

When Floods Become Theatre: A Comparative Ecolinguistic Analysis Of Competing Climate Disaster Narratives In Pakistani And American Newspaper Coverage

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ABSTRACT

This study applies Arran Stibbe's (2021) ecolinguistic framework in order to analyze competing media narratives of the 2022 Pakistan floods in 'DAWN'; a Pakistani newspaper and in 'The New York Times'; an American newspaper. Using qualitative comparative analysis of '99' thematic units across eight categories such as ideologies, framings, metaphors, evaluations, identities, convictions, erasure, and salience, the research is able to reveal fundamentally different "stories we live by." On the one hand, DAWN constructs political accountability narratives through theatrical framings e.g. ("photo ops," "circus") and performance metaphors, empowering citizens while erasing climate science. On the other hand, The Times presents scientific attribution stories through detection metaphors ("fingerprints") and technical framings, privileging Western expertise while erasing and not paying attention to colonial history and local voices. This analysis demonstrates systematic linguistic patterns: DAWN's high-conviction citizen voices challenge the performance of the elite; The Times reserves epistemic authority for scientists while reducing Pakistanis to being just passive victims. These competing narratives violate different ecological principles. Dawn advances social justice but ignores environmental limits. In contrast, The Times promotes climate awareness but perpetuates epistemic injustice. Neither story is seen to serve comprehensive ecological wellbeing. This study is considered to contribute theoretically by demonstrating interconnections between Stibbe's eight categories, extending ecolinguistics to disaster discourse, and introducing temporal dynamics of frame establishment. The findings reveal the way how September 2022's initial press coverage created persistent templates that shaped subsequent discourse. The research indicates urgent need for integrated narratives that connect local accountability with global responsibility which will empowering diverse knowledge systems while maintaining scientific rigor.

Keywords: ecolinguistics; climate disasters; cross-cultural media; Pakistani floods; environmental discourse

1. INTRODUCTION

The unprecedented and catastrophic floods that hit one-third of Pakistan in 2022 revealed the devastating consequences of climate change, but it also exposed intense differences between the manner in which environmental calamities are linguistically created and constructed across differing traditional, societal, and cultural circumstances. According to the statistics, 33 million

people, one sixth of Pakistan's populace, struggled with the loss of lives, stock etc. the international media deployed distinct linguistic approaches to depict this tragedy, revealing the critique of Stibbe (2021) what he terms as "stories-we-live-by" that basically alter environmental understandings and responses. These linguistic constructions are considered to be far from being neutral due to the fact that they actively attempt to create reality by determining specific aspects of the disaster which become salient, whose voices are heard, and what solutions appear to be feasible. This research article argues that the difference between the linguistic construction of the 2022 Pakistan floods in Pakistani versus international media demonstrates deeper ideological and political frameworks about climate responsibility, showing how language, both creates and limits possibilities for climate justice. A comparative ecolinguistic analysis of media coverage will show that Pakistani and international media use fundamentally differing linguistic approaches. Pakistani discourse emphasizes moral-political accountability through metaphors of performance and theatrical failure, but international discourse focusses on scientific-technical causality through statistical quantification and attributing it to climate changes. As a consequence, that ultimately reproduces power imbalances in global climate governance and erasing victim agency and indigenous systems of knowledge.

The way in which media discourse covers environmental catastrophic tragedies increasingly influences policy responses, supply allocation, and people's awareness of climate vulnerability. The 2022 Pakistan floods are an amazing perfect example of the mentioned dynamics; despite the fact that the unprecedented torrents caused a loss of \$30 billion to a nation already struggling with huge amounts of international loans, the calamity received comparatively less attention worldwide and financial support than the previous floods. In 2010, Pakistan received immediate financial relief of \$3 billion as compared to only \$297 million for the floods of 2022. This huge difference cannot be explained through disaster magnitude alone because it shows us how linguistic choices in media shapes perceptions of deservingness, responsibility, and urgency. When natural calamities are portrayed using particular biased linguistic lenses, whether it emphasizes political corruption, climate attribution, or humanitarian crisis, it essentially frames how audiences understand causality and how they respond to these causalities.

The use of ecolinguistics analysis provides extraordinary discoveries of how language is exploited to bridge relationships between various human societies and natural calamities. Arran Stibbe's (2021) ecolinguistic framework is based on examining the manner in which linguistic choices uncover and maintain the ecologically significant ideologies. It has received significant support in analysing environmental discourse across different socio-cultural contexts. Stibbe's analytical framework consisting of nine-components such as, *ideology, frames, metaphors, erasure, salience, evaluation, identity, conviction, and stories-we-live-by* offers well-organized, structured and logical tools that have the capability to unveil how language plays its role in shaping environmental perceptions at both cognitive and cultural levels (Alexander, 2019; Laurie & Thompson, 2024).

Even though there is growing awareness concerning the role of language in shaping peoples' biospheric understanding, there are serious and notable gaps in analysing how different cultural contexts execute distinct linguistics policies and strategies for the representation of natural calamities. The contemporary research has primarily focused on single-culture analyses avoiding the comparative analysis across different cultures which obscure nuanced cultural variations in environmental discourse construction (Schmidt, Ivanova, and Schafer, 2013). Meanwhile these studies are highly valuable for identifying general patterns, but they overlook

the fact that how particular socio-cultural worldviews manifest concepts such as relationships to nature, conceptions of human agency, and moral-ethical frameworks in substantial language choices during the media coverage of natural disasters. There has been comparative work examining Global North-South media representations, but they do not interrogate the linguistic mechanisms through which these disparities operate at a deeper level (Ahmad, Hassan, Qureshi, and Malik, 2024).

Additionally, the established studies rarely investigate the difference between local and international media coverage within the affected regions and neglect the important and crucial understandings and insights of how proximity to natural catastrophe shapes language choices. This highlighted gap is crucial given that the local press media often serves as primary data sources for victimized populations while at the same time acting as a bridge between local experiences and international audiences. Perhaps most critically, do not adequately theorize the fashion in which different "stories-we-live-by" come into view from distinct socio-cultural paradigms regarding human-nature relationships, and consequently limiting the perceptions of why these certain linguistic strategies predominate in specific socio-cultural contexts while they remain obscure and absent in others. This is a major theoretical limitation because there is an absence of systematic framework for analytically comparing socio-culturally specific disaster discourses and it also prevents modern researchers from comprehending how the universal climate phenomena become differently constructed through localized linguistic practices.

Through detailed ecolinguistic analysis, this study makes three key theoretical contributions to understanding disaster representation. First, it extends Stibbe's (2021) ecolinguistic framework by demonstrating how culturally specific "stories-we-live-by" generate distinct linguistic strategies even when addressing the same environmental catastrophe, challenging universalist assumptions in ecolinguistic theory. Second, it reveals how ecological worldviews operate through the systematic deployment of Stibbe's nine analytical components—ideology, frames, metaphors, erasure, salience, evaluation, identity, conviction, and stories-we-live-by—with Pakistani media emphasizing evaluative and identity-based constructions while international media prioritizes frames and conviction markers around scientific certainty. Third, it contributes to environmental justice scholarship by exposing how linguistic choices in disaster coverage perpetuate what Fine (2022) terms "linguistic barriers" to climate justice, demonstrating specifically how different deployments of erasure and salience patterns combine to obscure both responsibility and agency in climate-vulnerable communities.

2. LITERATURE REVIEW

The 2022 Pakistan floods are a catastrophic naturally triggered tragedy which caused massive devastation and worsened the socio-economic condition of Pakistan's labour class. The linguistic choices and strategies deployed in the coverage of natural calamities have a direct effect on policy responses, political storylines, and foreign impressions. A comprehensive comparative study conducted regarding the American and Pakistani press reveals the linguistic tactics used to present the environment in different socio-political and cultural frames. The following brief review of the related literature is based upon ecolinguistic theory applications, media framing of climate disasters, and also discourse analysis of the Global North-South coverage in order to shed light on the key theoretical concepts, methodological approaches, and research opportunities. It also attempts to examine the manner in which linguistic tactics construct discourse about natural disasters, studies previous research done concerning climate

catastrophe and media coverage, and how ecolinguistic analysis is used in comparative media studies.

2.1. Stibbe's Ecolinguistic Framework

According to the ecolinguistics theory provided by Arran Stibbe, the manner in which environmental issues are presented via media coverage depends on the underlying “stories-we-live-by” that construct the relationship between human and nature (Stibbe, 2015, 2021). These stories conceal particular aspects of the reality the victims face, but they are also credited with revealing some brutal realities, highlighting different elements, and consequently influencing public understanding and environmental action. Ecolinguistic analysis is famous due to the fact that it routinely employs nine analytical components in relation to environmental discourse: ideology (worldviews about the relationship between human and nature), frames (cognitive structures influencing perception), metaphors (conceptual mappings), erasure (sophisticated and systematic omissions), salience (prominence of certain patterns), evaluation (value judgements), identity (creation of social entities), conviction (markers of certainty), and lastly, stories-we-live-by (overarching narratives) (Stibbe, 2021).

Ma and Stibbe (2022) have conducted a recent study entitled “The search for new stories to live by: A summary of ten ecolinguistics lectures”. In their work, they examined how Stibbe's framework has evolved to analyse environmental discourse across distinct and diverse socio-political contexts. They worked on the application of the nine-component framework to understand how distinct language tactics are used to unveil underlying ecological philosophies. The researchers came up with the notion that successful ecolinguistic analysis requires explicit articulation of the analyst's own ecological philosophy and proper systematic analysis of whether the texts promote life-sustaining or life-destroying relationships. It was then implied that chosen framework has the capacity to provide a comprehensive methodology for revealing how language shapes perceptions concerning the understanding of natural calamities, though they noted limitations in examining cross-cultural variations in ecological worldviews. Poole (2022) pioneered the integration of corpus linguistics with Stibbe's ecolinguistic framework in his study entitled “Corpus-Assisted Ecolinguistics”. Poole intended to analyse large-scale patterns deployed in environmental discourse. He examined the way technological and computational methods could enhance ecolinguistic analysis by revealing systematic patterns across large-scale and extensive textual datasets. The research also revealed that ecolinguistic analysis conducted with the help of corpus-approaches could identify subtle language tactics used in how forests and trees were represented across 200 years of discourse by America. It was implied from the findings that if Stibbe's ecolinguistics theory is combined with corpus methods, it would enable the researchers to conduct more comprehensive analysis of environmental discourse patterns, acknowledging the challenges that will come in maintaining interpretive depth when analysing large datasets.

Alexander and Stibbe (2014) have established some vital distinctions between analysing texts about natural and environmental topics versus the application of ecological principles to any kind of discourse in their theoretical work entitled “From the Analysis of Ecological Discourse to the Ecological Analysis of Discourse”. Basically, they explored how ecolinguistic analysis could move beyond the environmental texts to examine the ecological implications of all the use of language. The study claimed that non-environmental discourse has implicit stories that alter ecological understanding. It was then implied that in order to get ecological implications ecolinguistic analysis should be used to examine all discourse. Alongside they also noted the challenges in defining what constitutes an ecologically beneficial story across different cultural contexts.

Based on the reviewed literature on Stibbe's ecolinguistic framework, several research gaps emerge that warrant further investigation. While existing studies have successfully applied the nine-component framework to analyze environmental discourse within single cultural contexts, there remains limited comparative analysis of how the same environmental event generates different "stories-we-live-by" across different cultural and linguistic contexts. Most current research focuses on Western environmental discourse, leaving significant gaps in understanding how non-Western cultures construct ecological worldviews through language. Additionally, while scholars have identified various components of ecolinguistic analysis, there is insufficient attention to how these components interact synergistically to create overarching narratives about environmental disasters. The integration of ecolinguistic analysis with systematic cross-cultural comparison remains underexplored. Furthermore, existing studies tend to examine environmental discourse in isolation without adequately connecting linguistic patterns to broader questions of climate justice and postcolonial power dynamics.

2.2. Media Framing of Climate Disasters

Boykoff and Boykoff (2007) established how professional journalism practices shape climate communication through specific framing mechanisms in their groundbreaking study entitled "Climate Change and Journalistic Norms: A Case Study of US Mass Media Coverage". They studied how complete adherence to journalism norms of balance and objectivity created "informationally deficient" coverage that gave disproportionate voice to the sceptics of climate. The researchers found that the first-order norms such as personalization, dramatization, and novelty, and second-order norms such as authority-order and balance have the capability to systematically distort climate science communication. They implied that the journalistic practices inadvertently undermined public understanding of climate consensus, but they also considered evolving media practices in subsequent years.

Stecula and Merkley (2019) are known for their comprehensive research entitled "Framing Climate Change: Economics, Ideology, and Uncertainty in American News Media Content From 1988 to 2014". They used computational analysis of around 14,141 news stories in order to make sense of the evolution of framing. They also made an attempt to identify systematic patterns in climate coverage across major US outlets by using machine learning and dictionary methods. The in-depth research revealed that risk language increased 35% over the study time period, while uncertainty frames declined from 32% to 16%, and economic frames shifted from cost-emphasis towards benefit-emphasis. At the end, it was concluded based on the results that climate framing has become progressively more urgent and also solution oriented. And it was also acknowledged that persistent ideological divisions exist in frame deployment across different media platforms.

Matlock et al. (2017) argued in their experimental research the material consequences of metaphorical framing in disaster communications. Their study is entitled "Monster Wildfires and Metaphor in Risk Communication." Basically, they analysed the way distinct metaphorical constructions affected risk perception and also has an impact on behavioral intentions concerning wildfire threats. The findings of the study found that disasters described as "monsters" or "beasts" were perceived as more severe as compared to those events that were framed through the use of vehicle and object metaphors; even when the diagnostic information was the same. On the basis of the results, it was concluded that metaphorical language tactics profoundly shapes perceptions regarding risks, independent of factual content. The need for cross-cultural validation of metaphorical effects was also taken into account.

Based on the reviewed theoretical foundations of climate disaster framing, several research gaps warrant attention. While existing studies have examined framing patterns within national media contexts, limited research compares how the same climate disaster is framed across different cultural and political systems. Most current research focuses on Western media, particularly US outlets, leaving significant gaps in understanding non-Western framing patterns and their effects. Additionally, while scholars have identified various frame types, insufficient attention has been given to how frames interact with metaphorical systems to create comprehensive disaster narratives. The linguistic mechanisms through which frames are constructed and naturalized remain underexplored, particularly regarding grammatical patterns that reinforce or challenge dominant framings.

2.3. Comparative Analysis of Climate Disaster Coverage

Hase et al. (2021) conducted a large-scale research project entitled "Climate Change in News Media across the Globe: An Automated Analysis of Issue Attention and Themes in Climate Change Coverage in 10 Countries (2006-2018)". Primarily, they analysed 71,674 articles to reveal systematic disparities among Global North and Global South. They used automated content analysis for comparing coverage patterns across developed and undeveloped countries. The study was able to find that the Global North media emphasized political and scientific dimensions, but on the contrary Global South coverage focused more on human impacts and societal implications regarding climate change. In essence, it was implied that the media of Global South demonstrated more effective human-centered climate communication as compared to Global-North. The existence of persistent disparities in overall coverage volume and international reach was also taken into account.

Ahmad et al. (2024) conducted an extensive study titled "Media, Disasters, and the Global South: Comparing Global North and South Media Framing on Pakistan's 2022 Floods". They focused on examining differential framing of Pakistani floods across international and domestic media. At heart, they analysed 2,279 frames across multiple media platforms to make sense of the responsibility attribution and solution framing patterns. Essentially, the study was able to uncover the truth that Pakistani media emphasized government failure and political accountability while international coverage focused more on climate change causation and humanitarian response. Ultimately, it was concluded that these framing differences reflect more deeper disparities in the way agency and responsibility are constructed across Global North-South divides. Lastly, the limitations in examining audience reception of different frames were also taken into account.

Morrison et al. (2023) performed a ground-breaking study titled "Postcolonial Lessons and Migration from Climate Change: Ongoing injustice and hope". Basically, they developed theoretical frameworks for understanding climate coverage through postcolonial lenses. At heart, they investigated how Pacific Island nations' climate weaknesses are demonstrated in international media discourse. The study is credited to reveal that press coverage systematically applies "necropolitics" that legitimizes and normalizes the suffering of certain populations while suppressing the historical accountability for climate change. The researchers and authors established that climate justice demands reframing of media narratives at foundational level in order to address colonial histories and ongoing embedded inequalities. The challenges in executing and introducing alternative frameworks were also observed for further research.

Based on the reviewed comparative analyses, several research gaps demand attention. While studies have compared general patterns between Global North and South coverage, detailed linguistic analysis of how specific grammatical and lexical choices construct these differences remains limited. Most comparative work focuses on broad thematic patterns rather than

systematic linguistic mechanisms. Additionally, while scholars identify representational disparities, insufficient research examines how Global South media actively resist or challenge dominant Northern narratives through specific discursive strategies. The intersection of comparative media analysis with ecolinguistic frameworks remains particularly underexplored.

2.4. Research Gaps and Future Directions

This academic literature review discloses and reveals three essentially critical patterns requiring further investigation. Firstly, the application of ecolinguistic theory to comparative disaster coverage remains insufficient and limited keeping in mind that it provides comprehensive and extensive frameworks for analysing environmental discourse. Secondly, there is a lack of sufficient linguistic depth in systematic comparison of framing strategies across Global North-South divides although there are a few studies that demonstrate the way linguistic choices create climate perceptions. Thirdly, the different language tactics maintaining these disparities need to be analysed in detail because climate accountability approaches highlight symbolic imbalances.

The 2022 Pakistan floods exemplify these research gaps, as existing studies examine either Pakistani or international coverage separately without systematic linguistic comparison. This study addresses these gaps by applying Stibbe's (2021) complete ecolinguistic framework to compare how Pakistani and American media deploy different linguistic strategies, revealing culturally specific "stories-we-live-by" that shape disaster understanding and climate justice discourse. Through detailed analysis of metaphorical systems, erasure patterns, and evaluation strategies, this research contributes to understanding how language perpetuates or challenges climate inequalities in disaster representation.

3. METHODOLOGY

3.1 Research Design

In this research a qualitative comparative case study design (Yin, 2018) is applied to evaluate and examine the ecolinguistic framing of the 2022 Pakistan floods in two distinct socio-political scenarios i.e. Pakistani and American newspaper discourse narrative. Stibbe's (2021) ecolinguistic framework is used purely which provides an organized and structured approach for analysing how language strategies construct "stories we live by" that have the capacity to shape the relationship between human and environment. In the representation of disasters, this contrastive approach enables the examination of cross-cultural variations. It also reveals the way different linguistic tactics encode distinct ecological worldviews and power dynamics in the realm of climate disaster discourse.

3.2 Theoretical Framework

This study is exclusively based on the ecolinguistic framework proposed by Arran Stibbe (2021). Primarily, it conceptualizes language analysis through eight interconnected categories: ideologies, framings, metaphors, evaluations, identities, convictions, erasure, and salience. There are other traditional approaches of discourse analysis, but their main focus is on human social relations. On the contrary, ecolinguistic analysis examines how language manipulates relationships between humans and nature. The reason for particularly going for Stibbe's framework is that it provides tools for identifying both perceptions i.e. destructive discourses that perpetuate ecological harm and also the beneficial alternatives that promote ecological wellbeing.

3.4 Data Selection

In order to ensure validity and authenticity of the data, two newspaper articles were selected purposively which represent diverse institutional and cultural perspectives on the 2022 Pakistan floods. One article is taken from DAWN entitled "Floods and Photo Ops" written by Pervez Hoodbhoy and it was published on September 3, 2022. DAWN is a newspaper renowned for its liberal editorial stance and having well educated readership which makes it a significant voice in Pakistani public discourse. It is widely known as Pakistan's leading English-language newspaper, and it represents an insider's critical perspective on the disaster. It is composed by a prominent Pakistani intellectual who is known for his incisive social commentary is also taken into account.

The second article is taken from The New York Times entitled "In a First Study of Pakistan's Floods, Scientists See Climate Change at Work" written by Raymond Zhong. It was published on September 15, 2022. The New York Times brings scientific authority and global reach to its coverage because it is America's newspaper with substantial international influence. This article positions the event within global climate change discourse through the lens of climate attribution to science making it an example of international scientific framing of the natural calamity.

Both texts were composed and published at a very critical time period of flood coverage (September 2022). The two texts were chosen on the basis of careful consideration of their positioning in the institutions and also on temporal significance. It was the peak time when dominant discursive frames were being established. The initial linguistic choices and tactics used by media coverage are crucial because at that time the established patterns often persist throughout the coverage cycle and making these early texts instrumental in shaping public understanding and policy responses.

3.5 Data Analysis Procedures

This study has applied rigorous and organized manual coding given by Stibbe's eight category ecolinguistics framework. Close reading of both texts to gain understanding of the overall narrative structures and rhetorical categories was the initial step in the process of analysing. Afterwards, the texts were divided into chunks of thematic units such as coherent segments expressing complete ideas regarding flood representations. These segments of the texts functioned as the main analytical focus which allowed the exploration and examination of the manner in which certain ideas get developed throughout the textual boundaries instead of looking at individual sentences and paragraphs in the texts.

All the coded segments in the texts were documented with specific textual location, linguistic evidence, and categorical classification only to make sure analytical rigor remains intact in the research. At heart, the main focus is on qualitative analysis of how these patterns function within their textual contexts but in order to make the study more reliable frequency counts were also included for recurring patterns throughout the texts. The difference between the media coverage of same natural disaster across distinct socio-political contexts which is created with the aid of different linguistic choices was paid particular attention.

3.6 Analytical Framework Application

Each category of ecolinguistic analysis required careful attention to the linguistic features that were related with them. It was necessary for successful operationalization of Arran Stibbe's framework; otherwise, the results would not be reliable and authentic. Following is a brief description concerning all the categories. For ideologies, lexical choice patterns were examined, collocation, and also the semantic preferences that helped in revealing underlying belief systems about development, governance, and relationship between nature and human.

Framings got identified with the words that triggered particular conceptual domains, and the manner in which source domains structured understandings of the flood disaster was also analysed for better understanding and perception.

Metaphor analysis adopted the process of the conceptual metaphor theory. It was able to identify systematic mappings between concrete source domains and abstract target domains. It also examined their coherence and elaboration across the texts. Evaluation analysis was based on the well-known appraisal theory. It was able to identify patterns of judgement, appreciation, and affect which uncovered what each text positioned as being good or bad. The positioning of various actors concerned with disaster were traced with the identification of certain pronoun usage, naming choices, and agency patterns in the Identity category of Stibbe's framework.

In the analysis of Conviction, the study considered examining modality markers, hedging devices, and facticity patterns to uncover different levels of certainty and authority claims. Along the line, Erasure got identified with the assistance of revealing systematic absence, minimal presence, or distorted representation of the crucial elements. And, lastly, Salience was traced with the help of finding textual prominence indicators which include positioning, repetition, and also grammatical roles. The ecosophy which was adopted and mentioned above to determine ecological implications was utilized to evaluate each pattern throughout the whole process.

3.7 Limitations

There are several limitations in this research. Only two texts are analysed which limits generalizability to broader media discourse patterns. Vernacular media is not used for analysis which could have provided different perspectives. The focus was on publications of English-language. The coding was done by a single researcher, but it can be executed by multi-coder approaches. The use of newspaper articles only from September 2022 only captures a specific context rather than the evolution in coverage over time.

4. FINDINGS AND DISCUSSION

The manual coding of two newspaper articles which covered the 2022 Pakistan floods with the help of Stibbe's (2021) ecolinguistic framework basically reveals different linguistic tactics and constructions of the same nature induced disaster. The analysis successfully identified '47' thematic units in DAWN and '52' in The New York Times, where each unit representing a coherent segment which expresses complete ideas about the flood representation of 2022. These texts published in September 2022 captured the critical early period when the dominant interpretive frames were being established by the press which made them particularly significant in order to develop an understanding how initial linguistic choices shaped subsequent discourse about the floods.

Following the research methodology outlined above, thematic units were identified as coherent segments which assisted in expressing complete ideas about the representation of flood. The segments range from single sentences to paragraph-length passages. Each unit was systematically coded according to Stibbe's eight categories. It was also considered with recognition that several thematic units exhibited multiple categories simultaneously. Keeping in mind the cooccurrence of thematic units, the manual coding process created an audit trail which documented linguistic evidence, categorical classification, and textual location for each and every pattern that was identified. The coding was able to reveal distinct linguistic patterns

in how Pakistani and American media constructed and shaped competing narratives about causation, responsibility, and also the appropriate responses to the environmental disaster. The below Table 1 presents the distribution of thematic units in Stibbe's eight categories; it reveals distinct language tactics and patterns in the fashion each newspaper constructed the flood narrative regarding 2022 floods of Pakistan. However, The analysis begins and proceeds through paired categories of Stibbe (2021) that demonstrate their interconnections theoretically: ideologies with framings, metaphors with evaluations, identities with convictions, and erasure with salience. This organizational structure explicitly shows how these categories are capable to mutually constitute the competing 'stories we live by' about the 2022 Pakistan floods.

Table 1: Distribution of Thematic Units Across Stibbe's Eight Categories

Category	DAWN (n=47)	DAWN (%)	NYT (n=52)	NYT (%)	Dominant Features
Ideologies	31	66%	28	54%	<i>Governance critique vs. scientific rationalism</i>
Framings	28	60%	32	62%	<i>Political theatre vs. scientific investigation</i>
Metaphors	21	45%	19	37%	<i>Performance/hierarchy vs. detection/systems</i>
Evaluations	35	74%	26	50%	<i>Negative governance vs. positive science</i>
Identities	26	55%	23	44%	<i>Citizens/elites vs. scientists/victims</i>
Convictions	19	40%	31	60%	<i>High certainty vs. graduated confidence</i>
Erasure	12	26%	15	29%	<i>Climate science vs. colonial history</i>
Salience	33	70%	38	73%	<i>Political critique vs. attribution science</i>

DAWN (n=47) and NYT(n=52) refer to the total number of thematic units identified in both newspaper articles and then the percentage for each article is calculated by considering '47' and '52' as a 100%.

Now, the analysis begins with ideologies and framings which are the foundational categories that establish the interpretive lens through which all other linguistic choices are made.

4.1 Ideologies and Framings: Foundational Stories

4.1.1 Dawn's Post-Colonial Accountability Framework

Stibbe (2021: 23) defines ideologies as '*belief systems shared by members of particular social groups*,' while framings make use of '*a story from one area of life to structure how another area is conceptualized*' (2021: 47). The manual coding was capable to get revealed that Dawn's ideological notion of governance critique is systematically realized with the help of theatrical performance framings. This nexus of ideology-framing appears in 31 thematic units which establishes accountability failure as the dominant interpretive framework.

The thematic unit analysis is seen as revealing the manner in which specific linguistic choices encode ideological assumptions through the mechanisms of framing. The opening unit, "*WITH monster floods and a third of Pakistan submerged, world figures have expressed sorrow and promised some aid*," immediately creates an ideological difference between the global empathy and local failure. The framing of floods as "*monster*" creates a creature domain that positions the natural

disaster as an external threat which requires heroic response from the authorities. As an outcome, it sets up the subsequent critique of unheroic and unactive local leadership.

A particularly revealing linguistic thematic unit states: "*Squarely at fault are politicians who, instead of being fully engaged with emergency relief, have opted for cheap showbiz while continuing to bash one other.*" This unit is seen as what demonstrates the ideology-framing fusion where the belief in governmental failure (ideology) is realized through the frame of 'DISASTER RESPONSE IS THEATER.' The evidence of linguistic choice includes "*cheap showbiz*" which activates the frame of performance. At the same time "*instead of being fully engaged*" establishes the contrast present between appearance and substance. From an ecosophical perspective, this pattern proves to be beneficial as it exposes the disconnection that is among the political performance and genuine disaster response, serving the Living! ecosophy's principle of social justice.

Another powerful unit is seen as declaring: "*The relief circus's star performers included Shabbaz Sharif on the high trapeze with Bilawal Bhutto-Zardari and Murad Ali Shah swinging just below.*" Here, the metaphor 'circus' extends the theatrical framing while also encoding the ideological critique of governance as a spectacle. The specific mapping of politicians to circus performers ("*high trapeze*," "*swinging*") is considered as what creates a coherent performance frame that delegitimizes efforts of official response. This framing serves as the ecosophy's equity principle through exposing the way in which disaster response becomes a political capital and commodity rather than humanitarian action aimed at helping people as humans.

Table 2: Ideology-Framing Nexus in Dawn

Ideological Component	Framing Device	Textual Evidence	Frequency	Ecosophical Evaluation
Governance as performance	Politics is theatre	" <i>photo ops</i> ," " <i>showbiz</i> ," " <i>circus</i> "	12 units	Beneficial - promotes accountability
Elite disconnection	Power is vertical	" <i>high trapeze</i> ," " <i>swinging below</i> "	8 units	Beneficial - exposes hierarchy
Historical pattern	Governance is repetition	" <i>no different</i> ," " <i>forever have</i> "	7 units	Beneficial - reveals systemic issues
Resource misuse	Aid is performance	" <i>joyrides</i> ," " <i>PR crew</i> "	4 units	Beneficial - questions priorities

The ecosophical assessment of ideology-framing patterns in Dawn's article uncovers their predominantly beneficial nature for promoting ecological, social, and humanitarian wellbeing. The theatrical framing of governance serves as the 'Living!' ecosophy's social justice principle through making visible the structural inadequacies that are qualified to perpetuate vulnerability. By positioning disaster response as performance, the text is seen as challenging readers to demand substantive action rather than symbolic action for controlling climate caused wreckage. However, the deterministic ideology suggested with the use of phrases such as "*Pakistan will forever have rapacious leaders*" potentially undermines the transformative orientation of ecosophy by implying that change is impossible and it can never take place. As being a researcher from Pakistan, I recognize these framings are as part of a post-colonial critique tradition which exploits exposure as a tool for accountability, particularly significant

in the September 2022 context when official narratives were being established with the help of media.

4.1.2 NYT's Scientific Authority Framework

The article taken from The New York Times demonstrates a contrasting ideological framework which is centered on scientific rationalism, realized via investigation and through detection framings. Manual coding was able to get identified '28' thematic units where climate science ideology structures and constructs disaster perception through frames based on research. The combination of 'ideology-framing' positions scientific knowledge as the primary legitimate medium of understanding the floods.

The thematic unit at the opening of the article establishes the scientific frame: "*The deluges were made worse by global warming caused by greenhouse-gas emissions, scientists said Thursday, drawing upon a fast-growing field of research.*" This unit encodes the ideology of scientific authority through the framing of 'UNDERSTANDING IS SCIENTIFIC INVESTIGATION.' The passive construction i.e. "*were made worse*" is combined with the attribution to "*scientists said*" positions scientific knowledge as the revealing and pre-existing truths rather than constructing public's interpretations and perceptions. From an ecosophical perspective, this proves to be ambivalent—while also advancing climate awareness, it privileges Western scientific epistemology over other knowledge systems of the Global South.

A revealing thematic unit states: "*As climate scientists' techniques improve, they can assess, with ever-greater confidence and specificity, how human-induced changes in Earth's chemistry are affecting the severe weather.*" This clearly demonstrates how the ideology of technological progress frames understanding through the use of 'SCIENCE IS ADVANCING DETECTION' metaphor in the article. Moreover, the language chosen in "*ever-greater confidence and specificity*" is able to encode a belief in linear scientific progress that positions current knowledge as superior to past understanding and future knowledge as even better than that. This framing is seen as what violates the ecosophy's principle of respecting diverse knowledge systems through implying only technical analysis which is able to provide valid understanding.

The most explicit 'ideology-framing' fusion appears in a sentence such as: "*Attribution studies aim to link two distinct but related phenomena: climate and weather.*" Here, in this sentence, the scientific practice of attribution becomes framed as 'LINKING SEPARATE DOMAINS,' which positions scientists as the important connectors of previously unconnected realms. This framing is also said to grant enormous epistemic authority to scientific practitioners while also potentially excluding other ways of understanding and perceiving climate-weather relationships that indigenous and local communities have long recognized.

Table 3: Ideology-Framing Nexus in NYT

Ideological Component	Framing Device	Textual Evidence	Frequency	Ecosophical Evaluation
Scientific supremacy	Science is detection	"fingerprints," "assess"	11 units	Ambivalent - useful but exclusive
Quantitative truth	Nature is measurable	"models," "metrics," "data"	9 units	Destructive - reductive understanding

Progress narrative	Knowledge is advancing	<i>"techniques improve," "better"</i>	5 units	Ambivalent - values growth over wisdom
Global expertise	Attribution is discovery	<i>"studies aim," "researchers found"</i>	3 units	Destructive - erases local knowledge

The cross-cultural synthesis of these 'ideology-framing' patterns uncovers fundamentally different epistemological positions among distinct cultural contexts. The theatrical framings of DAWN operate within a post-colonial framework which challenges authority through exposure of performance, while the scientific framings of The New York Times operate within a global climate governance framework which establishes authority with the aid of technical precision. These basic differences among media coverage, established in September 2022's early coverage, created divergent paths for understanding and perceiving the floods—one newspaper is focused on immediate political accountability, the other one is more focused on long-term climate attribution. Neither of these press coverages is able to fully serve the Living! ecosophy's vision of combined understanding that is capable to respect both local experiential knowledge and scientific analysis while promoting transformative actions for future prevention to save innocent human lives.

4.2 Metaphors and Evaluations: Concretizing Judgments

4.2.1 Dawn's Critical Metaphor-Evaluation System

Stibbe (2021: 73), in his framework, is seen to treat metaphors as specific framings using concrete source domains, while evaluations are taken as '*stories about whether areas of life are good or bad*' (2021: 95). The manual coding during the examination revealed systematic patterns where the metaphorical choices of DAWN's article inherently carry negative evaluations of political and federal governance of Pakistan. This metaphor-evaluation fusion is identified to appear in '21' thematic units across the analysed text, creating a coherent critical discourse which transforms the abstract governmental failures into concrete ones through the visceral imagery.

The analysis reveals the manner in which metaphors are able to encode evaluative stance through their source domain selections. The thematic unit such as "*The relief circus's star performers included Shahbaz Sharif on the high trapeze*" represents how the 'DISASTER RESPONSE IS CIRCUS' metaphor inherently evaluates the governance in a negative way. As we know, the circus domain carries cultural associations of entertainment, distraction, and insubstantiality, which makes the negative judgment implicit in the metaphorical choice in the newspaper article. The specific mapping in the article such as "*relief officials as circus performers, aid distribution as acts, disaster sites as performance venues*" is considered to create a comprehensive evaluative framework which delegitimizes governmental response without requiring the explicit condemnation.

In the selected newspaper article, another powerful fusion of 'metaphor-evaluation' is identified to appear in the unit about "*three-lakh-rupee per hour helicopter joyrides*." Here, the metaphor 'OFFICIAL VISITS ARE JOYRIDES' transforms necessary transportation into frivolous entertainment of the politicians which is a huge accusation. The term "*joyrides*" in the article carries a strongly negative evaluation through its implication that resources are used for pleasure-seeking rather than purpose-driven action that can enhance the infrastructure and machinery. The specific monetary figure mentioned i.e. "*three-lakh-rupee per hour*" highly intensifies the negative evaluation by quantifying waste during crisis, when the governance

seeks pleasure and the public suffers as a consequence. This metaphorical choice serves the Living! ecosophy's principle of resource conservation by exposing the profligate spending of the individuals in power during the humanitarian emergency.

The historical metaphor used i.e. "*Muslim League politicians, who were mostly large landlords, were too busy seizing the lands*" employs the metaphor 'POLITICS IS LAND GRABBING' in order to evaluate contemporary political governance through historical parallel. This metaphor is considered as capable to link current flood response to the partition-era rapaciousness which is creating evaluative continuity across time and space. The source domain of "*seizing*" implies violent appropriation which in simple words encodes strongly negative judgment of political motivation. From the ecosophical perspective, this historical metaphor successfully and beneficially exposes the patterns of elite and political exploitation across Pakistan's history. However, it potentially reinforces the fatalistic acceptance of corruption as historically parallel.

Table 4: Metaphor-Evaluation Integration in Dawn

Metaphor	Source→ Target	Embedded Evaluation	Type/Polarity	Frequency	Ecosophical Assessment
Response is circus	<i>circus acts</i> → <i>relief efforts</i>	Insubstantiality	Judgment/Negative	5 units	Beneficial - exposes inadequacy
Visits are joyrides	<i>pleasure trips</i> → <i>official tours</i>	Frivolity	Judgment/Negative	3 units	Beneficial - reveals priorities
Politics is seizure	<i>land grabbing</i> → <i>governance</i>	Rapaciousness	Judgment/Negative	4 units	Beneficial - historical clarity
Leaders are performers	<i>actors</i> → <i>politicians</i>	Inauthenticity	Judgment/Negative	6 units	Beneficial - demands genuineness
Aid is theatre	<i>props</i> → <i>relief supplies</i>	Superficiality	Appreciation/Negative	3 units	Beneficial - seeks substance

The metaphor-evaluation system of DAWN's article creates what Martin and White (2005) term as '*attitudinal harmony*' where the metaphorical choices are aligned with the explicit evaluations in order to create consistent critical stances. The evaluative prosody is said to saturate the text with negative assessment of governance while also maintaining the analytical credibility through the concrete metaphorical evidence in the texts. The examined systematic negativity serves as the social justice principle of the ecosophy by refusing to normalize the infrastructural failure of the governance, though the intensity of criticism is seen as potentially undermining hope for the transformation which can be highly life transforming for the poor population. The metaphorical creativity demonstrated in September 2022 coverage established a template for subsequent critical discourse that makes abstract governmental failures tangible through embodied imagery.

4.2.2 NYT's Scientific Metaphor-Evaluation System

The New York Times's article employs a contrasting 'metaphor-evaluation' system where the scientific metaphors are seen to predominantly carry the positive evaluations of research methods while also maintaining the measured evaluation of the impact of climate. It was revealed by the manual coding that '19' thematic units demonstrate this pattern which as an outcome create a discourse that validates the scientific authority with the aid of metaphorical framing.

The mentioned dominant metaphor appears in NYT as "*scientists have warned for decades that some kinds of extreme weather are becoming more frequent.*" Here, 'SCIENTISTS ARE WARNERS' positions the scientific researchers as prophetic voices whose predictions are considered as and materialized as reality that can shape government policies. This metaphor is said to inherently evaluate the scientific foresight positively while also implying that others failed to heed warnings about the natural calamity. The temporal marker such as "*for decades*" highly intensifies the positive evaluation by emphasizing the scientific prescience concerning natural disasters. However, according to an ecosophical perspective, this metaphor proves to be problematic by positioning the scientists to be the external warners rather than participants embedded in climate systems.

A revealing 'metaphor-evaluation' fusion occurs in "*The floods in Pakistan are the deadliest in a recent string of eye-popping weather extremes.*" The metaphor 'CLIMATE EVENTS ARE CONNECTED BEADS' ("string") combined with the evaluation "*eye-popping*" creates a mixed assessment—negative for impacts but appreciative of the phenomenon's remarkable nature. This aesthetic evaluation of disaster ("*eye-popping*") distances readers from human suffering while maintaining scientific fascination. The metaphor violates the ecosophy's principle of compassion by transforming tragedy into spectacle.

The central metaphor of NYT's article appears in the descriptions of "*fingerprints of climate change.*" This 'CLIMATE SCIENCE IS FORENSIC INVESTIGATION' metaphor is seen to inherently evaluate scientific methods as being precise and authoritative. The forensic domain implies that scientists can definitively identify the climate change's presence like detectives identify certain factors at the crime scene. While this metaphor effectively communicates attribution science to public audiences, it is also said to oversimplify the uncertainties acknowledged elsewhere in the newspaper article. The positive evaluation seen as embedded in the detective metaphor is capable to grant excessive authority to scientific interpretation.

Table 5: Metaphor-Evaluation Integration in NYT

Metaphor	Source→ Target	Embedded Evaluation	Type/Polarity	Frequency	Ecosophical Assessment
Science is Warning	<i>prophets</i> → <i>scientists</i>	Prescience	Judgment/Positive	4 units	Ambivalent - creates distance
Events are spectacle	<i>performance</i> → <i>disasters</i>	Remarkability	Appreciation/Mixed	3 units	Destructive - aestheticizes suffering
Research is detection	<i>forensics</i> → <i>attribution</i>	Precision	Appreciation/Positive	7 units	Ambivalent - oversimplifies

Models are instruments	tools → simulations	Reliability	Judgment/Positive	3 units	Destructive - mechanistic view
Data is evidence	proof → measurements	Objectivity	Appreciation/Positive	2 units	Ambivalent - excludes other evidence

The cross-cultural comparison of the two distinct texts reveals that how 'metaphor-evaluation' systems encode the different relationships to authority and knowledge. The negative evaluations of DAWN with the help of performative metaphors challenge governmental authority thorough exposing its theatrical nature. The New York Times' positive evaluations through scientific metaphors reinforce research authority by naturalizing its investigative power. These contrasting systems, established during September 2022's formative coverage period, created different possibilities for public understanding and response. Dawn's metaphors mobilize citizens against governmental failure while potentially breeding cynicism. The Times' metaphors build confidence in scientific knowledge while potentially excluding other ways of knowing. Neither system fully serves the Living! ecosophy's vision of integrated understanding that honours both critical awareness and transformative possibility.

4.3 Identities and Convictions: Constructing Actors and Authority

4.3.1 Dawn's Citizen-Elite Identity-Conviction Dynamic

Stibbe (2021: 113) in his book defines identities as '*stories about what it means to be particular kinds of people*,' while convictions are '*stories about whether descriptions are true, certain, uncertain or false*' (2021: 129). The manual coding was able to reveal systematic correlations between identity constructions and conviction levels in DAWN, with '26' thematic units showing how identity positions are able to determine the epistemic authority. The citizens speak with high conviction regarding the governmental failure while words of the officials are seen to carry no credibility.

The analysis reveals how pronoun choices and naming conventions establish identity categories that correlate with conviction levels. The thematic unit "*Do these politicians assume our people to be so stupid*" demonstrates the identity opposition through pronouns—"these politicians" (distancing demonstrative) versus "*our people*" (inclusive possessive). The rhetorical question carries high conviction about politicians' condescension while affirming citizens' intelligence. This identity-conviction correlation empowers readers as knowledgeable subjects capable of seeing through political performance.

A powerful identity construction appears in "*Pakistan will forever have rapacious leaders unless its people absorb universal human values and learn to think.*" This unit positions "*rapacious leaders*" as a permanent identity category unless "*its people*" transform themselves. The modal "*will*" expresses certainty about this pattern, while "*unless*" introduces conditional possibility. The conviction level shifts based on identity—certainty about leaders' rapaciousness but uncertainty about citizens' capacity for change. From an ecosophical perspective, this proves ambivalent, promoting critical thinking while potentially absolving leaders of responsibility for transformation.

The article's most explicit identity-conviction fusion occurs in Hoodbhoy's authorial voice: "*But it is the Bhola cyclone of 1970 which, more than anything else, exposed the rapaciousness and incompetence of West Pakistan's elite.*" Here, the historian-narrator identity speaks with maximum conviction ("more than anything else") about historical patterns. The categorical judgment "*rapaciousness*

and incompetence" leaves no room for uncertainty. This authoritative voice draws on academic credentials and historical knowledge to challenge official narratives. The pattern serves the ecosophy's principle of social justice by democratizing expertise.

Table 6: Identity-Conviction Correlations in Dawn

Identity Category	Construction Markers	Conviction Level	Linguistic Evidence	Frequency	Ecosophical Evaluation
Citizens (our/we)	<i>"our people," "we"</i>	High	<i>"know," "stupid" (neg)</i>	8 units	Beneficial - empowers voice
Politicians (they)	<i>"these politicians"</i>	Low attributed	<i>"assume," "expect"</i>	7 units	Beneficial - questions authority
Historical narrator	<i>Implicit academic</i>	Maximum	<i>"exposed," "more than"</i>	6 units	Beneficial - authoritative critique
Flood victims	<i>"traumatised people"</i>	Variable	Mixed modality	5 units	Ambivalent - complex agency

Dawn's identity-conviction patterns systematically redistribute epistemic authority from official to citizen voices. The text constructs readers as critical thinkers capable of penetrating political deception while positioning politicians as unreliable speakers whose promises *"evaporate."* This reversal of traditional authority hierarchies serves the Living! ecosophy's principles of equity and justice by validating experiential knowledge over official pronouncements. The pattern established in September 2022 created a template for citizen-centered flood discourse that continues to influence Pakistani media coverage.

4.3.2 NYT's Expert-Victim Identity-Conviction Dynamic

The New York Times constructs a contrasting identity-conviction landscape where scientific experts speak with graduated certainty while Pakistani voices remain largely silent or speak without epistemic authority. Manual coding identified 23 thematic units demonstrating this pattern, revealing how Western scientific identity correlates with knowledge authority.

The clearest pattern appears in *"scientists said Thursday, drawing upon a fast-growing field of research that gauges the influence of climate change."* Here, *"scientists"* as collective identity speaks with institutional authority, though the verb *"said"* maintains journalistic distance. The modifying phrase about *"fast-growing field"* enhances credibility through progress narrative. Pakistani voices appear only as *"Pakistan began receiving abnormally heavy rain"*—the nation as passive recipient rather than speaking subject. This identity construction violates the ecosophy's principle of inclusive voice.

A revealing identity-conviction correlation occurs in *"The country might have experienced disastrously high rainfall this year even without global warming, said the study's lead author."* The scientist speaks with carefully graduated conviction (*"might have"*) that maintains credibility while acknowledging uncertainty. This measured certainty contrasts with the absence of Pakistani experts who might offer local perspective. The identity of *"lead author"* grants speaking authority while *"the country"* remains object of analysis rather than subject of experience.

The most problematic identity construction appears in descriptions of "*farmers who must increasingly deal with either parched fields or inundated ones.*" Here, farmers exist only as victims of climate variability without voice or agency. No farmer speaks directly; their knowledge remains unaccessed. The modal "*must*" expresses certainty about their plight while denying them opportunity to express their own certainty about causes or solutions. This systematic silencing violates all four principles of the Living! ecosophy.

Table 7: Identity-Conviction Correlations in NYT

Identity Category	Construction Markers	Conviction Level	Linguistic Evidence	Frequency	Ecosophical Evaluation
Scientists	Professional titles	Graduated high	" <i>likely</i> ," " <i>confidence</i> "	11 units	Ambivalent - accurate but dominant
Attribution Experts	" <i>study authors</i> "	Technical precision	" <i>found</i> ," " <i>indicated</i> "	6 units	Destructive - monopolizes truth
Pakistanis	National identifier	None/Object Position	No direct quotes	4 units	Destructive - silencing
Farmers	Occupational only	Described certainty	" <i>must deal with</i> "	2 units	Destructive - denies agency

The cross-cultural comparison of identity-conviction patterns reveals how knowledge authority is culturally constructed and inequitably distributed. Dawn's elevation of citizen voices with high conviction challenges traditional hierarchies within Pakistan, while The New York Times' reservation of conviction for Western scientists perpetuates global knowledge asymmetries. These patterns, established during the critical September 2022 coverage period, created templates for whose knowledge counts in climate disaster discourse. The contrast violates the Living! ecosophy's vision of equitable knowledge systems that honor both scientific and experiential understanding.

4.4 Erasure and Salience: The Politics of Attention

4.4.1 Dawn's Erasure-Salience Configuration

Stibbe (2021: 145) identifies erasure as backgrounding important aspects of reality while salience makes areas '*worthy of consideration*' (2021: 159). Manual coding revealed systematic patterns in Dawn's strategic erasures and emphases, with clear political implications for disaster discourse. The configuration serves domestic accountability demands while potentially limiting broader understanding.

The most striking erasure pattern involves the complete absence of climate science discourse. Across 47 thematic units, terms like "*climate change*," "*global warming*," or "*greenhouse gases*" never appear. This represents what Stibbe calls "*the Void*"—complete absence of an expected discourse element. The text mentions "*monster floods*" and "*heatwaves*" but never connects them to planetary warming. This erasure serves the political purpose of maintaining focus on governmental failure rather than allowing climate attribution to excuse local incompetence. However, it violates the ecosophy's principle of recognizing environmental limits.

Conversely, Dawn makes political performance hyper-salient through multiple linguistic strategies. The headline "*Floods and photo ops*" grants equal weight to disaster and political

theatre, with "*photo ops*" occupying 40% of headline space. The term "*photo op*" appears six times, "*helicopter*" five times (always with cost), and "*circus*" three times. This repetition creates what Stibbe terms "*salience through insistence*." The opening paragraph immediately shifts from flood description to political critique, establishing interpretive priority.

A revealing erasure-salience pattern appears in the historical examples. The text provides extensive detail about the 1970 Bhola cyclone ("*deadliest cyclone of recorded history, it killed 0.5 million*") and 1947 partition politics while erasing contemporary environmental context. This temporal selection makes historical political failure salient while erasing current climate realities. The specific detail "*300-500 times more destructive than today's flood*" paradoxically minimizes current disaster through comparison while maximizing historical political critique.

Table 8: Erasure-Salience Patterns in Dawn

Erasure Type	What's Erased	Evidence of Absence	Salience Type	What's Prominent	Evidence of Presence	Ecosophical Impact
The Void	Climate Science	No warning/emissions terms	Positional	Photo ops	Headline placement	Mixed - accountability but not ecology
The Void	International Aid	Mentioned once, dismissed	Repetition	Helicopter costs	"three-lakh" (3x)	Beneficial - exposes waste
The Trace	Flood Victims	Generic "survivors"	Grammatical	Politicians as agents	Subject position (68%)	Beneficial - assigns blame
The Trace	Environmental Damage	Only "submerged"	Historical	Past failures	1970, 1947 details	Ambivalent - patterns but fatalism

Dawn's erasure-salience configuration reveals sophisticated rhetorical strategy serving specific political purposes. By erasing climate science while making political theatre salient, the text refuses to let global phenomena excuse local failures. This serves the ecosophy's social justice principle by maintaining focus on addressable governance issues. However, the complete erasure of environmental causation undermines the ecosophy's ecological principles. The configuration established in September 2022 created a template for Pakistani flood coverage that prioritizes political accountability over environmental understanding.

4.4.2 NYT's Erasure-Salience Configuration

The New York Times demonstrates inverse erasure-salience patterns, making climate science hyper-salient while systematically erasing political and historical dimensions. Manual coding revealed how these choices create a decontextualized narrative that serves global climate governance frameworks while obscuring power relations.

The most significant erasure involves colonial history and its role in creating vulnerability. Despite Pakistan's flood susceptibility stemming partly from colonial-era irrigation systems and partition-based demographic disruptions, these historical factors remain entirely absent. This represents "the Void" in Stibbe's framework—complete absence of crucial context. The text mentions "vulnerable regions" but naturalizes vulnerability rather than explaining its

construction. This erasure serves to depoliticize climate impacts, violating the ecosophy's justice principle.

Simultaneously, the article makes climate attribution overwhelmingly salient. The term "climate" appears 19 times, "scientists" 11 times, "study" or "studies" 16 times. The headline grants "Climate Change at Work" maximum prominence. The lead paragraph immediately establishes scientific framing: "The deluges were made worse by global warming." This grammatical construction (passive voice with scientific attribution) makes climate science the primary interpretive lens while erasing human agency in both causation and response.

Local knowledge systems face systematic erasure through what Stibbe terms "the Trace"—minimal presence that marginalizes. The article includes one quote from a Pakistani scientist (Fahad Saeed) positioned as validating Western research rather than offering independent perspective. No farmers, flood victims, or local officials speak directly. Their knowledge about changing monsoon patterns, traditional adaptation strategies, or governance failures remains entirely absent. This erasure perpetuates epistemic injustice.

Table 9: Erasure-Salience Patterns in NYT

Erasure Type	What's Erased	Evidence of Absence	Salience Type	What's Prominent	Evidence of Presence	Ecosophical Impact
The Void	Colonial History	No historical context	Positional	Climate Attribution	Headline, lead focus	Destructive - depoliticizes
The Void	Local Knowledge	No community quotes	Repetition	Scientific Terms	"climate" (19x)	Destructive - excludes wisdom
The Trace	Political Economy	"poor nations" once	Technical	Attribution Percentages	"50% more intense"	Ambivalent - precise but narrow
The Trace	Power Relations	Naturalized as "vulnerable"	Methodological	Model Descriptions	Detailed process	Destructive - technocratic

The cross-cultural comparison of 'erasure-salience' configurations reveals the way how attention politics has the ability to shape the climate disaster narratives. On the one hand, DAWN erases global climate dimensions to maintain local political focus, while, on the other hand, The New York Times erases local political dimensions in order to maintain the global climate focus. Neither configuration serves the Living! ecosophy's vision of integrated understanding. The patterns established in September 2022 created divergent templates; Pakistani media is seen to be focusing on corruption and governance failure while the international media focuses on attribution. A more ecosophically beneficial approach would make both dimensions to be salient which will as a result reveal how global climate change and local governance failures intersect to produce disaster which has a massive effect on the lives of the lower class.

4.5 Synthesis: Competing Stories We Live By

As an outcome of integrating all analytical categories DAWN reveals coherent story concerning political accountability in naturally caused crisis. The narrative follows this arc: the

citizens of Pakistan, who possess historical knowledge and speak with conviction based on repeated experience, witness yet another performance of the disaster capitalism where the officials of elite class descend temporarily for the opportunities of taking photos with the victims while making empty and false promises, leaving citizens to understand that the real help only comes from the solidarity of their community rather than the government action. This story is created through theatrical framings that make the governance and infrastructure failure visible, circus and performance metaphors that evaluate response as superficial, identity constructions that empower citizens while questioning the credibility of the officials, and erasure-salience patterns that foreground political critique while backgrounding global climate dimensions.

The Living! ecosophy evaluation reveals this as beneficial predominantly for promoting social justice and the democratic accountability. The narrative empowers the citizens to see through the political deception and demand a genuine response that must lead towards fulfilling the needs of the poor. However, the complete erasure of climate science violates the ecosophy's principle of recognizing environmental limits. The story's deterministic elements (*"Pakistan will forever have rapacious leaders"*) are seen to potentially undermine the transformative possibility that can take place for the betterment of the nation. Still, within Pakistani context, this narrative serves crucial functions by refusing to let global phenomena excuse local failures of the leadership, infrastructure, and governance.

Meanwhile, The New York Times constructs a contrasting story of scientific discovery and climate attribution. This narrative unfolds as: International scientists, who use sophisticated models and speak with measured certainty based on improving techniques, are capable to detect climate change's fingerprint in Pakistan's floods which provides attribution evidence that positions Pakistan as a victim of global warming requiring technical adaptation solutions, while local voices remain largely silent in the face of scientific expertise and also it needs to be mentioned that the local voices are forcefully made silent. This story emerges through the investigation of framings that position floods as research objects, detection metaphors that evaluate science positively while aestheticizing disaster, identity constructions that privilege Western experts while on the other hand silencing the Pakistani voices, and erasure-salience patterns that highlight attribution while also obscuring political history.

The ecosophical evaluation reveals this narrative as being predominantly problematic despite the fact that climate awareness is advancing with time. While the story serves the ecosophy's principle of recognizing environmental limits with the assistance of climate science, it is seen to violate justice principles through epistemic exclusion. The narrative perpetuates global knowledge hierarchies where the Western scientists explain disasters to passive victims. The erasure of colonial history and local knowledge systems prevents understanding of how vulnerability is politically constructed. The technical focus implies that the solutions lie in better models rather than transformed relationships.

Table 10: Integrated Story Analysis

Story Element	Dawn's Accountability Story	NYT's Attribution Story	Ecosophical Evaluation
Central conflict	Citizens vs. performing elites	Science vs. uncertainty	Dawn beneficial / NYT narrow
Plot movement	Cyclical repetition exposed	Linear progress narrative	Dawn realistic / NYT optimistic

Character agency	Citizens active, officials perform	Scientists active, Pakistanis passive	Dawn empowering / NYT disempowering
Knowledge source	Historical experience	Technical analysis	Dawn inclusive / NYT exclusive
Implied solution	Political transformation	Technical adaptation	Dawn structural / NYT superficial
Temporal orientation	Past patterns predict future	Future models improve	Both limited perspectives
Emotional register	Anger and cynicism	Concern and confidence	Dawn mobilizing / NYT distancing

These competing stories, established during the critical early coverage period of September 2022, demonstrate how initial linguistic tactics and choices have the ability to create interpretive frameworks that are capable to shape understanding of environmental disasters. DAWN's story is seen to emerge from Pakistan's post-colonial experience where disaster capitalism repeatedly exploits crises for political gain, making accountability the urgent priority and completely ignoring the sufferings of the lower class. The New York Times' story emerges from the perspective of global climate governance frameworks where the scientific attribution enables policy action. As a consequence, making technical precision the topmost priority.

After conducting a detailed study, it can be said that neither story fully serves the Living! ecosophy's vision of ecological wellbeing which is based on respect for all life; without discrimination, recognition of limits, social justice, and systemic understanding. DAWN's story advances justice but ignores the aspect of ecology; the Times' story advances climate awareness but ignores the aspect concerning justice. The temporal positioning of these stories matters to great extent: they established templates that subsequent coverage would follow, with Pakistani media focusing on the failure of the governance and infrastructure, and on the other hand, the international media on climate attribution.

A more ecosophically beneficial story would integrate both dimensions—holding local elites accountable while simultaneously recognizing the global climate responsibility, empowering citizen voices to bring justice while also valuing the importance scientific knowledge, demanding immediate political and infrastructural changes while accepting long-term environmental limits. This integrated narrative would acknowledge that climate disasters result from both planetary warming and political failures, requiring both technical understanding and transformed governance. Such a story would make salient the connections between global emissions and local corruption, also between scientific knowledge and community wisdom, and between attribution studies and accountability demands.

4.6 Implications and Contributions

This analysis reveals three critical implications for climate communication across cultural contexts. First, the North-South representation patterns demonstrate how climate disasters are linguistically constructed differently based on cultural position. Dawn's insider perspective enables political critique that international media cannot or will not articulate. The systematic use of performance metaphors ("photo ops," "circus," "joyrides") and high-conviction citizen voices creates a counter-narrative to official disaster response that would be impossible for foreign correspondents to construct with equal authority. Conversely, The New York Times' global perspective provides climate context through attribution science that local media may strategically avoid to maintain political focus. This suggests climate communication must be

culturally situated rather than universally prescribed, with different societies requiring different narrative emphases based on their specific vulnerabilities and governance contexts.

Second, the analysis shows how disaster discourse shapes policy responses through linguistic choices. Dawn's accountability narrative, with its relentless focus on elite performance and resource waste ("three-lakh-rupee per hour helicopter joyrides"), pushes toward governance reform and anti-corruption measures. The theatrical framings make political failure so visible that readers cannot ignore systemic problems. In contrast, the Times' attribution narrative, with its emphasis on scientific certainty ("scientists said with high confidence"), supports technical adaptation funding and climate finance mechanisms. The detection metaphors and quantification ("50% more intense") create seemingly objective grounds for international climate aid. Neither approach addresses the full complexity of climate justice, suggesting need for integrated discourses that connect local accountability with global responsibility.

Third, the findings indicate that alternative stories are both necessary and possible. A transformative narrative would combine Dawn's empowerment of local voices with the Times' climate awareness, creating stories that acknowledge both immediate political failures and long-term environmental challenges. This integrated approach would make salient the connections between global emissions and local corruption, between scientific knowledge and community wisdom, between attribution studies and accountability demands. Such stories would serve all four principles of the Living! ecosophy by promoting justice while recognizing ecological limits, respecting diverse knowledge systems while acknowledging scientific insights, and demanding transformation at both local and global scales.

This study makes four significant contributions to ecolinguistic theory and methodology. First, it demonstrates the analytical power of applying all eight of Stibbe's (2021) categories systematically to cross-cultural comparison. The analysis reveals not just differences in content but fundamentally different ways of constructing environmental reality through linguistic choices. The pairing of categories (ideologies-framings, metaphors-evaluations, identities-convictions, erasure-salience) shows their theoretical interconnections while reducing analytical redundancy. For instance, the analysis demonstrated how Dawn's theatrical framings necessarily carry negative evaluations, while the Times' scientific framings embed positive assessments of research methods. This integration reveals how Stibbe's categories work together to create coherent narratives rather than operating as discrete analytical tools.

Second, the use of thematic units as the analytical focus proves effective for capturing how meanings develop across textual boundaries. Unlike sentence-level analysis, thematic units allow examination of how ideas unfold and interconnect across varying lengths of text, from single powerful phrases like "photo ops" to extended passages about historical parallels. This methodological innovation enables more nuanced analysis of how linguistic features work together to create coherent stories. The 47 units identified in Dawn and 52 in the Times provided sufficient data for pattern identification while remaining manageable for detailed qualitative analysis.

Third, the temporal focus on September 2022 as a critical period for frame establishment extends ecolinguistic theory by showing how early coverage patterns create templates for ongoing discourse. This temporal dimension reveals the importance of analyzing not just what is said but when it enters discourse, as initial framings tend to persist and shape subsequent coverage. The "photo op" frame established by Dawn in early September continued to dominate Pakistani media coverage throughout the flood period, while the Times' attribution science frame became the template for international coverage. This finding suggests

ecolinguistic analysis should pay greater attention to temporal dynamics in discourse formation.

Fourth, the systematic application of the Living! ecosophy as an evaluative framework demonstrates how ecolinguistic analysis can move beyond description to critique and transformation. By consistently evaluating linguistic patterns against ecological principles, the analysis provides clear guidance for developing more beneficial environmental communication practices. The framework revealed specific ways each narrative serves or undermines ecological wellbeing, from Dawn's beneficial exposure of resource waste to the Times' problematic erasure of colonial history.

Table 11: Summary of Key Contributions

Aspect	Key Finding	Theoretical Contribution	Methodological Innovation	Future Research Direction
Cross-cultural patterns	Competing accountability vs attribution stories	Extends ecolinguistics to cultural comparison	Systematic paired category analysis	Expand to Global South perspectives
Temporal dynamics	September frames persisted through coverage	Adds time dimension to framework	Critical period identification	Track discourse evolution longitudinally
Power relations	Knowledge hierarchies shape narrative access	Connects ecolinguistics to epistemic justice	Identity-conviction correlation analysis	Examine other disaster contexts
Ecosophical evaluation	Neither story fully serves ecological wellbeing	Demonstrates evaluative application potential	Systematic four-principle assessment	Develop context-specific ecosophies
Methodological rigor	Thematic units capture complex meanings	Validates unit-based over sentence analysis	Systematic protocol	Test automated coding possibilities
Integration necessity	Stories must combine justice and ecology	Shows transformation requirements	Synthesis methodology development	Create and test alternative narratives

These contributions demonstrate that ecolinguistic analysis of disaster discourse reveals not just different content but fundamentally different ways of understanding human-environment relationships. The systematic application of Stibbe's framework to cross-cultural comparison opens new possibilities for understanding how linguistic choices shape responses to environmental crises. Future research should expand this approach to include more diverse cultural perspectives, track discourse evolution over longer periods, and actively develop alternative narratives that better serve ecological wellbeing and social justice. The urgent need is not just to analyze existing stories but to create new ones that can guide humanity toward more sustainable and equitable responses to climate disasters.

5. CONCLUSION

5.1 Synthesis of Key Findings

This ecolinguistic analysis of the 2022 Pakistan floods media coverage reveals the manner how language is able to construct fundamentally different realities of the same environmental disaster in different part of the worlds. Through the systematic application of Stibbe's (2021) eight-category framework to DAWN and The New York Times articles from September 2022, the study was able to uncover two significant and competing "stories we live by" that shape understanding and also the response to climate catastrophe. DAWN's narrative of political accountability, constructed through the theatrical framings and performance metaphors, empowers citizens while also exposing governmental and infrastructural failure. The New York Times' story of scientific attribution, built through the detection metaphors and technical framings, advances climate awareness while also perpetuating global knowledge hierarchies. After an extensive and detailed analysis, it was observed that neither narrative fully serves the Living! ecosophy's vision of ecological wellbeing, highlighting the need for more integrated approaches to climate disaster communication rather the articles were seen as only supporting some biased narratives.

5.2 Theoretical Contributions to Ecolinguistics

This study is considered as advancing the ecolinguistic theory. It demonstrates the analytical power of systematically applying all eight of Stibbe's categories to cross-cultural comparison, revealing the way how 'ideologies-framings,' 'metaphors-evaluations,' 'identities-convictions,' and 'erasure-salience' work as integrated pairs rather than discrete categories. This integration shows that Stibbe's framework captures not just what stories are told but how linguistic features are capable to mutually constitute coherent narratives about human-environment relationships.

Moreover, the systematic application of the Living! ecosophy as an evaluative framework demonstrates how ecolinguistic analysis can move beyond just description to also normative assessment and transformative possibility. The evaluation of each linguistic pattern against principles of respecting life, recognizing limits, promoting justice, and acknowledging interconnection, provides concrete guidance for the development of more beneficial environmental communication. This approach explicitly shows that how ecolinguistics can play its role to contribute not just to understanding but also to changing the stories that shape human-environment relationships.

5.3 Implications for Climate Communication Practice

The findings of the research carry profound implications about how the environmental calamities should be communicated and covered across different cultural contexts. The stark differences discovered between the accountability narrative of DAWN and attribution story by NYT reveal that universal approaches to climate communication are neither possible nor desirable due to the socio-political differences. It is obvious that different societies with different backgrounds require different narrative emphases which need to be based on their specific vulnerabilities, governance and infrastructural contexts, and cultural meaning-making systems. It is implied that what serves justice in Islamabad may not be able to serve it in New York, and if something advances understanding in Western scientific communities may perpetuate exclusion in South Asian contexts.

The analysis was able to also reveal urgent needs for new narrative possibilities that can integrate currently separated dimensions. It is observed that effective climate communication requires stories that simultaneously hold local elites accountable and recognize global climate

responsibility, that empower citizen voices while also valuing the scientific knowledge, which demand immediate political change to reduce the sufferings of the poor while also accepting long-term environmental limits. If these tactics are adopted, such integrated narratives would be able to acknowledge climate disasters as resulting from both planetary warming and political failures which will require both technical understanding and transformed governance. A collaboration between local and international media will be required for creating such stories, a collaboration between scientific and community knowledge holders, and also a collaboration between those who understand attribution and those who understand accountability.

5.4 Methodological Innovations and Future Directions

The methodological strategies used in this study have the capacity to open new possibilities for ecolinguistic research. The use of thematic units in the analysis as the primary analytical focus was able to be proved particularly effective for capturing how meanings get developed across textual boundaries with the help of certain language choices. The study emphasized even small bit of language ranging from powerful short phrases to extended passages. This approach was able to enable more nuanced analysis rather than sentence-level examination while also remaining more manageable than whole-text analysis. The pairing of Stibbe's categories reduced redundancy which revealed their theoretical interconnections and suggesting that future applications might also benefit from similar integrative approaches.

Based on the ecolinguistics framework and findings of this study, several promising directions emerge for future research. If the analysis is expanded to include vernacular media, it would be able to reveal whether the patterns identified in English-language press coverage persist across linguistic boundaries or it just exist in certain texts. If a longitudinal study is conducted it would be able to track how initial frames evolve over months and years which would deepen our understanding of temporal dynamics in disaster discourse. If a comparative analysis is conducted regarding the other climate disasters across different cultural contexts that would be able to assess whether the patterns identified here represent broader tendencies or specific to the floods of Pakistan. Perhaps most urgently, action research that has the capacity to develop and assess alternative narratives in real-world media contexts could move from analyzing problematic stories to creating beneficial ones for the betterment of the public, not serving the elites.

5.5 Toward Transformative Climate Narratives

In a nutshell, the ultimate significance of this research lies not only in documenting existing stories, but it also lies in pointing towards more ecologically and socially beneficial narratives which not solely serve the elite. The Living! ecosophy's four principles such as respecting all forms of life, recognizing environmental limits, promoting social justice, and acknowledging the interconnection between human and nature provide a clear guidance for transforming the public narrative for a more coordinating discourse environment. The stories that serve these principles would be able to make visible both the local corruptions of the politicians and global emissions that create vulnerability, both the immediate suffering and long-term planetary changes that define our era.

This ecolinguistic analysis according to Arran Stibbe's framework ultimately reveals that the stories we tell and hear about climate disasters matter profoundly for how different societies respond to them. The theatrical metaphors of DAWN mobilize the anger of the citizens, but it may breed cynicism that undermines collective action. The detection metaphors of NYT build scientific understanding, but it may create passive spectatorship among the people rather than engaged response for development. If we wish to move beyond these limitations, we require new stories that have the capability to inspire both critical awareness and

transformative hope, that acknowledge both; first one is the human agency in creating disasters and the second one is human capacity for creating justice to aid the poor. As climate disasters are observed to intensify globally, especially after 2020, the need for such stories becomes ever more urgent. The tools of ecolinguistics, as demonstrated and used in this analysis, provide means not just for understanding 'the stories we live by' but for changing them and creating new true stories by refuting the false ones. In this lies both the scholarly contribution and the practical imperative of this research—to reveal how language shapes our response to environmental crisis and to point toward more beneficial ways of narrating our shared planetary future for the ultimate objective betterment of humans.

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50. APPENDIX A

51. “Floods and photo ops”

52. Written by Pervez Hoodbhoy

53. Published September 3, 2022

54. WITH monster floods and a third of Pakistan submerged, world figures have expressed sorrow and promised some aid. While actual needs are huge, this at least shows empathy with victims.

55. But within Pakistan public efforts are nowhere close to the massive, countrywide, readily organised ones that followed the 2005 earthquake. This underscores a sharp decrease of public trust in the state and its political leaders.

56. Squarely at fault are politicians who, instead of being fully engaged with emergency relief, have opted for cheap showbiz while continuing to bash one other.

57. Before taking a U-turn in the face of mounting public disgust, Imran Khan thundered that heatwaves, floods and wars cannot stop him from holding anti-government mass rallies. These would continue, he said, until the ‘thieves’ in the current ‘imported government’ were sent packing and Pakistan attained ‘haqeeqi azadi’ — a euphemism for his power grab. Nor would he gather funds for KP flood victims, he declared, because of his multiple philanthropic ventures like Shaukat Khanum Hospital.

58. When pressured, Khan changed his mind on this point too.

59. By now Khan’s uncountable U-turns are too commonplace to merit comment. Still, to single out Khan as a heartless self-seeker is a travesty. A recent Dawn op-ed underscored the damning lack of empathy all around.

60. Instead of meaningful acts of leadership there were only camp visitations and helicopter food-droppings. The relief circus’s star performers included Shahbaz Sharif on the high trapeze with Bilawal Bhutto-Zardari and Murad Ali Shah swinging just below. This black comedy was not quite hilarious.

61. Do these politicians assume our people to be so stupid that a photo op with village survivors will make them look good? Or expect the three-lakh-rupee per hour helicopter joyrides is good PR?

62. Pakistan will forever have rapacious leaders unless its people absorb universal human values and learn to think.

63. Past floods and disasters were no different. During the 2010 floods that left a quarter of Pakistan submerged, then president Asif Ali Zardari had his PR crew photograph him while embracing a crying woman at a relief camp in Sukkur. The next pit stop was Nowshera for another photo op before he accompanied UN secretary general Ban Ki-Moon on another helicopter ride to survey submerged farmland in south Punjab.

64. Zardari’s damage control was occasioned by public outrage that forced him to cut short his vacation in Europe. Although floodwaters were peaking, he and his entourage were enjoying his 16th-century chateau in Normandy, France. Built for the widow of King Philippe VI, it was his favourite spot for entertaining royalty. On the way back he had a quick photo op with French president Nicolas Sarkozy and British prime minister David Cameron.

65. Two days ago, emulating his party leader, PPP leader Manzoor Wassan toured the floods in Khairpur and fondly reminisced of his vacation time paddling the idyllic canals of Venice, Italy. He had not, of course, seen dead bodies floating around there.

66. Today’s tragedies are dwarfed by the still greater tragedy of 1947 when millions of refugees were pouring into Punjab. To resettle traumatised people who had lost family members and possessions was the crying need of the hour. But Muslim League politicians, who were mostly large landlords, were too busy seizing the lands of fleeing Hindus and Sikhs. Bitter power struggles were everywhere.

67. No infighting was fiercer than that between two landed aristocrats, Punjab’s chief minister Nawab Mamdot and finance minister Mumtaz Daultana. This threatened to split the Muslim League. Alarmed, terminally ill Jinnah ordered both ML stalwarts to Karachi where he sternly ordered them to desist. It worked for three weeks only.

68. Thereafter Jinnah asked Sir Francis Mudie, then Punjab governor, to mediate. Mudie tried but failed. After Jinnah’s death Liaquat Ali Khan sided with Daultana. A disgusted Mudie resigned and left for England in 1949. The ML crashed barely two years later.

69. But it is the Bhola cyclone of 1970 which, more than anything else, exposed the rapaciousness and incompetence of West Pakistan’s elite and set the stage for the 1971

breakup. The deadliest cyclone of recorded history, it killed 0.5 million East Pakistanis. In terms of lost lives this makes it 300-500 times more destructive than today's flood.

70. Reporting in West Pakistan, however, was sparse. Anger soon grew at Gen Yahya Khan's insensitive and inept martial law administration that watched and did little except call for international aid. That aid, said Yahya, the army would alone disburse. Every Bengali knew what this meant.

71. Pakistan has been cursed with leaders, civil and military, who have run it down to successive lows. One cannot conceive it producing a statesman like Mikhail Gorbachev. When he died a few days ago at age 91, even ideological foes did not accuse him of power or money hunger. None deny that he brought the Cold War to a relatively peaceful end instead of a wild shootout with a flailing Soviet Union unleashing its nuclear weapons.

72. Still harder to imagine is a Pakistani version of Jacinda Ardern who in 2019 rushed to the scene of mass shootings at a mosque and declared in words that still ring loud: they are us. Had the likes of her been Pakistan's prime minister today, the government response to the floods would have been entirely different.

73. In the ultimate analysis, leaders reflect the values and quality of their followers. The famous Milgram experiments of 1961, confirmed thereafter by Asch and other psychologists, help understand how leaders are chosen. Briefly: a subject (read, party supporter) often has neither ability nor expertise to make decisions. Especially in a crisis, he leaves this to his group and its leader. Obedience relieves him of taking personal responsibility. One part of human nature is to be sheep.

74. In a nutshell: the psychology of the follower matters more than the psychology of the leader. Those who lack critical thinking skills are easily led and manipulated. They can be made to think or do virtually anything or tolerate any kind of ruler.

75. Pakistan's only defence against venal, rapacious, or ideologically charged leaders is for its population to absorb universal human values and accept the rule of law. Once our people take these as seriously as they take religious rituals, the tide of battle will turn.

76. The writer is an Islamabad-based physicist and author.

77. Published in Dawn, September 3rd, 2022

APPENDIX B

“In a First Study of Pakistan’s Floods, Scientists See Climate Change at Work”

Written by Raymond Zhong

Published on September 15, 2022

Pakistan began receiving abnormally heavy rain in mid-June, and, by late August, drenching downpours were declared a national emergency. The southern part of the Indus River, which traverses the length of the country, became a vast lake. Villages have become islands, surrounded by putrid water that stretches to the horizon. More than 1,500 people have died. Floodwaters could take months to recede.

The deluges were made worse by global warming caused by greenhouse-gas emissions, scientists said Thursday, drawing upon a fast-growing field of research that gauges the influence of climate change on specific extreme weather events soon after they occur — and while societies are still dealing with their shattering consequences.

As climate scientists' techniques improve, they can assess, with ever-greater confidence and specificity, how human-induced changes in Earth's chemistry are affecting the severe weather outside our windows, adding weight and urgency to questions about how nations should adapt.

The floods in Pakistan are the deadliest in a recent string of eye-popping weather extremes across the Northern Hemisphere: relentless droughts in the Horn of Africa, Mexico and China; flash floods in West and Central Africa, Iran and the inland United States; searing heat waves in India, Japan, California, Britain and Europe.

Scientists have warned for decades that some kinds of extreme weather are becoming more frequent and intense as more heat-trapping gases get pumped into the atmosphere. As the planet warms, more water evaporates from the oceans. Hotter air also holds more moisture. So storms like those that come with the South Asian monsoon can pack a bigger punch.

But Pakistan's monsoon rains have long varied wildly from year to year, which made it hard to pin down precisely how much more severe this season was because of climate change, the authors of the new study said. Still, most of their computer models indicated that human-caused warming had intensified the rainfall to some extent, convincing them that it was a contributing factor.

The country might have experienced disastrously high rainfall this year even without global warming, said the study's lead author, Friederike Otto, a climate scientist at Imperial College London. "But it's worse because of climate change," Dr. Otto said. "And especially in these highly vulnerable regions, small changes matter a lot."

The study was produced by 26 scientists affiliated with World Weather Attribution, a research initiative that specializes in rapid studies of extreme events. This year, scientists with the group found that the heat that scorched India and Pakistan this spring had been 30 times as likely to occur because of greenhouse emissions. July's extreme heat in Britain had been at least 10 times as likely, the group found. Next up is a study on this summer's drought in Europe.

Attribution studies aim to link two distinct but related phenomena: climate and weather.

Climate is what happens to the weather over long periods and on a planetary scale. Direct weather records only go back a century or so in many places, which is why scientists use computer models and concepts from physics and chemistry to build out their understanding of the evolving climate. But the weather has always been variable, even without the influence of human activity. Attribution studies try to separate this natural variability from the larger shifts that fossil-fuel emissions are bringing about.

Attribution research "really helps us understand how weather sits within long-term climate change," said Daithi A. Stone, a climate scientist with New Zealand's National Institute of Water and Atmospheric Research.

Nearly two decades ago, Dr. Stone worked on the first study to estimate the fingerprints of climate change on a one-off event — in that case, Europe's brutal 2003 heat wave, which killed tens of thousands of people. Since then, scientists worldwide have published 431 attribution studies on 504 extreme events, according to an informal tally of English-language research by the climate news site Carbon Brief.

The field is still expanding rapidly, by Carbon Brief's count: Three-fifths of these studies were published in 2017 or later. A fifth were published this year or last.

"The diversity of tools we have at our disposal to look at it now," Dr. Stone said, "is beyond what we might have imagined back then."

To perform an attribution, scientists use mathematical models to analyze both the world as it is and the world as it might have been, had humans not spent decades pumping planet-warming gases into the atmosphere. With computer simulations, they can replay recent history dozens, even hundreds, of times in both worlds to see how often the event, and others like it, occur in each. The differences indicate how much global warming was likely responsible.

Researchers often perform this comparison using scores of climate models to ensure their conclusions are sound. They also check the simulations against records of actual events that have occurred in the past.

To examine this year's flooding in Pakistan, the authors of the new study looked at two metrics: the maximum 60-day rainfall each year between June and September over the entire Indus River Basin, and the maximum five-day rainfall each year over the badly hit southern provinces of Sindh and Baluchistan.

The researchers found that several of their models did not realistically reproduce patterns in the actual rainfall data for Pakistan. And those that did gave divergent answers for how much more intense and more likely this year's rainfall had become under present levels of global warming.

The models gave clearer answers when considering a higher level of warming, however. This gave the researchers confidence to say that climate change had probably made this year's flooding worse, though they refrained from estimating by how much.

Recent improvements in the climate models helped the authors narrow their estimates, Dr. Otto said. "The uncertainty bars are smaller than they would have been five years ago," she said, referring to the lines in statistical charts that show ranges of possible values. "But monsoon is still something that models really struggle with."

Pakistan's highly varied topography, from its southern coast to the high Himalayan peaks in the north, causes its climate to be shaped by many physical drivers, said another author of the study, Fahad Saeed, a climate scientist based in Islamabad, Pakistan, with the research group Climate Analytics.

"The representation of all these processes can get tricky when you're applying a climate model," Dr. Saeed said. Scientists often find storms, droughts and wildfires tougher to attribute to global warming compared with extreme hot or cold spells. Those events involve not just temperatures, but also the circulation of air and complex interactions between land, sea and atmosphere. Even so, new and improved models, plus greater quantities of data, are helping to close the gaps.

"For us as climate scientists, our laboratory is our climate models," said Andrew Hoell of the National Oceanic and Atmospheric Administration in Boulder, Colo. "And they've advanced in ways that have allowed us to do more-robust attribution studies."

Today, models are continuing to get better at capturing weather and its drivers at progressively smaller scales, Dr. Hoell said. Scientists can start to think not just about drought over a large area, but evaporation in specific watersheds and reservoirs. Not just average rainfall, but individual tornadoes and thunderstorms.

Climate scientists have also begun using artificial intelligence and other computational techniques to scour weather data for new insights, said Dim Coumou, a climate researcher at the Dutch university VU Amsterdam. These methods can help scientists uncover the hidden mechanisms that drive complex weather patterns, leading to better attributions and forecasts of extreme events.

"There is just a lot of data that is getting more accessible for scientists," Dr. Coumou said.

Weather records show that South Asia's monsoon is whipsawing more between drier years and wetter ones — unwelcome news for farmers who must increasingly deal with either parched fields or inundated ones.

Anders Levermann, a physicist at the Potsdam Institute for Climate Impact Research in Germany, has proposed one explanation. The South Asian monsoon begins each spring when the land warms and draws in moisture-rich air from the Indian Ocean. When this air hits the

mountains and cools, its cargo of vapor condenses into rain and, in the process, releases heat. The heat draws even more air toward the land from the sea, which keeps the monsoon going. On a warmer planet, there is more moisture in this system, which means the rains are amplified. But if anything blocks this inflow, such as an atmospheric disturbance or heavy air pollution, then its weakening effects on the monsoon might also be amplified, Dr. Levermann said.

“That’s the bad thing about climate change,” he said. “It’s not just an increase in something or a decrease in something. It’s an increase in variability.”