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PROBLEM SET 1

DATA VISUALIZATION AND VISUAL ANALYTICS

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I will be using Deutsche Welle: Flooding, Heat Waves, and Severe Storms: Can Cities Adapt? resource.

Overall Story of the resource

The overall story centers on how cities, especially in the South Hemisphere, face growing climate challenges, such as flooding or heat waves, dealing also with urbanization and infrastructure problems. Vulnerable groups currently living in poorer areas are more affected because of their limited resources. These cities require more financial resources, but currently are not enough. As a result, nature-based solutions such as tree planting and parks are being developed.

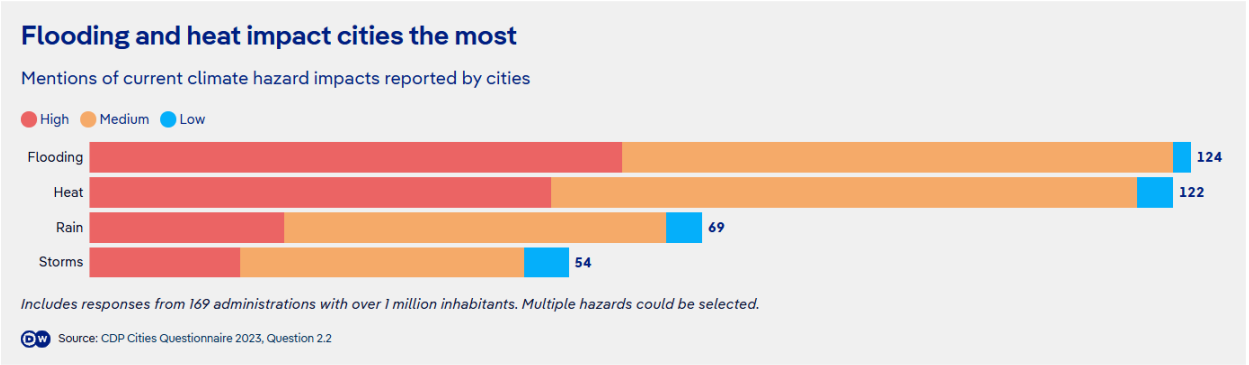
Overall design of the resource

This resource does a good job in terms of CRAP Design Principles. But it is not perfect. Let's go one by one:

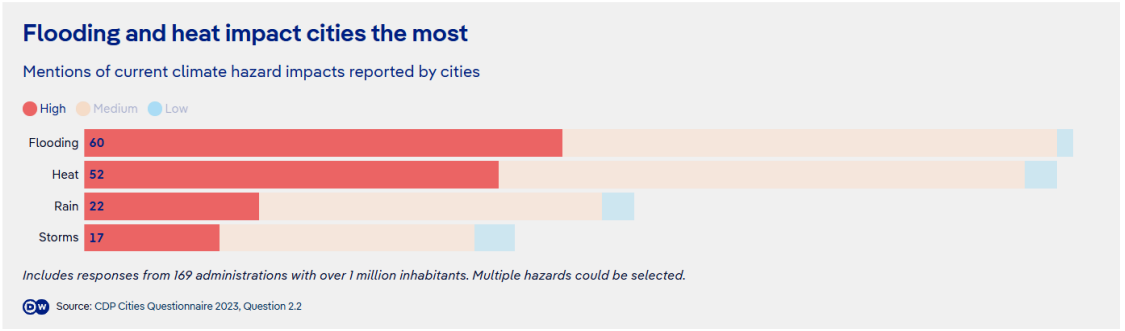
- **Contrast**: In general is doing fine, but there are some texts which are over dark backgrounds which could be improved. Not many different colors are used so contrast should not be a very important issue in this resource.
- **Repeat**: This resource is doing a good job using the same color palette, same color, font style and size for headers, normal text and annotations.
- **Align**: Every visualization looks like a grid. All elements have a space reserved for them which is well-aligned with the rest of the visualization.
- **Proximity**: Same-meaning-elements are placed close to each other. For example, all legend elements are together.

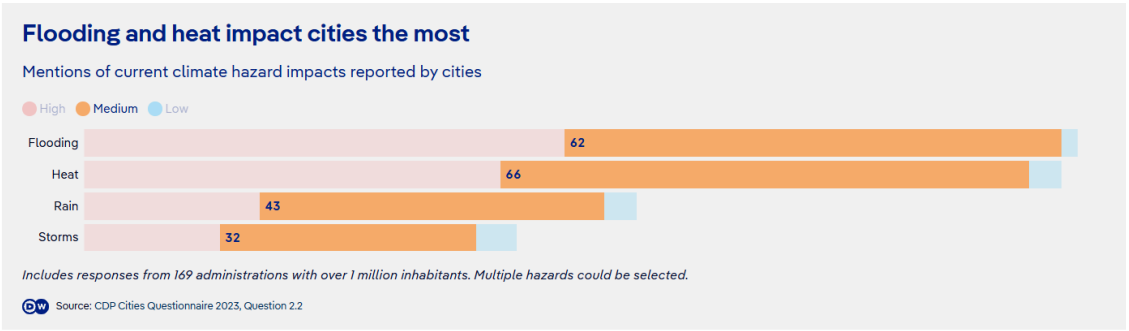
Design of one visualization

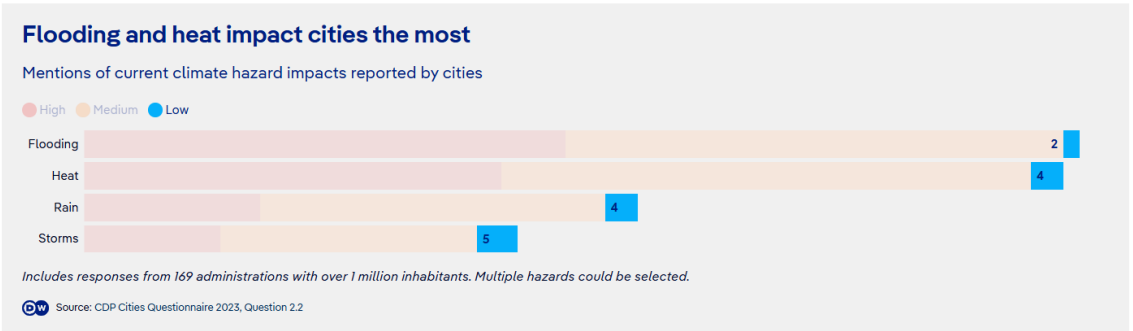
The main idea of this visualization is to show the importance of floodings in comparison with other climate hazards.



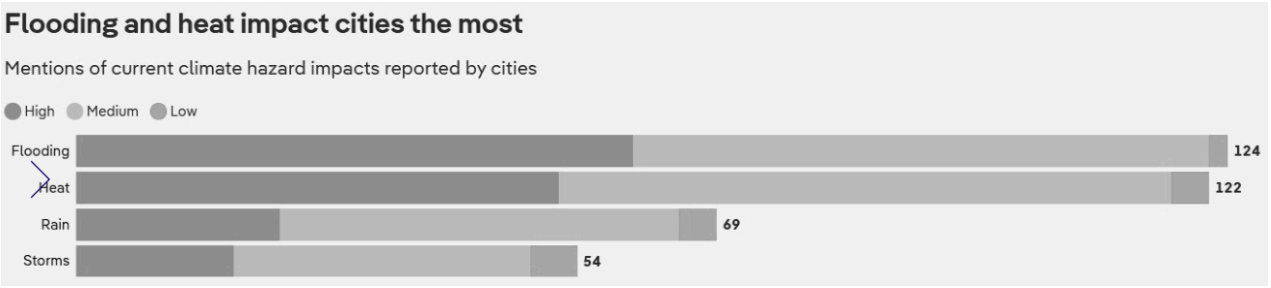
These last 3 screenshots have been taken while hovering over specific parts of previous visualization.



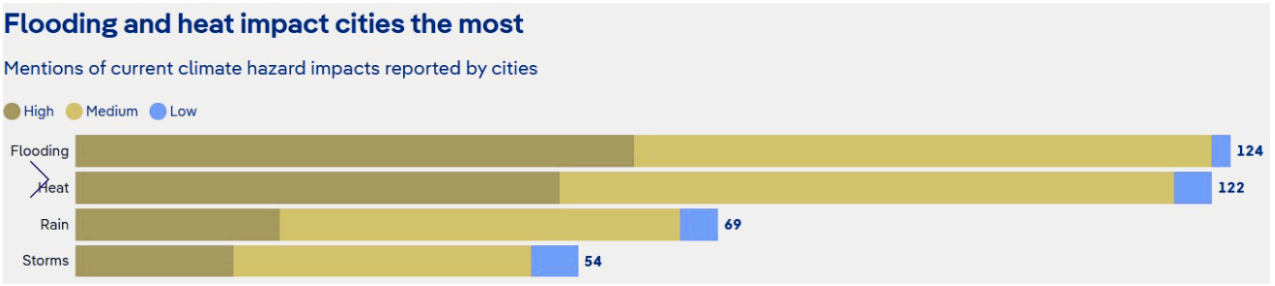




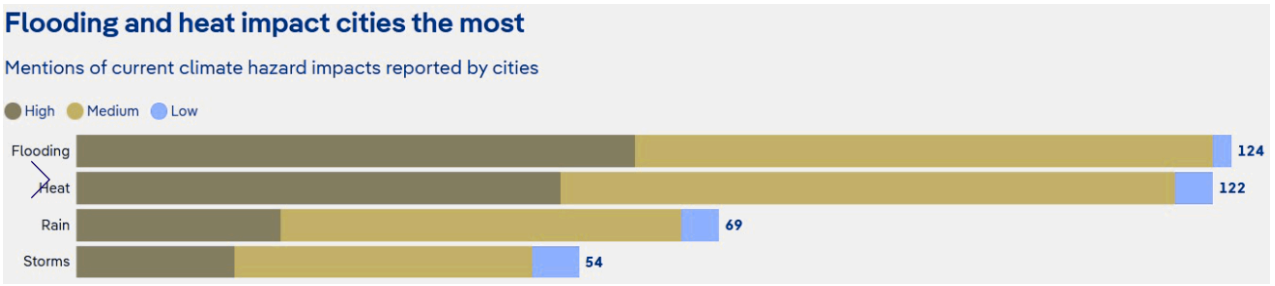
- It does **focus** on specific aspects of the data because it shows only the 4 most reported climate hazards. The representation could focus even more on user needs because it is a dynamic figure. If you hover over the high impacted responses, you can see how many responses include each category as a high impact climate hazard and also it makes other categories darker, so that way you are focusing on a specific category.
- We do not find **clutter** in this representation. Title and subtitle is necessary to know what the figure is trying to show users, legend is also necessary to know which category is represented by which color.
- There are not many **text elements**. Title and subtitle give the user the main idea of the figure. There is a comment giving some information about how the survey was done. There is also a link to the source web page of the data of the representation. We can also find some labels on the bars which show the quantity of mentions.
- The figure is doing OK in **contrast**, except from the blue text over red background, this has a 4.21:1 ratio which is not enough for the normal text minimum contrast (AA) or enhanced contrast (AAA), from Web Content Accessibility Guidelines (WCAG). The rest of the texts are OK.
- The figures **repeat** the style of elements which are supposed to be similar. For example, all legend elements (red-high, yellow-medium, blue-low) are displaying the color in the circled shape on the left of the label. Value labels in bars are the same in all categories.
- All groups of elements in the representation are **aligned** to the left of the image. The bars have a small left-padding, but all bars have the same.
- Farbseh Schwaeche has been used. It looks fine for all types of **color-blindness**.
    - Color Full Blindness (Achromatopsia)



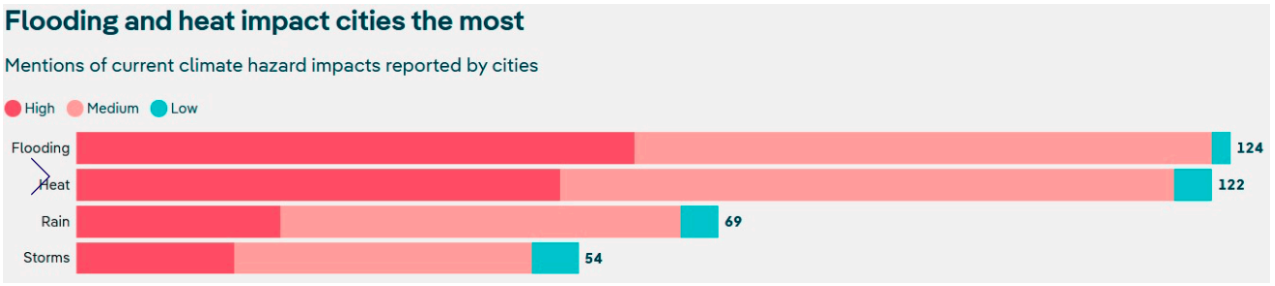
- Green Blindness (Deuteranopia)



- Red Blindness (Protanopia)



- Blue Blindness (Tritanopia)



- **Personally**, I think this image shows the story very well: We must take action to address the issues of heat and flooding. Other problems, such as rain or storms, are also important. Also this figure follows all principles of visualization design like Gestalt or CRAP, as shown earlier. I find it great that a single representation contains so much information without overloading the main chart. Since it is dynamic, hovering over certain elements provides more detailed information.