

ACAPULCO

COASTS TOWARDS RESILIENCE

Acapulco is a coastal city in the Mexican state of Guerrero. While it's seen as a "vacation paradise" by many tourists, for locals it has become a symbol of corruption, neglect, and government indifference — a city in decline, shaped by **environmental destruction** and repeated natural disasters.

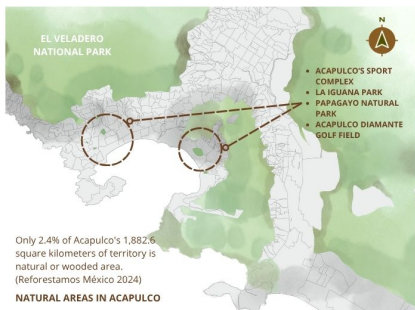
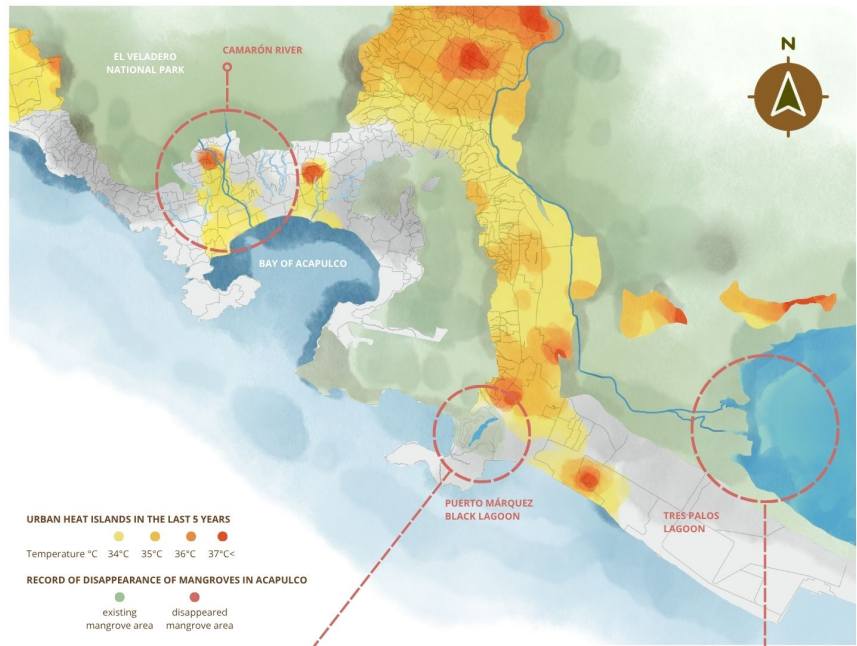
9 OF 11 TROPICAL STORMS BECAME CYCLONES IN 2024

According to the U.S. National Oceanic and Atmospheric Administration (NOAA), at least **90% of the warming** observed in recent decades has occurred in the oceans.

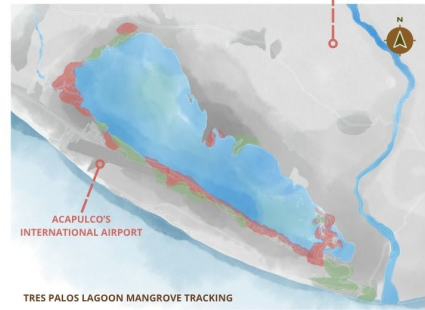
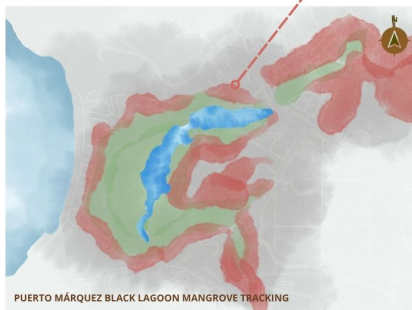
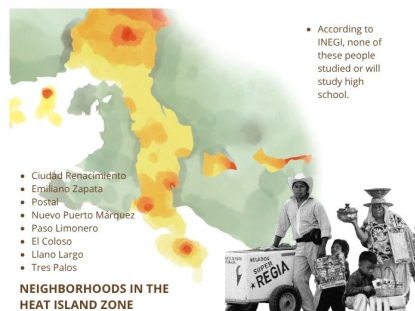
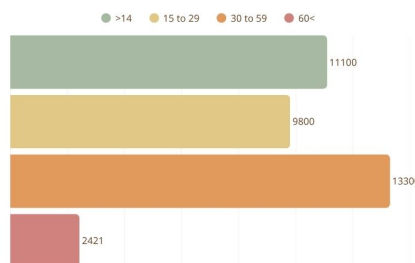
In Mexico, the UNAM's Institute of Atmospheric Sciences and Climate Change has explained that the growing formation of tropical cyclones along the southern Pacific coast is not only **driven by rising ocean temperatures** in the region, but also by unchecked urbanization that has destroyed wetlands, rivers, mangroves, and natural drainage and infiltration zones. This has made coastal cities like **Acapulco extremely vulnerable to the impacts of climate change**.

POPULATION LIVING IN INJUSTICE

In Acapulco, around **67,204 residents live in urban heat islands**, mostly located in the north, the city's **poorest and newest neighborhoods** — areas inhabited by **working-class** communities that were displaced from the coasts and hotel zone. (INEGI, 2023)



AGE CLASSIFICATION OF THE POPULATION LIVING IN HEAT ISLANDS, INEGI 2024.



IMPORTANCE OF MANGROVES ON THE COASTS



WHAT ROLE HAS THE GOVERNMENT PLAYED?

The Mexican government launched a program called "**Acapulco se transforma contigo**" ("Acapulco Transforms with You"), in which the Ministry of Tourism proposed:

- Providing comprehensive attention to infrastructure and public services
- Improving public safety
- Establishing sustainable transport and mobility systems
- Regenerating the tourist and hotel zones
- Implementing strategies for Acapulco's revival

IS CLEANING THE DRAINAGE ENOUGH?

However, **nearly three years after Hurricane Otis, no major reconstruction work has begun**. Only CONAGUA (the National Water Commission) and its sub-agencies allocated around 8 billion pesos to activities such as:

- Rebuilding and improving the potable water system
- Cleaning and dredging rivers and streams
- Building dams, embankments, retaining walls, and flood protection structures
- Cleaning and repairing drainage and sanitation infrastructure

Still, only about **40% to 50% of the infrastructure** is currently operational, and full recovery is not expected for another five or six years. (El Sol de Acapulco, 2024)

WHAT DO THE EXPERTS THINK ABOUT THIS REALITY?

"There's a need for greater involvement of people with technical expertise to propose ways to reactivate the city's productive activities, strengthen its tourism-oriented sectors, and attract visitors." — José Fuentes Rendón (Construction expert)



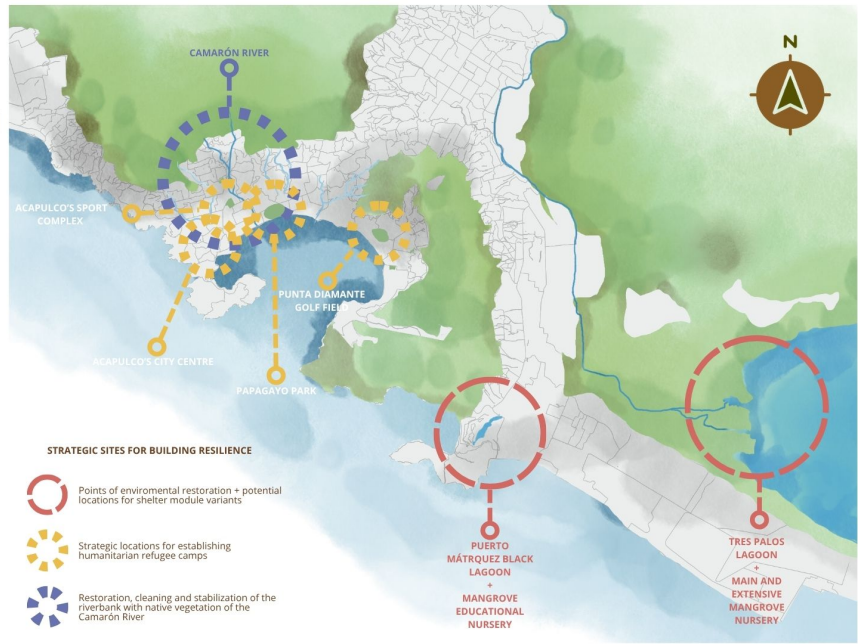
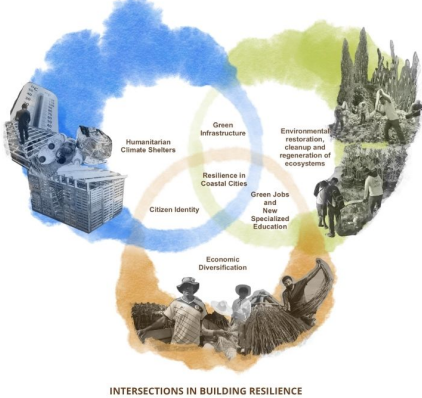
It's **urgent** to put a **stop** to the **massification** and monopolization of tourism as the city's main economic activity. The local population needs to be acknowledged — it's time to **rethink** the kind of **identity** they want to feel within their own city.

The **government must encourage** people to learn how to face the challenges of climate change and to improve their living conditions through collective action.

ACAPULCO

RESILIENCE, A WAY TO REBIRTH

According to the **United Nations**, planning for **resilience** is always better than trying to **rebuild a city after disaster** strikes. In 2021, it also emphasized that true urban **resilience** can only be achieved through **community effort** — by considering the local economy and the surrounding ecosystems as parts of one **interconnected system**.



COMPOSITION OF INSULATED WALLS WITH RECYCLABLE MATERIALS

WOODEN EUROPEAN SIZE PALLETS

- Wood = natural thermal insulator
- Low conductivity (-0.12-0.16 W/m·K)
- Reduces heat transfer.

TETRAPAK PACKAGING

- Aluminum layer: -205 W/m·K (very high, but thin)
- Plastic layers: -0.2 W/m·K
- Paper layer: -0.05 W/m·K
- Effective composite: -0.1-0.3 W/m·K (depends on orientation and if air gaps exist)
- Works better as a reflective barrier than bulk insulator.

PLASTIC PET BOTTLES

- Thermal conductivity (empty PET): -0.15-0.24 W/m·K
- Air inside the bottle: -0.024 W/m·K (major contributor if bottles are empty or filled with sand or construction residues to get thermal mass for cold nights)

CARDBOARD

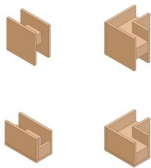
- Thermal conductivity: -0.05-0.09 W/m·K
- Low conductivity due to air trapped in the fluted structure → very good insulator for walls.

PVC TARP

- Thermal conductivity: -0.15-0.25 W/m·K (thin sheets)
- Not a strong insulator by itself, mainly acts as wind/sun barrier; effectiveness comes from air gaps underneath.

PREFABRICATED WOODEN CONNECTORS FOR MANUAL JOINING OF PALLETS

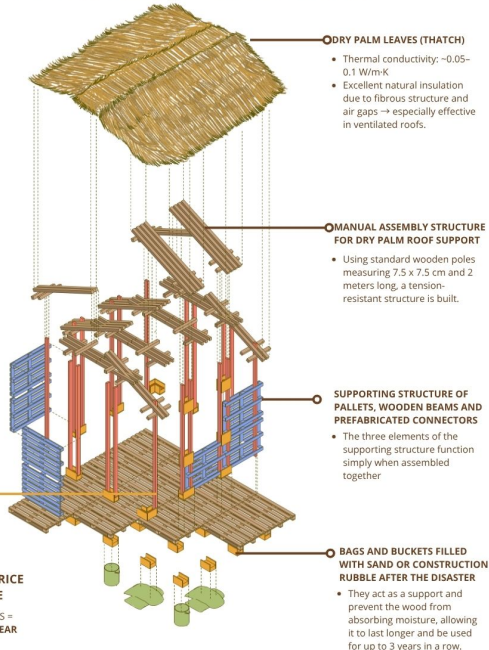
- The corner connectors were designed so that it was not necessary to use screws or drills when assembling.
- The intermediate connectors are the width of the pallets but receive greater tension from the wooden poles that support the palm roof and provide structural stability.



APPROXIMATE PRICE OF 1 MODULE
767,04 EUR / 3 YEARS = 255,68 EUROS PER YEAR

HUMANITARIAN CLIMATE SHELTER

MINIMUM USEFUL LIFE OF 3 YEARS AND GUARANTEED REUSE



DOUBLE ROOM REFUGEE PROTOTYPE



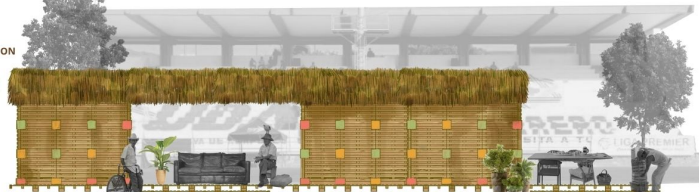
MULTIFUNCTIONAL REFUGEE PROTOTYPE

CROSSED VENTILATION



MANGROVE NURSERY PROTOTYPE / THE REFUGEE IS MEANT TO BE USED IN DIFFERENT WAYS, ADDING OR SUBTRACTING PARTS WITHOUT LOSING RESISTANCE

CROSSED VENTILATION



HUMANITARIAN CLIMATE SHELTER / DOUBLE ROOM / LIVING ROOM / 4 PERSONS ROOM AND DINNING ROOM / THINKING ABOUT IT'S ESTABLISHMENT IN THE ACAPULCO'S SPORT COMPLEX

- By building a 60m² nursery we would be able to **reforest 1 hectare of mangrove every 5 years**, and if it begins to reproduce on site by **specializing local inhabitants** in its care, we could **save between 1 and 2 years**.
- It is also about **educating** the population to care for, clean and **protect** their ecosystems, such as the Camarón River, by **restoring** its banks.



It is a climate shelter for coastal cities at risk of flooding, hurricanes and heat islands, meaning it can be **replicated** and **scaled up** in cities around the world such as:

- Cádiz, Spain
- Tacloban, Philippines
- Maputo, Mozambique.