iihs®
INDIAN INSTITUTE FOR HUMAN SETTLEMENTS

Reporting in a Warming World: A Media Review

How Four Media Platforms in India Covered Urban Drought & Extreme Weather Events (2016-2020)

This work is based on research carried out from April 2020 to July 2021 through funding allocated under the Earth Journalism Network Asia-Pacific Media Grant 2020.

Author

Kaavya Pradeep Kumar

Data Collection & Analysis Support

Archita S., Rekha Raghunathan

Editing

Rekha Raghunathan

Design & Layout

Shaiksha Vali, Padma Venkataraman

Maps

IIHS Geospatial Lab

Published in India by the Indian Institute for Human Settlements
Edition published in 2021

Suggested Citation:

Kumar, K. (2021). *Reporting in a Warming World: A Media Review*. Indian Institute for Human Settlements.

DOI: https://doi.org/10.24943/RWWMR08.2021

Table of Contents

Introduction

A ‘heat dome’ over famously chilly Canada caused temperatures to soar close to 50°c. Wildfires raged across parts of western United States, Italy, Greece and Turkey burning larger swathes of land than previous years. Siberia is on fire with record temperatures causing the permafrost within the Arctic Circle to melt. More than 200 people died in Europe after torrential rainfall caused catastrophic floods that turned streets into gushing rivers in Germany and Belgium. Zhenzhou in China received 25 inches of rainfall in a single day, i.e. more than a year’s worth. Thousands have been evacuated in densely-populated Manila in Philippines due to monsoon flooding. At least 180 people have died in Maharashtra after spells of intense rainfall cause severe flooding and landslides. The south-west monsoon continues unabated across northern India as we write this report.

These events happened (some are ongoing) within a span of a few weeks in mid-2021.

In addition to these events that are unfolding with startling intensity and frequency, a new study found that the Amazon rainforest – ‘the lungs of the Earth’ – is now emitting more carbon dioxide greenhouse gas than it absorbs (Gatti et al, 2021). The latest Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) said in no uncertain terms that ‘it is unequivocal’ that human influence has led to ‘widespread and rapid changes’ (IPCC, 2021).

Even in the midst of the Covid-19 pandemic, climate change has been manifesting in many deadly forms across the planet. These singular events punctuate slower changes like sea-level rise, glacial melt and increasing seasonal variations that are transforming natural ecologies and the lives of people who depend on them. Environmental degradation wrought by patterns of unsustainable human development over a century has led to this oft-termed ‘existential crisis’.

The media plays a critical role in terms of shaping public perceptions, but they have a task on their hands in terms of effectively communicating something as vast and complex as climate change. Until recently, stories around climate change tended to come across as a distant threat both in terms of time and space. Images in the media were of polar bears perched on melting ice, diplomats and scientists at international climate summits, hockey-stick graphs showing our planet heating up. While these images are evocative and convey significant ongoing or possible future events in some parts of the world, they are difficult to relate to. They do not necessarily drive home the point that climate change is already causing profound impacts across regions and sectors, with the most vulnerable being hardest hit.

India is among the countries most affected by climate change and yet reporting on the subject has been episodic, with peaks around the time of climate summits and in the immediate aftermath of disasters such as cyclones, heatwaves and extreme rainfall events. Such newspaper/media reports highlight dramatic numbers and visuals, often at the expense of covering the real long-term human impact. Very rarely do journalists get the time to introspect, consider how they are representing an issue and whether they have been able to link local impacts with larger changes in the global climatic systems. As mainstream international publications such as The Guardian[1] adopt new ways of talking about climate change, the lack of attention being afforded by Indian news outlets becomes even more evident, especially considering the widespread scale of impacts in the country.

News bureaus are, by and large, understaffed and reporters are often handling tremendous workloads. They have to keep track of their news beats, cover events and press conferences and simultaneously pursue special stories. Considering these limitations, how can journalists at mainstream publications cover stories related to the environment and climate change without compromising on accuracy and sensitivity?

At the Indian Institute for Human Settlements, we sought to understand this further by asking relevant questions: How were stories on environmental change and extreme weather events depicted? Was a climate change perspective introduced in these stories? Who were main sources quoted? We drew from multiple existing studies that have quantitatively and qualitatively analysed media coverage of climate change and distilled a simpler framework that would enable us to capture some broad trends in reporting. This particular report does not claim to offer a toolkit on how journalists can approach the subject. However, it summarises the findings of a media review and provides a starting point for future inquiries on media behaviour and its impact on public perception and policy making, in the specific context of climate change in India.

We first provide a background on this project and IIHS's work, and detail the importance of discussing how the media covers environmental change drawing from a wealth of existing literature. We then describe the methodology we followed – the platforms we chose, the events we focused on as well as the framework and research questions we used to guide the analysis of each news report. Based on the data collected, we elaborated the broad trends we identified in the findings section that follows. We found that a majority of media reports focused on attributing responsibility for the problem –

[1] The Guardian updated its style guide to reflect the severity of the crisis more accurately. For instance, instead of 'climate change', they promote the use of 'climate emergency', 'crisis' or 'breakdown'. They have also adopted an advocacy position with their 'Keep it in the Ground' campaign.

consistent with a lot of similar studies on the media. We also found that only a small fraction of our sample of reports made an attempt to link local impacts with global climate change.

We look at the evolving field of extreme event attribution and communication in more detail in the discussion section, which also delves into how reports accord blame for the issue, how the human interest frame is used and how highlighting economic consequences is a key part of reportage. We conclude by acknowledging some of the limitations in our work and point out the need for future lines of inquiry that take into account the complexity of the subject as well as the diverse range of media sources consumed in India. By using the review findings as a base for further analysis substantiated through a literature review, we also underline the need for coverage that is persistent and does not lapse after the immediate aftermath of an event. All the different kinds of impacts from slow-onset changes to extreme weather are important 'climate change stories' but it is critical for journalists to take cognisance of how it is poor policies and development that are exacerbating the impacts of these hazards (Dhara & Koll, 2021).

Background

This report is part of a project titled 'When the Levee Breaks: India's Climate Reportage in the Age of the Anthropocene' conceived and implemented by the Word Lab at the Indian Institute for Human Settlements (IIHS), Bengaluru. Funded by the Earth Journalism Network's Asia-Pacific Media Grant, we conducted a media review to gain insight into how the media talks about issues related to natural resource degradation and extreme weather events – the impacts of which are likely to intensify with climate change. This section will set the necessary context for this report by detailing the overall project and IIHS's work; how the Indian media represents issues related to climate change and the environment; as well as explain the purpose of a media review and what framing analysis can uncover.

IIHS and the EJN Asia-Pacific Grant

IIHS is uniquely placed to undertake this project on climate communication for two key reasons. One, researchers at IIHS have been deeply engaged with work related to climate change in south India through multiple projects and through the institution's involvement with the Intergovernmental Panel on Climate Change (IPCC, 2018). Second, the Word Lab, which anchors editorial and publications at IIHS, works closely with researchers and practitioners to help distil their work into more accessible formats and improve public engagement. This range of expertise helps us analyse the current mediascape in terms of climate reporting; draw from our research and fieldwork experience to conduct workshops and other public events; as well as put together multilingual resource material for journalists to freely access.

IIHS is the only Indian organisation (that is not a government department) that has observer status in the IPCC. IIHS Director, Aromar Revi, and faculty members, Chandni Singh and Amir Bazaz, have key roles in the authorship of two Assessment Reports and the Special Report on 1.5 degrees. IIHS has also been at the helm of cutting-edge adaptation research in the global south through the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA) project (funded by IDRC and DfID) and the Climate Compatible Impact Research Fund (CIRF). Our deep involvement with policy work is supplemented by our engagement with the Indian Institute of Tropical Meteorology (IITM), Pune, through which we work with climate scientists to discuss uncertainties around projections - key to writing accurately about climate change.

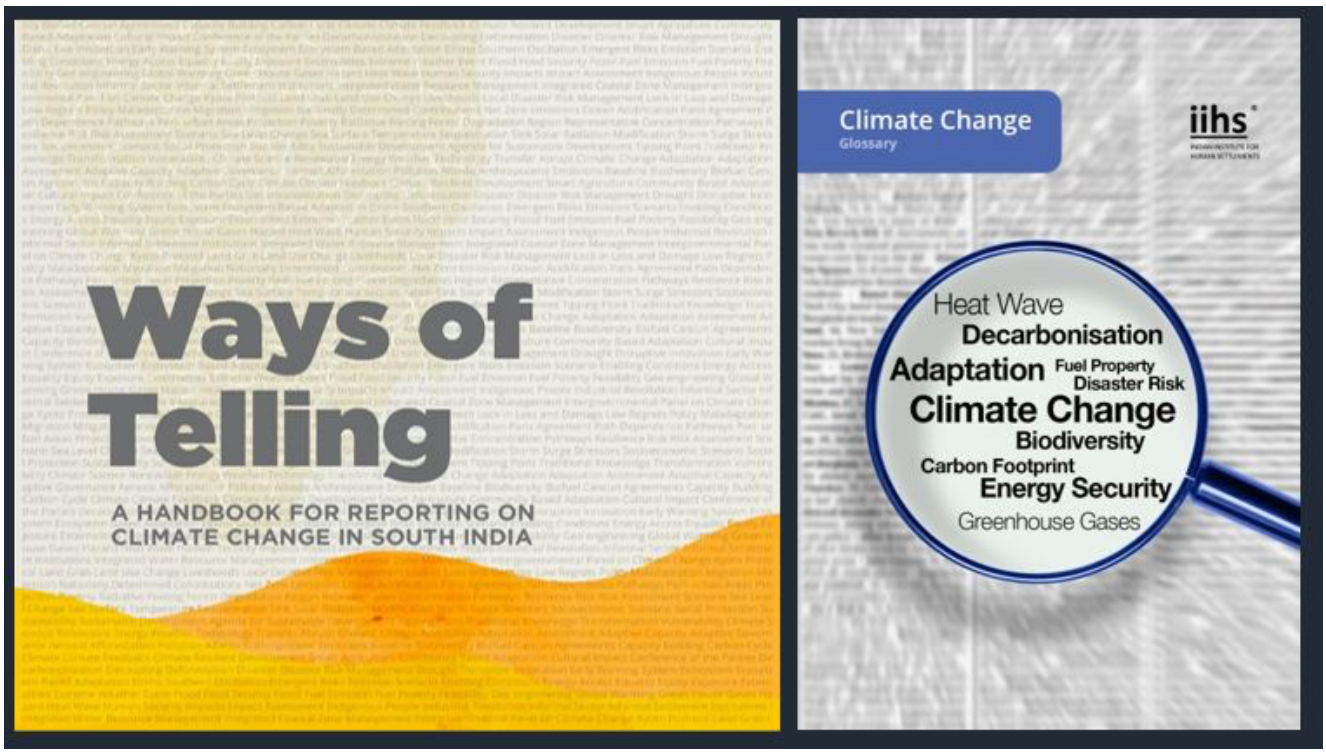
We also partnered with the University of East Anglia and Indian Institute of Technology Bombay, for the two-year Recovery with Dignity project, which aims to understand

experiences of recovery in post-disaster situations across three states in India – Odisha, Tamil Nadu and Kerala – and understand how the most vulnerable are represented. A key part of this project was a media review in the context of disaster management, with a detailed focus on how losses, long-term needs and aspirations of affected communities are represented. While the scope of the RwD project was much larger, we relied on part of the work they did to help inform our analysis as well.

Going beyond its role as a research institute, the IIHS Word Lab works on outreach and building public engagement by facilitating publications in mainstream news outlets and by organising events such as City Scripts, an annual festival that celebrates writings and conversations around the city. Organised annually since 2016, it brings together eminent authors, artists, journalists, architects, urban planners, among others and is another manner in which we reflect on research communication.

The wealth of knowledge offered by our researchers and well-established contacts in the climate science and policy sphere coupled with the practical expertise offered by the Word Lab, puts us in a position to assess the current state of climate journalism in southern India. We hope this media review can be used as a springboard for future explorations on this subject and work towards training and providing the necessary resources for journalists. It is with this background and objective that we applied for the Earth Journalism Network's Asia Pacific Media Grant which funded the activities we carried out from April 2020 to July 2021.

This media review report is only a part of this project. At City Scripts held in February 2021, we conducted three public multilingual webinars on climate reporting and published a set of climate change glossaries in English, Kannada, Tamil, and Hindi. We also put together a handbook on climate change reporting in southern India, which highlights current gaps and challenges and includes a detailed list of useful tips and resources for journalists. This was also translated into Tamil and Kannada. All this material is openly accessible.



The cover pages of the handbook and the glossary (English). This multilingual resource material are available on the IIHS Knowledge Gateway: Ways of Telling: A Handbook for Reporting on Climate Change in South India and Climate Change Glossary.

The rest of this section will provide more background on the analysis this report is based on as well as its relevance in terms of climate change in India.

Media review and framing analysis

'The press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about' – this oft-repeated quote on agenda-setting by political scientist Bernard Cohen (1963, p.13) is still relevant, nearly 60 years on. The media plays a critical role in disseminating information, shaping public perception about an issue, and thus potentially setting the policy agenda. This holds true especially for climate change stories: 'For complex scientific issues, where personal experiences are often sporadic and incoherent, media is an important medium for public awareness and engagement' (Thaker et al, 2017, p: 353).

Over the past few decades, reams of literature on communication theory have looked at how the media frames an issue, i.e. how they choose to spotlight certain perspectives at the expense of others. How we frame things in the public discourse have long-term, material outcomes making it necessary to examine these frames or representations in the media more closely. In his seminal work on framing theory, Entman (1993, p. 51) defines 'to frame is to select some aspects of a perceived reality and make them more

salient in a communicating text'. Frames are used by journalists to push certain narratives, often to reflect the ideological stance of the organisation they are affiliated with. Gamson and Modigliani (1989, p: 3) in their analysis of how nuclear power is represented in the media, describe frames as the 'central organising idea for making sense of relevant events' at the core of media discourses. Framing 'has been found to exert powerful effects on judgement and choice' (Iyengar, 1990, p. 20).

Research focused on climate change communication has often made use of framing analysis. A majority of studies on US media coverage were devoted to studying how scepticism was fostered through frames depicting uncertainty in climate science (Antilla, 2005, Painter and Ashe, 2012; Boykoff and Boykoff, 2004). Studies on the German press (Peters and Heinrichs, 2008) indicate that reporting bore 'counter-productive' catastrophist tones (Anderson, 2009). Others analysed how climate justice was articulated through frames that highlighted historic responsibility for curbing emissions (Billett, 2010; Wu, 2009, Biswas and Kim, 2016). Studies have also used frames focusing on economic benefits associated with climate mitigation and of the 'green economy' (Zehr, 2009; Stecula & Merkley, 2019). In terms of geographical focus, research had been centred on the Global North, with analysis conducted of the UK press (Carvalho & Burgess, 2005; Lockwood, 2009; Boykoff, 2008), Australia (Ji, 2012), New Zealand (Kenix, 2008; Chetty et al, 2015), Europe (Pasquaré & Oppizzi, 2012; Areia et al, 2019). Recently, however, there has been a spurt of interest in how Asian, South American and African countries cover the issue: 'a trend toward more geographical diversification in the objects of study is visible in the research landscape — and as climate change is a global problem that is currently being tackled largely in an international political framework, such a trend can be seen as generally necessary and welcome' (Schafer & Schlichting, 2014, p. 154). Even within this bloc of countries, emerging economies like India and China have drawn far more attention than others.

Framing analysis can be carried out in different ways, but this paper has derived its method of classifying stories based on Semetko and Valkenburg's (2000) five frames of responsibility, conflict, human interest, economic consequences, and morality that they used to analyse coverage of European politics. Dirikx and Gelders (2009) applied this categorisation to glean the kind of frames used by Dutch and French newspapers to talk about the United Nations Conference of Parties (COP) summits. We employed this deductive research method to help us systematically discern patterns of representation in news coverage. The methodology section details the literature we drew from and the steps we followed.

Climate change and the Indian media

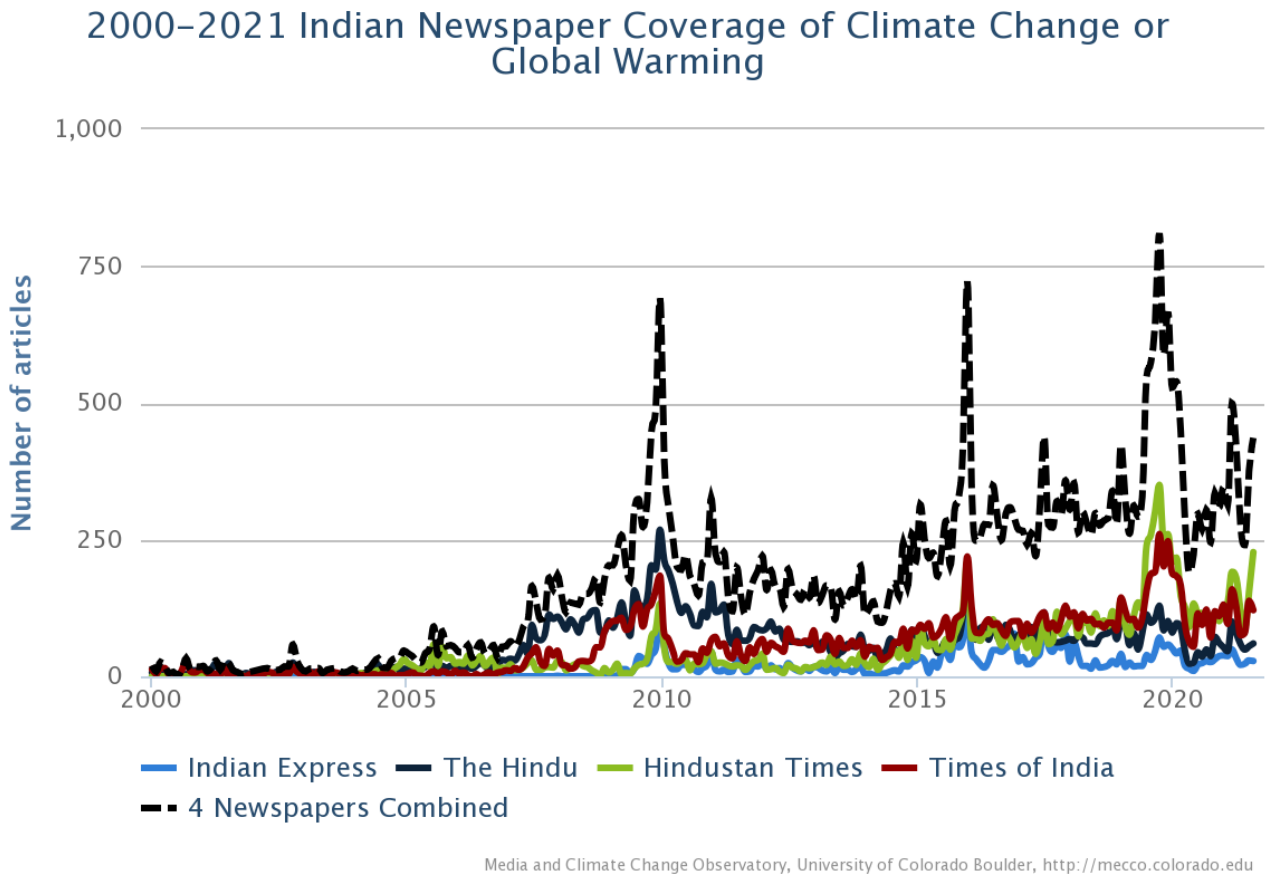
India's position in international climate politics possesses a 'duality'. The country is 'simultaneously a large emitter (but only in annual emission terms, not in per capita or cumulative terms) and, because of the low incomes of most of its citizens, it is a highly vulnerable country to climate impacts' (Dubash, 2016). Diverse ecological landscapes and stark socio-economic divisions renders India uniquely vulnerable to the impacts of climate change. Its 7,500-kilometre shoreline is densely populated and is at-risk of widespread damage from extreme weather events such as tropical cyclones or longer-term impacts from change in precipitation, sea-level rise and saltwater intrusion (IPCC, 2014). Large swathes of the country also face the risk of drought which inflicts massive damage on agriculture – a sector that is the largest source of livelihoods in India (FAO, 2018). Glacial melt threatens the Himalayan region, and the behaviour of the all-important south-west monsoon has altered. 'Since 1951, the monsoon circulation has weakened, especially in regions like the Western Ghats and Indo-Gangetic plains. Simultaneously, however, incidents of localised heavy rainfall have increased' (Bhattacharya, 2021).

A majority of the research on climate change and media discourses have focused on English-language newspapers. Billett's (2010) paper was based on analysis of four newspapers – The Times of India, Hindustan Times, Indian Express and The Hindu – between January 2002 and June 2007. He also conducted interviews with 15 environmental writers. He concluded that reportage is based on a 'divisive allocation of risk and responsibility in a narrative that separates climate change across North-South lines' (Billett, 2010, p: 13). He also argued that there was a persistent framing of the Global South as one homogenous entity which papered over social stratification within India itself. It is helpful to connect this largely 'nationalistic narrative' (Billett, 2010, p: 14), with the kind of readership that the English news media in India has. The English press plays a key agenda-setting role as it 'delineates the priorities of the country and conditions the expectations of the most powerful segments of the Indian population: the political, business and intellectual elite' (Haque and Narag, 1983, p: 35 quoted in Sonwalkar, 2002, p: 831). With such an 'elite' readership, the media winds up merely reflecting elite perceptions that are more comfortable with a 'socially homogenous' portrayal of India that papers over the contributions of the industrial elite to India's rising emissions (Billett, 2010, p: 14-15).

Schafer et al (2014) conducted a comparative analysis of what drives media attention in India, Germany, and Australia between 1996 and 2010 to find that more than extreme weather phenomena and temperature changes, it is political events and feedback from

environmental NGOs that succeed in gaining media coverage. This, the authors argue, is contrary to assumptions by Carvalho and Burgess, 2005, and Boykoff and Boykoff, 2007, that weather events play a significant role in press coverage of climate change, particularly in the case of India: 'coverage is triggered solely by international drivers, mostly by ENGO activities and COPs' (Schafer et al, 2014, p: 169).

While coverage may distinctly peak during COP summits, there is a clear upward trend in coverage of climate change since 2004, according to the media tracker run by the University of Colorado (Boykoff et al, 2018).



In this figure, the first peak coincides with the Copenhagen Summit in 2009, the second, the 2015 COP summit in Paris and the third spike can be attributed to the Global Climate Strikes in September 2019.

This rise in attention has meant a marginal broadening of narratives on climate change in India that is not only characterised by a postcolonial perspective placing the onus of blame and externalising responsibility on industrialised countries. Based on interviews with 25 prominent individuals working the field of climate change, Thaker and Leiserowitz (2014) found a shift in discourses with frames beginning to favour 'a 'co-benefits' approach, where policies aim to align climate change with domestic priorities of poverty alleviation and economic growth' (Ibid, p: 115).

Methodology

The purpose of this media review is to qualitatively assess the content of news reports. This would enable us to glean trends in reporting and identify existing gaps in knowledge and representation of climate change-related disasters. First, there were three key parameters that needed to be identified: i) *The questions* - these simple yes/no-type questions drew heavily from previous academic work and each article was analysed based on them; ii) *The sources* - the publications from which the articles were sourced for the review; and iii) *The impacts* - the climatic trend or events which were used as keywords to shortlist articles.

The questions: Framing analysis

Framing analysis of media can be carried out in different ways. For this exercise, we derived a method of classifying stories largely based on Semetko and Valkenburg's (2000) five frames of responsibility, conflict, human interest, economic consequences and morality in news coverage of European politics. The latter is particularly useful because it was applied by Dirikx and Gelders (2009) in their analysis of climate change coverage in Dutch and French newspapers. They focused on the COP summits between 2001 and 2007 to understand the types of frames most commonly used by the media.

Considering this context and the fact that we aimed to study articles published in India and across different time frames (both factors that distinguish it from the studies mentioned above), this study adopted a flexible analytical approach to leave room for alternative frames as well (we found that a few articles focused on community action, technical fixes and preparedness, but we excluded them from our final analysis because these were scarce few in number). We started off with the following:

- ***Attribution of Responsibility***
    - Does the story suggest that some level of government has the ability to alleviate the problem?
    - Does the story suggest that an individual (or group of people in society) is responsible for the issue/problem?
- ***Human interest frame***
    - Does the story provide a human example or "human face" on the issue?

    - Does the story employ adjectives or personal vignettes or visual information that generate feelings of outrage, empathy, caring, sympathy, or compassion?

- ***Conflict frame***
    - Does the story reflect disagreement between parties/individuals + do they reproach one another?
    - Does the story refer to two sides or to more than two sides of the problem or issue?

- ***Morality frame***
    - Does the story contain any moral message?
    - Does the story offer specific social prescriptions about how to behave?

- ***(Economic) consequences frame***
    - Is there a mention of (financial) losses or gains now or in the future?
    - Is there a mention of the costs/degree of expense involved?

In addition to identifying the 'what' in news stories, another key factor to understanding representation is the 'who'. For this, we drew from Wu (2009), whose study sought to understand who the main 'claims-makers' were in media coverage of climate change issues. This paper identified four categories of 'social fora' – the political establishment, scientists or research bodies, environmental NGOs and the general public (or affected communities/individuals). Our review also attempted to follow this broad categorisation.

- Who are the key claims-makers in the piece of media reviewed?

To reiterate, we did not exactly replicate these frameworks but only derived from them for the purpose of the review.

We incorporated a few more research questions into our analysis. Under 'Attribution of Responsibility', we decided to also add the option of whether the article under review explicitly blamed human-induced changes or vaguely described the disaster as a natural event, an unavoidable 'Act of God' force. This reference to the cause of the event was important as it enabled us to infer whether reporters probed the cause of the disaster, whether there was negligence and who was responsible for rectifying it to reduce future impacts.

Additionally, we aimed to understand whether the media attributed changing weather patterns to climate change, and if they did, whom did they quote or what sources did they

use to substantiate their claims. A recent paper on how the Indian media covers extreme climate events (Painter et al, 2020) found that very few studies captured the complexity of attributing specific events to climate change. “Amongst our findings are that journalists most commonly used generic phrases to describe the link between such events and climate change; politicians and NGOs often ‘blamed’ climate change without reference to the science; and relevant EEA studies were seldom quoted” (Ibid).

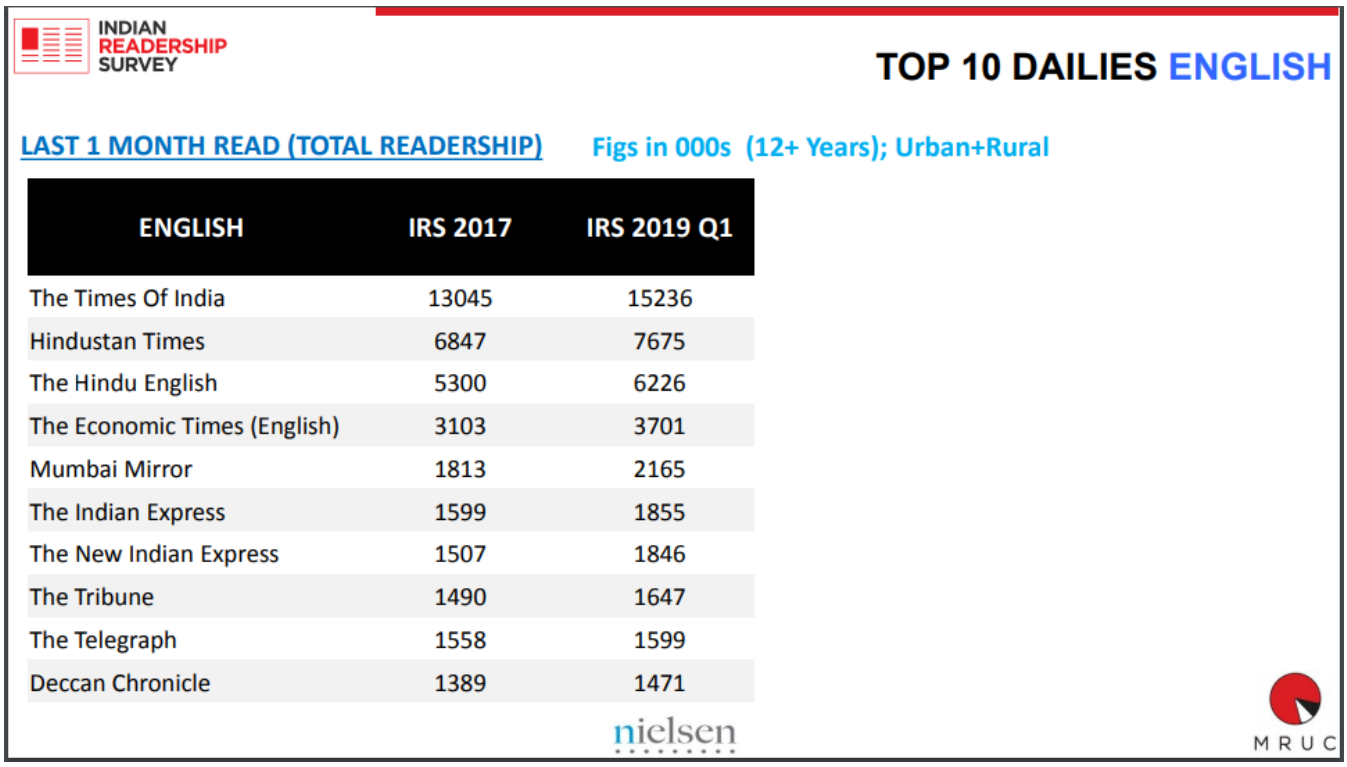
We gleaned through this review, certain habits in the coverage of climatic events and environmental issues, and noted how journalists could make their reports more thorough, informative and factual.

Sources: Print and online

For the sake of uniformity and ease of reference, we decided to focus on English-language print and online media (even though our workshops catered to a wider audience). Again, this exercise was only meant to capture broad trends in the reporting of climate change stories. Since we listed Bengaluru and Chennai as our proposed sites of activities, we focused on reportage conducted in these cities as well as other parts of Karnataka and Tamil Nadu states.

We referred to various sources to identify which were the most appropriate publications for the purpose of this analysis and decided to pick two legacy newspapers and two digital-native news outlets. As we attempted to capture as broad a picture as possible, it was necessary to move away from legacy ‘brand names’ and try to understand how their coverage fared in comparison to newer online outlets (Painter et al, 2018). We were, however, limited by the fact that we only analysed English news sources. Any attempt to understand the media in India is challenging because of its diverse linguistic landscape. English is consumed by a tiny fraction of predominantly urban, upper-class, upper-caste elite. But English sources can still be justified as a valid form of inquiry because this is still consumed by policy-makers, or those in ‘agenda-setting’ positions (Sonwalkar, 2002).

In terms of circulation of print media or news dailies, we referred to the Indian Readership Survey put out by the Media Research Users Council.



INDIAN READERSHIP SURVEY

TOP 10 DAILIES ENGLISH

LAST 1 MONTH READ (TOTAL READERSHIP) Figs in 000s (12+ Years); Urban+Rural

ENGLISH	IRS 2017	IRS 2019 Q1
The Times Of India	13045	15236
Hindustan Times	6847	7675
The Hindu English	5300	6226
The Economic Times (English)	3103	3701
Mumbai Mirror	1813	2165
The Indian Express	1599	1855
The New Indian Express	1507	1846
The Tribune	1490	1647
The Telegraph	1558	1599
Deccan Chronicle	1389	1471

nielsen

MRUC

This is from IRS' 2019 Q1 topline findings. The following three reports for 2019 did not have a consolidated, nationwide list and only city-specific rankings available for Delhi, Mumbai, Kolkata and Chennai (no Bangalore):

Wtd Nos	TR	TR	TR	TR		AIR	AIR	AIR	AIR
'000s	2019Q1	2019Q2	2019Q3	2019Q4		2019Q1	2019Q2	2019Q3	2019Q4
Chennai									
TOI	719	743	846	898 ↑		264	265	279	296 ↑
The Hindu	759	803	898	946 ↑		263	251	267	247 ↓
Kolkata									
Telegraph	720	713	691	710 ↑		338	345	324	326 ↑
TOI	650	632	643	688 ↑		323	323	304	292 ↓

We chose the **Times of India** and **The Hindu** as the Hindustan Times had limited presence in the south. The online archives of both newspapers' websites were used to list relevant articles.

Most media analyses have focused on traditional media, which is why we consciously selected newer 'digital-born/native' players as well. The internet and social media have significantly altered the media landscape over the past decade. Most online news

consumers still prefer the online pages of legacy brand names with websites of NDTV, Hindustan Times drawing a larger audience than a Scroll or Firstpost (Reuters). Digital-native outlets have different corporate structures, culture, editorial priorities, and ways of representation making it worthwhile to examine them alongside legacy names (Painter et al, 2018).

Because our analysis focuses on two south Indian states, we picked **The News Minute** as one of our online sources even though its reach and online presence are lower than that of media outlets based in, what is traditionally perceived as headquarters of 'national' media, New Delhi. For our second choice, we picked **Firstpost** because it boasts of the highest readership and social media following among all the mainstream Indian news sites we checked before embarking on our analysis.

News Website	**Site Visits**	**Twitter** following	**Facebook** likes
The News Minute	7.4 million	192,000	919,000
Firstpost	14.9 million	2 million	2.5 million
Scroll	10.1 million	423,000	1.6 million
The Wire	10.1 million	1.1 million	698,000
Quint	5.6 million	683,000	6.2 million

The site visits are based on analytics put together by Semrush as accessed in June 2020 for the month of May 2020. The screenshots are available in Annexure 2.

Impacts: Slow and fast-onset

The impacts of climate change could manifest in the form of slow-onset events such as sea-level rise or glacial melt; hazard events such as cyclonic storms or heavy rainfall spells; or increasing variability in rainfall or temperature patterns. We aimed to capture this diversity of impacts by identifying key representative events or issues that exemplified how climate change is impacting (and will worsen) in Karnataka and Tamil Nadu.

We also refrained from using 'climate change' as the sole keyword that would have enabled identification of temporal trends or episodic coverage. For one, previous studies have pointed out that prioritisation of this topic in news media correlates with

international events with a high-profile attendance such as the annual COP summits, worldwide demonstrations, or the release of a report with significant findings. We wanted to exclude the 'global' aspect of coverage and instead understand how local environment issues or impacts are tied to larger discussions on climate change.

To achieve the above objectives, we decided to follow two broad categories: slow-onset impacts like droughts, sea-level rise; and fast-onset high-intensity events that unfold over a shorter span of time like floods or cyclones. Since Karnataka and Tamil Nadu are our selected research areas, we decided to pick issues/events that impacted both rural and urban areas in both these states.

We decided to focus on 'urban drought' as a key area of concern for the following reasons:

- IIHS' research expertise is on the urban, and we felt that we could draw from our knowledge repository for the purposes of this project;
- IPCC AR5 says that adaptation to climate change significantly depends on action in urban areas which house a majority of the world's population. Moreover, 'An estimated 150 million people currently live in cities with perennial water shortage, defined as less than 100 liters per person per day of sustainable surface and groundwater flow within their urban extent. Averages across all climate change scenarios, noting the role of demographic growth, suggest a large increase in this number, possibly up to 1 billion by 2050' (McDonald et al., 2011) (IPCC, 2014).
- Singh and Sharma (2018) say, 'Ministry of Agriculture, the nodal ministry for droughts lays emphasis on rural area and agriculture'. This emphasis has meant that the discourse on drought (academic, policy and public) has largely neglected 'urban drought' unless the situation grows dire (like Chennai in 2019).

The capitals of both states, Bengaluru and Chennai, have faced a breadth of problems related to increasing water stress including, water shortages, food insecurity, lack of proper housing for rural-to-urban migrants and public health issues. Therefore, it was important to gauge what the coverage of 'urban drought' has been like in both these cities. This accounts for the 'slow-onset' category of our issue selection.

We picked two 'fast-onset' events that devastated rural districts in Karnataka and Tamil Nadu: Southern Karnataka's floods (Coorg and neighbouring districts) and the Gaja Cyclone that made landfall in Nagapattinam district in Tamil Nadu. For Karnataka floods, we did not restrict our search to only 2019, which saw Coorg receive more rainfall in a week than Bengaluru does on average in a year (Menon, 2019). We also considered

articles written in the previous three years on extreme flooding and landslides in the region.

While Odisha and Andhra Pradesh get the brunt of cyclones formed in the Bay of Bengal, Tamil Nadu has also been severely affected. Cyclone Gaja wreaked widespread devastation in southern rural districts where agriculture was irreparably damaged in parts (Samuel, 2020). Most of the articles we analysed were written in the immediate aftermath of the cyclone, only a few were published more recently that evaluate rehabilitation and recovery.

In terms of rainfall, the behaviour of the south-west monsoon has profound impacts on the Indian subcontinent and so any changes in its intensity and extent need to be studied carefully. Research has shown, 'The summer monsoon rainfall over India is assessed to have declined by about 6% since the middle of the 20th century... On the other hand, increasing short-term heavy rainfall events and flooding during the monsoon have exacted an increasingly heavy toll in terms of lives lost and economic damage' (Dhara & Koll, 2021). These trend towards shorter but heavy spells couple with policies such as increasing built-up on land, diminishing forest cover sees an aggravation of climatic impacts and necessitates nuanced reportage that takes into account these contributing factors.

Intense floods is also related to cyclonic events and not just a facet of the monsoon. In terms of Tamil Nadu and the east coast's exposure to storms, one study claims, 'Cyclone frequency is projected to decrease, although their wind speeds are expected to increase with antecedent exposure to storm surges and flooding'. The IPCC's Special Report on Global Warming of 1.5ºC also says that over the Bay of Bengal, 'tropical cyclones and severe tropical cyclones have exhibited decreasing trends over the period 1961–2010, although the ratio between severe tropical cyclones and all tropical cyclones is increasing', quoting Mohapatra et al., 2017.

Another recent study found that frequency of cyclones formed in the Arabian Sea had gone up by 52 per cent in the last two decades (2001 to 2019) and that this activity was linked to rising ocean temperatures (Deshpande et al). This means the west coast, where densely-populated urban centres like Mumbai are located, is now more susceptible. The study also found that the number of very severe cyclones had also gone up by 150 per cent during the same period. More intense storms can cause more fatalities and damage property and livelihoods unless accurate risk assessments are done and adaptation strategies account for these stronger storms and the nature of their impact - be it through storm surges, greater wind speeds or rainfall.

Fatalities and the ability to recover from extreme weather events are closely linked to people's access to basic services such as housing, water and sanitation infrastructure, as well as a means to a safe and secure livelihood. If these storms are likely to grow more intense and frequent, 'it is imperative that the impact of such storms on marginalised, coastal communities are clearly documented in order to work towards minimising future impacts' (Arasu & Kumar, 2021, p. 11).

Annexure 3 includes a few maps illustrating the hazards that India faces as well as its availability of ground water.

Review steps

Since this is not an academic research paper, the analysis hinges on the reviewers' discretion in terms of selection of articles as well as identification of frames. Recognising this limitation, these are the steps we followed:

Steps for shortlisting articles for review		
Search	The reviewer could either use the internal search function within the websites of selected publications or simply Google search using the predetermined list of keywords.	*You can go about in any way. I would suggest using the Advanced Search option under Settings. You can enter keywords here as well as domain name, thereby shortlisting your results.*
Time frame	While we did not measure temporal changes, we limited our search to the last 4-5 years to yield a smaller pool of articles to choose from.	*Can use the Tools option under the search bar. Select 'Any Time' drop-down > Select 'Custom Range' > Under From, select current date > Under To, enter, 01/01/2016. As far as possible, try to space out your choices and not pick articles published over a short time span.*
Length	We excluded articles that fell below 200 words in length, as we were not evaluating short reports but more detailed articles.	*Use your discretion while selecting articles and don't bother getting exact word count. We are not preparing a longlist and then collectively deciding on a final list.*
Impacts/ Keywords	Chennai water scarcity	*Chennai, Water Scarcity, Drought, Groundwater, Water Crisis*
	Bangalore water scarcity	*Bangalore, Bengaluru, Water Scarcity, Drought, Groundwater, Water Crisis*
	Gaja Cyclone	*Gaja, Cyclone, Rainfall, Tamil Nadu, Nagapattinam, Agriculture*
	Karnataka Floods (Coorg)	*Karnataka, Rainfall, Floods, Coorg, Landslides, Flash floods*

The below table summarises the different frames used for this analysis:

Steps for reviewing shortlisted articles		
Frames	**Definition**	**Questions**
Attribution of Responsibility	"This frame presents an issue or problem in such a way as to attribute responsibility for its cause or solution to either the government or to an individual or group." (S&V)	Does the story suggest that some level of government has the ability to alleviate the problem? Does the story suggest that an individual (or group of people in society) is responsible for the issue/problem?
Human Interest	"The human interest frame presents an issue from a more emotional point of view; it personalizes a problem. With regard to climate change this refers for example to stories on how people have personally been affected by climate change" (D&G).	Does the story provide a human example or "human face" on the issue? Does the story employ adjectives or personal vignettes or visual information that generate feelings of outrage, empathy, caring, sympathy, or compassion?
Conflict	This frame emphasizes conflict between individuals, groups, or institutions as a means of capturing audience interest. (S&V)	Does the story reflect disagreement between parties/individuals + do they reproach one another? Does the story refer to two sides or to more than two sides of the problem or issue?
Morality	"The morality frame presents situations from a religious/moral angle. As it is difficult for journalists to give a moral message while adhering to the journalistic norm of objectivity, this is often bypassed by quoting others." (D&G)	Does the story contain any moral message? Does the story offer specific social prescriptions about how to behave?
Economic (Consequences)	"This frame reports an event, problem, or issue in terms of the consequences it will have economically on an individual, group, institution, region, or country." (S&V)	Is there a mention of (financial) losses or gains now or in the future? Is there a mention of the costs/degree of expense involved?

Additional research questions + Drop-down options	
How does the report characterise the issue or climatic event in focus?	Natural Event: Unavoidable 'Act of God' Disaster a Result of Human Actions
Does the article link the event/issue to anthropogenic climate change?	Yes/No If yes, what sources were used to substantiate the claim
Who were the key claims-makers in the piece of media reviewed?	Political Establishment Scientists or Research Bodies Environmental NGOs General Public (Affected Persons/Communities) Other

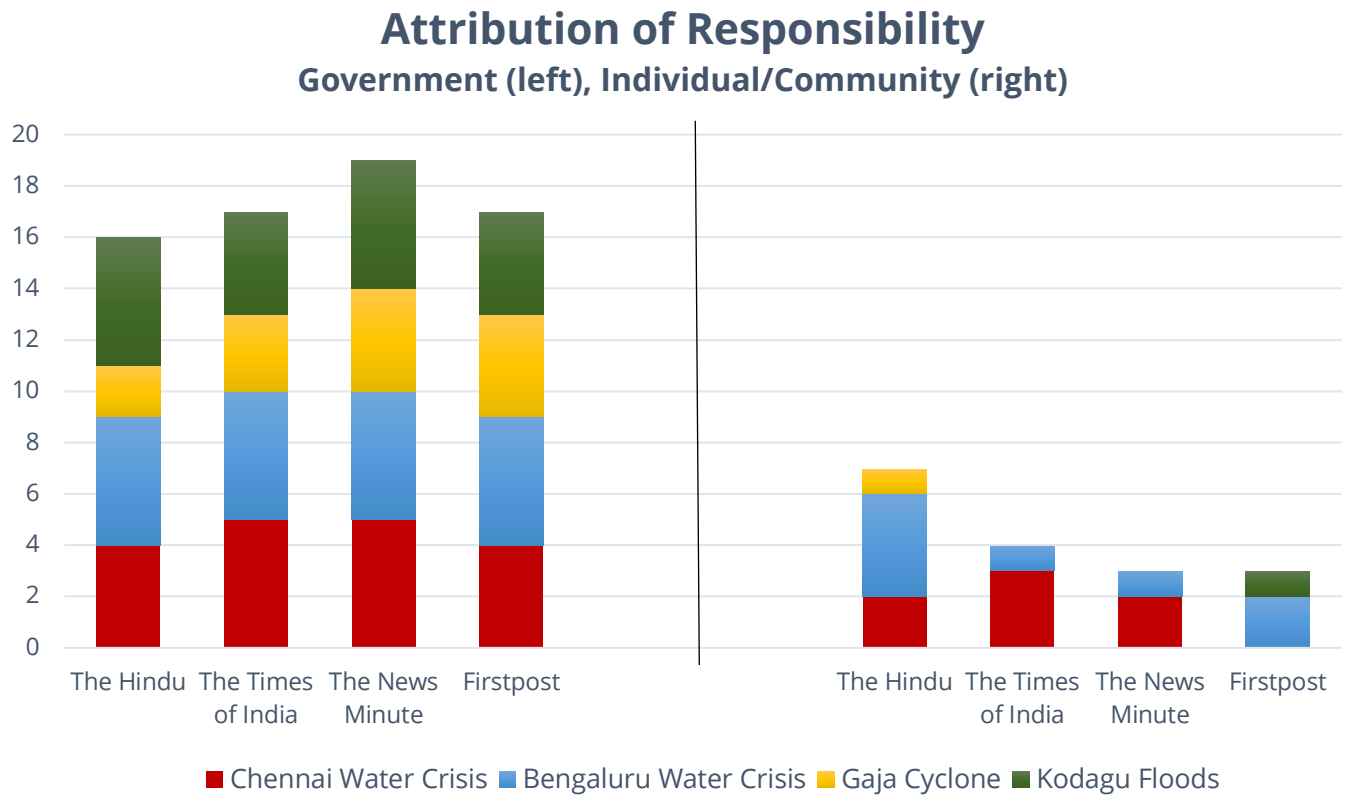
Findings

Various studies have employed framing analyses to dissect media reports and understand how complex issues are communicated to a wider audience. Through our small sample, we found some clear trends such as the prevalence of the responsibility and economic consequences frames.

Attribution of responsibility in media coverage

Among the five generic frames identified by Semetko and Valkenburg, we found in our study that attribution of responsibility far exceeded the use of other frames. As mentioned above, we used two questions to capture how responsibility is communicated: i) Does the story suggest that some level of government has the ability to alleviate/ is responsible for the problem, and ii) Does the story suggest that an individual (or group of people in society) is responsible for the issue?

Of the 80 articles we analysed, 69 were found to suggest that governments bore the responsibility for either causing a natural hazard which had profound impacts on people, or for alleviating the problem. This was communicated in varying degrees of certainty – some articles were more vague and simply implied that state actors needed to be more proactive in addressing issues while other reports more explicitly called out government inaction. Only 17 of the 80 articles across the four publications singled out individuals or a group of people as being responsible for either causing the problem or willing to address it.



Notably, the samples on the two extreme weather events, the Gaja cyclone and Kodagu floods, did not attribute responsibility to non-state actors, except for three reports including one in The Hindu, which debated farmers livelihood practices and argued that they needed to consider migrating to prawn farming as paddy cultivation had been rendered difficult (TH_GC_05); and another in Firstpost, which credited homestay owners and raft operating groups for helping with rescue operations. The Bengaluru water crisis featured the responsibility frame most prominently with all 20 articles used across the four publications referring to the responsibility of state institutions and seven out of the 17 articles blaming individuals and groups. The other slow-onset event chosen for our analysis, the Chennai water crisis, followed with 18 of 20 articles attributing responsibility to the state. Among the 17 articles found to hold individuals/groups responsible, seven pertained to the Chennai water crisis. The table below includes some – and not all – examples of quotes from the chosen articles that reflect the responsibility frame.

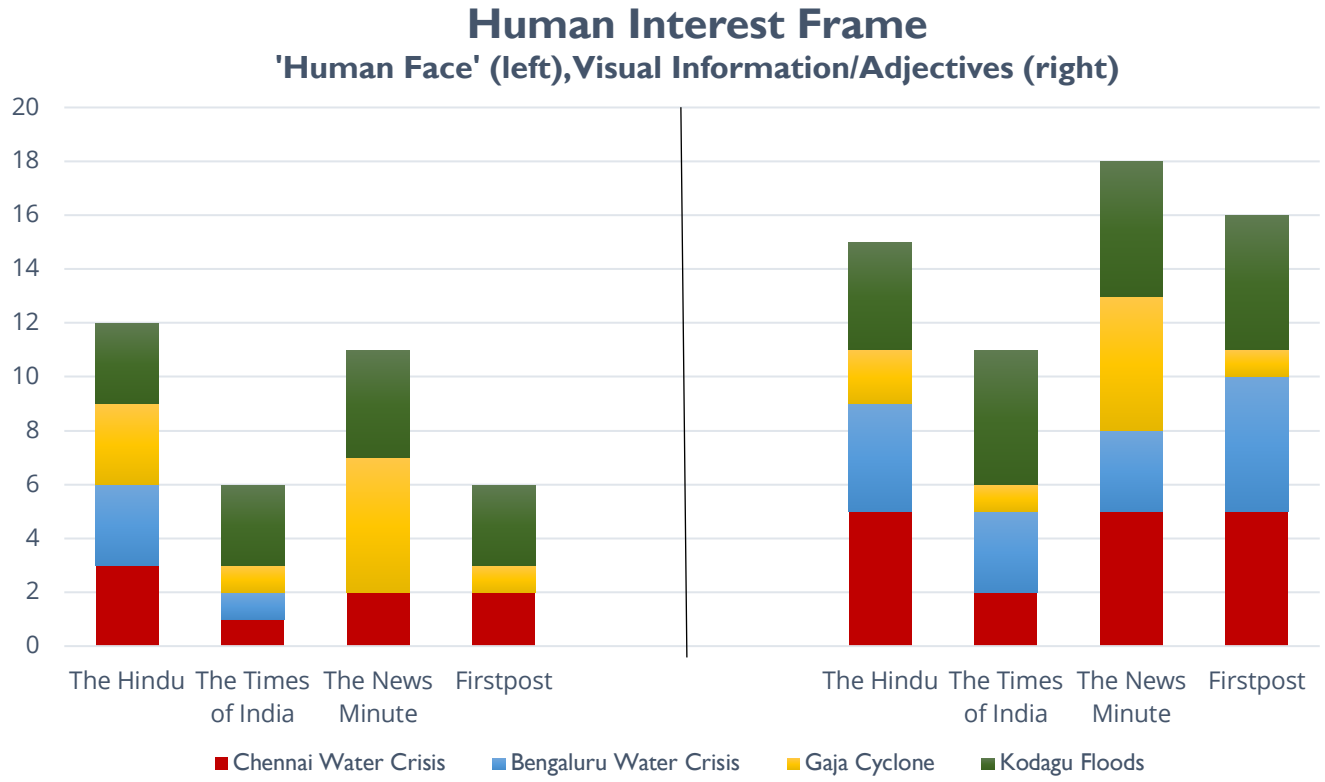
Frame	Publication	Quotes/Examples
Government	The Hindu	*“Rather than resort to desalination plants which are costly and ecologically harmful, the government needs to work swiftly to desilt and rejuvenate the city’s many waterbodies which are lying polluted. If this had been done earlier the surface water availability wouldn’t have been so poor now.” (TH_CW_01)* *"However, roadblocks often pop up, thanks to inefficient government planning." (TH_CW_05)*
	The Times of India	*“Governments have sunk several thousand crores of rupees in ‘river restoration projects’ but little has been achieved.” (TOI_CW_01)* *"Govts of the past and present only looked at water as an election issue." (TOI_CW_04)*
	The News Minute	*"While the initial government denial of the crisis was unhelpful, the subsequent acknowledgement and willingness to seek help are positive signs for engagement and policy reform." (TNM_CW_04)*
	Firstpost	*This report lists all the steps taken by the government and reflects on their work positively. Even the quote "We must give them some credit" (by retd PWD engineer) (FP_CW_02)*
Individual/Groups	The Hindu	*Vague references to community behaviour: “It is high time we respect monsoon, understand its characteristics and plan accordingly by preserving water bodies.” (TH_CW_02)*
	The Times of India	*The CM blames the media for, "blowing a local incident out of proportion." (TOI_CW_05)*
	The News Minute	*Tanker owners' association blames residents of Tiruvallur district for violence and obstruction. The residents blame the tankers for depleting their water sources. (TNM_CW_02)*

What kind of language, characterisation is used to depict human interest?

The human interest frame goes beyond providing just cold numbers or data points and attempts to cast a ‘human face’ to personalise an issue or supplements reports with adjectives and pictures to help the reader visualise the story. Drawing from Semetko and Valkenburg’s framework, our analysis used two questions to capture this frame: i) Does the story provide a human example or ‘human face’ on the issue, and ii) Does the story employ adjectives/personal vignettes/visual information that generate feelings of outrage

or empathy? After responsibility, the human interest frame was found to be most commonly used in the 80 article sample we used for this media review.

We found that 60 out of the 80 articles reviewed used plenty of adjectives, personal vignettes, or visual information to present an issue, with all events being framed this way by all publications in at least one report as evident from the graph on the right below. Additionally, 35 out of 80 articles used a 'human face' (see left below); we were generous with our ascription of this frame as we considered a broad range of articles – from those that revolved around the experiences of an affected individual or group to those that used only a quote or two as part of a larger story on the climatic event in question.



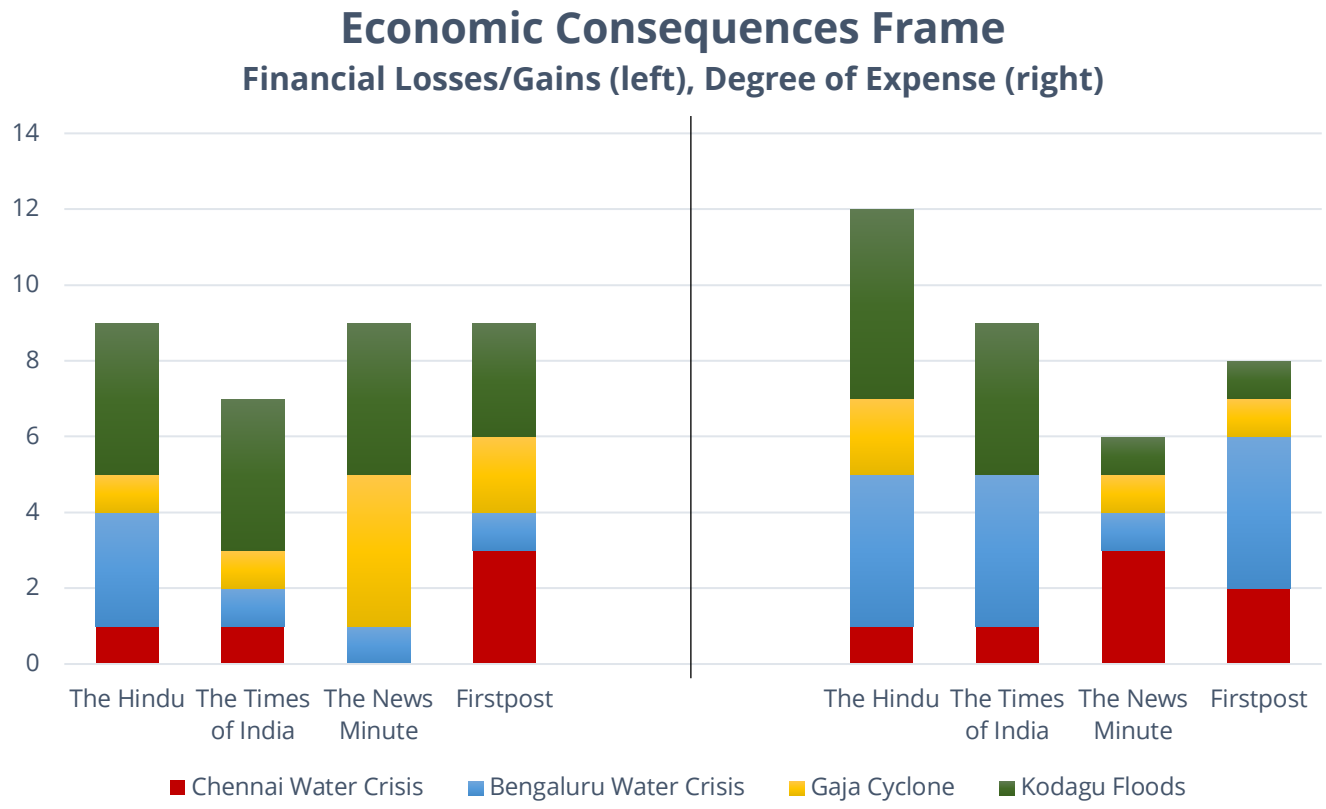
Previous research on media practices have highlighted the 'importance of drama to the construction of news stories about environmental issues' (McComas & Shanahan, 1999, p: 38) and the use of evocative language is key to achieve this. Among the four events, it was the Kodagu floods that was communicated most using the human interest frame with 19 out of 20 articles employing adjectives or visual information and 13 out of 20 using a human example of quotes of people affected. Among all the publications, it was The News Minute that was found to employ the human interest frame most frequently among the samples used for this review. The table below details some of the excerpts from the stories which denoted this frame.

Frame	Publication	Quotes/Examples
'Human Face'	The Hindu	*"When they are concerned enough to clean the lake for us, I thought we should lend a helping hand too," smiles Mani, a 11-year-old." (TH_CW_03)*
	The Times of India	*No specific individuals are described or quoted although the general destruction is described. One farmer's leader is quoted describing the extent of crop and tree losses that they have suffered. (TOI_GC_01)*
	The News Minute	*The story is entirely about human examples affected by Gaja. "Indrani, a farmer who is taking care of her infant grandchildren, sits outside her home that is now roofless. She is here to take care of her husband, who has physical disabilities and is unable to accompany the family to the local government school-turned-night shelter." (TNM_CW_03)*
	Firstpost	*The story centres around the problems faced by three farmers living in Karnataka, near the Maharashtra border. Their livelihoods have been impacted by both the lockdown and the floods. There are many strong quotes: "Be it any crisis, it's the farmer who has to suffer. If the farmer won't suffer on behalf of others, how will society survive?", "Who knows what will happen next?", "It's the farmer who has to bear it all", "I am a farmer, and now I have nothing to eat." (FP_KF_05)*
Adjectives/Visual Information	The Hindu	*Lead paragraph: The fact of water being a colourless, odourless and tasteless liquid might soon be a faint memory for most Chennaites. Lead image of people clamouring to collect water around a water tanker. (TH_CW_01)*
	The Times of India	*"Reckless destruction of water bodies, poor planning — today, Chennai's citizens are paying a very heavy price. It could be your city next..." (TOI_CW_01)*
	The News Minute	*"The crisis has been dubbed man-made for a variety of reasons ranging from **unchecked** development along the city's water bodies, **wanton mismanagement** of resources by government agencies and a **colossal failure** in urban planning, among others." (TNM_CW_04)*
	Firstpost	*Vivid descriptions of floods, landslies: "The terrain had turned hostile — mudslides were still filling up houses, trees, poles and all kinds of debris were covering the houses, and carcasses of livestock were also lying on the roads", "A chasm at least 10 feet wide had opened between the hill and our location. It had to be crossed to reach the top of the hill". (FP_KF_02)*

Does the media tend to emphasise on economic consequences?

We assumed a broad understanding of this frame by accounting for both losses and gains as well as the likely degree of expense involved in a particular course of action/inaction. The two questions we drew from Semetko and Valkenburg were: i) Is there a mention of (financial) losses and gains now or in the future, and ii) Is there a mention of costs/degree of expense involved?

We found that all platforms made some reference to the economic impact or required expenditure, with articles about the Kodagu floods accounting for the most. The number of articles referring to financial losses or gains was 34 out of a total of 80 and those that explicitly mentioned the cost of a project or commodity accounted for 35 out of 80. There was some overlap between the two, with the same article discussing the impact of an event in monetary terms as well as referring to the expense involved in rebuilding and recovery. Moreover, some articles were more specific while discussing the scale of loss by including exact figures, while others were more vague, for instance, "All water-starved districts in the state should be chosen for the Centre's special programme and big funds have to be allocated" (TOI_CW_04).



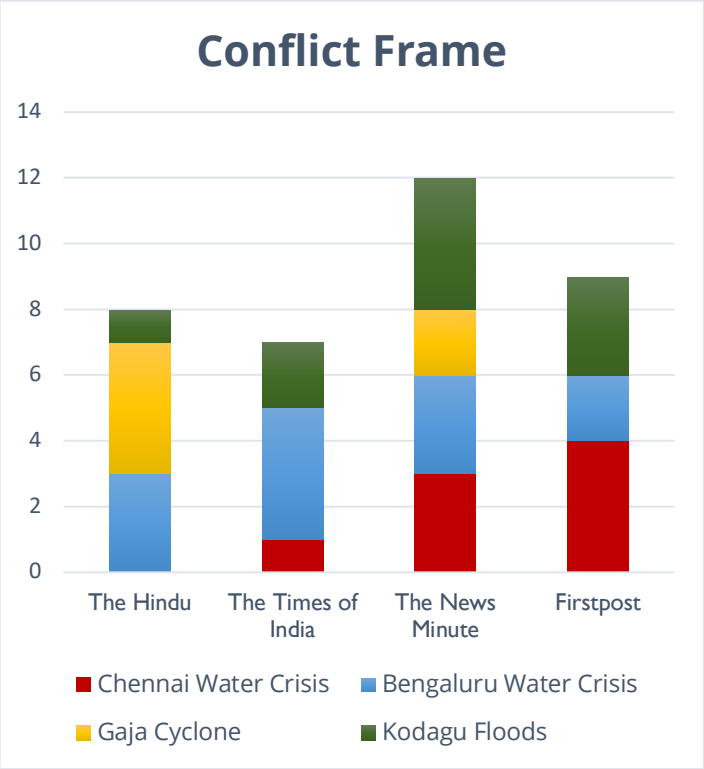
Of the 20 articles chosen per event across the four publications, 16 about the Kodagu floods employed the economic consequences frame. The online platform, Firstpost, was

found to have used this frame more than the other publications with 15 out of 20 articles across the four events.

Frame	Publication	Quotes/Examples
Financial Losses/Gains	The Hindu	*The story is primarily about financial losses due to Gaja, with examples of individual farmers who would be in debt. "The union says that the damage to coconut trees as estimated by the State government is about ₹3,000 crore." (TH_GC_01)*
	The Times of India	*"The total crop loss which was waiting for harvest during the harvest has been estimated to be around Rs 500 Crore for banana farmers". (TOI_GC_03)*
	The News Minute	*Indirectly. "Our crops have been destroyed. Our livestock has died. How do we even begin to make up for all these losses", "From piecing their homes back together to getting back on their feet, they estimate that it would take over a year for normalcy to return" (TNM_GC_03)*
	Firstpost	*"...the district is suffering due to the loss of coffee estates and plantations. The district produces approximately 1.2 lakh tonnes of coffee annually..." (FP_KF_01)*
Degree of Expense	The Hindu	*"The Corporation of Chennai has announced a ₹228-crore project to up the city's green cover, from 14.9% to 20.2%, by 2023." (TH_CW_05)*
	The Times of India	*This is the central frame of this report: "The statewide devastation means the BS Yediyurappa government will have to mobilise huge sums of money for rehabilitation measures and restoration of infrastructure." (TOI_KF_01)*
	The News Minute	*"The Chief Minister has asked the various department heads to gather the funds, which will be allocated to eligible persons by the Department of Social Welfare. "The total amount is coming up to Rs 1,100 crore. This is only for construction of homes for SC and ST people." (TNM_KF_05)*
	Firstpost	*"The ambitious project (BDA's), costing an estimated Rs 50 crore, was supposed to clear the encroachments and rejuvenate 78 lakes in the city. (FP_BW_03)*

The representation of conflict and morality

Apart from the three frames discussed above, we also included the representation of conflict as well as morality but did not delve into them in the discussion part of this report as they figured less prominently than the others. For the conflict frame, even though we started with two questions, we decided to merge the results as there was considerable overlap between them: i) Does the story reflect disagreement between parties or individuals and do they reproach one another, and ii) Does the story refer to two sides or more than two sides of the problem or issue?



In terms of the latter, there were very few reports that reflected on two or more angles to a story that were not reproachful in tone. For instance, one in-depth report about the Gaja cyclone discussed different layers to the issue – the change in cropping patterns, the inter-state water dispute, government preparedness and the need for concrete houses – without introducing an element of conflict or friction between different parties (TH_GC_01).

Out of 80 articles, 36 were found to either present different perspectives on the same issue or introduce some element of conflict by representing individuals or groups trading barbs with each other. The News Minute accounted for 12 of these 36 and the Bengaluru water crisis was most frequently found to have been discussed using the conflict frame.

The conflict frame was considered significant in media studies on climate change as early studies focused on the US media, where climate change and its causes were debated despite scientific consensus overwhelmingly falling on one side of this argument. 'While international conferences, new scientific reports, and political promises might fuse into an amorphous swirl of cautious language that is unable to meet journalistic demands for freshness and novelty, the ever-present duelling scientists could be relied upon for a dramatic dose of disagreement," (Boykoff & Boykoff, 2007, p: 11). This misrepresentation has since waned, and with it the use of the conflict frame (Dirikx & Gelders, 2010).

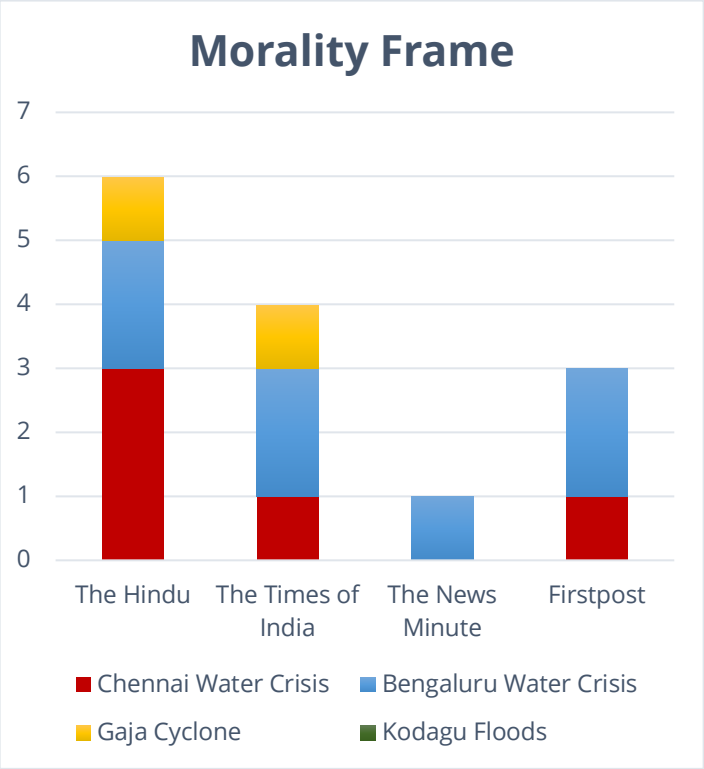
In the context of this review, conflict was presented more as residents or activists critiquing the government for their course of action or inaction – closely tied to the responsibility frame. The scientific basis for anthropogenic climate change or the hazards chosen for this review was never called to question. Examples are listed in the table below.

Frame	Publication	Quotes/Examples
Conflict (in term of reflecting disagreement or presenting two or more POVs)	The Hindu	*Fishermen reproach the government for not dealing with ithis issue sooner. "While admitting that it was a Herculean task, many fishermen felt that the task could have been completed much earlier if officials were serious about it." (TH_GC_04)*
	The Times of India	*Tanker operators say their operations in Hoskote isn't causing shortage there, but the tahsildar is described to have halted work because of just that. The report does not clarify what the case really is. (TOI_BW_01)*
	The News Minute	*Tanker owners cast aspersions on the true motivations of protestors, who say they fear being deprived of water because of Chennai's needs. They also allege that tankers are digging borewells. (TNM_CW_02)*
	Firstpost	*The article's overall tone + quote by an "expert" is critical of the Karnataka govt: "The Karnataka government should have taken steps to build canals, so that excess water could have been channeled to different parts of the state, connecting the reservoirs." (FP_KF_03)*

In terms of morality, only one question was used to capture those articles that used this frame: Does the article offer social prescriptions about how to behave? This too will not be discussed in length as these articles and the way morality is discussed are closely tied to the responsibility frame. Semetko and Valkenburg (2000, p: 96) explained that this frame, 'puts the event, problem, or issue in the context of religious tenets or moral prescriptions' and found that this frame was used the least in their analysis of how European politics was covered by the media.

We found that only 14 of the 80 articles analysed used the morality frame with the two legacy media outlets, The Hindu and Times of India, accounting for 10 of these and the two slow-onset events, the water crises, accounting for 12 of the 14 articles that 'offered

social prescriptions'. Not one article from the sample of 20 about the Kodagu floods was found to use the morality frame.



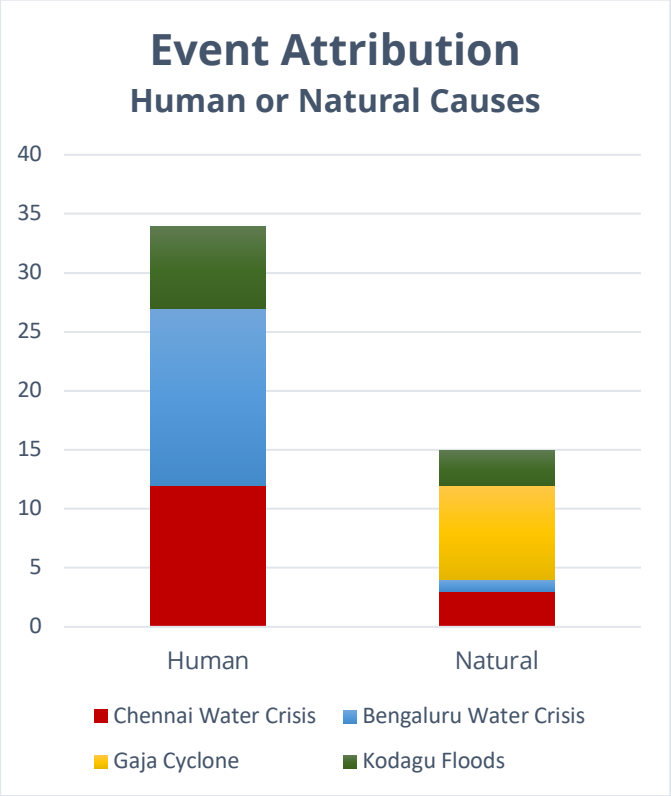
The legacy media news articles about water scarcity in Chennai and Bengaluru exhorted citizens to make behavioural changes and 'use water judiciously' (TOI_BW_04). Another Times of India story concluded with a to-do list on how residents could reduce water usage (TOI_BW_02). The Hindu says, 'A water crisis is looming in Bengaluru. We all need to do our bit to conserve water. If all of us can try to take bath in half a bucket of water and succeed, we will help conserve millions of litres of water' (TH_BW_03). Similarly, about the Chennai water crisis, The Hindu included a graphic about water conservation tips for residents even though the bulk of the text pertained to solutions that ccould only implemented by state institutions (TH_CW_02).

There were only two reports about the two extreme events which, to a small degree, made use of the morality frame, one each by The Hindu and The Times of India and both were about Cyclone Gaja. One made references to how 'people should move into concrete houses', and 'people do not move into relief camps', without any details on who was actually responsible for this, making it appear more like a behavioural issue (TOI_GC_04). The other report discussed how a community (farmers) could alleviate losses due to extreme climatic events: 'It is time that farmers in the district consider seriously migrating to prawn farming in a big way' (TH_GC_05).

How does the report characterise the issue or climatic event in focus?

Our media review mainly used Semetko and Valkenburg's analytical framework (2000) to understand how news reports presented four issues or events related to environmental change. So far, the findings section discussed the representation of the five frames – attribution of responsibility, human interest, economic consequences, conflict and

morality. Additionally, we included in the scope of our research a few more research questions, one of which was: How does the news report characterise the issue or climatic event in focus? We used two options in our dropdown menu: i) Natural event, an unavoidable 'Act of God', or ii) The disaster is a result of human actions.



We found that 34 of the 80 articles attributed the hazard or issue and its consequences to human causes, while 15 articles blamed it on natural causes. As the graph shows, coverage about the drought in Chennai and Bengaluru account for a majority of reports blaming human causes (17 of 34), while only four reports about these slow-onset events blamed natural causes. The rest were found in reports about the two fast-onset events, with cyclone Gaja accounting for 10.

Some reports said, in no uncertain terms, that the impact was caused by human activity: 'While it is deemed convenient to believe that Chennai is traditionally a rain-starved city, meteorologists note that the water scarcity is more of human-induced' (TH_CW_02). Reports about urban drought featured citizens, environmentalists or scientists blaming the government for poor urban planning, thus underlining how human-caused or perpetuated vulnerabilities led to hazard turning into a disaster. For example, a report in The Hindu quotes a geologist who is critical of the government's delay and failure to desilt and rejuvenate waterbodies in Chennai: 'If this had been done earlier, the surface water availability wouldn't have been so poor now' (TH_CW_01). Another in The News Minute about Bengaluru's water scarcity says: 'This is solely due to the steady destruction of the well-planned water body systems by Bengaluru authorities and private builders alike in the name of "development", causing groundwater levels to deplete at an alarming level' (TNM_BW_05). The reports that solely referred to the failure of the North-East monsoon were among the few found to blame natural causes among stories on urban drought. For example, a report in Firstpost mentions 'the kindness of the Rain God' and 'the grace of Krishna river' (FP_CW_02), and another in the Times of India, which is a spot report based on the TN Chief Minister's press conference, was from the

government's point of view and squarely places the blame on 'monsoon failure' (TOI_CW_05).

Of the 17 articles found to blame natural causes, 13 focused on the two extreme weather events chosen for this review, among them 10 were about Cyclone Gaja. While many of these articles did refer to some form of government action, the overall tone of the pieces focused on the scale of the hazard itself. The Hindu says, 'Year after year, people were being subjected to nature's fury' (TH_GC_02) and 'The natural calamity tossed the lives of farmers' (TH_GC_03). In TOI_GC_03, the phrase 'natural disaster' is used seven times and talks about how 'it' left behind a 'trail of destruction', thus shifting the blame, so to speak, on the weather event rather than delving into why coastal districts suffered so badly.

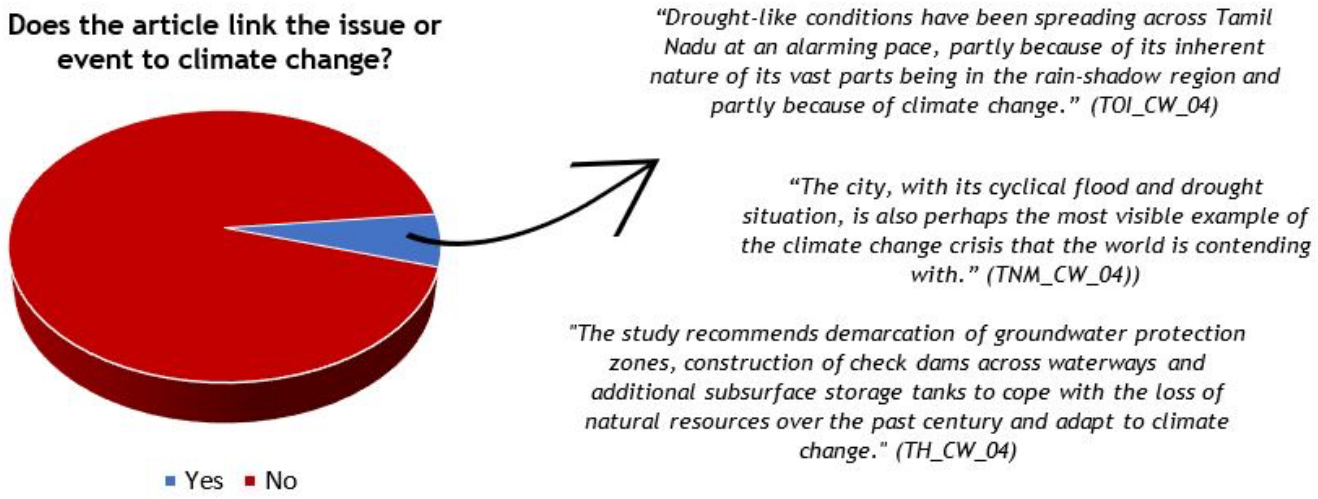
Does the article link the event/issue to anthropogenic climate change?

Another question we incorporated into our analysis attempted to understand how frequently climate change was attributed to or even mentioned in reports about water availability and extreme weather. We found that only five of the 80 articles reviewed even mentioned climate change and none of them cited specific studies or sources. The attribution to climate change appeared in the form of either vague throwaway statements or quotes from 'experts'.

For example, a report about the drought in Chennai in The Hindu says, "'Chennai is in the midst of its most severe drought yet, and the situation is only going to get worse as global warming contributes to erratic monsoon patterns," says R. Rajkumar, Chief Chemist at Metrowater' (TH_CW_01). The News Minute says, 'The city, with its cyclical flood and drought situation, is also perhaps the most visible example of the climate change crisis that the world is contending with' (TNM_CW_04) a Times of India report says, 'Drought-like conditions have been spreading across Tamil Nadu at an alarming pace, partly because of its inherent nature of its vast parts being in the rain-shadow region and partly because of climate change' (TOI_CW_04).

A report in Firstpost about the water crisis in Bengaluru attempts to provide a little more detail: 'Freshwater resources around the world were already badly stressed before heat-trapping carbon emissions from fossil fuels began to warm Earth's surface and affect rainfall. Pollution in many forms is tainting water above ground and below. By one estimate, the world will face a 40-percent water deficit by 2030 if climate change continues unchecked' (FP_BW_02). However, it does not clarify which estimate or attribute it to any study. Notably, not a single article about Cyclone Gaja or the Kodagu floods across all four publications alluded to climate change. A total of 40 articles about two devastating extreme weather events were used for this media review and yet not one was found to take advantage of this widespread public concern and interest in the news and

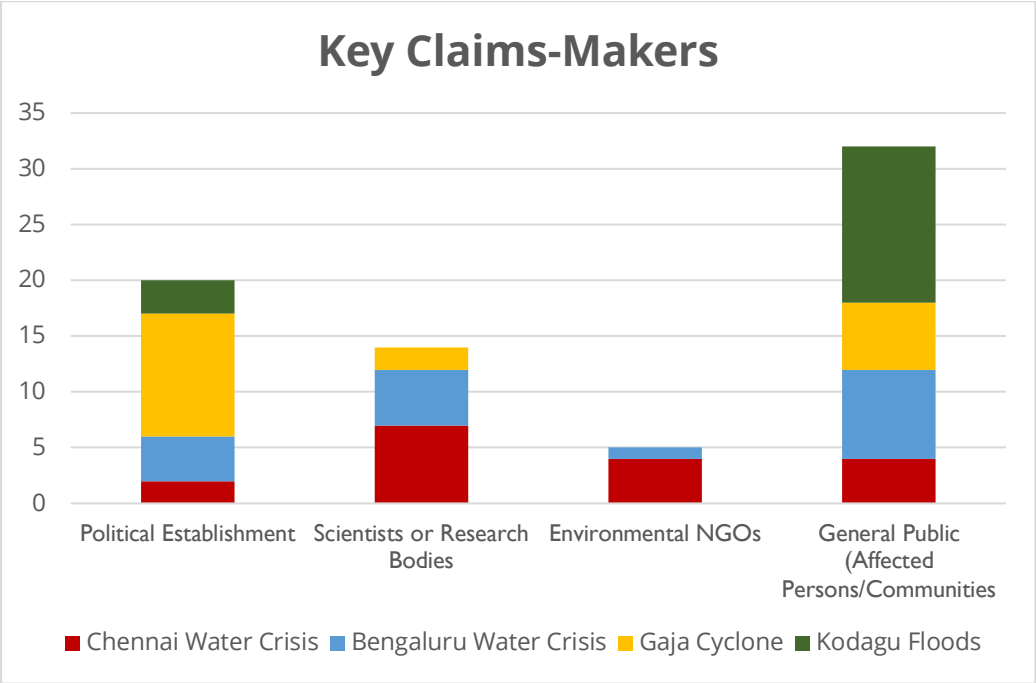
draw the discussion to climate change and attempt to build public awareness. A WMO article said, 'There is a clear opportunity for the media to discuss the most visible impacts of climate change in their coverage of weather disasters, though it is an opportunity that is missed far too often' (Hassol et al, 2016). This is not to definitively state that both Gaja and Kodagu floods were a result of climate change; we will go over communicating attribution in more detail in the discussion section.



Who were the key claims-makers in the piece of media reviewed?

The third research question we addressed looked at which voices were platformed most prominently by the articles we reviewed. As mentioned in the methodology section, we drew from Wu's 2009 study, in which the author identified four categories of 'social fora' – the political establishment, scientists or research bodies, environmental NGOs as well as the general public. We used the same set of categories and found that voices of those who have been affected by an event or issue dominated our selection of articles, accounting for 32. The political establishment followed at 20, scientists and research bodies at 14 and NGOs at five.

It is, however, important to acknowledge here that our selection of articles was not completely random. The search results based on particular keywords about a weather event were further refined as we only picked longer articles that exceeded a word count of 200. This considerably narrowed our field and mainly retained those articles that involved a degree of ground reporting and were not just based on press releases, and thus platformed those affected by the issue or event.



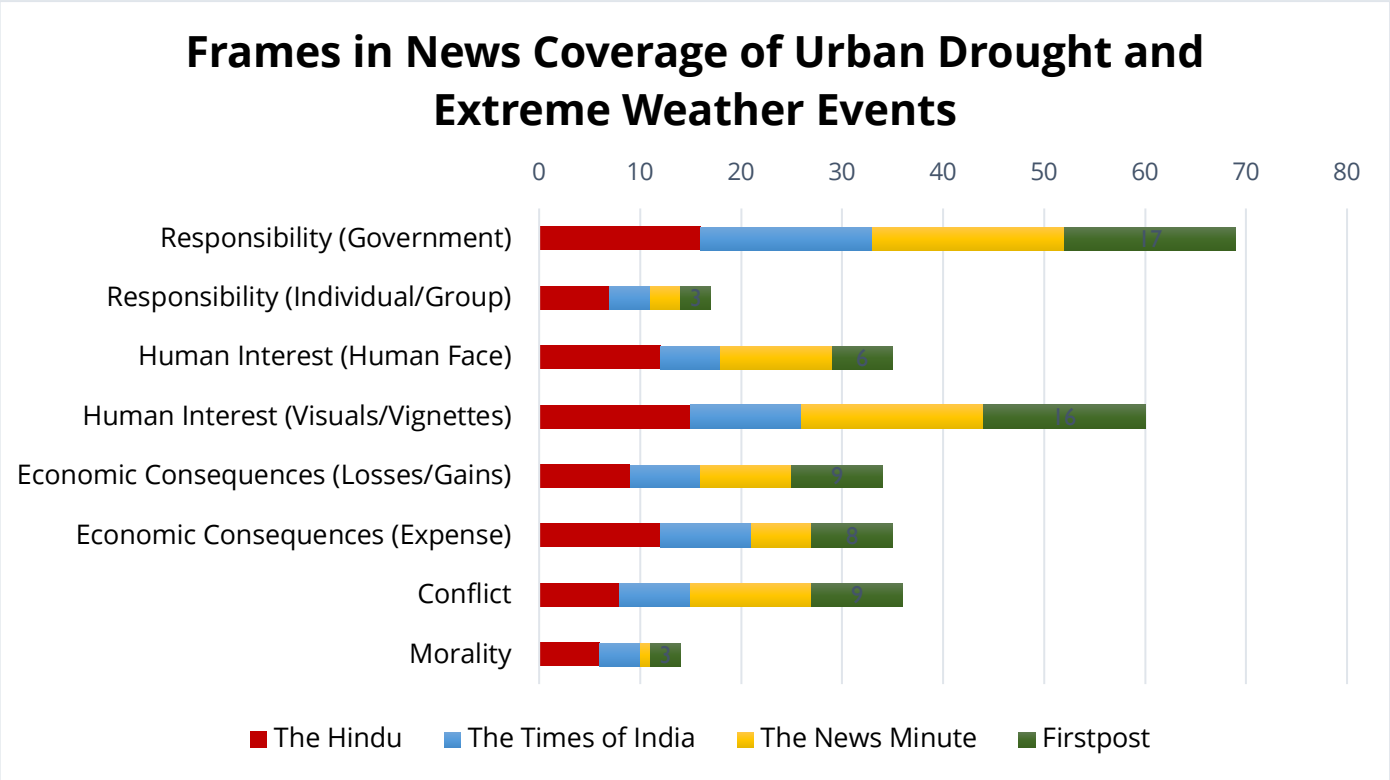
Both the fast-onset events accounted for a majority of articles that featured the voices of affected persons or the political establishment. Reports about cyclone Gaja accounted for over half the reports that quoted a politician or a government official. This is mainly because the bulk of the articles we found were spot reports or summaries that aimed to record the scale of devastation based on what government sources like the local district administration or National Disaster Response Force (NDRF) (for e.g., all five Firstpost articles found on Gaja – FP_GC_1/2/3/4/5 – and four reports from the Times of India – TOI_GC_1/2/3/4). Articles on the Kodagu floods, despite being an extreme weather event, were found to predominantly feature affected persons. These stories were found to employ the human interest and economic consequences frames by highlighting the plight of those affected by the floods such as farmers and residents awaiting compensation (TH_KF_04, TOI_KF_03, TNM_KF_05, FP_KF_05).

Among the 14 stories found to feature scientists and researchers, stories on urban drought accounted for 12. These reports quoted these experts on why these cities were facing such a grave water deficit and they were found to be largely critical of poor urban planning (TNM_CW_04, TOI_BW_02, FP_KW_04). Others were more neutral and technical in tone and focused more on steps that needed to be taken to overcome the current situation without really pinning the responsibility on anyone (TH_CW_1/2/4). NGOs were found to be least represented as they appeared only in articles about citizens' initiatives in terms of urban forestry, and community lake-cleaning projects (TH_CW_05 and TOI_CW_03).

'While journalists bring a great deal more to a story than a collection of sources – things like background and emphasis – it is in the source that the broader authority of the story resides. Attribution is the first lesson in journalism' (Trumbo, 1996, p: 270). This quote sums up the importance of reflecting on who is represented in an article – the claims-

maker – in addition to reflecting on the key themes or frames that a story uses to discuss events.

The graph below illustrates the use of all frames used:



Discussion

Through this qualitative deductive analysis of a sample of 80 news articles, we found that the attribution of responsibility frame, usage of evocative language or human interest angles and concerns over economic consequences were most prevalent. It is important to clarify that usage of a certain frame should not be equated with a certain policy position. 'Any frame can include pro, anti and neutral arguments, though one position may be more commonly used than others' (Nisbet, 2009, p. 18). For example, those stories found to use the responsibility frame, in terms of the government's role, may explicitly point to negligence by the state in averting a disaster or these reports may be more neutral and simply report a press conference by a government official or, as the more positive reports did, they could note that the government acted proactively and put in place cyclone preparedness and relief measures.

Whodunit?

Attribution of responsibility as a frame used in news reports is a significant area of research. As discussed in previous sections, the media plays a central role in how issues are projected to the larger public, often shaping their views on how a matter was created or can be resolved (Iyengar, 1991). The more contentious or complex the issue is, the more imperative it becomes to analyse how the media spotlights certain angles or actors and renders others invisible. The issue of climate or environmental change is especially fraught with denialism and deflection of blame stemming from the fact that human activity is precipitating the crisis. All four of the events used in this analysis had widespread and deep impacts, therefore the question invariably rises: Who is responsible? What actions could have been taken and by whom to avert these tragedies? 'The media can lead the audiences to make attributions of responsibility, telling them who is responsible for causing and solving a given problem' (Chang et al, 2016, p. 568).

This frame is also significant because delineating who is responsible can shape what policy interventions or actions are taken thereafter. One of the questions we used, 'Does the story suggest some level of government has the ability to alleviate/is responsible for the problem,' examines whether news articles attempt to hold those in power to account. We found that 69 of the 80 articles did. The bulk of these articles were overtly critical in tone: 'successive governments have neglected waterbodies… systematic destruction' (TH_CW_02), 'the action taken by the government was not enough' (FP_BW_03), the government is providing 'paltry sums' to those who have incurred losses (TOI_KF_03), 'no flood warning given to us' (TNM_KF_03).

We also looked at whether the responsibility frame was used in terms of blaming an individual or a group for the problem, and we found only 17 out of 80 articles that did. Some of these articles singled out specific groups; some commended the work of citizen groups or community of well-diggers for carrying out water conservation campaigns or homestay and raft-operating groups for rallying to help those stranded in the Kodagu floods; some criticised tanker water owners and suppliers for overdrawing groundwater or charging exorbitant prices. There were few instances where a report called for behavioural change and called for citizens to take it upon themselves to feel responsible about the environment and take action, such as in terms of lake conservation or rainwater harvesting measures. But these were very few comparatively.

Aside from understanding who was blamed – the government or business groups or affected persons – it is necessary to take a step back and see whether the issue was attributed to 'controllable human' causes or 'uncontrollable natural' ones, as discussed by Jang (2013). This paper underlines that there is a tendency to dismiss negative consequences of an event caused by oneself or their 'in-group' as a natural occurrence that could not have been avoided. This is especially harmful since this perception maintains the status quo and deters mitigation action as it is seen as pointless and beyond human control. The stories on urban drought overwhelmingly attributed the event to human action or inaction, while none of the reports on Cyclone Gaja attributed the widespread devastation to a failure in policy or neglect of underlying vulnerabilities in the region. It was characterised as a natural event: 'people were subjected to nature's fury' (TH_GC_02).

All the articles in the Gaja sample, except two, were written in November 2018, in the immediate aftermath of the event focusing mainly on the 'trail of destruction' with plenty of details on the damage and estimated losses. Even the two reports written a year later failed to capture the breadth of issues plaguing long-term recovery of the region as they focused on specific initiatives (Forest Department's project in TH_GC_03) or problems (marine ooze in TH_GC_04). While our sample was limited, studies have identified a persistent problem in media reporting of disasters: 'While the event itself, and the emergency response and rescue phase that occupies the days immediately following the crisis, are the subject of both popular and political attention, the longer-term recovery process, and the emotions this entails, tends to be ignored by the wider media and the policy debates that follow' (Whittle et al, 2012).

The dominance of the responsibility frame was expected considering the nature of the crisis – the complexity and scientific uncertainties related to what causes extreme weather events and the urgent need for ambitious policymaking (Dirikx & Gelders, 2010).

Even at a global scale, the concept of 'common but differentiated responsibilities'[2] remains a central part of climate politics with international summits dominated by the debate between the industrialised Global North and emerging economies in the Global South who bear a large part of the responsibility in mitigation measures to rein in greenhouse gas emissions.

A number of framing studies have looked at the media coverage of climate summits (Olausson, 2009; Post et al, 2018; Dirikx and Gelders, 2010; Liang et al, 2013) and the attribution of responsibility has consistently emerged as a key theme. Indian (English) news media coverage of summits has also been found to focus on climate justice and accords blame not to individuals or levels of government but to a bloc of countries making up the industrialised North (Billett, 2010). It is also important to note that reporting about climate summits tended to focus on mitigation measures rather than financing for adaptation projects, even though this is an increasingly pivotal policy area. It is in terms of adaptation that local media coverage is more vocal.

As we made clear in the introduction, it is necessary to look more closely at how impacts of climate change, degradation of the natural environment and allied policy issues are locally perceived. So, responsibility, in the reports that were looked at in this study, is not attributed to one bloc of countries, rather we found valid and pointed questions had been raised on 'neglect' on the part of different levels of government to adapt to worsening climatic conditions coupled with poor development. In the 80 reports we examined, mitigation is only mentioned in the context of mitigating risk to floods or drought. We surmise that this is also a result of the samples that we chose, i.e., all were based on specific weather events and not generally any story on climate change or the environment over a period of time. This is backed by Olausson (2009, p. 428): 'the local and national realms are attributed responsibility for adapting society to climate change, which could be seen as a consequence of the focus on extreme weather, which seems to trigger the adaptation frame.'

Across all four events and publications, there was a clear tendency in news coverage, for identifying the 'culprit', the reasons why impacts for drought or flooding was so widespread and severe. 'Inefficiency', 'mismanagement', 'negligence', 'apathy', 'denial', 'shambles' were some of the adjectives we found used in a number of reports critical of how the government abandoned its responsibilities. While it was beyond the scope of this

[2] Common but Differentiated Responsibilities is a guiding principle in United Nations Framework Convention on Climate Change '...the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions' (United Nations, 1992).

study to track coverage over an issue and see how or whether it led to any tangible change in terms of policy or public perception, it does add to literature that media plays a key role in setting the public discourse on who is responsible. It points to the need for future lines of inquiry that examined attribution of responsibility and how it leads to changed perceptions. Chang et al (2016) is one of the few studies that have examined this link and they found that 'presenting climate change in terms of the governments' and corporations' responsibility can be an effective way to increase perceived risk among public, which in turn can lead to greater public support for regulating the carbon-emitting industries' (p. 582).

To empathise and personalise

The human interest frame was also prevalent in our analysis and again we depart from Dirikx and Gelders (2010), one of the key pieces of literature we drew from for this analysis, because our sample was focused on local impacts and issues and not on international summits and policymaking at a global scale. The 'human interest' frame rarely featured in reportage based on climate negotiations. But it was a common enough trait in news coverage and featured most often during or in the aftermath of an extreme event.

These stories either extensively quoted affected people or cast a human face to the issue or used evocative, descriptive language and images to present the event. Considering the severity of the events we picked for our analysis, the frequent use of this frame was also expected – we found 60 out of 80 that used adjectives, visual information that generate empathy or outrage and 35 that cast a 'human face' to the issue.

Neuman et al (1992) in their book on the construction of political meaning in the news say, 'tales of human impact were used to illustrate that a situation was a problem deserving the audience's attention' (p. 70). The book details how this journalistic practice is used by reporters because it is a way to lure interest through the voices or sources they choose to platform in their story. It personalises the story, invites readers to feel empathy for the people affected but, in some cases, can spill into the sensational and dramatic. It can be framed more positively, so to speak, by telling 'inspirational' stories of groups or individuals banding together and doing their part to mitigate risk or it can solely be based on the aftermath of an event, as in the case of some reports written in the wake of fast-onset events of Cyclone Gaja and Kodagu floods. The reports that fall under the latter category prioritise the voices of affected people are meant to be evocative and thus may be 'more effective than other frames in directing public perception of climate change toward environmental risk' (Chang et al, 2017, p. 2905). But, as mentioned above, this line

of inquiry, i.e., one that explores the link between these frames and public perception and behaviour requires more research across different contexts.

A framing study that compared coverage in two national and three local newspapers in the United States found that the latter made use of the human interest frame far more: 'This showcases that the role of the community papers is to write about how local, state or national issues affect the community's individuals and businesses. The findings in this research help to solidify the notion that local print media take a personal tone with regards to stories about climate change' (Spradlin, 2020, p. 36). Our analysis was confined to English language media, thereby limiting us from identifying how the vernacular press covered these issues. Because we focused on specific issues and not general climate change news coverage, we were able to glean a high number of reports that 'personalised' the issue. In addition to exploring the link between the use of the human interest frame and impact on public perceptions, it is also critical that future research explores how local media – print, television and radio – cover these issues. This is especially true in a country like India where regional contexts, be it in terms of physical geography or socio-economic and political setting, vary sharply.

Quantifying loss and damage

We looked at how the economic consequences frame emerged from the sample we analysed. In line with the human interest frame, highlighting the economic consequences of a course of action or inaction is a powerful way to get an audience invested in an issue. Media studies, particularly those focused on how the US media covers climate change, have found frames related to economic opportunities or consequences to be prevalent (Nisbet, 2009; McCright et al, 2015; Zehr, 2009). A 2019 study (Vu, Liu & Tran) of how the media in 45 countries and territories covered climate change found that economic impact was the second most popular frame used. The 'environment' beat or column in a newspaper has long been relegated to a niche section but over the past decade, as impacts worsen and hit closer to home, it is increasingly being identified as an economic issue having far-reaching effects in terms of physical damage of infrastructure as well as longer term financial impact through loss of livelihoods. This was apparent from the small sample that we used for this analysis. Stories about Gaja and the Kodagu floods were found to account for the most references to economic losses, while all four events were represented in terms of the degree of expense required for projects to address urban drought or extreme events.

The articles on urban drought talked about people being 'forced to buy' canned water or pay exorbitant rates for tankers or construction of borewells – 'the massive water crisis is digging deep into their pockets' (TNM_BW_01). Stories on water scarcity in Chennai also

quoted residents as saying that they were impacted in terms of loss of pay because of the additional time now required to source water. Thus, even from this small sample, we were able to glean reports that reflected the range of economic consequences of drought – monetary and job losses as well as increased investment required to source water. Despite the frequency and severity of urban droughts, especially on the poor, the episodic coverage of the issue by the media proves inadequate. This is concerning because drought in the Indian policy framework is situated in the context of agriculture, and attention is mainly drawn towards the urban processes that are *causing* water shortages, rather than the impacts and how climate change is leading to increasing incidence and severity (Singh et al, 2021). 'How we define urban risks shapes how they are responded to and planned for…With growing urbanisation, increasing inequality and changing rainfall and temperature regimes, existing national drought definitions need to be modified to reflect the widening impacts of droughts on urban systems' (ibid, p. 81-82). This calls for more consistent reporting on steps being taken to mitigate urban drought.

A majority of stories about the fast-onset events, across publications focused on how the agriculture and fisheries sector were severely impacted. Financial loss was quantified and the degree of expense required for compensation or to implement projects to reduce future impacts were also featured in news reporting about these events. There was much overlap with the human interest frame as many reports quoted affected persons talking about the financial impact of the cyclone and flooding. A framing analysis of media coverage of Hurricane Katrina over five weeks found that the economic consequences frame was used consistently throughout this study period. 'With minimal to medium early coverage, the economic consequences frame peaked during weeks 3 and 4. This may be due to media's shift from human interest to economic concerns. By week 3, rescue attempts had slowed and economic consequences such as insurance, FEMA aid, hotel bills, unemployment and loss of business revenue had become a major concern among the public' (Brunken, 2006, p. 62).

We did not track coverage over a period of time but all articles, except two that we picked about the fast-onset ones, were written in the month after the event struck (FP_KF_05, TNM_KF_04). Both these exceptions adopted the economic consequences frame as they talk about affected persons who were still awaiting compensation and support for rehabilitation. While framing studies conducted in the US (Zehr, 2009; Stecula and Merkley, 2019) approach the economic frame in terms of how news reports present the costs and benefits of mitigation action, our findings aligned with Vu et al's (2019) summation based on a comprehensive framing analysis of over 37,000 articles from 45 countries that found economic impact to be the second most popular frame used – 'Even

when natural disasters and climate change would be brought into the discussion, the loss caused by these events would eventually be materialised in the economic sense' (p. 6).

The quagmire of attribution

To conclude this section, we will examine the research question that sought to understand to what extent the event was linked to anthropogenic climate change. We consciously chose not to conduct a temporal analysis of Indian English media using 'climate change' as a keyword because we wanted to understand better whether local, tangible impacts that were already manifesting across parts of southern India were being connected to global climate change. The IPCC report on managing the risks of extreme events (2012, p. 27) says that it 'remains very difficult to attribute any individual events to greenhouse gas-induced warming' but the field of attribution studies has advanced significantly since, and it is now possible to detect the 'fingerprints' of climate change in extreme events. Despite the improved understanding of the science, this issue of attribution and how it is framed in the media and public imagination is complicated.

For one, conflating localised weather hazards with climate change can 'prompt people to perceive climate change as more personally relevant when they identify weather conditions with the consequences of climate change' (Jang, 2013, p 33). It is then no longer seen as an esoteric concern that young environmental activists harp on about or something that could affect other people in faraway places and perhaps at some distant point in the future. But it is already happening here and now. Communicating this effectively can 'reduce psychological distance (and) represent a promising strategy for increasing public engagement with climate change' (Jones et al, 2016, p. 331). On the other hand, poor messaging can also cause the public to feel fatalistic, that climate change is beyond human control, unpredictable and sudden like the weather conditions they experience and thus inaction is justified (Jang, 2013). This underlines the role of the media as a knowledge broker in communicating the latest science in clear, accessible language and contextualising it well to help readers understand the nuances of such a complex issue, the human-driven causes worsening it and why it is vitally important to push for ambitious policymaking.

From our sample of 80 articles, we found that only five mentioned climate change and all were vague and poorly substantiated. None were backed up with any attribution studies qualifying whether the incidence of drought or heavy precipitation was rendered more likely because of climate change. Three of these instances were not attributed to any 'expert' and did not quote any studies; these were brief statements made by the reporters or authors of the reports themselves. One quoted an 'expert' and another quoted a university study on the loss of natural resources; the need to adapt to climate

change again made a brief appearance. Significantly, none of the 40 stories on fast-onset events mentioned climate change. To reiterate what we clarified in the findings section, we are not suggesting that either Gaja or the Kodagu floods can be attributed to climate change with a high degree of certainty. But there are studies that argue that extreme events present an opportunity to discuss climate change and the need to push governments to take action both in terms of mitigating greenhouse gas emissions as well as adaptations measures.

A study of the impact of an extreme events found that 'experiencing the hurricane Irma intensified Floridians negative emotions toward climate change, strengthened their beliefs that Irma was actually caused by global warming, and fostered a willingness to sacrifice to reach environmental solutions' (Bergquist, 2019, p. 5). We had quoted a statement by the WMO in the findings section, which also discussed how the aftermath of extreme events presented a unique opportunity for the media to discuss climate change and the flawed development plans that are deepening vulnerabilities rather than alleviating them (Hassol et al, 2016).

The reports on extreme weather used human interest and economic consequences frames most commonly. They described the preparedness or rescue operations undertaken by the state, the impact on affected people and measures planned to mitigate future risk. Similar to what we found, a paper by Painter et al (2020) on how the Indian mainstream media covered two extreme events concluded based on their data that 'the norm was to use generic phrases to describe the link between such (extreme) events and climate change' (p. 9) but acknowledge that there are very few peer-reviewed attribution studies available for journalists to draw from. Moreover, a majority of the stories we examined were published soon after the event leaving very little for attribution studies to be done based on that event alone. Rather than seeking to draw clear cause-effect links between climate change and a specific climate event, journalists need to instead prioritise articulating how climate change creates the conditions that makes an event more or less likely or severe (ibid). This is complex information that needs to be distilled into short media reports and requires a thorough understanding of technical terms such as intensity, probability, frequency (Budimir & Brown, 2017). This underlines the need for capacity building to train journalists and equip them to understand the complex, multi-faceted nature of the science and what implications it holds.

While we are making the case for a climate change perspective to be looped into coverage on local impacts of urban drought and extreme weather events, it is also critical that poor policies that drive 'development' at the expense of the environment and the most marginalised communities must not be eclipsed. Linking events to climate change

can justify inaction and shift attention away from immediate steps than can be taken to reduce vulnerabilities. For example, coastal fishing and farming communities, even from the reports in our sample, expressed fears related to loss of livelihood due to damaged assets such as boats, nets and farmland rendered infertile. Schemes that go beyond housing and focus on making their livelihoods more resilient over the long term is key to improving the adaptive capacity of those living in such high-risk areas.

Additionally, in the context of funding, while accurate attribution is often touted as a basis to decide where and how much resources to be allocated, scholars also fault this logic. 'Deciding where to allocate adaptation resources is a political decision and needs to be driven by factors such as vulnerability to the hazard, institutional capacity, and social justice – not contestable scientific claims about whether specific meteorological events are more or less likely to be human caused… adaptation to climate risk should be recognised in and of itself as a public good and a development objective' (Hulme et al, 2011, p. 765).

This point is closely tied to the temporal nature of news coverage about specific disasters and climate change in general. As we mentioned in the introduction, there are spikes around the time of important climate summits or when an IPCC report is released or when a disaster has struck. But this interest wanes rapidly. As the above quote suggests, effective, long-term adaptation cannot solely depend on what climate change renders more likely or whether it is definitively caused human influence. It needs to address underlying vulnerabilities and for this, 'it is an ethical imperative to build social resilience and institutional capacity to deal with all weather-related risks' (ibid). This requires sustained news coverage that continues long after the effects of an event subside.

Conclusion

This media review found that news reports on urban drought and extreme weather events focused on attributing responsibility for the issue, and evoked anger or empathy through descriptive language that highlighted the plight of affected people and also detailed the economic impact. These are important angles that need to be brought into any reporting on such issues. At this juncture, it is also important to point out that this is not an exercise meant to pontificate on the right approach to environment journalism, rather an attempt to understand current patterns in reporting and start exploring ways to make it more effective at covering such a complex and important subject.

There is a need for more such studies that would supplement a framing analysis with qualitative interviews with reporters and editors to gain a clearer understanding of the processes both in terms of workflows as well as factors such as media ownership and advertising that influence the extent of coverage. It is beyond the scope of this report to discuss these points. This report is also limited by the fact that it studies a small sample size of only English media outlets. Any attempt at media analysis in India is faced with the challenge of drawing insights from such a diverse linguistic landscape and multiple different modes of news consumption such a television and radio.

As we conclude, there are some key takeaways worth reiterating. One, the attribution of responsibility is a powerful frame through which the media can ask questions about how a crisis unfolded and how it can be addressed. Pointing out that the government is to blame through their inaction is an important step towards effectively politicising the issue and shifting environment and climate change from a niche topic to one that has significant consequences for different communities, geographies and economic sectors.

Second, representing the most marginalised communities sensitively, i.e., by relaying their needs and aspirations is necessary for any reporting on environmental degradation. While we found the human interest frame to be used often, it is also necessary to probe how sustained such representation is and whether affected people are simply characterised as helpless victims in the immediate wake of a storm. Are there efforts to capture how people cope with long-term impacts? How do they recover? How do they mobilise and assert themselves for their rights? Since we did not include timeframe as a parameter, we were unable to draw how often reporters went back to at-risk regions and assessed progress or lack thereof. Despite this, we can still see that a large majority of news reports retrieved based on our keywords were written within a month after the event struck. In terms of the slow-onset events, it was only during the worst of the water crisis that there was news coverage.

Third, focusing on the extent of economic losses and referring to the cost of future courses of action are important to highlight the impact of events that are predicted to grow more intense and frequent with climate change. But our sample was populated by news articles that were based on announcements or press releases or estimations of loss expressed by those affected. These are not analysed further, rather merely reported. 'Follow the money' is an oft-repeated golden rule of investigative journalism and it is necessary to adhere to this even in terms of climate change projects. The monetary losses associated with its impacts are staggering but journalists need to, with the same frequency, also follow up on government spending on announced projects. It is also important to investigate roles of non-state actors – what construction project has been sanctioned in an ecologically-sensitive zone, who is behind it, have 'green' projects helmed by CSR initiatives or NGOs taken into consideration the concerns of local populations, and if not, who is funding it?

Finally, communicating the science and the veracity of claims that attribute extreme weather to climate change is undoubtedly important, but it is essential that media too goes a step further. This is especially true when coverage pertains to hydrometeorological disasters when it is statistics about wind speeds and rainfall, numbers of people evacuated, and disaster relief personnel deployed that dominate coverage. In fact, we had to sift through a number of reports to find stories that were longer than 200 words – most of which only relayed a string of numbers – and offered more detail on the devastation left behind. This media review set out to analyse what kind of frames were featured in longer stories that would have entailed some investment in terms of time and effort on the part of the news organisation and affiliated journalist. The bulk of these stories involved significant footwork, research, and sensitive portrayals of those affected. But since they were done soon after the event, it fails to dissect why a hazard became a disaster and why at-risk communities lack the adaptive capacity to brace themselves for repeated extreme events and adverse seasonal trends.

The point that emerged from all these different themes is that there is a need to examine the consistency of news coverage. The concern is no longer about whether the right science or whether scientific certainty on human influence is being adequately communicated. It is whether the right questions are being asked in terms of what can be and is being done. Since our analysis was focused on specific events and not on climate change in general, we were able to see that these are still treated as local issues, as one-off events – the impacts of which were duly covered but there is an end-date to this coverage. The impacts of all four events covered in this report are widespread and more acutely felt among marginalised groups who lack access to basic services that disallows

them from achieving safety, security, and well-being. This is true even without an existential threat like climate change looming.

Acknowledging that these events are in fact part of a worldwide trend, that they are getting worse, and that current policies are far from adequate, calls for reporting that is sustained and not episodic. It is insufficient to talk to coastal communities just after a cyclone has made landfall, it is insufficient to talk to the urban poor on their access to water only after a drought has been declared. Consistent follow-ups that address where the responsibility lies, that are evocative and cast a human face to an issue, that acknowledges the economics involved are necessary. Reiterating the growing likelihood of such events in a warming world, while focusing on how poor development policies are rendering people vulnerable, can step towards coverage that is more nuanced and accurate.

Bibliography

Anderson, A. (2009). Media, politics and climate change: Towards a new research agenda. *Sociology Compass*, 3(2), 166-182.

Antilla, L. (2005). Climate of scepticism: US newspaper coverage of the science of climate change. *Global Environmental Change*, 15(4), 338-352.

Arasu, S., & Kumar, K. P. (2021). *Ways of telling: A handbook for reporting on climate change in South India*. Indian Institute for Human Settlements. Retrieved from: https://iihs.co.in/knowledge-gateway/wp-content/uploads/2021/02/Ways-of-Telling.pdf

Areia, N. P., Intrigliolo, D., Tavares, A., Mendes, J. M., & Sequeira, M. D. (2019). The role of media between expert and lay knowledge: A study of Iberian media coverage on climate change. *Science of The Total Environment*, 682, 291-300.

Bergquist, M., Nilsson, A., & Schultz, P. (2019). Experiencing a severe weather event increases concern about climate change. *Frontiers in psychology*, 10, 220.

Bhattacharya, B. (2021). How climate change is changing the Indian monsoon. Mint Lounge. Retrieved from: https://lifestyle.livemint.com/news/big-story/dark-clouds-ahead-how-climate-change-is-changing-the-indian-monsoon-111627637725104.html

Billett, S. (2010). Dividing climate change: global warming in the Indian mass media. *Climatic Change*, 99(1), 1-16.

Biswas, M. K., & Kim, N. Y. (2016). Framing of climate issues and 'COP21': US newspaper coverage vs Indian newspaper coverage. *Environment and Social Psychology*, 1(2), 142-152.

Boykoff, M. T., & Boykoff, J. M. (2004). Balance as bias: Global warming and the US prestige press. *Global Environmental Change*, 14(2), 125-136.

Boykoff, M. T., & Boykoff, J. M. (2007). Climate change and journalistic norms: A case-study of US mass-media coverage. Geoforum, 38(6), 1190-1204.

Boykoff, M. T. (2008). The cultural politics of climate change discourse in UK tabloids. *Political geography*, 27(5), 549-569.

Brunken, B. L. (2006). Hurricane Katrina: A content analysis of media framing, attribute agenda setting, and tone of government response. Louisiana State University. Retrieved from http://etd.lsu.edu/docs/available/etd-07102006-130303/

Budimir, D. M., & Brown, S. (2017). *Communicating extreme weather event attribution: Research from India and Kenya*. Practical Action Consulting. Retrieved from: https://cdkn.org/wp-content/uploads/2017/06/Communicating-extreme-weather-event-attribution-FULL-REPORT.pdf

Carrington, D. (2019). *Why the Guardian is changing the language it uses about the environment*. The Guardian. Retrieved from: https://www.theguardian.com/environment/2019/may/17/why-the-guardian-is-changing-the-language-it-uses-about-the-environment

Carvalho, A., & Burgess, J. (2005). Cultural circuits of climate change in UK broadsheet newspapers, 1985–2003. *Risk Analysis: An International Journal*, 25(6), 1457-1469.

Chang, J. J., Kim, S. H., Shim, J. C., & Ma, D. H. (2016). Who is responsible for climate change? Attribution of responsibility, news media, and South Koreans' perceived risk of climate change. *Mass Communication and Society*, 19(5), 566-584.

Chetty, K., Devadas, V., & Fleming, J. S. (2015). The framing of climate change in New Zealand newspapers from June 2009 to June 2010. *Journal of the Royal Society of New Zealand*, 45(1), 1-20.

Cohen, B. (1963). *The press and foreign policy*, Princeton, NJ: Princeton University Press

Dhara, C., Koll, R. M. (2021) *How and why India's climate will change in the coming decades*. The India Forum. Retrieved from: https://www.theindiaforum.in/article/how-and-why-india-s-climate-will-change-coming-decades

Dirikx, A., & Gelders, D. (2009). Global warming through the same lens: An explorative framing study in Dutch and French newspaper. In T. Boyce and J. Lewis (Eds.) *Climate Change and the Media* (pp 200-210). New York: Peter Lang.

Dubash, N. K. (2017). Safeguarding development and limiting vulnerability: India's stakes in the Paris Agreement. *Wiley Interdisciplinary Reviews: Climate Change*, 8(2), e444.

Entman, R. M. (1993). Framing: Towards clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51-58.

Gamson, W. A., & Modigliani, A. (1989). Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology*, 95(1), 1-37.

Gatti, L. V., Basso, L. S., Miller, J. B., Gloor, M., Domingues, L. G., Cassol, H. L., ... & Neves, R. A. (2021). Amazonia as a carbon source linked to deforestation and climate change. *Nature*. 595(7867), 388-393.

Haque, M., & Narag, S. (1983). The coverage of two Indian elections by three prestigious Indian dailies. *Media Asia*, 10(1), 35-43.

Hassol, S. J., Torok, S., Lewis, S., & Luganda, P. (2016). Natural disasters: Communicating linkages between extreme events and climate change. *WMO Bulletin*, 65, 2-9. Retrieved from: https://public.wmo.int/en/resources/bulletin/unnatural-disasters-communicating-linkages-between-extreme-events-and-climate

Hulme, M., O'Neill, S. J., & Dessai, S. (2011). Is weather event attribution necessary for adaptation funding? *Science*, 334(6057), 764-765.

IPCC. (2018). List of IPCC observers organizations (152 as on 16 March 2018). Retrieved from: https://www.ipcc.ch/site/assets/uploads/2018/11/IPCC-observers.pdf

IPCC (2014). *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

IPCC. (2021). Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press.

Iyengar, S. (1990). Framing responsibility for political issues: The case of poverty. *Political Behavior*, 12(1), 19-40.

Jang, S. M. (2013). Framing responsibility in climate change discourse: Ethnocentric attribution bias, perceived causes, and policy attitudes. *Journal of Environmental Psychology*, 36, 27-36.

Jones, C., Hine, D. W., & Marks, A. D. (2017). The future is now: reducing psychological distance to increase public engagement with climate change. *Risk Analysis*, 37(2), 331-341.

Kenix, L. J. (2008). Framing science: Climate change in the mainstream and alternative news of New Zealand. *Political Science*, 60(1), 117-132.

Liang, X., Tsai, J. Y., Mattis, K., Konieczna, M., & Dunwoody, S. (2014). Exploring attribution of responsibility in a cross-national study of TV news coverage of the 2009 United Nations Climate Change Conference in Copenhagen. *Journal of Broadcasting & Electronic Media*, 58(2), 253-271.

Lockwood A (2009) Preparations for a post-Kyoto media coverage of UK climate policy. In T. Boyce and J. Lewis (Eds.) *Climate Change and the Media* (pp 186-199). New York: Peter Lang.

McDonald, R. I., Green, P., Balk, D., Fekete, B. M., Revenga, C., Todd, M., & Montgomery, M. (2011). Urban growth, climate change, and freshwater availability. *Proceedings of the National Academy of Sciences*, 108(15), 6312-6317.

Menon, A. (2019). *Extreme rainfall devastates Kodagu yet again*. Mongabay. Retrieved from: https://india.mongabay.com/2019/08/extreme-rainfall-devastates-kodagu-yet-again/

Neuman, R. W., Just, M. R., Crigler, A. N. (1992). *Common knowledge: News and the construction of political meaning*. University of Chicago Press.

Nisbet, M. C. (2009). Communicating climate change: Why frames matter for public engagement. *Environment: Science and policy for sustainable development*, 51(2), 12-23.

Olausson, U. (2009). Global warming—global responsibility? Media frames of collective action and scientific certainty. *Public understanding of science*, 18(4), 421-436.

Painter, J., & Ashe, T. (2012). Cross-national comparison of the presence of climate scepticism in the print media in six countries, 2007–10. *Environmental Research Letters*, 7(4), 1-8. Retrieved from: https://iopscience.iop.org/article/10.1088/1748-9326/7/4/044005

Painter, J., Osaka, S., Ettinger, J., & Walton, P. (2020). Blaming climate change? How Indian mainstream media covered two extreme weather events in 2015. *Global Environmental Change*, 63, 102-119.

Pasquaré, F. A., & Oppizzi, P. (2012). How do the media affect public perception of climate change and geohazards? An Italian case study. *Global and Planetary Change*, 90, 152-157.

Peters, H. P., Heinrichs, H. (2008). Legitimizing climate policy: The "risk construct" of global climate change in the German mass media. *International Journal of Sustainability Communication*, 3, 14-36.

Post, S., Kleinen-von Königslöw, K., & Schäfer, M. S. (2019). Between guilt and obligation: Debating the responsibility for climate change and climate politics in the media. *Environmental Communication*, 13(6), 723-739.

Samuel, J. (2020). *Two years after a cyclone, Tamil Nadu's farmers grapple with aftermath of destruction*. The Wire. Retrieved from: https://thewire.in/agriculture/two-years-after-a-cyclone-tamil-nadus-farmers-grapple-with-aftermath-of-destruction

Schäfer, M. S., Ivanova, A., & Schmidt, A. (2014). What drives media attention for climate change? Explaining issue attention in Australian, German and Indian print media from 1996 to 2010. *International Communication Gazette*, 76(2), 152-176.

Schäfer, M. S., & Schlichting, I. (2014). Media representations of climate change: A meta-analysis of the research field. *Environmental Communication*, 8(2), 142-160.

Semetko, H. A., & Valkenburg, P. M. (2000). Framing European politics: A content analysis of press and television news. *Journal of Communication*, 50(2), 93-109.

Singh, S., & Sharma, V. K. (2019). Urban Droughts in India: Case Study of Delhi. *Urban Drought*, 155-167. Springer, Singapore.

Sonwalkar, P. (2002). 'Murdochization' of the Indian press: from by-line to bottom-line. *Media, Culture & Society*, 24(6), 821-834.

Shwom, R. L., McCright, A. M., Brechin, S. R., Dunlap, R. E., Marquart-Pyatt, S. T., & Hamilton, L. C. (2015). Public opinion on climate change. *Climate change and society: Sociological perspectives*, 269.

Singh, C., Jain, G., Sukhwani, V., & Shaw, R. (2021). Losses and damages associated with slow-onset events: urban drought and water insecurity in Asia. *Current Opinion in Environmental Sustainability*, 50, 72-86.

Spradlin, T. J. (2020). Framing Climate Change in Local Context: Newspaper Coverage of Climate Change In Three Mountain Towns in the Intermountain West Compared to National Coverage (Doctoral dissertation, Utah State University).

Stecula, D. A., & Merkley, E. (2019). Framing climate change: economics, ideology, and uncertainty in American news media content from 1988 to 2014. *Frontiers in Communication*, 4, 6.

Thaker, J. (2017). Climate change communication in India. *Oxford Research Encyclopaedia of Climate Science*. Retrieved from: https://doi.org/10.1093/acrefore/9780190228620.013.471

Thaker, J., & Leiserowitz, A. (2014). Shifting discourses of climate change in India. *Climatic Change*, 123(2), 107-119.

United Nations (1992). United Nations Framework Convention on Climate Change. Retrieved from: https://unfccc.int/resource/docs/convkp/conveng.pdf

Vu, H. T., Liu, Y., & Tran, D. V. (2019). Nationalizing a global phenomenon: A study of how the press in 45 countries and territories portrays climate change. *Global Environmental Change*, 58, 101942.

Whittle, R., Walker, M., Medd, W., & Mort, M. (2012). Flood of emotions: emotional work and long-term disaster recovery. *Emotion, Space and Society*, 5(1), 60-69.

Wu. Y. (2009). The Good, the Bad and the Ugly: Framing of China in News Media Coverage. In T. Boyce and J. Lewis (Eds.) *Climate Change and the Media* (pp 158-173). New York: Peter Lang.

Zehr, S. (2009). An environmentalist/economic hybrid frame in US press coverage of climate change, 2000-2008. In T. Boyce and J. Lewis (Eds.) *Climate Change and the Media* (pp 80-91). New York: Peter Lang.

Annexures

Annexure 1: Collated list of reports used for this media review

	Event/Trend	*Publication*	*Reviewer*	*Code*	*Headline + Link*	*Date*
1	**Chennai Drought/Water Crisis**	**The Hindu**	KK	TH_CW_01	As bore wells in Chennai go deeper, water turns hard	Jun 21, 2019
2			KK	TH_CW_02	Water sources aplenty, but Chennai still thirsty	Mar 18, 2017
3			KK	TH_CW_03	Citizen groups are reclaiming Chennai's water bodies	Jul 15, 2019
4			KK	TH_CW_04	The vanishing waterbodies of Chennai	Apr 1, 2018
5			KK	TH_CW_05	How Chennai is growing its own forests	Dec 20, 2019
6		**The Times of India**	KK	TOI_CW_01	Why you should worry about Chennai's water crisis	Aug 19, 2019
7			KK	TOI_CW_02	Amid drought, plants in Chennai guzzle 21 million litres of	Jul 23, 2019

					groundwater a day	
8			KK	TOI_CW_03	DIY: Chennai joins hands, cleans lakes	Jul 22, 2019
9			KK	TOI_CW_04	Drought relief: Why Tamil Nadu has to cry harder	Feb 2, 2020
10			KK	TOI_CW_05	Don't blow water problem out of proportion, Tamil Nadu CM says	Jun 18, 2019
11		**The News Minute**	KK	TNM_CW_01	Has mushrooming of borewells caused Chennai's groundwater levels to plummet?	Jul 25, 2019
12			KK	TNM_CW_02	Chennai border district cries foul as tankers for city suck their groundwater dry	July 16, 2019
13			KK	TNM_CW_03	Rains fail Chennai: Is city prepared to face another water-scarce summer?	Dec 18, 2018
14			KK	TNM_CW_04	To avert another water crisis in Chennai, need to move beyond urban planning: Experts	Jun 27, 2019

15			KK	TNM_CW_05	Water scarcity in Tamil Nadu not created in a day: Madras HC slams state govt	Jun 28, 2019
16		**FirstPost**	KK	FP_CW_01	Mission Paani: In parched Chennai, residents shell out fortune for water as crisis brings city to its knees	Jul 8, 2019
17			KK	FP_CW_02	Chennai hopes to keep drinking water woes at bay as major reservoirs record sufficient storage this year	Mar 21, 2018
18			KK	FP_CW_03	Tamil Nadu water crisis: EPS accepts Kerala's help, but asks for 20 lakh litres per day instead of one-time help	Jun 21, 2019
19			KK	FP_CW_04	South India's Drought Part 2: Chennai slum dwellers forced to beg for water, authorities remain helpless	May 2, 2017
20			KK	FP_CW_05	Locals rely on pvt tankers as water shortage hits Tamil Nadu; E Palaniswami plays down crisis	Jun 19, 2019

					even as Madras HC slams govt	
21	**Bangalore Drought/Water Crisis**	**The Hindu**	KK	TH_BW_01	Bengaluru's looming water crisis	Jul 18, 2017
22			KK	TH_BW_02	Water shortage adds to COVID-19 lockdown woes in Bengaluru	Apr 27, 2020
23			KK	TH_BW_03	Severe water scarcity in parts of Bengaluru with no piped supply	Mar 10, 2019
24			KK	TH_BW_04	As Bengaluru stares a water crisis in the face, residents turn to open wells	Jul 14, 2018
25			KK	TH_BW_05	Namma Bengaluru: Environmentalists call for a shift to sustainable solutions to slake city's thirst	Jul 02, 2019
26		**The Times of India**	KK	TOI_BW_01	Bengaluru: Mahadevapura stares at a water crisis, tankers to go off roads from Monday	Mar 16, 2020
27			KK	TOI_BW_02	Bengaluru is running dry, and it is a reality	Jul 01, 2019
28			KK	TOI_BW_03	Bengaluru avoids crisis, but steady	May 15, 2019

					supply a pipedream for many	
29			KK	TOI_BW_04	Looming water crisis wakes up Bengaluru MPs from slumber	Mar 06, 2017
30			KK	TOI_BW_05	Water crisis: Is Bengaluru heading for Day Zero?	Feb 13, 2018
31			KK	TNM_BW_01	Amid water crisis, residents of Bengaluru's Bellandur struggle against the tanker mafia	Mar 10, 2019
32			KK	TNM_BW_02	Will Bengaluru run out of water and is it too late to save the city?	Feb 14, 2018
33		**The News Minute**	KK	TNM_BW_03	Bengaluru water crisis: Individual meters, rainwater-harvesting to be mandatory by 2020	Oct 13, 2019
34			KK	TNM_BW_04	Bengaluru gets 1450 million litres of water a day, a quarter of that simply goes missing	Sep 13, 2016
35			KK	TNM_BW_05	Even as Bengaluru stares at a water crisis,	May 27, 2018

					another essential water body killed off	
36		**FirstPost**	KK	FP_BW_01	South India's Drought Part 5: As Karnataka reels under severe water crisis, residents brace unofficial rationing	May 02, 2017
37			KK	FP_BW_02	After Cape Town, Bengaluru set to face major water crisis: Atrocious state of Bellandur Lake a result of apathy by authorities	Feb 14, 2018
38			KK	FP_BW_03	Cauvery issue: The shocking story of Bengaluru's dried up '1,000 lakes'	Sep 19, 2016
39			KK	FP_BW_04	Karnataka faces worst drought in 42 years: Can Siddaramaiah save Bengaluru before taps run dry?	Apr 04, 2017
40			KK	FP_BW_05	Mission Paani: With 23 out of 30 districts in Karnataka battling drought, Bengaluru stares	Jul 10, 2019

					at looming water crisis	
41	**Cyclone Gaja 2019**	**The Hindu**	AS	TH_GC_01	Ground Zero: Cyclone Gaja leaves a trail of destruction in the delta	Dec 1 2018
42			AS	TH_GC_02	Gone with the Wind: No Trace of six hamlets	Nov 21 2018
43			AS	TH_GC_03	Gaja devastation still etched in farmers' minds	Nov 16 2019
44				TH_GC_04	One year after cyclone Gaja, marine ooze continues to disrupt fishing in Nagapattinam district	Nov 15 2019
45			AS	TH_GC_05	Should Nagapattinam ryots persist with paddy farming?	Nov 27 2018
46		**The Times of India**	AS	TOI_GC_01	Cyclone Gaja crosses coast, rain pounds TN, 13 dead	Feb 26 2018
47			AS	TOI_GC_02	7200 people shifted out of Cyclone Gaja's path	Nov 16 2018
48			AS	TOI_GC_03	Cyclone Gaja destroyed banana plants on 2000 acres of land in TN, loss	Nov 22 2018

					estimated to be 500 cr	
49			AS	TOI_GC_04	After Tsunami, Cyclone Gaja is the worst natural disaster to hit TN	Nov 20 2018
50			AS	TOI_GC_05	Cyclone Gaja: One more Tamil Nadu farmer commits suicide	Nov 22 2018
51			AS	TNM_GC_01	We have nobody to go to: Vacuum in TN local bodies leave villagers angry	Nov 25 2018
52			AS	TNM_GC_02	Don't want money, please give us back our boats:Nagai fishermen after Gaja	Nov 21 2018
53		**The News Minute**	AS	TNM_GC_3	How do we build without govt aid? TN hamlet in ruins after Gaja	Nov 21 2018
54				TNM_GC_04	A daunting task: these 300 officials are fixing electricity in Nagapattinam	Nov 21 2018
55				TNM_GC_05	Last time cyclone did so much damage was 30 years ago: Nagapattinam after Gaja'	Nov 16 2018

56		**FirstPost**	KK	FP_GC_01	Cyclone Gaja: Thousands evacuated in Tamil Nadu, Puducherry; disaster management apparatus activated	Nov 15, 2018
57			KK	FP_GC_02	Cyclone Gaja leaves trail of destruction in Tamil Nadu; 26 people killed, over 1 lakh in relief camps	Nov 16, 2018
58			KK	FP_GC_03	Cyclone Gaja makes landfall in Tamil Nadu's Nagapattinam; heavy rains lash state; nearly 80,000 people evacuated	Nov 16, 2018
59			KK	FP_GC_04	Cyclone Gaja claims 11 lives in Tamil Nadu, says K Palaniswami; Rajnath Singh assures Central assistance	Nov 16, 2018
60			KK	FP_GC_05	Cyclone Gaja to make landfall today: Indian Navy put on high alert; fishing suspended along Tamil Nadu, Andhra coasts	Nov 15, 2018

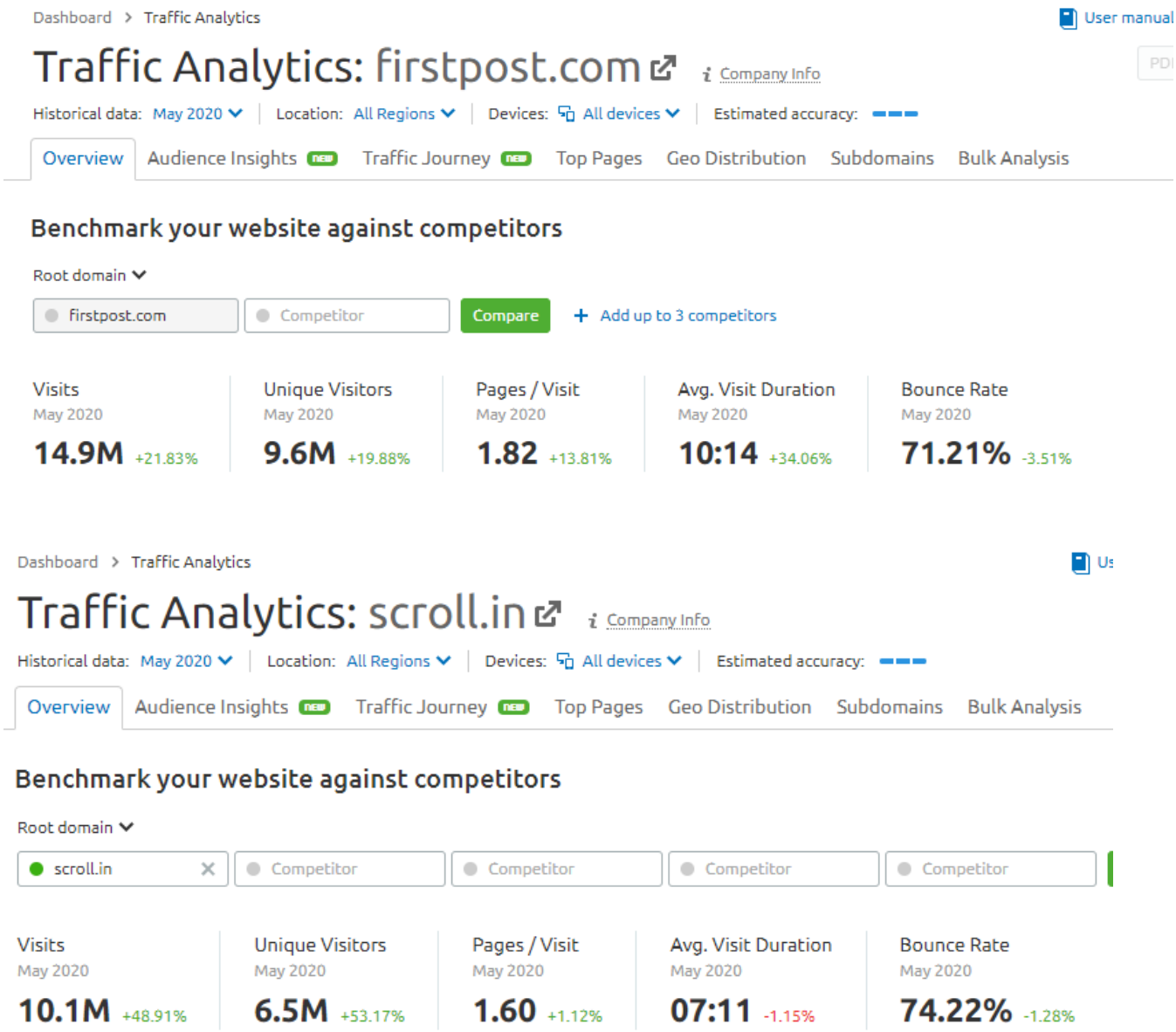
61	**Karnataka Floods (Kodagu)**	**The Hindu**	KK	TH_KF_01	After rains, floods and landslips, Kodagu picks up the pieces	Nov 17, 2018
62			KK	TH_KF_02	Karnataka prone to flooding, but there is little focus on its management	Aug 16, 2019
63			KK	TH_KF_03	Stakeholders of flood-affected Kodagu tourism industry pin hopes on Dasara	Sep 16, 2019
64			KK	TH_KF_04	Karnataka floods: over 1 lakh hectares of coffee plantations damaged in Kodagu	Aug 15, 2019
65			KK	TH_KF_05	Damaged in floods, these bridges are still hanging fire	Jul 6, 2020
66		**The Times of India**	KK	TOI_KF_01	Karnataka: Rehabilitation and rebuilding after floods have govt gasping for a fix	Aug 26, 2019
67			KK	TOI_KF_02	Karnataka floods: Hope fades as survivors wait for news about missing family	Aug 16, 2019

68			KK	TOI_KF_03	Home truths: After floods, paltry payouts in Karnataka	Sep 29, 2019
69			KK	TOI_KF_04	Floods leave trail of misery for farmers, weavers	Sep 30, 2019
70			KK	TOI_KF_05	'Short-changed' Karnataka seeks bigger grant under disaster response fund	Jan 14, 2020
71		**The News Minute**	KK	TNM_KF_01	With better dam management, could the north Karnataka floods have been mitigated?	Aug 13, 2019
72			KK	TNM_KF_02	No flood warning given to us: Uttara Kannada residents slam govt for loss of property	Aug 9, 2019
73			KK	TNM_KF_03	'Never seen the rains to cause the river to flood': Shivamogga grapples with floods	Aug 11, 2019
74			KK	TNM_KF_04	Protest by Kodagu flood survivors seeking land for rehabilitation enters 9th day	Feb 08, 2020

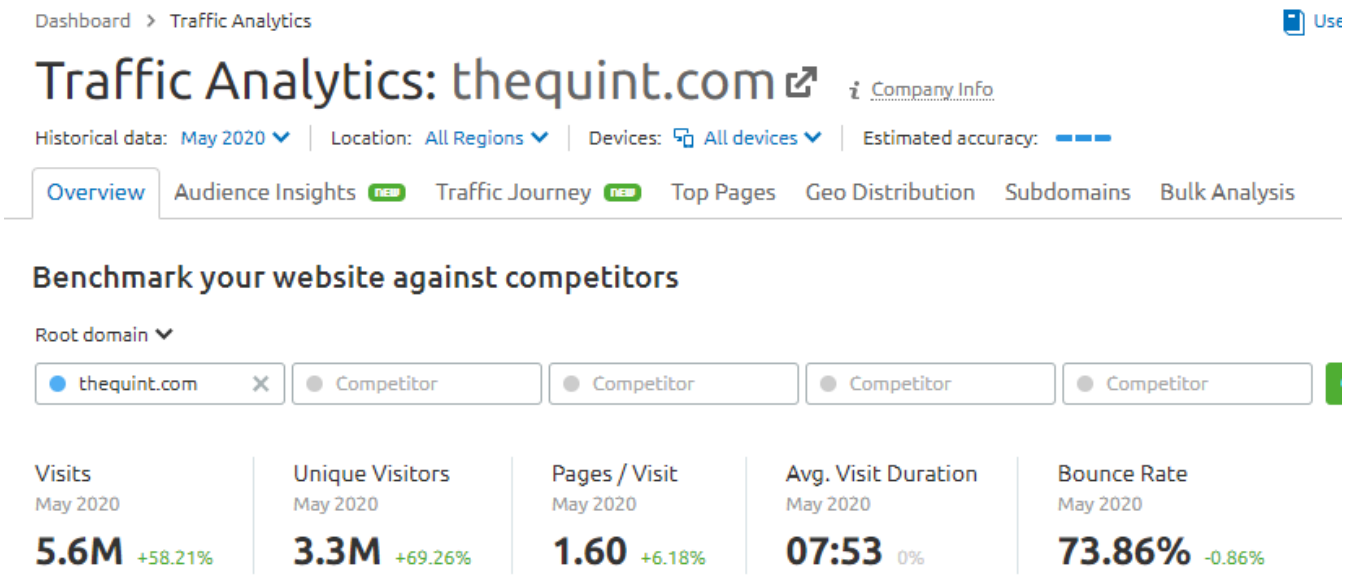
75			KK	TNM_KF_05	No funds yet from Centre for flood relief, Karnataka diverts money from 39 departments	Sep 23, 2019
76		**FirstPost**	KK	FP_KF_01	Long road to recovery for flood-ravaged Kodagu; tourism, coffee estates need time to recuperate	Sep 13, 2018
77			KK	FP_KF_02	Kodagu floods: River rafters, homestay owners come to the rescue of those stranded, offer shelter to homeless	Aug 30, 2018
78			KK	FP_KF_03	Karnataka could take leaf out of Tamil Nadu's book: Intricate network of canals avoided Kodagu-like flooding in state	Aug 31, 2018
79			KK	FP_KF_04	Karnataka Opposition slams BS Yediyurappa's 'one-man cabinet' two weeks after forming govt, as flood situation worsens in state	Aug 08, 2019

80			KK	FP_KF_05	In Karnataka's Boragaon, farmers suffer losses worth lakhs in lockdown merely months after damaging floods	Apr 15, 2020

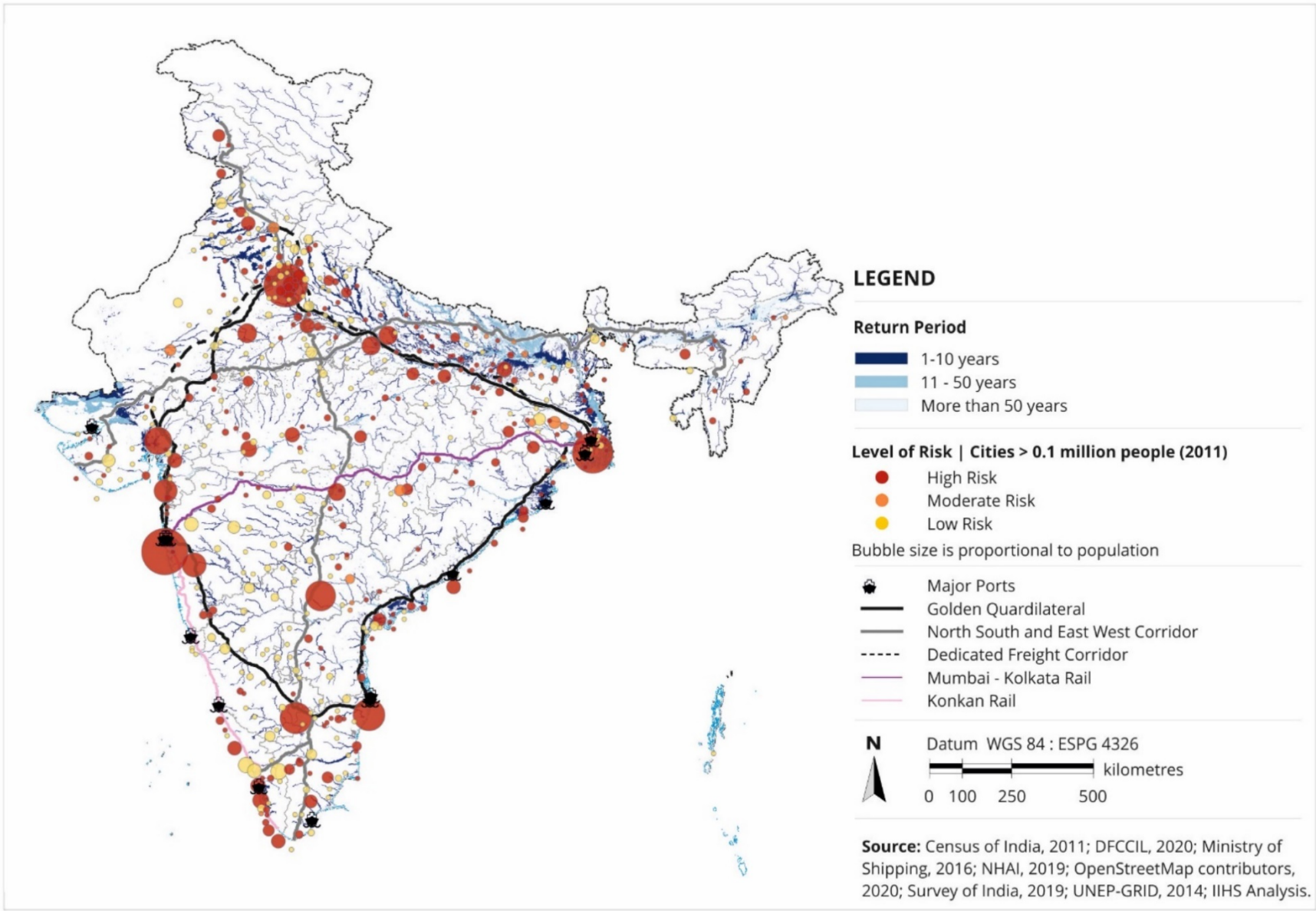
Annexure 2: Screenshots from Semrush on traffic analytics of online news sites

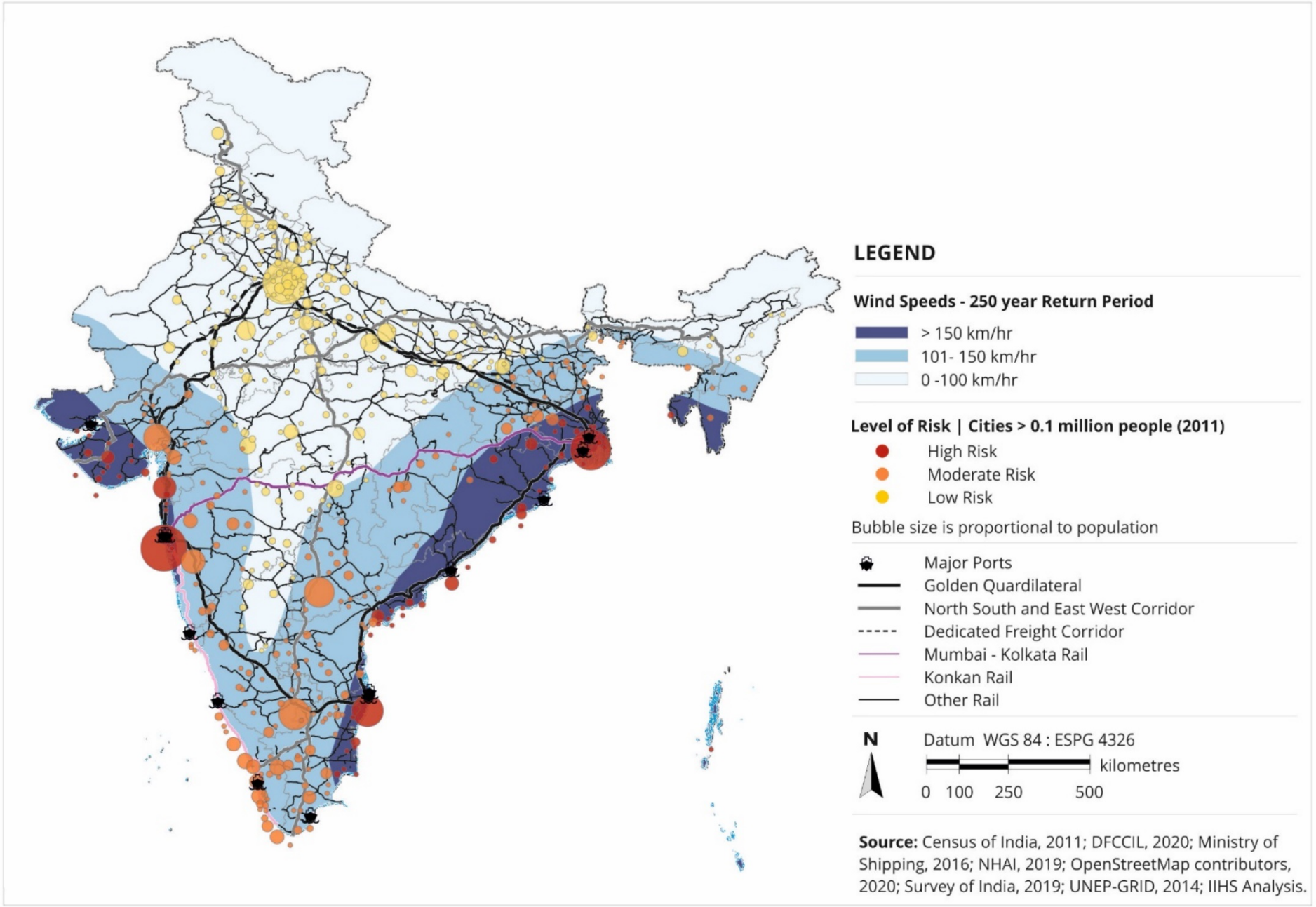

Dashboard > Traffic Analytics
User manual
Traffic Analytics: firstpost.com
Company Info
Historical data: May 2020
Location: All Regions
Devices: All devices
Estimated accuracy:
Overview
Audience Insights
Traffic Journey
Top Pages
Geo Distribution
Subdomains
Bulk Analysis
Benchmark your website against competitors
Root domain
firstpost.com
Competitor
Compare
Add up to 3 competitors
Visits
May 2020
14.9M +21.83%
Unique Visitors
May 2020
9.6M +19.88%
Pages / Visit
May 2020
1.82 +13.81%
Avg. Visit Duration
May 2020
10:14 +34.06%
Bounce Rate
May 2020
71.21% -3.51%

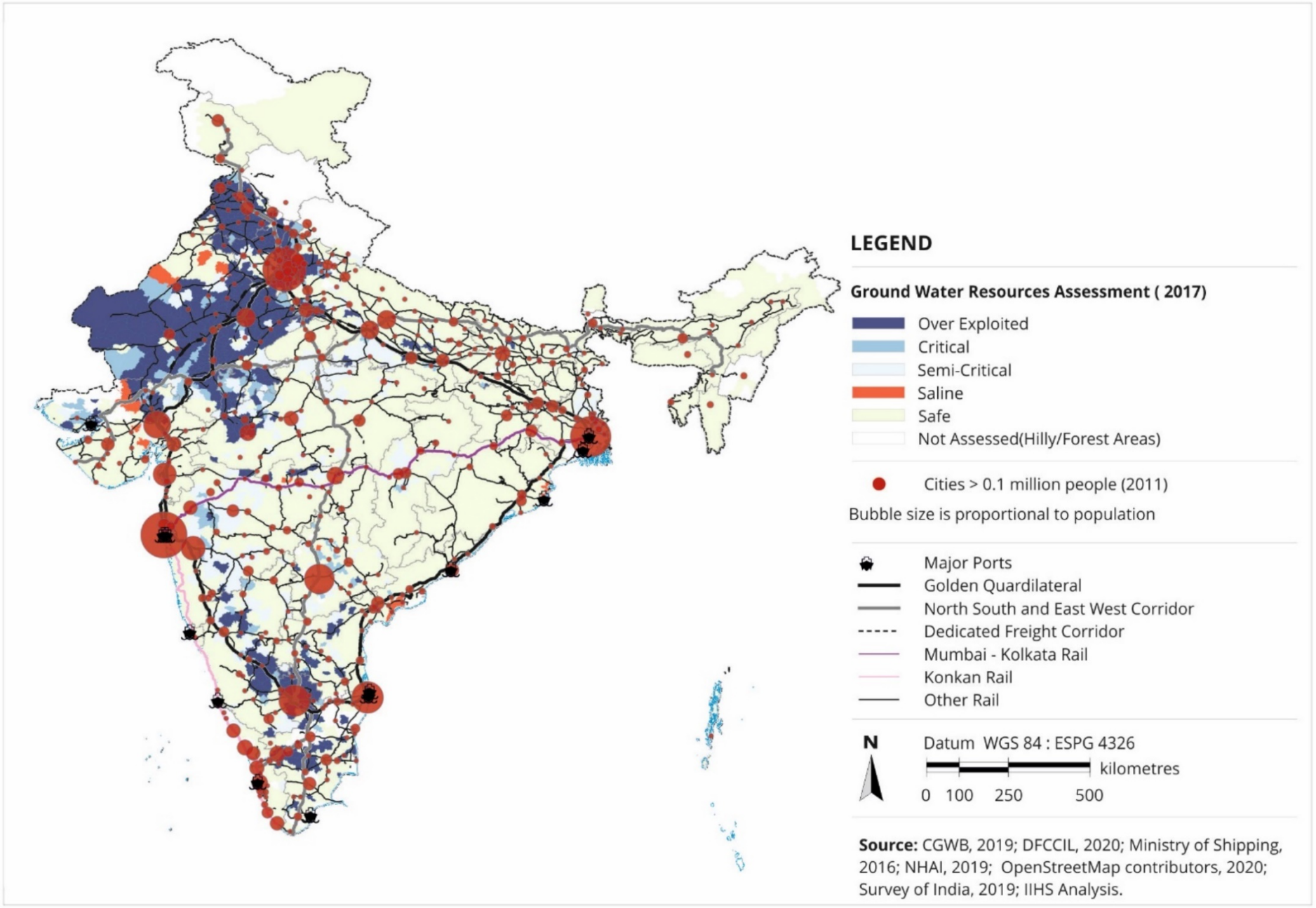
Dashboard > Traffic Analytics
Traffic Analytics: scroll.in
Company Info
Historical data: May 2020
Location: All Regions
Devices: All devices
Estimated accuracy:
Overview
Audience Insights
Traffic Journey
Top Pages
Geo Distribution
Subdomains
Bulk Analysis
Benchmark your website against competitors
Root domain
scroll.in
Competitor
Competitor
Competitor
Competitor
Visits
May 2020
10.1M +48.91%
Unique Visitors
May 2020
6.5M +53.17%
Pages / Visit
May 2020
1.60 +1.12%
Avg. Visit Duration
May 2020
07:11 -1.15%
Bounce Rate
May 2020
74.22% -1.28%


Dashboard > Traffic Analytics
Use
Traffic Analytics: thequint.com
Company Info
Historical data: May 2020
Location: All Regions
Devices: All devices
Estimated accuracy:
Overview
Audience Insights
Traffic Journey
Top Pages
Geo Distribution
Subdomains
Bulk Analysis
Benchmark your website against competitors
Root domain
thequint.com
Competitor
Competitor
Competitor
Competitor
Visits
May 2020
5.6M +58.21%
Unique Visitors
May 2020
3.3M +69.26%
Pages / Visit
May 2020
1.60 +6.18%
Avg. Visit Duration
May 2020
07:53 0%
Bounce Rate
May 2020
73.86% -0.86%

Annexure 3: Maps illustrating flood, cyclone hazard risks and groundwater availability




LEGEND
Wind Speeds - 250 year Return Period
> 150 km/hr
101- 150 km/hr
0 -100 km/hr
Level of Risk | Cities > 0.1 million people (2011)
High Risk
Moderate Risk
Low Risk
Bubble size is proportional to population
Major Ports
Golden Quardilateral
North South and East West Corridor
Dedicated Freight Corridor
Mumbai - Kolkata Rail
Konkan Rail
Other Rail
N
Datum WGS 84 : ESPG 4326
kilometres
0 100 250 500
Source: Census of India, 2011; DFCCIL, 2020; Ministry of Shipping, 2016; NHAI, 2019; OpenStreetMap contributors, 2020; Survey of India, 2019; UNEP-GRID, 2014; IIHS Analysis.


LEGEND
Ground Water Resources Assessment (2017)
Over Exploited
Critical
Semi-Critical
Saline
Safe
Not Assessed(Hilly/Forest Areas)
Cities > 0.1 million people (2011)
Bubble size is proportional to population
Major Ports
Golden Quardilateral
North South and East West Corridor
Dedicated Freight Corridor
Mumbai - Kolkata Rail
Konkan Rail
Other Rail
N
Datum WGS 84 : ESPG 4326
kilometres
0 100 250 500
Source: CGWB, 2019; DFCCIL, 2020; Ministry of Shipping, 2016; NHAI, 2019; OpenStreetMap contributors, 2020; Survey of India, 2019; IIHS Analysis.

IIHS BENGALURU CITY CAMPUS
197/36, 2nd Main Road, Sadashivanagar, Bengaluru 560 080. India.
T +91 80 6760 6666 | F +91 80 2361 6814

IIHS CHENNAI
Floor 7A, Chaitanya Exotica, 24/51 Venkatnarayana Road, T Nagar
Chennai 600 017. India. T +91 44 6630 5500/6555 6590

IIHS DELHI
803, Surya Kiran, 19, Kasturba Gandhi Marg, New Delhi 110 001. India.
T +91 11 4360 2798 | F +91 11 2332 0477

IIHS MUMBAI
Flat No. 2, Purnima Building, Patel Compound, 20-C, Napean Sea Road
Mumbai 400 006. India. T +91 22 6525 3874

iihs.co.in

iihs®
INDIAN INSTITUTE FOR HUMAN SETTLEMENTS