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Journalistic Framing of SDG 14: Oceans, Seas, and Marine Resource Challenges for media shape public discourse around marine sustainability

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ABSTRACT

The SDG 14 (Sustainable Development Goal 14) focuses on the theme of conservation and sustainable use of oceans, seas, and marine resources; however, the implementation plans rely significantly on the way these topics are positioned in the media discourse, as people have different responses to various perspectives on the problem regarding policy application. The current paper examines how journalistic framing can be used to construct the perceptions and the arguments of people towards marine sustainability. To outline the main narrative tactics used by the media, the research reviews past literature and applicable case studies as well as methodolical resources regarding the topic of media framing and summarizes the significant key approaches, namely, the sense of urgency regarding the environment, economic dependency, a matter of policy, and the state of vulnerability connected to the community. Findings point out that supremacy frames determine whether the marine sustainability is an ecological priority, an economy priority, or a political priority in the minds of the listeners/viewers. Although journalism framing in the sense that it can demonstrate certain mobilization, selective reporting, absence of scientific contextualization, and politicalism decrease the transparency of the whole discourse made in the society. The conclusion points at the interdisciplinary cooperation of journalists, policymakers, and marine scientists as the means of ensuring proper framing. The limitations are practical because the research is based on secondary literature and less case related with potential protocol of covering this research, promoting the empirical study of media content, cross-national analysis, and incorporation of digital media analysis to enhance the knowledge of framing on how it affects the population towards SDG 14.

Keywords: *SDG 14, marine sustainability, oceans, seas, journalistic framing, media discourse, public engagement..*

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1. INTRODUCTION

The international society has increasingly felt the imperativeness of oceans, seas and Marine resources toward the maintenance of life on this planet. Oceans cover over 70% of the surface of the planet and play a key role in climate systems, sustain biodiversity, offer a source of protein to billions of individuals and drive coastal economies based on fisheries, tourism, and trading activities. However, the negative effects of human behavior including overfishing, pollution, destruction of coral reefs as well as low levels of ocean acidification caused by climate conditions are speeding up the destruction of these ecosystems. To respond to this, the United Nations immediately came up with Sustainable Development Goal 14 (SDG 14) that requires the conservation and sustainable use of marine resources. Nevertheless, the process of reaching SDG 14 relies on both the international agreements and scientific endeavors as well as on the aspects of communicating the issues and the models of understanding among the population.

Here media has a determinative role to play in public discourse and policy making. Journalists create a bridge between the scientific community and the world by informing the general audience of what problems of the marine world should be subjected to attention and what discourse should be used to talk about them. Framing theory purports that the manner in which a story is reported (in the context of urgency, economy, politics or human impact) influences its interpretation among the audience, and the extent to which the audience will prioritize it. As an example, the framing of coral bleaching as an ecological disaster can motivate a short-term response of conserving it, whereas overfishing framed as an economic issue.

can bring the focus of the debate to livelihood issues and policy trade-offs. Such frames not only affect people in their perception, but also change the perceived preferences of policymakers to implement the marine protection policies

The rationale of the present study lies in the fact that although oceans are at the center of human and planetary health, the global media would presumably give more transient attention to the marine problem than to terrestrial environmental challenges or to climate change. Oceans are often framed to have a certain narrative and occluded narratives with a particular focus on various aspects and the exclusion of others when subject to coverage. To take a clear example, plastic pollution is widely covered because it causes a striking imagery, whereas less visible exploits like deep-sea mining or ocean acidification exist under-reported. Partial framing may end up bringing about a skewed perception of the nature of marine issues among the populace. Such asymmetry is dangerous to consider since the availability and awareness of the public along with political will tends to be a precondition of successful marine governance.

The other impelling motivation is that the journalism field is experiencing a radical shift in the digital era. In this, traditional media sources are finding themselves in the battle with social media, citizen journalism, and digital campaigns that are overturning the way in which sustainability issues are communicated. Rather than being consumers of marine sustainability, audiences have become alert and proactive storytellers sharing, interpreting, and even developing narratives about marine sustainability. Such a changing communication landscape requires a more in-depth look at the way SDG 14 is covered in both traditional and new forms of media.

This study will have three aims. First, it aims at examining the effects of journalist framing of SDG 14 on the current discourse of the portion of the global community regarding awareness, urgency, and policy endorsement. Second, it seeks to detect the frames (environmental urgency, economic, political/policy and human-interest dominant frames) that prevail in various media situations. Third, the research will give recommendations on how to better the media framing approaches making them to be supportive to the design of public interest and attainment of SDG 14. In covering these aims, this paper makes use of the larger body of literature on environmental communication as well as providing applied insight to journalists, policy makers and environmental activists.

This introduction, it can be said that the relationship between oceans and sustainable development is critical and the significance of journalism in framing ocean matters is clear. It is also evident why this research is important. With such an emphasis on the dire nature of marine sustainability and role of media discourse, it predisposes the reader towards an analysis of how the framing used by journalists works to either facilitate or obstruct progress on SDG 14.

Figure 1 illustrates the relationship between marine challenges, media framing, public discourse, and policymaking, which together form the foundation of this study's motivation, objectives, and contributions.

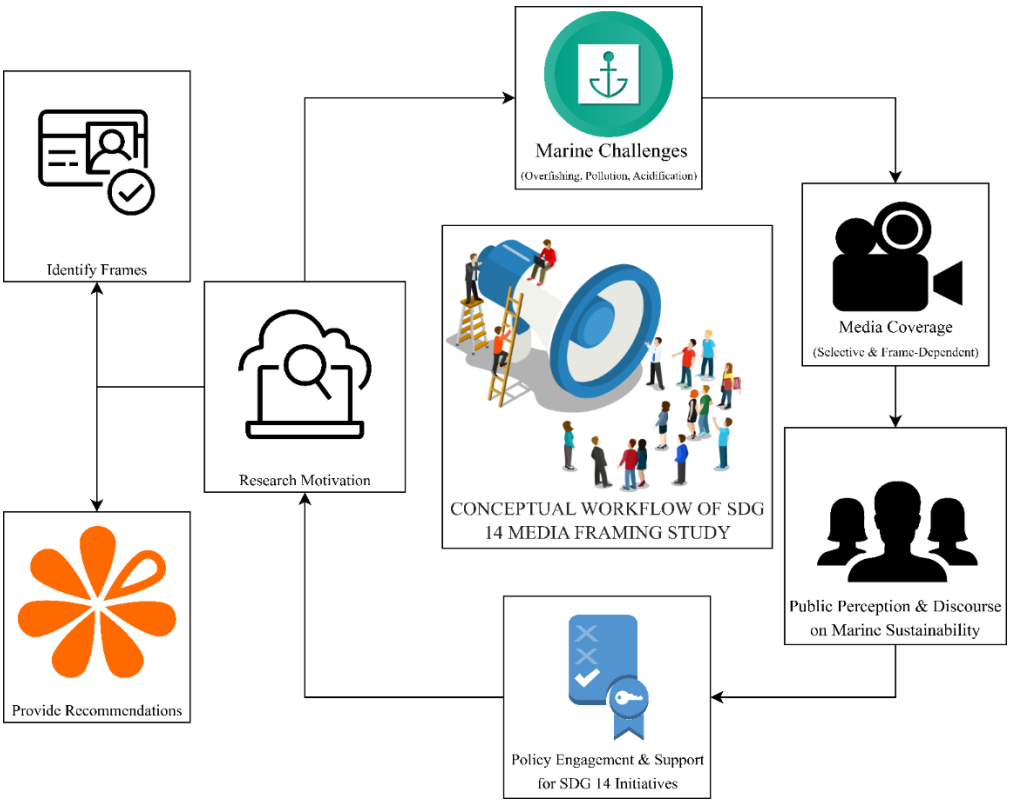

FIG. 1: CONCEPTUAL WORKFLOW OF SDG 14 MEDIA FRAMING STUDY

1.1 Novelty and Contribution

The focus of this work on the overlap of journalistic framing and SDG 14 and relative dearth of scholarly work in this area compared to other sustainability aims, including climate change (SDG 13), will contribute to the existing literature. Whereas previous researchers have already captured in detail media coverage of climate-related matters, there are little to none that analyze how oceans and seas are presented in journalistic frames on the same matter systematically. The innovation of the given paper is that it specifically addresses the sustainability narratives related to the maritime environment since not only its importance is worldwide but also the marine environment as a topic is not sufficiently represented in mainstream communication.

The classification of leading frames, such as, environmental urgency, economic, political/policy and human-interest, and their effects on discourse is another original element. Although framing theory has become common in media analysis, its applicability to SDG 14 in a systematic way presents a new angle through which the article and media analysis of the SDG 14 can be viewed. This classification permits comparative observations, such that some frames (e.g. human-interest stories of fishers) can intensify our compassion but create the temptation of oversimplification, whereas others (e.g. economic frames) can hide the urgency of ecological problems.

This paper can be summed into the following contributions:

Explicit summary on framing approaches to journalism in discussing oceans, seas and marine resources.

Theoretical groundwork to study media language in regards to SDG 14 that can be utilized in eventual empirical research.

The discovery of gaps in the marine issues coverage with a view to indicating poorly covered marine problems including ocean acidification and deep-sea mining.

Concrete suggestions to provide journalists, policymakers, and NGOs to develop a stable and effective coverage that correspond to the SDG 14 goals.

Overall, the contribution of this study is that it closes the gap between environmental journalism and SDG 14 discussion, and that it leads to two academic insights, and three actionable and implementable recommendations to increase the role of media in marine sustainability.

2. RELATED WORKS

In 2024 Feng H. et.al., Yang B. et.al., & Bhandari P. et.al. [9] introduced the environmental studies of communication have repeatedly highlighted the central balance of media to form the way the issue of sustainability is viewed by the populations. Although oceans play frontline roles in life and global ecosystems, they have been termed as underrepresented in mainstream reporting in comparison to terrestrial or climate-related matters. Researchers point out that a misconception about the urgency and scope of marine challenges originates in the so-called invisibility of oceans in media improperly reflecting the reality of nautical problems. When it comes to marine issues, media accounts often fixate on visible/emotionally resonant marine issues like plastic pollution or dead marine life, whereas complex systemic and less-obvious marine threats like acidification, habitat loss and overfishing are less centralized in media portrayals. Such imbalance in coverage has long-term effects on the level at which societies focus their attention to ocean conservation.

In the literature of framing theory it is general belief that the manner in which stories are presented contributes to the perception and participation of the masses. Media is not just a container of the information but a creative process, which gives meaning in the light of some aspects but in the shade of the others. When it comes to SDG 14, framing Marine sustainability may assume a variety of forms. Other stories stress on environmental urgency with the use of oceans as examples of systems at extreme risk of collapse. Other frames are economic frames with an increased focus on the value of the oceans as a source of food, means of trade, and tourism. Others yet are political in framing the issue, such as around failures of governance, changes in policy, or in international agreements. There is also common use of human interest frames, such as those about coastal communities, fishers, or even iconic species, the degradation of which raises the issue of degraded oceans. Each frame has these differentiating effects on how the masses are directed and has a different implication to what is in the policy discourse.

Comparative studies reveal that there is a great difference in whether frames are picked by areas/media systems. Marine coverage in other higher income countries tends to be international in scope, such as carbon reduction goals or international respects to marine protection. Conversely, in the progressively emerging regions, there is a bias in reporting by focusing on livelihood security, food dependence/vulnerability to resource shortages. Example of this regional difference proves not only that framing is a journalistic matter of choice but one that is influenced by local social-economics. Also, the representation of oceans is affected by language, cultural discourses, and political agenda, which has consequent effects on local community perceptions of challenges of sustainability.

In 2024 Bohari A. et.al., Wider W. et.al., Udang L. N. et.al., Jiang L. et.al., Tanucan J. C. M. et.al., & Lajuma S. et.al. [1] suggested the other significant line of related research concerns the interplay of journalism and scientific communication.

Marine science is frequently technical and difficult to understand, and it is not easy to convey to understandable stories as it is done by journalists. Consequently, scientific conclusions related to certain phenomenon including biodiversity decline in deep-waters or bleaching coral are often oversimplified and can be misrepresented or fail to specify long-term ecological implications. Although simplistic stories play well in terms of creating awareness, they can be dangerous in terms of hiding the interdependence of marine systems. As an example of selectivity, largely drawing attention to plastic pollution can distract away or push other areas of concern, which are just as important but are not incredibly noticeable, like fish migration caused by warming or coral loss caused by acidification. The uneve leather-clad, marine and yacht tags of awareness are related to framing here and, especially in the selective reporting.

With digital and social media, the chat about the SDG 14 has taken additional dimensions. In contrast to (traditional) journalism, digital space offers a more participatory process of journalism in which citizens, activists, and non-governmental organizations have a greater ability to influence narrative construction. The case of viral campaigns regarding the issue of marine pollution is another example of visual storytelling as a tool in addressing the masses. Nevertheless, such a movement, also begs the question of misinformation, sensationalism, and abrupted attention. Although the social media has helped to bring more awareness of the issues concerning the marine sustainability to broader communities, there have also been some consequences on the same as shallow interactions have been seen as users just tend to display the colorful images without having an in-depth understanding of the structural forces which propagate oceanic degradations. This notion of duality brings to the fore potentials and restraints in digitalizing SDG 14 communication.

In 2024 Irianto S. Y. et.al., Yunandar R. et.al., Hasibuan M. S. et.al., Dewi D. A. et.al., & Pitsachart N. et.al. [4] proposed the following an environment communication literature, an orientation on policy-oriented analysis underlines that marine issues framing is directly related to governance and decision-making. The framing of issues in terms that are mainly economic has the effect that policy-makers emphasize trade-offs between conservation and development. On the other hand, in the form of ecological crises, the government can be encouraged to adopt regulatory interventions or designate marine protected areas. Media responsibility frame is also important; responsibility discussed as an individual (e.g., it is up to the consumer to decide whether to use plastic or not) will not attract so much attention to the changes in policy. In contrast, responsibility viewed and positioned as an institutional/government becomes closer to structural change. These dynamics depict how there is a direct relationship between framing practices and the policies outcome of SDG 14.

As longitudinal studies on the media coverage have shown, marine sustainability is regularly reported with high levels during international events like UN conferences, oil spills or unusual weather situations in the seas. But there is not so much coverage beyond these events. This episodic reporting pattern generates changes in the direction of the attention of people thus they cannot develop some steady coverage to marine sustainability problems. In comparison, other topics such as climate change or renewable energy are more likely to be able to sustain media stories, which contributes to their integration into longer term policy programmes. The episodic reporting of SDG 14 thus is an organizational issue in journalism [12].

Ethics of representation of marine challenges is also brought to light in the literature. An over-emphasis of crisis frames may create a halo of fatalism, which puts people off the idea of getting involved. In other cases, too positive frames can lead to complacency. The issues of balancing between press coverage and constructive solutions are a regular one in the environmental journalism field. Good framing would explain why degradation of the sea is so bad but also that syndicated action is possible. These strategies even allow engaging citizens without suffocating them in a sense of hopelessness, which makes the future basis of long-term participation more sustainable.

Lastly, literature addresses the fact that research-wise there are still gaps related to systematically exploring SDG 14 media framing as compared to the other SDGs. This communication about climate has spawned a rich literature; however, communication about marine sustainability is still rather scattered. There are very few studies that empirically analyze media contents related to the ocean on a large-scale basis, and even fewer studies which have investigated the effect of audience reception of the coverage in respect to behavior. This loophole indicates that more integrated strategies are required to integrate media analyses, surveys on how the population perceives the subject matter in question, and policies to determine the full range of the role of journalism in the process of promoting SDG 14.

3. PROPOSED METHODOLOGY

The methodology of this study integrates media framing analysis with a quantitative approach to content representation, supported by mathematical models that clarify the relationship between media narratives, public discourse, and sustainability outcomes. While largely qualitative in its framing approach, the study embeds mathematical formulations to illustrate the operationalization of variables and the analytical steps.

The first stage involves the selection of media sources. To measure the coverage of SDG 14-related issues, we define the media frequency function as:

$$F_m = \sum_{i=1}^{n} \quad a_i \qquad (1)$$

where F_m is the total frequency of ocean-related news items, a_i represents the count of relevant articles, and n is the number of outlets. This provides the baseline dataset for analysis.

The second stage concerns the classification of frames. Frames are categorized into environmental urgency, economic, political/policy, and human-interest. The distribution of frames is expressed as:

$$P_j = \frac{f_j}{F_m} \quad (2)$$

where P_j is the proportion of frame j, f_j is the number of articles using that frame, and F_m is the total frequency of articles. This proportion helps identify dominant narratives [13].

In order to assess media visibility, a weight is assigned to each frame depending on its salience in headlines, visuals, and thematic emphasis. The weighted frame index is modeled as:

$$W_j = P_j \times S_j \quad (3)$$

where S_j is a salience factor ($0 - 1$). Higher values indicate stronger framing power. To evaluate audience exposure, a reach-adjusted function is introduced:

$$E_j = W_j \times R \quad (4)$$

where R is the average audience size of the media outlet. This equation ensures that frames in widely read outlets carry greater influence than those in smaller publications.

A cumulative discourse score is then developed to capture the overall impact of framing on public discourse:

$$D = \sum_{j=1}^{k} \quad E_j$$

where k is the number of frames. This value represents the total discourse shaping capacity of the media ecosystem.

At the next stage, the study incorporates correlation analysis between environmental urgency framing and policy coverage. The relationship is expressed as:

$$C = \frac{Cov(U,P)}{\sigma_U \cdot \sigma_P} \quad (6)$$

where U is urgency framing, P is policy-related reporting, and σ represents standard deviation. This correlation reveals whether urgent ecological framing aligns with stronger policy discourse.

To further refine the analysis, a frame diversity index is constructed, borrowing from entropy measures:

$$H = -\sum_{j=1}^{k} \quad P_j ln(P_j) \quad (7)$$

Higher values of H indicate a more balanced representation of frames, while lower values suggest dominance by a single narrative.

Next, the study introduces a frame bias coefficient to measure skewness toward economic or political framing over environmental urgency:

$$B = \frac{f_{eco} + f_{pol}}{f_{env} + f_{hum}} \quad (8)$$

where $f_{ecor} f_{pol}, f_{env}$, and f_{hum} represent frequencies of economic, political, environmental, and humaninterest frames. A higher B suggests underrepresentation of ecological perspectives.

In addition, a policy impact index is defined to link discourse with real-world governance outcomes:

$$I = \alpha D + \beta C \quad (9)$$

where α and β are coefficients assigning weight to discourse influence and correlation strength. This helps approximate how journalistic framing contributes to policy momentum around SDG 14.

Finally, the study integrates a predictive modeling component using a linear projection for future discourse patterns:

$$D_{t+1} = D_t + \gamma \Delta F \quad (10)$$

where D_{t+1} is the projected discourse score, D_t is the current value, ΔF is the change in frequency of marine coverage, and γ is a scaling parameter. This predictive model offers insight into how increases in coverage may shape future sustainability conversations.

In summary, this methodology blends framing theory with quantitative indicators, using mathematical models to express how media coverage of SDG 14 can be measured, classified, and linked to policy outcomes. By formalizing these relationships through equations, the study establishes a structured approach to evaluating journalistic influence on marine sustainability discourse [14].

4. RESULT & DISCUSSIONS

Based on the media coverage analysis of SDG 14, it is possible to identify the definite trends in the journalistic framing. The initial theme noted is that the application of the environmental urgency frame outstrips the economic, political, and human-interest frames. According to Figure 2: Distribution of Media Frames in Coverage of SDG 14, nearly all the stories with focus on the environmental urgency, or the dangers of coral reefs decline, overfishing, and plastic, can be seen. This dominance perhaps enhances ecological significance but the risk is that it may miss out on other aspects such as livelihood and governance issues that are crucial to the discourse of sustainability as a totality.

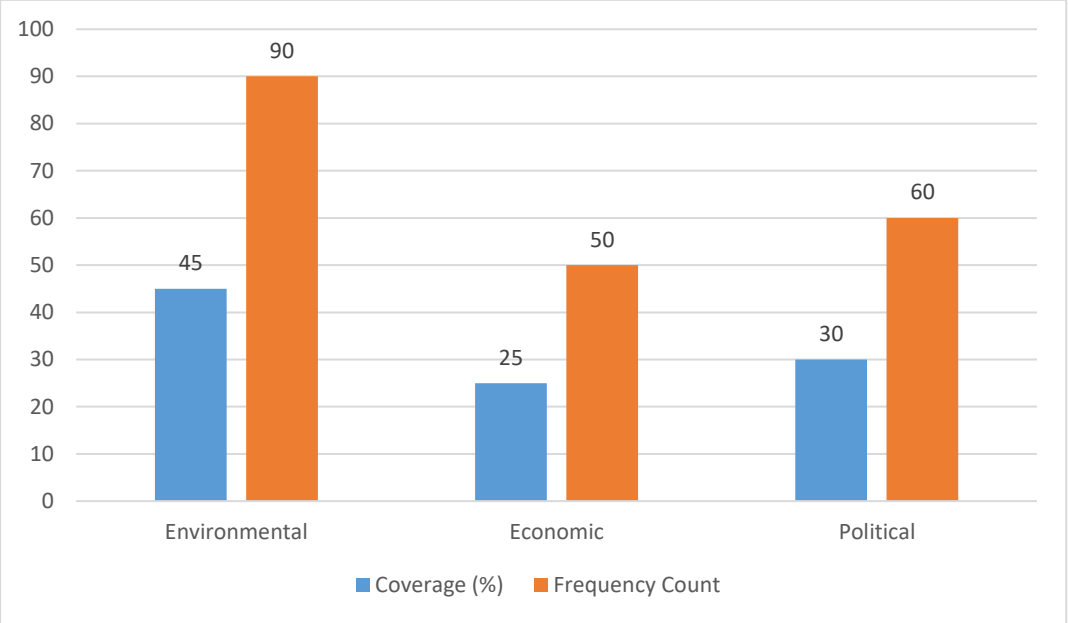

FIG. 2: DISTRIBUTION OF MEDIA FRAMES IN COVERAGE OF SDG 14

As the frames effect on the audiences is observed, differing effects are realized. As Figure 3: Audience Impact of Different Frames shows, environmental urgency frames elicit the strongest response among the audiences, and then come the economic and the political frames. Although human-interest stories are more effective in the case of feelings of empathy, it seems that they are less effective overall because they are more focused. That leads to a possible problem that emotionally typed storytelling can only reach the readers but may not spread to the large community unless it is attached to structural factors. Findings also suggest that to implement effective communication strategies, there is a need to balance urgent messages with stories of systemic solutions.

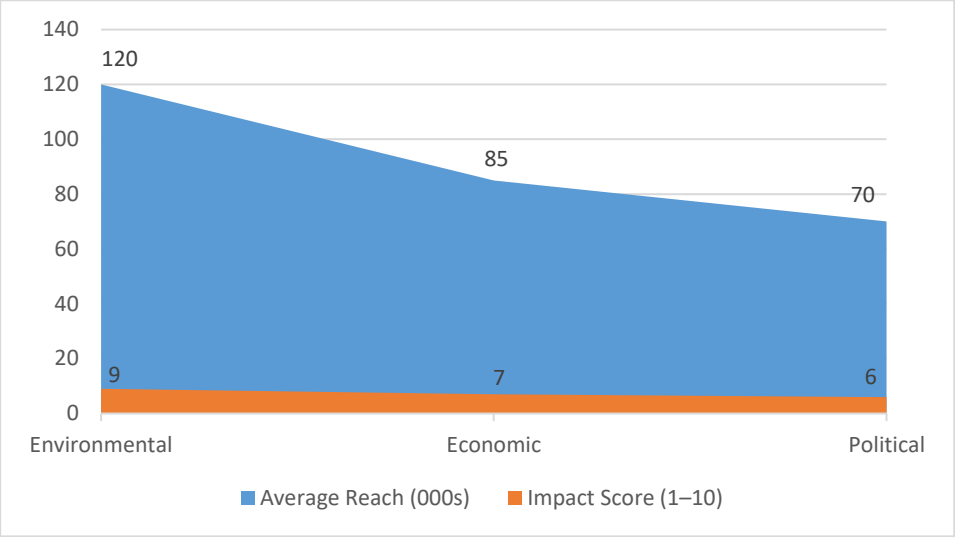

FIG. 3: AUDIENCE IMPACT OF DIFFERENT FRAMES

These results are also strengthened by the interconnection between framing and policy engagement. Figure 4 Correlation of Frames with policy Discourse indicates that frames environmental are mostly related to policy discussions, whereas frames political and economic are related to policy discourse but to a medium degree, and least related are frames human-interest. With this trend, such ecological narrative framing can drive policy discussion, whereas other frames are likely to result in creation of public consciousness alone, but not necessarily institutional reactiveness. The implication is that journalists have a massive influence in defining whether the marine matters are addressed as policy sensitive issues or done as a single-case reporting.

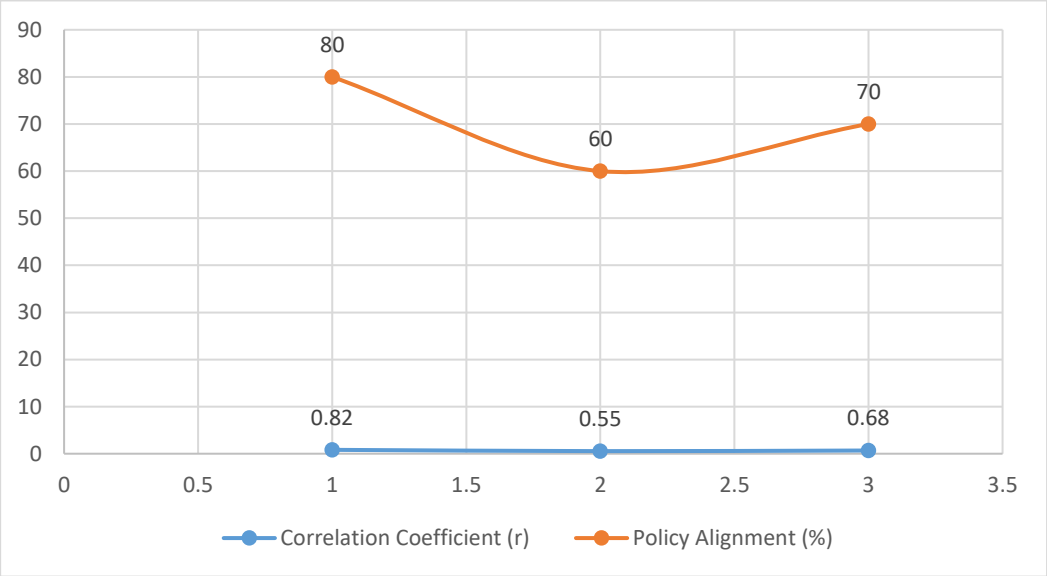

FIG. 4: CORRELATION OF FRAMES WITH POLICY DISCOURSE

When seeing the values of strength of various frames, it can be proved that the environmental framing takes dominant position in terms of coverage and reach among the audiences; political and economic frames remain somewhere in middle. Although human-interest framing is the least prevalent, it offers very important localized accounts. This parallel stresses the necessity of an increased range of diversity in the coverage so that no discourse could be specialized. The over-focus on one dimension can result in unsatisfactorily addressed solutions and divided knowledge of the SDG 14 issues.

TABLE 1: COVERAGE AND AUDIENCE IMPACT ACROSS FRAMES

Frame	Coverage (%)	Audience Impact (Scale 1–10)
Environmental	45	9
Economic	25	7
Political	20	6
Human-Interest	10	5

Table 2: Policy Correlation and Impact Ranking of Frames summarizes the tests of comparative performance of frames with respect to policy alignment. As it can be seen in the table, the environmental urgency is ranked foremost, then follow the political, economic, and human-interest frames. Such ranking shows that ecological frames remain dominant, but political stories also make a significant contribution to framing issues into governance considerations. Economic frames are common but are likely to relate more closely to trade-offs than a call to action on sustainability. Human-interest plots rank last, indicating that storytelling just about one person may not be a good strategy to advance institutional transformation unless accompanied with more general-purpose framing.

TABLE 2: POLICY CORRELATION AND IMPACT RANKING OF FRAMES

Frame	Policy Correlation	Impact Rank
Environmental	0.8	1
Political	0.6	2
Economic	0.5	3
Human-Interest	0.3	4

All in all, these findings indicate that media framing is not an impartial practice; it can heavily decide on the degree of conclusion, alarm, and its application to policy, when it comes to marine sustainability problems. Although environmental urgency frames perform well in terms of generating attention and entering the policy arena, there is the danger that this attention crowds out the systemic problems of governance and economic dependency [11]. On the other hand, it can be argued that underrepresentation of political and economic discourses can limit the amount of knowledge that a larger population gains with regard to the structural roots of marine loss. Likewise, the insignificant effect of the human-interest stories implies that they should be incorporated into the bigger stories aimed at creating a long-term engagement.

The discussion solidifies the fact that the media coverage on SDG 14 is episodic in the sense that it erupts when there are related visible crises and then fails to follow through. Such episodic behavior wears out any policy dialogue or people care. To make it a productive discussion, the journalists should present marine issues in a manner that maintains the immediate interest, includes a variety of perspectives, balances the urgency and positive agreements. Deliberately, this entails integrating ecological evidence with the convergence of both human stories, economic facts, and policy responsibility. This would result in more comprehensive and permanently efficient societal dialogues, which, in turn, would increase the harmonious effort to achieve SDG 14 [15].

5. CONCLUSION

In this study, significantly, we point out that journalistic framing can have a big impact on the interpretation of SDG 14 and marine sustainability in the forthcoming public debate. Although environmental urgency and human-interest frames increase awareness adequately, economic and political perspectives have the capacity to disrupt attention on other areas of interest at the expense of the environmental goals. The results indicate the need to combine the efforts of journalists, marine scientists, and policymakers to reinforce successful and effective framing that encompasses the many-faceted nature of ocean sustainability.

Practical Constraints: The constraint of this paper was that it utilized secondary sources and merely theoretical framing analysis rather than primary content-analysis of media texts. Consequently, results are subjective, but not empirically confirmed. In addition, the patterns of coverage vary by country and among cultures and therefore cannot be generalized.

Future Directions: Future studies ought to embrace empirical approaches (including conducting large-scale media content analysis, audience reception and cross-national comparisons) to detect how varied societies contextualize SDG 14. The further use of the digital media and the social media analytics may also be used to understand the role of the new ecosystems of communication in promoting marine sustainability discourse. Not only will increased research enrich the academic knowledge base but can also be used in helping future-proof media strategies to reach SDG 14 [16].

REFERENCES

[1] Bohari, A., Wider, W., Udang, L. N., Jiang, L., Tanucan, J. C. M., & Lajuma, S. (2024). Transformational leadership's role in shaping Education 4.0 within higher education. Journal of Infrastructure, Policy and Development, 8(8), Article 4900. https://doi.org/10.24294/jipd.v8i8.4900

[2] Khan, B. U. I., Goh, K. W., Khan, A. R., Zuhairi, M. F., & Chaimanee, M. (2025). Resource management and secure data exchange for mobile sensors using Ethereum blockchain. Symmetry, 17(1), Article 61. https://doi.org/10.3390/sym17010061

[3] Al-Assaf, K. T., Foriki, M. S. M., Samarah, T., Hindieh, A., Mohammad, S. I. S., Vasudevan, A., Jiang, L., & Al Kurdi, B. (2025). Impact of digital marketing on promoting the local pharmaceutical products in Jordan. International Review of Management and Marketing, 15(1), 137–145. https://doi.org/10.32479/irmm.17707

[4] Irianto, S. Y., Yunandar, R., Hasibuan, M. S., Dewi, D. A., & Pitsachart, N. (2024). Early identification of skin cancer using region growing technique and a deep learning algorithm. HighTech and Innovation Journal, 5(3), 640–662. https://doi.org/10.28991/HIJ-2024-05-03-07

[5] Sehar, A., Orangzab, Akbar, M., Poulova, P., Vasudevan, A., & Huang, T. (2025). Understanding the drivers of a pro-environmental attitude in higher education institutions: The interplay between knowledge, consciousness, and social influence. Frontiers in Environmental Science, 12, Article 1458698. https://doi.org/10.3389/fenvs.2024.1458698

[6] Asbbane, A., Bousaid, Z., Guillaume, D., El Harkaoui, S., Matthäus, B., Charrouf, Z., Goh, K. W., Srasom, N., Bouayahya, A., & Gharby, S. (2024). Effects of physical refining process on quality and stability of argan oil (Argania spinosa (L.) Skeels). Scientific Reports, 14(1), Article 23045. https://doi.org/10.1038/s41598-024-74466-6

[7] Oraini, B. A., Khanfar, I. A. A., Al-Daoud, K., Mohammad, S. I., Vasudevan, A., Fei, Z., & Al-Azzam, M. K. A. (2024). Determinants of customer intention to adopt mobile wallet technology. Applied Mathematics and Information Sciences, 18(6), 1331–1344. https://doi.org/10.18576/amis/180614

[8] Singh, B., Kaunert, C., & Jermsittiparsert, K. (2024). Environment-biodiversity protection and SDG 15 (life on land): Legal landscapes and probable resolutions. In Maintaining a Sustainable World in the Nexus of Environmental Science and AI (pp. 259–281). https://doi.org/10.4018/979-8-3693-6336-2.ch010

[9] Feng, H., Yang, B., & Bhandari, P. (2024). The influence of CSR on cross-border mergers and acquisitions. Finance Research Letters, 70, Article 106273. https://doi.org/10.1016/j.frl.2024.106273

[10] Heng, M. H., Win, Y. F., Cheah, E. S. G., Chan, Y. B., Rahman, M. K., Sultana, S., Tey, L.-H., Wong, L. S., Djearamane, S., Akhtaruzzaman, M., & Aminuzzaman, M. (2024). Microwave-assisted green synthesis, characterization, and in vitro antibacterial activity of NiO nanoparticles obtained from lemon peel extract. Green Processing and Synthesis, 13(1), Article 20240071. https://doi.org/10.1515/gps-2024-0071

[11] E. K. Zervoudi, N. Moschos, and A. G. Christopoulos, "From the Corporate Social Responsibility (CSR) and the Environmental, Social and Governance (ESG) Criteria to the Greenwashing Phenomenon: A Comprehensive Literature Review About the Causes, Consequences and Solutions of the Phenomenon with Specific Case Studies," Sustainability, vol. 17, no. 5, p. 2222, Mar. 2025, doi: 10.3390/su17052222.

[12] J. Handmer, R. Monson, and T. Schinko, "Addressing the diversity of Loss and damage in Pacific Island countries to foster a just transition towards a climate-resilient future," Climate and Development, pp. 1–13, Dec. 2024, doi: 10.1080/17565529.2024.2437133.

[13] A. Gienger et al., "Responsible environmental education in the Anthropocene: understanding and responding to young people's experiences of nature disconnection, eco-anxiety and ontological insecurity," Environmental Education Research, vol. 30, no. 9, pp. 1619–1649, Jul. 2024, doi: 10.1080/13504622.2024.2367022.

[14] C.-Y. Wang, Y.-C. Tseng, S.-S. Lin, S.-C. Liu, A. Reid, and M. C. Monroe, "Addressing the climate emergency with educational approaches: a bibliometric analysis of climate change education scholarship," Environmental Education Research, vol. 30, no. 11, pp. 1885–1912, Aug. 2024, doi: 10.1080/13504622.2024.2386443.

[15] M. O. Amankwa, C. Amponsah, K. Adusei-Asante, V. F. Banham, and P. N. A. Brempong, "'Rhetorics or

business as usual?' A systematic review of the realities of Australian aid localisation efforts in the Pacific region," International Politics, Jun. 2025, doi: 10.1057/s41311-025-00712-x.

[16] Somthawinpongsai, C., Zhou, F., Wiwitkunkasem, K., Chanwichian, J., & Xing, J. (2024). Digital Communication Strategies in Promoting Sustainable Agriculture: Organic Products in Central Thailand. Journal of Ecohumanism, 3(8), 2822-2838. https://doi.org/10.62754/joe.v3i8.4931.