

Environmental Realities: Evaluating Climate Change Coverage of Philippine Online News Media

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Abstract Climate change is one of the most pressing issues at the present time, imposing great threats to human life and society. With issues surrounding climatic information, media seemed to play the most important role in addressing this problem. The inadequacy of researches on climatic coverage by media had motivated the researcher to embark on this exploration. This content analysis compared daily coverage of online news portals (Philippine Daily Inquirer, Manila Bulletin and Philippine Star) on climate change and climatic science-related issues from 2015-2016. The results indicated that there was a relative increase on climate change coverage by the media in a span of two years. Environmental frames, government sources, the Paris Agreement, the news section, and wired photos were the dominant themes that emerged during the coding process, which reflects and resonates similar findings of research inquiries on climate change coverage.

Keywords: Climate Change; Media Coverage; Philippines; Online News Portals; Content Analysis

Abstrak Perubahan iklim adalah salah satu masalah paling mendesak saat ini, yang memberikan ancaman besar bagi kehidupan manusia dan masyarakat. Dengan masalah seputar informasi iklim, media tampaknya memainkan peran paling penting dalam mengatasi masalah ini. Kurangnya penelitian tentang liputan iklim oleh media telah memotivasi peneliti untuk memulai eksplorasi ini. Analisis isi ini membandingkan liputan harian portal berita online (Philippine Daily Inquirer, Manila Bulletin, dan Philippine Star) tentang perubahan iklim dan isu-isu terkait ilmu iklim dari 2015-2016. Hasilnya menunjukkan bahwa ada peningkatan relatif pada liputan perubahan iklim oleh media dalam kurun waktu dua tahun. Bingkai lingkungan, sumber-sumber pemerintah, Perjanjian Paris, bagian berita, dan foto kabel adalah tema dominan yang

muncul selama proses pengkodean, yang mencerminkan dan menggemakan temuan serupa dari pertanyaan penelitian tentang cakupan perubahan iklim.

Kata Kunci: *Perubahan Iklim; Liputan media; Filipina; Portal Berita Online; Analisis isi*

INTRODUCTION

Climate change is the most immense, serious, and pressing issue in the contemporary times that impose potential risks to society and great threats to humanity. It is considered to be the foremost environmental hazard in the world (Olausson, 2011). From the words of former United Nations Secretary-General, Ban Ki Moon (2014), it is the greatest challenge facing humanity, an ultimate cataclysmic collective human experience. This global phenomenon has become a common topic among debates and discourses such as in the academe, legislation, politics, and media. And with media's primary role of informing the public, it is paramount that crucial issues such as environment and health to be shared for their knowledge and welfare. As Boykoff and Robert (2007) stressed that mass media coverage is significant in facilitating public understanding, shaping public opinion and promoting public action. But it seems that this environmental issue is constrained only on the utopias and heterotopias of public rhetoric. And despite its possible dangers to humankind and the environment, climate change mitigation efforts are considered to be at a sluggish pace, imperiling the world to more relatively catastrophic outcomes.

With issues surrounding climatic information, media seemed to play the most important role in addressing this problem, specifically on covering and representing environment and climate change as a way in creating public awareness among news consumers. In the global scale, there are enormous studies focusing on media content and media reception in connection to climate change. But there are also limited literatures and relatively few studies dealing with climatic variability in the country. Regarding those issues, the researcher aims to fill this research gap by doing an academic inquiry centring on leading Philippine broadsheets' coverage of climate change. Taking references from previous writings, the researcher explored how print media covers and reports climate change and climate-related issues through its news articles and photos. Foreign studies and literature anchored this study, among these: print media's coverage of climate change (Carvalho & Burgess, 2005; Antilla, 2005; Boykoff, 2007; Sampei & Aoyagi-Usui, 2008; Good, 2008; Liu, Vedlitz & Alston, 2008; Boykoff, 2008; Dotson, 2009; Herberg, 2009; Boykoff, 2010; Ahchong & Dodds, 2011; León & Ertivi, 2011; Nielsen & Kjærgaard, 2011; Lyytimäki, 2011; Tillinghast & McCann, 2013; Asplund, Hjerpe, & Wibeck, 2012; Young & Dugas, 2012; Fahey, 2013; Takahashi & Meisner, 2013; Schäfer, Ivanova & Schmidt, 2013; Werner, 2014; Stewart, 2014; Ford & King, 2015; Feldman, Hart

& Milosevic, 2015; Boykoff & Luedecke, 2016); online media's coverage of climate change (Arcila-Calderón et al., 2015); newspaper coverage of United Nations Conferences (Kumpu, 2013; Faisal & Zannat, 2014); various media platforms' coverage of climate change (Speers, 2005; Boykoff & Boykoff, 2007; Xie, 2009; Feldman et al., 2011; Shehata & Hopmann, 2012; Huertas & Adler, 2012; Poberezhkaya, 2013; Meiring, 2013; Shrestha, Burningham & Grant, 2014; Painter, 2014; Olteanu et al., 2015); presence of newspaper bias on global warming and risk mitigation (Boykoff & Boykoff, 2004); perceptions of audiences on climatic variability news (Koteyko, Jaspal & Nerlich, 2012; Brewer & McKnight, 2015); and the visual representations of climate change (Smith & Joffe, 2009; O'Neill, 2013; O'Neill & Smith, 2014; Rebich-Hespanha et al., 2015; Rebich-Hespanha & Rice, 2016).

Other climate-related literature and studies also anchored this academic inquiry: climate TV weathercasters' role in climate change issues (Maibach, Wilson & Witte, 2010); climate attitude and knowledge of print journalists (Amu & Agwu, 2012); media coverage of environmental, adaptation and mitigation policies (Speck, 2010; Bacon, 2011; Keskitalo, Westerhoff & Juhola, 2012; Bacon, 2013; Takahashi & Meisner, 2013; Ford & King, 2015; Dolšak & Houston, 2014)); media as a tool in increasing climate change awareness (Boykoff & Roberts, 2007; Crowder, 2009; Harvey, 2011; Akpan et al., 2012; Zhao et al., 2013; Deepak, 2014; Burningham & Grant, 2014); and relationship between science or environmental reporting and political news coverage (Zhao et al., 2011).

Surprisingly, in the Philippines, setting studies on climate change are few, which imposes an idea of scarcity that goes correspondingly towards media coverage of this global phenomenon. Previous studies were slanted towards developmental communication and community-based adaptation and mitigation but with less interest on media-focused researches. This research inquiry aimed to close the gap in this field of study, as no previous study dealing with the same theme has been conducted.

Researches centring on media with emphasis on climatic reporting have shown to facilitate understanding of the issue. Moreover, these inquiries highlighted media as the audience's primary source of information. Ironically, despite being a climatic-vulnerable nation, there are only few researches regarding the climate change in the Philippines. Few have been written and investigated on the relationship of Philippine media and climate change. This inadequacy interests the author, leading to an exploration of newspaper coverage on climatic issue. The current study centered its discussion on the coverage of climate change in the three (3) leading Philippine broadsheets. Specifically, the author selected climate science articles published through the newspapers' online portals from 2014-2016 due to their digital availability and accessibility. The study dealt with news articles, imageries or photos

with headlines or captions on climate change located on these publications. Specifically, the researcher seeks to answer the following questions: 1) What is the frequency of climate change coverage in the leading Philippine broadsheet? 2) What is the most common focus of climate change-related articles and images in the Philippine Print Media? 3) What is the extent of presentation or depiction of climate change in the leading newspapers in terms of issue of the article; solution being proposed; scope of the issue; and scope of the solution? 4) How is climate change being framed in selected broadsheets? 5) What are the various coverage frames being used by different publications in covering climate change issues? 6) What section of newspaper is inclined in covering climate change issues? 7) What types of articles and visuals are more inclined to report climate change? 8) What types of news and graphics sources are being utilised by the different broadsheets in covering climate change?

The term "climate change" itself was conceived in 1966 by the World Meteorological Organization (WMO) proposing climatic change to encompass any forms of climate variability either brought by natural or anthropogenic causes. It later becomes common household name as it is recently. The United Nations Framework Convention on Climate Change or UNFCCC (1992) defined climate change as: *"a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."* This definition synonymously constituted to the idea that this global phenomenon is a result of human activities, placing a greater emphasis on mankind's environmental actions as identified causal factors of alterations in the climate systems. Moreover, it presented an identical cause and effect relationship between humanity and the ecosystem. Stressing that human activities in any way result into climate change, illustrating the principle of causation as action and reaction.

Offering a different definition, Intergovernmental Panel on Climate Change or IPCC (2007) referred climate change as: *"... a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity"*. Moreover, climate change *"may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use."* Unlike with UNFCCC's definition, IPCC states more scientific approach, pinpointing statistics as an important tool in gaining better understanding of climate change and its occurrences. This empowers the general public to have an increasing awareness and astonishing resilience on this phenomenon, exposing them to various mitigation processes.

The impending threat of climate change is beyond imagination, and that information on this phenomenon must be mainstreamed in order to promote greater awareness and profound understanding among various publics. These environmental threats are conditioned by influential and pervasive (Hansen, 1993) array of platforms suitably performing this important role – the media, which is ascribed generally in information dissemination and mediating education. Moreover, media bears crucial responsibility of representing the environment in such fashion that highlights its issues and concerns through numerous formats such as news and documentaries and depicts nature's vastness and beauty through travel programs and environment-themed shows (Speers, 2005). This demonstrates the interplay of environment and the media, as Hansen (1993) argues that people's environmental information and knowledge are based on their learnings from their direct exposure to various media platforms, leading to the construction of ideas and concepts on political, social and ecological reality. In return, the members of the public rely heavily on media for scientific information (Nisbet et al., 2002). In this context, the strong relationship between the public and the media as dependence of the former with the latter in accessing information like climate change is evident (Carvalho et al., 2008). Dependence of the public on media as the premier source of science information and environmental issues is extremely evident on extensive public surveys (Speers, 2005). This had proven mass media coverage's outstanding record for being a significant catalyst and facilitator for public understandings and action on issues concerning technology, environment, and risk (Boykoff & Roberts, 2007). Exposure to media has a significant impact on the knowledge and awareness of individuals, as it guides them on what to think and prioritize on their daily lives (Mikami, Takeshita & Kawabata, 1999). Whatever they see and hear about climate change constructs their awareness and understanding of this global environmental issue. Hence, news media performs the primary role of mediating between science, citizens and politics (Olausson, 2011).

Framing plays pivotal role in news and media coverages. Media utilise various framing approaches and categories in covering climate change and often "...through the practice of interjecting and emphasizing controversy or disagreement among scientists'; this often creates drama and provides journalists 'with a guise of objectivity'" (Zehr, 2000). Tankard (2001) defined frame as a thematic unit or "a central organizing idea for news content that supplies a context and suggests what the issue is through the use of selection, emphasis, exclusion, and elaboration". It is also the defining of issues for public disseminations and consumptions (Berinsky & Kinder, 2006), and by making sense of a perceived reality, a meaning is constructed that defines a communication text in order to promote a particular problem, definition, interpretation, moral judgment and action (Entman, 1993).

Previous studies dealing with media's coverage of climate change employed several frames: political (Boykoff, 2008; Tillinghast & McCann, 2013; Takahashi & Meisner, 2013; Faisal & Zannat, 2014); environmental (Boykoff, 2008; Agwu & Amu, 2013; Meiring, 2013; Faisal & Zannat, 2014; Rebich-Hespanha et al., 2015); thematic (Dotson, 2009; Xie, 2009; Tillinghast & McCann, 2013); episodic (Iyengar, 1987 & 1991; Check, 1995; von Storch & Strauss, 2005; Nitz & Ihlen, 2006; Boykoff & Boykoff, 2007; Hutchison, 2008; Dotson, 2009; Xie, 2009; Tillinghast & McCann, 2013); economic (Boykoff, 2008; Dotson, 2009; Nisbet & Scheufele, 2009; Dirikx & Gelders, 2010; Young & Dugas, 2012; Agwu & Amu, 2013; Tillinghast & McCann, 2013; Chongkolrattanaporn, 2013); substantive (Dotson, 2009); ambiguous (Antilla, 2005; Dotson, 2009); cultural or social (Boykoff, 2008; Dirikx & Gelders, 2010; Tillinghast & McCann, 2013; Chongkolrattanaporn, 2013; Takahashi & Meisner, 2013; Rebich-Hespanha et al., 2015); scientific (Nisbet & Scheufele, 2009; Tillinghast & McCann, 2013; Meiring, 2013; Agwu & Amu, 2013; Chongkolrattanaporn, 2013; Takahashi & Meisner, 2013). Of the several frames presented, six have been used in order to evaluate the frames of climate change coverage in the Philippines: 1) *Environmental*. It focuses on the ecology, ecosystem, natural resources and biodiversity; 2) *Scientific*. It involves scientific reports, new discoveries and technologies; 3) *Political*. It includes politics, politician, legislation and policy-making; 4) *Economical*. It centers on economy and business; 5) *Cultural*. It refers to people, civilization and society; and 6) *Educational*. It deals with information seeking and educational promotion.

The study utilises quantitative research design, employing content analysis which is a popular research method among scholars who are investigating climate science and communication. Since the primary aim of this research is to investigate the extent and scope of climate change coverage between print media outlets, content analysis seemed to be the most appropriate method, which allows the researcher to look into various news articles and pictures or photos of climate change in leading Philippine broadsheets. Specifically, a quantitative content analysis was utilised, where a standardized codebook was developed in order to code the content of online news articles, allowing statistical analysis (Metag, 2016). The sampling units for the study were: all articles and photos on climate change in the Philippine Daily Inquirer, Manila Bulletin, and Philippine Star from 2015 to 2016. Coding units on the other hand were determined and distinguished for the coding process.

A manual content analysis was utilised, employing human coders (research assistants) to code the online news articles manually. Articles and graphic materials were sought from the three newspaper companies' online portals. Selection of articles were done randomly by specifically keying in the word "Climate Change" in the search field of the three-online news portal. Usage of the key word provided a long list

of articles. Then, they were skimmed and scanned to get their overall impression and to ensure that the articles are related to the topic. The researcher conveniently selected the issues that covers, reports, and depicts climate change. Numbers were assigned per publication name to ensure consistency and avoid redundancy. The articles were viewed, read, analysed, and evaluated based on a coding sheet adapted from Devin Dotson’s study newspaper coverage of climate change in 2009. Authorisation was sought from the author before the adaptation through a formal letter sent online. Coders were given instructions on how to code the online news articles by religiously following the codebook.

Since the objective of the study is to determine the extent and frequency, issue salience and issue attention of climate change reportage in leading Philippine newspapers, the researcher used the Frequency or Resonance Analysis. This type of analysis easily determines the counting of news items dealing with climate change over a certain period of time. Specifically, counts analysis is employed to determine the frequency of each category in the coding worksheet and cross tabulation was utilised (Metag, 2016) to present a comparison on the coverage of climate change in leading Philippine broadsheets.

DISCUSSION

The primary aim of this research is to evaluate climate change coverage in Philippine news media and to compare the results between the leading daily broadsheets. This was achieved and translated through different tables showcasing the various results derived from the coding process.

The Frequency of Philippine Broadsheet’s Climate Change Coverage

Table 1. Frequency of Climate Change Coverage in Philippine Broadsheets (2015-2016)

Philippine Newspapers	f (2015)	%	f (2016)	%	Total	%
PDI	48	35.29%	64	21.40%	112	25.75%
MB	0	0%	122	40.80%	122	28.04%
PS	88	64.71%	113	37.80%	201	46.21%
	n = 136	100%	n = 299	100%	n = 435	100%

Legend:

PDI-Philippine Daily Inquirer; MB-Manila Bulletin; PS Philippine Star

The data revealed that the climate change coverage of Philippine news media had a relative increase from 2015 to 2016. This is evident

on the rising trend in Philippine Star's climatic news from 88 (2015) to 113 (2016) and Philippine Daily Inquirer's 48 articles in 2015 to 64 climate stories in 2016. There was a considerable difference on the amount of attention paid by the different online news portals on climate change and this evident on the different frequencies of news articles on climatic science.

The slight increase on online news media coverage of climate science may be credited to various attributes: (1) political; (2) scientific; and (3) environmental or ecological which is in lined with the findings of Boykoff and Boykoff (2005) that these elements had motivated the increase of climate change coverage by media. In this sense, the 2016 Philippine Presidential election had become one of the arena for climatic discourses through the numerous political debates, where presidential aspirants presented their political platforms and agenda on climate change and the environment (political). Also, with the Philippines being a prominent figure in United Nations climate talks, an active member of the V20 (Vulnerable 20) and the popularisation of the Paris Climate Change Agreement has provided reasons for news media to tackle climate change as a beat and topic of interest (scientific).

With the results, it constituted the realities of newspaper coverage if not that of the whole print media system, that climate change and the environment are not part of the priority beats for news stories among Philippine publications. The numbers may be increasing when it comes to the frequency of the media coverage, but this does not present a strong hold on an extensive media climate reporting in the Philippines. Moreover, it presented the fact that Filipino journalists, writers, and editors are not scientifically or environmentally-inclined in terms of news reporting. Climate change and environment have not been well-reported or well-covered as their frequencies remained low compared to other articles focusing on crimes, politics, national and international affairs. Though the three Philippine news portals covered climate change in an increasing manner from 2015-2016, frequency of climatic coverage differed among the three leading broadsheets electronic counterparts. The results supported the Research Hypothesis 1.

The Common Focus of Philippine Print Media's Climate Change-Related Articles and Images

Table 2. Focus of the Online Article or Image on Climate Change

Newspapers	Problem (f)	%	Solution (f)	%	Both (f)	%	Others (f)	%
PDI	31	37.80 %	31	14.10 %	38	32.76 %	2	11.77 %
MB	23	28.05 %	44	20%	39	33.62 %	10	58.82 %
PS	28	34.15 %	145	65.90 %	39	33.62 %	5	29.41 %
	n = 82	100%	n = 220	100%	n = 116	100%	n = 17	100%

Legend:

PDI-Philippine Daily Inquirer; MB-Manila Bulletin; PS Philippine Star

Similarly, the results indicated that majority of the climatic news (220) are focused on solution. Specifically, Philippine Stars had slanted their articles (145) on proposed solution that will resolve climate change as a global environmental phenomenon, followed by Manila Bulletin's 44 climatic news and Philippine Daily Inquirer's resolution-centred 31 climate news. Secondly, 116 online news were skewed as both, presenting climate change as a problem and offer solutions to end this environmental issue. Explicitly, Manila Bulletin and Philippine Star had this slant with the same number of 39 each while Philippine Daily Inquirer had 38 online articles. Climate change as a problem was discussed in 82 articles across the three leading broadsheets, with Philippine Daily Inquirer getting the biggest share with 31 stories followed by Philippine Star with 28 and Manila Bulletin with 23 problem-oriented articles. Other articles (17) were tagged to discuss climate change but seemingly not as a problem, solution or both.

The data reflected the concept of newsworthiness or news value which Golding and Elliot (1979) stated that news values play a significant role in selecting news materials or stories to be reported or presented. As Speers (2005) suggested that journalists select some stories over the others or the reporting or presentation techniques on the basis of news worthiness or news value; which news is more significant or more appealing to the readers either on the basis of content or on the basis of style. Such basis also comes from the various news values of prominence, human interest, proximity, oddity, and timeliness among others. The dominance of solutions over problem on the focus of climatic stories and articles had resonated Trumbo's (1996) idea that it is "expected for climate change articles to slant more on solutions than problems when the issue had matured, and scientists were no longer necessary to explain the science of climate change." The results showed that online articles predominantly focus on solutions more than climate

change as an issue or slanting climate science as both issue and solution, hence, reflective of Research Hypothesis 2.

The extent of presentation or depiction of climate change in the leading newspapers in terms of:

Issue of the Article;

Table 3. Frequency of Climate Change-Related Issues or Problems Across Philippine Newspapers

Climate Change-Related Issues or Problems	Frequency (f)	%
Global Warming	56	12.87%
Ocean Acidification	2	0.46%
Disasters	24	5.52%
Emergency Rainfall	2	0.46%
Shifting Season	4	0.92%
Glacial Melt	4	0.92%
Sea Level Change	11	2.53%
Land Mass Alteration	2	0.46%
Drought	10	2.30%
Coral Bleaching	4	0.92%
Others	316	72.64%
	n = 435	100%

Overall, the most significant portion of 316 (72.64%) of online news covered climate change as Others (general), meaning this different climatic news did not discuss a specific issue or problem rather reported this global issue in a universal fashion. Of the specific themes, Global Warming topped the list with 56 (12.87%), followed by Disasters which was discussed in 24 instances (5.52%), then Sea Level Change with 11 articles (2.53%) and Drought in 10 stories (2.30%). Shifting Season, Glacial Melt and Coral Bleaching were the main focus on 12 online news (each with 4 or 0.92%). The rest of the climatic articles equally dealt with Emergency Rainfall (0.46%), Ocean Acidification (0.46%) and Land Mass Alteration (0.46%). Most of the articles were coded under Others due to the fact that they did not cover a specific environmental issue and discussed climate change in general. Online news on global warming, disasters, sea-level change and drought were in significant numbers, as these impacts were often felt and experience by Filipinos. The geography and the vulnerability of the Philippines to the effects of climatic variability had placed climate science in a very serious position. This was reaffirmed by the country’s susceptibility to frequent storms and tropical cyclones, disasters, heatwaves and flooding that were considered to be climate-induced (Climate Reality Project, 2016).

Filipinos' climatic experiences had mainstreamed climate change as a discursive topic and an environmental issue increasingly covered and reported by media in the recent years. People used global warming in reference to climate change though they have distinct meanings, but it is often that these terms were used interchangeably to denote each other. While the term is popular among Filipinos as a direct connotation to climatic science, this impact caused warmer earth's temperature and is frequently experienced by Filipinos especially during summer months when the temperature is higher compared to its usual level. In addition, the Philippines seemed to be a dwelling place for natural and climate-induced disasters. This can be attested as the country had experienced four out of the 10 most devastating storms in the past decade (Worland, 2015). Furthermore, the country is highly susceptible to extreme weather conditions, frequent occurrences of El Niño and La Niña and enormously fatal and damaging typhoons, thunderstorms, flash floods (Greenpeace, 2005) and landslides.

Though Philippine media's coverage of climate change is increasing, it does not justify the knowledge, attitude and awareness of Filipinos on the issue. Moreover, it presented a dichotomy as the country is one of the most vulnerable countries to climate change but with low frequency of media coverage. The impacts of climate change were evident and noticeable in the country, but Philippine media placed too little attention which prevents the mainstreaming of the issue to promote awareness and generate possible solutions.

Solution being Proposed;

Table 4. Frequency of Climate Change Solutions Across Philippine Newspapers

Proposed Climate Change Solutions	Frequency (f)	%
Mitigation	53	12.18%
Risk Reduction	18	4.14%
Energy Saving	4	0.92%
Renewable Energy	31	7.13%
Population Control	0	0%
Reforestation	4	0.92%
Green Agriculture	13	2.98%
Reduction of Pollution	4	0.92%
Waste Management	0	0%
Others	265	60.91%
None	43	9.90%
	n = 435	100%

Climate change was not just covered in the online news media as an environmental problem, but certain articles discussed it by offering

solutions to combat its fatal and destructive impacts. Majority of the climatic news (265) were coded under Others (129 for Philippine Star, 83 for Manila Bulletin and 53 for Philippine Daily Inquirer), followed by Mitigation with 53 (Philippine Daily Inquirer topped with 25 followed by Philippine Star with 18 and Manila Bulletin with 10 online news) and Renewable Energy in 31 climate change online news (15 under Philippine Daily Inquirer, 10 for Philippine Star and Manila Bulletin with 6). Eighteen (4.14%) articles proposed Risk Reduction as a resolution to climate change while 13 articles or 2.98% out of the 435 articles had discussed green agriculture. And 12 online news offered Energy Saving (4 or 0.92%), Reforestation (4 or 0.92%) and Reduction of Pollution (4 or 0.92%) as resolutions. Surprisingly, 43 (9.90%) climate articles did not propose any solution to lessen the impacts of climate change. The data is in dissonance with the findings of Ahchong and Dodds (2011), where mitigation and adaptation deemed to be the most preferable solution to climate change.

Most of the articles are offering other solutions to combat climate change. Paris Climate Agreement was deemed mostly as the intervention that will impede the effects of climate change to the environment, society and humanity; with the goal of lowering down carbon emission and reduction on the usage of greenhouse gasses. Additionally, the Paris Accord is a direct response to the increasing effects and impacts of climate change. This too, as former US President Barack Obama in 2016 puts it, "*... this agreement will help delay or avoid some of the consequences of climate change*" (Rice, 2016).

Aside from the climate agreement, mitigation was also deemed to be a resolution in reducing the effects of climate change. As UNESCO (2013) suggested in its guidebook for African journalists that adaptation and mitigation are two of the most popular strategies in combatting climate change. Mitigation dealt with "*any activities to reduce the overall concentration of greenhouse gases in the atmosphere. This includes efforts to switch from fossil fuels to renewable energy sources such as wind and solar, or to improve energy efficiency. In also includes efforts to plant trees and protect forests, or to farm land in ways that prevent greenhouse gases from entering the atmosphere.*"

Print media had mainstreamed the Paris Climate Agreement as the perfect solution to the increasing impacts of climate change. Paris Accord brought actions among United Nations' member countries ratification of the said agreement, as it is deemed to be the most comprehensive climate agreement, bringing all nations of the world towards a common cause of battling climate change through adaptation and mitigation. The agreement also pursued its efforts to put a limit on the temperature increase to 1.5°, empowered countries to be resilient to the effects of climate change through financial and technological frameworks (UNFCCC, 2016).

Scope of the Issue;

Table 5. Frequency of the Scope of Issue on Climate Change as Covered by Philippine Newspapers

Scope of the Issue	Frequency (f)	%
Local Community	3	0.7%
Provincial	13	2.99%
Regional	1	0.2%
National	294	67.6%
International/Global	124	28.51%
None	0	0%
n = 435		100%

Generally, most of the climatic online articles were confined in the National setting (294 or 67.6%), 124 (28.51%) dealt with climate change concerning International/Global countries, then 13 articles or 2.99% discussed it in the Provincial level. Surprisingly, climate change was occasionally discussed in Local Community (3 or 0.7%) and Regional (1 or 0.2%) settings.

The predominance of domestic news focusing at the national level had resonated the idea of Spears (2005) pointing out that persuasive stories on specific localized occurrences were deemed to be more appealing and influence public to engage and act on issues of climate change. The data too, reflected similar findings of Ahchong and Dodds (2011) study where news articles often in national and international or global scopes.

Scope of the Solution;

Table 6. Frequency of the Scope of Solution on Climate Change Coverage Across Philippine Newspapers

Scope of the Solution	Frequency (f)	%
Local Community	10	2.30%
Provincial	20	4.60%
Regional	13	2.99%
National	282	64.83%
International/Global	97	22.29%
None	13	2.99%
n = 435		100%

Similarly, with the scope of climate change issues, the extent of climate change solutions mostly centred on the national level (282 or 64.83%), followed by resolutions dealing with International/Global countries with 97 online news or 22.29% while solutions that will benefit

the Provincial settings were discussed in 20 articles or 4.60%. Regional-based proposals to resolve climate change were covered in 20 climatic news or 4.60% while Local Community-based resolutions were discussed in 10 online news or 2.30%. Unpredictably, a couple of online news (13 or 2.99%) did not in any way offered a climate change resolution. Though the Paris Accord rose to popularity as the “might-be-the-right” intervention against climate change, most of the solutions proposed by the online news articles were of national significance. Specifically, discussing mitigation, adaptation and Philippines ratification of the Paris Climate Agreement and the benefits the country will gain from such legislative action. Situating the scope of climatic solution at the national level potentially conveys the feeling of belongingness and urgency. Furthermore, offering national solutions to combat climate change, in anyway mobilise people to be in attention with the issue and preparation for action. As Ford and King (2015) deliberated that media played a key role in providing a platform for public discourses and rhetoric on solutions to end climate change. In this context, the Philippine media situating climatic solutions at the national scope strengthens public’s engagement as possible solutions were normally publicly “*created, debated and bounded*”.

There was be a relative difference on the extent of presentation and depiction of climate change among the various online newspapers in terms of the issue presented, solution proposed, scope of issue and scope of solution. This is reflective of the Research Hypothesis 3.

The Framing of Climate Change Coverage in Philippine Online Media

Table 7. Frequency of Framing Approach Across Philippine Newspapers

Framing Approach	Frequency (f)	%
Positive	331	76.09%
Negative	84	19.31%
Neutral	20	4.6%
	n = 435	100%

Generally, most of the articles were framed positively (331 or 76.09%) followed by negatively-covered climatic news (84 or 19.31%) while 20 online news or 4.6% were discussed in neutral frames. The results showed how Philippine media framed climate change as a global environmental issue as most of the online articles with considerably positive impressions. This is in dissonance with the study of Dahinden (2002) where media’s coverage of biotechnology was neither purely positive or purely negative as most of some them were on a certain point of ambivalence or uncertainty. The current study also Moreover, the findings of the current study discorded the results of a study on US newspapers’ framing of fossil fuel and climate change, where the

predominant newspaper articles were framed neutral tones. With the presence of both positive and negative frames, discussion of an issue particularly of the environment and climate change bounded on a neutral ground, where uncertainty occurs and affect the salience of an issue (Rogala, 2011). The results of the study reaffirmed the Research Hypothesis 4, as positivity will be the overall tone of online climatic news.

The dominance of positive framing among online articles on climate change represented Philippine media's pulse towards this global environmental issue and reflected the idea that Filipinos are individuals who love positivity, believing that good vibrations or vibes ease out any situations, may it be a good or bad ones. This too constituted why the Philippines remained to be the most emotional country in Asia (Opiniano, 2017). Moreover, the fondness of Filipinos to positive things may just be the reason behind media's positive rally on issues concerning the whole nation, as positivity yields more positive effects to Filipinos. As Gunster (2010) suggested that alternative and independent media often frame climate change in a way that promotes political efficacy, offering a *"a much more diverse and optimistic vision of climate politics as a place in which broad civic engagement on climate change can challenge and overcome institutional inertia as well as model democratic and participatory approaches to the development of climate policy."* As Dotson (2009) suggested that *"positive valence was defined as an overall focus on solutions, action taken, resolutions passed, or progress toward change."*

Various Coverage Frames Used in Climate Change Coverage

Table 8. Frequency of Coverage Frames Across Philippine Newspapers

Coverage Frames	Frequency (f)	%
Environmental	194	44.6%
Scientific	22	5.06%
Political	116	26.7%
Economical	67	15.40%
Cultural	5	1.15%
Educational	8	1.84%
Others	22	5.06%
	n = 435	100%

Generally, environmental frame emerged as the highly employed coverage frame with 194 online news or 44.6% followed by 116 (26.7%) politically-framed climatic stories, then 67 articles or 15.40% were slanted economically while scientific frame was used in 22 articles or 5.06%. There were also frames that were rarely used: educational (8 news or 1.84%) and cultural (5 stories or 1.15%). On the contrary,

some climatic articles employed other frames (22 or 5.06%) that are related to entertainment, agriculture, legislation and health.

Majority of the online news were published in 2016, which is in time with the Philippine presidential election, where climate change has been a criterion in political debates involving presidential level. Through these public discourses, political candidates’ knowledge, perceptions and environmental agenda were presented before viewer-voters and allowed them to gauge on a candidate’s stand, notion and action towards environment and climate science. Furthermore, coverage of environmental and climatic problems during the election period had increased issues’ salience, which make them perceptible, consequential and retentive among viewer-voters. The data resonated the findings of Faisal & Zanat (2014) on their research about newspaper coverage of the UN conferences on climate change in Bangladesh, where environmental and political frames emerged as the dominant coverage frames of the national dailies. This articulated the idea that environmental issues such as climate change, global warming and climate-induced disasters has been recognized by the Philippine society and more often amalgamated with politics, political rhetoric and policy-making.

The result too was almost in lined with the findings of Tillinghast and McCann (2013) where political-economic, ecological or meteorological and scientific framing were the dominant frames used by news magazines. The only difference was that their study had higher frequency in terms of scientifically-coded online news articles than the current study’s inclination to economically-framed online stories. The data indicated parallelism of the Research Hypothesis 5, as politics, economics and the environment would be the dominant coverage frames used by media in covering the issue of climate change.

Section of the Newspaper Most Inclined in Covering Climate Change Issues

Table 9. Frequency of Newspaper Section Covering Climate Change Across Philippine Newspapers

Newspaper Section	Frequency (f)	%
News	237	54.49%
Feature	8	1.84%
Editorial	35	8.04
Business	69	15.86%
Others	86	19.77%
	n = 435	100%

Summing it up, news section was the section of online news portal to frequently cover climate change on its daily issues with 237 or 54.49%, followed by secondary (Others) sections with 86 or 19.77%, and the business section with 69 or 15.86%. Editorial and feature sections had the least inclination to cover climate change with 35 or 8.04% and 8 or 1.84% respectively. This result supported Research Hypothesis 6, as predominant climatic articles and stories thrived in the news section of various online news portals. The results indicated a similar result of a comparative study on media coverage of climate change in Chile by Dotson et al (2012), where news articles emerged as the predominant story type that cover and report climatic science.

Types of Articles and Visuals Inclined to Report/Depict Climate Change

Table 10. Frequency of Articles on Reporting Climate Change

Article Type	Frequency (f)	%
News	269	61.84%
Feature	30	6.9%
Opinion/Editorial	36	8.27%
Literary	1	0.23%
Wired	98	22.53%
Others	1	0.23%
	n = 435	100%

In general, news articles covered climate change in a wider scale of 269 out of the 435 samples of this study or 61.84%. This was followed by wired digital contents with 98 or 22.53%, opinion/editorial with 36 climatic coverage, feature in 30 articles or 6.9% and literary and others with equally having 1 digital content. The results revealed that Philippine print media predominantly used news articles in reporting climate change. This reaffirmed the findings of Esser and Umbricht (2014) on their study of the press and media systems that the US media is inclined in using news format with emphasis on detached point of view, accurate facts and verifiable attributions. Furthermore, Corbett and Durfee (2004) suggested that hard news is event-driven, placing news stories and articles in scientific context. This constituted the Research Hypothesis 7 that news stories were most likely to cover climate change.

Generally, wired photos were highly used by online news media to depict climate change with 156 or 35.86%, followed by framed photos with 121 out of the 435 or 27.81% then no pictures in 110 instances or (25.29%). Other types of images were seldom used: stand-alone photos (14 or 3.22%), graph/map (10 or 2.30%), editorial cartoon (9 or 2.07%).

Majority of the climatic imageries analysed on this study depicted government and political figures. International and local political messengers and actors were frequently featured in photos or pictures supporting climate change articles. Specifically, former UN Secretary-General Ban Ki-Moon and former US President Barack Obama were the frequent international governmental and political figures accompanying climate change articles. In the Philippine setting, President Duterte and Senator Loren Legarda had a fair share of popularity as domestic coverage of climate change were frequently published with their photos as a supplement to climatic news stories. The dominance of government and political figures constituted the idea of (1) importance of politics in mainstreaming climate change, (2) the key roles they hold in climate change discourses, actions and policy-making.

Visual images and representations allowed the public for greater understanding of climate change issue, and in turn engaged them on various climatic discourses and rhetoric leading to the shaping of the cultural politics of climate science (O’Neill & Smith, 2014). It played a key role in positioning conceptions of climate change (Smith & Joffe, 2009). With two-thirds of the total number of articles coded have pictures or photos showed print news media’s technique to draw audience attention and information retention. The results reinforced the many qualities of visual imagery in emotional portrayals (Joffe, 2008), accompanying and highlighting information (Graber, 1990), decoding and sharing social and cultural meanings (O’Neill & Smith, 2014) and even rescind semantic and geographical challenges (Popp & Mendelson, 2010). Moreover, the results supported Research Hypothesis 7, as majority of the photos depicting or representing climate science were framed-type photos.

Table 11. Frequency of the Types of Images Depicting Climate Change Across Philippine Newspapers

Image Type	Frequency (f)	%
Framed Photo	121	27.81%
Stand-alone Photo	14	3.22%
Wired Photo	156	35.86%
Editorial Cartoon	9	2.07%
Graph/Map	10	2.30%
Others	15	3.45%
None	110	25.29%
	n = 435	100%

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With the data collected through the coding process, it could be said that most of the photos were images of people, hence, personification of climate change was done through the significant presence of humans such as the numerous domestic or global political figures and governmental actors, business personalities and scientific messengers of information. These images facilitated attraction, attention and retention, supporting the idea of Smith and Joffe (2009) that personification of climate change evokes emotional tone among readers or viewers of the climatic images and facilitates emotional reaction. The presence of human images had assisted public understanding climate science and in any way influence and affect public engagement on climate change issue.

Types of News and Graphic Sources Being Employed in Covering Climate Change

Table 12. Frequency of Information Sources on Climate Change Across Philippine Newspapers

Sources of Information	Frequency (f)	%
Local Media	3	0.69%
International Media	1	0.23%
Government	285	65.52%
Academic	10	2.30%
Non-Government Organization	29	6.67%
Business	48	11.03%
Science Organization	10	2.30%
Others	32	7.36%
None	17	3.90%
	n = 435	100%

Like framing approach and coverage frame, the source of climatic information contributes to the salience of climate change issue. Generally, people from the Government were attributed for climatic information with 285 or 65.52%, followed by the Business sector with 48 or 11.03%, the by Others in 32 online news or (7.36%) while Non-Government Organization were quoted 29 times or 6.67%. Though discussions of climatic science were popularized by Science Organization and the Academic, they did not fair well to be the messengers of climatic science equally getting 10 articles or 2.30% under their anchorage. Local Media and International Media seemed not to be reliable when it comes to climate change, with 3 (0.69%) and 1 (0.23%) quotations respectively. Unpredictable, there were 17 articles with no source of information either because they were opinions or commentaries of editors on the issue of climate change.

Messengers of climatic information perform relatively significant functions in advancing climate change, particularly in creating visualizations, evoking and placing value and increasing the public's awareness on the issue (O'Neill & Smith, 2014). The current study had a considerable amount of government attributions which resonated the findings of Xie (2009) in a comparative analysis of climate change coverage between newspapers and blogs where government actors and political messengers were deemed to be the most attributed entity on the issue of climate change. And this is true among the three leading Philippine online news media, as government remain to be the top source of climatic information.

The study reinforced the results of previous studies (Ahchong, 2011; Kumpu, 2013) where political figure represented the dominant

number as the messengers of climate information. Governmental sources in the national level were predominant over those in the regional level. Moreover, the frequency of government actors was considerably higher compared to other sources of information. This showed a relationship between climate change and politics, and situating it in the Philippine context, government sources often shape public discourses and opinions on climatic variability. Furthermore, the presence of government sources on climatic media coverage resounded the idea of how significant their role in resolving climate change. Additionally, since the research study dealt with climatic imageries, it resonated similar findings on the study of O'Neill (2013) that images and representations of climate change depict identifiable subjects, predominantly government officials and politicians. Hence, the results in this category is reflective of Research Hypothesis 8, as higher frequency of governmental and political actors were attributed as sources of climatic news stories.

CONCLUSION

Climate Change is becoming a relevant topic with an increasing media coverage and reportage. It has become a popular discursive topic in the Philippines and no longer bounded in the premises of the academe and sciences. It transcended its path towards research and journalism. This can be attributed to climate change experiences of humans such as global warming, flooding and climate-induced disasters among others. Climate change had become a serious global environmental issue and its popularity can be credited to various political, economic, and environmental attributes. Hence, media is in a significant role of mainstreaming this issue to promote public awareness and action. Severity of climate science had motivated people such as journalists and other climate agents and actors to have a fair share of the issue, various resolutions were designed to ease the impacts, threats and effects of climate change. Thus, media as one of the key players of climate change cover this issue by highlighting solution as they shape, influence and contribute to public discourses, policies and actions.

Media had covered climate science in a general manner as this term is interchangeably used to denote its impacts such as global warming, El Niño and La Niña among others. Though generality dominated discussions of climate change by the media, specificity comes in the form of solutions like the Paris Climate Agreement, mitigation and adaptation measures, consequently, providing ambivalence and cynicism in media coverage of climatic change. Therefore, this presents Philippine media less inclination to cover climate change issue and provided reasons for such behavior as: little knowledge and skills on covering and reporting science, climate change and the environment, inadequate climate-related seminars and trainings and the diminutive attention media

institutions put on themes that they think are less important or not news worthy.

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