



# Getting Connected:

**An Assessment of Information Needs  
in Puerto Rico after Hurricane Maria**

November 2017



**Internews**  
Local voices. Global change.

## ABOUT THE ASSESSMENT

From October 16 to October 31, 2017, an Internews assessment team carried out an information ecosystem assessment with residents in Puerto Rico to gauge the current information needs and access of affected communities, and to learn about the current situation of the Communication with Communities (CwC) response across the country. The assessment included interviews with Puerto Rican residents, representatives from local volunteer groups, non-profit organizations, local and regional media, government officials, technologists and national and international humanitarian organizations in four different locations in Puerto Rico; namely, San Juan, Corozal, Mayagüez and Toa Alta. The CDAC Network Common Needs Assessment Tools were used as reference to guide key informant interviews.

All photos taken by Justin Auciello.

### OUR ASSESSMENT TEAM

[Justin Auciello](#) is an urban planner, journalist and local media founder. Auciello is known for his two-way, “news you can use,” [Jersey Shore Hurricane News](#) project based in his native New Jersey, and has lived off and on in Puerto Rico for the past decade. He also reports for WHYY, Philadelphia’s NPR affiliate.

[Jesse Hardman](#) is an L.A. based reporter and journalism developer. Hardman manages [The Listening Post Collective](#) at Internews, a network of community engagement media projects around the United States. He’s worked with Internews abroad in Sri Lanka, South America and Pakistan; and domestically in New Orleans, Omaha, New Jersey, and other locations. Hardman also reports for NPR.

[Carolyn Powers](#) is a program officer at Internews. Powers helps to manage Internews’ US media and information programs including [The Listening Post Collective](#). Prior to working on US programs, Powers coordinated Internews’ global women’s initiative.

### ABOUT INTERNEWS

Internews ([www.internews.org](http://www.internews.org)) is an international non-profit organization whose mission is to empower local media worldwide to give people the news and information they need, the ability to connect and the means to make their voices heard. For 35 years and in more than 100 countries, Internews has worked with local partners to build hundreds of sustainable organizations, strengthened the capacity of thousands of media professionals, human rights activists, and information entrepreneurs, and reached millions of people with quality, local information, improving lives and building lasting change.

### COMMUNICATION IS AID

Communicating with Communities (CwC) is an emerging field of humanitarian response that helps to meet the information and communications needs of people affected by crisis. CwC is based on the principle that information and communications are critical forms of aid in their own right, without which disaster survivors cannot access services or make the best decisions for themselves and their communities.

Since the 2004 tsunami in Indonesia, Internews has been building partnerships and working closely with humanitarian organizations and government agencies at all stages during emergency responses. Establishing critical links between affected populations, local media, and humanitarian agencies, Internews helps to provide life-

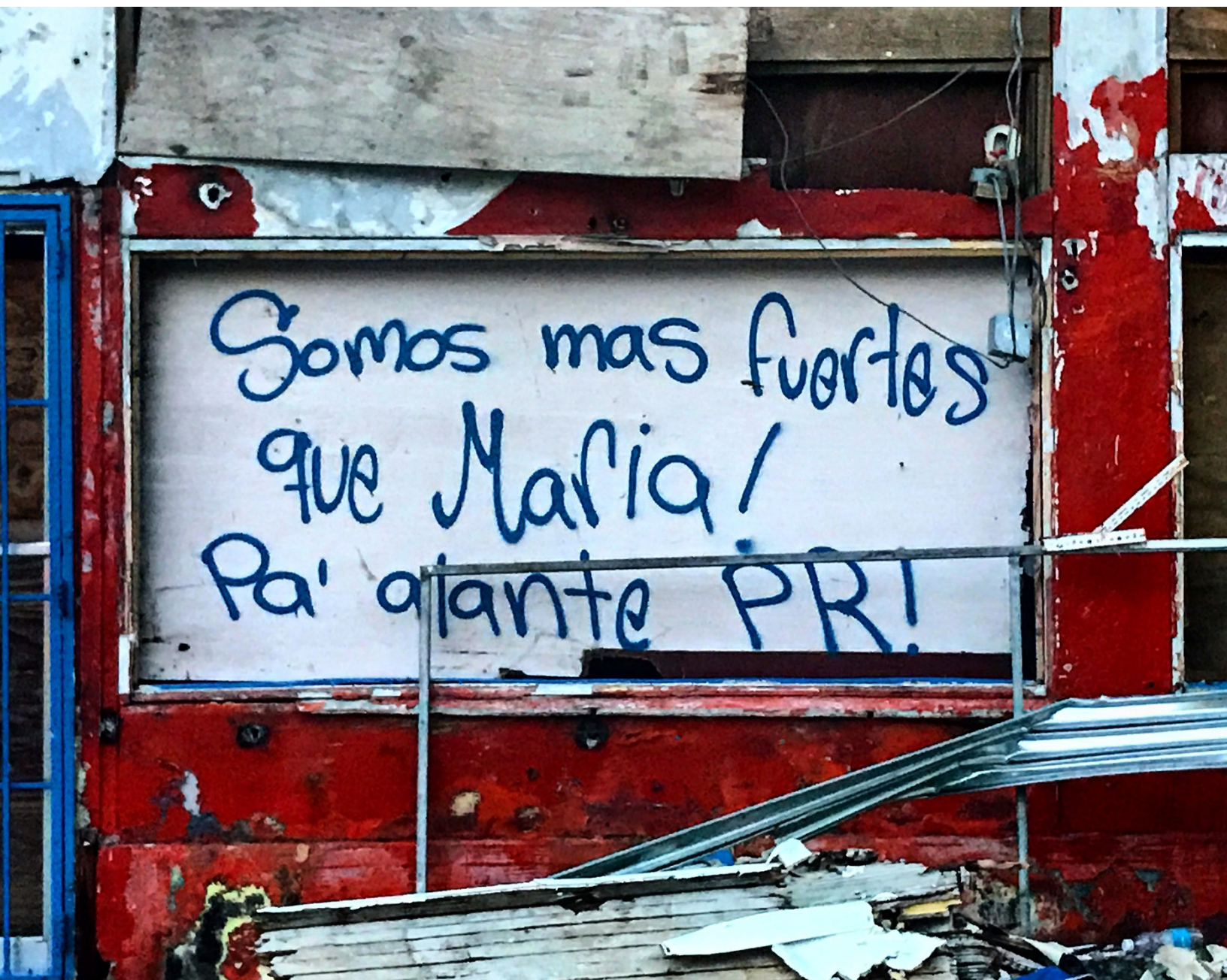


saving information and set up effective two-way communication platforms between local communities and aid providers.

Internews is pre-qualified to UK DFID's Rapid Response Facility (RRF) and it is also the co-founder of the Communicating with Disaster Affected Communities (CDAC) Network ([www.cdacnetwork.org](http://www.cdacnetwork.org)) in London. The CDAC Network is a cross-sector initiative that recognizes information and two-way communication as key humanitarian deliverables. The

CDAC Haiti initiative led by Internews in the immediate aftermath of the January 2010 earthquake on behalf of the CDAC Network as mandated by OCHA "achieved one of the largest cross-agency commitments to communications ever seen in an emergency, playing a particularly important leadership role in coordinating communications around the cholera epidemic. It succeeded in providing critical services, coordination, strategic leadership, capacity building and advocacy for better communication with affected people."

"We're stronger than Maria! Onward, PR!"







## TABLE OF CONTENTS

<b>Executive Summary</b>	<b>5</b>
<b>Recommendations Based on Key Findings</b>	<b>8</b>
<b>Background</b>	<b>10</b>
<b>Media Landscape Pre- and Post-Maria</b>	<b>13</b>
<b>Information Ecosystem Findings</b>	<b>16</b>
• Main sources of information	16
• Information needs and gaps	21
• Trust	22
• Local Voices	23
<b>Methodology</b>	<b>25</b>
<b>Appendix: Interview guide</b>	<b>26</b>



## EXECUTIVE SUMMARY

During the early morning hours of September 20, 2017, Hurricane Maria slammed into southeastern Puerto Rico as a fierce Category 4 cyclone. Catastrophic damage has since been reported in all 78 municipalities across the island. Nearly the entire island lost power. Five weeks later, only around a quarter of the island's more than three million residents have had their electricity restored. This reality [impacts everything](#): people's ability to run a refrigerator, to return to work or school, to access health care – and critically, to get the information they need to access support and make decisions about their recovery.

For the past month, the five million plus Puerto Ricans living in the mainland United States have had 24-hour news coverage of the post-disaster world in which their friends and relatives have been living. Major news outlets like [CNN](#), the [Washington Post](#), and [NPR](#) have covered and analyzed the aftermath of Hurricane Maria for a mainland audience. But residents living on the island have largely been unable to access that information, because internet and power have been down. Despite the extensive coverage, they have struggled to get news that responds to their ongoing hyper-local information needs.

In an effort to understand these needs, Internews conducted an information ecosystem assessment among communities in Puerto Rico impacted by Hurricane Maria.

We spent a week talking to residents, government officials, local media, humanitarian actors, and local businesses,

both in San Juan and in more rural parts of Puerto Rico. Our aim was to better understand the physical, institutional, and social infrastructure of the local media. We also focused on communities' recovery-related questions; the most effective means of sharing information; what questions communities have related to recovery; what the most effective forms of sharing information with communities are; which local media outlets are most successful in reaching communities with relevant recovery information; and how government officials and NGOs are communicating with affected populations.

*“Right now people need information on how to survive Maria in their daily lives. People want to go back to their routines, and they need the media to help them with that.”*

– Reporter, Ada Monzon

Some highlights of what we discovered about local media include:

- **Economic realities are hitting the media hard:**
  - A major print outlet, [GFR Media](#), [laid off 59](#) journalists, graphic artists and various other employees of its newspapers, El Nuevo Día and Primera Hora.
  - Newspapers have reported significant decreases in advertising.
  - Reports show that losses in the radio industry alone will [exceed \\$20 million](#).



- **Many media outlets have closed or have suspended broadcasting:**

- Sistema, a major local TV station, [reported that it was closing](#), and cited Maria as the reason.
- 23 AM and 22 FM radio stations are confirmed still out of service as of Oct. 31.
- 2 TV stations are suspected to be out of service and 67 TV stations have been issued Special Temporary Authority to be off air.
- Accessibility to TV is low across the island due to lack of electricity.
- Many radio stations are relying on generators to broadcast.

- **Content needs are critical:**

- Local news stations are relying heavily on local officials to share information, and don't all have the resources to investigate more deeply on their own.
- All kinds of organic endeavors are springing up to share information about recovery efforts – posters, runners, fliers, speakers. But we've found no initiatives that focus on content, ensuring it is accurate and that it doesn't fuel rumors.
- The US Army was [printing and distributing relief pamphlets](#), but there's a need for a similar offline effort related to long-term recovery issues like FEMA deadlines, building codes, workforce opportunities and mental health advice.

- **Connectivity is improving:**

- [Tech companies](#), [nonprofits](#), and individuals have been working to try and get people consistent communication capabilities so they can connect.
- As internet access returns to a majority of citizens, a website and social media campaign dedicated to recovery news and information is needed.

- **Communities must be involved:**

- Dependable, trusted, locally relevant information and community feedback channels are needed to empower communities to recover and thrive.

- **Long-term investment in media and community information channels will be key to a sustainable rebuilding process.**

We learned that, while life inside San Juan city limits is nowhere near back to normal, people are beginning to have consistent access to information tools like internet, cellphones, daily newspapers and radio. In the rural areas, however, people are still in the dark – both literally and figuratively. They rely on word of mouth from friends and neighbors, and the few radio stations that were able to get back on air after the storm.

Highlights about local information needs include:

- Basic information needs are not being met, and there is a lack of coordination of information.
- People in San Juan want updates on the power grid - those without generators are still mostly without electricity of any kind.



- People want to know when more businesses will begin opening up, both for goods and services, but also because they need to work and start earning a paycheck again.
- In rural areas, people are in search of basic information about clean water, tarps for their roofs, updates on damaged roads, and accurate details on food distributions.
- Humanitarian organizations that are reaching some of the more remote areas told us that people are also desperate for information related to health needs and are vulnerable to rumors about recovery efforts.

Hurricane Maria has exposed and exacerbated many of the existing issues that plague Puerto Rico: an urban-rural divide; aging infrastructure; and a reliance on the mainland United States, and the [enormous Puerto Rican diaspora there](#), for financial assistance. While it is clear to us that a myriad of recovery activities are happening all over the island, they are for the most part not coordinated, making it difficult for communities to know what and who to count on.

In this context, a sustainable recovery will rely on access to timely, useful information and people's ability to advocate for their families and communities. Many Puerto Ricans can't get the information they need related to recovery issues, and their voices are not being heard. People are isolated, and don't have any way to relay what they're seeing and experiencing in their communities. As power comes back and connectivity improves, the most significant issue will continue to be whether information is actually available, and if it is the information that people need. This issue won't go away as connectivity comes back. It won't go away next month or next year. It will increase with time, as people begin to grapple with the long-term impact of the hurricane – as they seek information on how to rebuild, how to access FEMA assistance and how to better prepare for next time.

*A severely damaged house in Corozal, PR*





## RECOMMENDATIONS BASED ON KEY FINDINGS

Based on our field research over the past few weeks – detailed in the following pages of this report – it's clear that, like clean water, electricity, housing, and other essential resources, information is desperately needed as part of the recovery efforts in Puerto Rico. Even more, a two-way communication strategy is needed that will enable affected communities to both get 'news they can use' related to their recovery, and also share the things they are seeing and experiencing as they piece their neighborhoods back together. People have specific information needs depending on where in Puerto Rico they are located, and the channels for reaching them also vary. The post-Maria realities across the island will continue to require a variety of news sharing approaches to ensure recovery information gets to residents in the months ahead. The following are recommendations to address these issues.

- Create a central information hub for recovery information:** Internews recommends the establishment of an independent information hub for the provision of information regarding recovery information. This should be achieved by working with all relevant stakeholders (federal and local governments, INGOs, local NGOs, local media, and affected communities) to maintain an up-to-date resource for affected communities. Internews also strongly recommends hiring Puerto Ricans in different municipalities around the island to participate in the information hub, contributing to timely information updates and assisting with content distribution.
- Launch a collective service for communication and community engagement:** An island-wide approach to information coordination should be adopted that prioritizes two-way communication, where communities receive timely, coherent and useful information via preferred communication channels and are also enabled to provide feedback or complaints. Internews strongly recommends using a diversity of channels (radio, SMS, phone, community based networks, print, loud speakers, message boards, etc.) to deliver and receive information and feedback. Affected communities need to be involved in the setup of the system so as to meet their access and information needs. This island wide service could embed all or parts of the activities listed below.
- Publish and distribute a daily news bulletin with recovery information:** Basic information needs still need to be met across the island. Internews recommends the central information hub publish and distribute a daily information bulletin on "news you can use." The bulletin will address information on issues such as FEMA deadlines and requirements; health information, warnings and protocols; answers and facts that address harmful rumors; government services and updates; local resources (water, electricity, food, shelter); job and volunteering postings; and mental health services and tips. Internews also recommends partnering with local mayors and municipalities, community media outlets, humanitarian responders, and local NGOs to deliver the information (online and offline) to affected communities. Examples of distribution methods include posting

daily newsletters on community message boards; announcing news and updates through speakers on local trucks; radio announcements through local media partners; online outreach through social media channels; and SMS messaging.

- **Set up feedback and rumor tracking mechanisms in municipalities across the island:** Including the experiences, questions, concerns and feedback of community members in the recovery is essential. Community involvement can hold stakeholders accountable, lead to better provision of services, and can increase the agency and morale of community members who may otherwise feel isolated. Internews suggests that this information be collected on a consistent basis and included in the information hub's content. In addition, Internews recommends that this process directly address issues of rumors and misinformation. Face-to-face information gathering through staff and local partners will identify the rumors which can then be fact checked through the information hub. These rumors will need to be addressed in a timely and consistent manner with accurate and transparently sourced information.
- **Provide connectivity and mobile charging stations:** Electricity is not expected to come back fully for at least 6 months. Given this, Internews recommends working with tech partners in addressing connectivity through WIFI hotspots and mesh networks, as well as distributing information hub content through those partners and locations. In addition, Internews recommends providing solar mobile phone charging stations for people relying on generators for energy.
- **Partner with local radio stations to distribute hand crank radios or batteries:** Radio remains the most accessible form of media, though many people are depending on battery operated or car radios. As access to batteries has started to decrease in the weeks following Hurricane Maria, Internews recommends partnering with local radio stations on the distribution of hand crank radios or batteries to families in isolated communities.
- **Provide financial and technical support to a selected number of local media organizations:** The aftermath of Hurricane Maria has destabilized media providers across Puerto Rico. Some have announced their closure, others are scrambling to staff their newsrooms and fix infrastructure damages. It is essential that these trusted media outlets have the support they need to keep news production going. Internews recommends providing financial and technical support to a selected number of local media outlets. Technical support will be focused on the reporting of appropriate recovery content and news people can put to use.
- **Organize roundtables and town hall events between NGOs, government officials, humanitarian organizations and local media. Create an open space for discussion of pressing issues, build relationships and networks:** While many coordination meetings are happening in San Juan and around the island, Internews recommends including local media and representatives from the central information hub in those meetings. It is essential that relationships be built across sectors not only for the recovery of Hurricane Maria, but to build resilience for future crises.





CIA/US Government, CIA World Factbook

## BACKGROUND

### PUERTO RICO

Puerto Rico is a Caribbean island and unincorporated United States territory with approximately three million residents. 2017 marks the 100th anniversary of Puerto Ricans having US citizenship. Puerto Ricans elect their own governor and legislature, but they are not able to vote in US presidential elections, and do not have a voting member of Congress.

The geography of the island is mostly mountains with coastal plains, and while hurricanes are common, Maria is the worst storm to hit in almost a century. Recovery costs from Hurricane Maria are in the tens of billions of dollars.

Five million Puerto Ricans live in the mainland US, more than on the island itself. And diaspora members are likely to make as much as double the average salary of around \$18,500, of their friends and family who stay behind. The recent trend has been [to migrate](#) from Puerto Rico to the US mainland; approximately 60,000

people have been leaving annually for the past decade. Those numbers have spiked dramatically in recent weeks because of the damage caused by Maria. The Puerto Rican government is now estimating that [15% of the current population will move off the island](#).

Prior to the hurricane, around [90% of Puerto Ricans had cell phone access and 80%](#) were online. Outside of the capital San Juan, those communication channels have been mostly non-existent since September 20th. Because of this lack of connectivity, government officials from around the island have been braving downed trees, mudslides, and destroyed roads to travel regularly back and forth from San Juan to get recovery information from Governor Ricardo Rosselló and his staff. This lack of a reliable connection between San Juan and other parts of the island has meant a delayed relief and recovery response to some areas.

One example of the challenges in rural areas is [Corozal](#), a mountainous area southwest of San Juan. 100% of the population remains without water and

electricity according to Mayor Sergio Torres. During a press conference more than two weeks after Maria, Torres said the hurricane destroyed 90% of the wooden structures in the municipality. He told the publication [Metro PR](#) that he only has two water trucks to supply 35,000 people.

## THE RESPONSE

The US government's response to Hurricane Maria was widely criticized at its outset for [logistical and political delays](#) that impeded aid from reaching the island. Scrutiny of the Federal relief effort has grown recently over the contract given to a [small US firm](#) to fix Puerto Rico's power grid.

Around [14,000 Federal workers](#) have been on the ground in Puerto Rico since early October, including military and FEMA personnel, but there is mistrust on both sides of the response effort. A group of U.S. Army National Guardsmen told us there are enough supplies on the ground at this point to satisfy relief and recovery needs, but local Puerto Rican officials are doing a poor job handling the logistics and supply-chain of recovery, and that some officials are [corrupt](#) and misappropriating aid.

Local relief worker Ricardo Latimer said FEMA's personnel appear to be overwhelmed with the scale of the catastrophe, adding that the federal agency doesn't appear to be knowledgeable about the island and its nuances. "FEMA had no knowledge of Puerto Rico. They had to hire locals to help them understand. They were here to help. But they weren't dealt the best hand. Neither were we. It was a Category 5 hurricane that crossed Puerto Rico from corner to corner."

The most [recent data](#) from the Puerto Rican government on key recovery metrics says

around 67% of cell towers are back online, 33% of the power grid is functioning and water services are now available in 82% of households. [US government statistics](#) related to those same infrastructure issues have varied slightly throughout the recovery period.

## HUMANITARIAN AND NON-PROFIT ORGANIZATIONS

International and local humanitarian organizations are attempting to provide assistance to isolated, vulnerable populations around Puerto Rico. US-based international aid organizations like Oxfam, Mercy Corps, and the International Medical Corps say it's [rare for them to respond](#) to disasters in countries with the substantial resources that the US government has.

Shannon Scribner, Oxfam's Acting Director for Humanitarian Programs & Policy, recently stated in an [Oxfam press release](#) that humanitarian aid is arriving too slowly and keeping too many Puerto Ricans in state of daily crisis. "One month on from Hurricane Maria, too many Puerto Ricans are still relying on emergency aid for basic needs, and for many communities, self-sufficiency isn't even on the horizon," Scribner said in the press release. "We need to be moving beyond providing emergency supplies like warm meals and bottled water to solutions like water filters and generators to stabilize communities while longer term recovery takes place."

So far local and international aid organizations are focusing on issues from potable water, to housing, to providing [emergency cash cards](#) so people can buy the specific resources they need. But few of these humanitarian actors have the means or experience to address communications, community engagement and information flow with the affected population.



Randy Lyness from the INGO Global Communities is working to repair shelters. But he says in addition to bricks and mortar, a key component to rebuilding Puerto Rico is information - such as sharing specifics about building codes and sustainable construction techniques with the local population. "The 'building back better' message has to go out," said Lyness.

*A snapped electricity pole hanging over a mountain road in Corozal, PR*





## MEDIA LANDSCAPE PRE- AND POST- MARIA

For an island comparable in land area to Connecticut and population similar to Arizona, Puerto Rico has a vibrant media landscape. With politics a national pastime for many -- punctuated by enormous campaign parades and rallies during election season -- media in Puerto Rico has historically been a powerful force. Before Hurricane Maria, 14 newspapers, 147 radio stations and 107 television stations serviced the island.

As detailed later in this report, Hurricane Maria has had radical, immediate impacts on the media landscape. With the storm knocking most digital telecommunications offline, radio reemerged as the undisputed champion of news delivery for weeks. With many without cell phone access or the ability to easily find a newspaper -- due to many shuttered businesses -- radio became the only form of news consumption.

Since the storm, many local and international media have started working from a pop-up newsroom at the Puerto Rico Convention Center in San Juan. With access to the internet and electricity, journalists are able to publish stories and coordinate coverage from there. Reporting outside of the convention center however, continues to be difficult. As Puerto Rican reporter and meteorologist, Ada Monzon, mentioned, the lack of reliable cell and power service has greatly hindered her reporting duties.

The financial realities of sustaining media outlets after Maria are starting to become clear. Newspapers have reported significant

decreases in advertising as money has gone toward radio. On October 26, [GFR Media laid off 59](#) journalists, graphic artists and various employees of its newspapers El Nuevo Día and Primera Hora. One television station, Sistema, [reported that it was closing](#), citing Maria as the reason. Damages to stations are also a cause for concern. Reports show that losses in the radio industry alone will [exceed \\$20 million](#).

A variety of public media outlets, journalist associations, and volunteers in the US have been raising funds and collecting equipment to help get broadcasters impacted by Maria back on the air. The Latino Public Radio Consortium, for example, is working with entities that support public broadcasting and with several public radio member stations to collect and coordinate equipment, radio-to-go kits, diesel and generators, volunteer engineers for several public media stations. The National Association for Hispanic Journalists (NAHJ) has also launched a collaborative journalism project to distribute needed equipment and setup “comms kits” in isolated communities. Collaborations and efforts like this will continue to be paramount.

### RADIO:

[According to the FCC](#), as of October 31, 41 AM and 47 FM radio stations are confirmed operational, 23 AM and 22 FM radio stations are confirmed out of service, 8 AM and 8 FM radio stations are suspected to be out of service, 1 AM and 31 FM have unconfirmed status, and 1 AM and 3 FM have been issued Special Temporary Authority to be offline.

Many radio stations that are able to broadcast are doing so via generators. News stations that are operating have largely turned their programming over to



recovery information, and are connecting with local officials to share the most up-to-date answers to people's hyperlocal questions. During our assessment, radio segments included tips on issues like post-disaster mental health and discussions and debates on the recovery process itself.

Programming content from one half hour on national radio broadcaster, [Noti Uno 630 AM](#):

- 9:25 am: Discussion on supermarket status, food supply.
- 9:30 am: Updates on electricity progress and FEMA's daily morning press conference.
- 9:36 am: Updates from a few towns in the San Juan Metro area.
- 9:40 am: Discussion with a representative from Puerto Rico's electric company, AEE. He spoke about cash flow issues, additional brigades coming from the mainland to assist, the continued demands on diesel to fuel generators, and traffic improvement once electricity returns to power signals.

Beatriz Archilla has been giving vital recovery news via her AM radio station in rural Humacao, a town on the island's southeastern side near where Maria made landfall.

In between on-air shifts, Archilla shared thoughts via text message.

*Our coverage of recovery news and communication with citizens is constant. We start broadcasting at dawn, and the ongoing topic at our radio station is post MARÍA recovery, and the daily situations we find ourselves in.*

*Most of the listeners comments and questions are about when they will receive basic services like water and electricity, and when they'll get Federal assistance to recoup their losses.*

Local reporter and meteorologist, Ada Monzon, normally relies on her Facebook page to get important information out to nearly one million followers. But web traffic for her stories since the storm has been overwhelmingly from the diaspora in the US. She's been forced to try and reach local residents on the radio, and has been encouraging other local reporters to get creative and find ways to get their reporting to communities in need. During an interview, Ada stated, "we know there's a problem with electricity. We know there's a problem with communications. But someone is listening and telling someone else. That chain of information is broken, but it's flowing."

### TV:

According to the FCC, as of October 31, 2017, 5 TV stations (WKAQ, WIPR, WNJX, WTIN and WORO) are confirmed operational, 2 TV stations are suspected to be out of service, 67 TV stations have been issued Special Temporary Authority to be offline and 33 stations have unconfirmed status. Accessibility to TV is still low across the island due to lack of electricity.

### PRINT:

El Nuevo Día, Primera Hora, Metro, and El Vocero are three island-wide newspapers that have resumed publishing in Puerto Rico.

Recovery content is prominently featured, though news that people can put to use (where to find water and food, how to volunteer, how to apply for FEMA assistance, where cell service is back up) is not as common.

The most dominant topic in Puerto Rican newspapers is the power grid. Health and education news, along with dispatches from around the island, are also frequent. El Nuevo Día has been publishing a daily update on relief and recovery efforts since Maria struck. It shows the information about the current status of water, electricity, supermarket, gas station, and cell towers, among other necessities. El Nuevo Día's website features a "[hurricanes](#)" section that features all its relief coverage.

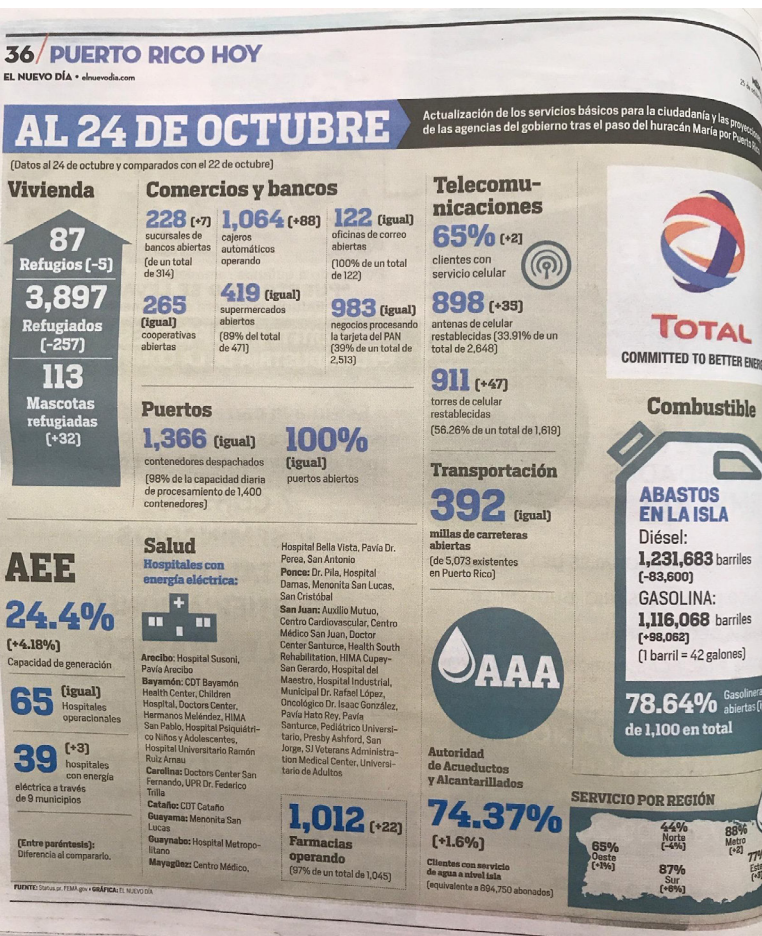
## CONNECTIVITY:

Connectivity still remains a critical issue across the island. According to the FCC, as of October 31, 55.2% of cell sites are still down across Puerto Rico. This is a significant improvement from the 95.2% of cell sites that were out of service immediately following the storm.

Over the last five weeks, a variety of tech solutions have been offered by [telecommunications companies](#), [tech giants](#), [non-profits](#) and individuals to try and get people consistent communication capabilities. There have also been a variety of digital mapping efforts to help visualize the ongoing impact of Maria on island residents. These maps have predominantly been accessed by diaspora populations in the US mainland, however.

Most mayors also now have satellite phones, but one source explained that with so many of the devices on the island, there's too much satellite traffic for them to function properly.

Rebuilding telecommunications infrastructure properly will be critical to the recovery and resiliency of the island moving forward.





## INFORMATION ECOSYSTEM FINDINGS

### MAIN SOURCES OF INFORMATION

In the aftermath of Hurricane Maria, Puerto Ricans have been relying on a variety of sources to stay informed as they begin their recovery efforts.

**Newspapers:** People in and around the capital, San Juan, have mostly had access to physical copies of the island's main newspaper *El Nuevo Día*. The outlet did not charge customers for papers directly after the storm, although it has since returned to charging.

**Radio stations:** In rural areas, where total blackouts continue, functioning radio stations have been essential to getting locals information related to their situations. Beatriz Archilla, head of AM radio station *WALO* located on the eastern coast of Puerto Rico, says 90% of her programming is now recovery related. She's been reliant on local government officials stopping by the radio station to share updates on basic services like water, electricity, schools, and roads.

Rural residents like Maritza Lopez rely on a battery operated radios to listen to local stations like *WALO*. Lopez lives in Corozal, southwest of San Juan. The roof and top floor of her house collapsed during the storm, and she and her family have been living in what's left of the home for more than a month, with little food and no potable water. The closest store is 25 minutes away via storm-damaged mountain roads, and her family and neighbors haven't seen any relief services as of the last week of October. In addition to the battery



Newspapers in San Juan, PR

operated radio, the Lopez family relies even more importantly on neighbors to stay informed about what's happening on the rest of the island.

**Word of mouth:** The most prolific information source for both urban and rural residents of Puerto Rico has undeniably been word of mouth. [Ada Monzon](#), a Puerto Rican TV, radio, and internet reporter, has been getting out into rural areas to assess people's ongoing problems. She says in many areas mayors are the only ones with access to official updates on recovery efforts, and they are spreading that news one person at a time. Monzon also says even the offline information channels have been difficult to access for many families. "They have radios, but sometimes they don't have batteries, it's very difficult for the flow of information at this point," she said.

*“They have radios, but sometimes they don’t have batteries, it’s very difficult for the flow of information at this point.”*

*- Ada Monzon*

Monzon says as a reporter it’s tough to get the full story of the impact of Maria and the recovery because so many Puerto Ricans are still cut off from sharing what they know. “The history we are writing about Maria will be completed when we all have communications,” she said.

Word of mouth might seem like a step back for more modern parts of Puerto Rico, but in some other communities, it’s business as usual. In La Perla, an isolated, impoverished neighborhood in San Juan, locals said they’re relying heavily on hearing news from neighbors at the store and other hangouts. An early October NPR broadcast reported that someone from La Perla had written on a plywood board, “SOS. We need water. We need everything.”

**On-line:** The Puerto Rican central government is releasing the most updated estimates of when important services will be back online via [pr.gov](http://pr.gov) and [status.pr](http://status.pr). [ReliefWeb](http://ReliefWeb), the global humanitarian resource website, is also sharing regular updates related to recovery efforts. These sites are of course not directly available to people in areas without functioning internet and cell service.

**Innovative:** Some of the most effective information channels in post-Maria Puerto Rico have been largely organic endeavors.

Here’s a list of a few of them:

#### *Municipal Runners*

Mayors and local government in rural areas have been the main organic channels between residents and the capital, where much of the official information exists. Some of that information sharing has happened via satellite phone and wifi access points provided by humanitarian organizations. We also heard from sources that local mayors are relying on “runners,” people who are able to go back and forth from San Juan to speak with Puerto Rican government officials, FEMA, and NGOs and bring that information back to share with community members.

#### *Tumba Cocos*

Some local governments in rural areas are using trucks with large speakers to share important recovery information. Popular for political campaigns, these vehicles with tumba cocos (election speakers) are passing through neighborhoods playing messages about aid distribution locations.

#### *Ham Radio*

Puerto Rican physics professor, Oscar Resto, has been leading an [ad hoc team](#) of Ham Radio operators to help FEMA, the National Guard and Puerto Rican government officials connect with each other throughout the island. Resto said his team was especially active in the immediate aftermath of the storm, when almost the entire telecom system on the island was down. His services are becoming less needed as more formal communication channels return.





### *Fliers, Bulletin Boards, and Posters*

One of the more consistent attempts to share information about recovery has been through community posters, bulletin boards, and fliers. The Contemporary Art Museum in San Juan began distributing fliers to different neighborhoods in the capital's Santurce area offering help filling out FEMA paperwork. The flier lists all the necessary documents people need in order to file their recovery claims.

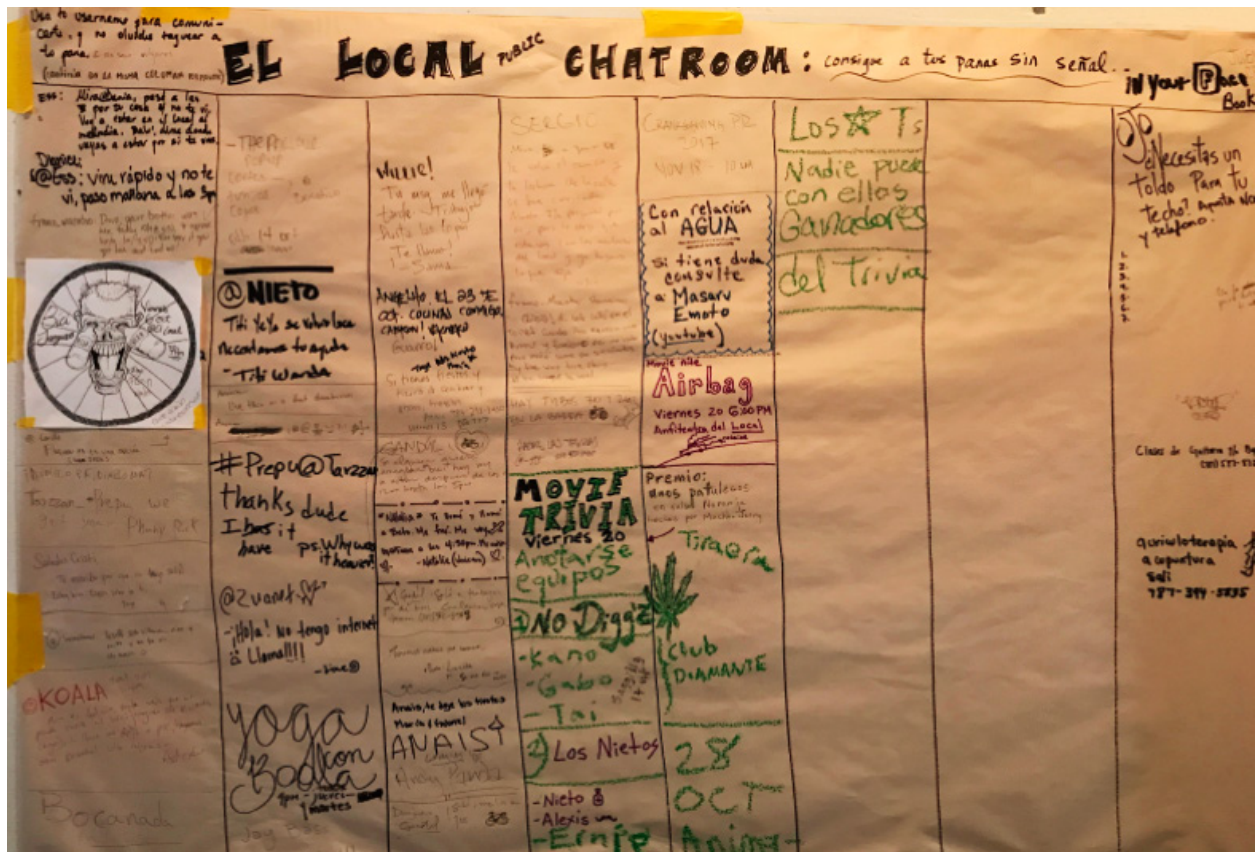
Government agencies have been distributing fliers around San Juan in Spanish from the CDC related to public health and specific things parents can do to ensure their families don't get sick in the post-hurricane environment.

Carla Miranda, who works for the Rincón Beer Company Relief Center, is leading a local relief effort in the western coastal area. Her volunteer team started out by printing fliers with basic recovery information in both English and Spanish and going door to door to establish buy-in from communities. Miranda says her team also asked people to indicate their assistance needs by putting a yellow or red flag or shirt outside their door.

At the bar El Local in San Juan an entire wall is dedicated to a public chatroom where people in the community can leave each other messages, get updated recovery information, find a tarp for a roof and other relief items, or access stress relieving events. "We call it the analog chatroom -- 'in your FACEbook' -- a system to communicate with your friends," a volunteer told us. The "El Local Public Chatroom" meets the information needs of the community members by simply providing a wall for them to share information and communicate with each other. There's also a calendar where residents can sign up to volunteer to cook meals for local families.

*"We call it the analog chatroom -- 'in your FACEbook' -- a system to communicate with your friends."*

*- volunteer at El Local*



Community "chatroom" at El Local in San Juan, PR

Bulletin boards off rural roads in the mountainous parts of the island are being used to update residents on what local businesses are up and running. Southwest of San Juan in the Corozal area a community billboard had fliers up letting people know a local pediatrician was available, a local restaurant was open, and a Head-Start center was starting again.



A large community bulletin board at a key intersection in Corozal, PR



### Tech

A [variety of tech solutions](#) have been offered to try and get people consistent communication capabilities. Google is [sending balloons](#) that are meant to give people in rural areas internet signals they can use to go online; a [Facebook “connectivity team”](#) was sent to Puerto Rico to deliver emergency telecommunications assistance; [Nethope’s Emergency Response Team](#) and the [Information Technology Disaster Resource Center](#) are on the ground restoring connectivity. Thor Nolen of [Information Technology Disaster Resource Center](#) told us that his team is assisting with establishing communications at health care facilities. The largest cable provider in Puerto Rico is establishing a [“wi-fi” tour](#) through December where they travel to municipal plazas around the island with a satellite internet device.

Javier Malavé, a San Juan based tech entrepreneur, is deploying mesh SMS networks in order to re-establish cell-phone access in some parts of Puerto Rico. His idea is to deploy solar-powered transmitters mounted on the top of buildings that will enable people to communicate via SMS. “You can drop them like bread crumbs and create a network trail,” he said.

Malavé’s plan is to establish SMS capacity in more than a dozen remote areas. His initial goal is to enable people to connect with family and also get recovery information from officials. “It creates a lot of stress not knowing and just waiting. There’s a lot of emotional stress. Just that little bit of a text message helps people stay grounded,” Malavé said.

*“It creates a lot of stress not knowing and just waiting. There’s a lot of emotional stress. Just that little bit of a text message helps people stay grounded.”*

- Javier Malavé

### Diaspora

One of the best ways for people in Puerto Rico to get information about their specific situations has been from the massive diaspora community in the U.S. An example is [Angie Lamoli Silvestry](#), who is originally from Cabo Rojo, but now lives in New Orleans, where she experienced Hurricane Katrina more than a decade ago. Silvestry has been using that disaster experience to share tips and information with her relatives stuck on the island, researching recovery assistance online, and relaying that information as best she can back to her family in Cabo Rojo. She says she’s also trying to help counterbalance rumors her family is hearing about things like a cholera epidemic; help them locate basic items like bug-spray; and just be there to talk to them when cell service permits.

Silvestry also told the story of her 90-year-old uncle who was stuck in his home in Cabo Rojo and ran out of water. Luckily he had a functioning landline and was able to call her. Through her online research Silvestry was able to find a water distribution site just two blocks from his house.

## INFORMATION NEEDS AND GAPS

The initial rapid-response to Hurricane Maria is over, but much of the island is still waiting for consistent updates regarding basic resources like drinking water, electricity, phone service, tarps to cover damaged roofs, and more. Some of these questions will get answered in the near future, but others will continue to be asked for a long time, as community members head into a second month without consistent work and income, living in homes that remain beyond repair, and increasingly in need of psychosocial resources to help cope with the ongoing difficulties brought by the storm.

Carla Miranda, who helped set up a relief center in Rincón, said most people in rural areas start the morning wondering, “where am I going to find water? Food? Money? A new job?” Miranda said families in rural areas are desperate for water to drink, to wash clothes in, and for other essential activities.

Local reporter Ada Monzon said the potential for misinformation has been a real concern when it comes to recovery details due to word of mouth and no concrete and regular distribution system. Finding out valuable information in rural areas “is about who you know,” she said. For people that live far from aid distribution points, where food and water deliveries are irregular and where many have limited money to pay for gas, it’s a huge issue to have no or inconsistent information about resource access.

AM radio broadcaster Beatriz Archilla says most of the questions she’s getting from her audience revolve around when people will get basic water and electricity services back -- “news you can use.” She says the other major information gap is people want to know how and when they can start the process of applying for recovery assistance with FEMA.

People in rural areas also have very little information about who is providing what assistance, when assistance providers are coming, and who they can connect with for specific needs. Ricardo Latimer has been helping the local NGOs Foundation for Puerto Rico and ConPRmetidos deliver food, water, and supplies to isolated areas. He says many of the residents he’s interacted with are completely in the dark about what kinds of help are available and when they might arrive. He said he’s often



Sold out for today! An empty newspaper rack at a Walgreens in San Juan, PR





A utility pole resting on wires above a mountain road in Corozal, PR

greeted with, “who are you and what do you have?” But Latimer said there are some information flow bright spots. In some neighborhoods in Aibonito, a mountain town that registers the highest elevation in Puerto Rico, he said *tumba cococs* were “blasting to the people to not drink from water streams, not shower in them, not wash their clothing because of bacteria and water sources.”

## TRUST

Initial research indicated that information passed on from family (including diaspora), friends, and neighbors during this recovery period is the most trusted news source. People are also inclined to trust what information they are getting from local broadcast media, and in San Juan, El Nuevo Día newspaper.

During normal times residents indicated they are less likely to put trust in information shared by local officials, because of a culture of corruption on the island. But because of the relative isolation people outside of San Juan have found themselves in, many have been forced to rely more heavily on local mayors and other municipality officials for news and information.

One example of trust being built up over time is San Juan’s [Museum of Contemporary Art](#) which has spent the past four years offering community programs to some of the neighborhoods in their area. When the storm hit residents already viewed the museum as an essential resource center, and stopped by to see

what relief and recovery efforts were happening. Museum director Marianne Ramírez has offered everything from food to art classes for kids whose schools haven't reopened. "We have been in constant communication [with the nearby neighborhoods]. We are also very respectful with them. It's a working relationship," she said. "It's really very, very special."

## LOCAL VOICES

Despite having experienced a major disaster that upended homes, jobs, and families, many residents around Puerto Rico have been quick to engage in their own relief and recovery effort, not waiting for a more formal aid response. Because many communities are cut off from normal communication channels, those stories have not readily gotten out. Locals also have struggled to voice their shifting needs and to get questions to officials in San Juan who might have answers.

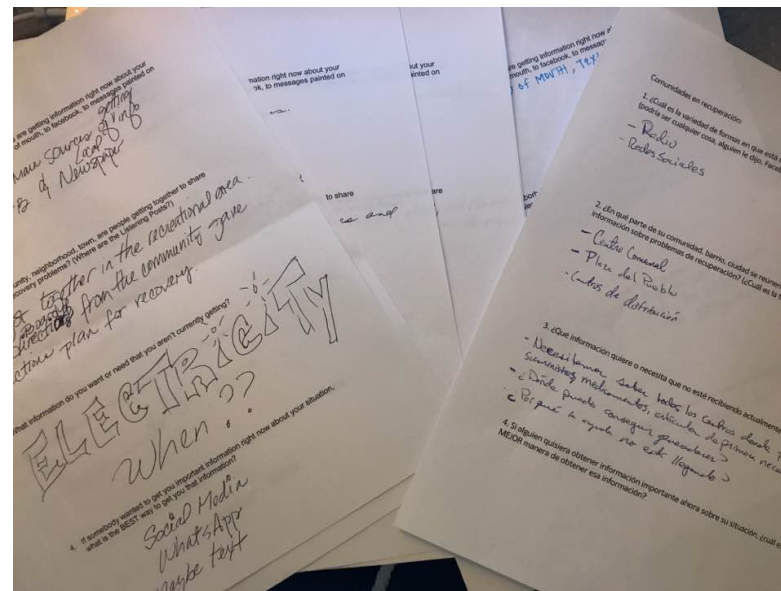
We surveyed communities in neighborhoods around San Juan and in the rural areas of Corozal, Mayagüez and Toa Alta about their information needs, and what they themselves are experiencing post-Maria.

Based on mixture of formal paper surveys and informal conversations, Puerto Ricans told us they were getting information mostly from the radio, word of mouth, newspapers and some social media; but also SMS, TV (satellite), newspapers, and messaging apps.

Residents told us that their information listening posts they've relied on after the storm include community recovery distribution centers, longer than usual lines in grocery stores and gas stations, plazas, parks, and any restaurants that have managed to re-open. A group of

people we surveyed hanging outside a closed San Juan restaurant in the dark said information flow has been very organic, more than usual. "No hay area específica, simplemente nos hablamos entre los vecinos cuando nos encontramos (there's no specific area, simply neighbors talk with each other when we meet)." They said that whomever is getting the best recovery information shares it with friends and neighbors.

Some of our completed surveys in San Juan, PR



We also heard from respondents that the topics most on their mind relate to when utilities and telecommunications are returning in full. Some of the questions people shared regarding recovery information included, "how's the progress going? How are locations outside the metro area? Where are the distribution centers? Where can I buy a generator? How come the help isn't getting here?"

People told us the best ways to get them news were radio, some kind of verbal announcements, WhatsApp, phone calls, and Facebook messenger.



*Where are the distribution centers? Where can I buy a generator? How come the help isn't getting here?*

One of the people we spoke to in length, diaspora member Angie Lamoli Silvestry, shared a list of suggestions she had for how best to connect local residents to recovery information.

1. Focus on specific areas on the island to create better information flow.
2. Create centralized information spots in plazas, bulletin boards, live announcements, wi-fi access -- everyone knows where it is.
3. Have teams go out to tell neighborhood residents to come to plaza for information aid including, WIFI, FEMA forms, basic recovery info sheets.
4. Recruit volunteers! People want to help. Physically go to fraternal orgs/churches to recruit.
5. Many municipalities have a Facebook page. Start getting them to post a regular recovery news update.
6. Tumba cocos (election speakers). Get a truck with big speakers to drive through neighborhoods with recovery information and fliers.
7. Activate mayors in rural areas as information hubs. Have them set up daily recovery information updates in the plazas.

Some of the reported stories with community voices that caught our attention included one about the central mountain town Utuado, where community members in the Río Abajo section, known as the



Andreica Maldonado, left, speaks with a family recovering from Hurricane Maria's destruction in Corozal, PR

"Camp of the Forgotten," [continue to be cut off due to a bridge collapse](#). They have been using a zipline and a shopping cart to transport food, water, and supplies. Other than visiting relief workers and reporters, they have no ongoing contact with the outside world. "We have no way to get to civilization, to get to the supermarket, to the pharmacy," Samuel de Jesús Díaz told the Miami Herald. "We're crazy, desperate to be able to leave." Leonardo Medina [told](#) the New York Times that he has been powering his wife's oxygen tank by connecting it to a car battery and inverter. "We Puerto Ricans are fighters and hard workers," his wife said.

In a Harvard Medical School [news release](#), Dr. Michael Charness, Chief of Staff of the VA Boston Healthcare System and Professor of Neurology, shared this anecdote about what he heard during his deployment with his team to provide critical health care services: "Patients arrived telling extraordinary and harrowing stories: the elderly woman who breathed into the tracheal tube of her husband throughout the night of Maria's rampage when his home ventilator lost power; the elderly women who floated her elderly husband with Alzheimer's disease above her shoulders as their home washed away."

## METHODOLOGY

Making sense of the inevitable information chaos in a crisis starts by listening to the affected population. It is critical to find out what information people need and what they are not getting. A parallel track of inquiry examines the local context, what we call the information ecosystem. This local ecosystem will have its own particular nuances, strengths and weaknesses. And perhaps most importantly, its areas of trust and influence.

The information ecosystem is composed of the physical, social and institutional infrastructures that support information production and flow, including media outlets, government agencies, community groups, and local organic news sharing. It includes the information needs and gaps experienced by local residents in both an immediate and ongoing context, and the topics that are of primary interest. The ecosystem also considers where a community's trust lies in terms of their ability to ask questions and get answers and information regarding the issues impacting their day to day existence.

Internews' information ecosystem assessment in the aftermath of Hurricane Maria in Puerto Rico included:

- A one-week on the ground assessment done by Internews partner Justin Auciello, which included visits to San Juan, Corozal, Mayagüez and Toa Alta
- Interviews with local media, NGOs, government officials and technologists
- Discussions with Puerto Ricans affected by Hurricane Maria
- Visiting community gathering places and observing how people share information
- Desk research of the Puerto Rican media landscape
- Monitoring media coverage of major international news sites and local Puerto Rican sites
- Written survey of 13 youth in San Juan
- Collaboration with the INGO, Global Communities, who included information needs questions in a recovery survey it conducted, including what level of trust people had with the information they were getting about Maria recovery.



## APPENDIX: INTERVIEW GUIDE

### *Residents:*

1. What are the variety of ways in which you are getting information right now about your situation? (could be anything from word of mouth, to facebook, to messages painted on a wall).
2. Where in your community, neighborhood, town, are people getting together to share information about recovery problems? (Where are the Listening Posts?)
3. What information do you want or need that you aren't currently getting?
4. If somebody wanted to get you important information right now about your situation, what is the BEST way to get you that information?

### *Media Outlets*

1. What is your capacity/ability to get recovery related news and information to local people right now?
2. What kinds of news and information are you sharing with people related to recovery? How often are you doing that? How are you letting them know you are doing that?
3. What kinds of feedback/questions are you getting from community members related to recovery?
4. What has changed in terms of your programming/format/publishing due to Maria and its aftermath?

### *Community responders/local leaders*

1. What questions related to recovery does your community have right now?
2. What are the most pressing information needs of the community now?
3. What are all the ways you are trying to answer peoples questions and get them the information they need?
4. Where are you yourself getting information from? How are you determining the reliability of that information?
5. If you could develop a plan for getting people daily news and information about recovery, what would it look like? What resources would be helpful to have?





Under generator power and the glow of Christmas lights in San Juan, PR, the Parallel18 team and entrepreneurs work at dusk

*\*\*Special thank you to Puerto Rico Science, Technology & Research Trust and Parallel18 for office space and wifi.*



## US OFFICES

876 Seventh Street  
Arcata  
CA 95518  
+1 707 826 2030

1133 Fifteenth Street  
Suite 350  
Washington  
DC 20005  
+ 1 202 833 5740

## EUROPEAN OFFICE

New City Cloisters,  
196 Old Street  
London,  
EC1V 9FR, UK  
+44 (0)207 566 3300

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**E-mail:** [info@internews.org](mailto:info@internews.org)  
[www.internews.org](http://www.internews.org)  
[www.facebook.com/internews](http://www.facebook.com/internews)  
**Twitter:** @internews

**Press Enquiries**  
[press@internews.org](mailto:press@internews.org)



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