TSWD PROJECT

PHASE-2

CORAL REEFS AND HOW THEY HAVE DEGRADED OVER THE YEARS

A look at the environmental factors

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The current project talks about the influence of various environmental factors on the degradation of coral reefs of the world. It aims to talk about the effect of various factors like temperature, sea surface temperature and many such related factors, so that their effect can be studied and can be used to control coral bleaching. This project intends to do so, by plotting visualisations and gathering insights from the same.

Coral reefs are one of the most diverse ecosystems of the planet. Not only are they a major source of tourism but also help in protecting the shoreline of oceans and help prevent flooding. They also play a major part in the marine lifecycle.

Pollution has caused imbalance in many ways. It has led to global warming; greenhouse effect and the list continues. It has had a huge impact on environmental features such as temperature, rainfall etc. Such imbalance has affected many forms of life. The main objective of this project is to find the effect of environmental factors and also the regions where bleaching rates are high. Insights from this project would help gather insights about the various factors playing a role in coral reef degradation and help researchers work towards controlling those factors and take preventive measures to minimize further bleaching.

The current project is the result of a research carried out by a marine biologist as part of a conference based on “Factors affecting the sustainability of marine life”. The audience are mostly fellow researchers from the same domain and environmental enthusiasts. As already said, coral reefs play a major role in balancing the ecosystem and the sustainability of marine life. Hence, there’s a high priority for them to be saved. It is important which environmental factors contribute to the current problem at hand and then infer the relation between human activities and these factors, to overcome the problem.

It is important to get to the audience’s notice about the criticality of the current problem. Talking about the effects of degradation, both short and long term would get their attention and help them get in sync with the speaker. A factual but crisp explanation about every visual is crucial to make sure the audience understand the problem thoroughly and also not lose interest midway, due to the length of the content. Since, all the audience would be aware of the nomenclature being used while presenting the findings, it is better to jump into the findings and explain the important points rather than spending time explaining what the terms mean. Hence, the presentation should be well organized, crisp and informative.

As already discussed, the current project focuses on finding the environmental factors promoting bleaching of coral reefs. Therefore, it is crucial to talk about further scope of the research, that is finding human activities affecting the currently mentioned environmental factors. This would help strengthen the need for the current project. The audience need to understand that the findings of the project would be taken as input for the further scope of the project. They need to know that it is crucial to understand the driving environmental factors for the bleaching of coral reefs, so that they could be used to find the human activities which have caused the imbalance. It is important to find the exact and the right human centric activities, rather than just claiming pollution or global warming is the cause for coral reef bleaching, because this would make the problem very vague and might not contribute to the solution.

Given that the audience are already well versed with the terminology and the nomenclature being used in the presentation, there is no need to include any explanation regarding these terms. Proper annotations are crucial to deliver the right insights and eliminate ambiguity. All the units of measurement, the subtitle of each visualisation, source of the data, etc have to be cross checked before being put up. A list of contents needs to be present, so that the audience are informed well before the speaker dives into the crux of the presentation. The source has to be cited and the work has to be checked for plagiarism before presenting.

The current problem mostly includes spot maps, scatter plots and line plots to support the findings. Color can be used to represent the intensity scale across a measure for almost all the graphs. The scatter plots would give the relationship between the numerical values and mainly contribute to the problem at hand, i.e., which factors contribute to the bleaching of the reefs. Two plots are drawn for each factor, a scatter plot with the average bleaching on one of the axes and the required environmental factor on the other one. Another plot, a spot map with the environmental factor for each of the reefs in the dataset, where color represents the measure of the factor. To confirm if the factor actually contributes to bleaching, the following process is followed. If the value of factor for the most affected country falls in the same range of the given factor for which the bleaching is high, then the it contributes to bleaching. Here, the most affected country refers to the country with the highest bleaching rate. For example, if the range of a factor for the highest bleaching ins 4-6 and the value of the factor of the most affected factor also falls within the above range, then the factor contributes to bleaching.

A few limitations are the timeline of the dataset and the complexity of the maps. The timeline of the last collected data is around 2017, so there might be a change in the most recent readings. The speaker has to make sure that the explanation of the visual ends up in the most effective way possible. Else, there are high chances that the audience might not gain the right insights.