

Acute Food Insecurity Due to Hurricanes

Emergency Response Plan For Puerto Rico



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Preface
Puerto Rico, Hurricanes, & Food Insecurity

Puerto Rico is an archipelago that lies between the Atlantic Ocean and the Caribbean Sea. It has a population of approximately 3.3 million people, with about 1.2 million households. Over 16% of the population is under 18 years of age and nearly 23% of the population is 65 and older and has a diverse mix of ethnicities and cultures.¹

The location of Puerto Rico makes it susceptible to hurricanes, with its hurricane season lasting from June 1st to November 30th each year. One of the most devastating hurricanes to hit Puerto Rico was Hurricane Maria in September 2017.² Hurricane Maria was a Category 5 hurricane that is considered by locals to have been a “socio-environmental disaster.”² The storm caused extensive damage to the island's infrastructure, including its electrical grid, communication networks, and transportation systems. Many communities were left without power, clean water, or access to medical care for an extended period.³

The island has faced economic challenges for many years, with high poverty rates and limited job opportunities.³ The hurricane resulted in numerous fatalities and a striking number of 4,645 deaths. It also was a leading public health crisis as the hurricane caused widespread shortages of food and water.³ Many Puerto Ricans were displaced from their homes, and the economy suffered a significant blow as tourism and other industries were disrupted.³ The aftermath of Hurricane Maria exacerbated these existing health challenges, with many Puerto Ricans struggling to access necessities like food, clean water, and medical care.³

Even before the effects of natural disasters like Hurricane Maria, Puerto Rico struggled with food insecurity.⁴ Before the hurricane, the food insecurity rate in Puerto Rico was 56%, nearly triple the food insecurity rate of the mainland United States.⁴ After Hurricane Maria, the food insecurity rate in Puerto Rico jumped to 85%.⁴ This increase in food insecurity resulted from a lack of access to food and the absence of electricity to prepare food.⁴ The status of Puerto Rico as a territory of the United States adds barriers to receiving assistance and emergency relief during disasters like Maria.⁴ The United States Congress has made significant cuts to the assistance Puerto Rico receives for food insecurity despite a high need.⁴ The Nutritional Assistance Program (NAP) changed from a need-based grant to a block grant in 1981, reducing the number of Puerto Ricans receiving benefits from 60% to 30%.⁴

Further barriers to receiving assistance in Puerto Rico include the Jones Act, requiring that goods being shipped between US ports be shipped on US vessels operated by American citizens.⁵ This means that there may be delays in the shipment of assistance items if they cannot be shipped on an American-made and operated vessel.⁵ Temporary suspension of laws that inhibit the shipment and receiving of assistance items is important during times of disaster.⁵ Even when assistance arrives, it is crucial that the island has the means to distribute the items. After Hurricane Maria suspension of the Jones Act improved the shipment of items to the Island, but the distribution of items was a barrier.⁵ When important items such as food cannot be distributed among residents of Puerto Rico it further exacerbates food insecurity caused by natural disasters.⁵

Signature Page

By signing below, I have reviewed, approve the adoption of Acute Food Insecurity Due to Hurricanes Emergency Response Plan, and agree to support its implementation.

Brock Long, Director of FEMA

Date

Ahsha Tribble, FEMA Deputy Regional Administrator

Date

Jose G. Baquero, FEMA Federal Disaster Recovery
Coordinator for Puerto Rico

Date

Pedro Pierluisi, Governor of Puerto Rico

Date

Abner Gomez, Puerto Rico State Agency for
Emergency and Disaster Management Director

Date

Rafael Rodríguez Mercado, Secretary of Health of Puerto Rico

Date

Mission Statement and Purpose

The mission of the U.S. Department of Homeland Security’s Federal Emergency Management Agency (FEMA) is to support countries and their residents through all stages of disaster including pre, intra, and post-disaster. FEMA achieves its goals by operating on four core values: compassion, fairness, integrity, and respect.⁶

The purpose of this annex to the Federal Emergency Management Agency is to establish methods and procedures for managing food insecurity within the territory of Puerto Rico post-hurricane. These procedures are designed to mitigate the loss of food sources from hurricanes and mitigate negative health outcomes from food insecurity post-hurricane. This annex will outline the coordination required between the public and private sectors to provide this relief.

Plan Objectives

The primary objectives of this plan are to:

1. Identify and address the food insecurity crisis within Puerto Rico after Hurricane Maria

2. Mitigate food insecurity post-disaster within the Island through community resilience and provision of resources

Authorities

1. Federal

FEMA Region 2 is accountable for attending to recovery and resilience needs, providing emergency assistance, and improving environmental conditions after hurricanes make landfall.⁷ The agency was greatly responsible for distributing food and potable water during its disaster relief response following Hurricane Maria.⁷

Other agencies that were diligent in providing additional aid post-disaster include:⁸

- U.S. Department of Transportation (DOT)
- The American Red Cross (ARC)
- U.S National Guard Bureau
- U.S. Northern Command (NORTHCOM)
- Environmental Protection Agency (EPA)
- Federal Communications Commission
- U.S Department of Health and Human Services (HHS)
- U.S Food and Drug Administration
- U.S Coast Guard
- U.S Department of Interior (DOI)
- Portlight Inclusive Disaster Strategies
- U.S. Department of Defense
 - U.S Army Corps of Engineers
 - National Oceanic and Atmospheric Administration (NOAA)

2. State

Some local agencies that engaged in providing food aid post-disaster include:⁹

- UNIDOS Disaster Relief and Recovery Program for Puerto Rico
- Food Bank of Puerto Rico
- Fundación de Plato Caliente

The lead local health organization is the Emergency Management Agency, the “Negociado para el Manejo de Emergencias y Administración de Desastres (NMEAD)”. The law titled “Ley del

Departamento de Seguridad Pública de Puerto Rico (Ley Núm. 20-2017)” establishes that the emergency management agency, NMEAD, is responsible for developing disaster plans, providing mitigation strategies, and engaging in emergency management for the citizens of Puerto Rico.¹⁰

- “Ley del Departamento de Seguridad Pública de Puerto Rico” (Ley Núm. 20-2017). April 10, 2017, as amended, establishes the right to provide effective disaster plans and promotes mutual aid agreements with federal agencies to “maximize resources” in Puerto Rico.¹⁰

Article 1.03 - Department of Public Safety. (25 L.P.R.A. § 3503)

*“(e) Coordinar todos los recursos gubernamentales, así como con los del sector privado, para proveer de forma rápida y efectiva los servicios requeridos antes, durante y después de una emergencia de manera que se logre asegurar la vida y propiedad de los ciudadanos. (g) Proteger la vida y propiedad de todos los ciudadanos. (h) Coordinar con agencias federales de seguridad pública para maximizar recursos”.*¹⁰

Article 1.05. Duties and Powers of Secretary. (25 L.P.R.A. § 3505)

*“(s) Integrará el sistema de seguridad local al sistema de seguridad nacional de los Estados Unidos. (t) Desarrollará e implementará los Planes de Estado incluyendo: Plan Anti-Crimen, Plan de Desastres Naturales, Plan de Catástrofes, Plan de Continuidad de Operaciones, Plan de Mitigación y cualquier otro que sea requerido por reglamentaciones estatales y federales”.*¹⁰

Definitions

Block Grant: A predetermined amount of money given to the grant recipient to use at their discretion to meet community development or social service needs.¹¹

Category 5 Hurricane: Defined as “catastrophic damage will occur; sustained winds are at 157 mph or higher.” A higher percentage of houses will be destroyed, with total roof and wall failure. Power poles were downed, and trees were snapped. Power outages can last weeks or months, and most of the area will be inhabitable for a period of time.¹²

FEMA Region 2: Provides Federal Emergency Management for New York, New Jersey, Puerto Rico, and U.S. Virgin Islands.¹³

Food Insecurity: Defined by the United States Department of Agriculture as a temporary or chronic lack of access to enough food to live an active and healthy life.¹⁴

Hurricane: A storm whose sustained winds have reached 74 miles per hour. Hurricanes are ranked on a scale of 1-5 according to the Saffir-Simpson Hurricane Wind Scale, with a higher rating meaning stronger winds and a higher risk for wind damage.¹⁵

Jones Act (Merchant Marine Act of 1920): Designed to improve the security of merchant mariners post World War I, The Jones Act requires that goods being transported between U.S ports be transported on an American vessel operated by American citizens.⁵

Nutritional Assistance Program (NAP): Household food assistance program given to the territories of the United States including the Commonwealth of Puerto Rico, American Samoa, and the Commonwealth of the Northern Mariana Islands. NAP provides food assistance for low-income families mostly serving children, the elderly, and the disabled.¹⁶

Socio-Environmental Disaster: These are disruptors in the usual function of the ecosystem, food, and water insecurity, respiratory illness, and disease.¹⁷

United States Department of Agriculture (USDA): A 29-agency department that provides leadership on food, agriculture, natural resources, rural development, nutrition, public policy, science, and management. Their focus areas include farm production and conservation, nutrition, consumer services, food safety, food marketing and regulation, environment, and rural development.¹⁸

Communication Plans

Due to widespread damage to the local power grid, many forms of telecommunications were disrupted. FEMA and other disaster response teams had to travel across the island to the various communication stations to inform the public of new information. These communication stations were located in larger cities throughout the island such as San Juan and Ponce. Once the information was given to local government officials in the larger cities, they would then coordinate to disseminate the information to surrounding areas. Later into the emergency

response, these communication stations would be able to communicate with each other via radio. Radio became a crucial way to spread information to smaller communities across Puerto Rico. So much so that the Puerto Rican government gave radio workers the status of first responders. Radio stations were the main source of communication to alert residents on where and when they could receive assistance, such as food, water, and gasoline.¹⁹

Mutual Aid Agreement

At a federal level, FEMA Region 2 currently only has one mutual aid agreement with Puerto Rico, this being with the Puerto Rico Electric Power Authority located in the island's capital, San Juan.¹³ FEMA states that after Hurricane Maria passed in September 2017, there were 500 employees of the U.S. Department of Health and Human Services (HHS) providing healthcare services to Puerto Ricans. Also, survivors received health care services from the joint efforts of the U.S. Department of Defense and the U.S. Coast Guard.²⁰ Additional medical management was jointly conducted by the federal agencies AmeriCares and HHS with Puerto Rico's Department of Health and Centro Médico.²⁰ Moreover, the Centers for Disease Control and Prevention (CDC) worked together with the U.S. Environmental Protection Agency (EPA) to protect public health.²⁰

At a state level, several initiatives locally known as "Centros de Apoyo Mutuo" or CAMs were created after the passing of Hurricane Maria.²¹ These initiatives aim to engage in community resiliency and mutual aid efforts across the island when hurricanes occur.²¹ Villarrubia-Mendoza et al.²² state that these community-based organizations arose to increase resiliency in the face of public health emergencies urgently. In addition, FEMA states that over 100 voluntary, local, and national organizations" provided disaster aid.

It is important to note that in October 2017, approximately a month after Hurricane Maria hit the island, FEMA released an official document stating that "more than 16,500 federal employees and 74 agencies" were committed to providing essential resources to those affected.²³

Threat and Hazards Assessment Table

Natural	Technological	Human-caused
<p>Resulting from acts of nature</p>	<p>Involves accidents or the failures of systems and structures</p>	<p>Caused by the intentional actions of an adversary</p>
<ul style="list-style-type: none"> <p>• Hurricanes</p> <p>Puerto Rico’s hurricane season is from June 1st to November 30th. The location of PR between the Atlantic Ocean and the Caribbean Sea makes it susceptible to hurricanes.²⁴ The most recent catastrophic hurricane that has impacted Puerto Rico, category 4 Hurricane Maria, left 3.4 million Puerto Ricans without electricity.²⁵ It is estimated that the death rate was 14.3 per 1,000 people during the first 3 months post-disaster.²⁶ Damaged and/or destroyed infrastructure caused nationwide power outages, lack of access to emergency and healthcare services, and food and potable water insecurity which dramatically impacted public health.²⁷</p> <p>• Droughts</p> <p>Puerto Rico experienced its longest drought in 2022 since the year 2000. It lasted 91 weeks and affected nearly a quarter of the land.²⁸</p> <p>• Earthquakes</p> 	<ul style="list-style-type: none"> <p>• Road Safety</p> <p>282 bridges and highways totaling 1,492 miles are in “poor condition.”³⁵ Around 242 deaths and 4,106 serious injuries occurred on highways across the island in 2020.³⁶</p> <p>• Chronic Power Outages</p> <p>Puerto Rico’s outdated electrical grid causes unstable power service and makes resiliency difficult after natural disasters occur. After deadly Hurricane Maria hit PR in 2017, it took nearly a year for power to be restored to all customers following the storm.³⁷ When Category 1 Hurricane Fiona arrived in Sept. 2022, it caused an island-wide power outage affecting the entire 3.1 million population.³⁸ The privatization of the national power grid, appointed by the US Congress, has not reduced the number of power outages.³⁹</p> <p>• Dam Failure</p> <p>Dams struggle to remain intact when hurricanes bring in strong storm</p> 	<ul style="list-style-type: none"> <p>• Active shootings</p> <p>Puerto Rico experiences a higher burden of gun violence than the mainland U.S. The homicide by gun rate in PR was four times the U.S. national average.⁴³</p> <p>• Violent Crimes</p> <p>The local police department reported 4,663 violent crimes in 2022, while 4,562 were reported in 2021, illustrating an increase in violence.⁴⁴ In 2022, 474 deaths were attributed to murder and/or homicide, and 204 sexual assaults were reported.⁴⁴</p> <p>• Terrorism</p> <p>Terrorist groups like FALN (Fuerzas Armadas de Liberación Nacional “Armed Forces of National Liberation”) continue to pose a threat to the safety and civil unrest in PR.⁴⁵</p>

<p>Puerto Rico is in the proximity of two tectonic plates: the Caribbean and North American plates.²⁹ From December 2019-January 2020, a series of 6 earthquakes of magnitude 5 or 6 and above³⁰ occurred which caused ~7,500 people to relocate to shelters.³¹ Although the exact number of earthquakes that occurred in January 2020 is unknown, it is estimated that Puerto Ricans experienced around 3,000 temblors during this month.³⁰ Two-thirds of the population did not have power, and “hundreds of thousands” had no water service.³² It is estimated that aftershocks of the magnitude 6.4 that occurred in 2020 will continue for 10 years.³³</p> <p>Additional natural threats that may result from earthquakes are tsunamis.</p> <ul style="list-style-type: none"> ● Pandemics <p>As of Sept. 2022, there were a total of 5,734 deaths and 1,089,769 confirmed cases attributed to COVID-19.³⁴ Throughout the pandemic, most cases were reported in the capital, San Juan.³⁴</p>	<p>waters. Hurricane Maria severely threatened the integrity of the Guajataca Dam, causing the evacuation of nearly 70,000 people.²⁴</p> <ul style="list-style-type: none"> ● Hazardous Waste <p>There are approx. <200 hazardous waste sites.⁴⁰ EPA’s Environmental Justice Screening and Mapping Tool indicates that in ~40 municipalities, the national percentile of people living near Superfund Sites is 95-100%.⁴¹ Most of the individuals living near these toxic sites are black and have low socioeconomic status.⁴¹ As of February 2023, 26 sites are on the Superfund National Priorities List;⁴² most sites are in the north.⁴¹ In 2022, funding was given to commence cleanup activities in 81 additional sites.⁴²</p>	

Concept of Operations

Assessing food insecurity of the population

Prior to Puerto Rico's devastating hurricane season of 2017, approximately 1.5 million Puerto Rican residents across the archipelago were food insecure⁴⁶ with especially alarming rates in low-income individuals who typically have an annual income of less than \$25k.^{47,48} In some hard-hit areas, before the 2017 hurricane season, the prevalence of food insecurity in the general population was 31.9%.⁴⁸ This was further exacerbated once Hurricane Maria made landfall, as the entire population was affected by the effects of the storm.^{49,50} It was estimated that 86% of the population suffered from food insecurity in the immediate aftermath of Hurricane Maria.⁵⁰ Residents lacked access to food resources, especially during the first five days after the hurricane due to the closed boat docks.⁵⁰ In addition, a nationwide electrical system failure left 3.7 million citizens without power,⁵¹ and this further contributed to the lack of fresh potable water and nutritional foods.

The Federal Emergency Management Agency (FEMA) issued a press release in October 2017, one month after Hurricane Maria impacted Puerto Rico, indicating that they had recruited residents in the south of the island to aid in the disaster recovery response efforts with the goal of better assessing the needs of the affected population.⁵² During this same month, FEMA approved the delivery of "10 million liters of water and 18 million shelf-stable meals" to address acute food insecurity.⁵² FEMA collaborated with local Puerto Rican and other federal agencies to ensure the public had access to safe and clean water by providing bottled water and engaging in sampling and analysis of the available drinking water.⁵²

Conversely, FEMA recognized that some elements of the disaster response were not optimal.⁵¹ During the 2017 hurricane season, FEMA had scarce availability of essential resources for the island's survivors including meals, potable water, and power generators.⁵³ FEMA disaster response personnel experienced difficulties with commodity allocation due to infrastructure damages, communication challenges, and the geographic distance between Puerto Rico and the U.S. which highlighted the importance of community-based efforts for future storms.⁵¹ The Department of Homeland Security acknowledged that commodities "took an average of 69 days to reach their final destinations."⁵⁴ In addition, the long-awaited emergency disaster aid including food and other essential resources had immediate effects on public health.⁵⁵ The 2017 Hurricane Season FEMA After Action Report stated various lessons that followed the initial

disaster response and illustrated how FEMA personnel would be better prepared in the following hurricane seasons.⁵⁶

FEMA and Puerto Rican emergency preparedness and response agencies are responsible for ensuring that the people of the Commonwealth of Puerto Rico have access to safe, nutritionally adequate, and culturally appropriate foods that align with the nutritional standard for optimal health, as per the most recent US Dietary Guidelines for Americans.⁴⁹ Many nutritious foods do not require refrigeration or cooking, and these along with infant formula must be made available and delivered to high-risk communities and settings as quickly as possible. High-risk communities include chronically food insecure adults⁴ and children,^{4,55} especially individuals living in remote towns in the center of the main island⁵⁷ and those with low income. Ensuring that survivors are provided with high-quality, nutritious food in the post-disaster period is crucial for their short-term and long-term physical health and mental health and their recovery from the disaster event.⁵³

Since 2017, FEMA has increased its inventory of commodities in Puerto Rico to mitigate future post-disaster food and water insecurity and provide hurricane survivors with other basic resources such as generators, blankets, tarps, and plastic sheeting.⁵⁸

Matching available resources to the local needs of those who are food insecure

FEMA's response to Hurricane Maria involved a coordinated effort to match the available resources to the needs of the vulnerable general population of Puerto Rico. FEMA worked with local officials in the community to organize and identify the populations with the greatest need, such as hospitalized patients, perinatal women, children, especially dialysis patients, the disabled, and those living in poverty. FEMA coordinated and organized the distribution of medical supplies to the affected populations.⁵⁹ However, one of the main criticisms that FEMA faced during the Hurricane was their inability to meet the affected population's need for food. Certain neighborhoods were more greatly impacted by this than others and disparities in food access were not addressed by FEMA or other aid groups in a timely way. The establishment of Disaster Recovery Centers (DRCs)⁶⁰ that were responsible for the distribution of supplies had significant delays and some individuals were waiting for weeks before aid reached them.⁶¹

In addition, after Hurricane Maria passed, FEMA was responsible for ensuring the shelters and hospitals had power since most of them lacked backup generators.⁶² Puerto Ricans had raised concerns about the effectiveness of FEMA's communication response plan. Because the nationwide lack of electricity led to a loss in communication, FEMA personnel had a hard time providing access to essential resources to the general population who did not have access to traditional communication channels.⁶²

FEMA worked with local health officials to deploy medical personnel and resources and provided temporary housing assistance to those who were displaced, through hotel vouchers and temporary shelters.⁶² FEMA also had architects rebuild the infrastructure as most houses were not able to withstand the hurricane.⁶²

Evaluating the effectiveness of the disaster response

Based on the evaluation of the effectiveness of ensuring food security post-Hurricane Maria, FEMA will conduct a thorough and ongoing evaluation of their food insecurity mitigation program to maximize effective coverage for future hurricane seasons. Evaluations will assess food insecurity before and after hurricanes, and mitigation personnel will ensure that all partnerships remain active during disaster response. Partnerships include federal and local organizations with culturally aware personnel that aid in the distribution of nutritious foods across the archipelago. The partnerships include but are not limited to the United States Department of Agriculture Emergency Food Assistance Program, The American Red Cross, Comedores Sociales de Puerto Rico, Taller Salud, and the Puerto Rican Civic Club.⁶³

Effective partnership evaluation is based on the number of partners identified during mitigation, versus the number of partners who actively participate in the disaster response. FEMA's goal is to have 100% of identified partners activated in the disaster response. Disaster response will be evaluated based on the following metrics: number of supplies distributed, number of households reached, and economic status of the households served. Resource distribution is a barrier to effective disaster response in Puerto Rico. Because of this, FEMA evaluates the number of resources delivered to Puerto Rico and the percentage of those resources successfully distributed to residents. As mentioned in the pre-disaster evaluation, FEMA has partnerships to aid in resource distribution. Acknowledging the aftermath that accompanies hurricanes that

impact Puerto Rico, the goal of FEMA is to distribute at least 95% of delivered supplies to residents of Puerto Rico.

FEMA will track the number and location of households served to ensure equitable distribution to ensure an island-wide response. The high number of households and locations reached signifies that FEMA is successfully reaching families and does not have a concentrated supply distribution. Lastly, because FEMA identifies that remotely living residents and low-income households are among the most vulnerable populations for food insecurity post-disaster, FEMA will evaluate the economic status of the households served. The goal of FEMA is to allocate nonperishable foods before and after a future hurricane makes landfall to 90% of households that identify as low-income and food insecure. Reaching at least 90% of the vulnerable populations post-disaster indicates an effective disaster response. To optimize resource distribution among geographically hard-to-reach areas, low-income residents, and vulnerable facilities like hospitals, FEMA will strategically place food resource stockpiles near these vulnerable communities. FEMA will implement mitigation and disaster response evaluation metrics to evaluate the effectiveness of the food mitigation program. These metrics include activation of pre-identified partnerships, percentage of resources distributed, number and location of households reached, and percentage of food insecure households served.

Annex 2: Drills and Exercises

Mitigating Acute Food Insecurity Post Hurricane in Puerto Rico

Training Seminar Title: How to not run out of food at least a week after a hurricane (Cómo evitar la escasez de alimentos al menos una semana después de un huracán)	
Objectives of the training seminar (What mitigation strategy are you advocating?)	To provide education on the best practices for preparing emergency food supplies in advance of a hurricane to mitigate acute food and water insecurity for at least 1 week after a hurricane
Estimate length of training	A series of 2-hour lessons will be provided weekly during May followed by bi-weekly lessons each month during Puerto Rico's hurricane season from June 1st - November 30th.

<p>Target audience and maximum size of the audience</p>	<p>Food insecure adults and children living in Puerto Rico’s six regions (North, South, East, West, Center, and the Metropolitan area)⁶⁴, including urban and rural areas</p> <p>Size of audience → 100-250 individuals</p>
<p>Who would be a good candidate as a facilitator of this session? Why?</p>	<p>The candidates that may present the seminars include:</p> <ol style="list-style-type: none"> 1. Officials from the United States Department of Agriculture Emergency Food Assistance Program with relevant expertise and experience in addressing the issue of food insecurity during emergencies 2. Representatives from “El Departamento de la Comida” (The Department of Food). A non-profit organization that empowers people to grow their own food as an alternative to depending on U.S. food imports by being self-sufficient before, during, and after natural disasters.⁶⁵ <p>The seminars will be provided at 6 University of Puerto Rico campuses including Arecibo, Mayagüez, Utuado, Rio Piedras, Humacao, and Ponce to increase access to disaster preparedness education across all 6 regions of the main island.</p>
<p>What do you want community members to do as a result of their attending this session?</p>	<ol style="list-style-type: none"> 1. Determine how much food should be acquired to meet daily dietary needs for a week 2. Increase knowledge of where to acquire local and culturally appropriate non-perishable foods that do not require refrigeration or cooking, such as farmer's markets 3. Have a reserve of foods with a long shelf life 4. Strengthen autonomous disaster preparedness to reduce the risk of short- and long-term adverse health outcomes associated with acute and chronic food insecurity

	<ol style="list-style-type: none"> 5. Have an increased understanding of the impact of food insecurity during hurricanes 6. Be better equipped with appropriate knowledge and resources to better prepare for future hurricanes
<p>Strategies to increase community uptake of our mitigation</p>	<ol style="list-style-type: none"> 1. Encourage and empower the development of community-based emergency food supply networks by bringing forth lessons learned from past hurricanes 2. Provide attendees with a checklist for emergency food supplies and information regarding how much food and water should be stockpiled for each day per family member 3. Share information about local emergency food aid resources appropriate to where the attendees currently reside 4. Supply contact information and address of FEMA Disaster Recovery Centers 5. Provide access to information regarding Puerto Rico's Nutrition Assistance Program (NAP) 6. Hosting follow-up events or workshops to support the development of community-based emergency food supply networks <p>Materials to provide: The materials provided by FEMA and the USDA are handouts and/or packets containing important information that is easy to read in regard to how to protect oneself and how to have food safety during hurricanes and storms.^{66,67,68}</p>

Annex 3: Short-Term Recovery

Mitigating Acute Food Insecurity Post Hurricane in Puerto Rico

Necessities	Possible Resources	Distribution Strategies
Water	<p data-bbox="407 390 711 520">Puerto Rico Aqueducts and Sewers Authority (PRASA)</p> <p data-bbox="407 688 646 720">Samaritan's Purse</p> <p data-bbox="407 993 711 1024">Puerto Ricans in Action</p>	<p data-bbox="769 390 1495 573">Owner and operator of the public water supply in Puerto Rico supplying water to 97% of the Island. PRASA will have tanked water supplies strategically placed throughout the Island to distribute potable water.⁶⁹</p> <p data-bbox="769 642 1463 873">Provides resources to communities that have recently experienced a disaster. Focuses on serving hard-to-reach communities including rural areas. Experience in providing potable water to rural areas in Puerto Rico after Hurricane Fiona and Maria.⁷⁰</p> <p data-bbox="769 945 1487 1173">The Clean Water Project gives people across the island Kohler Clarity filters, so they have the ability to filter out up to 99% of bacteria that are commonly found after hurricanes. The project focuses on communities that do not receive PRASA water.⁷¹</p>
Food	<p data-bbox="407 1224 711 1455">United States Department of Agriculture-Emergency Food Assistance Program</p> <p data-bbox="407 1577 740 1608">Cruz Roja de Puerto Rico</p>	<p data-bbox="769 1224 1495 1455">Delivers pre-boxed meals to households as part of the Disaster Household Distribution Initiative. Post-hurricane Fiona, this program was successful in delivering over 30,000 meals from September to October.⁷² This same distribution method will be used.</p> <p data-bbox="769 1526 1471 1808">Puerto Rico's Red Cross dedicates itself to fundraising for commodity purchases and distributing resources across the Island post-disaster. After Hurricane Maria, food relief was the second largest expense for Cruz Roja, accounting for nearly a quarter of their expenses and \$18.9 million dollars. Volunteers of Cruz Roja will</p>

	<p>Deliveries from mainland United States neighboring countries</p> <p>World Central Kitchen</p>	<p>aid in the distribution of food with an emphasis on setting up distribution in hard-to-reach communities.⁷³</p> <p>It is expected that with the disaster there will be an influx of donated food supplies from different organizations in the mainland United States and neighboring countries. These donations will be integrated into existing food distribution points with an established workforce/volunteer base.</p> <p>After Hurricane Maria distributed healthy food to all 78 municipalities in Puerto Rico. Following Hurricane Fiona, they distributed 589,000 meals to individuals across the island.⁷⁴</p>
<p>Housing</p>	<p>Roberto Clemente Coliseum</p> <p>Federal Emergency Management Agency Transitional Shelter Assistance Program (TSA)</p> <p>ConPRmetidos</p>	<p>Located in San Juan, the Roberto Clemente Coliseum served as a temporary shelter post-Hurricane Maria and can serve as a distribution point for resources. If a resident's home is inhabitable, this location will serve as a short-term shelter until a more permanent situation can be found.⁷⁵</p> <p>Provides payments to hotels/motels to provide temporary shelter for residents whose homes are uninhabitable after a hurricane.⁷⁶</p> <p>Provides grant-based funding to help rebuild and repair houses by completing structural analysis and ensuring that their new roofs are hurricane resistant.⁷⁷</p>

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