

# Design Guidelines

by Hai Tran “8+1”

This document contains instructions of how our final product should look like and how it should behave. It is recommended to discuss with me (Hai) for any necessary modification.

Why?

Do we really need to make it this serious?

The answer is yes.

And the reason is **storytelling**.

I have been a backup singer at a recording studio.

I sang songs to tell stories, not for the sake of making arts.

I have been a travel photographer.

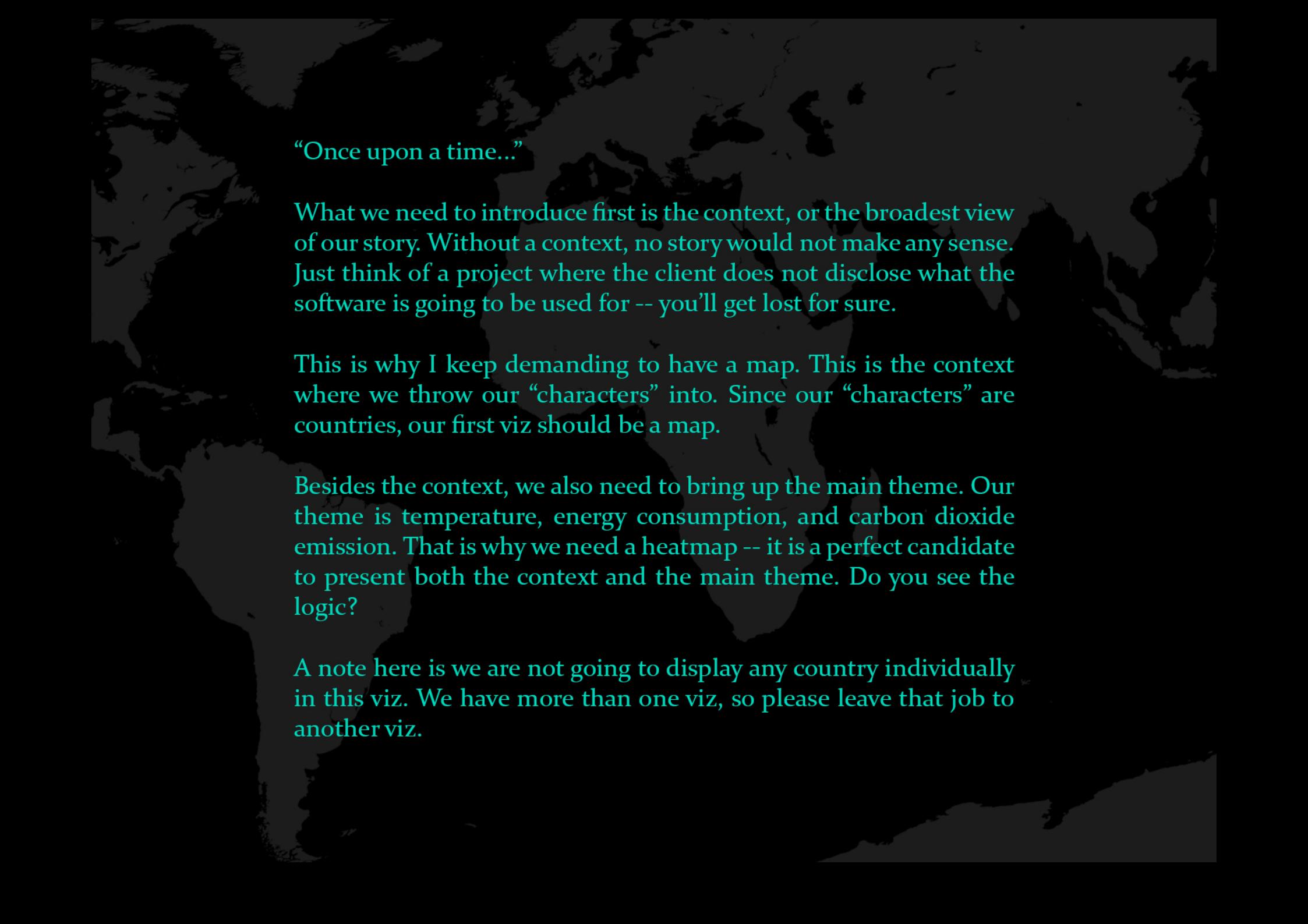
I captured photos to tell stories, not for the sake of making arts.

I have also been a graphics designer.

I sketched software layouts to tell stories, not for the sake of making arts.

**In brief:** I do not care which tool or technique that we are going to use. If the story does not make sense, the product is a trash.

OK, but how?



“Once upon a time...”

What we need to introduce first is the context, or the broadest view of our story. Without a context, no story would not make any sense. Just think of a project where the client does not disclose what the software is going to be used for -- you'll get lost for sure.

This is why I keep demanding to have a map. This is the context where we throw our “characters” into. Since our “characters” are countries, our first viz should be a map.

Besides the context, we also need to bring up the main theme. Our theme is temperature, energy consumption, and carbon dioxide emission. That is why we need a heatmap -- it is a perfect candidate to present both the context and the main theme. Do you see the logic?

A note here is we are not going to display any country individually in this viz. We have more than one viz, so please leave that job to another viz.

After having the context, the movie director can introduce the characters: Batman, the villains, the people of Gotham, etc. In our case, characters are countries. This viz is where our readers learn about any individual country. Because of that, we are going to give them every details that we know about the selected country.

So basically, we can use a donut chart or anything here, as long as the technique is capable for (1) focusing on only one object at a time and (2) displaying as many details of the object as possible.

Ok, so far we have had the context and the characters. These two are “static.” Now we need something dynamic to make the plot moves: relationship/interaction between the characters in the given context.

This is where our factory viz shines -- users can gain a sense of motion when the top 10 changes every year. The change of sky color and the rise of sea level will add more spices into the dish.

If possible, I would like to include a piece of history when the user selects a year. Our product will be perfect with it.

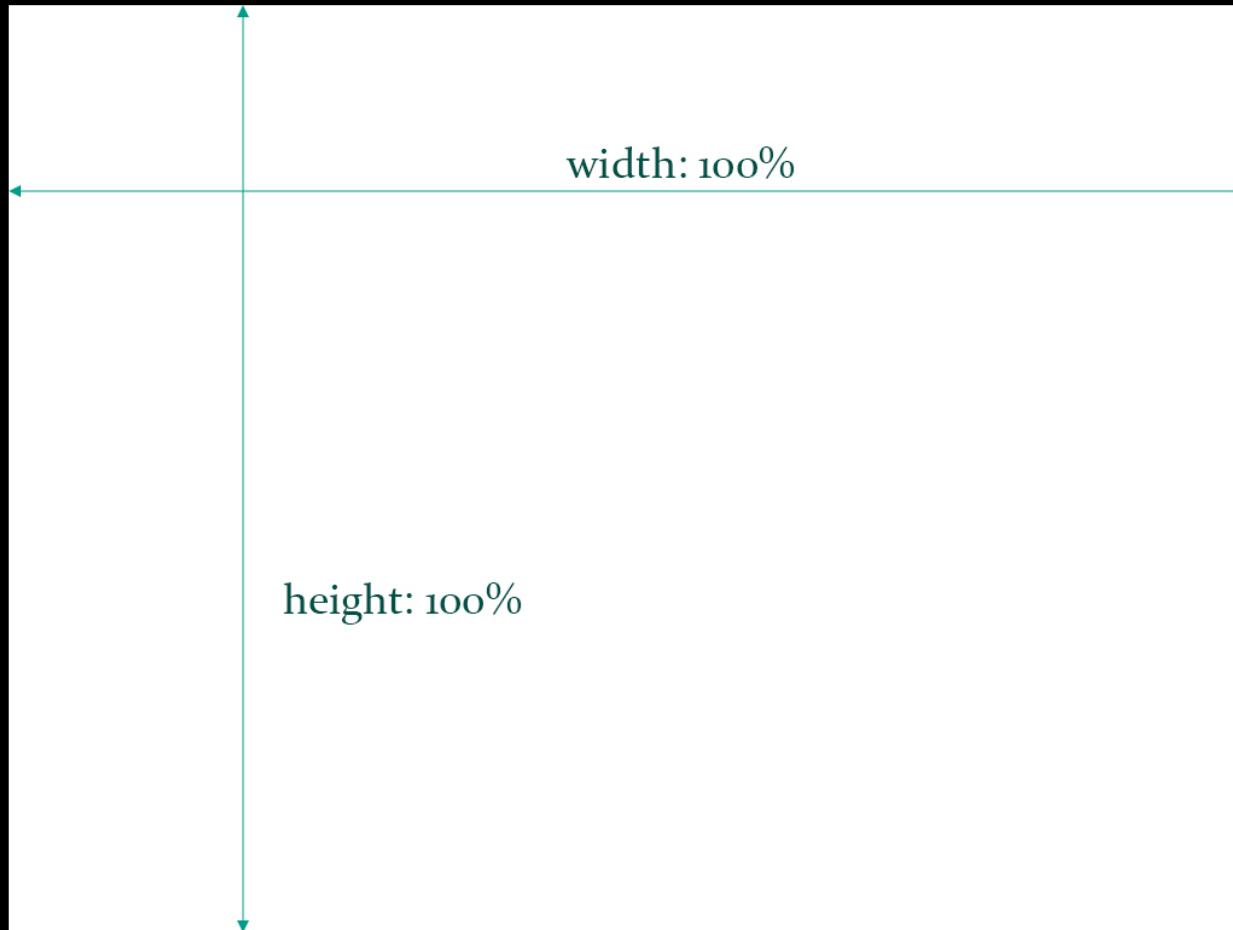
Designs

This is our website.

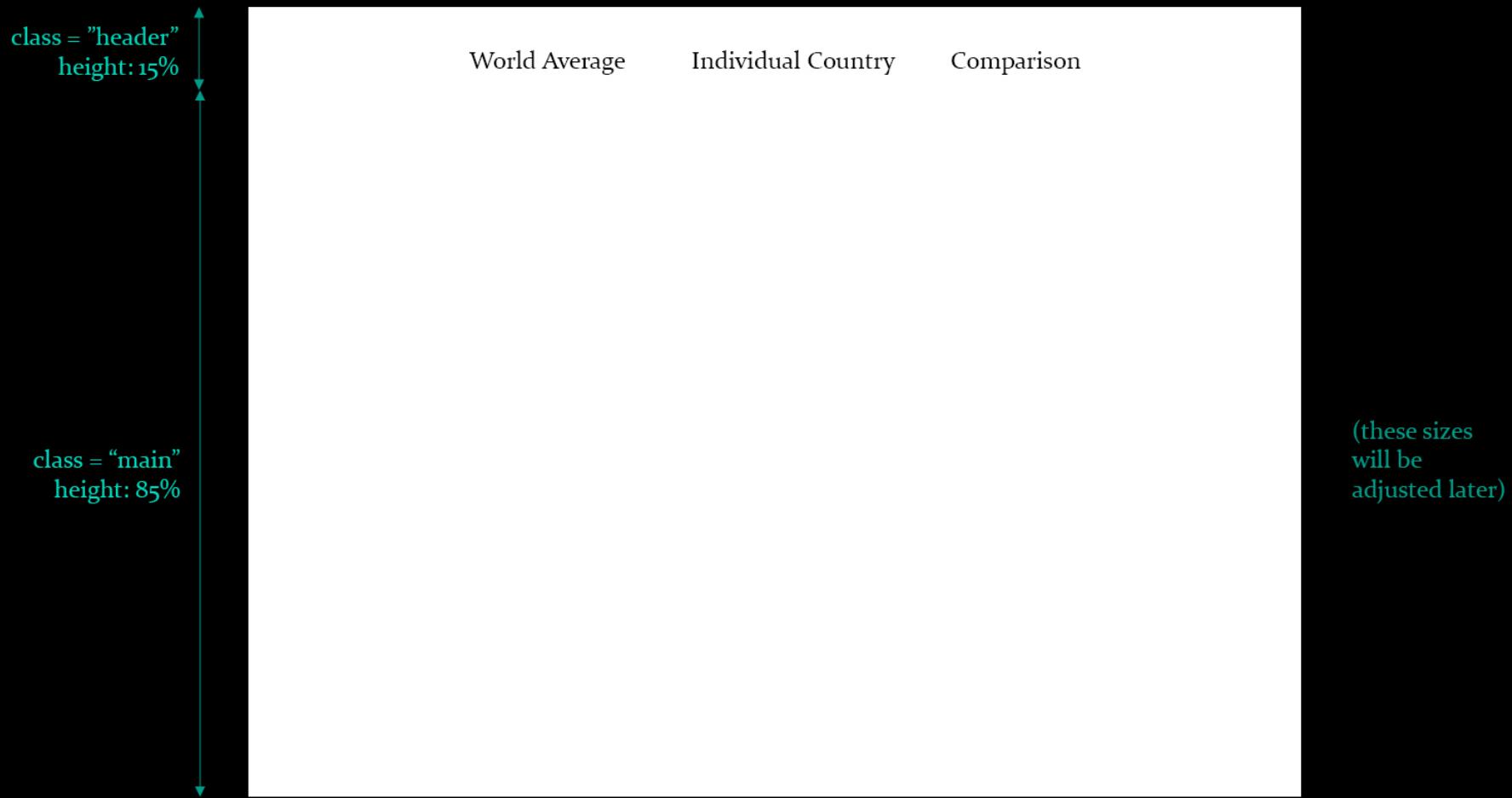
Everything will happen within the area of this window only.



I pick 1024 x 768 as the default window size.  
However, since the page is going to be responsive, we will use percentage  
as our main positional measurement.



First, we need a menu to link to 3 viz's. It is possible to use jquery tabs (for which clicking on a tab does not require reloading the entire page), but variable scoping will be hard to control.

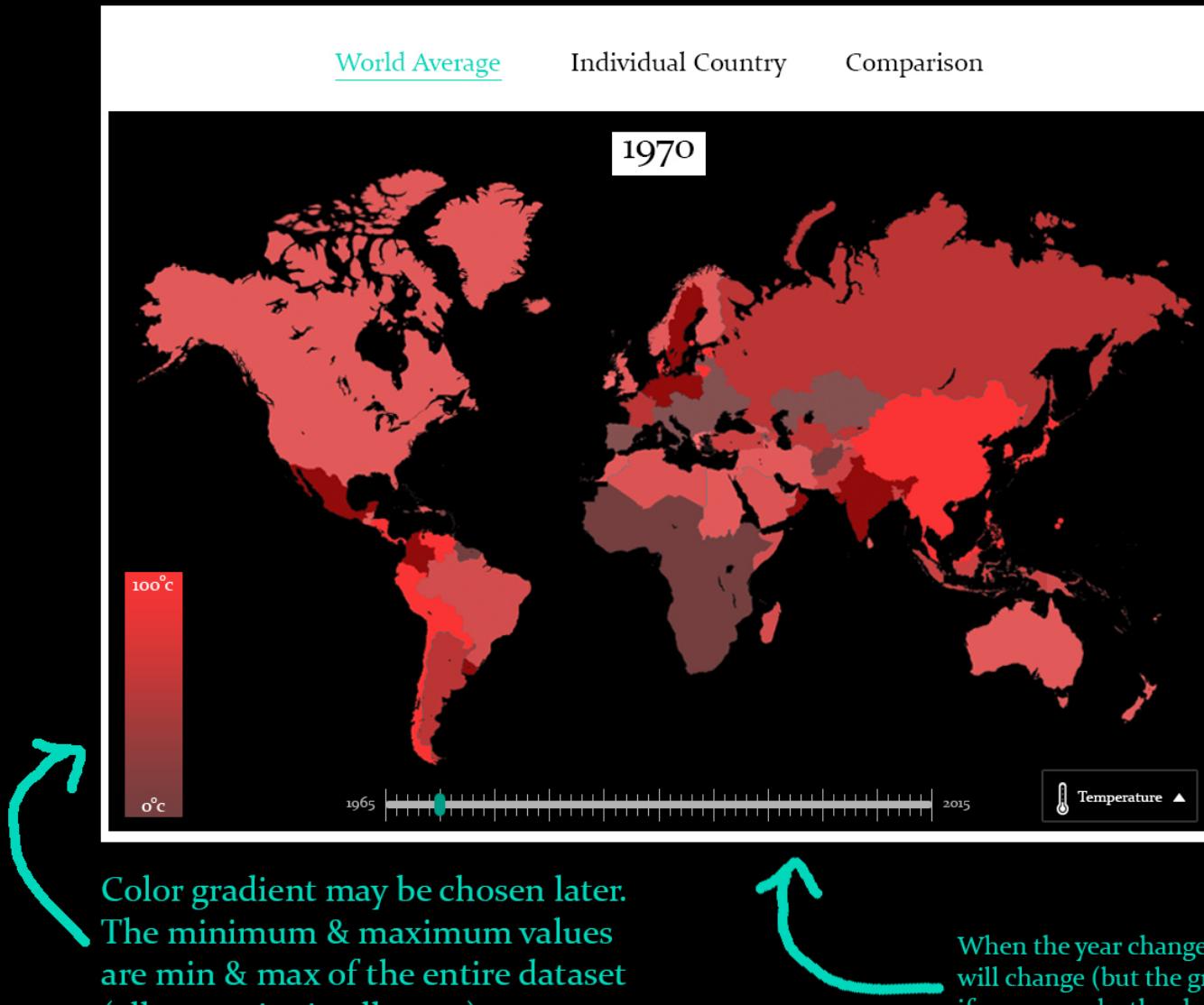


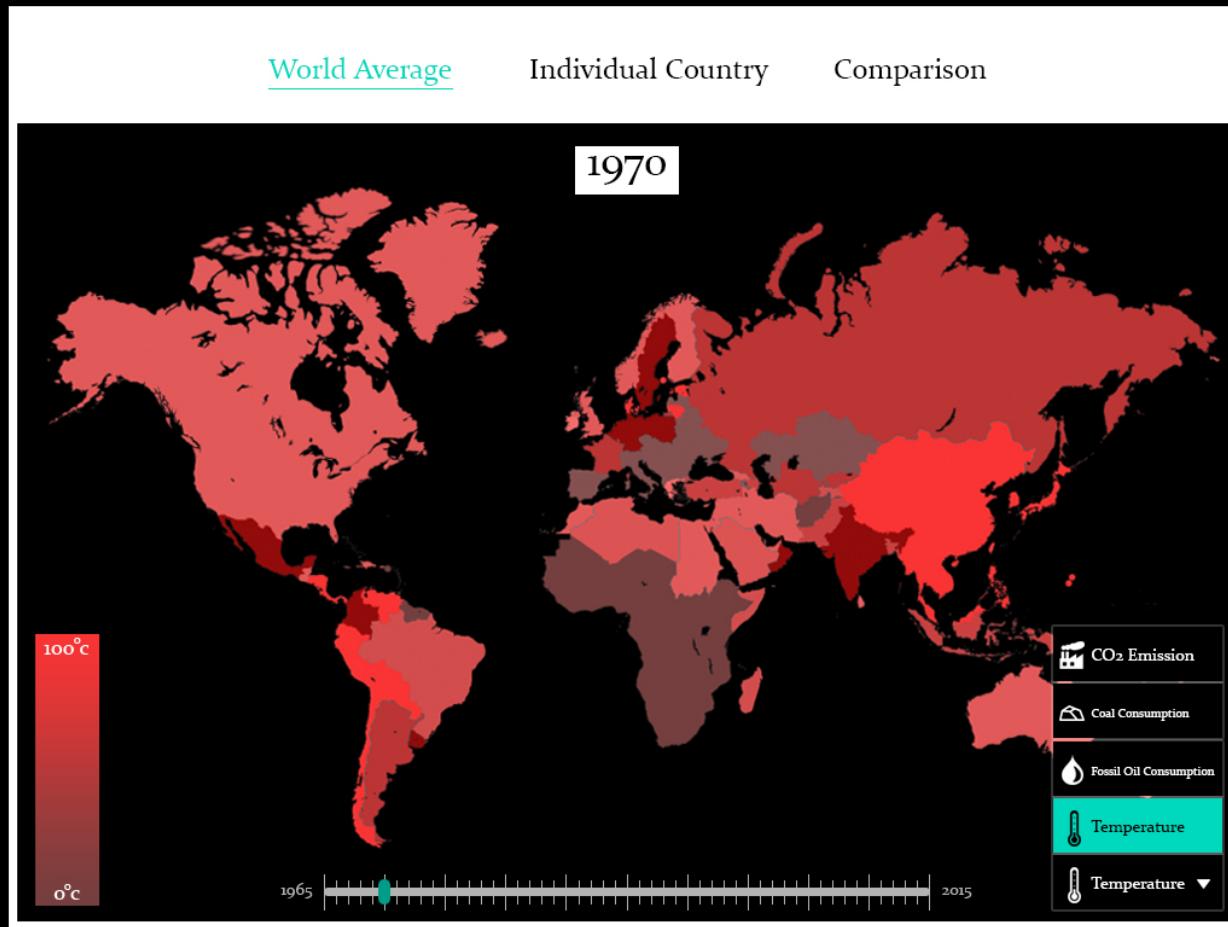
To make it simple, we should create three HTML files (`index.html` for worldmap, `country.html` for donut, and `comparison.html` for factory) and link each of them to the others.

# Viz #1: World Map

## TEMPERATURE

<https://datamaps.github.io/> seems to be a good tool for this map.





User can choose which indicator to be displayed.

**ENERGY CONSUMPTION:**  
Do the same as temperature.

CARBON DIOXIDE EMISSIONS  
(Sorry, could not find an outline version of the same map)  
I drew this viz by hand, so only a few bubbles were put here.

These numbers  
are just examples



Center of each bubble is put at the center of each country (don't need to be accurate). Size of each bubble depends on the numerical value (will adjust the ratio to avoid having bubbles that are too large or too small). Each bubble has an outer outline to give the feeling that the area of effect is larger than how it looks.

Viz #2: Donut

World Average

Individual Country

Comparison

Type a name of a country here |

Move your mouse over an arc to see information of the country in the selected year

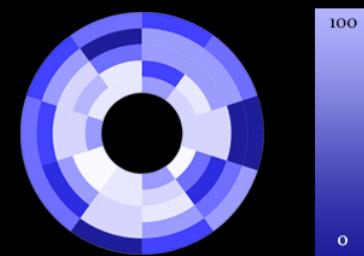
Temperature



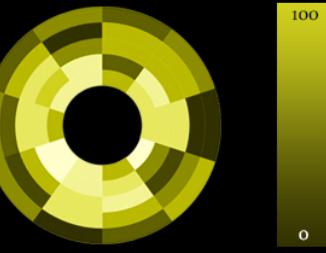
Coal Consumption

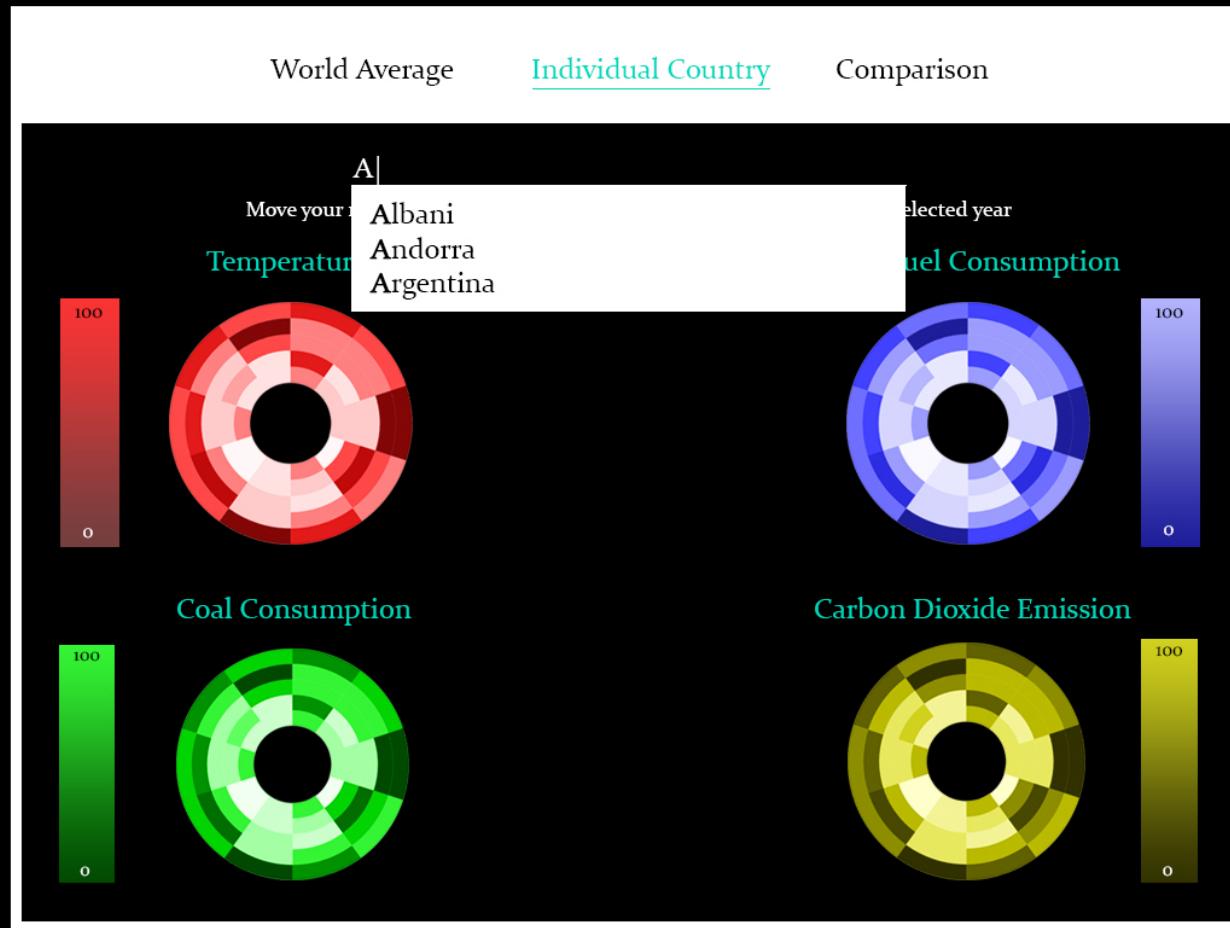


Fossil Fuel Consumption

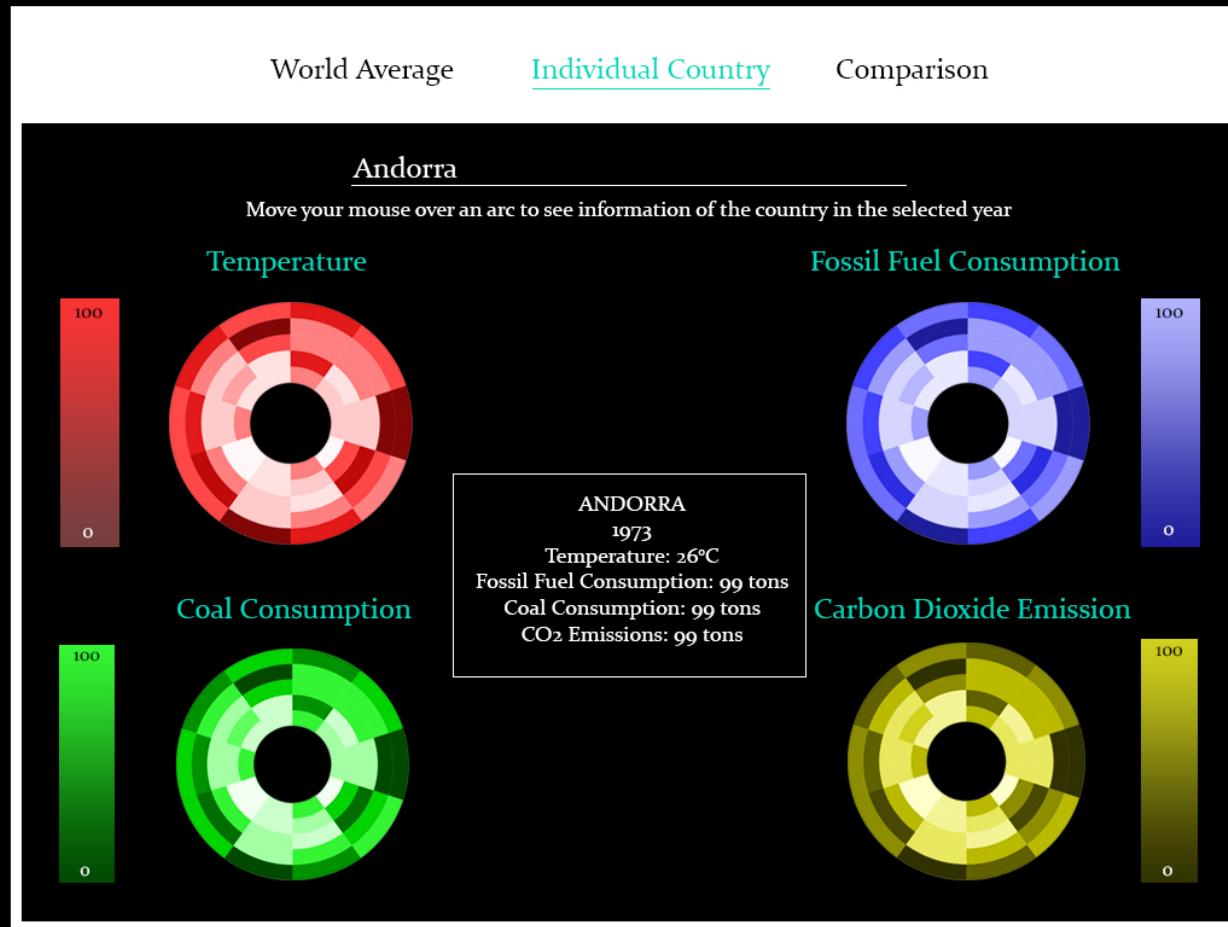


Carbon Dioxide Emission



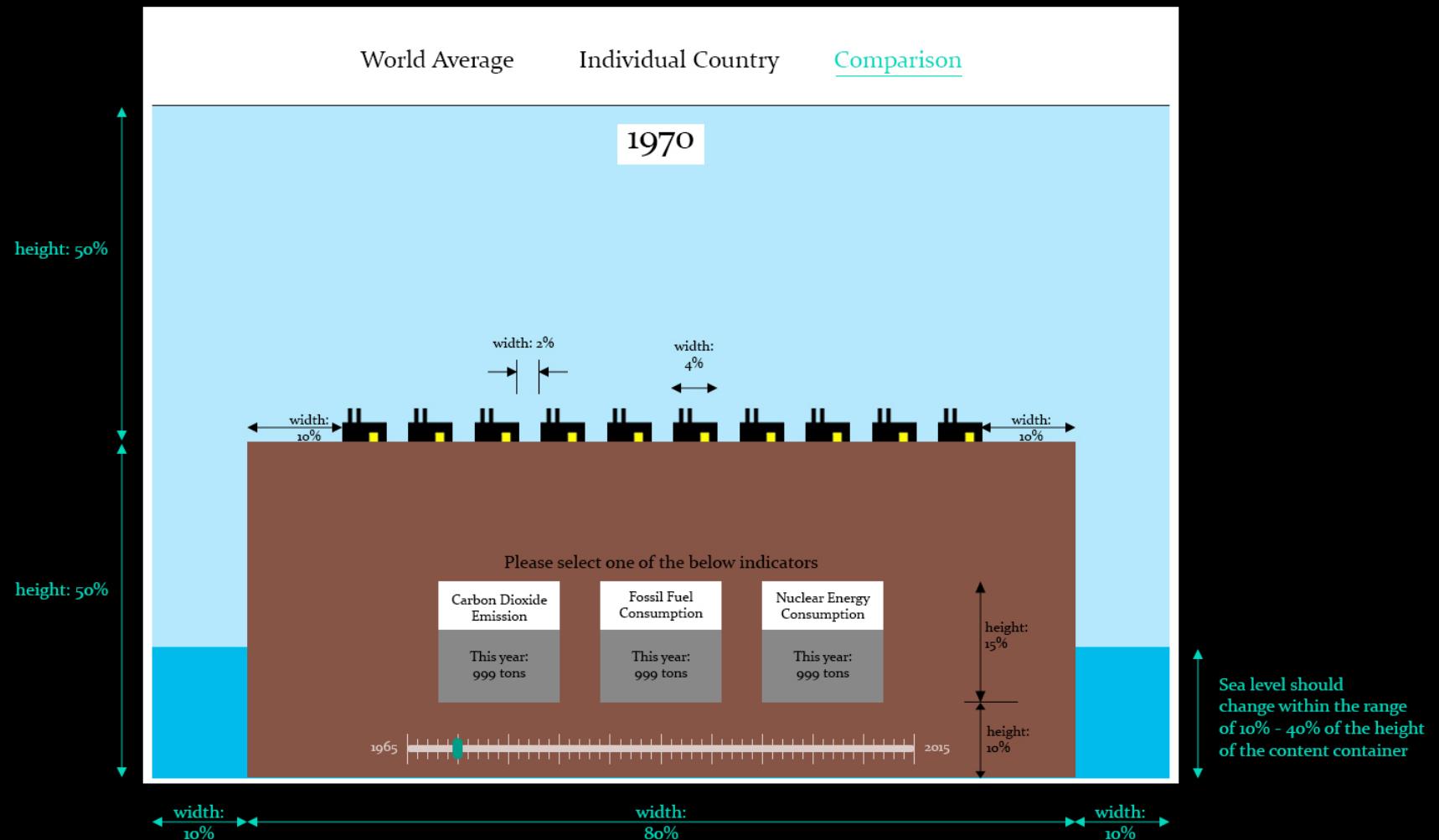


When user hovers on an arc (of any donut chart), a infowindow will appear at the center of the screen and display all information about that country in the selected year.



# Viz #3: Factories

## MEASUREMENTS



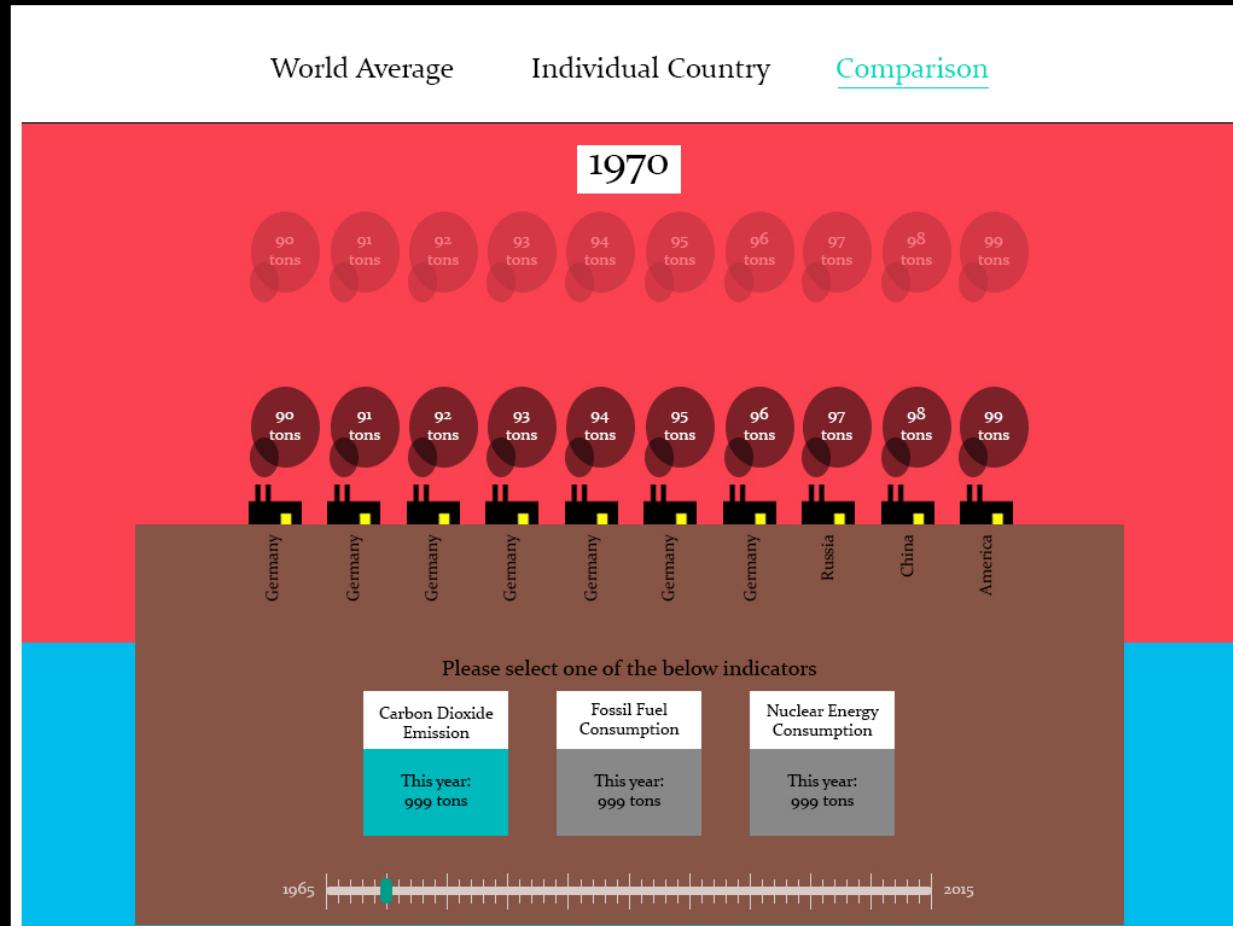
## INTERACTIONS

When an indicator is selected, the corresponded button will be highlighted.

The factories will start emitting smoke.

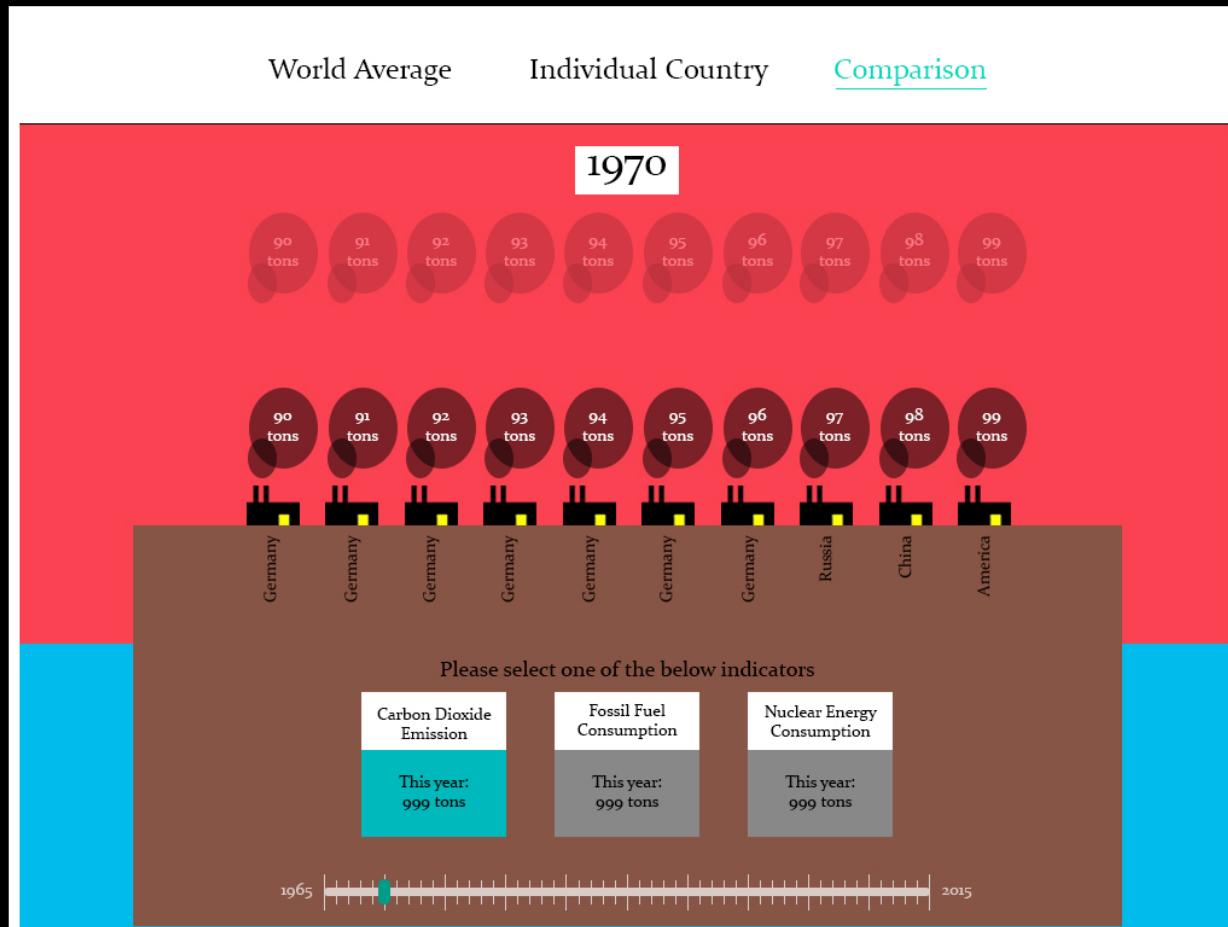
The sea level and the sky color will start changing based on the world's average temperature in the selected year.

To make things simple,  
all smokes will have  
the same size



The animation is similar to the example that we found earlier: when user changes the year, all factories will move to the right and vanish. New factories will appear from the left and move into position. Old smokes will fly up to the sky, and new smokes will be emitted from the new factories to middle of the sky.

To make things even simpler, we will use the same icons & animations for oil & energy.



This is the end of the guidelines.