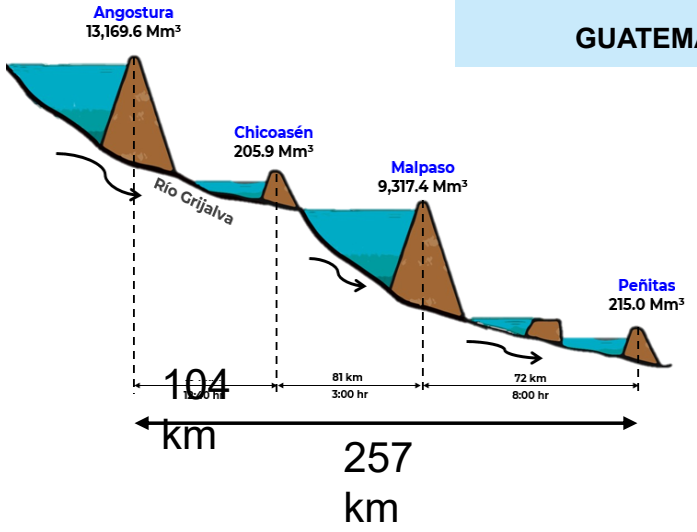
Improving Resiliency and Sustainability: Lessons learnt from the 2020 Tabasco Floods

TABASCO

- In Tabasco there are two main rivers: the Grijalva and the Usumacinta, which are the biggest of the country with 30% of the total runoff
- They have their origin in Guatemala, pass through Chiapas and Tabasco, and discharge in the Gulf of Mexico
- Deforestation in the upper basin is notably increasing vulnerability in the lower part, where most of the population lives and productive activities take place
- 4 dams were built in the State of Chiapas: as part of 3 integral management plans, to:
  - Produce power
  - Control floods in Tabasco
  - Supply water to cities
  - Fish farming
  - Tourism
- Only the big rivers have dams to control floods
- During extreme rain events, rivers and lakes in the lower plain tend to be interconnected (deltaic plain)



2020 HYDROMETEOROLOGICAL EVENTS

- From 29 September to 8 November: **Six cold fronts** (4, 5, 9, 10, 11 y 13), **4 tropical storms** (Gamma, Delta, Zeta and Eta), **1 hurricane** (Iota) occurred(worst combination of events ever)

- The pluvial precipitation exceeded the historical values from 1981-2010

- 16 municipalities, 210,000 households, 840,000 people and many types of infrastructures were affected

What was in place that helped to control the situation

- The Civil Protection Federal mechanism was operating efficiently due to COVID and criminality
- A new water policy to address hydrometeorological events
  1. Before: preventive actions and early warning systems
  2. During: co-ordinately working in rescue tasks and ensuring operational water services and flood control
- COVID measures, already in place
  - Meteorological Information for COVID hospitals, specially those that were in informal settings
  - A Network to supply drinking water to hospitals, poor, indigenous and isolated living people
  - Installation hand washing stations in public areas
  - Manuals to disinfect water translated into 9 Indigenous languages
- Control of vandalization of the hydraulic infrastructure through raising social awareness and police surveillance (El Macayo was robbed three times in 2019)

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What is being doing after the event

A Plan for the water sector, considering “internally water aspects”

BUT, it was noticed that

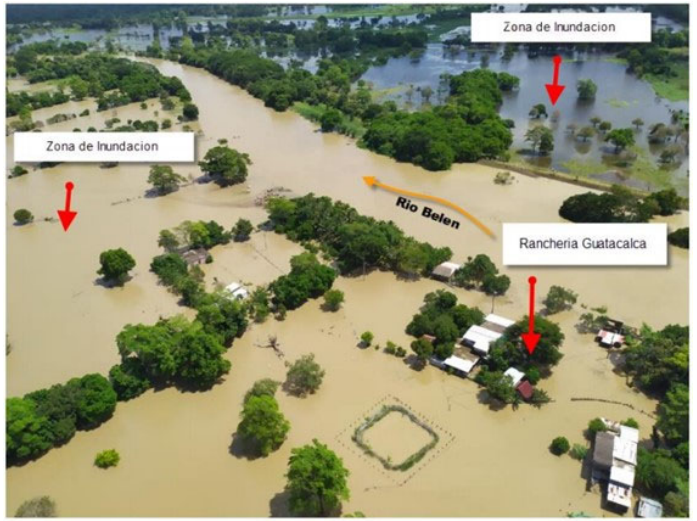
- The current water management plans, in fact, affected the poor/indigenous people while protecting rich urban areas
- People thought that many hydraulic infrastructure were to be used for their personal needs (walls for homes, roads, as basement for churches)
- Roads were acting as levees and levees were acting as roads
- The Electricity company had dam operating plans for their dams considering there was no interaction between their discharges with the Hydrology in the plain, nor affected people protected with the infrastructure built several years ago

Therefore

NEW focus

- The protection program was review with a new focus

This was done for the water sector but as well for the entire government



4T INTEGRAL WATER MANAGEMENT PROGRAMME

Criteria/PLANS PREPARED	PICI Project to Integrally protect from floods	PHIT Integral Hydraulic Plan for Tabasco	Prohtab Hydrological Project to protect the population from floods and to better use water	4 T
ACTIONS	• Building protection infrastructure • Rivers dredging and drain systems.	• Flood distribution structure • Notches downstream • Dredging.	• Dredging and desilting. • Marginal protection • **Water museum** • Levees	Infrastructure design considering the current human settlements and activities, protecting all and specially the poor
Social Justice	No	No	No	Yes
Sediments management	Dredging	Dredging	Dredging	Dredging and hydraulic control (respecting meanders
Dam System Operation to protect all people (poor)	Reactive	Reactive	Reactive	Preventive/ upstream and downstream
Considering a combination of hydrometeorological events rathe than isolated ones or series	No	No	No	Yes
Ecological flow	No	No	No	To prevent sedimentation, erosion and to produce power
Type of the dam's system discharge	Free	Free	Free	Free and confined