CM402 Classroom Activity 16th February | Chirag P | 18B090003

Bangalore - A Climate Odyssey

Bangalore has often been called "The Garden city" of India and for considerable reason. But over the years, the climate and the quality of life has degraded, owing to probable climate change and its hazards. Climate change has disproportionately increased the Intensity and frequency of a variety of destructive natural phenomena.Prominent among them are rising heatwaves, droughts and cyclonic storms.
These events cause large scale destruction of property, damage to life and living index and health hazards. Therefore, it is important to effectively disseminate information to decision makers at the local and the resource management level. These hazards cause damage to the all the sectors of the economy, even the service sector.

Information needs to be accessible by all the sections of the society, and it is the duty of the officials concerned with climate change to disseminate it effectively. The primary step is for the government officials to access information and knowledge from databases and scientific communities. For this, public expositions of climate related topics should be carried out, where scientists present data to an audience in a very precise and succinct manner, in which they can understand. To maximise the usability of this information, the representatives who are responsible for local decision making and resource management must be equipped with scientific degrees, preferably with an environmental science background. Coming to the seasonal variations, Bangalore has been found to be especially prone to hazards during the summer, because of the higher altitude and landlocked-ness.
Organisations from scientific institutes must take it as a responsibility to popularise ideas related to climate change and mitigation. Popular ones in Bangalore are **DCCC**, IISc (Divecha Centre for Climate Change). An example of a governmental organisation is **KSNDMC** (Karnataka State Natural Disaster Monitoring Centre). NGOs and individual efforts have popularised in the past few years and seem to be the most effective. Examples are Eco-Watch and Environment Support Group, Bangalore.

Being the centre of IT hubs in the country, the primary contributor to the local economy is the service sector. The service sector is also the most accessible sector considering that the participants are well educated, and have perpetual access to Internet facilities.

- Since there are new Internet subscriptions every day, internet becomes a huge potential mass media method for the predominantly middle class population of Bangalore. Internet campaigning is also cheaper and effective compared to banners and protests.
- A homepage must be set up by the Karnataka Government which explains to the population the dangers of local climate change and the importance of reducing unnecessary anthropogenic driving factors, for example: Use of public transportation (Bangalore City Bus shuttle, Bangalore Metro) and mechanical transportation (bicycles, by foot) should be encouraged. The latter can also be incentivised and the health benefits of doing so can be explained. Most of the population here is open minded and sensitive to scientific information and hence, reasonable success can be achieved. This can reduce temperature inflation by a very small factor in the coming 10-20 years (by 0.2-0.5 degrees in C) but this can be quite significant. The human body is known to be sensitive to very minute changes in external temperature and this can lead to *body heating, dehydration, changes in circadian rhythm, sleep disturbances and possibly depression*. All these are severe problems in a primarily service sector based economy and hence, they can not be taken for granted. Other methods would be to incentivise the usage of special reflective glasses, usage of solar and electrical energy which reduces Carbon emissions (as opposed to fossil fuel energy), encourage the use of white paint in urban regions, and so on.
- Droughts and cyclones are other severe events which cause large scale destruction to agricultural based economies. Droughts and water deficiency can even impact electricity production because a large fraction of Karnataka is dependent on hydroelectric energy. There

are quite a few localities which are primarily Agro-based (Bangalore Rural). These areas are heavily vulnerable to the above climate phenomena, because of the delicate-ness of the crops and the conditions required to get an effective yield. To mitigate this, climate dispensaries must be set up in the rural areas to inform agricultural workers about imminent climate phenomena and their potential hazards. For droughts, preparations can be done in advance by tailoring water supply needs for every farm and strict adherence to water conservation protocols. Drying of lakes and water bodies can not be stopped, however. So droughts are in general very hard to manage. Cyclones however can be managed a lot better by setting up temporary crop walls to reduce the mechanical damage dealt by a cyclonic storm. Forums must be conducted for agricultural workers to dispense information about cyclone readiness and mitigation. One way to reduce the impact of a disaster is to set up effective mitigation techniques, especially in the medium term and long term. Reconstructing damaged dams, irrigation structures, wells as soon as possible could prove instrumental.

INFORMATION DISSEMINATION (and to reduce the usability gap)

- To maximise knowledge retrieval from the above mentioned campaigns, it would be better if farmers are educated about natural disasters and climate change, in their native tongue (Kannada) by NGOs and governmental organisations.
- Cyclone relief squads must be set up by employing powerful labor and equipment, and they must be kept in continuous loop with weather forecasters.
- Cyclone warnings must be alarmed on a large scale at least 2 days in prior so as to manually cover the crops and protect irrigation equipment.
- Drought management squads must be set up in susceptible areas, and effective rehabilitation techniques (priority based water resource allocation, water management and conservation) must be employed effectively.
- Local governments should emphasise the disastrous effects of heat strokes in summer and their potential life threatening consequences. The consequences can go as far as to a brain atrophy in the future to death by severe dehydration. Dehydration occurs because sweating in a hotter environment does not effectively reduce body temperature, and hence, disproportionate water loss occurs. AC units should be set up in offices and workspaces which are prone to heating. In households, proper ventilation must be facilitated to mediate effective heat transfer.
- A webpage should be made targeting the middle class service sector population and inform them about little ways in which they can deal with periods of unusually long heat like swimming, breathing exercises, and so on.
- The web page should also contain basics on climate change, and the specifics of heatstrokes and their management so that the usability gap is minimised when the information reaches the public, who is most influenced by it.
- Social networking sites like YouTube and Instagram must popularise (increase ad-frequency) of small information packets in posts and story updates, so that it reaches most of the urban population. This is because a huge proportion of the population are well versed with these social platforms. NGOs can also create pages on these sites to maximise organic reach.

The advantage is that unlike other regions, Bangalore has a predominantly middle class population (>85%) with a comparatively less population living in poverty. Thus, this fact can be exploited for maximum information dissemination and usability gap reduction.