain social distancing. The project team thus completed the studies using the FRMC tool for measuring community flood resilience through four stages: study design, data collection, analysis/rating and presentation of the results.

Ilustración 1. Etapas desarrolladas para completar el estudio posterior a la inundación. Plan Internacional, El Salvador

1

Study design
- Study protocol
- Configuration of the Web Application Study
- Training for use of FRM-NG

Data collection
- 4 focus groups
- 9 key informant interviews
- Secondary sources review

2

3

Grading
- Variable analysis and grading sessions

Results presentation
- Results report preparation
- Infographics design
- Animated video production

4

The team complied with the ethical considerations described in Plan's Monitoring, Evaluation and Learning Policy: "MERL initiatives must comply with ethical standards" (standard 1). All study participants gave their prior informed consent to participate in the research and their permission to publish the results.

Research participants

The focus group discussions involved members of the Community Civil Protection Commission, the Board of Directors of the Community Development Association, shopkeepers, children and youth from both communities. In total, 78 people participated in the group discussions.

Key informant interviews were conducted with health promoters, school principals, community leaders, technical staff from the Municipal Environmental Unit, the General Directorate of Civil Protection and a forecasting specialist from the Ministry of Environment and Natural Resources.

Characterization of El Salvador in the face of floods

In El Salvador, the most common causes of floods recorded between 1900 and 2012 include: rainfall (61% of historical events), tropical depressions (19%), hurricanes (10%), tropical storms (6%) and other factors (4%). The most catastrophic event of the 1990s was Hurricane "Mitch", which produced winds of 290 km/h, making it the fourth most intense hurricane recorded in the Atlantic basin to date. The impact of Hurricane Mitch in El Salvador caused financial losses of US$388.1 million.[2]

Chart 1. Major external events affecting the country

Loss and damages	Hurricane "Mitch" in 1998	Tropical Storm "Ida" in 2009	Tropical Storm"Agatha" in 2011	12-E Tropical Depression
Deceased	240	198	12	34
Affected	84,000	122,000	120,000	500,00
Sheltered	55,000	4,200	14,800	56,000
Max. cumulative rainfall	861 mm	483 mm	672 mm	1,513 mm
National average rainfall	472 mm	248 mm	274 mm	747 mm
Estimated losses and damages	USD$388.1 million 3.26% of GDP	USD$239.19 million 1.1% of GDP	USD$112.1 million 0.5% of GDP	USD$902.3 million 4.25% of GDP
Agriculture	Loss of basic grains, coffee, sugar cane for $112 million	Crop damage of basic grains and coffee cultivation USD$27.5 million	Damage to basic grain crops and others for USD$11.4 million	Damage to basic grain crops and others for USD$105.3 million
Damaged land	Eastern part of the country and Sonsonate (approximately 40 per cent of the territory)	Central area: San Vicente and La Paz	Eastern and coastal zone	181 affected municipalities, 70% of the country
Bridges	10 destroyed, 68 damaged	24 collapsed, 55 damaged	25 damaged	8 collapsed, 26 damaged
Damaged and at-risk housing	10,372	2,350	8,272	8,118
Road damage	Damage to 60% of the road network	132 roads	61 roads	40% of the road network

---

[2] Ministry of Environment and Natural Resources. (2020). FLOOD DISASTER RISK PROFILE FOR EL SALVADOR. San Salvador: MARN.

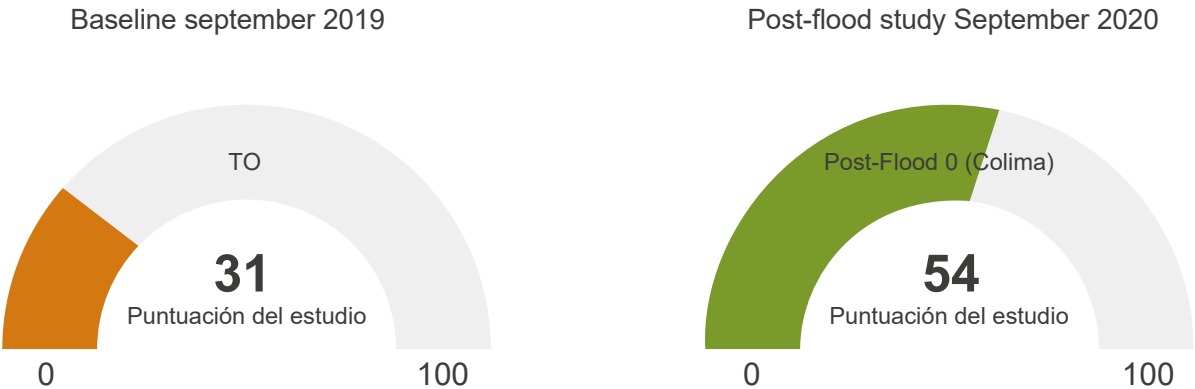| Damaged schools | 405 | 111 | 378 | 947 |
| Health-care facilities | 20 | 28 | 20 | 19 hospitals 238 health care units |

Main results obtained from the post-flood study in the Colima community

The Colima community is located at kilometer no. 46 on the Troncal del Norte road, in the Suchitoto municipality, Cuscatlán. The main income source is obtained from farming, raising animals and fishing in the local water reservoir. Extensive aquaculture is carried out in this body of water. The Colima Cooperative also raises Tilapia. According to the information provided, they do not give any supplemental feed to the fish, they simply wait for it to grow and then harvest it. They do not own boats, harvesting is done using a "chinchorro".. According to data from the Family Health Unit, the community has a total population of 2,333 people (509 girls, 674 women, 538 boys and 612 men).

The Ministry of Environment reports that the community is located in areas where flooding is more likely to occur due to flash floods on the Lempa River and because of the rising level of the dam as a consequence of heavy rainfall, which can accumulate up to 2,222 mm per year. Soil overflows increase by 30-50 meters from the natural river limit, at the edge of the Colima communiy.[3]

Illustration 2. Results obtained in the community flood resilience measurement at the baseline and post-flood study in the Colima community.

Baseline september 2019

TO

31

Puntuación del estudio

0   100

Post-flood study September 2020

Post-Flood 0 (Colima)

54

Puntuación del estudio

0   100

[3] Rafael Santamaría. (2020). SITUACION ACTUAL DE LAS UPF ISCOS/ PROYECTO AGUA FUTURA (p. 1). Suchitoto, Cuscatlán: Organización No Gubernamental ISCOS.

According to the results shown in Figure 2, the overall level of resilience in Colima has increased by 23% in comparison to the baseline results. The three analytical approaches used (focus groups, key informant interviews, secondary sources review) showed that the increase in resilience has been positively influenced by the activities developed based on the FRMC framework designed from the results obtained with broad participation of community leaders and local stakeholders.

Despite this positive trend, there are still important gaps to be filled, most notably in the lifeline theme related to the absence of an Early Warning System as well as under "livelihoods" and "natural environment". For these themes, there were slight decreases in the level of resilience compared to the baseline study. One explanation for these results is the double emergency context faced by the community when the flood occurred since this took place during the most critical stage of the COVID-19 pandemic. The families were under a mandatory quarantine imposed by the health authorities as measures to contain the spread of the virus.

This situation exacerbated the economic impacts on families and limited their response actions with respect to the recovery of the natural environment. As the restrictions derived from the pandemic were lifted, families focused their efforts on economic recovery, decreasing their participation in community activities.

Results from the perspective of 7 resilience themes for baseline and post-flood study in the Colima community.

Baseline september 2019

Post flood study september 2020
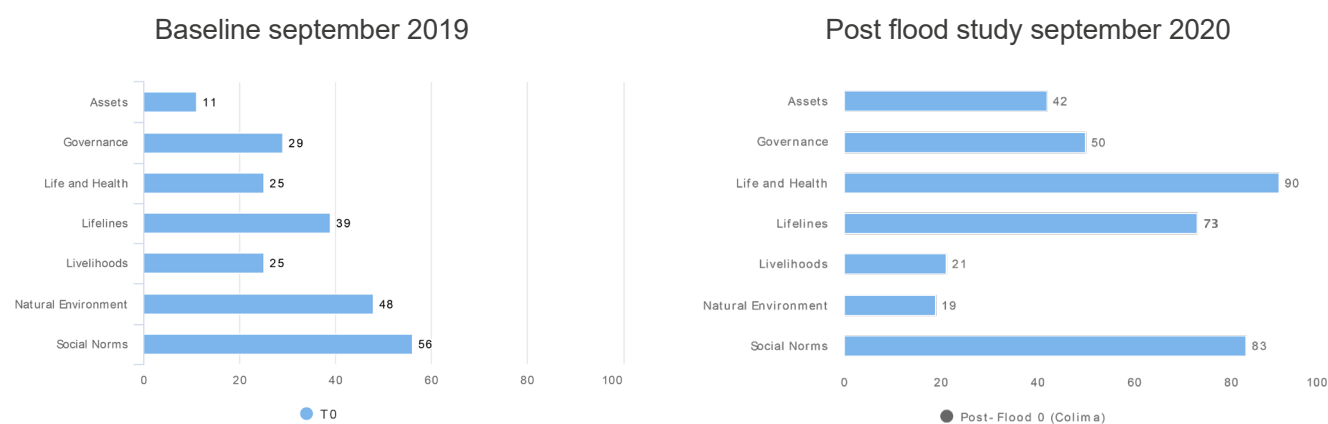
Assets

The results obtained reflect a 31% increase in the resilience capacity with respect to this matter. The post-flood study showed that the flooding caused losses of 20% in contents and equipment such as machinery, tools, household goods and appliances, and 40% of all houses, business establishments and agricultural land suffered serious damage during the flood. These damages had a direct impact on household economy, which were deepened in the context of COVID-19 since many families were limited to continue with their income-generating activities due to mobility restrictions. In addition, the results reflect as one of the main weaknesses that the community does not have large-scale flood protection infrastructure, which increases the vulnerability level and the possibility of imminent loss due to the flood impact.

Governance

According to the results obtained, resilience in the Governance area has increased by 21%, highlighting greater external assistance from the central government. Likewise, it highlighted active leadership of the Community Commission to articulate with the National Civil Protection System for a more effective response. There is also evidence of a slight learning process with respect to understanding flood risk and taking measures for prevention in future events. These results reflect the strengthening that the community has experienced in relation to the processes of raising awareness about exposure to flood risk, highlighting the signaling of the community with evacuation routes and identifying a safe place in case families must evacuate their homes.

As points for improvement, it is highlighted that in the community there are networks and groups that provided support during the flood. However, it is necessary to integrate more people for a broader and more effective response. Not all the community had access to external assistance in response to the emergency and this was reduced in the recovery phase. It is also necessary to deepen the understanding of the causes and impacts of the floods, reflecting on the lessons learned, in order to reduce the flood risk in the future.

Life and health

The resilience capacity obtained for this theme was 90%, which reflects an increase of 65% with respect to the baseline. The fatality prevention, serious injury prevention, post-flood illnesses, continuity of health services and safe water variables achieved the highest score, placing

them into the rank of good practices for risk management. This means that both the community actors and the responsible healthcare institutions acted effectively in the face of the emergency that occurred in the community despite the restrictions derived from the COVID-19 pandemic. The health services remained operational and provided an adequate response.

Another influential factor for the score of these variables is that the flood did not have a significant impact on the family's well-being in the community since the government was implementing various health measures to prevent COVID-19, which helped to reduce disease transmissions.

Lifelines

According to the results obtained, the resilience capacity with respect to lifelines increased by 34% compared to the baseline results; the communications performance, transportation and the continuity of energy and fuel supply were not affected by the flood's impact. The major limitation identified is that there is no Early Warning System that could alert families to sudden river floods and the maximum reservoir quotas for preventive evacuations in the face of the imminent impact of the flood.

Livelihoods

The resilience level obtained in the livelihoods theme presented a 4% decrease with respect to the baseline study. The variables analyzed in this theme were affected both by the impact of the Amanda-Cristobal storm and by the context derived from the COVID-19 pandemic, for example the continuity of education. Due to the pandemic, schools were closed and classes were taught

virtually. However, many children did not have the resources to access online platforms and due to the flood they were also unable to withdraw the study guides delivered in printed form in schools for work from home. Due to these factors, classes were interrupted for more than three weeks.

And yet, the economy of the families received a hard blow since the flood mainly affected livelihoods such as agriculture, fishing equipment, household goods, etc. In addition, the flood occurred during the quarantine period imposed by the government to curb COVID-19 infections. Faced with this situation, many families resorted to the sale of productive assets to cope with the impacts of the flood and the COVID-19 pandemic.

The response of the authorities was mainly focused on the effects of the pandemic, distributing humanitarian aid to alleviate the food insecurity that families were experiencing; support for the recovery phase is still very limited.

Natural environment

For the "natural environment" theme, there was a significant decrease of 29% in the level of resilience compared to the results of the baseline study. Some aspects that explain this decrease include an increase in environmental contamination associated with inadequate solid waste treatment practices and the absence of a solid waste collection system. Poor solid waste management is a determining factor that increases the impact of flooding in the community. That being said, since there is no large-scale protection infrastructure, contaminated water and sediments from the Acelhuate River are washed into the crops and in some cases near the houses, which increases the risk of contamination and proliferation of vector diseases.

To increase the level of resilience in this area, it is necessary to seek strategic alliances with the local government to regulate the treatment of solid waste and install a collection system to provide adequate treatment and to look for low-cost alternatives -above all nature itself- to install (large-scale) protection barriers.

Social Norms

The "social norms" theme results reflect a 27% increase in the resilience level since no increase in crime against property was reported during the flood. However, this result is not linked to a generalized increase in community safety, but rather to the specific event during the flood context. The community, through different support networks between churches and youth groups, mobilized to support the response despite the limitations imposed by the pandemic regarding mobility, the community showed a high level of mutual support.
As aspects to be improved, the analysis showed the need to strengthen and expand the mutual aid groups and link them to the emergency response community structures (and beyond), so that there is an articulation to support the response and strengthen the prevention work.

Leaders of the ommunity ivil rotection ommission of Colima and Santa Bárbara carry out a collection day of useless materials in the Cerrón Grande reservoir prior to the rainy season. March 2020. Credit: Plan International

Main results obtained in the post-flood study in the community of El Majahual

The El Majahual community is located in the La Libertad department, in a touristic area made up of beach houses next to regular ones. Near El Majahual, the river with the same name flows into the Ocean and some communities have settled near the mouth of the river, including the Km 40 sector, the Playa sector and the El Majahual sector.

The closest health center that the community has is the one in Puerto La Libertad, located on Antigua Calle a Conchalío, Puerto de La Libertad (Ministry of Health, 2019). It is a Community Unit of Specialized Family Health (UCSF-E) that belongs administratively to the SIBASI of La Libertad, to the "Macizo Costero" Micronetwork.
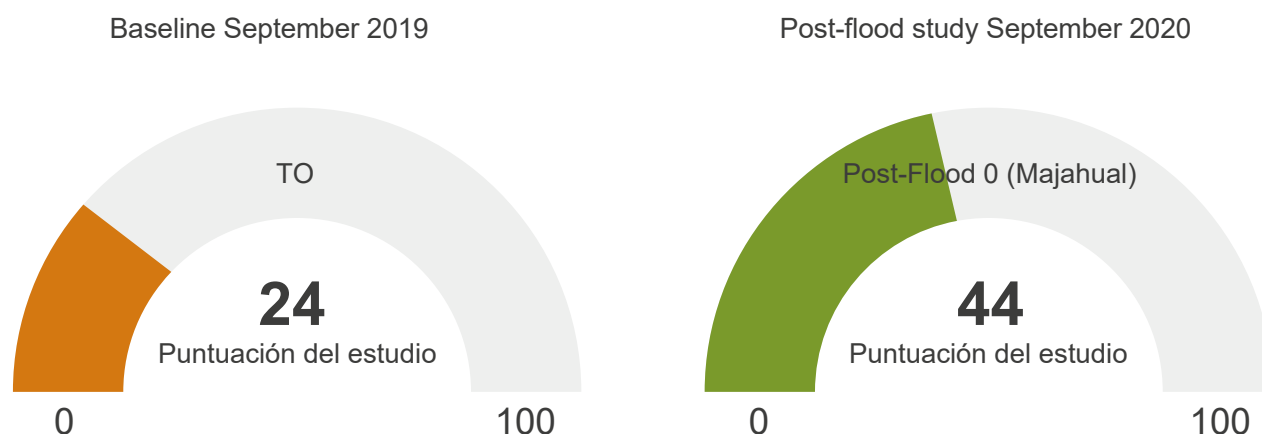
For specialized care, the population is referred to the San Rafael Regional Hospital. The community has the Cantón El Majahual School Center located on the El Litoral highway, km 40½. The total enrollment is 502 students, including 254 girls and 248 boys, and this school offers classes up to the 9th grade. To continue their studies, students must go to the National Institute of Puerto de La Libertad and the San Francisco de Asís Catholic Institute.

The main economic activity is commerce and tourism. The highest percentage of the population (80%) works in the service sector in hotels and ranch businesses, such as bar tenders, cleaning services and cooking, or is engaged

in artisanal fishing. The remaining 20% own a business or store. Therefore, it is characterized as a tertiary economy, dedicated to services and commerce. The areas susceptible to flooding are the areas inhabited by locals and the ranches

where businesses operate, primarily the areas bordering the El Majahual River, where the entire infrastructure, streets, drinking water systems, electricity distribution, houses, people and their property are affected by the impacts of flooding.
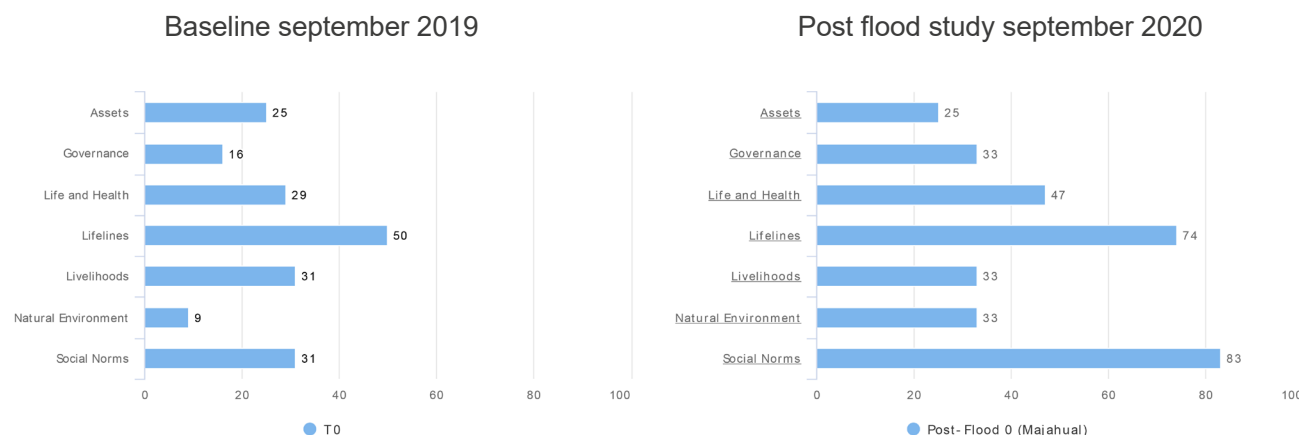
Ilustration 4 Results obtained in the measurement of community resilience to floods for the baseline and post-flood study of the El Majahual community.

Baseline September 2019

Post-flood study September 2020

TO

24

Puntuación del estudio

0   100

Post-Flood 0 (Majahual)

44

Puntuación del estudio

0   100

According to the results shown in Illustration 4, the general level of resilience in the El Majahual community has increased by 20% compared to the results obtained in the baseline. According to the analysis carried out, the increase in resilience has been positively influenced by the activities developed with the action plan for the promotion of flood resilience based on the framework concept of five capitals and four properties of resilience designed from the results obtained with the baseline with the broad participation of local leaders and stakeholders.

Despite this positive trend, there are still important gaps to be filled with greater relevance in the topic of assets and property, governance, livelihoods and natural environment as there are still variables with deficiencies and the possibility of visible improvement. One explanation for this result is the context of double emergency faced by the community when a flood occurred during the most critical stage of the COVID-19 pandemic, since the families were complying with a mandatory quarantine imposed by the health authorities as measures to contain contagion.

Results obtained under the perspective of 7 resilience themes in the baseline and post-flood study of the El Majahual community .

Baseline september 2019

Theme	Value
Assets	25
Governance	16
Life and Health	29
Lifelines	50
Livelihoods	31
Natural Environment	9
Social Norms	31

● T0

Post flood study september 2020

Theme	Value
Assets	25
Governance	33
Life and Health	47
Lifelines	74
Livelihoods	33
Natural Environment	33
Social Norms	83

● Post - Flood 0 (Majahual)

Assets

The level of resilience with respect to assets and property has remained at the same rating as obtained during the baseline study. The post-flood study showed that 60% of homes and businesses were affected in their contents and equipment such as machinery, tools, household goods and appliances. In addition, less than 40% of all homes, commercial premises and agricultural land suffered serious damage during the flood, and there were failures in the early warning system, which prevented it from functioning during the emergency. Furthermore, there has been no follow-up on the preparedness actions for preventive evacuations since there was no protocol for action at the time of activating the Early Warning System.

The four variables analyzed in this topic show deficiencies and the possibility of visible improvement, it is necessary to strengthen the activities planned in the action plan as well as to seek strategic synergies to expand interventions.

Governance

The level of resilience for the governance theme has increased by 17% with respect to the baseline results. However, the analysis also showed that the participation of leaders in the response structures has decreased due to the impact of COVID-19, as many leaders have been significantly affected in their livelihoods and had to dedicate more effort to economic recovery and even work outside their community. It should be noted that not all the community had access to external assistance in response to the emergency and that it decreased more in the recovery phase.

The community has shown weaknesses in terms of learning about the floods due to the lack of an evacuation process that would have allowed capitalizing on the experiences and putting them into practice to avoid future losses.

Life and health

For life and health, resilience increased by 18% compared to the baseline study. Despite the positive advances, there is still evidence of areas for improvement since the variables analyzed are identified with deficiencies and the possibility of better visibility and in some cases well below the good standard. For example, with respect to food security, more than 50% of the community did not have enough nutritious and varied food due to the impact of the flooding and the COVID-19 pandemic for more than a month; and drinking water services failed due to the flooding for at least a month.

These impacts are also influenced by the pandemic's impact on household economy since the main sources of income come from self-employment and the provision of services in

Project promoter developing meeting with local stakeholders for the coordination of joint actions in the San Diego community. November 2019. Credit: Plan International

places such as hotels, restaurants, etc. Due to the restrictions issued by the government, businesses remained closed for more than three months and families were unable to work. Given these findings, it is necessary to analyze the actions that the community is taking to strengthen the lifelines and the dynamic of financial capital in order to find strategies to increase resilience.

The level of resilience shown by the community has increased by 24% compared to the baseline study. Communications performance, transportation performance and the continuity of power and fuel supplies were not significantly interrupted during the flood. As an opportunity for improvement, the need to strengthen the performance of the Early Warning System and promote in the community the protocol for operation to allow evacuation in sufficient time was identified.

Livelihoods

The level of resilience obtained in the theme of livelihoods has increased by only 2% compared to the baseline study. This result is influenced by the context of the double emergency which has severely impacted more than 5% of the families. In addition, between 20 and 50% of the families were forced to sell their assets to cope with the impact of the double emergency. More than 5% of the families had to resort to precarious jobs in order to obtain income and cope with the impact of the flood.

These results show the need to strengthen actions to boost economic recovery and diversify livelihoods in order to increase the level of resilience in the community.

Natural environment

Regarding the natural environment, there was an increase of 24% compared to the baseline study. These results are positive because they show that the community is promoting actions for solid waste management. For example, the construction of a station for temporary storage that allows sorting waste and selling it, obtaining some funds to promote other community actions, etc. However, it is necessary to consolidate a response strategy in coordination with the municipality that can provide equipment and machinery to carry out cleanup tasks, for example, to free the drains in a preventive manner, as well as response tasks after the impact of the flood.

Social norms

For social norms, there was a significant increase of 52% compared to the baseline study since there was no theft or looting in the context of the floods. However, this increase should be interpreted with caution because the baseline study took into account broader aspects than crimes against property, so that when analyzing the same variable from a broader perspective it is likely that the score will slightly decrease.

Another important aspect to highlight is that when faced with the impact of the flood, the community showed a high level of mutual support to provide assistance to the most affected families. The community's formal and informal networks were mobilized to support the response to the impact of the flood.

El Majahual community civil protection commission, receiving a diploma of recognition from the Municipality of La Libertad. October 2019. Credit. Plan International

Conclusions

The analysis has shown an increase in flood resilience in the communities of Colima (by 23%) and El Majahual (by 20%). According to the results of the community context, revealed resilience and the 7 themes, most of the outcome variables have experienced an increase compared to the baseline study.

Although it is still too early to state this indefinitely, it is an indicaton that the overall increase observed in the two communities is influenced by the implementation of the community activities carried out under the "Increasing Flood Resilience in Central America" project.

Despite the positive developments, work remains to be done. For both communities, sources of resilience that are well below the good standard are detailed below: damage to public/private buildings and land, performance of large-scale protection infrastructure, learning from floods, external assistance, food security, Early Warning System performance, household income stability, environmental pollution, sale of goods for production, precarious livelihoods, and waste system performance.

Increasing the scores on these variables will require strengthening the working partnerships at the local level and incorporating specific actions into the activity plan for community resilience enhancement with emphasis on physical, natural and financial capital. The findings and analysis carried out can also be incorporated into the actions of influence developed with local governments and other actors to obtain greater resources for the work of enhancing resilience to floods.

Plan international El Salvador has prepared several knowledge products from the two post-flood studies and developed a plan to disseminate the results to families in the communities as well as to local stakeholders and government institutions at the local level responsible for disaster risk management in order to generate important reflections on the results and influence their incorporation into work plans.

Recomendations

Based on the results obtained and the main conclusions drawn, it is generally recommended to continue with the implementation of activity plans for the enhancement of resilience based on the FRMC approach, incorporating actions to strengthen the variables that showed a level well below the good standard, highlighting the performance of the large-scale protection infrastructure, performance of the Early Warning System, risky livelihoods and performance of waste management.

To strengthen the variables that obtained a percentage well below the good standard, it is recommended to Plan International and project staff to seek alliances and synergies with local actors to promote the following activities.

Recommendations based on the results obtained in Colima

- Develop, jointly with the municipality and other local stakeholders, initiatives for the construction of a large-scale flood protection infrastructure using nature and endogenous resources of the territory.

- Implement, in conjunction with the Ministry of Natural Resources and the Environment, the municipality and the General Directorate of Civil Protection, an Early Warning System that allows families and the Community Civil Protection Commission to be notified in a timely manner in case of sudden flooding of the Lempa River and of the maximum quotas of the reservoir, especially at night.

- In conjunction with the Directorate of Civil Protection, the Ministry of Health and relief corps, strengthen knowledge of first aid and provide equipment for the care of serious injuries in the event of a flood.

- Consolidate a solid waste collection strategy in conjunction with the Municipality that also defines actions to respond to the impact of floods.

- Promote a recycling strategy that allows the creation of new resources made from plastic through local enterprises.

- Raise community awareness regarding participation in disaster risk reduction activities to strengthen support networks and emergency and disaster response mechanisms.

- Implement a program to strengthen the economy in coordination with CONAMYPE (Comisión Nacional de la Micro y Pequeña Empresa) through technical training and life skills, develop initiatives to support entrepreneurship to reduce jobs considered precarious.

- Strengthen coordination with the national protection system through the Municipal Commission to expand and improve the response to the impact of floods.

Recommendations based on the results obtained in El Majahual

- Develop, together with the municipality and other local actors, initiatives for the construction of a large-scale flood protection infrastructure using nature and the endogenous resources of the territory.

- Strengthen the Early Warning System at the municipal and community levels as well as the definition of an action protocol with the Municipal Protection Commission, and develop education, information and communication actions on the functioning and importance of the system.

- Consolidate a solid waste collection strategy in conjunction with the municipality that also defines actions to respond to the impact of floods.

- Implement a program to strengthen the local economy in coordination with the municipality and CONAMYPE (National Commission for Micro and Small Enterprises) through technical training and life skills as well as support for existing business initiatives strongly affected by the double emergency.

- Develop initiatives in coordination with CONAMYPE for the diversification of enterprises to improve the local economy and early recovery.

- In conjunction with the local water boards, design a strategy for the supply of drinking water in an emergency context, mainly in the centers identified as temporary shelters.

- In coordination with the municipality, strengthen the community fabric through community organization and support networks to improve response and integration in the face of emergencies and crisis contexts.

- Promote, together with the Ministry of Health, educational actions aimed at families on healthy eating and the promotion of recipes with necessary and balanced food.

Flood Resilience Alliance
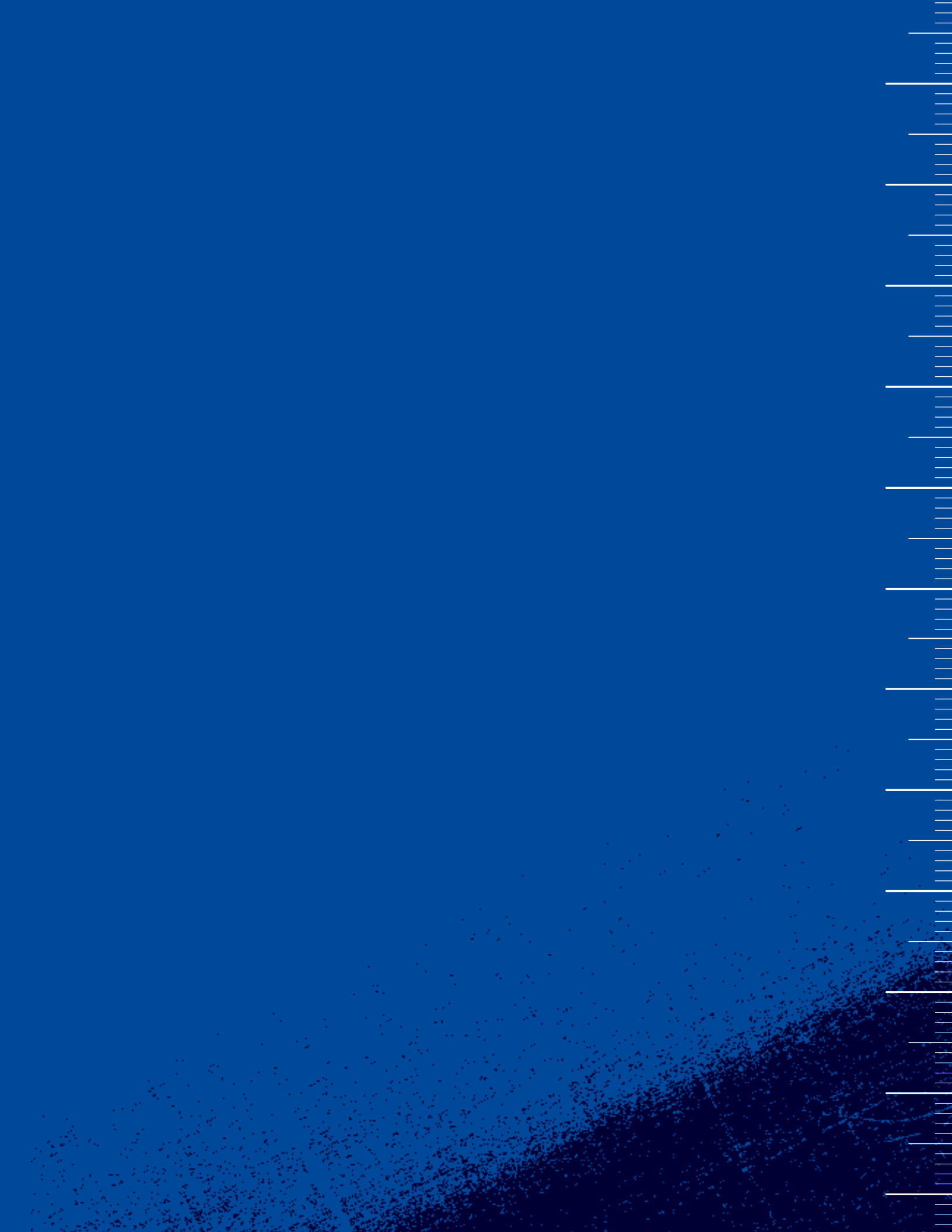
More Information:
infoinundaciones.com
or follow @floodalliance
on social media.