

ANALYTICS METHODOLOGY

DATA COLLECTION → DATA ANALYSIS → RESULTS

DISASTER HISTORY: types, frequency, intensity, locations, impacts

EXISTING STOCK: collect, computerise, display

LOGISTICS INFO: driving time, driving distances, weights, volumes, costs, number of people served per item

MATHEMATICAL MODEL

$$V^W(X) \equiv \min_y \sum_k p^k \sum_{i \in I^W, r} \tau_{i,j^k,r} y_{ir}^k$$

$$\sum_{i \in I^W, r} y_{ir}^k = d^k \quad \forall k$$

$$\sum_r y_{ir}^k \leq X_i \quad \forall i \in I, k$$

$$y_{ir}^k \geq 0 \quad \forall i, k, r$$

ASSESSMENT
of existing pre-positioned stocks in the country

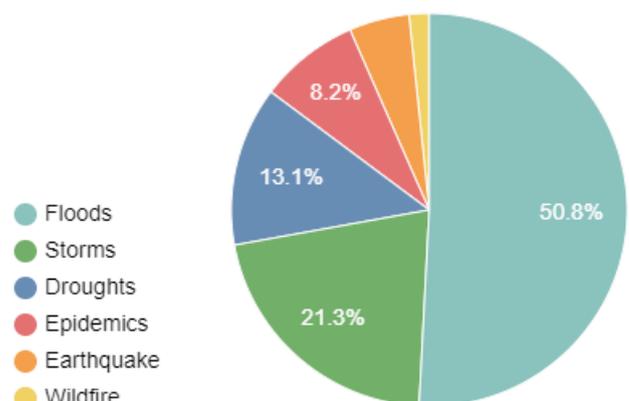
RECOMMENDATIONS
toward a more optimum (cost & time) coordinated pre-positioning strategy

ANALYSIS HISTORY OF DISASTERS IN HONDURAS

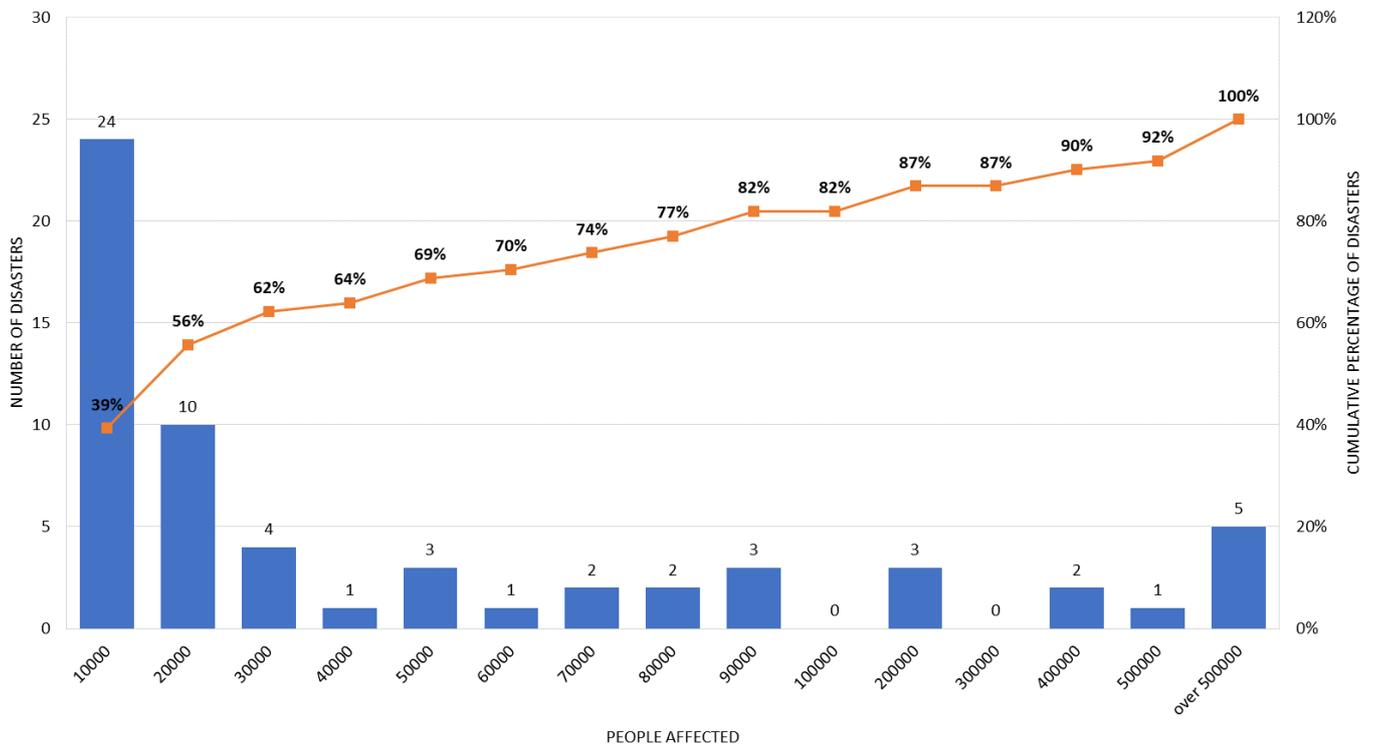
The first phase consisted in analysing how, where, and what type of disasters affect Honduras. To find out, ESUPS analysed the last 41 years of disasters (1980–2021) through the [EM-DAT database](#), provided by the [Centre for Research on the Epidemiology of Disasters](#) (CRED).

- For the purposes of its analysis, ESUPS considered only disasters **affecting more than 100 people**. Since 1980, in Honduras there have been in total **61**.
- **Around half** of these were **floods**, followed by **storms** and **droughts**.
- As the purpose of ESUPS is to help pre-position for sudden onset disasters, **slow onset disasters** such as droughts are **not**

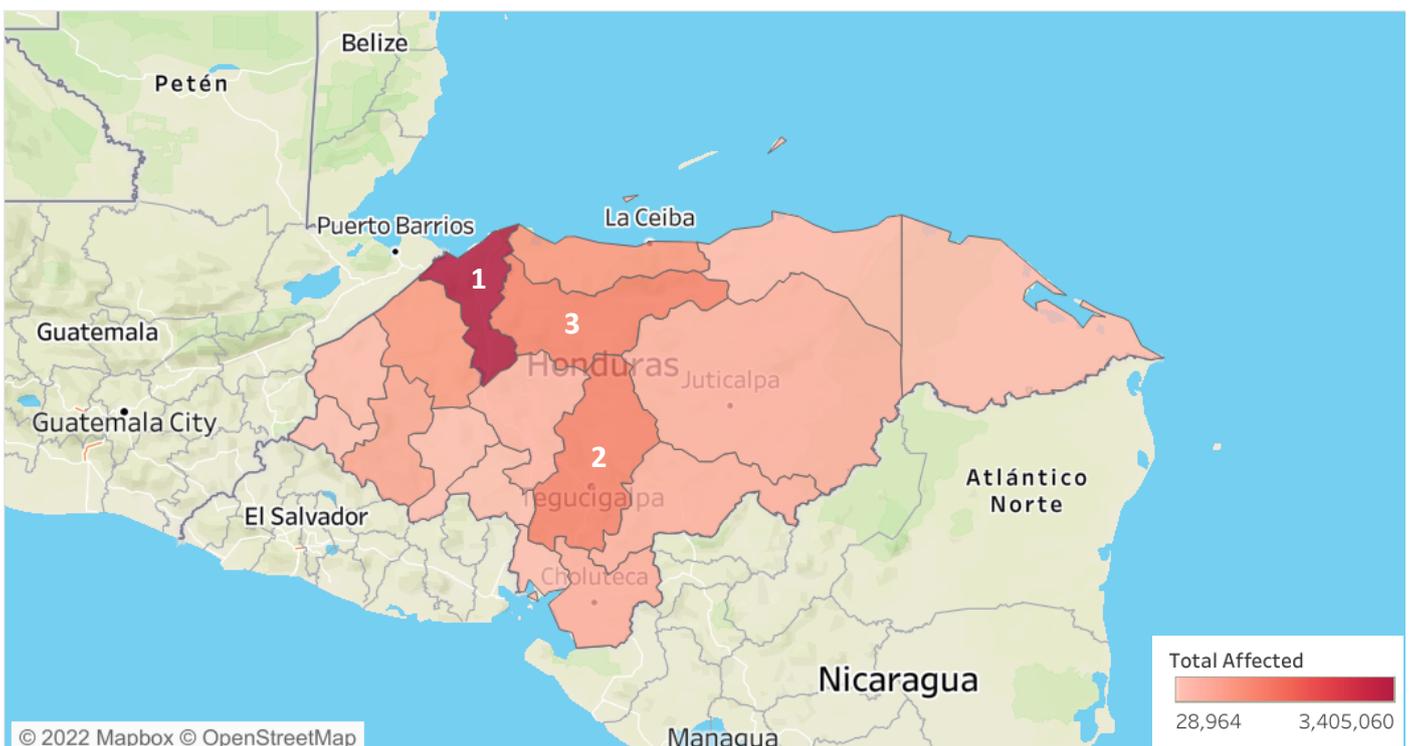
considered when elaborating ESUPS recommendations per relief item. Once a slow onset disaster starts, any measure taken is part of the ongoing response to address emerging needs, therefore including this type of disasters could have biased the



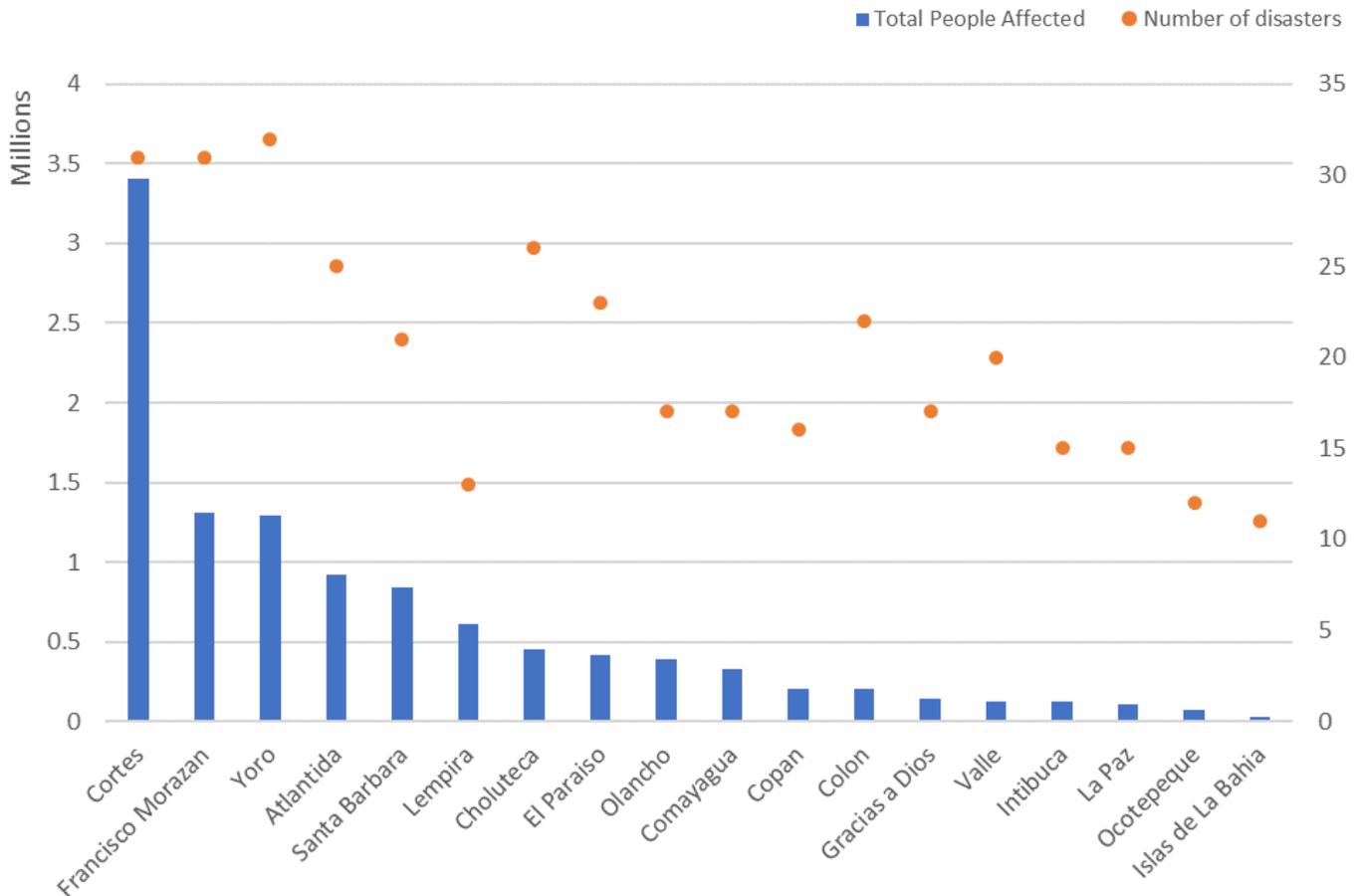
- Data indicate that the 61 disasters analysed in Honduras affect on **average** of **180,122 people**. However when taking a closer look, we see that **56% of these disasters** (that is to say **34 in total**) affected 20,000 people or less. On the other hand, only 18% (11 in total) affect more than 100,000 people.



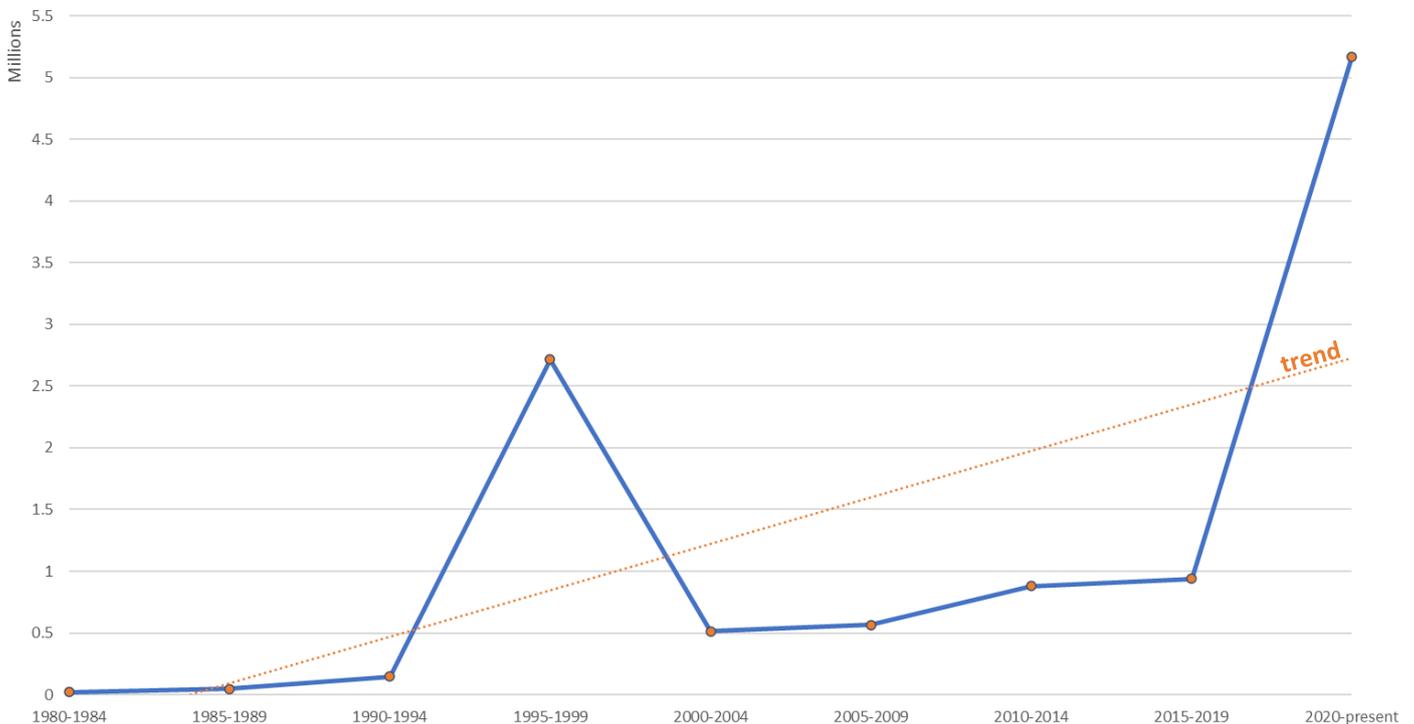
- Overall, in the last four decades, the departments with the highest number of **people affected** by disasters have been **Cortés** (marked with 1 in the map below), followed by **Francisco Morazán** (2) and **Yoro** (3). All three departments have been affected by a similar number of disasters: 31 in Cortés and in Francisco Morazán, and 32 in Yoro.



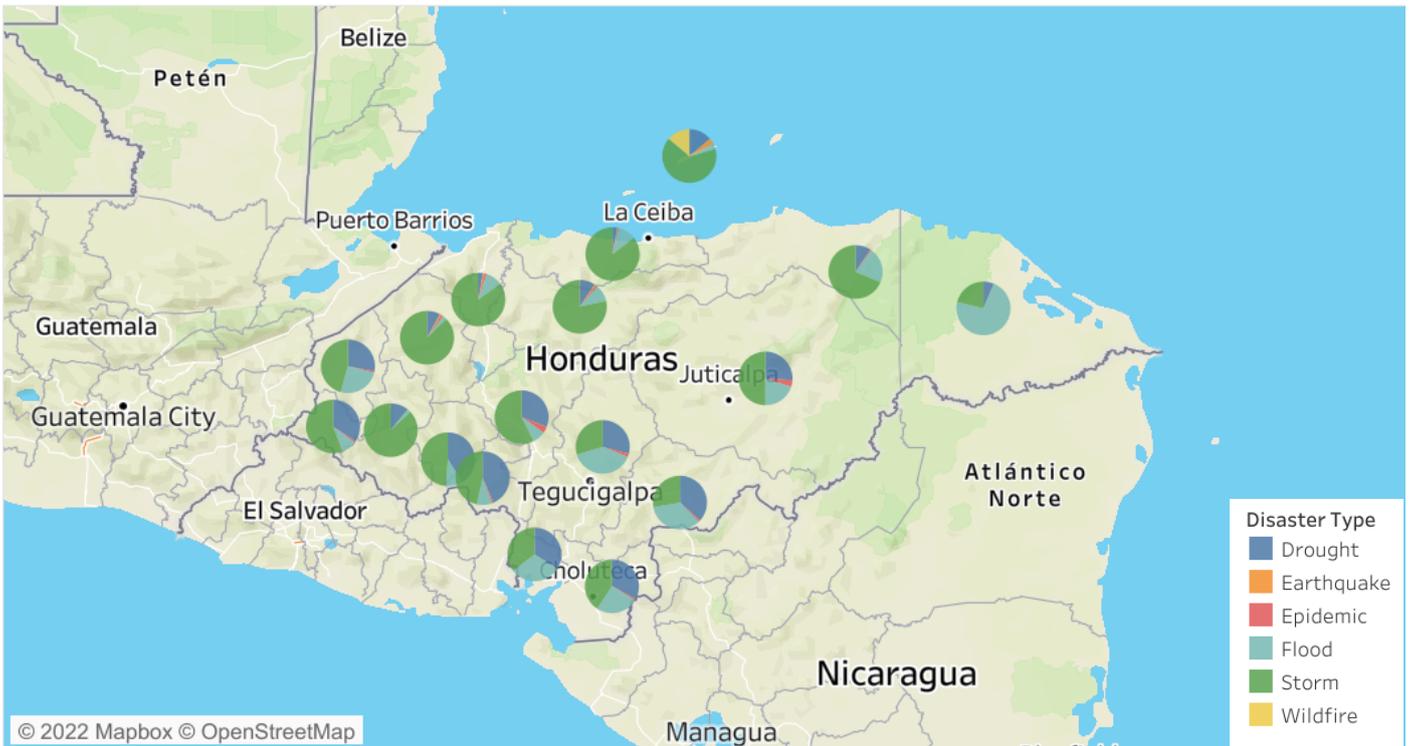
- Besides being the most affected in terms of people, Cortés, Francisco Morazán and Yoro are the departments with the highest number of disasters recorded since 1980.



- In addition, the data allow to show the **trend of people affected** by disasters over the course of the years. While the records for earlier decades (80s and 90s) might not be as accurate as the more recent ones, since the years 2000s there has been a constant increase in the total number of people affected, with a peak in 2020 due to Tropical Storm Eta and Hurricane Iota.



- The disaster data available also allow to focus on how the different types of disasters recorded are distributed across departments in the country.



- Finally, when combining the data on **people affected and disaster types**, we can observe that the departments of Cortés and Yoro, which are among the most affected ones, register a strong prevalence of storms. In Francisco Morazán floods, storms and drought are almost equally distributed.

