

COMMUNICATING CLIMATE CHANGE THROUGH CARTOONS

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Abstract. Climate change is understood as a change in climatic conditions, hot becoming hotter and cold, colder. Exploitation of nature to meet human needs has been a hot topic at recent global forums. Many human actions are now under scrutiny for having causative links to the unprecedented levels of climate change around the world. With the proliferation of media, the role played by the media in educating people on environmental issues calls for in-depth analysis. Cartoons, in particular, can play a major role in making people understand the science of climate change in a humorous way. This study has selected five cartoons on climate change from different websites through a purposive sampling technique. Each cartoon falls under one of the five themes chosen: deforestation, fossil fuels, desertification, glacier melt, and erratic weather patterns. Using discourse analysis and ecocriticism, the study finds that the select cartoons have effectively portrayed the graveness of climate change issues such as global warming, polar ice melting, drying up of water bodies, and desertification. A focus group discussion was also conducted to understand the reception of these cartoons by audience members, which revealed how the cartoons had managed to successfully communicate the long-term negative impacts of these phenomena on human as well as non-human lives.

Keywords: *Cartoons, climate change, deforestation, fossil fuels, desertification, glacier melt.*

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Introduction

Climate change is a global phenomenon that impacts all walks of life. Human activity alters the composition of the gases in the atmosphere in addition to natural climate variability. It is important that the factors that have an adverse effect on the climatic conditions are kept under check. More often, climate change is considered by many as a phenomenon that is bound to occur, but rarely do people internalise the fact that every individual contributes to this. It is, therefore, important to convey the message of climate change in an interesting and inspiring manner. There are many ways in which climate change is discussed. David (2016), in her study *Eco-Fiction: Bringing Climate Change into the Imagination*, says that climate change springs forth a new form of novel, in the process it affects and alters the language by losing and coining new words. She says that the current discourses on climate change are worn out and that they fail to initiate critical reflection. The hurdles that are associated with climate change representation are overcome by Ghosh in *The Hungry Tide* (2005) by depicting the wider interconnections of the non-human world. The exploitation and over-consumption of nature by humans is also stressed in *Ecocriticism and Long Eighteenth Century* by Hitt (2004).

It is necessary to convey the message clearly, thought-provokingly, and captivatingly within a short span of time. Non-animated single frame cartoons could do this effectively. Cartoons have a critical role to play in communicating climate change. Apart from being just visual presentations on climate change, they could also be effective forms of visual commentary on the relations of power and knowledge within which climate change communication and debates are placed (Kate, 2012). Abraham (2009) says that the purpose of the cartoons is to make easy the complex and opaque societal situations that cannot be easily understood. He says that cartoons are unique visual forms that help to communicate, using the theory of visual semiotics and visual persuasion. ‘Deep reflection’ alongside the “passing chuckle” on social issues is a characteristic of cartoons.

Need for the study

Climate change is a grave issue that has to be dealt with by every human being as it is experienced by all. To mitigate climate change, every person should take the initiative and plunge into it without further delay. As every action of an individual is crucial in the mitigation process, this message has to be captivatingly put across to bring about the desired change. The extent of the damage that goes unnoticed can be brought to realisation through cartoons. Hence there is a need to study the effectiveness of cartoons in propagating against climate change.

Objectives of the study

The objectives of the study are:

- to see how the elements in the cartoons help to further the discourse on climate change
- to highlight how cartoons portray human actions that contribute to climate change and their implications.

Theoretical framework and methodology

This study has selected five cartoons on climate change through a purposive sampling technique from various websites. Each of the cartoons fall under one of the five themes chosen: deforestation, fossil fuels, desertification, glacier melt, and erratic weather. The cartoons were analysed using discourse analysis and ecocriticism. Six out of the ten criteria of Ian Parker (1992) for discourse analysis have been taken up for this study: a discourse is realized in texts; a discourse is about objects; a discourse contains subjects; a discourse is a coherent system of meanings; a discourse refers to other discourses; and a discourse reflects on its own way of speaking. Besides, four eco-critic criteria of evaluating a text for environmental consciousness by Lawrence Buell (1995) have been taken up. They are as follows. The non-human dimension is an actual presence in the text and not merely a façade, thus implying that human and non-human worlds are integrated. The human interest is not privileged over everything else. The text shows humans as accountable to the environment, and shows actions they perform which damage the ecosystem. Environment is a process rather than a static condition. Besides the analysis of the cartoon texts, a focus group discussion was also conducted with 10 participants to know the impact of the cartoons.

The Tree of Life Cartoon

Discourse analysis: The cartoon (Fig. 1) depicts a huge tree with big roots seen above the ground, a large trunk with big branches and thick foliage having all types of animals, birds, and reptiles on every branch – big, small and tiny ones, fish, etc. A man wearing a hat is chopping the big trunk of the tree from its base, with a chainsaw. He is looking down at the base and cutting the tree. The ‘*scrrreeeee*’ noise is produced due to the felling of the tree.

The cartoon is titled “*The tree of life*”. The large tree tells about the years of its existence. The thick big roots above the ground, the trunk, branches, and the foliage of the tree indicate that the tree has been nourished well with the natural resources available.

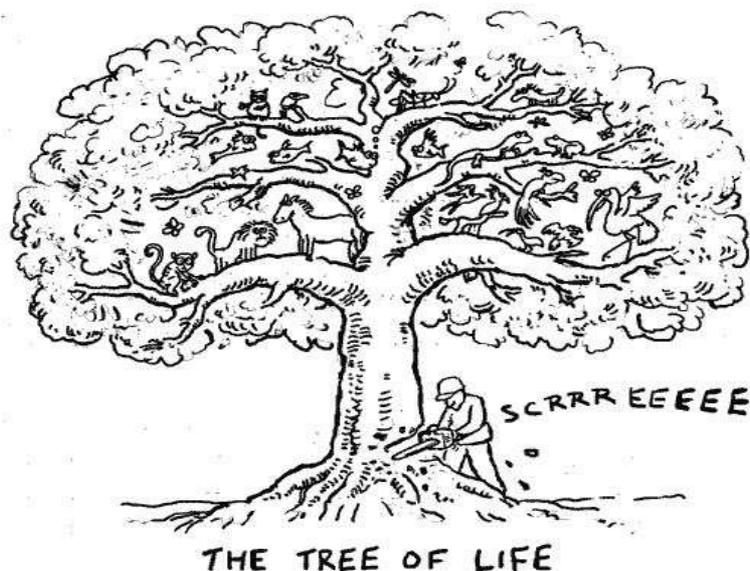


Fig. 1. The Tree of Life

This indicates the quality of the soil. On the tree, different species including birds, animals, fish and reptiles have sought refuge by being on its branches. The tree has withstood all the natural calamities that have come by over the years. This is perhaps why the cartoon is titled 'The tree of life', as it has been a source of life to most of the species of the animal kingdom. There are monkeys, a lion, a horse, a frog, reptiles, birds, grasshoppers, a dragonfly, fish, butterflies, an owl, a kingfisher, cranes, etc. The thick foliage gives shade, protection and shelter to them. It also gives shade to the man cutting the tree. The pieces of the trunk are seen thrown around, due to the impact of the chainsaw cutting through the thick trunk of the tree. In spite of the sound produced by the chainsaw, animals, birds, and reptiles are not disturbed as the tree has not shaken as yet.

The sturdiness of the tree represents that it has stood the test of time – gone through all vagaries of weather. The animals of all kinds sheltering on the branches of the tree is yet another representation of how the tree has been there as a source of shelter and a source sustaining life. The harmony among all animals, birds, reptiles and fish is conveyed through the sharing of the space in the tree, each having its own zone.

The tree, therefore, stands to represent the large picture—that of a forest and where all the species had lived in those forest areas, spreading out each harmoniously in their own area. The man standing below the tree with the chainsaw cutting the tree is upsetting the whole harmonious existence of animals, birds, fish, reptiles, butterflies, dragon fly, etc. The extent of the degradation of an ecosystem by such an act is portrayed by the presence of these species. The fish that are seen on the tree's branches indicates the kind

of danger that they too face in the water bodies which is their natural habitat. The cutting at the base of the tree trunk suggests that the intention is to destroy the tree completely – the only one left out. One of the reasons why all the species of the animal kingdom are seeking shelter is the non-availability of any other tree in the vicinity. The tree thus showcases the diverse life of the animal kingdom. The fish on the tree branches is most unlikely to be seen, but here in this cartoon, it is seen, and thus connects the tree to be the source of water, to replenish the water bodies. Thus it very strongly indicates the importance of the tree to sustenance of life on the earth. The man looking down indicates that human beings do not look around to see how adversely their actions affect the animal kingdom.

The definite article ‘the’ in the title indicates the uniqueness of it. ‘The’ again stresses more precisely that there is only one tree left – a tree that can sustain life. The ‘*scrrreeeee*’ sound disturbs the serenity of the place. It is scary too as it will cut through the source of nature’s way of sustaining life. The tree in the cartoon is depicted more as one that is the source of life. The importance of a tree, as a vital aspect of life that connects and sustains the lifecycle of all the species is brought out. This message is addressed to all human beings who are unmindful of their actions and the repercussions. The man is representative of the whole humankind. ‘The tree of life’ is the reality appeal made by a tree to humans showing view of the tree with all the animals and birds of almost all kinds. Thus it reiterates the fact that it is a place of solace and source of life. The most striking is the fish on the branches, a horse and a lion, which are uncommon to find on trees. Thus the cartoon very powerfully tells us about how a tree is the only source for them is also at stake. It raises questions such as: “what are they to do?”, “where do they go?” and “how can they live without the tree that is life for them?”

These questions are addressed to the human beings at large and specifically to the people involved in the clearing of forest areas or mass cutting of trees for their own interest. It also tells about the insensitiveness of human beings to the lives of numerous species – small and big alike. The importance of the tree in every aspect of life is conveyed through the creatures that are on the branches of the tree. It addresses the people who deliberately choose to ignore and defy the call for sustaining life on the earth. It is time that humans rally together to save the tree(s). The animals have come together in a show of solidarity to protect the tree from perishing at the hands of the man, hoping that it would dissuade him from the heinous act. The hugeness of the tree represents the vastness of life. It portrays a picture of inclusiveness, compassion and selflessness as it opens itself to accommodate all the species. The largeness of life and the ‘protector’ image come through the visual of the tree. The huge tree is contrasted with the small man. The number of species of creatures on the tree too is contrasted

against a single man. The ‘scrrreeeee’ sound of the chainsaw is a contrast against the calmness of the species on the tree. All these contrasts heighten the destruction of man. The calmness and un-retaliating nature of the animals in spite of harm caused to them speak of the harmonious way of co-existence. There are different types of birds, animals, fish and vertebrates that are seen on the branches of the tree. This re-emphasises the attributes of the tree to sustain life on the earth. ‘*The tree of life*’ simply states that each one belongs to the universe. It refers to the fact that each one has the right to exist and grow in the universe. It accommodates everything, irrespective of the diversity of things, as its own and is protective. The thick foliage indicates the richness of its nutrients, made available for shade, protection, and as food. The interconnectedness and reliability of the tree for all the species to depend upon for sustenance is clearly portrayed.

Eco-criticism: The cartoon ‘The tree of life’ shows the integration of the two living forms– human and non-human. All the big animals and birds are seen on the lower branches of the tree, while the relatively smaller ones on the upper parts of the tree. The tree sheltering fish on one of its branches strongly indicate the importance of the tree to almost all living creatures in the world, including the man who stands protected under extensive cover of the tree. The man is interested only in the purpose for which he needs the tree. He fails to see the life of other creatures and how they are integrated as part of this tree. The man, by ignoring this, sends out the message that his privileges are of importance to him than that of the other creatures. His actions destroy not just trees but causes heavy damage to other non-human living creatures. This action is of concern as it destroys an entire ecosystem. He destabilised the interdependence of life and the protective care that trees offer to both humans and non-humans. The tree is not the only concern but rather the entire ecosystem is in focus. The tree has grown huge because of the conducive environment. The healthiness of the tree, and the resources of the non-human creatures on the tree are a part of the process of interconnectedness, integration and co-existence.

Focus-group discussion: The cartoon portrays the prominence given to human needs rather than that of the other living creatures. The tree is portrayed as a home to all living creatures. Deforestation by humans causes an imbalance in the ecosystem. Increased demand for natural resources such as the trees for various human desires leads to deforestation.

The non-human living creatures are affected, creating permanent disturbances to nature. The cartoon portrays how humans are oblivious to the effects of nature’s destruction. This kind of deforestation will affect the quality of the atmosphere which will lead to artificial sources of oxygen. The

cartoon also conveys the message that increased deforestation leads to self-destruction of human beings.

Carbon Footprints Cartoon (Fig. 2)

Discourse analysis: There are two people travelling by a car on a deserted road that is without any vegetation on its sides. The car is emitting smoke through its exhaust pipe. The smoke takes the form of a very big foot that is thick and very dark. A carbon footprint tells us of the type of residue that is left behind by the vehicles that use fossil fuels. The adverse effects of a carbon footprint are soon going to be a larger issue than earlier thought of. The text says, “Remember. ‘Objects in mirror are closer than they appear’”.



Fig. 2. Carbon Footprints

The model of the car is *Blindspot EX* and it tells us how when one uses the vehicles run on fossil fuels, the carbon footprints left behind are not noticed as it is the blind spot that prevents the users from noticing the carbon footprint. People look for comfort and friendly navigation features in the car which consumes more energy apart from commuting. The trail left behind by the cars goes unnoticed. The environmental audit discourse is prominent in the *carbon footprint*, as it is an indicator of the adverse effect caused to nature. The texts, “Remember, ‘Objects in mirror are closer than they appear’” and *Blindspot EX* are automobile discourses of the rear-view mirror and the model of a particular brand of the car.

The cartoon addresses individuals who think that they do not contribute to the carbon emissions as it is attributed to a ‘collective’ societal

involvement. The visual of the footprint and the car articulates the relationship between the two and it affirms that vehicles contribute to the presence of carbon in the atmosphere. The cartoon addresses the users of high-end cars. The discourse intensifies the fact that the type of car, the distance travelled, the average load that it commutes with, the consumption of fuel by the car to cover certain distances, and the speed at which it travels are the factors to be considered for the carbon footprint.

The carbon footprints left behind are like objects seen in the rear-view mirror of the car—more closer than it can be thought of. “*Objects in mirror are closer than they appear*” are etched on the rear-view mirror of the car. This principle of caution to the driver is applicable to the carbon footprints. Carbon footprints are to be looked into and measures taken to reduce carbon emissions. The use of cars by humans blinds them to the carbon footprints left behind until it has reached closer.

The *Blindspot EX* reminds of the blind spots of the car that hinders the driver from noticing the other cars until at close quarters and is taken unaware. In a similar way, everyone who drives the car fails to see the carbon footprint. The word “*remember*” tells bear in mind that objects seen in the mirror are closer. The ‘*Blindspot EX*’, the *EX* refers to the ‘executive’ or ‘extra’ version of the model. The car here is contributing extra carbon footprints. Blind spot in medical terms refers to scotoma, the lack of receptors where the blood vessels and optic nerve leaves the eye. The features of the car would have prevented the vision of the initial stages of the carbon footprint.

Eco-criticism: The cartoon portrays that the emission from the car is polluting the place and the absence of trees in the area intensifies the effect of the emissions. Trees help in sinking the carbon that is present in the atmosphere. Clearing of trees to facilitate laying of roads for vehicle movement leads to lack of trees in the area. Clearing the area of its natural habitat to facilitate urban lifestyle, and use of fossil fuels in vehicles that pollute the atmosphere indicate that humans are concerned more about themselves and their way of living. The total amount of greenhouse effect that the car has created is portrayed by the big carbon footprint. This indicates the quantum of carbon footprint that human action is contributing that damages the ecosystem. The carbon emissions from vehicles affect the atmosphere by contributing to the greenhouse effect that increases the temperature of a place. The big carbon footprint would soon alter the situation than earlier thought of which is imminent. This would have an impact on the habitat of the place and change the natural environment as nature evolves according to the climate conditions that prevail.

The heavy presence of carbon dioxide in the atmosphere leads to a change in the composition of the air preventing the sun’s heat from escaping.

Instead, it gets trapped leading to warmer conditions on the earth. This, in turn, causes environmental damage that humans have not curtailed in spite of the knowledge of the same. The carbon footprints indicate the human attribution to the ecological damage that is harmful to both human beings and nature alike.

Focus-group discussion: The cartoon depicts the danger of carbon footprints getting closer and larger due to the increase in pollution from vehicles. Huge increase in carbon monoxide is caused due to vehicular movements. In spite of manufacture of vehicles trying to contain pollution levels, vehicles continue to pollute by emitting carbon. Lack of trees to counter carbon emissions leads to large amounts of carbon presence in the atmosphere. Increase in air pollution may cause acid rain. Use of fossil fuels contributes to carbon footprints in a major way. The cartoon portrays the humans' complete lack of understanding of the consequences of their actions.

Fish Inside an Oyster Shell Cartoon

Discourse analysis: The cartoon (Fig. 3) portrays an open oyster shell with a small fish in water inside the shell. The shell is on the floor of the water body and there is nothing else around. The oyster shell is big and is wide open. The fish is swimming in the water that is collected in the shell. The floor of the sea is mostly parched and there is no sign of water apart from what is inside the oyster shell. The water splash indicates the swift movement of the fish inside. As the fish is small, it is able to accommodate itself in the shell and swim in the shallow depth of the shell. The oyster shell opens by itself only when the oyster is not inside the shell. The parched area indicates the absence of moisture in the ground to hold the soil together. The indication that it would have been a sea is the presence of an oyster shell and that it has dried up. The upper part of the shell acts as a cover to the heat that would dry up the water quickly.

The fish is able to swim now but when it grows the space would not be enough for it. The open oyster shell indicates that the oyster has perished in its own habitat without sufficient water as it has completely dried up. The fish would have come in along with the water when the shell opened up naturally. The water inside the shell too will soon become insufficient, as the heat would evaporate the water. It is a familiar discourse of an ornamental hobby – having a fish tank with a variety of fishes. The cartoon addresses the lack of water and the situation that arises out of it. It talks about how marine life is affected due to the drying up of water bodies. The parched base of the water body is the aftermath of the long duration of the dry spell that has been prevailing. Oysters, apart from being a delicacy, are also known for producing natural pearls, which are very rare and precious. Oysters attach

themselves to rocks or other hard surfaces in a marine environment to live permanently there. By placing the fish inside an open oyster shell with little water, it conveys how water is an important and a rare commodity to find. It brings out the catastrophe of drought on aquatic life which would also affect human beings. Hence it is time that humans understand and cautiously handle such a situation to avoid further damage. How can one respond to such situation? What are the actions that need to be taken? To come up with solutions for these would be a challenge and it needs to be confronted. The consequences of which is alarming. It is, therefore, essential to go back to the basics of how to sustain water and to protect it too. In the oyster shell, there is no seeping of water as it is non-porous and the other half that is the open shell acts as a protective layer over the water and prevents it from drying up. Hence humans can take a cue from nature.



Fig. 3. Fish inside an Oyster Shell

Oysters do not open their shells, if it does open, it is only when it is sick or it is forced open. Once opened it cannot be closed. Here a single oyster shell is found by a small fish and the water collected in the shell is like the precious natural pearl. A rare find for the fish. The fish is happy that the water is protected from the sun as the upper part of shell forms a covering over it. Though outside the shell there is dry and arid condition, it is 'safe' as of now, but how long can it survive in that small space and little amount of water. Oysters are usually found attached to hard surfaces, but here it is found lying on the floor of the water body that is dried up. Both the oyster and the fish can survive only in water. Both breathe through gills. One is dead, the other alive – living in the shell of the other, with the water that is inside the shell. There is nothing else apart from the oyster shell with the fish in it, indicating that nothing else could exist as there is no water and the

moisture of the soil is also dried up leaving most of the land parched. This indicates the drying of the water body and how it affects life that is dependent on it.

An oyster shell on a parched land/shore is a contrast that highlights the condition of the water scarcity. A fish inside an oyster shell with water portrays the desperate means adapted by the fish to survive. It has decided to cling on to life as long as there is water in the shell. It tells us about how the drying up of water bodies and absence of natural replenishing could cause havoc not only to human but also marine life. Drought-like situations are most often connected with vegetation, animals and human beings that exist on the land, but it is rare to associate parched land with marine life. Thus it brings out the necessity to be concerned about marine life and how they too are adversely affected by lack of water and drying up of the water bodies. The fish prefers to live in plenty of water and move about freely, not constrained by space. But here the fish is seen taking refuge in a small space with little water inside an oyster shell.

The upper part of the shell acts as a cover protecting the water from evaporating quickly. The land lies bare, with no protection from the sun and it loses moisture and becomes parched. The cartoon thus warns about the scorching heat and lack of rain or natural water springs that are constant supplies of water. The heat drying up the water bodies coupled with lack of rain to replenish the land and the water bodies are scientific facts that are basic of this cartoon. The adaptability of the fish to available resources is an example to emulate. It has chosen the best option—utilisation and preservation. Thus the cartoon highlights the important message that effective utilisation is the key to preserving the available natural resources. It also calls for alternative ways to provide habitat for aquatic life. Apart from being a delicacy, oysters are known for their pearls that they produce inside the shell. The pearl has a smooth finish and they have been referred to in religious and mythological discourses from very early times. Like the pearls, water from nature is also priceless and precious. The oyster shell opens up to hold water in it, to make it available to others – here to the fish.

Oysters are very sensitive to the quality of water and extremely vulnerable to pollution. Oysters close their shells when threatened, as they have strong adductor muscles. The shell is as hard as a rock and is rough, making it impossible to open. They can survive other threats, but not drought as their habitat is endangered. The oyster in the cartoon has perished due to the dwindling of water quantity. Its shell has opened to hold precious water inside, to help the fish live in that space. Today, pearl cultivation has become lucrative and pearl is made affordable to all. Pearls are taken for granted, as they are available more and can be 'cultured'. This is the attitude with which humans are handling the natural resources, thinking

all the natural resources can be 'duplicated' by this 'wisdom'. This is proving fatal. Overexploitation of natural resources would lead to depletion of resources.

Parched land is associated with extremely dry weather conditions that prevail in some parts of the world. But today even the bed of water bodies is becoming parched due to lack of rain and loss of moisture from the soil caused by heat. The indication here is that it is a waterless bed of a water body can be assumed by the presence of the oyster shell and the fish in the water inside the open oyster shell. An important point to note here is that the cartoonist takes liberty to mix up an oyster's death with the drying up of inland water bodies. In reality, oysters are mostly marine and the sea level is not dipping but is rising by roughly 1.8 mm a year. It is also a known fact that oysters and other shell-forming creatures are decreasing in number because of excess carbon dioxide in the atmosphere and seas acting as natural carbon sinks which lead to ocean acidification.

Eco-criticism: The damage resulting out of lack of water in a water body is portrayed in the cartoon. Changes in climatic conditions have heavy impact such as prolonged dry weather and rise in temperature due to exploitation of natural resources. This damages the ecosystem as life forms that depend on water bodies also cease to exist, as water dries up. Humans have always given priority to their own interests, ignoring the plight of other living non-human entities. No measures have been taken to curtail the loss or to restore the natural habitat of the species. The dried up water body reveals the extent of this—the parched land of the bed of the water body.

Even the single fish is surviving in the only source of water available. It is left to fend for its own survival. No help seems to be in sight for this single fish which has managed to survive so far. Its natural habitat—water replenished by rain—has dried up due to lack of rain and dry and hot weather, which has also depleted groundwater. Though there are no humans in the cartoon, these are actual indicators of human apathy towards non-humans. Overexploitation of the earth's natural resources negatively impacts the habitat of humans and nature equally.

Focus-group discussion: The cartoon depicts how lack of rain leads to dry lands and drought-prone areas. The parched lands are a result of human actions that have depleted the water sources. It also depicts that depletion of groundwater levels leading to scarcity of water. Mass cutting of trees has led to infrequent and low amounts of rain resulting in the drying of the land. The cartoon portrays the possibility of water scarcity due to uncontrolled usage and wastage of water coupled with lack of replenishment of water bodies.

Humans will have to reconsider the way they use water from existing resources by taking a cue from how the fish is learning to adapt and live.

Polar Bears Cartoon

The Polar Bears cartoon (Fig. 4) portrays a polar bear reading from some printed matter that they are on the endangered species list. The ice piece on which the polar bear sits along with other pieces of ice is seen floating on water formed out of the melting of ice.

Failing to get a response from its companion, it asks the question, “are you listening” unaware that its companion is sinking. The polar bear is oblivious that they are an endangered species as it doubtfully asks, “is that true?” It is passing on the information to its companion from what it is reading. If the endangerment of polar bears is true, then care has to be taken; therefore, the attention of its companion is sought as it reads about the issue. The mountains that are seen in the background have scanty snow only on the peaks. There are some ice pieces floating on the water. Polar bear sits on one piece as there is not enough ice for it to stand. It is engrossed in reading, unaware that the ice is melting. The polar bear too will soon be caught unaware like its companion.

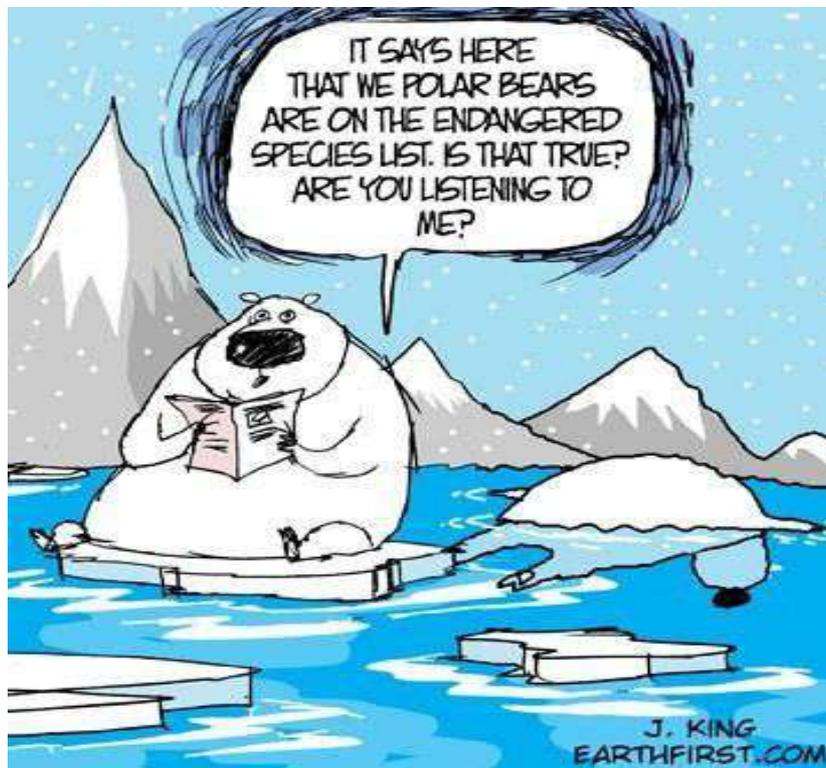


Fig. 4 Polar Bears

The polar bears have the right to exist in their own environment and now they are endangered as their habitat is reduced and transformed into another terrain where they cannot survive. “Why does this happen?” and “Who is responsible for such an occurrence?” is what the cartoon is addressing. With rising temperature, the ice, which is vital for the survival of the polar bear, melts into water. Hence, the cartoon highlights the crucial nature of ice and the factors that lead to its melting.

Eco-criticism: The cartoon shows a change in the normal habitat of the polar bears and the vulnerable situation they are in. The vulnerability is portrayed by the sinking of one of the polar bears as the ice on which it was standing suddenly gives way by melting. The rise in temperature causes the melting of ice. The printed matter that the polar bear is reading suggests human presence. Their activities lead to damaging of the habitat of the polar bears. Thus it highlights that actions of humans, though unseen, affect the world of non-humans as their worlds are not in isolation.

The polar bears have the right to exist in their habitat as much as humans do. Its habitat has to be sustained as the environment goes through various processes by careful consideration of humans’ way of life and the use of resources. The interest of the humans is not supreme.

Focus-group discussion: The cartoon depicts how the polar bears are restricted to a limited environment. There is an increased danger in their existence because of the large quantities of ice melting due to global warming. Polar bears will not be able to adapt to any land or sea area. Hence they are an endangered species as their existence is affected. “Are you listening to me?” is a forewarning to the dangers of not only affecting polar bears but also human beings. The increase in water levels due to the melting of ice will affect the entire world. The cartoon depicts how the animals are directly affected by climate change.

Climate Forecast Cartoon (Fig. 5)

The cartoon portrays a polyptych of climate forecasts. The polyptych in the cartoon is heptptych in nature showcasing the climate conditions of each day in seven split panels of a painting. The visuals of each day of the week in a panel are described below the panels.

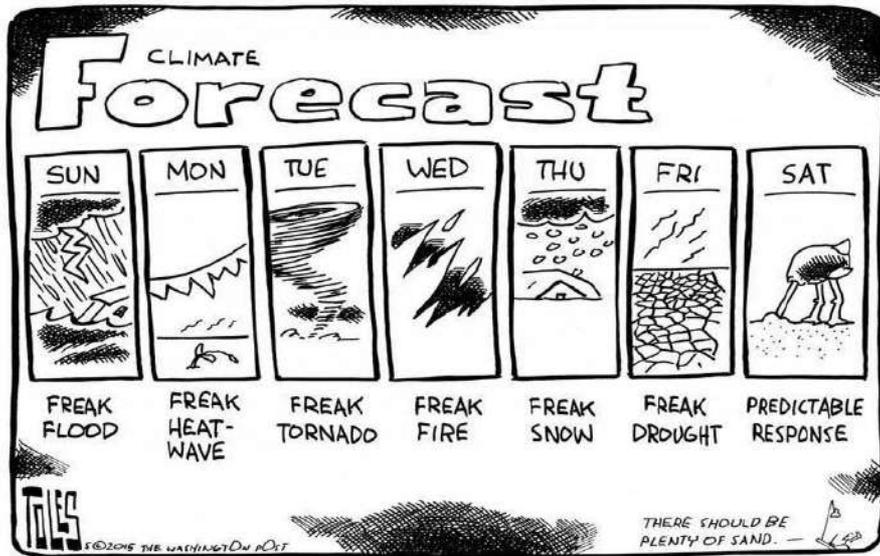


Fig. 5. Climate Forecast

The word 'freak' runs common on all the days of the week along with the climate forecasts for the day except Saturday. The word 'freak' is accompanied by floods, heat wave, tornado, fire, snow and drought. On Saturday, a split panel shows an ostrich with its head buried in the sand. The cartoon talks of climate forecast for each day, whereas it is usually the weather forecast that is shown. The week starts with a freak flood on Sunday, caused by heavy rainfall on Monday, and followed by a freak heat wave on Tuesday where a plant wilts unable to bear the intensity of the heat. The freak tornado carries away all that has come on its way on Wednesday. On Thursday, the climate changes to a freaky snowfall that the snow almost submerges a house. On Friday, the climate experience is one of a freak drought, where the land has become parched. On Saturday, the predictable response is portrayed by an ostrich with head covered in the sand. From the first panel to the last, there is no gradual movement of climatic conditions, rather it is erratic with oddity as its hallmark.

Even after forecasts and experiences of such climatic conditions by humans, they are not taken seriously. The response to such situations is predictable – to take no notice of such occurrences. The climate forecasters do give prior warning to take necessary steps. The forecasts continue with erratic climatic conditions to the public.

They include people who can bring about positive changes that can curtail such situations from deteriorating. Yet humans fail as policy-makers and the authorities concerned to look into the matter, instead of looking into their own affairs like the ostrich that is turning its eggs unmindful of what is happening around. The cartoon vividly portrays the effects of the climatic condition and its effects, visually as well as descriptively. The sand represents

other aspects of life that humans are interested in. The cartoon further warns that one can indulge in one's business only if there is sand – that is, if only anything exists. Ignoring such erratic conditions will ultimately lead to total destruction as there would not be anything left. This is echoed in the utterance of the person who perhaps is accounting all the happenings. Thus the cartoon portrays the erratic climatic conditions that occur due to the apathy of people who can make a difference for good.

Eco-criticism: The cartoon portrays the different climatic conditions that occur in a week thereby indicating the very quick changes. Changes do occur in the environment but not so drastically. So the environment is not allowed to evolve at its own pace. The forecasts help take necessary precautions and make adequate arrangements to protect and safeguard both human and non-human entities. They cannot be looked at as separate entities but rather as an integrated whole to sustain life on the earth.

The apathy of the humans worsens such drastic changes in climate within a week. This leads to an imbalance in the ecosystem, as the crop production, the breeding of animals, the flowering of plants and trees, and the season itself will cease to exist. This will, in turn, affect other survival essentialities both for humans and non-human entities. Thus humans are accountable to the environment and their obstinacy will result in damaging the ecosystem. The ostrich with its head in the sand suggests that human interest matters more than that of other living entities.

Focus-group discussion: It highlights how erratic climatic conditions would affect all living creatures as well as human beings if humans continue to be in denial of the phenomenon of climate change. Every natural disaster will increase leading to a risk of losing lives and properties. It is important to find solutions to curtail such freak climatic conditions. Undue delay by human beings to respond constructively to various freak climatic conditions will lead to an impossible situation of saving humans.

Lessons Learnt

Cartoons help initiate deeper and wider discourses on climate change among people, sensitising them on the need to value both human and non-human entities. This is achieved by the visual elements along with the texts that appear in the cartoons. The increase in vehicular traffic leads to pollution. The chosen cartoons have shown that increased use of fossil fuels contributes to global warming including the warming up of the oceans that absorb carbon dioxide, the widespread use of motorised two-wheelers adds to pollution levels, cutting down trees leads to reduction of rain, all of which contribute to climate change. All the participants of the focus group

discussion opined that cartoons can be used as a tool to convey the message of climate change effectively to the people. They believed that cartoons create a curiosity to know about scientific aspects of climate change and its effects. A simple cartoon can convey different aspects of the theme highlighted and initiate higher orders of learning. For example, carbon footprint was a concept that the participants in the focus group discussion were earlier unaware of, but now the cartoon has helped them to understand the various aspects of carbon footprints.

Conclusion

While efforts are being made through various channels to spread awareness and education about the impending dangers of climate change, the media's role in propagating important and relevant messages is under sharper focus than ever before. In this regard, cartoons published in the media present themselves as a highly effective medium for communicating environmental issues in general and climate change issues in particular. Cartoons, with their capacity to evoke people's interest and appeal to their sense of humour, help retain the underlying messages more effectively than textual content. New learning can also be imparted through cartoons. Thus, it can be concluded that cartoons are a viable option for making people more conscious of the reality of climate change and its effects.

References

- Alabi, O. F. (2013). A survey of Facebook addiction level among selected Nigerian University undergraduates. *New Media and Mass Communication*, 10(2012), 70-80.
- Abraham, L. (2009). Effectiveness of cartoons as a uniquely visual medium for orienting social issues. *Journalism and Communication Monographs*, 11(2), 118-165. Retrieved from <http://journals.sagepub.com/doi/abs/10.1177/152263790901100202>
- Buell, L. (1995). *The environmental imagination: Thoreau, nature writing, and the formation of American culture*. Cambridge, Massachusetts and London: Harvard University Press.
- David, S. (2016, June 24). *Eco-fiction: bringing climate change into the imagination*. PhD Thesis. UK: University of Exeter. <https://ore.exeter.ac.uk/repository/bitstream/handle/10871/24331/DavidS.pdf?sequence=1>
- Ghosh, A. (2005). *The hungry tide*. India: Harper Collins.
- Hitt, C. (2004). Ecocriticism and the long eighteenth century. *College Literature*, 31(3) 123-147.
- Kate, M. (2012). Earthworks: The geopolitical visions of climate change cartoons. *Political Geography*. 31(8) 481-494.
- King, J. (2012, May). Polar bear drowning season kicks off. *Real Science*. Retrieved from <https://stevengoddard.wordpress.com/2012/05/18/polar-bear-drowning-season-kicks-off/>
- Madden, C. (2011, January). The tree of life. *Cartoon guide to biodiversity loss*. Conservation Bytes. Retrieved from

- <https://conservationbytes.com/2011/01/14/cartoon-guide-to-biodiversity-loss-x/>
Mehr, T.K. (2015). Fish inside an oyster shell. Iran. Retrieved from
http://www.irancartoon.ir/gallery/album515/Tayebe_Khalili_Mehr_Iran_2
- Parker, I. (1992). *Discourse dynamics: critical analysis for social and individual psychology*. London and New York: Routledge.
- Parker, J. (2015, September 11). Carbon Footprints, Cagle cartoons Retrieved from
<https://vyzvoice.com/carbon-footprint-reduce/>
- Toles, T. (Oct 2016). Mad about climate denial. *Popular Science*. Retrieved from
<https://www.popsci.com/madhouse-effect;> (originally published in the Washington Post).
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