

Exploración de la capacidad de recuperación del agua y la energía para el Centro Comunitario de Cubuy

Exploring Water and Power Resiliency for the Cubuy Community Center

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WPI



Declaración de intenciones

Mission Statement

Este proyecto tenía por objeto ayudar al Centro Comunitario de Cubuy a implantar una fuente de energía y agua potable sostenible y fiable.

This project was intended to assist the Cubuy Community Center in implementing a sustainable, reliable power and potable water source.





Sistema de energía solar

Solar Power System

- Necesidad de una fuente de energía sostenible
Need For Sustainable Power Source
- Donación de ProSolar
ProSolar Donation
- Dibujos técnicos desarrollados
Developed Technical Drawings

Existing Infrastructure



Plans for Improvement



Recomendaciones del sistema de energía solar

Solar Power System Recommendations

- Promover la donación de ProSolar
Promote ProSolar Donation
- Conectar los sistemas eléctricos existentes
Connect Existing Electrical Systems
- Usos del exceso de electricidad
Uses For Excess Electricity
- Configurar el crédito/compra de la PREPA
Setup PREPA Credit/Buyback

ANÁLISIS DE USO DE AGUA

WATER USAGE ANALYSIS

Agua
municipal

**OPERACIÓN
NORMAL**

Municipal water

NORMAL OPERATION

Uso
doméstico
potable

EMERGENCIAS

Domestic potable
use


EMERGENCIAS

Uso no
esencial y no
potable

**USO
ALTERNATIVO**

Non-essential,
non-potable use

ALTERNATIVE USE



La configuración de un pozo perforado
The setup of a drilled well

EMERGENCIAS

PERFORAR UN POZO

Drill a well

Pros

- **Potencial de mucha agua**
Has potential to provide a lot of water
- **Más resistente a las tormentas**
Higher resistance to storms

Cons

- **Fuente de agua potable más cara**
More expensive system
- **Poco explorado en Cubuy**
Not explored in Cubuy

RECOMMENDATIONS

- Investigar más a fondo la viabilidad de la perforación de un pozo
Do more extensive research on the feasibility of drilling a well

UTILIZAR SISTEMA DE RECOLECCIÓN DE AGUA DE LLUVIA

Utilize a rainwater harvesting system

Pros

- Más baratos
It is a cheaper system
- El agua recogida necesita menos tratamiento
Collected water needs less treatment

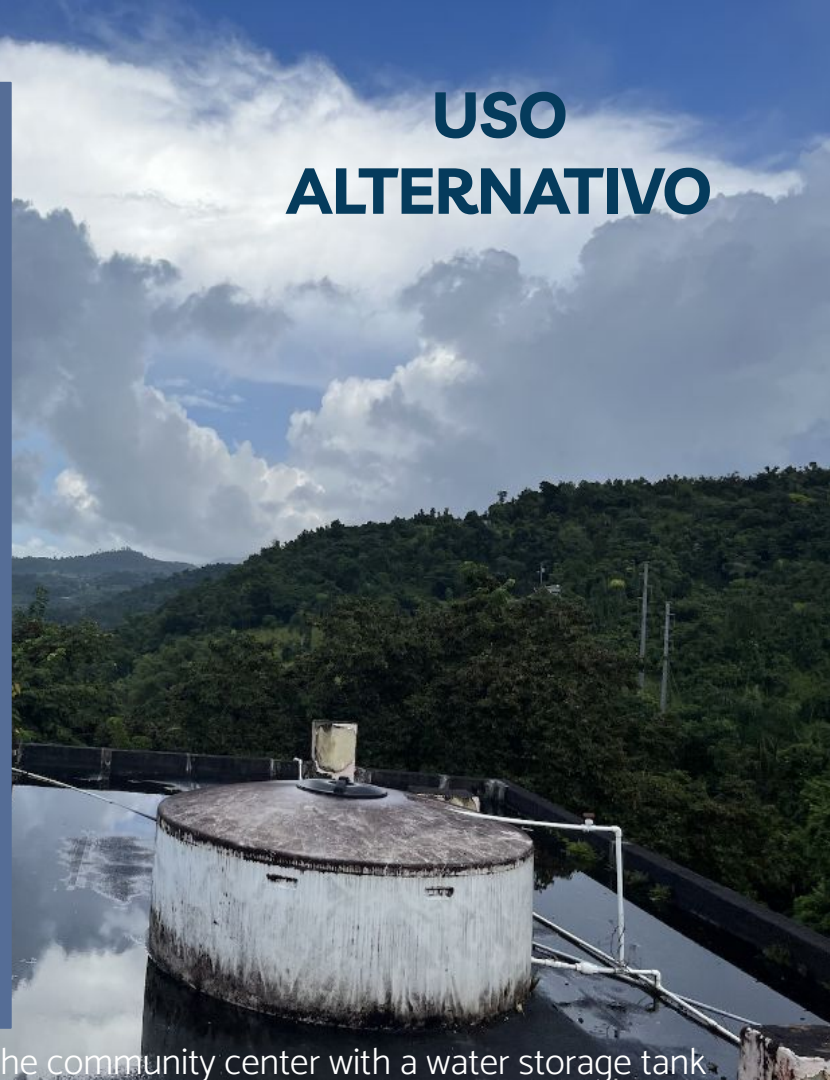
Cons

- Menos resistente a las tormentas
Less resistant to storms
- No se puede utilizar para el agua potable
Cannot be used for potable water

- Sólo puede proporcionar agua a entre **55 y 112** personas al mes

A RWH system can only provide water to 55-112 people monthly

USO ALTERNATIVO



One of the roofs at the community center with a water storage tank

Amount of People Supported for Domestic Use of Water by Month for Roof 5

Month	Average Monthly Rainfall (in)	Estimated supply to collection tank (gal)	People Supported for Minimum Domestic Use	People Supported for Maximum Domestic Use
January	6.08	5,060	82	41
February	5.40	4,495	81	41
March	7.92	6,591	107	54
April	5.37	4,472	75	38
May	8.38	6,977	114	57
June	4.50	3,748	63	32
July	10.53	8,771	143	71
August	12.26	10,212	166	83
September	9.05	7,536	127	63
October	7.51	6,257	102	51
November	10.30	8,578	144	72
December	8.79	7,321	140	60
Average	8.01	6,668	112	55
Annual	96.10	80,019	1345	662

Roof 5 Properties

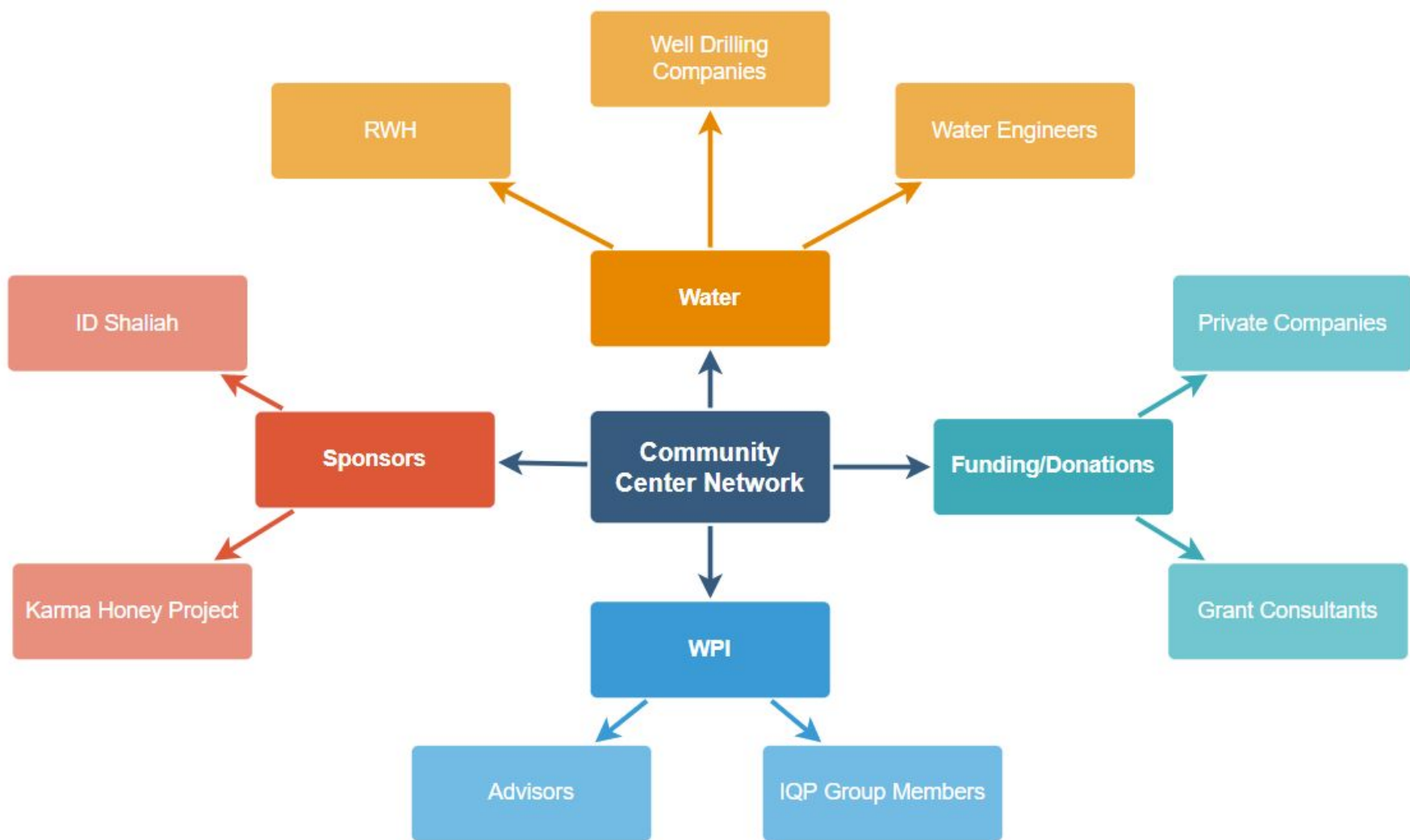
Area of Roof (sq.ft)	Material of Roof	Collection Efficiency of Roof
1,542	Asphalt	0.9

Red de Contactos y Difusión



Focus Group at the Community Center and Interviews

- **La creación de redes fue vital para este proyecto**
Networking was vital for this project
- **Proceso Difícil**
Difficult process
- **Maximizar las conexiones**
Maximize connections



OPORTUNIDADES DE FINANCIACIÓN



Together, America Prospers

Emergency Community Water Assistance Grants

What does this program do?

This program helps eligible communities prepare, or recover from, an emergency that threatens the availability of safe, reliable drinking water.

The following events qualify as an emergency:

- Drought or flood
- Earthquake
- Tornado or hurricane
- Disease outbreak
- Chemical spill, leak, or seepage
- Other disasters

NOTE: A federal disaster declaration is not required.

Who may apply for this program?

- Most State and local governmental entities
- Nonprofit organizations
- Federally recognized Tribes

What is an eligible area?

- Rural areas and towns with populations of 10,000 or less – [check eligible addresses](#)
- Tribal lands in rural areas
- Colonias

The area to be served must also have a median household income less than the state's median household income for non-metropolitan areas. Contact your [local RD office](#) for details.

How may funds be used?

- Water transmission line grants up to \$150,000 to construct waterline extensions, repair breaks or leaks in existing water distribution lines, and address related maintenance necessary to replenish the water supply
- Water source grants up to \$1,000,000 to construct a water source, intake or treatment facility

Are matching funds required?

Partnerships with other federal, state, local, private, and nonprofit entities are encouraged.

How do we get started?

- Applications for this program are accepted year round online at <https://www.rd.usda.gov/programs-services/rd-apply> or through your [local RD office](#).
- Program Resources are available online (forms, guidance, certifications, etc.).

Who can answer questions?

- Staff in your [local RD office](#).
- Participating nonprofit associations

What law governs this program?

- Code of Federal Regulation, [7 CFR 1778](#)
- Section 306A of the Consolidated Farm and Rural Development Act

"Why does USDA Rural Development do this?"

This program helps prevent damage or restore households and business' access to clean, reliable drinking water in eligible rural areas and towns following natural disasters. Funding can improve the natural environment and encourage manufacturers and other businesses to locate or expand operations.

NOTE: Because citations and other information may be subject to change, please always consult the program instructions listed in the section above titled "What Governs This Program?" You may also contact your local office for assistance. You will find additional forms, resources, and program information at rd.usda.gov. **USDA is an equal opportunity provider, employer, and lender.**

Last Updated: July 2020

FEMA - Construir Infraestructuras y Comunidades (BRIC)



USDA - Instalaciones Comunitarias Programa de Subvenciones

USDA - Programa de Agua Rural y Eliminación de Agua



USDA - Ayuda Comunitaria de Emergencia para el Agua

FUTURE FINANCE RECOMMENDATIONS



**Hacer un
Presupuesto**

**Create One
Budget**

**Implementar
un (VMS)
Sistema de
gestión de
voluntarios**

**Implement a
(VMS)**

**Combinar
documentos
en un solo
lugar**

**Create
Document
Library**

**Redactar
una
propuesta de
proyecto**

**Write
Project
Proposal**

Resultados del Proyecto

Project Deliverables

1

Guía de Construcción de Resiliencia
Building Resiliency Guide

2

Modelo informático 3D
Revit Model

Guía de construcción de resiliencia

Building Resiliency Guide

BUILDING RESILIENCY AT THE CUBUY COMMUNITY CENTER *A HANDOFF REPORT*

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Overview of the Cubuy Community Services and Development Center

3D Modelo

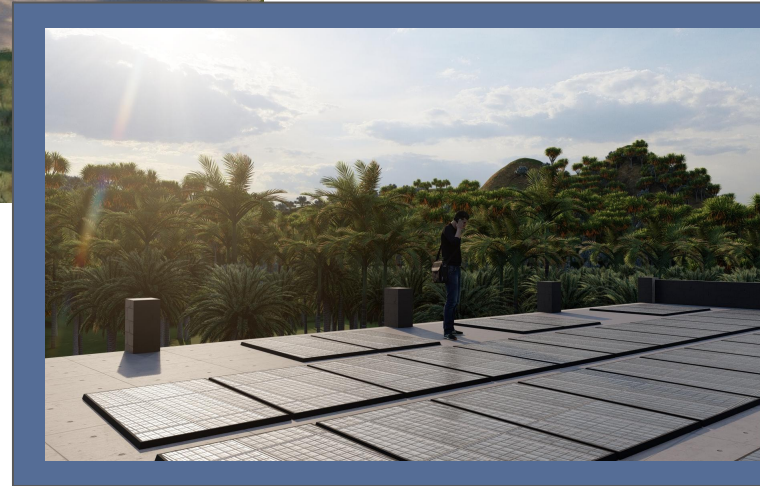
Representación del Centro Comunitario
Mediante un Programa Informático





Plano de la Zona y Colocación de los Paneles Solares

Site Plan and Placement of the Solar Panels



Estamos Muy Agradecidos Por :

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GRACIAS!