The causes and impacts of Hurricane Harvey

Why: To be able to use case study detail to explain the causes and effects of a disaster

**Key words**

**Primary effects** occur as a direct result of the hazard, e.g. buildings collapsing.

**Secondary effects** occur as a result of the **primary effects**, e.g. fires due to ruptured gas mains.

How: Categorize these statements into:

* Physical factors that contributed to Hurricane Harvey being a disaster
* Human that contributed to Hurricane Harvey being a disaster
* Primary effects
* Secondary effects
* Which factors would be associated with the coastal area and which would be associated with river flooding?

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| 88 people died | Caused $125 billion in damage | Weight of the flood water caused Houston to sink by 2cm | Houston has faced sharp criticism for telling its 2.3 million residents to stay put amid the unprecedented flooding |
| It [stalled around southern Texas for days](https://weather.com/storms/hurricane/news/tropical-storm-harvey-forecast-texas-louisiana-arkansas) | The impermeable surfaces — asphalt and concrete — reduced the area’s ability to absorb excess water. | It produced catastrophic flash and river flooding | For every extra degree Celsius in Global warming, the atmosphere can hold 7% more water. This tends to make rainfall events even more extreme when they occur. |
| At least 30,000 people fled to temporary shelters | The storm dumped a year of rain in less than a week on Houston | [a million cars were wrecked](https://www.wired.com/story/harvey-houston-cars-ruined/) | The storm dumped more than [27 trillion gallons of rain](https://www.cnn.com/specials/us/hurricane-harvey) over Texas, making Harvey the [wettest Atlantic hurricane ever measured](https://www.theatlantic.com/science/archive/2017/08/hurricane-harvey-is-the-rainiest-atlantic-hurricane-ever-measured/538407/). |
| Two flood-control reservoirs (Addicks and Barker) had breached, increasing water levels throughout the Houston area | [nearly 135,000 homes damaged or destroyed](https://www.bizjournals.com/houston/news/2017/09/14/this-is-how-many-homes-were-damaged-by-harvey-in.html) | Several dozen schools remained closed more than a month into the school year, pending repairs from the flooding | The number of Americans filing for [unemployment benefits after the storm also jumped to a more than two-year high](https://www.reuters.com/article/us-usa-economy/hurricane-harvey-boosts-u-s-jobless-claims-to-more-than-two-year-high-idUSKCN1BI1MV) amid a surge in applications from Texas |
| Some parts of Houston received more than 50 inches of rainfall — so much that the [National Weather Service](https://www.weather.gov/) had to [update the colors](https://twitter.com/nws/status/902174274571689984?lang=en) it uses on its weather charts to properly account for it. | All of the soggy drywall, flooring, furniture, clothing and toys trashed in the clean-up effort adds up to an | The storm surge varied, with most affected areas seeing between four and seven feet — although the highest estimated surge was between 10 and 12 feet, inundating the Aransas National Wildlife Refuge. | An estimated [8 million cubic yards of garbage in Houston alone](https://www.cbsnews.com/news/hurricane-harvey-clean-up-texas-houston-trash-garbage/), enough to fill up the Texans’ football stadium two times over. |
| 67% homes in Rockport were damaged | 27% of people in Rockport lost their jobs after Harvey | There were 216 tornado warnings | In the Coastal Bend, federal agencies estimate 25,000 structures were damaged, with another 15,000 destroyed. |