

PUERTO RICO STUDIO

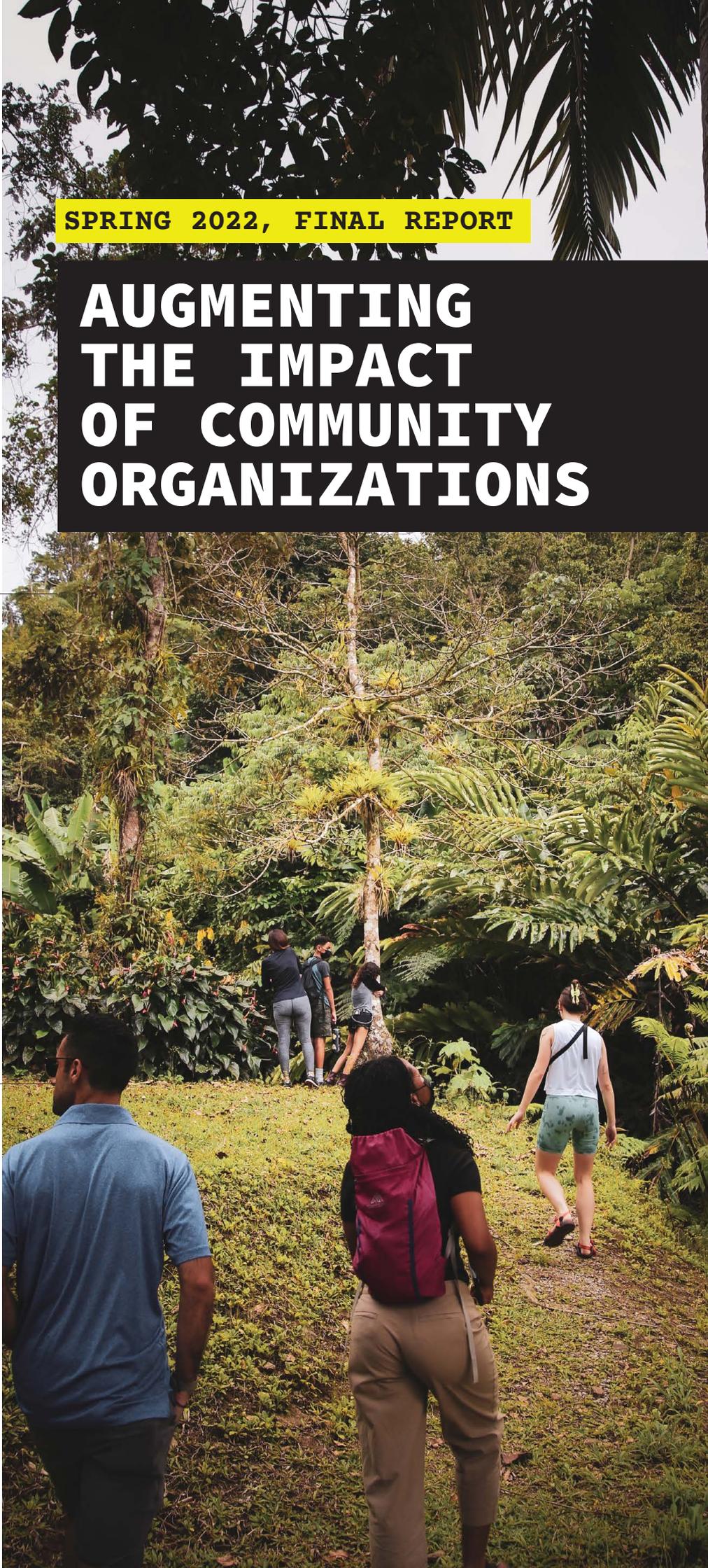
GEORGIA TECH SCHOOL OF CITY AND
REGIONAL PLANNING

ADVISED BY DR. CATHERINE ROSS AND
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IN COLLABORATION WITH
IMPACTO JUVENTUD

SPRING 2022, FINAL REPORT

AUGMENTING THE IMPACT OF COMMUNITY ORGANIZATIONS





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EXECUTIVE SUMMARY

This studio is based on a philosophy of community-based planning that centers community needs which are supported by external partners. Building off the work of the 2019 and 2020 Georgia Tech studios in Puerto Rico, the 2022 studio recognizes that global studios can be mutually beneficial for students to broader than perspectives and for partners to increase access to additional resources. In the context of this studio, this was best accomplished by building the capacity of community organizations to support their outreach and activism. Accordingly, the studio aimed to leverage a planning skillset to bolster the organizational capacity of the partner organization, Impacto Juventud.

This studio embraced a flexible and iterative approach to planning. In order to be truly responsive to the community's needs, this studio relied on an interdisciplinary team, which provided a diverse set of skills, knowledge, and interests to support the wide breadth and depth of work for our client, Impacto Juventud. To accomplish the studio's goals, students collectively organized into 4 distinct teams of pairs - project management, organizational capacity, community resources and access, and renewable energy. The studio also hired a Student Liaison to interface between Georgia Tech, Impacto Juventud, and the Rucio community. This internal structure allowed different pairs to focus on different aspects while maintaining overarching communication and support across the studio. In addition to a dedicated student team from Georgia Tech, this studio would not have been possible without the commitment from the volunteers of Impacto Juventud and the members of the Rucio community.

In addition to creating an inclusive and community-centered process, the studio was also able to produce a number of deliverables. It was important that each deliverable meet the client's needs and be deliverable in an accessible format. The table below summarizes the products produced for Impacto Juventud. The studio also produced three presentations, the final report, and a website to showcase the process and workflows of the studio itself.

	Client Needs	Objectives	Deliverables
Organizational Capacity	Brand Clarity, Digital Presence, Funding Sustainability	Create cohesive digital assets that communicate organization's story and impact	<ol style="list-style-type: none"> 1. Impact Report 2. Website 3. Brand Guide 4. Social Media Templates
Community Resources and Access	Assessment of accessibility to essential services for partner community	Identify access to amenities and disamenities in and around Rucio	<ol style="list-style-type: none"> 1. Static maps 2. Story map 3. Interactive map
Renewable Resources	Educational and Supportive Resources for Solar Projects	To ease the burden of Impacto and Rucio in forming partnerships and financing to install solar	<ol style="list-style-type: none"> 1. Menu of Solar Options 2. Menu of Financing Options 3. Directory of Grants 4. Community Case Studies & Contacts



PREFACE: PLANNING AS PROCESS

REFLECTING ON THE NUANCE OF OUR WORK

As students of planning, we begin with the theories of planning processes. Debates on rational-comprehensive versus incrementalism aside, many of us are introduced to the planning as a field where both process and progress are important. Despite this being our start to the planning profession, process is sometimes lost to constrained budgets, hard deadlines, and an emphasis on final products. It is easy to lose sight of process as the means to accomplish goals and, perhaps more importantly, as a goal itself. Indeed, inclusive and participatory processes may generate more equitable and effective action items with the levels of community buy-in needed to see them through to implementation and maintenance. Embracing this studio as an opportunity to apply our academic skills and knowledge to tactical interventions, the 2022 studio is guided by a process-oriented philosophy that centers upon community-focused work and actionable deliverables.

Planning with, not for, communities is generally understood as a core principle when engaging in effective community development. However, the development and implementation of community-based planning can be a labor-intensive process, particularly for many underserved communities who disproportionately bear the burden of earlier, inequitable planning practices. Consequently, in many instances, including the context for this studio, the path to better planning incorporates some level of community organizing or partnerships. These partnerships are critical conduits for communication, resources, skills, and building trust. These aspects are even more important when working with people and groups outside of the community. Cognizant of the benefits to strong community partners both for community development and future external collaboration, the 2022 studio agreed that strengthening the community organization would be the most directly impactful for short- and long-term community development.

Beyond the planning work, studios present additional opportunities and challenges. For students, studios are a critical opportunity to gain professional experience before graduation and apply the skills learned in the classroom to client-driven projects. Furthermore, for many of the students in the studio, the work we set out to do for the studio may be unlike any experiences we have had or may have in the future. This is especially the case given the global context of the studio.

Working globally or in other cultural contexts is a valuable educational opportunity for students and chance to share resources and knowledge around the world. As planning students educated in the United States, learning about and engaging with other planning systems from other countries challenges our embedded notions of planning and expands our awareness of alternative methods. For global partners outside of the continental US, working with external partners opens access to additional resources and skills beyond what may be available within the given system. While there are certainly challenges to working globally, particularly acknowledging the colonial history between the United States and Puerto Rico, global development studios can still be mutually rewarding and beneficial experiences for students and communities.

INTRODUCTION

III.

DETAILING THE CONTEXT AND FRAMING FOR THE 2022 STUDIO

STUDIO CONCEPTION

The 2022 studio is the third studio offered by Georgia Tech's School of City and Regional Planning (SCaRP) focusing on communities within Puerto Rico and builds upon SCaRP's core focus of global development. The Global South has become an especially important area of work given the rapid rate of change and need for global cooperation to address issues such as public health, climate change, and improved quality of life. Each of the past Puerto Rico studios touch on these important areas of global development.

Both the 2019 and 2020 Puerto Rico studios emphasized the value and need for global planning efforts. The student-driven 2019 studio was "a response to the widespread devastation left by two powerful hurricanes, Hurricane María and Hurricane Irma, that impacted Puerto Rico in 2017" (School of City and Regional Planning, n.d.). The 2020 studio was focused on the U.S. Decennial Census efforts and the need to increase Puerto Rico's representation in official U.S. data and documentation (School of City and Regional Planning, n.d.). In both cases, working in Puerto Rico provided both unique opportunities and challenges that made the studio experience for students and work provided for the client as uniquely a rewarding experience.

Building off the precedent of the past two studios, this studio sought to expand the impact of the studio experience through cross-functional collaboration. This included recruiting eight students from the Master of City and Regional Planning (MCRP) program, one student from the Master of Science in Geographic Information Science and Technology (MS-GIST) program, and one student from the Master of Science in Computer Science (MS-CS) program. Having students from different fields created a unique experience to build relationships across Georgia Tech and created a more realistic professional work environment in which teams within an organization work across roles to serve a client. Beyond Georgia Tech, this studio was committed to building a strong rapport between Georgia Tech and our community partner, Impacto Juventud. From a methodical selection process to hiring a student liaison to interface between the organizations, the studio's efforts at building strong organizational relationships reflect an understanding of need and an appreciation for dedicated community partners to guide, support, and implement the studio work. Lastly, working in Puerto Rico created an opportunity for mutual skills and knowledge sharing across cultures for both organizations. As a result of these unique collaborations, this studio possessed a vast resource pool of quantitative and qualitative skills, local and global knowledge, and key connections. These resources were then leveraged to shape the studio's goals, processes, and outcomes.

The collaborative and interdisciplinary nature of this studio brought together a unique set of skills, knowledge, and interest that were essential to fostering the

INTRODUCTION

breadth and depth of the studio experience. Furthermore, the delivery and application of this interdisciplinarity was varied. Guest lecturers contributed perspectives from international planning, sustainability and climate change, business, and engineering. A diverse group of students brought varied yet complementary interests and skill sets. To create a wide array of client-orientated deliverables, students engaged in a variety of methodologies ranging from quantitative and qualitative mapping, semi-structured interviews, data scraping, and formal and informal network building. The result of this unprecedented level of interdisciplinary collaboration is a unique, dynamic, and immensely productive studio.

In addition to creating a strong team from Georgia Tech, a strong community partner is essential. However, the process of finding, vetting, and establishing a relationship with a partner can be quite labor intensive, especially given the geographic challenges of working between Atlanta and Puerto Rico. The partner selection process began in the summer of 2021, with student research assistants searching for and gathering background information on potential community-focused partner organizations in Puerto Rico. In October 2021, the 8 MCRP students of the studio were asked to review and rank their preferred potential partners. In November 2021, Drs. Ross and Fuentes visited Puerto Rico to meet with the potential studio partners to determine whether a studio relationship would be mutually beneficial to the studio and the partner organization. Between the student input and the meetings with the potential partners in Puerto Rico, Impacto Juventud was selected as the most suitable studio partner.

STUDIO TEAM

PROFESSORS

The studio was led by Dr. Catherine Ross and Dr. Alberto Fuentes of Georgia Tech. Dr. Eduardo Lugo is a professor of clinical psychology at the University of Puerto Rico – Mayagüez and founded Impacto Juventud, the studio's client organization.



DR. CATHERINE ROSS



DR. ALBERTO FUENTES



DR. EDUARDO LUGO

INTRODUCTION

STUDENTS

The student team for studio was composed of 11 students of diverse affiliations and backgrounds. 8 students were from the Master of City and Regional Planning (MCRP) program with a variety of different specializations, skills, and interests. There were 2 additional Georgia Tech students supporting the technical needs of the studio. Purva Singh is getting her Master of Science in Computer Science (MS-CS), and Pooja Gopi is getting Master of Geographic Information Science and Technology (MS-GIST). Although not technically in the studio, Purva and Pooja directly contributed to producing studio deliverables, namely Impacto Juventud's website.

In addition to Georgia Tech students, the studio hired Paula Negrón-López as the designated Student Liaison to help coordinate between Georgia Tech and Impacto Juventud. Paula is a student at Ponce Health Sciences University pursuing a PhD in clinical psychology and is actively involved with Impacto Juventud. Paula helped connect the Georgia Tech team to the appropriate Impacto Juventud volunteers and staff, communicated logistic information, and facilitated community interactions.

MCRP TEAM



SARAH AL-KHAYYAL



ORION ALLGAIER



SAFAE AMAHRIR



BIANCA MERS



NOEL WEBBER



JANELLE WRIGHT



NATHAN WAGLIARDO



IZZY YANDELL

SUPPORT TEAM



PAULA NEGRÓN-LÓPEZ



PURVA SINGH



POOJA GOPI

STUDIO CLIENT

Impacto Juventud began as a project in the course Psychology of Adolescence (PSIC 3039) offered by Dr. Eduardo A. Lugo Hernández at the University of Puerto Rico Mayagüez Campus. The initiative began in 2017 as a collaboration between Dr. Lugo and his students with the aim of raising social awareness and promoting citizen and political participation in youth. To achieve this, a video was developed with the goal of addressing the issue of poverty and its effects on the country’s youth. The video was screened at El Cine del Mayagüez Town Center, and also disseminated across social media networks like Facebook and YouTube. After the semester ended, a group of students from the course and Dr. Lugo decided to continue with the project and expand its scope. To this end, the members outlined its structure, mission and vision. In addition, they created mechanisms to reach out to the youth of the country and promote an agenda of citizen and political participation. Today, Impacto Juventud’s team, consisting of a Youth Board and dozens of volunteers of all ages, leverages social networks, the arts, public activities, and participation in public policy to promote its message and mission. Impacto Juventud has grown to include several branches encompassing the type of engagement and programming offered to various communities. Among these are the primary Impacto Juventud organization, Aula sin Paredes, and Chiqui Impacto.

IMPACTO JUVENTUD

Impacto Juventud programming aims to engage young people, from 15 to 25 years old, in the movement for social change in Puerto Rico. With a focus on mental health as a key ingredient for building and sustaining community-based movements, Impacto Juventud regularly facilitates conversations on topics that advance health justice.

AULA SIN PAREDES

Aula sin Paredes is an educational tutoring project that aims to fill the resource gaps experienced by children living in rural and underserved communities in Puerto Rico. Aula builds on the interests of the kids, actively creating spaces of empowerment, growth, and healing. Aula en la Montaña is a sub-program within Aula sin Paredes that works directly in the Rucio community, which was the main community of focus for the studio.

CHIQUI IMPACTO

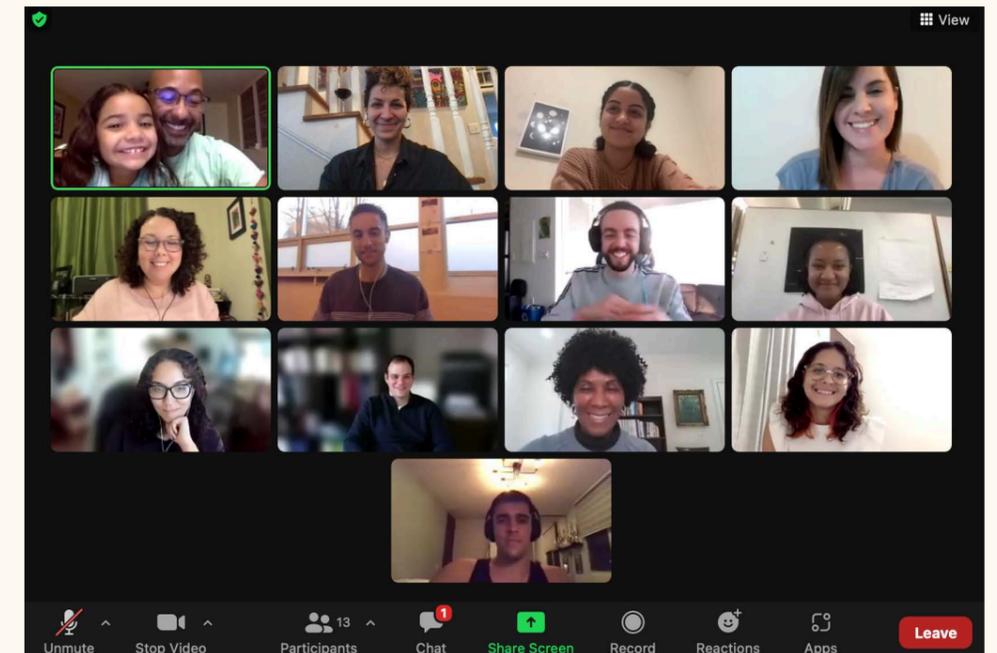
Chiqui Impacto is a project dedicated to providing tools to parents, teachers, and other caregivers who promote the wellbeing of children from 0-10 years old. Chiqui provides entertainment and educational activities for children, and early childhood development resources for adults to utilize for the betterment of youth wellbeing in Puerto Rico.

STUDIO-CLIENT RELATIONSHIP

The relationship between Georgia Tech, Impacto Juventud, and the Rucio community was one built on trust and commitment to shared goals. From problem definition to building connections to operationalizing studio deliverables, the studio-client relationship shaped and was shaped by the studio throughout the semester.

To build and maintain a strong studio-client relationship, the studio engaged in a variety of communication methods. One of the most unique features was hiring Paula from Impacto Juventud to serve as the Student Liaison between Georgia Tech and Impacto Juventud. In addition to the relationship with Paula, studio members regularly sent emails and held virtual meetings with key stakeholders and community members. Virtual meetings were a critical opportunity to connect and build trust between studio members and partners in Puerto Rico given the geographic challenges. However, unreliable electricity and internet access across the island created logistical challenges for communication. This made communicating with community members before the site visit particularly difficult. Furthermore, communication with the community was always facilitated through Impacto Juventud to build trust, bridge language gaps, and maintain their central role in community engagement. To that point, the success of this studio is due in large part to the efforts of the Impacto Juventud staff and volunteers who invested their time and efforts into supporting the studio’s work and to building a productive relationship between Georgia Tech, their organization, and the community.

FIG. 1 : ONE OF MANY VIRTUAL MEETINGS BETWEEN THE GEORGIA TECH TEAM AND IMPACTO JUVENTUD STAFF AND VOLUNTEERS



STUDIO OBJECTIVES

Faced with a complex set of challenges and opportunities for intervention, the studio sought to utilize a collaborative and iterative process, engaging the client from the very start of the workflow. The process began by defining the problems the studio would seek to address, for whom, and using what methods. People closest to the problems have the best understanding and most valuable perspective on the problems the studio aimed to solve; thus, the studio coordinated a site visit for Professor Lugo of Impacto Juventud to visit the studio team at Georgia Tech.

The power of being in the same physical cannot be overstated. In person, the studio team was able to connect with Dr. Lugo in a new way and gain valuable insights into Impacto Juventud’s structure, strengths, resource gaps, and successes. The methods for obtaining this information consisted of giving a presentation to Professor Lugo outlining the baseline understanding of the conditions and culture of the Rucio community, discussing Rucio’s socioeconomic challenges and Impacto Juventud’s organizational challenges, and finally conducting a design sprint to build consensus around the understanding of the issues and desired objectives. To drill down into the particulars of systemic issues such as colonialism, capitalism, and climate change, studio members led a design sprint with the ultimate goal of building consensus around the studio objectives and project scope [FIG. 2-4].

The studio team facilitated several rounds of rapid ideation, with each student and professor writing down the problems that they believed Impacto Juventud faced, the problems that they believed Rucio faced, and the various stakeholders that they perceived to be potentially involved, contributing, or affected. With Dr. Lugo’s guidance, the studio collaboratively grouped the problems based on common themes, ranked the thematic problems in terms of potential impact and intervention feasibility, and worked to build consensus around the studio’s aims accordingly.

The studio ultimately landed on three main opportunity areas, united by an overarching research question. The guiding question was “how can the studio increase Impacto Juventud’s organizational capacity through accessible data communications?” In other words, how can the studio leverage information— formal and informal, print and digital, institutional and community based—to support Impacto Juventud’s work, both in terms of their internal organizational processes and their external community work? Within this guiding question, the studio broke the objectives out into three main areas of potential impact: 1) internal organizational capacity, 2) community resource accessibility, and 3) renewable energy for vulnerable communities.

Table 1 synthesizes the challenges and needs of Impacto Juventud, the studio’s goals and objectives that align with the client needs, and the list of deliverables the studio produced to support their objectives.

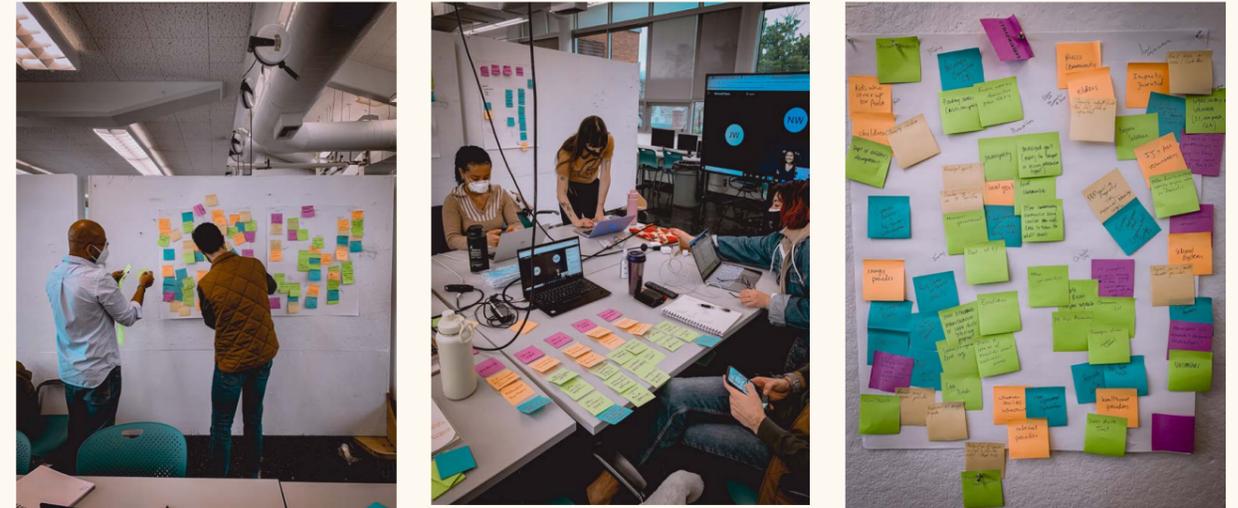


FIG. 2-4 : DESIGN SPRINT AND PROJECT SCOPING PROCESS

	Client Needs	Objectives	Deliverables
Organizational Capacity	Brand Clarity, Digital Presence, Funding Sustainability	Create cohesive digital assets that communicate organization's story and impact	1. Impact Report 2. Website 3. Brand Guide 4. Social Media Templates
Community Resources and Access	Assessment of accessibility to essential services for partner community	Identify access to amenities and disamenities in and around Rucio	1. Static maps 2. Story map 3. Interactive map
Renewable Resources	Educational and Supportive Resources for Solar Projects	To ease the burden of Impacto and Rucio in forming partnerships and financing to install solar	1. Menu of Solar Options 2. Menu of Financing Options 3. Directory of Grants 4. Community Case Studies & Contacts

TABLE 1 : ALIGNING CLIENT NEEDS, OBJECTIVES, AND DELIVERABLES

STUDIO STRUCTURE

The students of the studio established internal workflows and structures based on the mutually established studio objectives, student interests, and skill sets. The resulting 5 sets of student pairs – project management, organizational capacity, community resources and access, renewable energy, and website tech support – align with the needs of the studio and the distinct but interconnected studio projects for the studio client. This structure fostered a sense of ownership for each of the distinct areas of support while establishing channels for communication to coordinate overlapping needs such as data collection, community input, relationship building, and additional support from external partners. These lines of communication and interactions are captured in Figure 5, Studio Interaction Network Map.

The Studio Interaction Network map captures main stakeholders, channels of communications, and types and amounts of interactions. Broadly speaking, the two main groups of stakeholders are the Georgia Tech team, in shades of yellow, and the community partners, in shades of green. Within each of these groups are different subgroups, indicated by black boxes and different levels of shading to indicate degrees of affiliation with the broader group. For the arrows, different colors indicate different types of interaction with larger arrows indicating more frequent or more intense communication. Arrows are colored with the primary purpose of the interaction, though in most cases, interactions had a variety of goals.

The Studio Timeline, shown below in Figure 6, captures the time span and major events with the studio. Securing funding and building relationships with potential community partners began nearly a year in advance in Spring 2021. Students of the studio were engaged in Fall 2021 to provide input into the partner selection process, which was then supplemented with Drs. Ross and Fuentes visiting potential partners in Puerto Rico. During the Spring 2022 semester, there were several key milestones including Dr. Eduardo Lugo’s visit to Atlanta, the trip to Puerto Rico, and the completion and delivery of final deliverables.

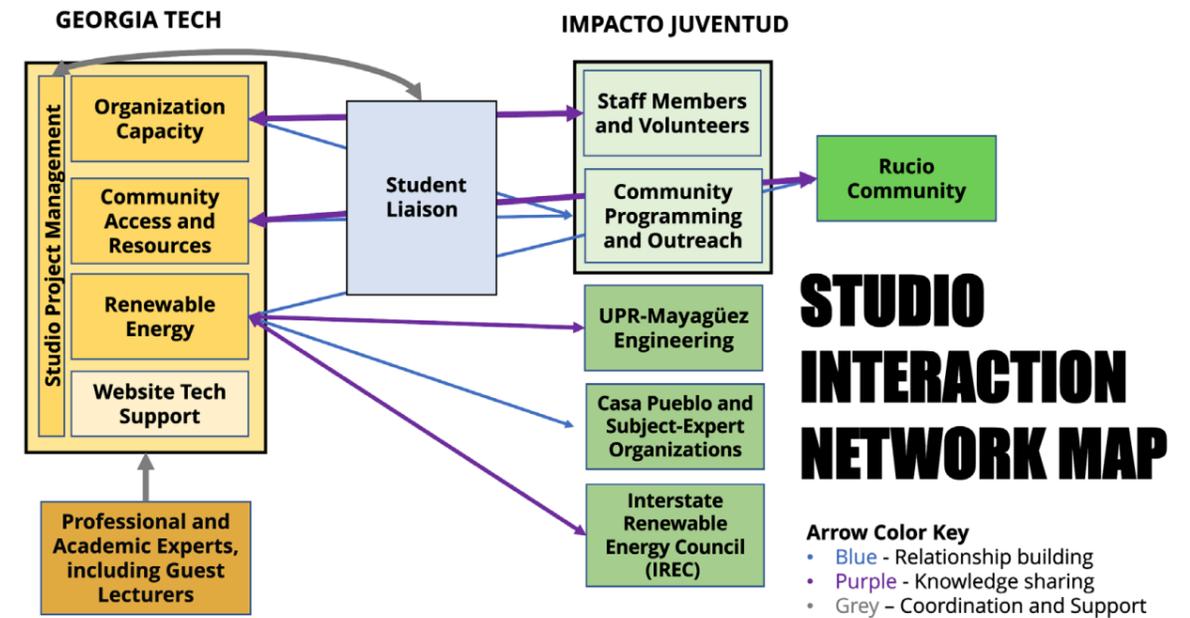


FIG. 5 : STUDIO INTERACTION NETWORK MAP

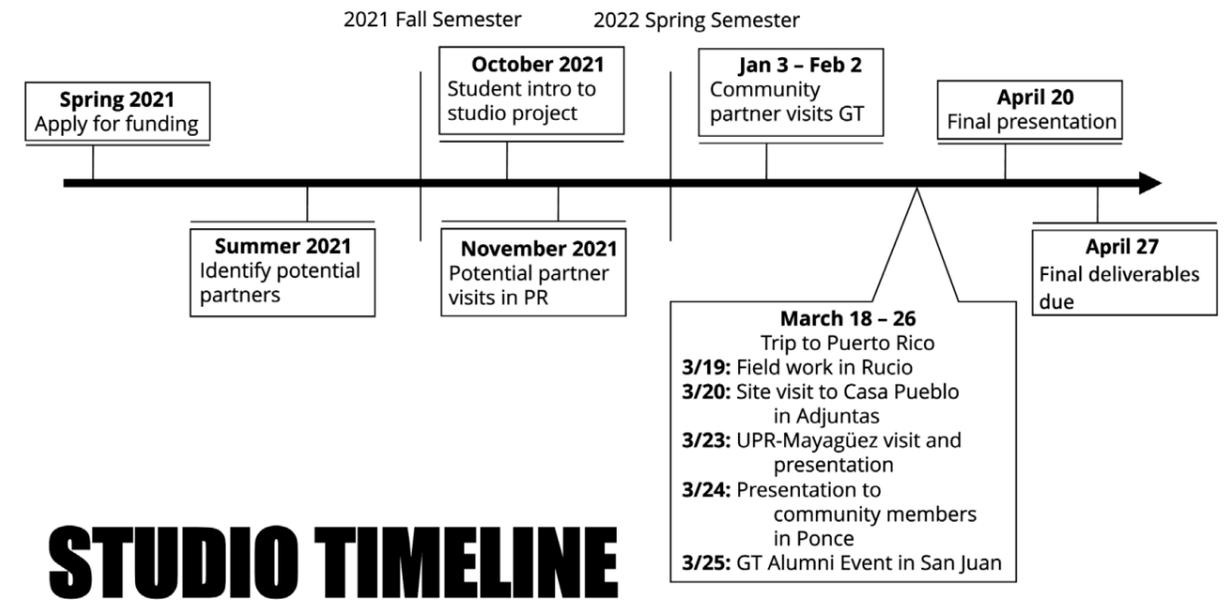


FIG. 6 : STUDIO TIMELINE

FIELD WORK IN PUERTO RICO

Cognizant of the concerns and complications around COVID-19, the studio was still able to go to Puerto Rico from March 18th to March 26th during Georgia Tech’s spring break. The trip to Puerto Rico was critical to supporting the broader studio goals and objectives in addition to being an important experience itself.

PURPOSE OF THE TRIP

The studio had 3 primary purposes for visiting Puerto Rico and the Rucio community. A majority of the studio’s students had never been to Puerto Rico. As a result, despite extensive background research from Atlanta, it was incredibly difficult to contextualize the studio’s work on a day-to-day level without experiencing Puerto Rican culture, even for a short period of time. Thus, one of the purposes for the visit was to provide students some contextual knowledge to more properly represent the studio’s findings, deliverables, and recommendations through a cultural and social lens. This was especially critical given the community of Rucio itself.

Second, visiting Rucio enabled the studio members to retrieve the data required to inform the project and perform analysis. Due to the community’s geographical, political, and social isolation, it was incredibly difficult to collect the necessary information for the studio’s work from Atlanta. In some instances, there was no data to begin with, so the studio had to generate or collect it. This included collecting community input via a collaborative mapping activity, conducting interviews to gather community experiences and sentiments, and documenting physical conditions such as road and energy infrastructure. The community members embraced the studio’s work with warmth and honesty, contributing to the quantity and quality of data the studio was able to collect. This information was essential for the studio but would not otherwise have existed or been available without the field experience.

Lastly, physically visiting Puerto Rico allowed studio members to meet with people that they were unable to connect with from the US. There were a number of reasons why some people were inaccessible from Atlanta including limited electricity or internet access, people being spread out across the island, and scheduling or availability conflicts. Additionally, for other relationships where there had previously been virtual interaction, the nuance and depth of connection by meeting face-to-face helped build trust and reduced miscommunications. This was further facilitated by meeting people in their environment, hopefully making them feel more comfortable and empowered to engage.

SUMMARY OF EVENTS

The studio arrived in Puerto Rico on March 18 and stayed until March 26th. During that time, the studio visited a number of key sites, engaged with various stakeholders and community members, delivered presentation to share progress updates and receive feedback, and built connections across the island. Table 2 summarizes the studio’s activities each day of the trip.

SUMMARY OF DAILY ACTIVITIES

FRIDAY MARCH 18	SAN JUAN	ARRIVE IN PUERTO RICO
SATURDAY MARCH 19	RUCIO, PEÑUELAS	<ul style="list-style-type: none"> - FIELD WORK IN RUCIO - TOUR OF COMMUNITY - INTERVIEWS WITH COMMUNITY MEMBERS - TESTIMONIALS FROM IJ STAFF AND VOLUNTEERS - COLLABORATIVE MAPPING ACTIVITY - DOCUMENTATION OF CONDITIONS AND INFRASTRUCTURE
SUNDAY MARCH 20	CASA PUEBLO, ADJUNTAS	<ul style="list-style-type: none"> - SITE VISIT TO CASA PUEBLO, WHICH IS A NON-PROFIT WORKING TOWARDS SOLAR ENERGY INDEPENDENCE - SITE VISIT TO BOSQUE ESCUELA LA OLIMPIA ‘ARIEL MASSOL DEYÁ’, WHICH IS A LEARNING FOREST PART OF CASA PUEBLO’S EFFORTS
MONDAY MARCH 21	PCU, PONCE	<ul style="list-style-type: none"> - WORKING DAY HOSTED BY DR. MARLA MENDEZ - SYNTHESIZED INFORMATION FROM FIELD WORK - CONDUCTED INTERVIEWS WITH IMPACTO JUVENTUD STAFF AND VOLUNTEERS
TUESDAY MARCH 22	PONCE	<ul style="list-style-type: none"> - PREPARATION FOR COMMUNITY PRESENTATIONS - BEACH!
WEDNESDAY MARCH 23	UPR, MAYAGÜEZ	<ul style="list-style-type: none"> - PRESENTATION TO IMPACTO JUVENTUD VOLUNTEERS AND STUDENTS - UPDATE ON CURRENT PROGRESS -COLLECT FEEDBACK AND INPUT TO GUIDE
THURSDAY MARCH 24	PCU, PONCE	<ul style="list-style-type: none"> - TOUR OF SCHOOL OF ARCHITECTURE - PRESENTATION TO COMMUNITY MEMBERS FROM RUCIO - UPDATE ON PROGRESS AND COLLECT FEEDBACK
FRIDAY MARCH 25	PONCE	<ul style="list-style-type: none"> - ARRIVE IN SAN JUAN - NETWORKING WITH GT ALUMNI
SATURDAY MARCH 26	SAN JUAN	LEAVE PUERTO RICO

TABLE 2 : SUMMARY OF DAILY ACTIVITIES IN PUERTO RICO

PHOTOS FROM THE FIELD



IV. BACKGROUND RESEARCH

UNDERSTANDING THE CONTEXT OF OUR WORK

As noted in earlier sections, the area of impact and engagement for Impacto Juventud, and thus this studio, is the rural, mountainous community of Rucio. Rucio is a neighborhood (barrio) of the municipality of Peñuelas, which is located in the south of Puerto Rico.

Due to Rucio's geographic isolation, background information for the community is relatively scarce. This lack of accessible data is compounded by challenges in data collection and analysis for Puerto Rico as a whole. As a result, the majority of the background and information available for contextual analysis is for the municipality of Peñuelas, which was the smallest unit of analysis with consistent data availability. Additionally, many of the challenges facing Peñuelas affect and are often compounded in the community of Rucio, underscoring the value in providing broader context and analysis of Peñuelas as a data proxy for Rucio.

FIG. 7 : LOCATION OF PEÑUELAS RELATIVE TO THE ISLAND OF PUERTO RICO SOURCE: WIKIPEDIA. (N.D.)



CULTURAL CONTEXT

Unofficially founded in 1745, and officially incorporated in 1793, Peñuelas is a municipality on the southern coast of Puerto Rico (EnciclopediaPR, 2010). Peñuelas is surrounded by Adjuntas to the north, Ponce to the east, the Caribbean Sea to the south, and Guayanilla to the west. The territory is comprised of about 44 square miles, split between the coastal plain and a mountainous interior area (EnciclopediaPR, 2010). The population of 20,399 Peñolanos are mostly concentrated along the coastal Route 132, while a smaller proportion of the population lives up in the mountain neighborhoods (U.S. Census Bureau, 2020).

The cultural context of Peñuelas is predominantly informed by broader Puerto Rican Culture, which largely revolves around language and religion. Particularly in the context of debates around Puerto Rico's status, Puerto Ricans hold on tightly to Spanish as their primary language and a key piece of Puerto Rican identity that must be preserved. In more urban parts of Puerto Rico where there are international schools and businesses, English is accepted as a secondary

FIG. 8 : LOCATION OF BARRIO RUCIO RELATIVE TO THE MUNICIPALITY OF PEÑUELAS SOURCE: BORICUAONLINE.COM. (N.D.)



language, but in smaller towns such as Peñuelas, much of the population speaks exclusively Spanish. With regards to religion, Puerto Rico is overwhelmingly Christian; 56% of Puerto Ricans identified as Catholic, while 33% identified as Protestant (Pew Research Center, 2014). Subsequently, much of Puerto Rican, and Peñolano, culture is influenced by Christian values.

Peñuelas is known for its beautiful valley landscape, dotted with bright red Flamboyant trees. Additionally, Peñolanos, like most Puerto Ricans, have a deep connection to music and dance. In particular, Peñolanos employ the bomba— a traditional dance and music style rooted in the archipelago's history of African slavery— as an expression of culture, resistance, and celebration. On the whole, Peñuelas is known to be a vibrant coastal community committed to celebrating and preserving its culture.

SOCIO-DEMOGRAPHIC LANDSCAPE

According to the 2020 Census, the municipality of Peñuelas has a population of 20,399, which has decreased from the 2010 population 24,282 (U.S. Census Bureau, 2020; U.S. Census Bureau, 2010). The municipality is mostly rural with a low population density of about 457 people per square mile on average. However, along the corridor of Route 132 where Tallaboa Alta, Quebrada Ceiba, Peñuelas Pueblo, and Santo Domingo barrios are located, the population density tends to be relatively higher (U.S. Census Bureau, 2020).

According to the Census, the age of the population of Peñuelas is generally younger than other municipalities in Puerto Rico, with 22.92% of the population comprised of people under the age of 18 and one of the lowest populations of seniors (ages 65 and over) in Puerto Rico (U.S. Census Bureau, 2019). It is important to consider the relationship between age distributions and space. The primary barrio for this studio is Rucio, which has a slightly lower population of children under 18 years and seniors over 65 years. However, over 25% of the population of Rucio is over the age of 55 years (U.S. Census Bureau, 2020). Furthermore, the specific village in Rucio that Impacto Juventud partners with identifies as a community with a large number of children.

Educational attainment in Peñuelas has increased over the past decade with 74% of people having completed high school, up from the 63% in 2010. Additionally, 44% of people complete some college with 22% having attained a bachelor's degree (U.S. Census Bureau, 2019). However, after Hurricane Maria, most schools were structurally damaged and had to be closed. Many have not been reopened after the Fiscal Oversight and Management Board for Puerto Rico (FOMB) imposed austerity policies. According to Dr. Lugo, many students can only go to school for 2 days out of the week since they are having to combine students from different schools into the same classrooms and locations.

A large portion of Puerto Ricans identify as "Two or More Races" (43.01%) or "Other" (26.7%) compared to other states in the United States. Thus, analyzing Puerto Rico racial compositions by single race, analysts are likely to misrepresent how Puerto Ricans identify racially. However, by breaking down the 2020 Census by people who answered "Black" or another race in combination with others in the Two or more or three or more categories we can get a clearer picture of how they identify.

ECONOMIC INDICATORS AND KEY INDUSTRIES

Peñuelas is nestled between the south coast of Puerto Rico and the city of Ponce with an economy that employs nearly 5,100 individuals across sectors (U.S. Census Bureau, 2020). The average median household income in Peñuelas is \$16,718 (2019 USD), 4.87% less than it was in 2018, and \$3,756 less than the median household income of Puerto Rico as a whole. This, coupled with economic austerity measures across the territory, exemplify a need for third-party, government, and private investment in programs that not only attract high paying wages but also increase employment, median property values, and reduce poverty. This data is summarized in Table 3.

Location	Economic Indicator (2019)	Value	1-Year Growth or Decline
Peñuelas, PR	Employment	5,133	+ 0.87%
Puerto Rico	Employment	933,001	+ 3.44%
Peñuelas, PR	Poverty Rate	57.4 per 100	+ 1.52 per 100
Puerto Rico	Poverty Rate	44.1 per 100	+ 1.1 per 100
Peñuelas, PR	Median Household Income	\$16,718	- 4.97%
Puerto Rico	Median Household Income	\$20,474	+ 0.87%
Peñuelas, PR	Median Property Value	\$75,700	+ 0.93%
Puerto Rico	Median Property Value	\$110,300	- 0.45%

TABLE 3 : COMPARISON OF ECONOMIC INDICATORS IN PEÑUELAS COMPARED TO PUERTO RICO

The largest industries within Peñuelas include Health Care & Social Assistance, Educational Services, and Public Administration. These industries employ 885, 685, and 623 individuals across each, respectively (U.S. Census Bureau, 2020). According to the Census Bureau’s ACS 5-Year Survey, the highest paying industries in Puerto Rico are utilities, educational services, and professional, scientific, and technical services with each industry paying an average income of \$27,204, \$23,777, and \$23,750, respectively.

These primary industries demonstrate a shift in the municipality’s economy toward local service industries as opposed to manufacturing, which dominated from the 1950s to 1980s. The Commonwealth Oil Refining Company (CORCO), located on the Caribbean coast in southern Peñuelas, was once Puerto Rico’s largest employer. Chemical plants using petroleum products as inputs sprung up around the refinery, providing thousands of manufacturing jobs that attracted workers from throughout the area. However, with the increase in prices of foreign oil in the 1970s, CORCO was unable to compete with refineries in the continental US who had cheaper access to American-produced crude oil. In the end, the refinery shut down in 1982 (Perez, 2002).

ENVIRONMENTAL CONDITIONS

The Peñuelas municipality is situated on the southernmost region of the island. It is to the west of Ponce, south of Adjuntas, and east of Guayanilla. The coast of Peñuelas touches the Caribbean Sea. The northernmost region is characterized by steep highland mountains. At the northwest tip in the Barreal barrio is the sole nature preserve. The Guilarte State Forest shares protection with the Adjuntas, Guayanilla, and Yauco, and the entirety of the forest is nearly 5,000 acres. The highlands located in Peñuelas are over 2,500 feet above sea level, and elevations at the valley where the town is located is just over 200 feet above sea level.

Much like the archipelago of Puerto Rico, Peñuelas has a tropical monsoon climate. Its annual high is 85 degrees Fahrenheit, and its annual low is 75 degrees Fahrenheit.

Located on the Great Southern Puerto Rico Fault Zone, the geology is associated with minor earthquakes. Throughout the soil is a “caliche” feature, characterized by sedimentary rocks of calcium carbonate. Located primarily in the highlands of this region, the rock contains materials such as gravel, sand, clay, and silt. The Juana Diaz formation and Ponce Limestone continue the geology into the alluvium valleys where the bed rock contains coral and coral-related fossils. The loose materials and the associated topology make Peñuelas highly susceptible to rainfall induced landslides (USGS, 2007).

Peñuelas contains two primary watersheds. These are the Río Macaná and the Río Tallaboa. The latter holds the body of water which the population primarily receives its drinking water. The Río Macaná is also 21.7-mile-long river that originates in the northeast barrio of Rucio and extends east into the Guayanilla municipality. The EPA’s waterbody report indicates this watershed Impaired with fecal coliform. The drinking water quality here has not been assessed (EPA, 2020). The Río Tallaboa begins in the northern region as well and flows to the Caribbean Sea. The river is 56 miles long and is classified as Impaired for fecal coliform presence as well. The drinking water contains turbidity; however, the EPA categorizes it as “Good” (EPA, 2020).

SUSTAINABILITY AND ENERGY INSECURITY

Looking at energy insecurity, the satellite images below show the impact of hurricane Maria on the power grid in Puerto Rico. To this day, the power system is still very much unreliable. Even though Puerto Rico gets enough sunlight to meet its residential electricity needs at least four times over, Puerto Ricans can still pay up to 4 times as much for electricity as Americans on the mainland depending on which sector they live (The Guardian, 2021).

As a response, initiatives like Queremos Sol have been established as an energy vision based on clean renewable energy and an affordable system that promotes efficiency and equity in access to energy. Cooperativa Hidroeléctrica de la Montaña is another initiative worth mentioning as Puerto Rico’s first rural electric co-op created in 2019 (EESI, 2020). The co-op has the potential to provide stable and renewable energy power up to 61,000 people living in the rural municipalities of Adjuntas, Jayuya, and Utuado in the central mountains (EESI, 2020).

THE MENTAL HEALTH CRISIS

After Hurricane Maria devastated the Island, the Puerto Rico Department of Education established a program to screen over 96,000 children and teenagers enrolled in public schools for disaster exposure and signs of emotional distress (Orengo-Aguayo et al, 2019). The study found that 7.2% of youth reported clinically significant symptoms of PTSD.

To put this number into perspective, the study reported that 83.9% saw houses damaged, 57.8% had a friend or family member leave the island, 45.7% reported damage to their own homes, 32.3% experienced shortage of food or water, 29.9% perceived their lives to be at risk, and 16.7% still had no electricity 5 to 9 months after the hurricane (Orengo-Aguayo et al, 2019). The effects of the natural disasters are coupled with the COVID 19 pandemic to deepen the trauma and stress that must reflect on Puerto Rico's physical and mental health.

POLITICAL STRUCTURE

The municipality of Peñuelas is composed of 12 barrios and the pueblo of Peñuelas. The pueblo Peñuelas hosts the municipality seat, a Catholic church, and a public plaza. The barrios are Barreal, Coto, Cuebas, Encarnación, Jaguas, Macaná, Quebrada Ceiba, Rucio, Santo Domingo, Tallaboa Alta, Tallaboa Poniente, and Tallaboa Saliente (Nuestro Puerto Rico, n.d.). Within these barrios, there four major urban zones: Santo Domingo (in barrio Santo Domingo), Peñuelas pueblo, Tallaboa Alta (in barrio Tallaboa Alta), Tallaboa (in barrio Encarnación) (U.S. Census Bureau, 2011).

With regard to political representation, Peñuelas recently elected new officials during the 2020 election cycle. Peñuelas is part of Puerto Rico Senatorial District V and is represented by Senators Marially González and Ramón Ruiz, both of whom are from the Partido Popular Democrático (PPD) party. Representative José "Cheito" Rivera Madera, who represents Peñuelas as part of Puerto Rico House District 23, is also part of the PPD (OpenStates, n.d.). Lastly, the current mayor is Gregory González Souchet from the PPD (Ballotpedia, n.d). These elected officials will serve until their terms end in January of 2025.

Since taking office, several of these elected officials have made public statements about their political priorities. In a statement from the mayor, he expressed excitement about the opportunities from the CDBG-DR grants and is specifically interested in affordable housing, infrastructure investments, parks, internal and external tourism, and youth sports opportunities (Periódico, 2019). Representative Rivera Madera has also put out a statement of his priorities, which include the reconstruction of the area, investment in tourism, and rebuilding and reopening schools (Sepúlveda, 2021). Lastly, Mayor González Souchet and Representative Rivera Madera created a joint statement calling for Governor Pierluisi to address the energy insecurity in the region, highlighting that while the area produces nearly a third of the electricity for Puerto Rico, they do not receive a basic level of reliable service (Redacción, 2021). Understanding these political priorities may help illuminate the future plans and developments in the region.

The political affiliations in Peñuelas may have important impacts for the relationships beyond the municipality. Historically, political representatives in Peñuelas have often come from the PPD. As show in the map below, which records the results from the 2000-2020 mayoral elections, Peñuelas has consistently elected a mayor from the PPD. Interestingly, the neighboring municipality of Ponce, which provides important resources and services to Peñuelas, does not share the same political consistency, and Penuelas and Ponce have had mayors from different parties from 2008-2020 (Melecio Torres, & López Marrero, 2021, p.7). The political relationship between Ponce and Peñuelas may have impacts for access to important resources for the community and the region as a whole.

IMPLICATIONS FOR RUCIO

The cultural, socio-demographic, economic, environmental, and political context of Peñuelas shape and are shaped by the community in Rucio. However, conditions in Rucio are often less favorable than those in Peñuelas, and challenges for the municipality are often compounded in the community given the isolated geography. These challenges are particularly pronounced in the areas of accessibility, environmental conditions, and political and municipal support. Due to limitations with data availability, the following information on Rucio is a product of community testimonials, anecdotal evidence, and the studio's community visit. While acknowledging the validity of human experience as a form of knowledge, collecting and generating data on quality of life are important to communicate the lived experience outside of Rucio and potentially advocate for changes.

The community of Rucio is located high in the central mountains of Puerto Rico, creating critical challenges in terms of resource availability and access. For the studio's focus area, which is a cluster of homes in Rucio, residents in the area must leave their community and travel between 30 minutes to an hour to access essential goods and services such as jobs, schools, grocery stores, and medical services. In addition to travelling long distances, the community must traverse mountainous terrain, often on unlit roads which are poorly maintained and vulnerable to rockslides and floods. Acknowledging these challenges was a critical component to this studio in order to increase awareness of the limited availability and accessibility of critical resources.

The effects of Hurricane Maria continue to be felt across the island, and the community of Rucio is no exception. In many cases, Hurricane Maria exacerbated already existing challenges including poor water quality, poorly managed municipal services, and energy instability. In each of these areas, Hurricane Maria damaged the limited pre-existing infrastructure as well as disrupted the already tenuous systems in place to provide these services. While Hurricane Maria was especially disruptive, Rucio faces additional reoccurring challenges such as floods and rockslides that compound the effects of these insecurities and create additional challenges to addressing them.

Lastly, Rucio maintains a degree of skepticism and disconnectedness from the municipality of Peñuelas. Must of this distance stems from a history of municipal

BACKGROUND

failures to adequately carry out their public responsibilities to servicing this community. Rucio has limited to no provision of essential services such as public lighting, trash disposal, and school transportation. Efforts to hold the government accountable are rarely fruitful. As a result of this lack of government responsiveness to community needs coupled with a general distrust in public efficacy, the community is forced to seek out or create alternative networks to meet their essential needs. While certainly a testament to community resolve and determination, the need for self-sufficiency creates additional labor and requires additional resources from an already underserved community.

This context for Puerto Rico, Peñuelas, and Rucio guided the studio's work. The background information helped establish a baseline knowledge for key areas, systems, stakeholders, and challenges. This context informed the areas of work for the studio, which were then prioritized based on partner input. These areas of work, along with the studio's contributions are detailed in the following section.



STUDIO PROCESS AND PROGRESS

To address the wide range of interests and needs of the studio, the studio group believed it most effective to develop core pairs of students to direct different areas of impact and operations for the studio. As detailed in earlier report sections, the 4 key areas of work were a product of a collaborative process working with Impacto Juventud to prioritize areas of work that aligned with student interests, goals, and skills. They included project management, organizational capacity, community resources and access, and renewable energy.

The following section details the processes, progress, and experiences for each of these areas of work. Because each sub-project had such unique goals and needs, the way each pair functioned to accomplish their goals and meet their needs was just as unique. The result is a flexible and dynamic studio that embraced different processes to achieve different outcomes, ultimately producing a vast breadth and depth of deliverables.

STUDIO SUB-PROJECTS

1. PROJECT MANAGEMENT
2. ORGANIZATIONAL CAPACITY
3. COMMUNITY RESOURCES
4. RENEWABLE ENERGY



1. PROJECT MANAGEMENT

Given the structure of the studio, an overarching project management role was informally created by the students. Much of the work arose in response to the wide range and variety of projects initially scoped for the organizational capacity, community resource and access, and renewable energy pairs. For each of these areas, there was a broad understanding across the studio that additional support beyond the core pair may be necessary to establish connections, provide necessary information, and prepare final deliverables. In addition to the products generated by the more thematic groups, there were also important studio deliverables including 3 presentations, the final report, and a studio website that would need to be spearheaded. Beyond the internal workflows for the studio, there were also key external connections and coordination with partners that needed to be managed. As a result of these circumstances, there were 4 main goals for the project management portion of studio.

GOAL 1: SUPPORT THE WORK OF THE ORGANIZATIONAL CAPACITY, COMMUNITY RESOURCES AND ACCESS, AND RENEWABLE ENERGY TEAMS AS NECESSARY

GOAL 2: SPEARHEAD THE CREATION OF STUDIO DELIVERABLES, SPECIFICALLY THE 2 COMMUNITY PRESENTATIONS, 1 FINAL PRESENTATION, THE FINAL REPORT, AND THE STUDIO WEBSITE

GOAL 3: COMMUNICATE AND COORDINATE WITH AFFILIATED STUDIO PARTNERS, NAMELY THE STUDENT LIAISON FOR IMPACTO JUVENTUD AND THE WEBSITE SUPPORT TEAM

GOAL 4: PROVIDE ADMINISTRATIVE SUPPORT AND ORGANIZATION

The processes and tasks required to meet each of these goals are detailed below.

GOAL 1: SUPPORTING WORK FOR CORE TEAMS

The products for Impacto Juventud and the majority of the work of the studio were generated by the three thematic areas of work. However, as often noted among members of the studio, the work of any one group would be substantive enough to comprise an entire semester's work. Indeed, in every case, it was impossible for 2 people alone to accomplish their proposed set of deliverables. While members of the studio worked across their respective projects to support each other throughout the studio, the fluidity of the project management team allowed them to the most flexibility and leeway in supporting the others. In the beginning of the studio, much of this support came in the form of providing additional resources and background literature and helping connect members of the studio with the appropriate community partners. In later phases of the studio, the project management team supported other groups by providing feedback and another perspective on scoping deliverables and planning stakeholder and community interactions. Lastly, the project management team assisted in the formatting, design, and branding of final deliverables to deliver to Impacto Juventud. The primary purpose of this stage was to ensure that the deliverables were given to the client in a format that was most accessible, including using widely accepted file formats, decreasing the overall size of files for ease of transmission, and providing instructional documentation as necessary for further context and guidance of the materials. The result is more approachable, useable, and professional deliverables for Impacto Juventud.

GOAL 2: GENERATING STUDIO DELIVERABLES

In addition to the deliverables for the client, there were also key products for the studio itself. These included an interim summary, three presentations, one final report, and a website for the studio. For the presentations and final report, the project management group was responsible for coordinating across the other studio areas to ensure these studio deliverables were completed in a timely manner and accurately reflected the diverse work and experience of the individual teams as well as the studio as a whole. To accomplish this, the project management team took on creating outlines for content, establishing mutually agreed upon internal deadlines, and coordinating the collection and consolidation of individual group contributions. Beyond coordinating across the groups, the project management team was also responsible for generating content to frame the studio as a whole. This included framing the studio introduction, contextualizing background information, recording broader studio methods, and summarizing reflections and conclusions. Lastly, once all the content was compiled, the project management team connected the information into a cohesive narrative for the studio as a whole.

GOAL 3: COORDINATING ACROSS EXTERNAL GROUPS

Maintaining relationships outside of the core studio group was a unique and essential component to the studio experience. Beyond shaping and guiding the direction of the studio's work, contributions from external support provided essential information, connections, and technical expertise. In order to streamline communications and workflows, the project management team acted as intermediaries between members of the studio and external relations.

One of the most critical external partnerships was with the studio's Student Liaison, Paula Negrón-López. Paula is a PhD candidate in Clinical Psychology at Ponce Health and Sciences University and is actively involved with Impacto Juventud. Because of her relationship to Impacto Juventud and her knowledge of other key stakeholders, Paula served as the paid Student Liaison between Impacto Juventud and Georgia Tech. Paula and the project management team regularly connected to discuss studio updates, share knowledge, coordinate project timelines and logistics, receive input and comments, connect with community partners, and establish relationships beyond Impacto Juventud. Without a paid, dedicated Student Liaison, this level of communication and client engagement would likely not have been possible, and the studio would not have been able to function as smoothly, receive the necessary information from the client and the community, and produce the same quantity and quality of deliverables.

Closer to home, the project management team coordinated with two fellow Georgia Tech students from the M-GIST and MCS programs on the web development portion of the project. These two students, Pooja Gopi and Purva Singh, provided key technical support to the studio efforts. Their role enabled a better work product for Impacto Juventud and also broadened the bandwidth of the studio team by owning a portion of the workflow that would otherwise fall onto the internal studio team. The project management team worked to integrate Pooja and Purva into the student experience of studio where possible, while also maintaining a professional working relationship with clear boundaries and delineated responsibilities.

Lastly, the studio benefitted from the additional expertise of planning academics and professors, who provided guest lectures and shared a wide range of information ranging from best practices in sustainability and climate change, international planning and community development, disaster adaptation and responses. In addition to these speakers, the project management team sought out additional expertise from Dr. Anaís Roque from Arizona State University, who conducted similar work in a different community in Puerto Rico. Dr. Roque's guidance was critical in designing the studio's community asset mapping activity and providing additional case studies for renewable energy in Puerto Rico.

GOAL 4: PROVIDING ADMINISTRATIVE SUPPORT

The final goal of the project management team involved administrative organization. This was important to maintaining a navigable repository of files that were easily accessible for members of the studio to access and collaborate on documents. This work mainly consisted of managing files in Microsoft Teams.

Additionally, there were a number of logistical nuances to the studio's field work in Puerto Rico. In advance of the trip, the project management team collected relevant contact information for the studio, provided a consolidated schedule of events for the trip, and supported other groups with their scheduling and coordination. On the trip, the project management team facilitated transportation logistics, translated for other members of the studio, facilitated studio activities such as the community mapping activity, and took and edited photos for the group.

PROJECT MANAGEMENT REFLECTIONS

The role of the project management team arose out of necessity. As other members of the studio dove deeper into their respective focus areas, there was a clear need to help connect the groups as well as provide overall structure and guidance for the studio itself. As a result, the work of the project management team was often flexible, spontaneous, and responsive to others. Because of the informality of the role, it was sometimes challenging to assert the need for project management and to see the contributions of this work in the direct deliverables for the clients. However, the opportunity to support others, collaborate across the studio and external partners, and maintain a broader perspective of the work was an incredibly challenging, rewarding, and educational experience.

2. ORGANIZATIONAL CAPACITY

In addition to internally supporting the work of other studio members, several students were dedicated specifically to finding ways to effectively support Impacto Juventud's internal workflows and external communications. Through the early work of establishing the studio project scope, there were several opportunities to support Impacto Juventud's organizational capacity. Given that Impacto Juventud is a volunteer-run organization with limited resources, much of their time and capacities are focused on working directly in the community. Consequently, administrative work and communications often take a back seat, even though Impacto Juventud's organizational stability and sustainability could benefit from a greater investment in these core organizational functions. As such, there was an opportunity to make a significant impact in the organization's efficiency and potential growth by bolstering their institutional memory, quality of communications, and digital presence.

INTERVENTION 1: DOCUMENTING INSTITUTIONAL MEMORY AND DEVELOPING AN IMPACT REPORT

The purpose of what began as a Data Lake, or host of researched information, which was later reconfigured into an impact report with additional aligning resources, originated from Impacto Juventud's need for consistent funding. The following deliverables collected the Impacto Juventud's internal and external information, organized it, and distilled it to make it more accessible for future grants, long standing partners, and potential funders. The primary objective of this process was to maintain the integrity and passion of Impacto Juventud's story as well as communicate the quality and consistency of the impact they have had on each other and the communities they serve.

RESEARCH PROCESS

Social media is a tool for storytelling, and the values and mission statement of Impacto Juventud are reflected in multi-media posts. Not only do their social media posts display the integrity of the organization, but there is also an emphasis placed on the ways that events and outreach impact the lives of the volunteers and the youth that engage with the organization. Impacto Juventud's social media presence is incredibly personable and one of their biggest assets in terms of recruiting, obtaining funding, and creating connections with other businesses and organizations. Understanding the importance of a strong presence on social media, one of the first tasks of the studio team was recording and analyzing the activity on Facebook and Instagram.

The Facebook scrape and the Instagram scrape were two different processes with two different goals. For Facebook, the studio members looked on Impacto Juventud's past events page and documented every event listed. The events consisted of panel discussions, community educational conversations, open mic nights, and book and movie talks with authors and directors. For data collection, the impact report team recorded the event, the category of information coming from the event, any partners included, the date, and the number of views (Facebook Live) or number of people who attended the event.

While information on some of these events also appeared on other social media platforms, the primary focus was on the social campaigns and activism-based posts on Instagram. For Instagram, the studio members documented community actions and campaigns, pulling out the date, a description of the event, and the partner, location, and hashtag, if applicable. If additional resources were provided on the post, those were included as well.

The goal was to judge what events had been considered successful based on turn out and find patterns between those events. This included determining if marketing efforts, types of events, or social media presence played a role in the success of the event. The studio members created an excel sheet to document this process and then contacted Lugo about what his current success metrics were so that successful events could be highlights. Most of the events that fit those metrics were politically driven panel discussions or interviews with professionals in the time of COVID-19. These events were Facebook live events, which likely made the event more accessible during the pandemic.

During this process, access to internal data and information from the organization was a potential roadblock. However, consistent communication and a better understanding of the exact sources of information that would best meet Impacto Juventud's needs cleared this challenge. Of the Impacto Juventud volunteers and staff that studio members communicated with, all were very responsive, and video calls, email correspondence, and interviews helped the studio members understand the potential issues and how to best continue their planning process.

The results of the data scrape indicated the need for more research to highlight related organizations, potential investors, and how best to tell Impacto Juventud's story based on similar youth organizations' impact and social media metric strategies. In data storytelling literature, there are several specific strategies and techniques that can foster learning in various communicative styles. One that stood out, and that aligned with the deliverables, was the example of springboard stories that provide context for the main event, allowing the reader to develop their own next steps. Much of Impacto Juventud's work is action-driven, and springboard stories ignite action through a combination of "truth in storytelling" with the consideration of the audience and purpose as well as appropriate tone, style, and format (Barker, 2010). Content marking, relevant to how the story is told, enhances the relationship between the viewer and the creator by utilizing emotion through visual characteristics (Plessis, 2017). Further, emotional appeal in braded posts by use of images, and graphic design, result in high engagement that includes likes, shares, reactions, and comments (Klafke et. al, 2020). This research informed both the content and layout of the final impact report.

Youth engagement research on social media was key to understanding the best approach of future content creation. In a source highlighting youth expression online, they explain that "organizational policies, personal considerations, perceived alignment with civic goals, attitudes toward the platform, and perceptions of the audience" all influence engagement (Weinstein, 2014). Given the age ranges of the demographic groups engaged by Impacto Juventud, youth and children are further elevated in importance. The context and content of these approaches may vary based on the platform, but intentional goals and use in further skill development are at the core of shared and posted media (Weinstein, 2014).

COLLECTING TESTIMONIALS

The data that contributed most to the deliverables was written testimonials gathered through in-person and virtual interviews with Impacto Juventud volunteers and youth. Using testimonials as data helped create a clearer picture of how the organization operates and how the role of volunteers shapes the programming and functions of Impacto Juventud. Interviews with the volunteers also helped gauge the ways Impacto Juventud affected their personal lives and how the course of their lives changed after working with the organization. The opportunity to conduct these interviews was a key reason why the studio's trip to Puerto Rico was paramount to the research process. Information gathered through the testimonials did not exist anywhere else, and working virtually, studio members could only capture the surface level representations of the organization's values but not how each individual person fit in to the way the organization runs.

The questions asked during the semi-structured interviews included the following:

- What programs and work have you been involved in through Impacto Juventud?
- What specific events and programs are you interested in seeing highlighted in an impact report?
- How would you qualify a successful event based on past engagement?
- How do you think this could improve?
- What partners have you directly interacted with?
- Are there any other ones not listed here that you have in mind for future partnerships?
- In what way has Impacto Juventud impacted your personal life?
- What are some of your personal goals for the organization?

The stories collected from these prompting questions were used to write up information on the organization's programs, staff experiences, and financial overview and needs. The information from these semi-structured interviews including testimonials and event highlights was also used for the website, which is described in more detail in the following section.

Similar to the data scrape access roadblocks, when communicating to schedule interviews and follow up to attain additional information, email communication proved challenging. Overall closeness to the location and the people impacted information reception. This was partly due to inconsistent internet access because of recent power outages as well as a different time zone, which impacted meeting towards the beginning of the semester. We were provided with minimal information on the function of the organization, so though multiple emails with multiple individuals, we were able to create a picture of the structure, their internal communication amongst the roles, their separate responsibilities, and other similar work they do for the organization. Unfortunately, this clarity occurred quite late in the semester.

The organization's member's various physical locations required travel across the island. Additionally, minimal internet access at the accommodation was a challenge. Dr. Lugo helped bridge this resource gap through his connection with the local university, and the studio work was conducted in that location outside of our additional travel. The members, volunteers, and leaders the studio team communicated with expressed such vulnerability and honesty in their personal testimonials that this lag in information did not impact the quality of the content and product for Impacto Juventud.

DELIVERABLE: IMPACT REPORT

After extensive research, communications, and gaining an understanding of their needs, the impact report team decided that an impact report would be the most useful deliverable to support Impact Juventud. The Impacto Juventud is resource-strapped, and the primary need expressed in the communication with Impacto Juventud’s members was to obtain future funding and to grow the organization’s capacity and outreach. As a result, one of the biggest goals for studio was to increase Impacto Juventud’s organizational capacity is to grow the potential for future investment and connect the organization with potential partners. An impact report is a clear, publishable tool that showcases their impact and connection to community and acts as a step between the non-profit and future investors as a quick look into how the organization conducts outreach and affects change. The research showed that impact reports are excellent tools of storytelling for a diverse range of audiences, including attracting future funders and sustaining partnerships. With that in mind, the studio team created a 15-page impact report captures the history, mission, and values of the organization and acts as a tool to obtain future funding.

Through the field work in Puerto Rico, the studio members were able to meet with the internal members of Impacto Juventud. The purpose was to present the idea and the beginning sketches of the impact report to get feedback for future content and design revisions. During the meeting, the impact report team led an activity where they posed questions about the future of the organization without the constraints of funding. Studio members asked the volunteers to picture how the organization could grow or change if they were not bound by resource constraints, and it was beautiful to see their vision for the organization and how creative and forward-thinking they were. With a better understanding of how the members of Impacto Juventud want to grow the organization, the studio team embedded that purpose into the narrative of the report, and interaction also shaped so much of the design and layout. The most important part of any planning process is to become a vessel for the community and their needs, and the impact report tries to do just that for Impacto Juventud and the communities they work with.

The design process for the report began with research. The studio team asked questions like: what are the most accessible ways to visualize storytelling? How do quantitative and qualitative work together to produce a narrative? How do we communicate with different audiences in one living document? A key consideration was balancing the visual history of the organization’s past while finding ways to innovate and bring their work into the future. The impact report needed to be a living document that still captures the maturity and more serious work that Impacto Juventud has done. Through the process of the social media scrape, the studio members were familiar with Impacto Juventud’s branding and messaging and throughout the impacto report develop process, they worked hard to keep true to the vibrant, personable, and youth-oriented content.

By looking through and noting parts of other non-profit’s annual reports, the studio team was selective about styles, the type of material, and the sequence of the report. There are some special considerations that make this report unique. For example, the report captures the volunteer experience because so much of the organization’s work is driven by in-kind donations and community building. Additionally, the report displays their outreach in several different ways including a map of their impact areas, programmatic highlighting, and their goals and visions for the future.

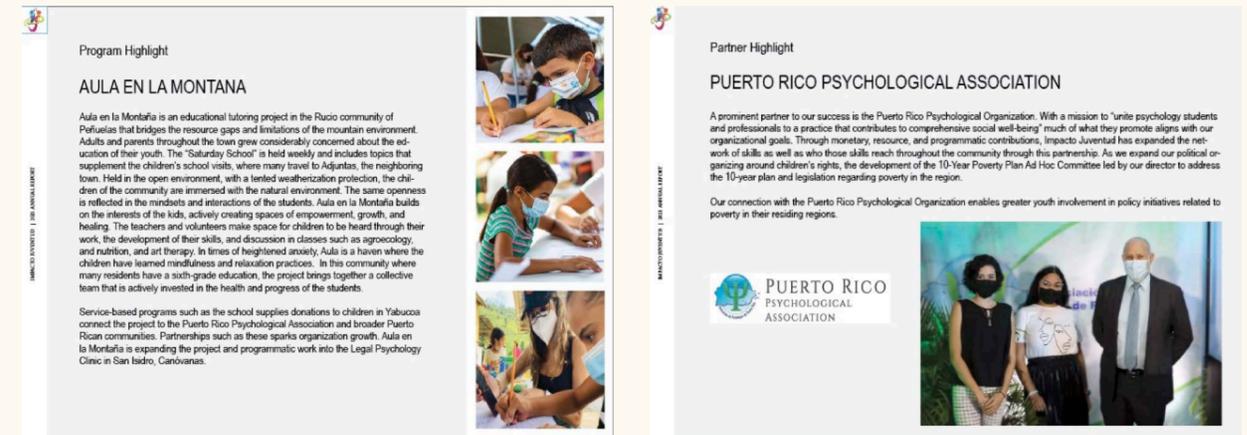


FIG. 9 : AULA EN LA MONTAÑA PROGRAM HIGHLIGHT ; FIG. 10 : PUERTO RICO PSYCHOLOGICAL ASSOCIATION PARTNER HIGHLIGHT

All of the information used to write these highlights come from the studio’s interviews with volunteers along with candid conversations they had with Dr. Lugo over lunches, walks, and work sessions. These informal and yet highly informative and productive interactions were a lesson that sometimes, and perhaps it should happen more often, the real research and significance of the work comes from simply existing in and around the communities who need to be supported. The beginning of the report is an introduction of Impacto Juventud, explaining what and who they represent, sharing their roots in community organizing and activism, and giving an overview of their work since 2017. The report opens with a message from Dr. Lugo as the Director of Impacto Juventud.

Regarding the content for the body of the report, the studio team created pages that speak to the mission of the organization. Aula en la Montaña is one of the major programs that drives the organizations success and deserves a special program highlight (figure 9). Aula is a large part of Impacto Juventud’s outreach, and in addition to being one of their main programs, Impacto Juventud’s work through Aula is an importance showcase of how embedded and committed Impacto Juvetud is to the community.

Another outreach highlight is the trip a group of Impacto Juventud members took to the Puerto Rican Senate. Impacto Juventud is in a continuing partnership with the Youth Development Institute, indicating their dedication towards policies that directly impact children and that support children’s rights and to ensure the continued success of supportive legislation. Pages like this outreach highlight speak to the long-term investment Impacto Juventud has and continues to make in the community’s youth. It also shows that the organization works with various agencies and other organizations in order to accomplish its goals.

The report also features another partner highlight between Impacto Juventud and the Puerto Rico Psychological Association (figure 10). Emphasizing Impacto Juventud’s various political and administrative relationships serves to build trust and credibility in the organization by showing potential funders a well-connected non-profit that has other entities vouching for it and supporting their success. While partnerships are key to success, one concern is ensuring that the report reflects the organization’s values of community-based organizing and activism without being too political, which may turn-off potential funders.

There are two versions of the report. One is static which displays the past efforts and work by the organization and one that is a template for future editing and additions of pages. The template is to support Impacto Juventud's effort to produce an impact report annually. The biggest difference between these two reports is the section about finances and funding/donors. Currently, Impacto Juventud does not have an organized record keeping system for tracking funding and donations. The studio team created a static pie chart documenting the types of donations the organization has currently received, but for the future, the studio team has prepared a guide of how to best capture this data, organize it, and put it into data visualizations for future reports.

Throughout this studio, the end goal was to produce deliverables that are easy and accessible for Impacto Juventud. As a living document, the impact report will be a tool to better organize and communicate a large amount of information in a visually appealing way. The audience for the report is potential future donors, but also, as a static pdf on the website, the report can be sent to anyone looking for a quick overview of the work of the organization.

In addition to providing the two versions of the report, the studio team made the following recommendations:

- Sustain use of their current Google Drive as the primary repository of data, while maintaining the deliverables in respective folders relevant to their established departments
- Continue collecting testimonials and improve follow-up with of their volunteers as they move forward and/or away from Impacto Juventud

INTERVENTION 2: EXPANDING, ENHANCING, AND CLARIFYING DIGITAL PRESENCE

Building on the exceptional research and data collection of the impact report team, the website and communications team sought to synthesize Impacto Juventud's story into additional products including a website for the organization, a brand style guide, and social media collateral. During the project scoping step, it became apparent that one of the organization's greatest needs was a website. Currently, Impacto Juventud relies purely upon social media to communicate with their audience, community, and potential partners. While their social media presence is robust and exists across a variety of platforms, this does not allow for streamlined communications, creates barriers for people who want to support but do not know how, and hurts their chances at receiving funding. As such, the website and communication team developed a sleek and easy to manage website for Impacto Juventud, supplementing their existing social media presences and filling a crucial need that they did not have the capacity to fill themselves at this time.

Additionally, Impacto Juventud's current social media presence is somewhat disjointed, with separate profiles for each project or program, which has led to confusion amongst the public regarding how the different programming is connected. Dr. Lugo noted that he has found that many people are familiar with the work of Aula en la Montaña, but they do not know what Impacto Juventud is, even though Aula en la Montaña is the work of Impacto Juventud. Accordingly, the studio sought to rectify this confusion through a more cohesive brand that reads clearly across social media platforms and across Impacto Juventud project communications.

ORGANIZATION WEBSITE

The website and communications team coordinated with the external website support team to develop a website that serves as a central platform for Impacto Juventud's resources and opportunities to support the organization. The purpose of the website is multi-faceted, with a few different audiences in mind: Impacto Juventud programming participants, potential volunteers, and potential partners or funders. The website is intended to provide an introduction to Impacto Juventud's story, highlight the team and programming, and delineate opportunities for supporting the organization at a variety of levels, from volunteering to grant allocation.

One of the key benefits that comes from having a website is that it creates independence from social media. Social media is a vital tool for businesses and organizations, but it is also very volatile as a communications avenue. Many social media platforms are increasingly requiring brands and businesses to pay to boost or advertise their posts in order to get their content in front of their audience's eyes. This model disproportionately affects small, non-profit organizations that don't have the resources to engage in this pay-to-play model. Additionally, algorithms consistently change, and without a paid social media manager staying on top of the evolving landscape, organizations like Impacto Juventud are constrained the limitations of social media communications. For these reasons, having an independent website is crucial for the long-term viability of Impacto Juventud.

THE FINAL VERSION OF THE WEBSITE, BUILT OUT BY THE WEBSITE SUPPORT TEAM, CAN BE VIEWED AT [IMPACTOJUVENTUD.ORG](https://impactojuventud.org).



COMMUNICATIONS COLLATERAL

Finally, in order to bolster Impacto Juventud's existing social media presence, the studio members created a brand guide with colors, fonts, and inspiration photos, as well as a set of social media post templates that integrate the proposed branding. The aim of this suite of communications collateral is to facilitate a more cohesive brand across all of Impacto Juventud's projects for aesthetic ends and to clarify the organization's structure.



**TE INVITAMOS:
CONVERSATORIO: "CASA PUEBLO"
¿HACIA DÓNDE VAMOS?**
Invitado: Alexis Massol

Jueves, 3 de marzo de 2022
10:30am a 12:00md
ADEM 242, UPRM




Alexis Massol de Casa Pueblo

**AMENAZAS A LOS DERECHOS
LGBTQ+ A NIVEL LOCAL
E INTERNACIONAL** WPRA990.COM



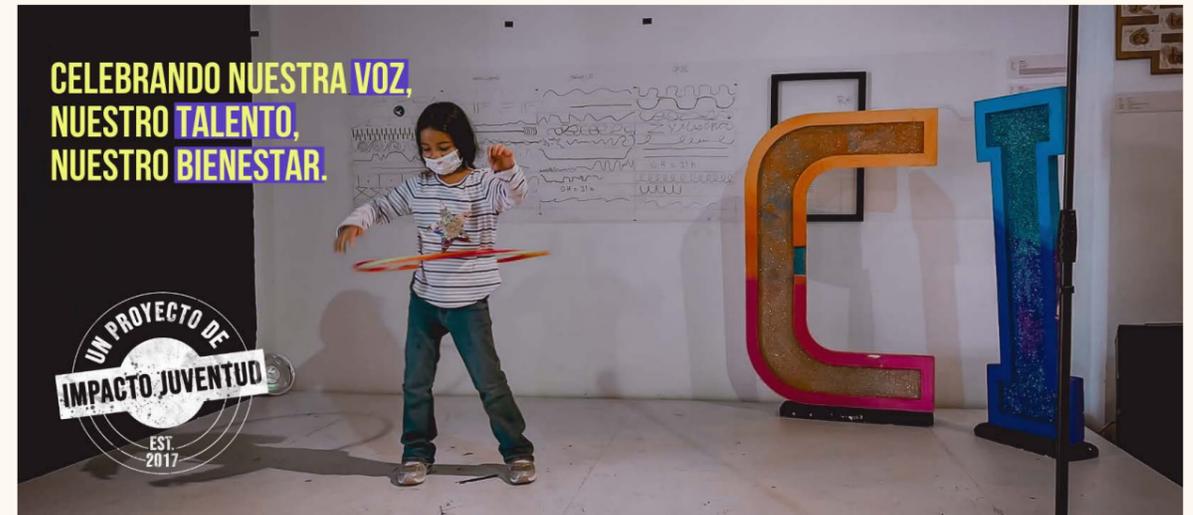
Amárilis Pagán Jiménez
Directora Ejecutiva Proyecto Matría



Eduardo A. Lugo-Hernández
Director de Impacto Juventud

martes
29 de marzo de 2022
2:00pm

SALUD Y JUSTICIA SOCIAL
con **IMPACTO JUVENTUD**



FACEBOOK LIVE EVENT TITLE
MARTES, 26 DE ABRIL | 6PM



Eduardo A. Lugo-Hernández
Director de Impacto Juventud



Amárilis Pagán Jiménez
Directora Ejecutiva Proyecto Matría



Alysa M. Alejandro Soto
Moderadora

IMPACTO JUVENTUD

¡FELICIDADES!



Dr. Eduardo Lugo-Hernández
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

IMPACTO JUVENTUD

IMPACTO JUVENTUD Style Guide

LOGO



COLORS

- #1C1C1E
- #FFFFFF
- #593ec0
- #F36800
- #98CA00

FONTS
HEADER : BEBAS NEUE BOLD
Body: open sans

VISUAL INSPIRATION



PATTERNS



3. COMMUNITY RESOURCES AND ACCESS

In line with Impacto Juventud's mission of leverage community-based organizing to empower communities, the studio could not dispense with the input and guidance of the community themselves. Understanding first-hand how people in the community navigate the challenges posed by these issues is important for Impacto Juventud, as it provides information that reinforces the rationale behind providing youth programming in the community. As Aula en la Montaña serves as a blueprint for the organization extending services to other communities through the Aula Sin Paredes program, this type of information will help Impacto Juventud make the case to communities and other stakeholders as to the benefits that their program can provide to similarly isolated communities. Furthermore, conducting community outreach in a group setting also has the indispensable benefit of bringing people together to discuss the issues their community is facing and to think collaboratively about how they can cooperate to address them. In the design sprint conducted in February 2022, the studio members worked with Dr. Lugo to identify community mapping as a desired outcome of the studio project, with a focus on physical and social conditions of people living in the rural community in Rucio, which hosts the Aula en la Montaña program.

COMMUNITY MAPPING IN ACADEMIC LITERATURE

Community mapping has a long history in academic literature as a method for researchers to gather information about communities that are poorly represented by official statistics and other pre-existing data. Community mapping is most often used in rural communities or informal urban settlements. The applications of these exercises have since expanded from academic research into use by non-profit organizations as well as local governments around the world as a method to gather data as well as to learn about community identity and to conduct important public outreach when engaging in planning or social service programming. Although community mapping can be achieved by many different approaches including surveys, group activities, interviews and participatory research, the common concept to all approaches is that community mapping consults residents of a particular area to provide spatial information about their community on a wide array of topics ranging from perceived barriers between neighborhoods to locations of grocery stores and other critical services.

For social science researchers, community mapping activities can provide demographic and socio-economic data that official censuses do not collect. This is especially useful in informal settlements that are not officially recognized as residential areas (Ayson, 2018). Local governments have also used community mapping exercises as a way to gather environmental and infrastructure data in a quicker and more cost-effective way than deploying teams of experts who are unfamiliar with the local landscape (Aditya and Gunawan, 2017). These purposes of community mapping are useful for Impacto Juventud as they present information about Rucio to potential partner organizations, donors, and partner communities where the organization is trying to expand its services.

For non-profit organizations whose mission is to foster community organization and political empowerment, community mapping activities have been used to build community identity and reach consensus on common issues (Vergara-Perucich and Arias-Loyola, 2020). It can also be used as a way to identify conflict between different user groups of resources in an area such as tensions between the interests of local residents versus those of tourists and government agencies (Bobovnik and Slavič, 2019). In some cases, community mapping has also served as a catalyst for organization among a community to

advocate for its own needs when negotiating with local governments and outside partner organizations (Bodorkós and Pataki, 2009). In this respect, a community mapping activity offers a potential avenue for strengthening the bonds of members in a community by providing a platform for discussion and organization around common issues. Just as Impacto Juventud's programs aim to foster active participation in community affairs in Puerto Rico's youth, a major goal of engaging in a community mapping activity with residents of Rucio was to foster active participation in community organization among all those that interact in some way with Impacto Juventud's programs.

IDENTIFYING THEMES AND DETERMINING METHODS

The first step of the process was to determine what information the Community Mapping team wanted to get out of the community mapping process. Initially, the studio members identified possible themes including the following:

- Education
- Natural disaster response and preparedness
- Access to utilities, including electricity, water, and internet
- Transportation
- Renewable energy

With input from partners in Impacto Juventud, the studio team was able to gain more insight into many of these aspects of the community and answer many of the preliminary question. In many cases, the answer to questions about the accessibility of certain services in the community was simply that they were entirely absent. For example, there are no schools, public recreational areas, community centers or disaster shelters located within the barrio of Rucio, meaning that residents of the community are forced to travel to neighboring towns to access these critical services. Similarly, there are no major employers Rucio, necessitating commuting to neighboring towns for job opportunities.

When inquiring about the modes of transportation used in the community, community members noted that there are no transit options available in the area and that the conditions of the roads make walking or biking unsafe alternatives, forcing residents of the community to rely entirely on personal vehicles. Furthermore, internet access and cell phone service was restricted to only a handful of locations in the community, owing to the mountainous nature of the surrounding topography. This lack of physical and digital connectivity further isolates the community.

During the process of data collection, studio members learned that another survey related to renewable energy needs was already being conducted in the community by Dr. Marcel Castro of the University of Puerto Rico at Mayagüez. The members of the studio team focusing on renewable energy collaborated with Dr. Castro and his team to gather information needed for their projects, which is described in more detail in the Renewable Energy portion of the report. With information on renewable energy already being collected, this allowed the community mapping team to focus on other areas of community need. With this information collected in a different manner and with further direction from Impacto Juventud, the community mapping team narrowed their focus to three broad themes:

- Locations of critical services used by the community
- Social life and community engagement among residents
- Issues with infrastructure, including roads and water

In determining what form the community outreach portion of the project would ultimately take, the community mapping teams went through a few different considerations

before settling on the idea of a group collaborative mapping activity. The studio members initially envisioned distributing a survey to community members with the aim of soliciting opinions and information from as wide a population as possible. However, non-response by potential participants has long been identified as a pervasive problem in survey-based research, regardless of the format by which the survey is delivered (Groves and Couper, 1998, and Kohut et al., 2004). Additionally, the studio's partners within Impacto Juventud and Aula en la Montaña informed the studio team that people in the community were less likely to respond to a survey due to a general "survey fatigue" from organizations that have collected data in the community without showing any tangible results. Lastly, the lack of formal education for many residents of the area may be a barrier to the easy comprehension and completion of a written survey.

The community mapping team then shifted to the idea of hosting a large-scale, collaborative mapping event where members of the community would work in small groups to identify locations associated with each of the themes and to discuss the impact of these issues on their daily lives. This type of event is normally held in multiple sessions and can take many hours, as well as requiring a dedicated script of standard questions to be posed to each group and multiple, dedicated facilitators present. However, due to logistical issues and since many residents of the community leave the area to run errands on weekends, the studio members were informed that the collaborative mapping event was likely to have around 5 participants, and the only day available to conduct such an activity was Saturday, March 19, the first full day the studio team would be in Puerto Rico.

Again, the community mapping team reassessed the project to develop what would become the final iteration of the collaborative mapping group activity. Due to time constraints, the studio team pared number of questions about each theme and changed the wording of questions to allow more open-ended discussion in a single small group. In lieu of a detailed script to be followed step by step, the community mapping team prepared a guiding document with a projected flow of discussion and longer talking points to introduce each question and redirect conversation to overarching themes of community organization. Through bringing together members of the community in a group to discuss issues, major goal of this activity was to demonstrate how collaboration and organization by members of the community has the potential to be a strong force for change.

MAPPING ACTIVITY AND COMMUNITY COMMENTARY

In preparation for the studio's trip to Puerto Rico, the studio members met with community leaders on Saturday, March 12, 2022. Minerva and Nancy are two women who have been very active as community leaders in Rucio and have collaborated with Impacto Juventud to establish the Aula en la Montaña program. Minerva and Nancy were previously identified by Dr. Lugo as essential participants in the community mapping exercise due to their knowledge of the community, their active role in community affairs, as well as their existing relationship with Impacto Juventud. With facilitation from Paula Negrón López, the studio's Student Liaison, the studio team gained valuable insights into Minerva and Nancy's history with the community, learning that both women have lived in Rucio the entirety of their lives. Studio members also learned that, in the absence of a strong advocacy organization, the two women had become individual champions of their community's needs, leveraging their own personal connections to successfully petition the municipality for improved services such as road maintenance and trash collection. During this meeting, the community mapping team discussed what issues in their community Minerva and Nancy would most like to discuss during the

studio's visit the following Saturday. They identified road safety and water quality as two major issues that members of the community have had to deal with in recent times.

On Saturday March 19, 2022, the studio traveled to the community in Rucio. For the group mapping activity, the community mapping team was joined by Nancy and Minerva, as well as Olga, a resident of a neighboring rural community, two youth participants in the Aula en la Montaña program, and Carlos, a bus driver from the nearby town of Adjuntas who has worked in Rucio and with Impacto Juventud in the past. With translation provided by Paula and by three other Aula en la Montaña volunteers, there was relatively free form discussion with the participants, touching on each of the previously determined themes, as well as discussing other topics that came up organically in conversation. Although the studio team had prepared a guiding document that was meant to direct the flow of the activity, the participants were incredibly engaged and largely directed the conversation on their own accord. Along with gathering locations of community gathering places, critical services, and places with road safety issues, the studio team also learned more about the role of advocacy in prompting an improvement to water infrastructure in a neighboring community, which served as an excellent opportunity to discuss participants' thoughts about how further organizing could lead to more successful appeals to the municipal government and other potential providers of critical services, such as non-profit organizations.

The last public outreach event while in Puerto Rico was the studio team's presentation to the community on Thursday, March 24 in Ponce. Each of the participants in Saturday's activity attended, along with additional residents of the community who were able to attend the meeting. The studio team first presented the maps that were produced from the information gathered on Saturday and discussed how the activity could serve as a catalyst for organizing the community. Then, the studio members made space for further discussion, which revealed another issue around safe transportation. Two members of the community who shared accounts of how a school bus driver had, on multiple occasions, abandoned their children at school, or in some cases even on the dangerous mountain roads miles away from their homes. The studio teams learned later that this discussion resulted in collaboration among the community members present to demand disciplinary action toward the driver in question and to advocate for more reliable transportation to and from school for the community's children. The hope is that the community maps produced by the community mapping team will continue to serve as a platform for this kind of productive discussion and collaborative advocacy among residents of Rucio.

PRODUCT OF THE COMMUNITY MAPPING ACTIVITY

Throughout the studio, a reoccurring obstacle was the lack of accessible data, and in many instances, the data did not exist at all. This was especially challenging for community mapping efforts, which had to rely on outdated information from Google Maps and general satellite imagery. In this regard, the field work in the community was absolutely essential to generating and collecting both qualitative and quantitative data that was synthesized into the following maps, which represent both the physical conditions and lived experience of the residents of Rucio.

The mapping activity with the Rucio community indicated that residents of Rucio maintain strong ties with other municipalities around Peñuelas. Given the lack of resource within the community, seeking services and everyday life necessities compels residents to travel beyond the boundaries of their own municipality on a daily basis. The nature of services sought by residents of the Rucio community varies across

multiple fields and, as a result, spans a large geographic area was well. For instance, most, if not all residents, seek specialized medical help and schooling for children outside of Peñuelas. Furthermore, the unavailability of disaster-related measures closer to the community forces residents to seek both shelter and assistance outside of the county. To gain a better understanding of their travel patterns and the distribution of necessary services, the mapping boundaries had to be expanded to include the neighboring municipalities of Guayanilla, Yauco, Adjuntas, and Ponce. Figure 11 indicates these Peñuelas relative to these neighboring municipalities.

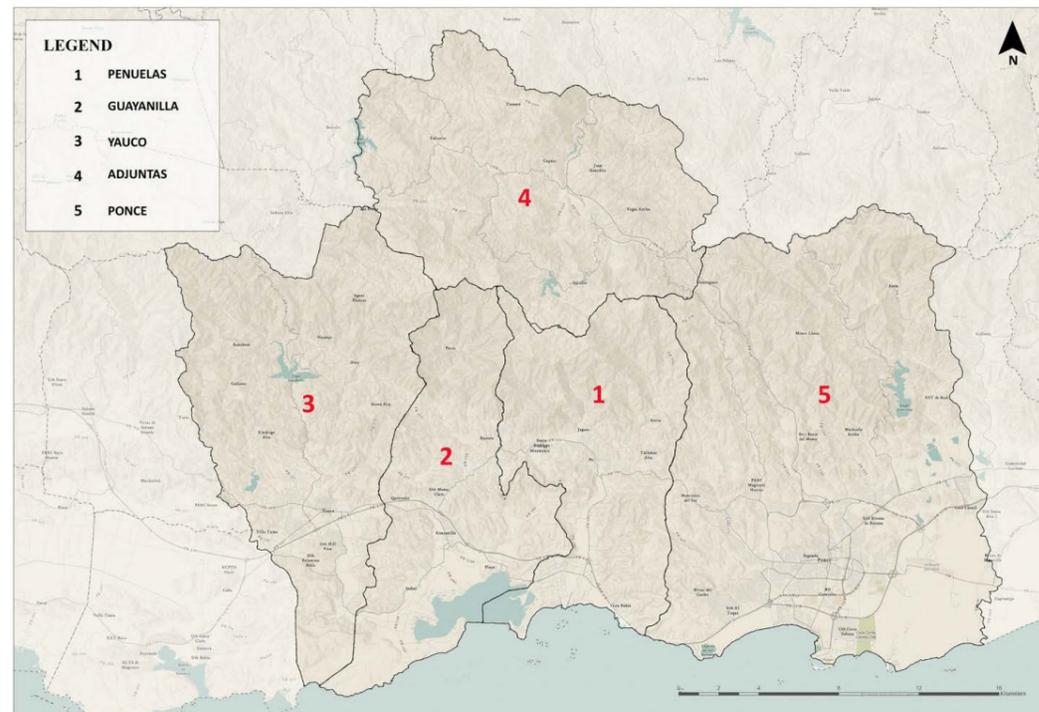


FIG. 11: MAP OF PEÑUELAS AND SURROUNDING MUNICIPALITIES

ROAD INFRASTRUCTURE

The conditions under which the community must travel can be better understood by looking at the road infrastructure. In figure 12, the map shows the roads the most used by community. The location of Rucio is towards the northern limits of the county, meaning residents must make a 30-minute commute to Peñuelas for basic medical services, schooling, or other essential needs. Throughout the studio's partnership with Impacto Juventud and the community, studio members heard numerous stories about cases of emergencies where individuals had to navigate the poorly maintained roads to seek out assistance. These challenges in transportation access are depicted in the maps below, which record the the infrastructure inadequacies and failures along one of the most traveled roads to get to Rucio. The biggest issues and concerns of the community related to lack of lighting, floods, and frequent rockslides. The points along the route are instances where these issues are most apparent, while the subsequent pictures document the nature and extent of each hazard.

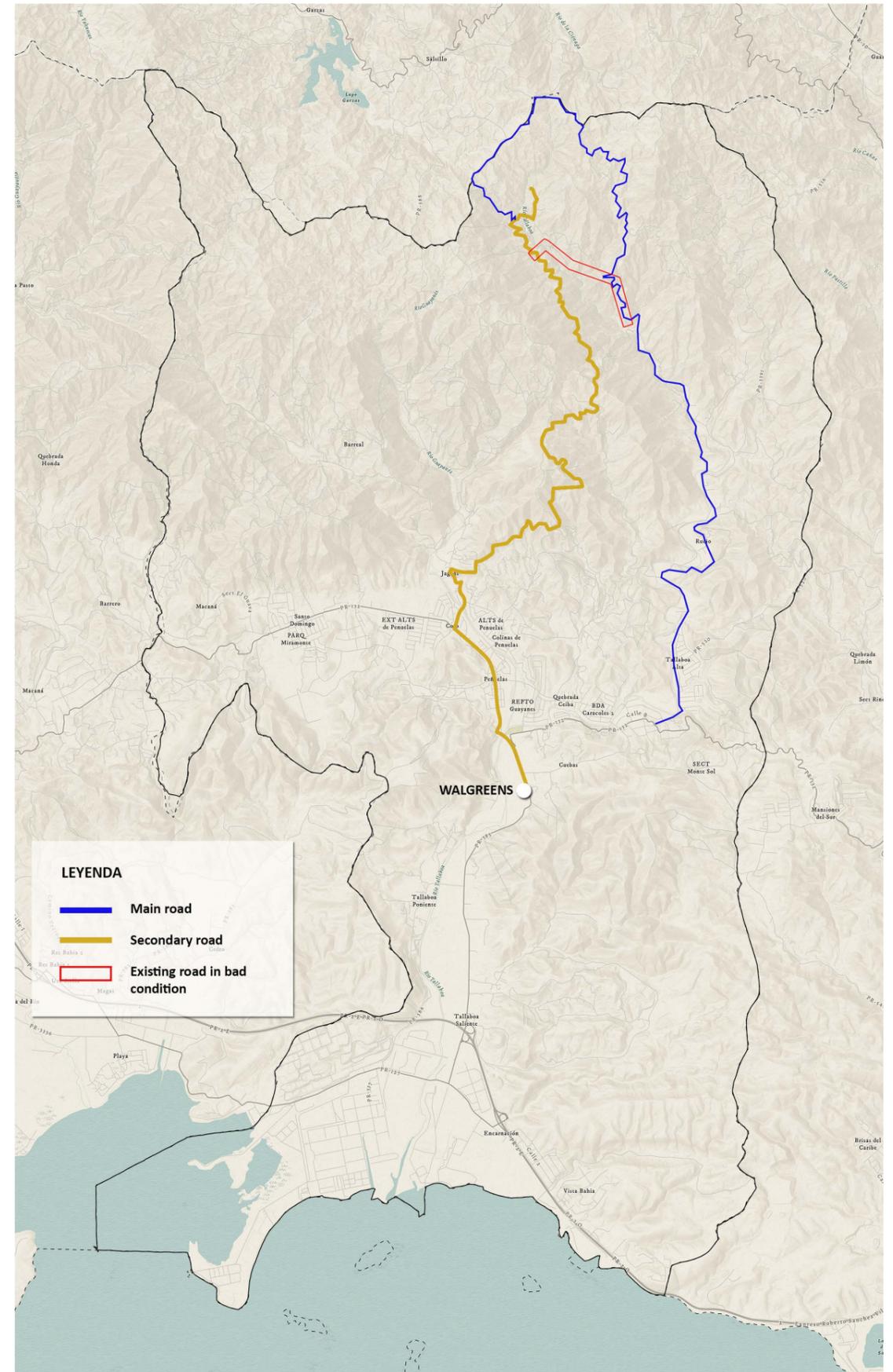


FIG. 12: MOST TRAVELLED ROUTES FROM PEÑUELAS TO RUCIO

Rockslides are frequent occurrences along the roads leading to the Rucio community, and they are especially dangerous during the many hazardous weather events and earthquakes that plague the island. The remnants of these rockslides can be seen frequently along the roadside. Although none of the ones observed spilled into the road itself, the rubble clutters the roadsides and can be easily shifted on to the road by storm water and during floods. These smaller but more frequent hazards such as rockslides can present a more persistent crisis than intense but more incidental extreme weather events such as hurricanes. Evidence of this debris is shown in Figure 13.



FIG 13: EVIDENCE OF DEBRIS FROM A PREVIOUS ROCKSLIDE

Many roads leading to the community are prone to flooding. The nature of mountain roads and the poor conditions of the roads themselves mean the current infrastructure is poorly equipped to handle storm events. These sections of road increase the hazard already faced by residents to travel between the community and other destinations they commute to on a daily basis. In case of a strong storm event, the dips in the roads, as shown in Figure 14, fill with water to the point of being barely navigable during crisis. Unfortunately, the narrowness of most of the roads and the presence of only two viable routes in and out of the community forces residents to traverse these dangerous circumstances on a regular basis.



FIGURE 14: LOW POINTS IN THE ROAD ARE PRONE TO INTENSE FLOODING, MAKING THEM DANGEROUS TO CROSS; FIGURE 15: UNPAVED ROADS AND POORLY MAINTAINED BRIDGES ARE EVEN MORE DANGEROUS GIVEN THE LACK OF LIGHTING

Lastly, the limited number of street lighting and the abysmal state of bridges and underpasses exacerbates the difficulty of driving in such roadways. Residents of Rucio shared numerous stories of their struggles to navigate these roads after dark when the steepness and narrowness of the roads are made even more dangerous in the absence of street lighting and reliable infrastructure. Figure 15 shows one example of unpaved roads and old bridges that can be found on the way to the community.

BASIC SERVICES AND AMENITIES

The absence of services and amenities within the community forces residents to seek them elsewhere. Figure 16 is an origin-destination map that shows how far the community must travel for medical assistance, school, shopping for food and other necessities, and seeking shelter during an extreme weather event. The mapping activity revealed that the community travels to 4 main locations: Peñuelas, Adjuntas, Yauco, and Ponce. The map shows that commutes can range between 21 minutes and 45 minutes depending on the services or amenity needed, which can serious implication for access to critical goods and services. For example, during a medical emergency, extended travel times can be determinant of the odds of survival.

STUDIO PROCESS - COMMUNITY RESOURCES

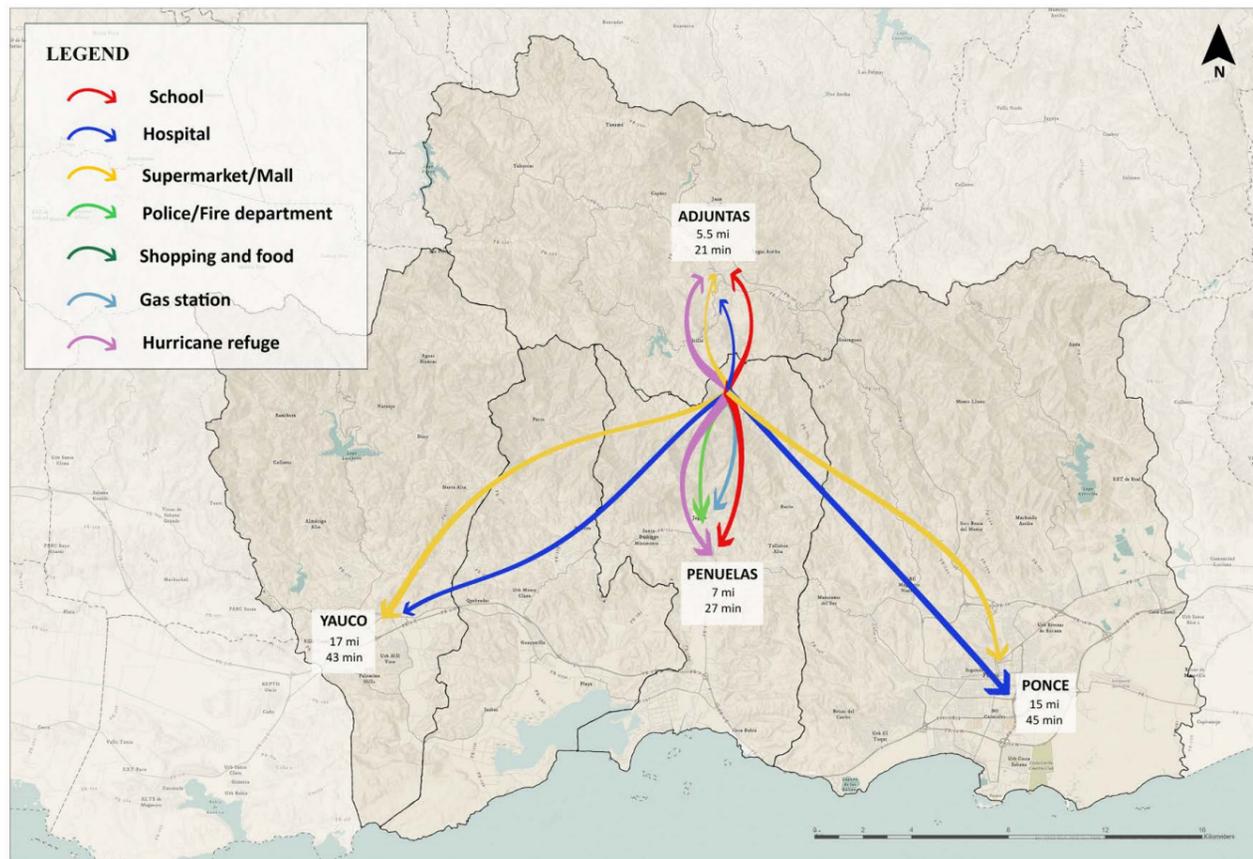


FIGURE 16: ORIGIN-DESTINATION MAP OF TRAVEL DISTANCES/TIMES TO ACCESS ESSENTIAL SERVICES

The unavailability of publicly available transportation poses a significant problem for the children and adults. Conversation with the community revealed multiples incidences where children were abandoned on mountain roadsides by school buses. In the absence of reliable means of transportation and communication, kids often have to wait for hours in adverse weather for working adults to pick them up.

PLACES OF GATHERING

Much like services and amenities, places of gathering only exist outside of the Rucio community. Figure 17 shows the places the community travels to most for celebrations, gatherings, and leisure. Once more, residents must drive across municipalities under adverse infrastructure and weather conditions to be able to come together as a community.

Although these places hold historic, natural, and personal importance to the community, it is necessary that places of gathering and celebration, like services and amenities, be available to residents locally without the need to travel or commute to access them. A centralized meeting space is an important asset to build community solidarity, share important knowledge and resources, and may even be used to as shelter during extreme weather events.

Highlighting the need and challenges to travelling to resources outside the community was a key goal of the studio, particularly for the community mapping team. However, Impacto Juventud is also working to create and improve access to resources within the community. One area that is critically important and yet highly unreliable is access to electricity. Although creating a sustainable and resilient energy system is a longer-term undertaking, the studio members, with direction from Impacto Juventud, began the process of gathering information and building relationships to support Impacto Juventud’s longer-range vision of an independent and reliable energy system within the community.



FIGURE 17: LOCATION OF COMMUNITY GATHERING SPACES

4 . RENEWABLE ENERGY

In September 2017, Hurricane Maria hit the US commonwealth of Puerto Rico (Rodríguez-Madera, 2021). The landfalling hurricane, classified as a category-4 on the Saffir-Simpson Hurricane Scale, resulted in the longest blackout – power outage with a duration of at least one hour and impacting 50,000 or more utility customers – in United States history (Stone, 2014). This disaster, compounded with decades of public sector austerity measures and neoliberal health reforms, brought economic and public health hardships upon communities across the archipelago and hindered response organizations’ abilities to reestablish transport systems, power, and communication (Rodríguez-Madera, 2021). Beyond the immediate physical and economic damages, Hurricane Maria and the events following the disaster have left lasting social and psychological traumas.

Published in 2022, a study featured in Global Health Research and Policy found that participants reported a sense of abandonment by the government, difficulty coping with personal crises under extreme post-disaster conditions, and a collapse of structural services that likely manifest or exacerbated poor health outcomes and chronic illness. In Puerto Rico specifically, the prevalence of chronic disease (e.g., Post Traumatic Stress Disorder (PTSD), depression, hypertension, etc.) and associated risk factors among adults living in Puerto Rico was exacerbated by Hurricane Maria (Mattei, 2022).

As a result of the lasting and compounding damages following Hurricane Maria, there has been an increased focus on the expansion and development of renewable energy in Puerto Rico. Several reports have been published by the National Renewable Energy Laboratory (NREL), International Renewable Energy Agency (IRENA), Applied Energy Services (AES), and The Solar Foundation that focus on island-wide renewable energy and sustainability policies, programs, and plans. These reports reference topics like the Energy Public Policy Act of 2019 and its requirements to increase the renewable energy portfolio from Puerto Rico’s current level of about 3% to 100% by 2050. The Act also proposes macro-level solutions, such as creation of “mini grids” linking large solar generation facilities with local communities (Solar Foundation, 2021; Applied Energy Services, 2017). Building off these pre-existing mandates and frameworks, the studio’s focus was on people, their stories, and strategies to catalyze collaborative innovation and partnership across smaller, more rural communities such as Rucio.

In Puerto Rico, the need for renewable energy is clear. The Puerto Rico Electric Power Authority’s (PREPA) electricity costs over the last 15 years have ranged between \$0.19 – \$0.32 per kWh, as show in see Table 4 (EIA, 2022). These costs are higher than those in the mainland United States, and given the relatively lower income levels of Puerto Rican residents, these costs are relatively more burdensome as well.

Electricity Type	Puerto Rico	United States
Residential	22.64 cents/kWh	14.11 cents/kWh
Commercial	33.16 cents/kWh	11.56 cents/kWh
Industrial	25.65 cents/kWh	7.53 cents/kWh

TABLE 4: ENERGY RATES IN PUERTO RICO AND THE UNITED STATES IN 2022

Solar energy presents a more environmentally and financially sustainable energy option. Given the current market demand and rates, a solar generation system installed and owned by a resident in Puerto Rico would cost about \$0.06 to \$0.08 per kWh over a 25-year expected lifetime (Solar Foundation, 2021). With a storage system included in this model, the price would increase to about \$0.14 – \$0.20 per kWh, depending on battery chemistry. Although this would results to a higher levelized cost of electricity (LCOE), which the average net present cost of electricity generation over the course of its lifetime, and cuts into potential savings, the addition of battery storage greatly increases system resilience. These financing models can be made more affordable through grants and other financial vehicles that offset upfront capital expenditures (e.g., solar panels, inverters, balance of system equipment, racking systems, and storage). Opportunities and resources focused on funding opportunities and next steps to overcome installation barriers will be detailed in later sections.

PLANNING PROCESS AND EVOLUTION OF WORK

At the beginning of the partnership with Impacto Juventud, a primary focus was the pursuit of the Inclusive Energy Innovation Prize, which is a Department of Energy (DOE) American-Made Challenge grant. This grant, totaling up to \$300,000 in financial awards per recipient, was established by the DOE’s Office of Energy Efficiency and Renewable Energy (EERE) and Office of Economic Impact and Diversity (ED) to accelerate inclusive clean energy ecosystems in disadvantaged communities (American Made Challenges, 2022). The Inclusive Energy Innovation Prize was an opportunity to catalyze existing partnerships in pursuit of community scale solar and distributed microgrids – generation, distribution, and store energy separate from a central grid (Wood, 2022). However, given the timing of the studio and the opening of the grant application cycle in March, neither the studio members nor the staff of Impacto Juventud felt prepared to submit a proposal (American Made Challenges, 2022). However, through the process of strategizing for the grant application, the renewable energy team, in collaboration with Dr. Lugo, realized the need for internal systems and processes to facilitate the pursuit of similar funding opportunities in the future. Just as Impacto Juventud would need more internal support to receive and implement a grant for renewable energy, so too would Rucio. As such, in addition to reviewing potential funding options, the renewable energy team started to think about how to establish a formal community governance structure within Rucio, as many other communities in Puerto Rico utilized to establish community and rooftop solar generation systems.

Referencing the structure of organizations such as Comité Communal de Corcovada Inc, the studio team discussed with Impacto Juventud volunteers and the community a leadership structure that includes a community-based board with two, well-established community leaders within Rucio at the helm (Roque, 2020). This structure would help formalize any agreements made between the community and potential partners and would establish an operating structure to help secure funding through grants and other financial mechanisms.

In addition, the renewable energy team began working with other members of the studio to help catalyze community engagement around renewable energy. After speaking with Dr. Lugo and Impacto Juventud volunteers about the trepidation towards installing renewable energy sources in the community, the studio members were surprised and energized by the community’s welcoming of the prospect of renewable energy. In response to the community’s enthusiasm, the renewable energy team pivoted from creating renewable energy advocacy materials to providing resources for renewable energy funding and implementation.

TECHNICAL & ORGANIZATIONAL LANDSCAPE

Over the course of the studio, studio members had the pleasure of collaborating with partners from the University of Puerto Rico, Mayagüez, most notably working with Dr. Marcel Castro, a Professor in the School of Engineering, and members of his team in the Microgrid Lab. The Microgrid Lab is committed to addressing the two-dimensional characteristics of renewable energy resources by bridging both the socio-technical and the physical design and implementation aspects of renewable energy development (UPR-M, 2018). The ongoing relationship between Dr. Eduardo Lugo and the Microgrid lab arose out of a grant from the National Science Foundation in 2017 (NSF, 2015). The grant, titled CRISP OASIS, brought together a diverse, cross-functional team of researchers across engineering, climate sciences, computer sciences, community psychology, political science, and sociology to model a sustainable energy market for Puerto Rico. This partnership established the foundation for institutional and non-profit collaboration in support of Impacto Juventud’s efforts and engagement in Rucio around renewable energy and framed the studio’s efforts to strengthen this critical partnership.

One of the key developments to come out of the collaboration between Impacto Juventud and the Microgrid Lab was a survey developed by the Microgrid Lab to better understand consumer energy consumption, behaviors, and values. Although the survey is still under development, the long-term planned effects will be twofold. First, the survey will help researchers at the Microgrid Lab model energy needs across several time horizons and will be used to identify and prioritize rooftop photovoltaic systems in Rucio that meet the needs of residents to provide reliable energy when demand is at its highest (UPR-M, 2018). While needs are variable depending on the home and system, the data collected from the survey will be a crucial element to understand when residents use electricity the most, what appliances are used, and how a renewable energy system may offset the critical loads tied to each high-use periods (SER Center, 2016). Second, the survey will help inform and encourage discussion, continued engagement, and community education (Dwello, 2019). This engagement may take the form of peer-to-peer, community open houses where successful solar communities mentor and provide support to communities hoping to follow in their footsteps. Another potential form of engagement could be “how-to guides” that explain the necessary steps to remove and reinstall a solar system pre- or post-disaster. This survey, produced with consultation from the Department of Psychology at University of Puerto Rico-Mayagüez, will be crucial to expand renewable resources and position Impacto Juventud’s partners once funding is realized.

PROPOSALS FOR RENEWABLE ENERGY INTERVENTIONS

The renewable energy team has identified two primary opportunities for energy resilience development within the community: 1) a “Learning Laboratory”; and 2) the incremental installation of rooftop solar. These recommendations emerged from case studies, testimonials from professionals working with similar communities in Puerto Rico, and the contextual challenges and assets of the community. They have also been informed by the organizational capabilities of Impacto Juventud, partners at the University of Puerto Rico-Mayagüez, and the affiliated organizations that were identified over the past several months.

PROPOSAL ONE: LEARNING LABORATORY

A “Learning Lab” is an approach to solar energy research that promotes open participation and sustainable experimentation (Di Bono, 2018). It would serve as an opportunity to tap into a nexus of opportunities identified across Rucio such as clean water, sustainable food sources, reliable energy, transportation, and education and would bolster the work of Impacto Juventud. Additionally, the Learning Lab would be developed in harmony with the agroecology space of Aula en la Montaña in Rucio and will help foster a new relationship between people and solar technology.

One potential layout for the space is proposed in figure 18 below. This “Learning Lab” can take many forms based on the community’s needs and wants. This particular design includes a few key elements: solar energy, lights, three prong charging outlets, a raised garden space above the foundation, and accompanying space for children to play, live, and learn. Looking up, canopied over their heads, users of the space would find themselves underneath a kilowatt of solar energy. This solar energy produced from the panels could be used to charge phones, plug-in lifesaving equipment during a potential outage, or power string lights and other objects to use for entertainment. In addition to producing energy, this shade from the panels would create a cool space for the community to gather, and children could play, read, write, and create.

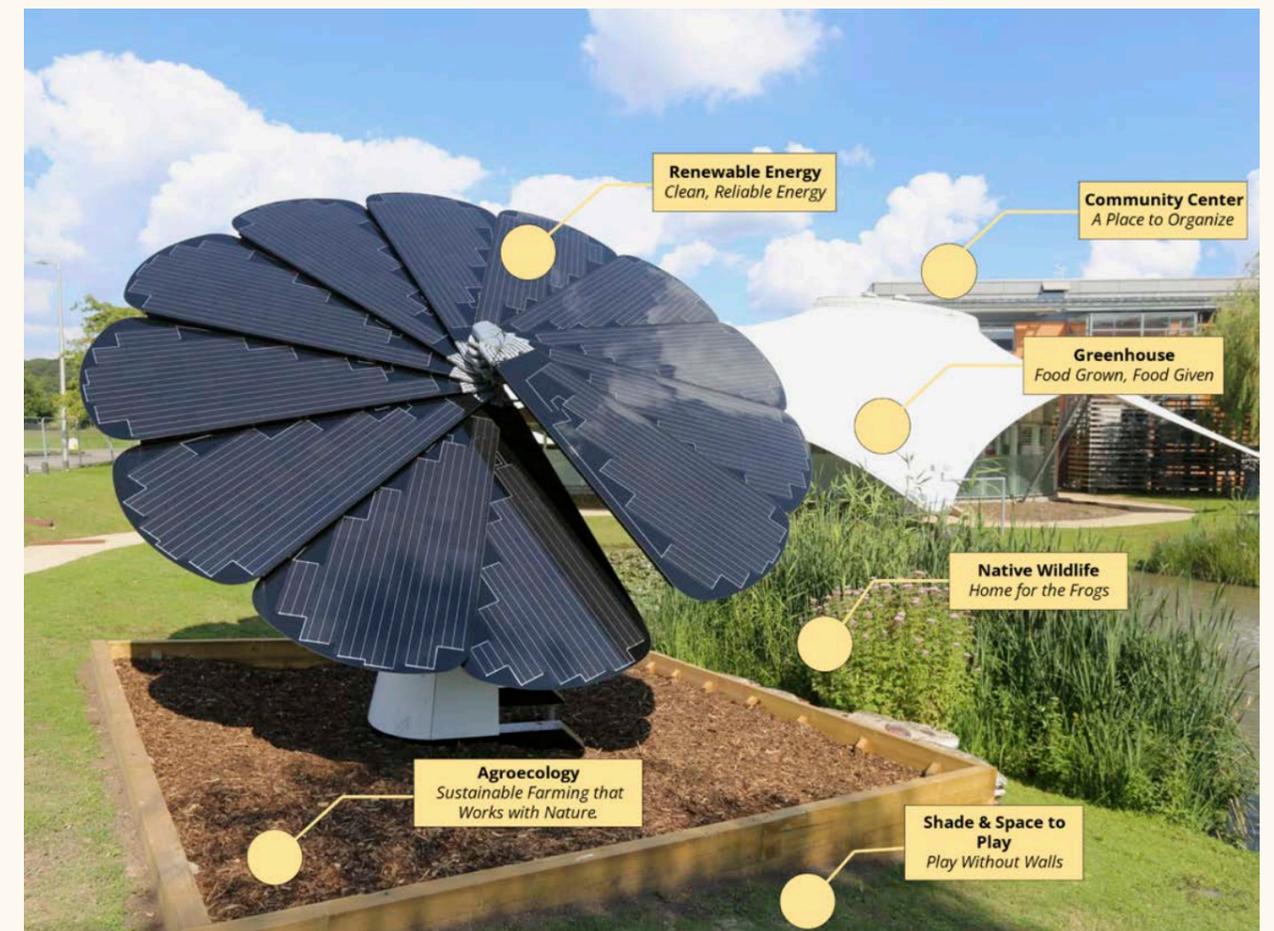


FIG. 18: MODEL “LEARNING LAB”

The ultimate vision for the Learning Lab is threefold. First, the Learning Lab will serve as a beacon, a central node for future renewable energy development and broader community-scale energy transitions (Roque, 2020). It will be a hub for electricity generation and a symbol of sustainable adaptation in the face of compounding challenges. Second, the Learning Lab should be viewed as a gathering place for education and celebration. Several of the Rucio residents commented on the need for a central space for community members to celebrate, hold events, and enjoy time together. The Learning Lab should contribute to the creation of a space for shelter and gathering for the community to continue activities during minor rainstorms and heat events.

COMMUNITY HIGHLIGHT: THE AGROECOLOGY SPACE

The agroecology space, developed as a partnership between the community and Impacto Juventud, is a hub for collective action (figure 19). It demonstrates the power of combining and adapting existing programs with relationships to actualize Rucio’s vision for the future. The community faces a number of challenges including access to clean water, sustainable food sources, and reliable energy, and the agroecology space represents an effort by the community to address these challenges.

Aula en la Montaña’s model of community organization through hands-on education is clearly materialized through the agroecology space. This space can be used to provide further education, specifically around topics like clean water, reliable energy, and physical activity through the integration of the Learning Lab. The energy from the Learning Lab could power water pumps to irrigate the community garden from cisterns that Impacto Juventud plans on implementing in coming years, adding further resilience to the garden while providing an educational opportunity for the community. Such educational experiences would best be driven by the promotion of open participation and sustainable experimentation that is ingrained in Aula’s educational model (Di Bono, 2018).



FIG. 19: THE AGROECOLOGY SPACE IN RUCIO, PR

PROPOSAL TWO: ROOFTOP SOLAR

The studio’s second recommendation, rooftop solar, involves installing grid connected solar power systems. These systems would likely generate two-kilowatts of electricity and operate over a 25-year lifetime (The Solar Foundation, 2021). Given that there are some initial financial barriers (i.e., the cost to purchase and install solar panels, inverters, racking systems, and storage), the studio team suggests that Impacto Juventud and partners leverage grants to offset some of these initial costs, leaving only monthly payments remaining (American Made Challenges, 2022). Numerous other communities such as Adjuntas and Corcovada have established or utilized existing community associations through which funding and financing for infrastructure are processed and maintained (Roque, 2020; Adjuntas Pueblo Solar, 2022). A similar model may be suitable for Rucio to pursue as the community does not currently have a formalized community association or non-profit. Although the structure around these monthly payments would require transparency, the centralized funding could be developed and used for other purposes, such as maintenance of the system or investment in other infrastructural needs, deemed viable and agreed upon by a socially ratified governance structure (Adjuntas Pueblo Solar, 2022). This approach, while adapted a bit to best serve local businesses, was used in Adjuntas in the establishment of the Community Solar Energy Association of Adjuntas (ACESA). In ACESA’s model, solar panels owned by ACESA are provided to downtown businesses, which then pay monthly energy rates per kWh (figure 20). Their rates are still far lower than those of PREPA and LUMA, so businesses save money while contributing to a central fund used to maintain current installations, complete additional installations for businesses, and install free systems for the town’s most vulnerable residents.

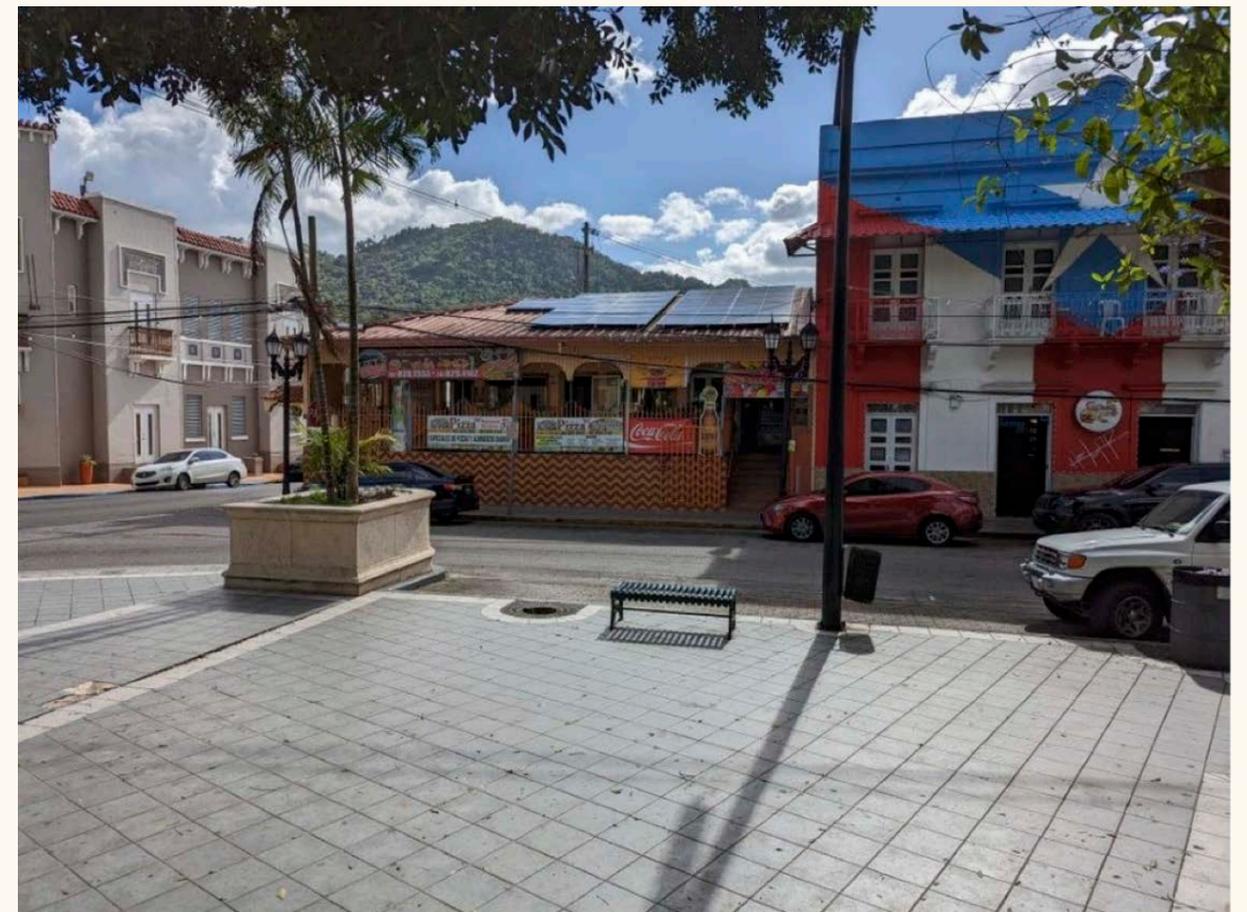


FIG. 20: ACESA SPONSORED-SOLAR ATOP A LOCAL BUSINESS IN ADJUNTAS, PR

COMMUNITY HIGHLIGHT: RUCIO'S FIRST HOME WITH ROOFTOP SOLAR

Product and technology markets often rely on “early adopters”, who are the first people in a market to utilize a product, to spread word about new products and give feedback to the provider (Riverola, 2016). In Rucio, one resident, an early adopter of solar energy in the community, installed solar on her home about a half a year before the studio’s visit (figure 21). The system consisted of 6 solar panels producing 2-kilowatts of electricity and eight batteries with a total cost of around \$5,000 (USD) and a 25-year warranty. Her energy bill had been about \$80 a month prior to installing the system, and she now pays \$90 a month between her \$70 monthly payments for the solar system and her \$20 energy bill. Under this financing model, she will have paid for the system in only about 6 years.

This resident expressed satisfaction and relief with her decision to install the system. She is investing in increasing the efficiency of her appliances to power her entire home on the two-kilowatt system alone. During outages, her neighbors often store perishable goods and medicines in her refrigerator. She expressed that since she installed the system, it’s brought a lot of attention. Though much of the community expressed fears of longer outages similar to those experiences in the aftermath of Hurricane Maria, it felt as though the community was optimistic. Many neighbors view her home as a model for how every home in the community could look. To achieve this, the following section will describe some of the future work, funding, and partnerships needed to make that vision a reality.



FIG. 21: ROOFTOP SOLAR SYSTEM IN RUCIO, PR.

FUTURE WORK AND NEXT STEPS

Through conversations with Dr. Eduardo Lugo and partners such as University of Puerto Rico-Mayagüez and The Solar Foundation, the renewable energy team has determined these work items to be most critical to increasing energy independence in Rucio. First, the studio encourages Impacto Juventud to work with the community to clearly define physical designs, desired outcomes, and prioritized projects. This will better position Impacto Juventud and the community to secure grant funding. Similarly, momentum from the engagements of this studio must be maintained to aide in the funding process as synergies are realized, steps are taken to solidify community governance, and partners are called upon to collaborate. This momentum may take the form of strong community engagement,

potentially through University of Puerto Rico-Mayagüez energy survey participation, or out-facing public relations via Twitter, LinkedIn, Instagram, and Facebook. Finally, the renewable energy teams recommends a push for more peer-to-peer connections between Rucio and other communities, such as Adjuntas or Corcovada, that have both successfully transitioned towards renewable alternatives and/or plan to transition themselves.

While it would not be required, a formal cohort of such communities should be established to catalyze succinct communication, collaboration, and the sharing of perspectives (Roque, 2020). The products of this formal cohort could take the form of a newsletter, an annual celebration, or peer-to-peer coffee chats that occur quarterly (Adjuntas Pueblo Solar, 2022). The continued education and ideas shared from a cohort of this nature would serve to further educate Rucio’s residents and strengthen their connections to other solar communities in Puerto Rico.

CONCLUSION

There are a several reflections and takeaways after the studio experience:

- The first is a need for an agile approach to be responsible as conversations evolved, knowledge was shared between parties, and relationships formed between Impacto Juventud, the Georgia Tech studio, and partners across Puerto Rico. This approach allowed the studio to integrate flexibility into the workstream and engage in organic engagement (i.e., engagement that occurs because of meaningful conversations rather than planned interactions or agendas). While this limited the amount of time the studio spent on any given topic, it maximized the potential for studio members to add value, ask questions, and shape the discussion across a myriad of topics both related to renewable energy and otherwise. Given that studio participation was only planned for the course of a single semester, this model for academic engagement lends itself well to opportunities like renewable energy given the long-time horizons projects in this space tend to take.
- At every step, the studio measured success against the conversations the studio was engaged in and the partners the studio was involved. In this sense, the studio made the very conscious decision to position the studio members as facilitators. Here, studio members felt they could make the most impact while allowing decisions and subsequent conversation to be had locally. In many relationships, especially between an external party and a client, there is an uneven distribution of decision-making power, often in favor of the external party, advisor, or consultant. In hope of flipping this script, the decision to take on the facilitator role democratized this distribution of power. Instead of positing solutions and making recommendations from the studio space in Atlanta, studio members sought to provide context, ask questions, and engage partners in a way that led to collaborative conclusions.
- The studio prioritized education. Given that everyone in the studio is still a student, either lifelong or in their formal title, this callout is especially important. To tailor the discussion to Rucio and to allow that conversation to evolve, the studio team had to continue to educate themselves and reflect that education outward.

Partnerships are not static in time; they are living, growing, and changing mechanisms that have the potential to build roots in the wake of disruptive waves. As climate change and future disasters continue to effect life in Puerto Rico, the currency within communities will continue to shift from dollars to social connections, partnerships, and collective action. Renewable energy is an extension of this and a very viable component of Rucio’s future. It has been a pleasure to work with the partners referenced in this chapter and privilege to have the opportunity to collaborate on a project of this nature.

COMMUNITY HIGHLIGHT: CASA PUEBLO

Casa Pueblo is a non-profit organization in Adjuntas, Puerto Rico. It was formed in 1980 under the leadership of Alexis Massol González, the 2002 Goldman Environmental Prize recipient, and Faustina “Tinti” Deyá Díaz, a former teacher and leader in 1970s movements to eliminate asbestos from buildings (Millan, 2013; Alfonso, 2015). Over the years, Casa Pueblo and the members that make it up have worn many hats, the core of their organization been maintained. They have sought to “explore, enjoy, and protect the wild places in Puerto Rico; to practice and promote the responsible use of the land’s ecosystems and resources; to educate and enlist others to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives.”

Alexis, Tinti, and Casa Pueblo have diligently accomplished their goals, often after persevering for many years, and continued to ask, “what’s next?”. One key to Casa Pueblo’s success is its leaders’ views of achievements not as a static end state, but rather a launch point to continue to expand their service to Adjuntas and Puerto Rico. It would have been easy for Casa Pueblo to stop when they successfully lobbied the Government of Puerto Rico to create the community-sponsored forest called Bosque Del Pueblo, which is currently the only forest in Puerto Rico managed under an agreement between a community-based organization and the government (Casa Pueblo, 2022). Instead, they moved forward and asked “what’s next?”.

After Hurricane Maria hit, Casa Pueblo, which had installed a fairly large solar generation and storage system (figure 22), became the sole energy provider of Adjuntas, pledging a haven for residents to connect their life-saving equipment and store their food (Klein, 2018). Since then, this has defined Casa Pueblo’s new “next”. Casa Pueblo is now working to make Puerto Rico an energy oasis: an island not defined by their reliance on US-based oil and natural gas but rather the fruits of their own solar harvest.



FIG. 22: CASA PUEBLO SOLAR PANELS IN ADJUNTAS, PR



CONCLUSION

SUMMARY OF WORK

Table 5 below summarizes the needs, objectives, and deliverables of the studio. Guided by the overarching goal of increasing Impacto Juventud’s organizational capacity through accessible data communications, the studio made it a point to develop and deliverable the final products in formats that were approachable, useable, and accessible in the short term and in the longer term as Impacto Juventud looks to expand their reach.

	Client Needs	Objectives	Deliverables
Organizational Capacity	Brand Clarity, Digital Presence, Funding Sustainability	Create cohesive digital assets that communicate organization's story and impact	<ol style="list-style-type: none"> 1. Impact Report 2. Website 3. Brand Guide 4. Social Media Templates
Community Resources and Access	Assessment of accessibility to essential services for partner community	Identify access to amenities and disamenities in and around Rucio	<ol style="list-style-type: none"> 1. Static maps 2. Story map 3. Interactive map
Renewable Resources	Educational and Supportive Resources for Solar Projects	To ease the burden of Impacto and Rucio in forming partnerships and financing to install solar	<ol style="list-style-type: none"> 1. Menu of Solar Options 2. Menu of Financing Options 3. Directory of Grants 4. Community Case Studies & Contacts

TABLE 5: OVERVIEW OF NEEDS, OBJECTIVES, AND DELIVERABLES

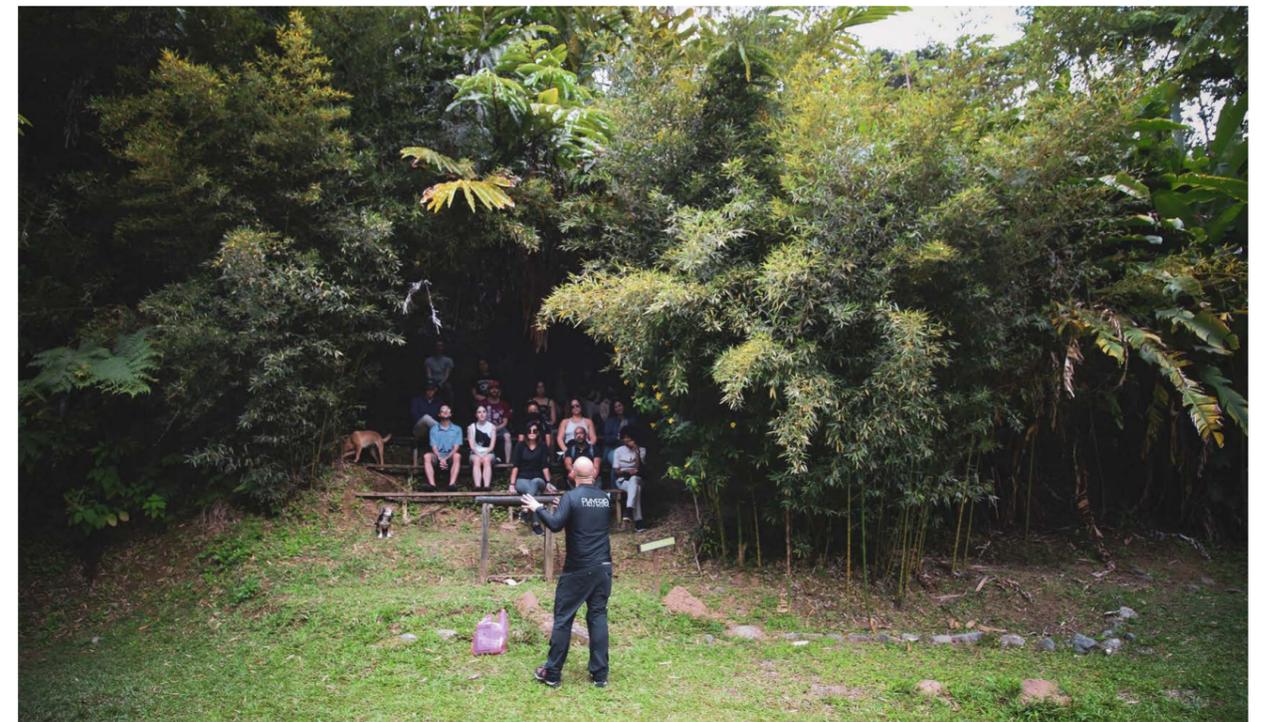
FINAL THOUGHTS AND REFLECTIONS

The 2022 Puerto Rico studio – Augmenting the Impact of Community Organizations – was a uniquely rewarding experience for all those who had the pleasure of being involved. Between the guiding philosophy, unprecedented levels of funding, a diverse and interdisciplinary team, and incredibly collaborative and communicative partners and community members, the studio was pointed for success. Indeed, the breadth and depth of the processes and final products of the studio are unlikely to be replicated, though perhaps replicability need not be the metric for success.

This studio was diverse, collaborative, and responsive, yielding context-specific processes and products. This is well reflected in the strong relationship between Georgia Tech, Impacto Juventud, and the Rucio community, which exemplifies the need for and the benefits of strong community partners. The studio was also iterative, revisiting and rescoping projects and deliverables to be responsive to Impacto Juventud and the community’s needs and delivered in accessible and actionable formats. As such, the 2022 Puerto Rico studio shaped and was shaped by the time- and context-specific of the experience for the students of Georgia Tech, the staff and volunteers of Impacto Juventud, and community members in Rucio. The conditions of the studio, and thus the resulting studio experience and deliverables, are not likely to be replicated. That being said, the studio intentionally oriented itself around building capacity to support future development and iterations of this work, though not necessarily direct replications.

There are a few, key overarching reflections that we will take with us as we move through our careers as planners after having engaged with this studio. The first is the need to decenter ourselves, when appropriate, from the work of our partners and the community. Throughout this studio, it was apparent that we, as the students from Georgia Tech, did not share the same experiences and perspectives as Impacto Juventud or the Rucio community. It is important to acknowledge those differences in perspective and experience, as they should be greeted as learning opportunities for all parties and must be continuously considered as we seek to ultimately focus on and elevate the community in this process. In addition to decentering ourselves, we also needed to recognize our privileges. As students affiliated with Georgia Tech, we possess skills, knowledge, and resources that were otherwise not available to Impacto Juventud or Rucio. By connecting the community to these resources, particularly technologies like map making, data visualization, and digital media, we helped Impacto Juventud and the community of Rucio leverage technology to better communicate their needs and advocate for themselves.

Reflecting on our guiding philosophy as planning as process, the experiences provided by this studio, its professors, and its partners have been unparalleled. While the conditions for success may be the same, and many different forms of success may be possible, it is unlikely that this studio experience could be duplicated. This is due in large part to the dynamic, inclusive, and participatory processes we utilized both internally and externally. Truthfully, engaging in such an involved process can be intense, frustrating, and overwhelming at times, even before working on the deliverables themselves. However, the opportunity to bring people along the planning process, to plan with and not for communities, has made this a rewarding studio that will hopefully bring value to the students, staff, volunteers, faculty, and community members it involved long after the formal studio process concludes.



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