A Study of a Stormy Disaster in Kim Stanley Robinson's *Forty Signs of Rain*

S. H. Jeslin*[1], Dr. D. L. Jaisy[2]

[1]Fulltime Research Scholar, Register No: 22213234012005, Department of English, St. Jude's College, Thoothoor, India, Affiliated to Manonmaniam Sundaranar University, Tirunelveli- 627012, Tamilnadu, India

[2]Assistant Professor and Research Guide, Department of English, St. Jude's College, Thoothoor, India, Affiliated to Manonmaniam Sundaranar University, Tirunelveli- 627012, Tamilnadu, India

ABSTRACT

Kim Stanley Robinson presents a global climate pattern called Hyperniño which leads to a heavy downpour in his novel *Forty Signs of Rain*. The monster storm in the Pacific Ocean creates a flood in the northeast regions of California. The sea cliffs of San Diego and Leucadia are major areas prone to coastal erosion. Leo Mulhouse, Frank and Charlie are the central characters who strive to fight for the implementation of remedial measures to tackle the impact of climate change caused by global warming. Major places such as Neptune Avenue, Constitution Avenue, the National Mall, and the National Zoo are flooded. Volunteers take part in rescue operations and help dump granite boulders at the edge of the sea cliff to prevent coastal erosion. Robinson encourages citizens to adopt eco-friendly technologies to prevent and overcome the harmful effects of the man-made disaster known as the climate crisis.

Keywords: hyperniño, flood, boulders, sea cliffs, erosion, kayaks.

Kim Stanley Robinson in his novel *Forty Signs of Rain* gives a brief account of the expensive disasters caused by the Hyperniño which originates in the east of the Pacific Ocean. The Hyperniño is a global climate pattern which occurs when there is a shift in winds and temperature of the sea surface in the central and eastern Pacific Ocean. The variations lead to an increase in the surface temperature than usual, thereby causing various climate disasters such as storms, intense rainfall, droughts. Ecological, economic and social crisis is the consequences of the drastic shift in the climate pattern.

Robinson narrates a monster storm which vigerously blows towards the northeast of California, a western United States state. The storm which hits the northeast area of California is the fourth in a series of the pineapple express storms. A pineapple express storm is a term given to the heavy rainfall in the west coast of the United States and Canada. The pineapple express storm which originates in the east pacific directly attacks the north Coast of San Diego County. Hundred and seventy miles per hour are the speed of the wind when the storm breaks out. The areas attacked by the storm in America are the sea cliffs of La Jolla, Blacks, Torrey Pines, Del Mar, Solana Beach, Cardiff-by-the-Sea, Encinitas and Leucadia. The sandstones in these beach areas are beaten by the waves and drag them into the sea.

Robinson narrates the situation of the storm attacked Leucadia through the eyes of Leo Mulhouse, a Chief Research Scientist in a biotech company named Torrey Pines Generique. Leo and his wife, Roxanne is living in a house near the Pacific Ocean area in Leucadia, California. Such a heavy blow of the storm in Leucadia is new to Leo. He describes the sight of the high tidal waves as "the ocean was a giant sheet of raging surf" (298). The situation in Neptune Avenue is pathetic. The horrible storm tumbles three eucalyptus trees and tears down the branches. The cliff in Neptune Avenue erodes in various sizes and in different areas due to the monster storm. Similarly the cliffs of San Diego are a victim of soil erosion. In this context, Vineeth Radhakrishnan says about Robinson as that "he uses fiction as a medium to spread ecological awareness" (693). Several survey reports which has been taken between the years 1928 and 1965 shows the increasing erosion rates in the cliffs of San Diego.

Robinson portrays the natural destruction caused by the Hyperniño in the cliffs of San Diego. The day when the storm breaks out, a portion of the cliff which is hundred feet in length and fifteen feet in depth, south of the Mulhouse property collides into the sea. When the cliff collides, it pushes the concrete berm underneath the cliff together into the sea. Another slide happens one by one following the cliff slide. A natural hemisphere shaped sea arch of forty feet in depth has fallen into the sea after two hours of the cliff slide. When the muddy sea arch collides, it stains the sea water brown for hundred yards near shore. Normally, the ocean current in the Pacific Ocean area is southward. But, the storm blows out in the northward direction. Such opposite movement of the ocean current and the storm creates raging tidal waves near the shore.

Several preventive measures are taken by the coastal authorities to prevent the erosion of the sea side cliffs of San Diego. US Army Corps of Engineers conducts a meeting in the town library in which they plan to make the sea side cliffs firm by dumping boulders to create sea walls. The disadvantage in such dumping of boulders from the top of the cliff is clearly explained by Robinson. There is a risk of the crash in the top of the sea cliff when the boulders are dumped into the sea. The US Army Corps of Engineers promise to repair the damages after the work of dumping boulders is finished. Another disadvantage is that when they dump boulders in the narrow beach area, the whole beach itself gets buried in the crowd of boulders. Some of the participants in the meeting show their disapproval for this project as this may destroy the signature landscape of the area. Even the present day San Diego is a narrow landscape. By doing the work of dumping boulders in the sea cliffs of San Diego may erase the presence of San Diego from the history.

Leo Mulhouse joins with the US Army Corps of Engineers in the rescue operations. Having dressed up in a rain jacket, he with a wheelbarrow indulges in the work of dumping granite boulders in the edge of the cliff. A team with lichens at sixty five degrees watches the work is going on. Hundreds of people gather to watch the work of dumping boulders amidst the storm. Robinson narrates the intensity of the ocean waves as "baked masses of water, registering themselves high against the cliff face – then they fell and muscled back out to sea" (301). No results are seen in this physical work because the granite boulders get transported in the sea. Leo Mulhouse says that it is difficult to work in the storm because of the intense howling of the wind. He compares the sound of the wind to "jets warning up for takeoff" (302). Marta and Nina, the assistants of Leo join in the work of shifting boulders from the track to the edge of the sea cliff. Brian informs Leo that the Coast Highway has cut off in the north of Cardiff, a town in Jefferson County. San Elijo Lagoon overflows with the excess rain water and it flows in the road side. As the day passes, everyone gets tired of the rescue operations.

Robinson has also portrayed the scenes of the stormy disaster through the description of Charlie Quibler, an environmental policy advisor for Senator Phil Chase. Charlie takes a glance at the satellite photos of the heavy storm which appears as white patches over southern California in his computer screen. Meteorologists predict a huge destruction may happen by another tropical storm which leans the Bahamas. But, the prediction ensures, When Charlie heads to his office, he plans a poor describe for the shapes of the clouds overhead. He says that the clouds together form "a *hyperniñalypse* that looked as wild as marble" (317). His friend Ray informs him about the two low-pressure systems which collides to give intense rainfall. The raindrops in the air appear as baseball before they reach the ground. The streets outside the office of Charlie are mostly deserted and many intersections are flooded. He watches the satellite images of the intense rainfall over the regions of New York and Pennsylvania in the TV. This tropical storm which crossed the Bermuda is similar to the storm of 1993. The TV images show the flooding of fields in the upper Potomac watershed, near Harper's Ferry. Charlie watches the horrible scenes of flooding through his office window. The entire National Mall gets surrounded by water. Constitution Avenue appears to be a Grand Canal in Venice. The depth of the water surrounding the Constitution Avenue is at least two feet deep. Charlie compares the National Mall to "a submarine lake" (326). Water takes possession of the front steps of all the buildings. He sees a little electric car dragged to the streets by the heavy water current.

Charlie watches a local news channel which reports a record breaking rainfall of ten inches in the last four hours. Along with this, four inches of heavy rainfall hits the capital city, Washington. This heavy rainfall adds to the list of severe catastrophic destruction. People who get stranded in the building make use of the telephone services and the email facilities to inform their dear ones. The drone cameras over the Washington Monument give images of the entire flooded area. The Anacostia valley appears to be a reservoir. The Lincoln memorial is flooded up to the feet of Lincoln. Reagan Airport is completely washed out in the flood. People with the kayaks, canoes, waterboards, and rafts fill the flooded streets. They are out for the water adventure even in a panic situation. The staffs in the office of Charlie discuss some of the flooded entries of Metro. The security team in his office uses the gura-track tape of the Department of Homeland Security to waterproof the lower part of the doors.

Frank Vanderwal, a biomathematics expert at NSF (National Science Foundation) is informed by Kenza, a colleague in NSF about the horrible storm outside his building. He visits the NOAA (National Oceanic and Atmospheric Administration) website to watch the damages done by the monster storm. The images of Rock Creek overflowing the banks and reaches the streets towards Foggy Bottom are in the website. According to him, the War College building looks like a temple of Atlantis, a fictional island. The images of the flood driven city taken by the roof top cameras seem to be like a lake. Having seen a call for the volunteers in the TV channel 44, Frank rushes in his car to indulge in the work of sandbagging in the low lying areas of Arlington National Cemetery. The Potomac River overflows down the Boundary Channel between the mainland and Columbia Island washes away the bridges and marinas.

Along with hundreds of volunteers, Frank involves in the work of carrying sandbags and dumping under the end of Virginia Memorial Bridge. To him, the people carrying sandbags look like coolies in an old Chinese painting. The hard working nature of Frank is narrated by Robert Markley as "scientists and their allies might fight their way through to a more just, equitable, and sustainable society" (15). The working crowd of the wild and rain is a hindrance for the people involved in the work of carrying sandbags. The airport is completely lost in the flooded streets of old Alexandria gets flooded completely. Both the Lincoln Memorial and Kennedy Center look like an island in the stream.

The second day of the storm leaves the people devoid of transport and electricity. People relocate to safer places. The National Guard with their helicopters is on time for the rescue operations. The heavy downpour of the previous night flooded the National Zoo. Along with the zoo keepers, the Khumbalis involves in unlatching the cages of animals to escape. They shift the two Bengal tigers through from the Kembulang Island to a small room in a big apartment complex. The rain stops in the third day but the destruction caused by the flood are uncountable. Dozens of people fall a prey to the monster storm and many are hospitalized. Helicopters and blimps are involved in the rescue of people who gets stranded in the rooftops. Robinson's novel *Forty Signs of Rain* showcases the urge to take necessary actions to conduct the climate change issues caused by global warming. It urges the global citizens to reduce the gap between the humans and nature. Robinson reminds the readers that a bit of rainfall can decide the destiny of the people. With his uncompromising tale of survival, he educates the people to overcome the manmade disaster named global warming.

Reference:

1. Robinson, Kim Stanley. *Forty Signs of Rain*. HarperCollinsPublishers, 2004.
2. Markley, Robert. "How to go Forward: Catastrophe and Comedy in Kim Stanley Robinson's Science in the Capital Trilogy." *Configurations*. January 2013. Research Gate. https://www.researchgate.net/publication/243242053.
3. Radhakrishnan, Vineeth. "Ecomasculine identity in Kim Stanley Robinson's *Forty Signs of Rain*." *Journal of Emerging Technologies and Innovative Research*. Vol. 9, no. 5. May 2022. JETIR. https://www.jetir.org/view?paper=JETIR2205B99