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# Resiliencia



## **Strengthening Disaster Management Capacity of Vulnerable Communities in Azua Province, Dominican Republic**

### **Final Results Report**

1 September 2009 to 15 December 2011

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## Acronyms and Abbreviations

<b>BCC</b>	Behavior Change Communication
<b>CNE</b>	National Emergency Commission
<b>CNPMR</b>	Community Networks for Prevention, Mitigation, and Response
<b>DR</b>	Dominican Republic
<b>DRR</b>	Disaster Risk Reduction
<b>EWS</b>	Early Warning System
<b>IEC</b>	Information, Education, and Communication
<b>KAP</b>	Knowledge, Attitude, and Practice
<b>OFDA</b>	Office of U.S. Foreign Disaster Assistance
<b>RAD</b>	Risk, Adaptation, and Development tool
<b>USAID</b>	United States Agency for International Development
<b>VCA</b>	Vulnerability and Capacity Assessments

## EXECUTIVE SUMMARY

The Dominican Republic (DR) faces recurrent storms and extensive flooding; since the establishment of an office in the DR in 1987, Plan has witnessed the development setbacks resulting from the effects of flooding and hurricanes, with the Azua Province along the southern coast facing particular vulnerabilities. In response, Plan is working with communities in the province to develop collaborative capacity to identify, prepare for, and respond to disasters. The *Resiliencia: Strengthening Disaster Management Capacity of Vulnerable Communities in Azua Province, Dominican Republic* project was implemented in seven target communities through funding provided by the United States Agency for International Development's Office of U.S. Foreign Disaster Assistance from September 2009 to December 2011.

*Resiliencia* was designed to strengthen community preparedness and coping capacities through the integration of disaster risk reduction (DRR) activities into long-term development planning and programs, aiming to build local resilience. Community training included understanding risk, needs and damage assessments, First Aid, and shelter management (with a particular emphasis on child protection and education). The four principal project objectives were: (1) establishing Community Networks for Prevention, Mitigation, and Response (CNPMPRs) in the targeted communities; (2) preparing community members (including children) to serve as DRR trainers of trainers in the targeted communities, promoting increased awareness about DRR coping capacities and vulnerabilities associated with natural disasters; (3) developing and testing a Risk, Adaptation and Development (RAD) tool and related materials to facilitate communities integrating DRR into long-term community development planning; and (4) documenting and testing emergency preparedness and response plans in the targeted communities, coupled with a project-installed early warning system (EWS), for enhanced capacity to monitor local hazards, disseminate early warnings, and conduct evacuations.

In the two-year period of performance, the project successfully met all objectives and built the capacity of CNPMPRs to oversee the seven communities' planning for and responding to disasters. A cadre of 136 community 'multipliers' canvassed households in the communities to raise awareness of DRR and provide families with BCC materials (e.g., DRR wall calendars). Thirty-five (35) child and 15 teacher multipliers, trained in primary schools in the communities, trained fellow students on DRR, who were then encouraged to develop family emergency preparedness plans. The project was also able to work with local media and private businesses to train them on DRR and the importance of actively participating in early warning efforts and for the businesses to plan for and participate in community DRR and response activities.

Plan developed the RAD tool and following pilot-testing in two communities, trained the communities on utilizing the tool to assess vulnerabilities and facilitate the integration of risk reduction and response activities into long-term community development. Finally, following the completion of a hydrological study funded by Plan, the project installed an EWS and trained communities on its use. Throughout the life of the project, Plan worked in close collaboration with the Dominican Civil Defense; efforts to integrate the work of the CNPMPRs into official disaster response structures demonstrated successful as the CNPMPRs led hurricane response and community evacuations efforts during the past hurricane season.

The final knowledge, attitude, and practice (KAP) study, completed in December 2011, showed that activities under the project made considerable progress in improving community understanding of their vulnerabilities and introduced changes in general attitudes toward disasters. Community members in focus groups valued the community risk management work carried out in the communities and emphasized in particular the transfer of knowledge, changing attitudes to the threats by many people, and the practical experiences they had to confront during the negative atmospheric situations in 2010 and 2011. Long-term sustainability of the project is assured, thanks to all CNPMPRs receiving official recognition from the government as the community extension of the civil defense in times of disaster.

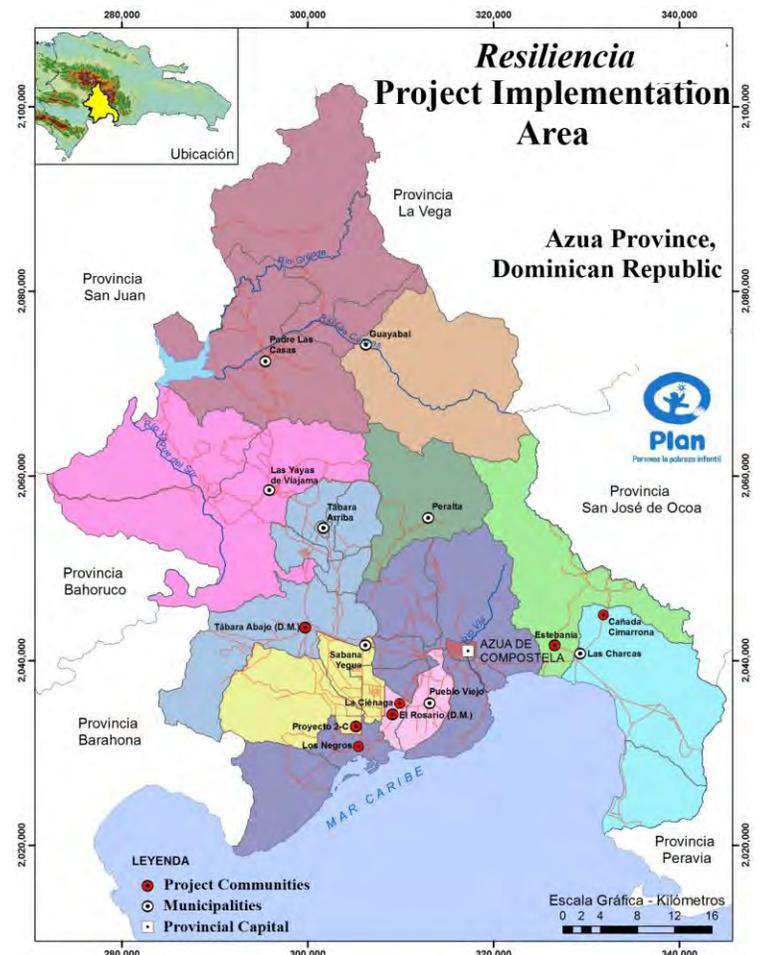
## I. PROJECT SUMMARY

The Dominican Republic (DR) faces recurrent storms and flooding, with the Azua Province along the southern coast facing particular vulnerabilities. In response, Plan worked with communities in the province to build self-sufficiency and to increase the communities' capacity to identify, prepare for, and respond to disasters. The *Resiliencia: Strengthening Disaster Management Capacity of Vulnerable Communities in Azua Province, Dominican Republic* project, funded by the United States Agency for International Development's Office of U.S. Foreign Disaster Assistance (USAID/OFDA), was designed to strengthen community preparedness and coping capacities through the integration of disaster risk reduction (DRR) activities into long-term development planning and programs.

The seven target communities, selected through vulnerability and capacity assessments (VCAs), participated in a package of community capacity-building activities designed to strengthen community structures and the population's ability to mitigate and respond to future disasters under the following project objectives within OFDA's *Natural and Technological Risks* sector:

1. Establishment of community emergency response teams, in seven targeted communities;
2. Community members (including children) act as DRR trainers of trainers in seven targeted communities, promoting increased awareness about DRR coping capacities, and vulnerabilities associated with natural disasters;
3. Development and testing of a Risk, Adaptation and Development (RAD) tool and related materials to strengthen DRR awareness and coping capacity in seven targeted communities; and
4. Emergency preparedness and response plans documented and tested in seven targeted communities for enhanced capacity to monitor local hazards, disseminate early warnings and conduct evacuations.

The principal activities under the above objectives included (1) establishing and training seven Community Networks for Prevention, Mitigation, and Response (CNPMPs) committees, responsible for leading the integration of DRR into long-term development plans in the target communities (total 136 members trained); (2) training and support provided to 152 recruited 'multipliers' who raised DRR awareness in the communities through household visits to 3040 families; (4) training children and teachers as 'multipliers' in their schools, as part of a School Safety Program; (5) development, pilot-testing, and roll-out of the RAD tool to support the integration of DRR into community planning processes; (6) installation of an early warning system (EWS) advised by an extensive hydrological study assessing geomorphic risks and trends in the region; and (7) school and community-wide drills to test response plans and prepare communities for disasters.



## II. SUMMARY OF RESULTS

In the two-year period of performance,<sup>1</sup> the project successfully strengthened the disaster management capacity of the targeted communities. The project has built the capacity of community-level committees (i.e., CNPMRs) to oversee the seven communities' planning for and responding to disasters. A cadre of 136 multipliers canvassed households in the communities over the life of the project to raise awareness of DRR and provide families with BCC materials including wall calendars that would serve as a constant reminder of the importance of emergency preparedness. Child and teacher multipliers trained in primary schools in the communities trained fellow students on DRR, who were then encouraged to develop family emergency preparedness plans. The project was also able to work with local media and private businesses to train them on DRR and the importance of actively participating in early warning efforts and for the businesses to plan for and participate in community DRR and response activities.

Plan developed a RAD tool and following pilot-testing in two communities, trained the communities on utilizing the tool to assess vulnerabilities and facilitate the integration of DRR activities into long-term community development. Finally, following the completion of a hydrological study funded separately by Plan, the project installed an EWS and trained communities on its use.

Plan worked in close collaboration with the Dominican Civil Defense and efforts to integrate the work of the CNPMRs into official disaster response structures was successful as the CNPMRs led hurricane response and community evacuations efforts during the past hurricane season. All CNPMRs have also received official recognition from the government as the community extension of the civil defense in times of disaster (*see Annex C. Civil Defense Letter of Appreciation*).

The final knowledge, attitudes, and practice (KAP) study, completed in December 2011, showed that activities under the project made considerable progress in improving community understanding of their vulnerabilities and introduced changes in general attitudes toward disasters. Community members in focus groups valued the community risk management work carried out in the communities and emphasized in particular the transfer of knowledge, changing attitudes to the threats by many people, and the practical experiences they had to confront during the negative atmospheric situations in 2010 and 2011. *See Annex A for the Final Evaluation and Annex B for the Final KAP Survey results.*

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<sup>1</sup> The project duration was originally designed to be 2 years, but was extended by three months via a no-cost extension to allow for the project to complete the installation of the EWS and conduct remaining community simulations.

### III. RESULTS BY OBJECTIVE

#### Sector: Natural and Technological Risks Sector

#### Sub-sector: Disaster Preparedness, Mitigation, and Management

**Objective 1:** Establishment of community emergency response teams (CNPMPR), in seven targeted communities.

Performance against indicators	Baseline	Target	Overall Target Achieved	Percent of Target Achieved
Number of beneficiaries by objective	0	140	136 <sup>2</sup>	97%
Number of people (i.e., CNPMPR members) trained in disaster preparedness, mitigation, and management recognized by the municipal authorities.	0	140	136	97%
Number and Percent of beneficiaries retaining disaster preparedness, mitigation, and management knowledge two months after training	0	98	105	100%
Percent of CNPMPR members that feel adequately prepared to cope with adverse effects from floods and hurricanes	0%	70%	74%	100%
Active involvement of municipal authorities in establishment of CNPMPRs	No	Yes	Yes	Yes
Number of CNPMPRs demonstrating dynamism, with regular meetings and activities initiated by them ongoing throughout the project	0	4	6	100%

**Under Objective 1**, the project worked with target communities to establish and strengthen communities' structure's knowledge, awareness, and capacity to mitigate and respond to future disasters. Due to these efforts, CNPMPRs in all seven communities continue to meet regularly, are utilizing proper institutional mechanisms, demonstrate strong team dynamics, and are functioning as community organizations with a total of 136 active members. While the total direct beneficiaries under this objective is slightly below the 140 planned (i.e., average of 20 members per CNPMPR/community), this was due to communities adjusting the membership based on the population size. For example, Cañada Cimarróna with a population of ~450 people is functioning sufficiently with a 13-member CNPMPR, while Tabara Abajo has elected to have 23 members.

CNPMPR members were drawn from varied segments of society, including local government, the police force, fire and rescue squads, medical teams, school administrations, transport associations, neighborhood groups, school parent/teacher associations, and other professional and community groups. The CNPMPRs bring together key community and institutional capacities to facilitate members sharing of DRR lessons and perspectives with their colleagues and fellow community members. The structure of CNPMPRs was determined through a process which harmonized strategies being used by NGOs participating in the National DRR Platform.<sup>3</sup> At the municipal level, CNPMPRs are mandated by law 147-02 on risk management, but currently, no law mandates CNPMPRs at the community-level.



**Figure 1.** CNPMPR members completing First Aid simulations.

<sup>2</sup> The 136 beneficiaries reached under Objective 1 are the same beneficiary population reached under all CNPMPR activities under Objective 1, 3, and 4. None of the beneficiaries reached by this project are internally displaced persons, as the objective of the project was to raise awareness and minimize the risks faced by communities prior to disasters.

<sup>3</sup> The NGOs participating include Plan, Intermon Oxfam, ACPP, and the Spanish Red Cross.

Over the two years of project implementation, the CNPMRs benefited from a series of capacity building trainings including: (1) an introduction to DRR; (2) early warning and evacuation; (3) shelter management (for community shelters and for families sheltering other people); (4) damage, needs, and capacity assessments; and (5) public health in emergencies. In partnership with the Red Cross and Dominican Civil Defense, Plan conducted simulated trainings in search and rescue, First Aid, shelter management, evacuation, the project-installed EWS, and conducting damage assessments and needs analysis.<sup>4</sup> The project was able to leverage a number of key documents Plan produced under a grant from the European Commission including the training materials used to build the capacity of CNPMRs (*see Annex D for copies of the CNPMR training materials*).

In addition to regular refresher sessions carried out by the project's Facilitators, the project was able to integrate the Civil Defense into the supervision structure who participated in evaluating and following up with each CNPMR to reinforce skills and knowledge. By the end of the project, all 136 committee members were recognized and praised by the corresponding municipal authorities as the Civil Defense representatives at the community level. Their incorporation documents (*see Annex E*) were signed by all members and approved by local authorities who transmitted them to the National Emergency Commission (CNE).<sup>5</sup>

### Challenges

No major challenges were faced under this objective. As previously reported, one community had an existing CNPMR established by an NGO under a previous project. As a result, in order to avoid duplication, the project worked with the other NGO and the CNMPR members to incorporate them into the one being established by Plan.

**Objective 2:** Community members (including children) act as DRR trainers of trainers in seven targeted communities, promoting increased awareness about DRR coping capacities, and vulnerabilities associated with natural disasters.

Performance against indicators	Baseline	Target	Overall Target Achieved	Percent Target Achieved
Number of beneficiaries by objective	0	140	154	100%
Number of people (i.e., multipliers) trained in disaster preparedness, mitigation, and management	0	140	152	100%
Number of community members (including children, youth and adults) facilitating awareness-raising for community members after receiving training	0	120	148	100%
Number of Plan staff aware of DRR methods along with floods and hurricanes in target communities	0	20	22	100%
Percent of children and youth aware of living in disaster prone areas that feel adequately prepared to cope with adverse effects from floods and hurricanes	0	70%	80%	100%
Percent of adults aware of living in disaster prone areas that feel adequately prepared to cope with adverse effects from floods and hurricanes	10%	60%	72%	100%
Number of journalists and radio broadcasters aware of risks and vulnerabilities and willing to further engage in raising awareness using the media to target a broader audience	0	50	48	96%

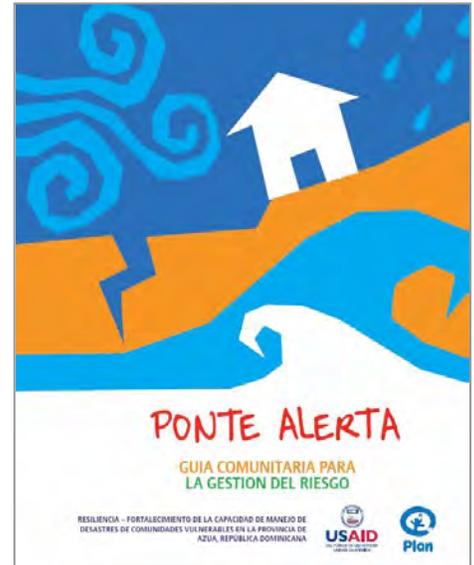
<sup>4</sup> Trainees' knowledge retention levels, post-training assessments were carried out to assess the retention of knowledge, skills, and confidence (*top-level results reported in the indicator table above*).

<sup>5</sup> The National Emergency Commission is the principal government authority in charge of emergency response in the DR, leading 27 agencies, including the Civil Defense which is responsible for disaster preparedness and response.

Active involvement of municipal authorities with CNPMRs, and TOT events	No	Yes	Yes	Yes
Number of private businesses exposed to DRR messages	0	4	5	100%

**Under Objective 2**, the project worked to build the capacity of communities to work in concert with CNPMRs to raise DRR awareness and take action to minimize their risks to the effects of disasters. Awareness-raising of disaster issues and appropriate behavior has been achieved through extensive campaigning activities tailored to the different audiences in the community.

To raise awareness in the communities, the project recruited and trained 154 community members to act as “multipliers,” delivering disaster prevention messages to families, in both Spanish and Haitian Creole. The multipliers participated in trainings covering elements of risk in theory and practice; DRR and the role of multipliers; identification of risks and hazards (i.e., risk mapping); and simulation of house-to-house visits. Each multiplier received a copy of the reference guide “*Community Guide for Disaster Risk Reduction*” developed under the project (Figure 1 pictured right and in Annex F). The guide served as an important reference for the multipliers, covering topics including the rights of children and child protection in disasters, child participation, communities’ potential vulnerabilities, community-led responses, and means to plan for and mitigate the impacts of future disasters. The multipliers were equipped with information, education, and communication (IEC) materials including training materials, brochures, and tools to support their household visits. The materials included a DRR calendar distributed to families with one important DRR message per month, which the multipliers were able to reference during subsequent visits.



**Figure 2.** Community Guide to Managing Risk.

Each multiplier was responsible for approximately 20 families within their neighborhood, regularly transferring IEC and behavior change communication (BCC) messages, disseminating IEC materials on DRR, and collecting relevant information within their assigned neighborhoods. A total of 3,040 families (~12,400 individuals) were sensitized through regular household visits on topics including the impacts of hurricanes, flooding, and earthquakes; emergency evacuation; the project-installed EWS; and information on disaster related health issues, such as water treatment and cholera prevention. The project reached an additional 1,358 through community meetings on various prevention related topics. In sum, the multipliers efforts reached approximately 72 percent of the adult population through regular household visits and/or group meetings. Despite multipliers finishing scheduled activities in early November, around 45 percent have volunteered to continue promoting DRR awareness and were accepted by the various CNPMRs and will be integrated as brigades in times of emergencies.

A major problem identified in the communities, the Haitian population often lives in the most hazard-exposed areas in project communities, but due to language barriers, undocumented status, and regular labor migration, they do not typically participate in community activities. Under the project, twelve Haitian youth from different communities received basic disaster prevention training in Haitian Creole as they were willing to serve as “multipliers” in their communities. Critical in conducting household BCC visits within the highly vulnerable population, eight are still active in the communities.

*Child multipliers and school safety program*

In local primary schools, Plan developed three information leaflets and twelve IEC posters covering topics including child protection in emergencies, child participation, evacuation, floods, flood risk reduction, family preparedness, school preparedness, and environmental hygiene (see Figure 3). The

posters and leaflets were also translated into Haitian Creole, and were distributed within the seven communities and their primary schools.

To raise awareness among children, the project worked with the Ministry of Education to develop and roll-out a “School Safety Program” in local primary schools in the seven communities. The project recruited 35 child multipliers from the upper levels (i.e., 5<sup>th</sup> and 6<sup>th</sup> grades) and trained them on the four modules of a School Safety Guide developed by Plan (*see Annex G for the full School Safety Guide*). A total of 418 students received 16 class hours’ worth of lessons related to DRR themes and the development of emergency response plan for their families. Project facilitators and selected multipliers participated in teaching the four lessons from the guide, with each lesson including homework the children had to take home and work on with their parents in a “family book.” Going through the steps of the homework with their parents, the children actually led their parents through the development of a family emergency plan. As a result, the families became more aware of DRR issues and were better prepared. Furthermore, the children themselves became leaders in their own homes, raising their families’ awareness and acting as agents of change by leading the development of the family emergency plan. A total of 418 family emergency plans were produced, one per child.



Figure 3. Child Protection in Disasters Poster

In support of the work in schools, the project also adapted the “Riskland” game developed by UNICEF, as an opportunity for children to learn about DRR. Adapted to the DR context, the project eliminated hazards that do not exist in the DR (e.g., volcanoes) and added concepts related to the DR, such as the positive impact of having women and the Haitian community actively involved in DRR efforts. Large versions of the game, measuring 18 feet by 24 feet, were produced and provided to six schools in the communities. They continue to be used frequently including during special community events, such as celebration of the International Disaster Prevention Week. UNICEF Haiti has subsequently requested a copy of the Haitian Creole version of the game (*see Annex H for the adapted Riskland game*).

#### Media integration

Complementing the work of the multipliers, the project integrated local media journalists to publicize the project, the importance of integrating DRR into development activities, and broadcasting early warning alerts. The project held two seminars attended by 48 journalists from local media markets to raise awareness on the importance of journalism and information management in disaster response scenarios, with particular focus on the importance of clear and prompt dissemination of early warnings. Following the workshops, the project regularly provided information on DRR for the journalists to transmit via their networks. Although no formal

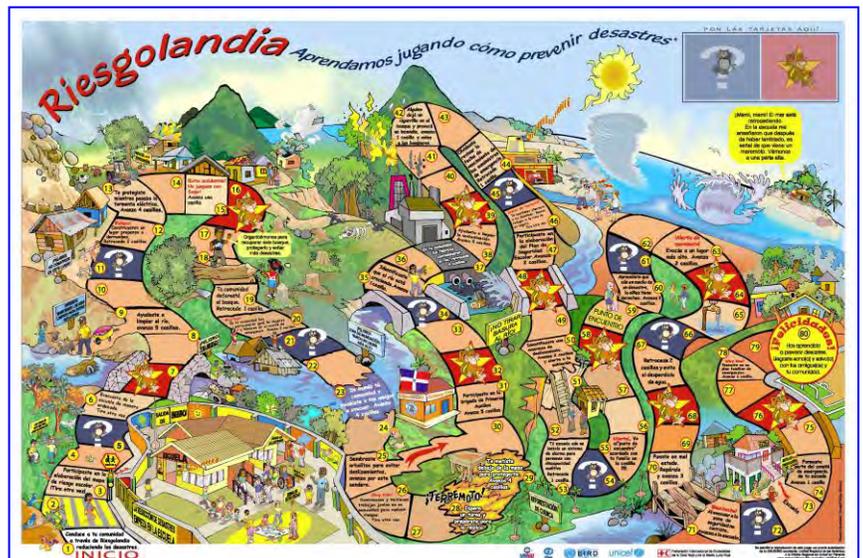


Figure 4. Riskland game (Spanish version).

evaluation has been carried out on the quantity or quality of DRR messages post-intervention, anecdotal evidence suggests that local Azua newspapers, television, and radio programs are transmitting more DRR-related information during their regular programs than seen before the project's outreach to local media (*see Annex I for an example of the project's media coverage*).

#### *Outreach to business*

Finally, the project sought to involve local businesses in DRR awareness raising activities. Following difficulties in engaging three of the four largest private businesses operating close to the seven target communities, Plan refocused its efforts to training workers of existing small businesses and cooperatives in the communities. This strategy had a greater potential for sustained action as many of the businesses were already exposed to the project, either through household visits by multipliers or were themselves participating in the project as multipliers or members of their local CNPMR. A total of 58 members from three fishing coops and two banana packing enterprises received training in basic DRR methods and have been linked with the community multipliers and the CNPMRs.

#### **Challenges**

As indicated above, Plan faced challenges in engaging local businesses. One of the businesses is seen as exploiting the local community, and thus, Plan's engagement with them would have jeopardized its ability to work with the community. Two of the other large businesses were not receptive to being involved in the DRR training as a conduit to reaching a significant portion of community members with an additional DRR training. As a result, Plan identified alternate businesses working in the communities which had close ties to the CNPMRs and were eager to participate in the DRR activities.

Secondly, the Haitian population lives in the most vulnerable areas in the selected communities; unfortunately, because of their language barrier and illegal status, most were not participating in community activities. Under the project, twelve Haitian youth from different communities received basic disaster prevention training in Haitian Creole to serve as "multipliers" in their own communities. Eight of these Haitian multipliers are still active, regularly providing DRR messages in Creole to their communities.

**Objective 3:** Development and testing of Risk, Adaptation and Development tool and related materials to strengthen DRR awareness and coping capacity in seven targeted communities.

<b>Performance against indicators</b>	<b>Baseline</b>	<b>Target</b>	<b>Overall Target Achieved</b>	<b>Percent Target Achieved</b>
<b>Number of beneficiaries by objective</b>	0	140	107	75%
<b>Number of people trained in use of Risk and Development tool for DRR</b>	0	140	107	75%
<b>Number and percent of beneficiaries retaining and applying Risk and Development tool methodologies for DRR two months after training</b>	0 (0%)	98 (70%)	107	100%
<b>Number of hazard risk reduction plans, policies, or curricula developed</b>	0	7	6	86%
<b>Development and sharing of Risk and Development tool, other DRR training materials and tools</b>	No	Yes	Yes	100%
<b>Active involvement of municipal authorities in development of Risk and Development tool</b>	No	Yes	Yes	100%

**Under Objective 3**, the project sought to build local resilience to disasters through an approach that empowers communities to plan for and be equipped to respond to disasters, while complementing the communities' and Plan's ongoing community development work. Plan worked with CNPMRs to develop a RAD tool, designed to help communities incorporate an analysis of the shifting nature of hazard, capacity, and vulnerability into their wider development processes.

Designed to help CNPMRs integrate DRR into community planning processes the RAD tool includes the following modules: 1) history of disasters in their region; 2) identification of vulnerable sites in the community; 3) conducting VCAs; and 4) global climate change and the future of disasters. Following development, the tool was to be integrated into CNPMRs' current and future development plans, creating an explicit link between community DRR and development planning and efforts. The project pilot-tested the tool with the CNPMRs from the communities of Estebania and La Cienaga, prior to training CNPMRs from six of the communities on the use and roll-out of the tool.

A total of 107 members of the CNPMRs attended the training of trainers (ToTs) training on the use of the tool. Utilizing the ToT methodology, trainees committed to training the remaining members of their CNPMRs. While trainings were believed to reach the remaining beneficiaries targeted under this objective, due to a security incident, project staff were unable to attend the cascading trainings, and as a result, the project is unable to confirm the final beneficiaries reached. However, six of the communities are utilizing the RAD tool when implementing their community development plans, accounting for their vulnerabilities to disasters in current and future development initiatives.

*See Annex J for the Final RAD tool.*

### Challenges

The project faced two principal challenges in the development and deployment of the RAD tool. The development of the RAD tool became protracted as the project revised it so that the concepts and its use were easily understandable for all intended users. Secondly, the community of Cañada Cimarrona was not conducting normal community development planning due to a quickly shrinking population. As a result, it was not feasible for the project to integrate DRR into the long-term development planning as envisioned. However, the community did participate in other DRR activities including the installation of the EWS discussed below under Objective 4.

**Objective 4:** Emergency preparedness and response plans documented and tested in seven targeted communities for enhanced capacity to monitor local hazards, disseminate early warnings, and conduct evacuations.

Performance against indicators	Baseline	Target	Overall Target Achieved	Percent Target Achieved
Number of beneficiaries by objective	0	80	85	100%
Number of people trained in development and monitoring of community emergency plans	0	80	85	100%
Number of CNPMRs trained to collaborate with community members in design and development of emergency plans	0	7	7	100%
Emergency simulation exercise carried out and analyzed by CNPMRs, community members and Red Cross	No	Yes	Yes	Yes
Number and percentage of beneficiaries retaining and applying methods used to develop and monitor community emergency plans two months after initial simulation exercise	0	49 (70%)	60 (75%)	100%
Number of target communities successfully drawing up an emergency response plan and integrating it into their community development activities	0	7	7	100%
Sharing of community emergency plans with local authorities	No	Yes	Yes	Yes
Number of simulations carried out by the end of the project	0	3	4	100%
Active involvement of municipal authorities in simulation exercises, development and regular updating of community emergency plans	No	Yes	Yes	Yes
Number of rain and/or river gauges installed in each community	0	1	4	100%
Number of communities in which VHF radios and necessary energy systems are installed	0	3	7	100%
A written protocol for the use of VHF communication systems in each community is established with the Civil Defense	No	Yes	Yes	Yes

Performance against indicators

	Baseline	Target	Overall Target Achieved	Percent Target Achieved
Where communities share a VHF system, a written protocol is established facilitating access to the VHF system for key representative of the communities for whom it is intended	No	Yes	Yes	Yes

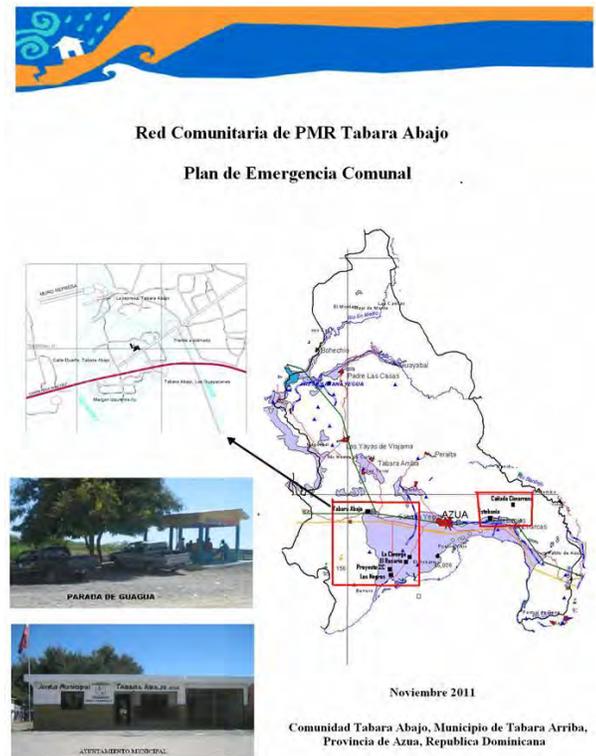
**Under Objective 4**, the project worked with the seven communities to enhance their capacities related to emergency evacuations, including planning, monitoring, disseminating early warnings, and conducting evacuation operations.

The project conducted a hydrological survey to assist in the design of an appropriate early warning system for the communities. Developed by an experienced team of hydrologists with close links to the government hydrological service (i.e., INDRHI – government agency responsible for monitoring flood early warning in the country), the study provided a detailed report on the geomorphologic characteristics of the soils, history of disasters in the area, evaluation of the basins with hydrological and meteorological information, and developed risk maps of the zones detailing the alert system according to official norms. The study was then used to advise the installation of the early warning system around the project communities. In addition, as early warning is typically a government responsibility, the participation of hydrologists with connections to the government furthered the links between the community EWS and INDRHI.

As the hydrological survey included a significant amount of mapping, the activity was combined with the development of community risk maps. Communities initially mapped out their own risks, identifying areas such as flood shelters, evacuation routes and other important installations such as schools and health centers. These were then compared with the topographic analyses and hydrological maps developed under the hydrological survey, and lead to the final community maps produced using geographic information systems. The maps were then installed in public spaces in the communities (see Annex K for the seven community risk maps).

Based on the community risk maps and hydrological survey, the project installed the EWS under the guidance of the Civil Defense’s Communications Director and Coordinator for Azua Province. The EWS is comprised of four rain gauges, eleven river gauges, VHF radios, repeater antennas, and supporting equipment. The CNPMRs in the communities were then trained on their use and in monitoring local flood hazards (discussed further above under Objective 1).

Due to the strong connections developed between the CNPMRs and the Civil Defense, the EWS communication systems, the CNPMRs have become the community extension of the Civil Defense, opening direct connection between them in times of disasters, contributing further to the sustainability of the CNPMRs in each community. Two community simulations were carried out, and even though more community-wide drills were not able to be completed, the implementation of two school exercises as well as the real exposure during the last tropical storm Tomas, demonstrated the capacity of CNPMRs to respond during disasters. The preparation of community preparedness plans will further organize



**Figure 5.** Community Disaster Plan developed by CNPMR from Tabara Abajo.

community actions, necessary for orderly interventions, identifying roles and responsibilities, and implementing coordinated action to reduce the loss of life during natural disasters. Community emergency plans have been developed, tested, and approved by the Civil Defense and local municipal authorities (*see Annex L for an example of a community disaster plan*). By transferring these groups under the Civil Defense umbrella, the continuation of these entities has assured a level of sustainability in the communities.

The completed community disaster plans include –

- General community information – location of housing, demographics, hydrological information (i.e., predicting flooding);
- Description of vulnerabilities – main threats to lives and livelihoods, and identifies the risk level for all identified risks;
- Community’s CNPMR – membership, their role and responsibilities, and coordination issues;
- Local resources and capacities – human capital, financial, and physical resources available; local and national capacity and support; and coordination with other local authorities;
- Evacuation routes – identified routes, community maps, preparing members of the CNPMR, enabling the early warning system, establishment of the evacuation route, and identification of priorities;
- Preparation and scheduling of drills - training drill brigades and preparing for regular drills;
- Action Plan - Activation process and operation during each cycle;
- Contingency Plans – contingency planning for floods, hurricanes, and earthquakes.

### Challenges

The project faced some difficulties identifying a qualified consultant to conduct the hydrological study within the budget constraints. Plan was able to identify a Dominican hydrology team with significant experience in the installation of EWS in river basins. However, one member of the team had an open consultancy at the same time with INDRHI. In order to avoid any conflict with US Government regulations related to the employment of national government staff, Plan elected to cover the cost of the consultancy with other financing.

The consultant’s contacts within INDRHI facilitated the ownership of the EWS by the state, promoting increased sustainability by linking the EWS through the Civil Defense radios to INDRHI. Monitoring data was also sent to INDRHI, thereby facilitating a swift response to an impending flood from the central government structures. A further example is INDRHI’s dedication of its own monitors to some of the more remote weather stations.

## IV. MONITORING AND EVALUATION METHODOLOGY

During the life of the project, a variety of monitoring and evaluation methodologies were employed to track and assess the progress of the project in achieving its objectives. Methods included –

- KAP surveys were conducted at baseline and end-line and advised the development of activities and the project’s meeting of key performance indicators listed in the tables above;
- VCAs were conducted to assess the initial capacity of community CNPMRs;
- Pre/post tests were conducted following the CNPMR capacity building trainings to assess knowledge and skill retention;
- A project management database was developed by the project at baseline and was used to track/monitor the project’s performance delivering key outputs; and
- A final evaluation was conducted by an independent evaluator (*see Annex A*).

## V. COORDINATION

During the course of the project, Plan actively participated in the Platform for Cooperation in Disaster Risk Management, a group of NGOs, donors, and government institutions involved in DRR in the Dominican Republic. At the local level, the project team coordinated extensively with the Regional Civil Defense, Red Cross, and Catholic Relief Services. The project, and CNPMRs by extension, has built a solid working relationship with the Regional Civil Defense, who has been providing essential support to facilitators, CNPMRs, the project management during project implementation. For example, the Civil Defense's support of project objectives facilitated the approval of municipal authorities, since this organization represents the technical and advisory hand of the municipalities. The Civil Defense also cooperated in the evaluation of the institutional development of the CNPMRs and provided approval for the Community Emergency Plans. All community emergency plans have been approved and signed by the Civil Defense Director. Coordination with Ministry of Education permitted the project to implement the School Safety Program and the development of two school disaster plans not originally envisaged by the project. The Dominican Red Cross trained community members and Plan staff in First Aid techniques, whereas National Civil Defense provided Search and Rescue training to CNPMRs. Coordination with Plan's other program activities has contributed in the increased focus of the project activities to protect children during disasters.

## VI. SUMMARY OF COST-EFFECTIVENESS

A number of costs efficiencies have resulted due to Plan implementing three DRR grants simultaneously in the country. For example, costs associated with the graphic design and layout of materials common to all three projects were reduced due to economies of scale being realized. Actual costs for other project supplies have also proven lower than budgeted (e.g. motorbikes, computers, etc.).

Budget vs. Actuals						
Budget Category	Approved Budget		Actuals		Variance	
	Grant	Cost-share	Grant	Cost-share	Grant	Cost-share
Personnel	\$ 106,528	\$ 7,800	\$ 146,512	\$ 7,059	\$ (39,984)	\$ 741
Fringe Benefits	\$ 29,092	\$ 2,130	\$ 29,498	\$ 122	\$ (406)	\$ 2,008
Travel	\$ 6,240	\$ -	\$ 4,187	\$ -	\$ 2,053	\$ -
Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Supplies	\$ 130,401	\$ -	\$ 92,063	\$ -	\$ 38,338	\$ -
Contractual	\$ 50,400	\$ -	\$ 59,675	\$ 6,609	\$ (9,275)	\$ (6,609)
Other (incl B & M)	\$ 31,375	\$ 8,583	\$ 22,102	\$ 5,326	\$ 9,273	\$ (3,257)
<b>Total Direct</b>	<b>\$ 354,036</b>	<b>\$ 18,513</b>	<b>\$ 354,036</b>	<b>\$ 19,116</b>	<b>\$ 0</b>	<b>\$ (603)</b>
Indirect Costs	\$ 71,657	\$ 3,747	\$ 71,657	\$ 3,982	\$ (0)	\$ (235)
<b>TOTALS</b>	<b>\$ 425,693</b>	<b>\$ 22,260</b>	<b>\$ 425,693</b>	<b>\$ 23,099</b>	<b>\$ 0</b>	<b>\$ (7,955)</b>

Some costs proved higher than expected for a variety of unforeseen reasons. Principally, salaries were overspent due to the project being unsuccessful in recruiting a Project Manager locally, as the position had been originally budgeted. As a result of the skills and experience needed being unavailable locally, the project recruited a Project Manager from abroad whose monthly salary exceeded budgeted amounts. In addition, consultancy bids received by the project exceeded the amount originally envisioned. The hydrological study was fully financed with separate funding, and a better value was sought in the procurement of the rain gauges than originally planned.

Significant cost-savings were realized in supplies as the project was able to leverage materials produced by Plan with funding from other bi-lateral donors, allowing Plan to minimize design and production costs for training guides, IEC materials, etc. Finally, Plan fully met its cost-share obligation under the grant.

## VII. CONCLUSION AND RECOMMENDATIONS

In just over two years the project was able to strengthen the capacity of communities to plan for and respond to natural disasters. The project's focus on building the capacity of local community groups to be able to lead their communities' response to an emergency, integrate DRR into long-term development planning, and connect with central government structures for sustained commitment and support, was critical to the project's success and the sustainability of achievements.

The focus of the project to work closely with the Civil Defense and integrate municipal authorities in the development of community plans was one of the major successes. The consistent engagement with Civil Defense has ultimately led to the significant degree of ownership over the CNPMRs and has facilitated project interactions with other government actors. Validating this success, all CNPMRs received Civil Defense and Municipality approved incorporation documents, officially designating them as the government's extension in the communities. Plan also received a letter of appreciation from the Civil Defense for its commitment to collaboration.

## VIII. LESSONS LEARNED

*Resiliencia* project communities were selected based on the VCAs, but led to selecting communities that were spread out in various municipalities, which significantly increased the level of effort required per community and made it difficult for Plan to guarantee each CNPMR the support of its corresponding municipal government. In order to have a major impact in the municipalities, Plan recommends that the coverage of future efforts ensure the majority of communities be concentrated within a smaller area, such as one or two municipalities or a single river basin. Prioritizing the saturation of municipalities would help increase sustainability. Coordination and cooperation between communities with similar attitudes will also create higher expectations and competitiveness among them in the development of community initiatives.

## SUCCESS STORIES

### *School Safety Program*

One objective under the *Resiliencia* project was to establish a cadre of 35 children as multipliers of DRR activities in the communities. To train these child multipliers, the project had to change its strategy since a significant amount of mobilization was required, parental authorization from each child, and a high adult/child assistance ratio. Project management took advantage of a program developed by Plan under the DIPECHO DRR project to increase the number of multipliers, while still ensuring child protection and safety.

An outline was presented to the Ministry of Education, where it received immediate approval, indicating that a similar type of program was to be elaborated under the school's curriculum in the future. This program was presented and discussed with Basic Education School directors in the seven communities, receiving their enthusiastic and full support. Project staff, multipliers and 15 teachers were brought on board and trained. Besides the teacher's manual and the student book, divided in 4 modules, the developed instructive materials also included a family book, where students could socialize at home, the contents and training received during classes.

Students from 5<sup>th</sup> to 7<sup>th</sup> grades and teachers learned basics of DRR which allowed them to understand their vulnerabilities and be prepared to cope with future emergencies in their communities. Many students were able to describe their knowledge on what to do in case of disasters. Through doing their homework on the four lessons at home in the "family book", children were actually able to lead the development of 418 family emergency plans through their own homework, becoming both DRR focal points and agents of change in their own homes. A total of 418 students received their certificates as graduates under the program and *in facto* converting into new children multipliers in their community, spreading their acquired knowledge to others. The fact that all students had to practice at home with the family book, at least 418 family disaster plans were developed and practiced in the communities.

### *School Emergency Plans*

Two local Basic Education (primary) schools initiated the process of developing their emergency plans. Enthusiasm shown by school directors, staff and students demonstrated the interest, which meant that in about five months all aspects of the plan were developed and a school fire and flood drill was carried out, under the guidance of Civil Defense staff. Besides the school staff and students, selected members of the school parents' association, two members of the Community CMPMR and local authorities integrated into the School Emergency Committee. More than 355 children, from 6 years upwards, participated in one of the two drills. Evacuations were done in an orderly and rapid manner. These children and some parents learned how to react during a fire and after an earthquake. Drills were evaluated by the Civil Defense and local firemen.

## ANNEXES

### Appended as separate files

- Annex A.** Final Evaluation Report
- Annex B.** Final KAP Survey
- Annex D.** CNPMR Training Guides
- Annex E.** CNPMR Incorporation Documents
- Annex F.** Community Guide for Mobilizers
- Annex G.** School Safety Guide
- Annex H.** Riskland Game (Spanish and Haitian Creole versions)
- Annex J.** Risk, Adaptation, and Development Tool
- Annex K.** Community Risk Maps
- Annex L.** Community Disaster Plan (Estebania)

**Annex C.** Civil Defense Letter of Appreciation related to the work of the CNPMRs in the communities.



## Presidencia de la República Dominicana *Defensa Civil*

Azua de Compostela, República Dominicana,  
10 de septiembre de 2011.

Señora:  
**Licda. Carmen Monción,**  
**Gerente Plan Internacional (Azua)**

Muy respetuosamente, me dirijo a usted con la finalidad de expresarle que la Defensa Civil, comité provincial Azua se siente agradecida y valora el trabajo realizado por Plan Internacional en las comunidades donde se formaron **Redes Comunitarias de prevención, mitigación y respuesta**; así como la instalación de radios de comunicación y la capacitación a cada uno de los voluntarios que la integran.

Es importante destacar que esas redes comunitarias han desarrollado un excelente trabajo de prevención y respuesta, durante el paso de la Tormenta Emily y el Huracán Irene el cual ha sido valorado como positivo por los comunitarios donde funcionan dichas redes.

Finalmente, esperamos que dicho proyecto pueda extenderse a otras comunidades vulnerables de la Provincia de Azua para el beneficio de los comunitarios.

Atentamente,

**Licdo. Sócrates Urraca Espinosa,**  
**Director Región del Valle, Defensa Civil,**



**El Servirle al Pueblo es Nuestro Deber.**

Annex I. Resiliencia media coverage example.

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NACIONALES REGIONALES

PORTADA

# ENCANTO CON EL PUEBLO.COM

Periodico Azuano administrado por el periodista Jose De La Rosa

Comunicando Para Construir  
No Para Destruir

Lunes 09 de abril 2012, actualizado a las 06:50am

### Plan internacional azua celebra semana de la reducción de desastres con comunidades y autoridades.

ENCANTO CON EL PUEBLO AZUA.COM No comments

Por: jose dela rosa 11/10/11

Plan internacional institución sin fines de lucro al servicio de las necesidades de los pueblos continúa su gran labor de servicio en pro del desarrollo de las pobres comunidades de la republica dominicana en esta ocasión plan internacional azua lleva acabo aquí en azua la celebración de la semana de la reducción de desastres.

El evento se inició con la firma de la carta de la niñez para reducción de riesgos antes desastres que tiene como objetivo levantar conciencia para abordar las necesidades de

la reducción de riesgos de desastres centrada en la niñez y mayor compromisos de los gobiernos, donantes, agencias, para tomar las medidas apropiadas para proteger la niñez y utilizar su energía y conocimiento para involucrarse con la reducción de riegos de desastres. Estas declaraciones fueron emitida por las señoras Carmen mansión gerente de plan azua, y ara Martínez gerente de apoyo al programa de planificación quienes coincidieron en explicar además los objetivos principales de dicha celebración las cuales según ellas son de promover una cultura mundial de reducción de los desastres naturales, qué comprenda prevenirlos, mitigarlos y estar preparados y preparadas para ellos.

En la misma los representantes de las juntas de distrito municipales de las comunidades participante como: julio a lemo de tabara abajo, yoel Méndez del rosario, así como los representantes de; los negros, proyecto 2c, la ciénaga, estebania, cañada cimarrona. También las comunidades estuvieron repre3sentada por los directores de centro educativo.

En el acto también hablo el presidente de la defensa civil de la región del valles azua Sócrates urraca quien dijo que las conformación de red comunitaria que lleva acabo en estos momento plan internacional alivianan las cargas a los cuerpos de socoros ya que en estas comunidades esta organizaciones servirán de vehiculo contra restante del peligro que en momento de desastres representen cualquiera de esa comunidades de la provincia.

Fanny Núñez facilitadora del proyecto también explico que los representante de estas comunidades donde plan está llevando a cabo dicho proyecto de gestión de riesgos; niños niñas y adolescentes realizaran simulacros escolares, juegos de riegoslandia, teatro infantil, concienciones ilustradas. Al tiempo que serán entregado los certificados alas que completaron el ciclo de capacitaciones y

En el acto estuvieron presente el Tte. coronel peña del cuerpo de bomberos de azua Manuel rímel encargado de rescate de la defensa civil. A si como profesores y personalidades de la provincia.

publicada por encanto con el pueblo azua.com

**AGUA BUENA**

**FARMACIA CRISTINA**

La Farmacia de los pobres  
Habierta las 24 horas

**NACIONALES**

### Se incrementan a 13 los muertos durante la Semana Santa

UNAS 56 PERSONAS HAN RESULTADO INTOXICADAS CON ALCOHOL Y 4 CON ALIMENTOS EI Centro de

Operaciones de Emergencias (COE), dio a conocer hoy el segundo boletín por motivo del asueto de la Semana Santa, en el cual informa que hasta el momento han fallecido 13 personas, y unas 377 han resultado afectadas. LEER MAS

**REGIONALES**

### Barahona y Pedernales. Son dos perfectas opciones para una Semana Santa diferente

por: RAYSA CORPORÁN

La belleza

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