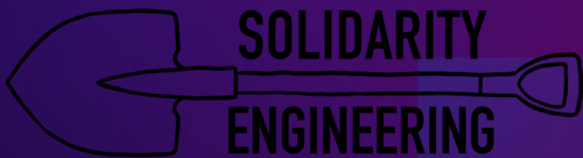


# Equitable Distribution of Humanitarian Resources in a Refugee Camp Using ArcGIS

Christa Cook

Field Engineer

Solidarity Engineering



## Background

- The journey to the US/Mexican border can take months as most people are travelling on foot, bus, and hitchhiking
- They arrive to the Matamoros refugee camp in dire need of essential items, exhausted, scared and often in need of medical care





## Background

- A refugee camp of about 3,500 people formed in Matamoros, Mexico due to the 2019 Migrant Protection Protocols (MPP)
- NGO's provided essential services as there was little government intervention





# Hurricane Hanna

- Hurricane Hanna hit the camp on Jul 23, 2020, rapidly creating a significant and need for shelter distribution
- COVID-19 was also at a peak during this time, exacerbating the severity of the need for shelters





## Distribution Problems

- Previous distribution methods were physical paper lists made by country leaders
  - Led to confusion
- Acquisitions of favoritism led to high social tensions
  - Created unequal access
- The lack of tracking of resources created logistical challenges
  - Slow response time



The background features a vibrant color palette of magenta, purple, and orange. It includes abstract, wavy shapes and faint topographic map lines, suggesting a landscape or terrain. A prominent yellow arc curves across the right side of the image.

# Post-Hurricane Humanitarian Distribution

Shelters, Platforms, Tarps



# Resource Distribution with Survey123

- Posted QR codes in community spaces
- Country leaders helped filled them out
- Challenges:
  - Multilingual
  - Security
  - Illiteracy
  - Lack of internet



Search 13:41 survey123.arcgis.com — Private

Se necesita una carpa?\*

Si

No

Sube un foto de su carpa actual que deba reemplazarse:\*

No necesita subir un foto de las lonas o las r

Select image file

Escribe su nombre aqui\*

Escribe su numero de WhatsApp que incluye el codigo de pais (el numero de la persona que va a recibir la carpa)

Tamaño de familia registrada con INM?

Search 13:41 91% survey123.arcgis.com — Private

Dignity\_Village\_Tent\_Distribution

✓

Gracias por su participacion. Su nombre ha sido añadido en la lista oficial.

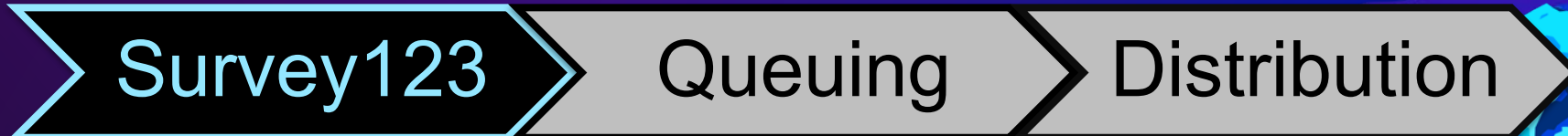
Vamos a revisar su aplicacion y alguien va a contactarte por Whatsapp para coordinar como entregarle la carpa.

Toda su informacion va a ser privada y no sera compartida con nadie.

Para ver la opcion de privacidad de datos, haz clic aqui:

<https://www.esri.com/en-us/privacy/privacy-statements/privacy-statement>

Powered by ArcGIS Survey123



# Resource Distribution with Survey123

With the information collected via Survey123, tents, platforms and tarps were distributed

- Dispatcher organized requested resources

The screenshot shows a data table with the following columns: Survey Date, En cual tienda vi..., Escribe su ..., Escribe s..., Tomaño de fami..., Alguin en la fam..., Tent Provided?, Date Tent Provi..., Tent Type, and País/Country. The table contains 10 rows of data, with the second row highlighted in blue.

Survey Date	En cual tienda vi...	Escribe su ...	Escribe s...	Tomaño de fami...	Alguin en la fam...	Tent Provided?	Date Tent Provi...	Tent Type	País/Country
8/12/2020, 5:52 PM	Tienda 4	Luz torres alejandro	8681824155	1	No	Yes	8/16/2020	4 person tent	Peru
8/13/2020, 7:40 PM	Tienda 2	Brenda Portillo	+521868366	2	No	Yes	8/16/2020	6 person tent	El Salvador
8/12/2020, 4:15 PM	Tienda 2	Alejandra Pérez España	521 .8683129084	3	No	Yes	8/16/2020	6 person tent	Guatemala
8/14/2020, 2:16 PM	Tienda 2	Claudia isabel amador Ochoa	521 9241294740	3	No	Yes	8/16/2020	6 person tent	Hondoras
8/14/2020, 2:43 PM	Tienda 2	Josselyne Ramos	5219161183	2	No	Yes	8/16/2020	9 person tent	Hondoras
8/14/2020, 3:42 PM	Tienda 1	Jorge Antonio Granados ochoa	+521868301	3	No	Yes	8/16/2020	6 person tent	El Salvador
8/14/2020, 4:22 PM	Tienda 2	Carolina Rocha	+521868373	2	No	Yes	8/16/2020	6 person tent	Hondoras
8/14/2020, 4:30 PM	Tienda 2	Bryan Jassir centeno midence	9931950517	1	No	Yes	8/16/2020	4 person tent	Hondoras
8/15/2020, 8:47 AM	Tienda 2	...	...	...	...	...	...	...	...

Survey123

Queuing

Distribution

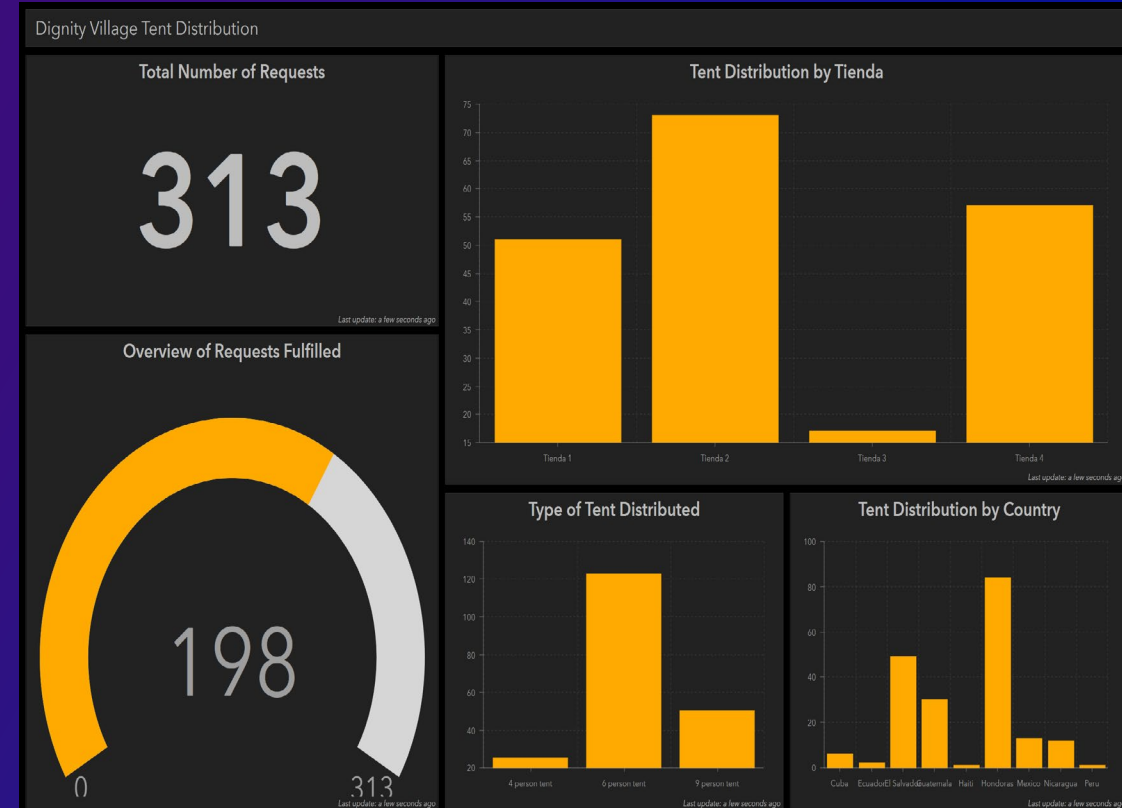


# Resource Distribution with Survey123

- Dispatcher gives the organized resources to the country leaders
- Country leaders delivered resources to the asylum seeker

## Resources Distributed:

- 198 tents
- 600+ platforms
- Countless tarps



Survey123

Queuing

Distribution



## Resource Distribution with Survey123

- **Solving the language barrier**  
Survey were presented in Spanish but recorded in English
- Created **equitable access** to shelters
- This solution was seen as **unbiased**, significantly easing social tensions
- **Improved communication** among stakeholders
- **Improved response time**





# Other ArcGIS Applications

The use of StoryMaps, Collector, ArcGIS Pro and Dashboards in the Matamoros Refugee Camp



# Survey123

Survey123 has been instrumental in collecting local and immediate data to help make informed decisions

Projects include:

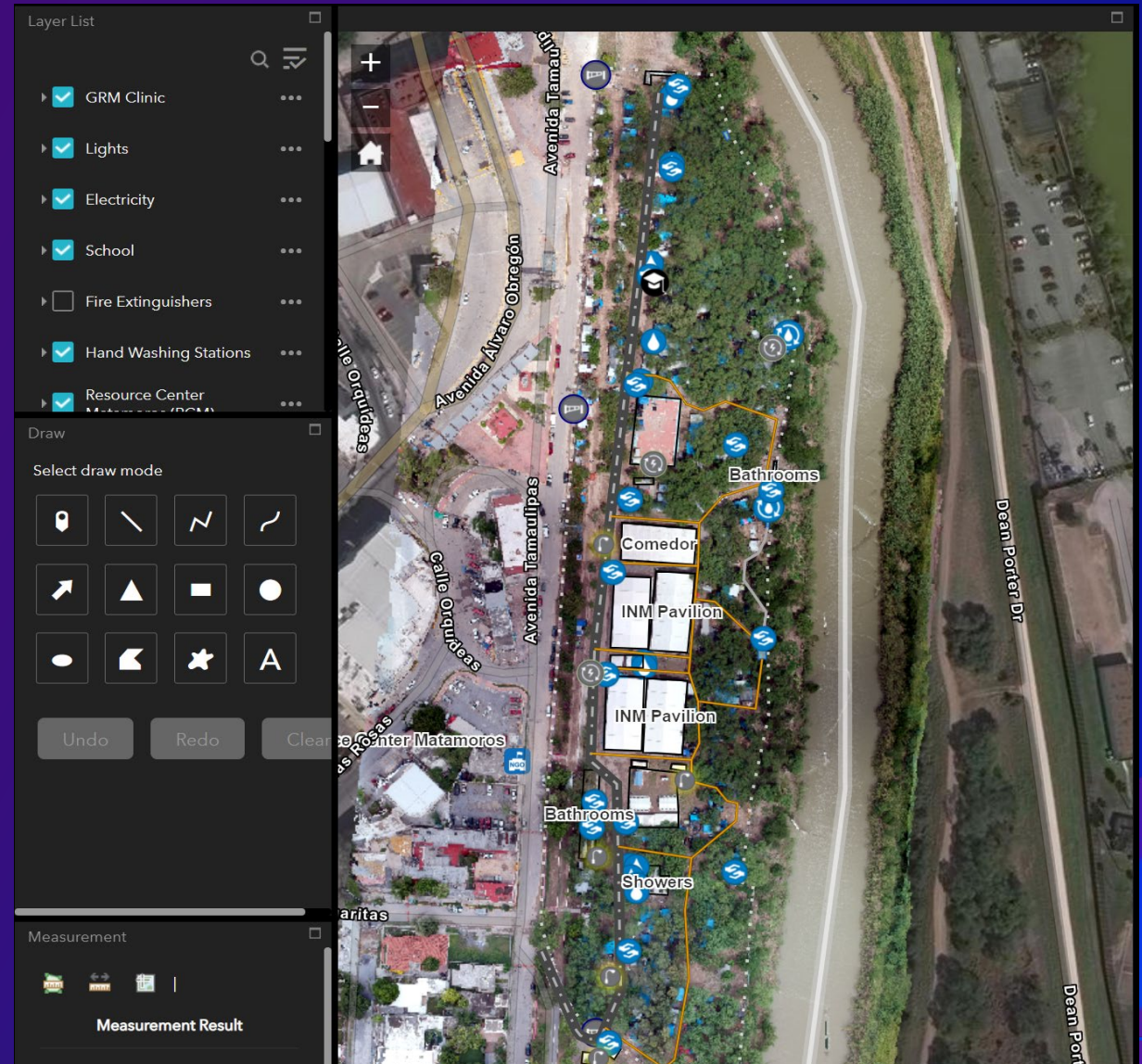
- Chlorine Monitoring Survey
- Water, Sanitation and Hygiene Survey





# Collector, Dashboard, Drone2Map and ArcGIS Pro

- Maps of the camp were made quarterly during 2020 to document the constantly changing context
- Other projects include security maps and mapping possible new clinic sites

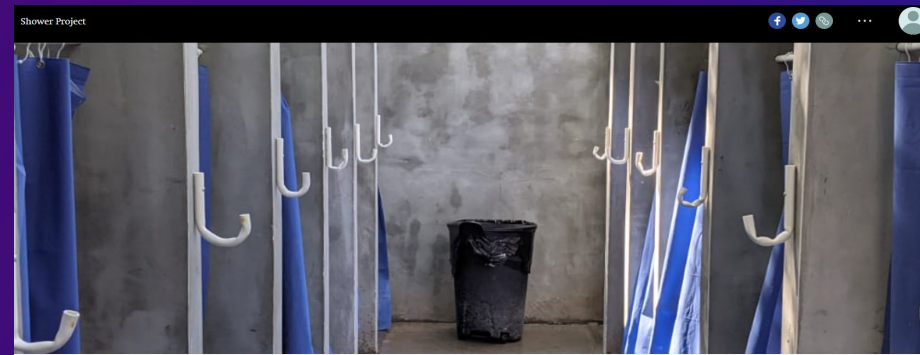




# StoryMaps

StoryMaps have been an invaluable communication tool that has allowed :

- Innovatively and formally say thank you to donors
- Effectively write and communicate proposals
- Present project updates to stakeholders



## Shower Project

Thank you for funding the showers at the Matamoros Asylum Seeker Camp!

GRM and Solidarity Engineering | May 12, 2021

[Introduction](#) [Impact](#) [Operations and Maintenance](#)

### Introduction

Hi Brian! We are thrilled to let you know that we have finished camp - they have made a tremendous impact on the overall hygiene and safety of the camp.



We are excited to announce that Phase 1 of the Playground Project at the Matamoros Refugee Camp is complete! The final product includes a 30'x30' fenced in playground area, with a soft sand surface, wooden curb, four custom play features for children ages 2-10, and a paid asylum-seeker staff to provide supervision.

Use the slide bar to see before and after photos of the playground area.



Before and After Photos of the Playground

In true Solidarity Engineering fashion, the first step of this project was to check with the community about what they wanted and expected. Planning and design included considering different site locations, sourcing construction materials and play equipment, and doing a ton of research to ensure the best option for the camp was chosen.

After consulting the neighbors and getting their enthusiastic approval for the location, the Solidarity Engineering team started the groundwork. This included digging drainage channels and flattening the soil foundation. We then constructed a wooden curb around the entire area. With the help of one of our asylum-seeker community members, we got in touch with a reputable, local playground equipment supplier, and was able to buy custom equipment, aimed at children ages

## Camp Update – May 2021

- The camp closed in February of 2021 due to a change in policy that allowed those from the camp to wait on the US side
- Camps have begun forming in other parts of Mexico, such as Reynosa and Tijuana
  - Lessons learned from implementing ArcGIS software in Matamoros will be applied in other camps along the border





## Reach Out

- Any questions or comments contact: [christa@solidarityengineering.org](mailto:christa@solidarityengineering.org)
- To view a StoryMap outlining all the ArcGIS work completed in the Matamoros Refugee Camp, scan the QR code below

