Natural calamities and Effect on the world (2014- 2018)

Vaibhav Aher

Student Number: x18104215

Background and Motivation

Every country has its special allocated quota in its budget for facing the Natural Calamities. Technology can help to prevent the loss of life by making the prediction of upcoming disaster, but finance department of every country must have the analysis of the previous loss due to natural disaster so that they can put enough fund for post-disaster management. Losses are different at different countries depending upon the housing prices in the specific area, raw material price, construction cost. This infographic will help us to understand how much loss was occurred from which type of disaster and which year. Statistical analysis will help for further planning and preparation to face these kinds of natural disaster.

Dataset source is https://www.emdat.be/ The dataset contains losses due to different natural disasters worldwide for 40 years out to which for this visualisation project we have considered the data between 2014 to 2018 only for all disaster type. The first dataset consists of columns named Year, Disaster Type, Total deaths, Affected, Homeless and Total affected. This data helped to visualise to compare total injured and total deaths of people. This data is used in the two-way symmetric bar graph. In the Second dataset which is also from the same data source consists of Type of Disaster, Total loss in US Billion Dollars, Country, Measurement and Scale. From this dataset, there are two visualisations which give the idea of which type of disaster causes a large loss. The third dataset consist of yearly data for Total damaged loss and Total insured loss. This dataset obtained from https://www.statista.ie/ From this dataset, we come to know how much the total damage and what amount is insured for natural disaster losses.

Process and Workflow

- **Topic Selection: -** For Better infographic the descriptive data is very important. Dataset with desire columns and specification is the main task. At initial stage understanding of infographic and its requirements are important. There is huge data is available on internet and number of topics are available among that topic the proper selection of the topic is first and most important task. The topic should help business or humankind to understand the information without seeing data, this can be possible by visualising the data in simple and talkative manner so that graph or visualisation itself will express a lot of information.
- **Data Gathering:** - To meet all requirements proper dataset is important, there is huge information available on internet but from that only required statistical information is what we need. Secondly another concern is about trust factor and privacy policies of the data.
- **Data cleaning:** - For simplicity the cleaning of the data has done using R code. During cleaning null values has been removed from the dataset, Unwanted columns also get dropped. After cleaning data is again rewrite in excel format.
- **Selection of visualisation tool:** -There are many tools available in market, for better visualisation here for this infographic project I prefer to use Tableau and Power BI for visualisation.

- **Choose correct visualisation type:** -To convey our message properly the visualisation must be selected as per availability of data and requirement of visualisation. There are different charts are available from which correct selection is necessary.
- **Set graphs in template:** - After formation of visualisation separately, add them in to template and arrange it in such manner which will looks good and reflect the information correctly.

Specification and Justification

There is a total of 5 visualisations are used in this infographic. The charts used are as follows Map, Double axis bar graph, Joint bar graph (Stacked Bar graph), Packed bubble, Lines.

Graph Number	**Visualisation type**	**Description** **1) About Graph** **2) Reason for selecting specific graph.** **3) Colour selection**	**Visualisation Tool used**
1	World Map with Pie chart	**1)** It describes worldwide economical loss due to different natural disaster. Here Pie chart shows the sharing of each disaster type in economical loss. The pie chart with bigger size shows the larger loss in that region. In this graph U.S.A and china are two countries who has faced major economic losses due to earthquake.	Power BI
		2) World map shows the effect of disaster in different region where pie chart shows the sharing of each disaster in loss and size of pie chart shows the total loss.	
		3) Colours are suitable for colour blindness people, everyone can recognise output after seeing the graph.	
2	Butterfly (Tornado chart)	**1)** Chart shows the yearly injured peoples and Total deaths due to Earthquake, Flood and storm. Left x-axis shows the total injured and right x-axis shows total number of deaths for year 2014,15, 16, 17 and 2018 respectively	Tableau
		2) In single graph using common y-axis which is indicating years we can compare number of deaths and number of years. It is simple graph for comparison of two measures.	
		3) Green colour shows the lesser number where red colour indicates larger number.	
3	Stacked Bar chart	**1)** This chart shows yearly total economic loss and total insured loss. This will help us to track how much is the total insured loss occurs yearly between 2014 to 2018.	Tableau

		2) Using stacked it can be easily comparable the losses and insured loss among the loss by putting it side by side.	
		3) Red colour indicates the major loss where Blue one is insured loss	
4	Packed Bubble chart	**1)** This graph indicates the total losses due to specific type of disaster for 2018 year. Here the greater is the size which meaning larger is the loss. In this graph the loss due to storm is maximum as compare to other disasters.	Tableau
		2) In bubble graph size indicates the major share of the loss which affecting the economic loss. By simple observation one can easily understand the output	
		3) Colour shade of dark red to faint red is used in which Dark red colour indicates the major loss and Faint colour indicates the smaller loss.	
5	Continuous (Multiple) line chart	**1)** It describes the total number of occurrences of different natural calamities in different year, all over the world.	Tableau
		2) Multiline chart compares the multiple data in single graph itself and in addition to that it also shows the ups and downs i.e. increasing of decreasing lines in the graph.	
		3) In this graph also, I have used different colour shades of red in which dark red colour indicates the high intensity whereas light colour indicates the occurrence of the natural calamities.	

In background the colour is set as dark black and for text as well as for the graphs life colour of shade is used which shows the better contract combination and make infographic more attractive. In addition to that background image of earthquake is added as most of the loss is due to earthquake only. There are also some symbols are used because symbolic language is very simple and easily understand. To maintain uniqueness All figurers (Statistics) are indicated in same colour and here the colour used is saffron colour for the numbers and for title of each section plain off-white colour is used which creates contract combination in the infographics. In each section of the infographic the information with statistics is mentioned, information is short but descriptive. Symbols and signs make infographic more attractive and informative. Colour selection choice has made by having consideration of colour-blind people, so that all human being can able to visualise it correctly without the mistake. figures or graphs gives more information than explanatory things, some icons and diagrams are also used in this infographic which makes it attractive.

Technologies used

For this infographic the background template and design are drafted by using following website https://my.visme.co As mentioned earlier there are 5 graphical representation used in this

infographic. For four graphs I have used **tableau** visualisation tool and for 1 graph is made in **power BI**. There are many types of graphs available in tableau and power BI as well. We can also form a lucrative graphs and visualisations in visme website also.

Reflection and Work

The aim of this infographic is to represent the economical and human life loss due to different natural calamities in various regions in the world. This visualisation can help us to understand the economical risk factor at various places in the world. There is also one chart which represents the total insured loss vs overall total damage loss. Infographic is divided in to 4 section and each section represent unique information graphically. Though we can't have overall control on what going to happened or which natural disaster may occur, but we can be financially, technologically prepare for the worst situation which may come at any time. In future work we can include the details of more natural disasters like avalanche, snowfall, lightening, thermal stroke. This can help us to give detailed insight and can give more coverage on effect due to natural calamities.

References

1) https://my.visme.co

2) https://www.statista.ie/

3) https://www.emdat.be/