



Presence and framing of climate change in the digital press of Uruguay


Juan Manuel Gari

Universidad de Montevideo 

Victoria Gómez

Universidad de Montevideo 

Álvaro Pérez Álvarez

Universidad de Montevideo 

<https://dx.doi.org/10.5209/rced.95821>

Recibido el 21 de diciembre de 2023 / Aceptado 25 de marzo de 2024

Resumen: Cerca del 80% de los uruguayos perciben una baja presencia del cambio climático (CC) en la prensa (PNUD Uruguay, 2021). Este artículo analiza cómo el periodismo digital de Uruguay informa y encuadra el CC e identifica oportunidades para mejorar la cobertura periodística del tema y de la Política Nacional de Cambio Climático. El análisis de contenido revela, entre otros hallazgos, falta de énfasis en explicaciones científicas y posibles soluciones tecnológicas a los problemas del CC, medidas políticas desatendidas por los medios y un uso casi inexistente de contenidos audiovisuales para informar. El artículo concluye con recomendaciones sobre cómo las autoridades políticas y los medios pueden comunicar sobre el CC para que los ciudadanos comprendan el fenómeno y su relación con él.
Palabras clave: cambio climático, periodismo, conciencia climática, política climática, encuadre

^{ES} Presencia y encuadre del cambio climático en la prensa digital de Uruguay

Abstract: Nearly 80% of Uruguayans perceive a low presence of climate change in the press (PNUD Uruguay, 2021). This article analyses how digital media in Uruguay inform about and frame climate change and identifies opportunities for improving journalistic coverage of the issue and of the National Climate Change Policy. The content analysis reveals, among other findings, lack of emphasis in scientific explanations of and potential technological solutions to the problems of climate change, policy measures that are unattended by the media and quasi non-existent use of audiovisual content to inform. The article concludes with recommendations on how political authorities and the media can communicate about climate change so that citizens may understand the phenomenon and their relationship with it.

Keywords: climate change, journalism, climate conscience, climate policy, framing

Sumario: 1. Introduction. 2. Methodology. 3. Results. 3.1 Climate change presence in uruguayan digital press. 3.2 Climate change in terms of its causes and effects. 3.3 Climate change mitigation and adaptation measures. 3.4 Climate change framing. 4. Discussion and conclusions. 5 References.

Cómo citar: Gari, J. M.; Gómez, V.; Pérez Álvarez, Á. (2024). Presence and framing of climate change in the digital press of Uruguay. *Historia y Comunicación Social* 29(1), 41-55

1. Introduction

Responses to the environmental crisis – “the triple emergency of climate, biodiversity and pollution” (Programa de las Naciones Unidas para el Medio Ambiente [PNUMA], 2012: 1) – involve both the individual and institutional levels as well as the social and cultural mediations that guide behaviour. The media come into play in shaping and reinforcing or weakening attitudes towards the environmental problem, but they also affect public knowledge of the facilitators and infrastructures which are fundamental for the transition to sustainable lifestyles (Akenji, 2021).

Recently, the global study Reuters Digital News Report (2022) dedicated a special section to the consumption of news about climate change and investigated it in more than 30 countries, with results

that reveal global trends – Instagram as a star platform, but without displacing the media traditional, for example – as well as regional particularities and countries that deviate from the norm (Reuters Institute, 2022). Contextualised analysis thus becomes fundamental to account for the phenomenon and marks a path for researchers to follow. Although the Reuters Institute fieldwork does not include Uruguay, the Climate Promise study “Social perception of climate change in Uruguay” (UNDP Uruguay, 2021) confirms international and regional trends (Leiserowitz, et al, 2022), as it registers high levels of declared awareness of the problem among the Uruguayan population. At the same time, it reveals a distance from people’s daily lives and demands a deeper exploration of the role of mediated communication in the phenomenon since nearly 80% perceive a low presence of climate change in the press.

In Uruguay, where Internet access is practically universal between 6 and 65 years of age, reading news on portals or social networks is among the four main activities (78%) of users (Radar, 2022). According to figures from the latest Internet User Profile (Radar, 2022), reading digital news is less frequent among those under 19 years of age, while it increases along with the socioeconomic level of Uruguayans, and reaches 2.1 million readers. Thus, focusing on the most read digital press in the country is pertinent as an approach to public conversation. Also, taking into account that the majority of the public tends to learn about climate change, a phenomenon whose implications are not easily perceptible, through the media (Schäfer and Schlichting, 2014; Weber, 2010). Therefore, this work asks how information is framed in the main digital media in Uruguay.

The conceptualization Entman provides of “framing” is taken as a starting point: “to select some aspects of a perceived reality and make them more salient (...), in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation” (1993: 52). Sádaba et al. (2012) affirm that frames are present in communicators, information content, culture and audiences; this study focuses on the second of these categories. According to Lakoff, framing is inevitable, but it is necessary to ask the question of “whose frames are being activated—and hence strengthened—in the brains of the public” (2010: 72-80). This study is relevant to discover the way information about climate change is presented in Uruguayan media and what kind of understanding this information promotes. Especially considering that, as O’Neill et al. point out, people “rely on media representations to help interpret and understand the complex issues” (2015: 1) related to climate change, climate science and public policy. In other words, the media points out the limits of public debate around these issues.

Framing in climate change communication is a key issue. A systematic review of 274 scientific articles is provided in the study “Framing climate change for effective communication: a systematic map” (Badullovich et al., 2020) to show and try to comprehend the complexity of the framing issue in relation to climate change. There, it is mentioned that 43% of the examined articles present a scientific (17%), economic (13%) or environmental (13%) approach to the issue. Furthermore, the authors point out the fact that close to half of all the academic publications that explore framing with regards to climate change come from the US and claim that “a more nuanced understanding of effective climate change framing would be achieved through more studies in underrepresented countries” (Badullovich et al., 2020: 12). This resonates in countries such as Uruguay, where the issue has been so far mostly ignored.

In that same vein, this work responds to a deficit denounced by Schäfer and Schlichting, who stated that “research interest in media portrayals [of climate change] from the ‘global south’ only grows at a low level and in the case of Latin America and Africa a very low level” (2014: 154). Although there are no previous studies on the coverage of climate change in the Uruguayan press, research from other latitudes is taken as background. Coverage of climate summits (Gurwitt et al, 2017) or IPCC reports (O’Neill et al, 2015) have deserved more attention than the resulting policies and Nationally Determined Contributions to the Paris Agreement. Gurwitt et al (2017) reveal the lack of journalistic coverage of adaptation measures to climate impacts and the under-representation of human rights issues and the social effects associated with climate change. O’Neill et al (2015) discover a variety of frames that range from the emphasis on political discussion to debates about the veracity of science and the ethical and moral dimensions of climate issues. On the other hand, in a study of media coverage across 45 countries, Vu et al (2019) find a predominance of the political-international and economic frames, aligned with the global nature of the phenomenon and the investments necessary to combat it.

Uruguay approved its Climate Change Nacional Policy (*hereinafter: NCCP*) in 2017, through Executive Decree 310/017. It describes it as “an instrument that offers the long-term strategic framework to guide the transformations that the country is undergoing to face the challenges of climate change and variability” (Ministerio de Ambiente, 2017a). That year, the First Nationally Determined Contribution to the Paris Agreement (*hereinafter: NDC*) was also published, in which specific objectives are outlined for the reduction or management of greenhouse gas emissions in various sectors, as well as measures to be taken around to mitigation and adaptation to climate change (Ministerio de Ambiente, 2017b). Five years later, this article identifies opportunities and strategies to improve local journalistic coverage of climate change issues in Uruguay. For this, news stories on climate change published by the most read national digital media (Radar, 2022) during the first half of 2022 are analysed, paying special attention to how Uruguay’s Climate Change Nacional Policy (*hereinafter: NCCP*) prioritised actions are presented and framed. In light of the data, the article concludes with a series of recommendations on the way in which both political authorities and the media can support communication about climate change and the NCCP that contributes more effectively to citizens understanding the phenomenon and the relationship it has with them.

2. Methodology

The analysis of journalistic coverage of climate change was carried out via content analysis (Berelson, 1952; Abelá, 2002), with a thematic orientation that identified different frames of climate change discovered in previous studies (León, 2013; León and De Lara, 2013; O'Neill et al, 2015; Schäfer and Schlichting, 2014; Robbins, 2018), in addition to highlighting the presence of the climate action lines of national policy. For this purpose, a matrix of codification was constructed within the project framework.

The unit of analysis was made up of the journalistic stories (recording/coding unit) about climate change; they are labelled as news articles for this study, while including diverse journalistic genres –breaking news story, interview, chronicle, etc. These news articles were published during the first half of 2022 on the websites (context unit) of the five most read digital news media in Uruguay according to the Internet User Profile (Radar, 2022): Montevideo Portal, El Observador, Subrayado, El País and La Diaria (sampling unit). Founded in 1995, Montevideo Portal is Uruguay's first national digital native news website. El Observador began as a newspaper in 1991, added a website in 2000 and it has only functioned as a news website since 2020. Channel 10's Subrayado is a popular television news program with a well-read website. El País, the nation's oldest daily, has been published for more than a century and has a long history of being associated with the centre-right Partido Nacional. Finally, La Diaria is a left-leaning newspaper that was founded in 2006 by a group of journalists who own it cooperatively. The time period under analysis aligned with an international situation that was characterised by intense political polarisation, economic crisis, and the conflict in Ukraine.

To obtain the corpus of journalistic articles on the topic, first, thirty searches were carried out with the keyword "climate change" through the Google News search engine: one specific search for each media (Montevideo Portal, El Observador, Subrayado, El País and La Diaria) and for each month (from January to June). These searches were complemented with another set of searches carried out on the social network Twitter, which the five media in the sample regularly use to publish their content. The search mechanism was identical to that applied in the previous instance: 30 searches, one per month for each specific user handle of each of the five media. The result of these 60 searches was a set of 600 links to articles, most of them accompanied by photographs and, some, by videos. However, a first review of these journalistic articles showed that: a) there were cases in which the keyword ("climate change") was among the hyperlinks to other articles, but there were no references to climate change issues –with this or another word, such as "global warming", "climate crisis", etc. in the text nor in the graphic or audiovisual pieces that accompanied it (140 articles); and b) in other cases, the phrase "climate change" corresponded to an isolated mention in some passage of the article, without sufficient development to enable an analysis of its framing (171 articles). After this review, the sampling unit was reduced to 289 articles that make up the analysed corpus since they effectively deal with climate change with different levels of development of the topic.

The content analysis matrix was translated into a code with three main sections, which bring together a total of 34 variables collected in the recording unit (the complete content: text, graphic and audiovisual elements). First, basic data of the article was collected (journalistic genre, media section, number of cited sources, photos and videos, whether it was produced by the media or outsourced, etc.). Secondly, the link of the information with Uruguay, climate change and the NCCP was evaluated (level of prominence of climate change in the article, whether it alluded or not to the Uruguayan context and the NCCP, if there were mitigation/adaptation measures mentioned in the article, mention of greenhouse gasses, etc.). Finally, the frames present in each article were coded, with a sub-section dedicated to the overall framing of the article and another to the framing promoted by each of the sources consulted that referred to climate change in the articles. Based on previous research (León, 2013; León and De Lara, 2013; O'Neill et al, 2015; Schäfer and Schlichting, 2014; Robbins, 2018), six thematic categories were defined for the framing: scientific, technological, economic, political, social and biological (Table 1).

Table 1.

Frame	Description
Scientific	Emphasis on scientific explanations of phenomena associated with climate change.
Technological	Emphasis on technological responses (and how they work) to the challenges presented by climate change.
Economic	Emphasis on consequences and/or costs from the point of view of economics (resource management).
Political	Emphasis on issues related to government, decision making, negotiations, relations between states or local governments.
Social	Emphasis on reactions of social groups and effects of climate change on specific groups of population.
Biological	Emphasis on descriptions of nature, without scientific or technical explanations.

In order to guarantee a systematic reading of the contents, the three coders independently coded the same ten articles from the sample (two from each news outlet, selected randomly) to evaluate agreement. The Cohen test showed a percentage of agreement between coders of 89.71%, which falls within the range of what is considered an almost perfect level of agreement. Each coder was then responsible for applying the developed code to approximately one third of the sample (coder 1: 96 articles; coder 2: 99 articles; coder 3: 95 articles), guided and supervised by the lead researcher.

¹ All tables, graphs and figures in this article were created by the researchers.

3. Results

3.1. Climate change presence in uruguayan digital press

Firstly, this study analysed the way in which climate change is presented in the journalistic articles published by the Uruguayan digital press (Figure 1). Of the total of 289 articles that mention “climate change”, this is the protagonist of the information in 114 cases (39,4% of the sample): it appears in the headline or the lead of the article and information on the topic is developed with relative breadth in the body of the text. On the other hand, in 95 articles (32,9%), climate change occupies a secondary level. In this group, you can find information about extreme climate episodes or analysis articles on the relationship between environmental issues and economic or political issues, which at some point allude to climate change directly or indirectly. Climate change appears, thirdly, as a peripheral element within the information in some articles. This is the case of 80 pieces (27,7%) that do not specifically deal with climate change in any of its dimensions (or do it but among a lot of other topics), although they do allude to it or mention it in some passage, with development that is minimal but sufficient to detect framing elements. An example of this minimum level of prominence is interviews on a variety of topics in which a question and its answer are about climate change.

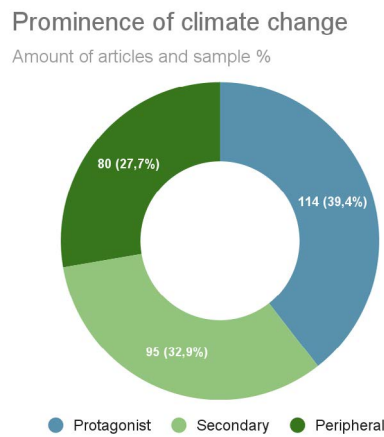


Figure 1.

Of the 289 analysed articles, 137 (47,4%) refer in some way to climate change in the national context, to events that occurred or with consequences in Uruguay (Figure 2). These are distinguished from those that refer to the causes or effects of climate change only in global terms, without explicit reference to the local context, or in other specific countries.

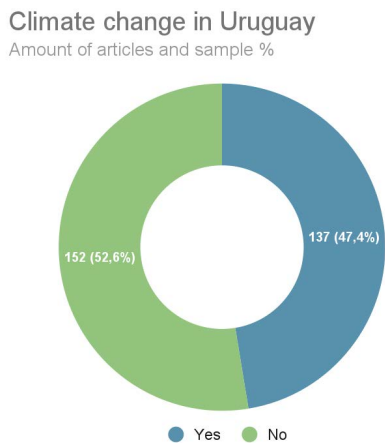


Figure 2.

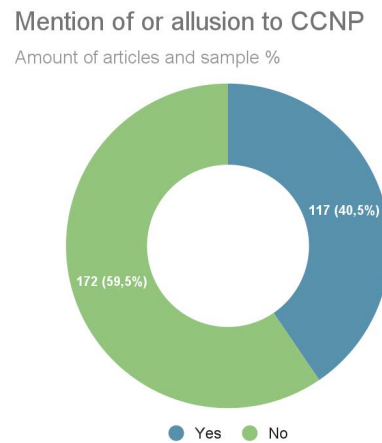


Figure 3.

Likewise, if we look at this coverage of climate change focused on Uruguay, there are 117 journalistic pieces that allude to the NCCP (Figure 3). They do so through explicit references to the policy or through allusions to their objectives and the measures presented in the 2017 NDC. This indicates that the institutional response at the state level is present in some way in 85% of the articles on climate change that are contextualised in the country. When the articles mention or allude to specific aspects of Uruguay’s climate policy, the treatment of climate change has a protagonist presence in 36% of the cases (45 articles), is secondary in 32% (37) and peripheral in 30 % (35). This follows the trend of what happens with all the samples.

The most used journalistic genre to inform about climate change is the breaking news story: 156 of 289 articles (54%). This is followed by the longform feature, used 59 times (20%). The opinion column appears

in third place, with 37 (13%) units. This data shows a prevalence of information based on breaking news and immediacy, in the detriment of more paused and nuanced reflections on climate change and climate policy, as expected from the constant flow of content that characterises the digital information environment.

Regarding the use of audiovisual resources to report on climate change, the most widely read national journalistic media do not use videos, in general (Figure 4). Only 25 of 289 articles include audiovisual content and one single article presents more than one video (a collection of fragments of a press conference following a sudden flood in the capital city). Furthermore, in only 4 of the 25 articles that use the audiovisual format, video is the main source of information.

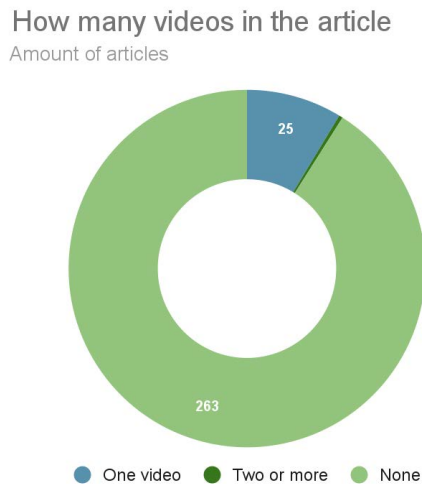


Figure 4.

3.2. Climate change in terms of its causes and effects

The emphasis on the causes or effects of climate change is another axis of analysis of the presence of the phenomenon in journalistic coverage. The effects of climate change, understood as consequences and also as initiatives resulting from it, are mentioned in 178 (61% of the sample) digital press articles. The effect most commonly associated with climate change in the coverage analysed is the increase in extreme weather episodes. Meanwhile, the causes of climate change are referred to in 125 articles (43%). Among the causes, mentions of fossil fuels and greenhouse gases (*hereinafter: GHG*) predominate.

With respect to GHG emissions that affect climate change, the presence of mentions of the three that are considered in the NCCP was coded: carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). CO₂ is the most mentioned of the three in the digital press. It appears 116 times, in 40% of the articles in the sample. It is followed by CH₄, which is mentioned in 42 articles (15%), and by N₂O, which appears 33 times (11%). However, paying attention to the number of articles in which each is the only gas mentioned or alluded to, a considerable gap is discovered between CO₂ and the other GHG (Figure 5).

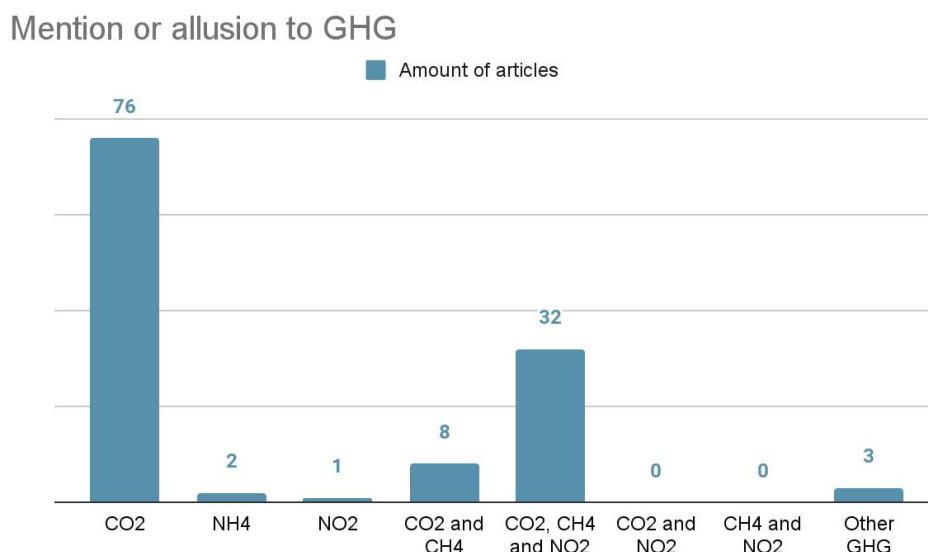


Figure 5.

On the other hand, of the 289 articles analysed, 168, which represent 58% of the sample, do not mention any of these GHG.

The analysis of journalistic coverage of emissions contributing to climate change can be completed by considering the key sectors of activity that are usually considered in national policies aimed at complying with the Paris Agreement. More than half of the journalistic articles on climate change published in the first half of 2022 in Uruguay do not refer to any of the sectors included in the first NDC: energy, transportation, industrial processes, agriculture, waste and land (Ministerio de Ambiente, 2017b). These are 156 of the 289 articles, 54% of the sample (Figure 6). Instead of focusing on any of these sectors of activity inside or outside Uruguay, the articles refer, for example, to the general situation of climate change in the world (El Observador, 2022, April 16) or to emissions in general (Subrayado, 2022, June 30), to the psychological effects of climate change (Montevideo Portal, 2022, February 8), to changes in the behaviour of the human body as a result of climate change (El País, 2022, May 20) or to extreme climate catastrophes (La Diaria, 2022, January 18).

Mention or allusion to emission management per sector

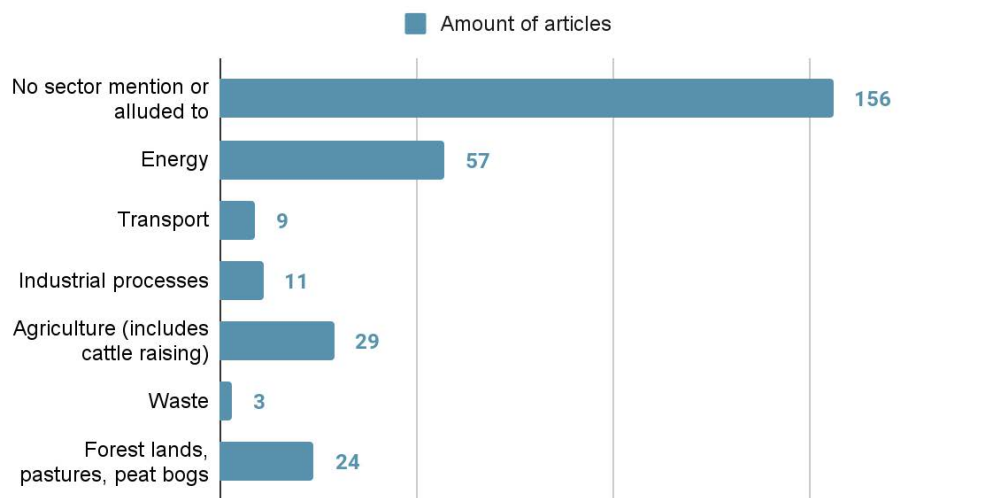


Figure 6.

3.3. Climate change mitigation and adaptation measures

The analysis of press content quantified the presence of mitigation or adaptation measures that coincide with the 73 that Uruguay proposed in 2017's NDC. The results indicate that a large proportion of publications on climate change in the period studied, around 70%, do not mention or allude to specific measures included in the NDC. When the measures do appear, there is a mitigation-adaptation balance: in total, only 92 of 289 articles (32%) refer to specific mitigation measures and 89 of 289 (31%) to adaptation measures relevant to Uruguay (Figure 7).

NDC mitigation and adaptation measures: presence

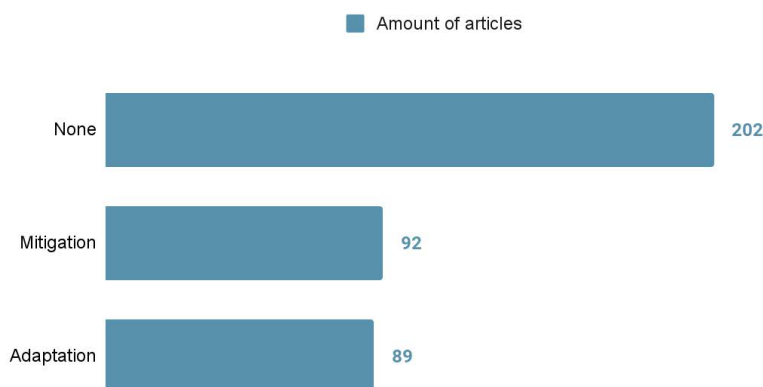


Figure 7.

Although it could be expected that references to emissions management measures coinciding with the NDC would be concentrated in journalistic articles contextualised in Uruguay, this occurs only between 61 and 67% of the cases. 56 of the 92 articles that mention or allude to these mitigation measures and 60 of the 89 that refer to adaptation to climate change correspond to coverage focused on the national reality.

Table 2.

Most present mitigation measures (Sector - Specific measure)	Total amount of articles	Articles focused on Uruguay
Agriculture – Good practices in natural field management and breeding herd in beef production	16	15
UTCUTS – Maintenance and increase of native forest	14	5
Energy – Electric accumulation technology	10	5
Energy – Electric generation with hydro source	7	4
UTCUTS – Peat bog surface protection	4	4

The most mentioned or alluded to mitigation measure in the journalistic coverage of the analyzed period is “Good practices in natural field management and breeding herd in beef production”, of the Agriculture sector (Table 2). Its presence in 15 articles focused on Uruguayan reality puts it ahead in the ranking. On 10 occasions, the measure is present in articles that also refer to the CH4 emission associated with cattle farming.

On the other hand, the most mentioned or alluded to adaptation measure in the sample is “Diversification of electrical matrix sources” (Table 3). 31 of the 35 times it appears, it is linked to the objective of managing GHG emissions in the energy sector, and 22 times it is presented in articles contextualised in Uruguay. The following two measures correspond to the agricultural sector: “Land use and management plans” (7) and “National Agricultural Adaptation Plan” (5). The mentions of these correspond entirely to nationally focused coverage.

Table 3.

Most present adaptation measures (Sector - Specific measure)	Total amount of articles	Articles focused on Uruguay
Energy – Diversification of electrical matrix sources	35	21
Agriculture – Land use and management plans	7	7
Agriculture – National Agricultural Adaptation Plan	5	5

Likewise, a considerable number of the 73 measures proposed in the NDC are absent in the articles published between January and June 2022 on climate change in the most widely read digital national press. Specifically, regarding mitigation, there are 15 measures that do not appear in any form in said journalistic coverage. And 17 climate change adaptation measures are absent in the sample.

Although the use of green hydrogen is not included in the NCCP or the NDC, its presence in journalistic coverage was analysed because this alternative emerged strongly during the period studied and is linked to Uruguayan climate policy objectives. Green hydrogen is proposed by the national government as an alternative energy source that collaborates with decarbonization and the reduction of the use of fuels that generate GHG emissions (Presidencia Uruguay, 2022).

The investigation showed that only 11 of the 289 articles on climate change published by the digital press in the first half of 2022 mention green hydrogen. 8 present it as an alternative, among others, to fossil fuels; 1 poses it as the solution to the problem they cause; 2 make a critical and reflective analysis of its particularities, costs and benefits (Figure 8).

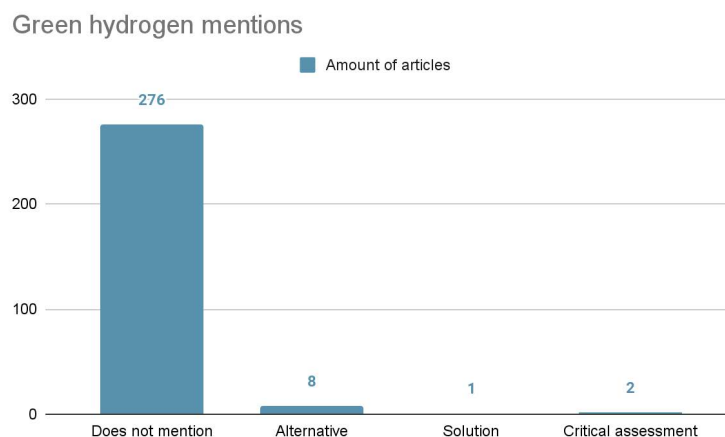


Figure 8.

3.4. Climate change framing

3.4.1. First approach: the information section

León and Lara (2013: 96) state that “it is advisable to take into account the section in which news related to climate change is usually published, since its location in the newspaper is related to the framing given to the news by the media”. Considering that the inclusion of articles in one section or another of the journalistic outlet offers a first clue about how the coverage of the topic is focused, this aspect of the information deserves attention.

The section in which most content referring to climate change appears published in Uruguayan digital media is international news (Figure 9). There are 80 articles published in this section, 27.7% of the sample. This makes sense when you consider that almost half (45%) of the sample were outsourced pieces of information. In most cases, the media place news agency contents in the International section.

News outlet section

Amount of articles about climate change

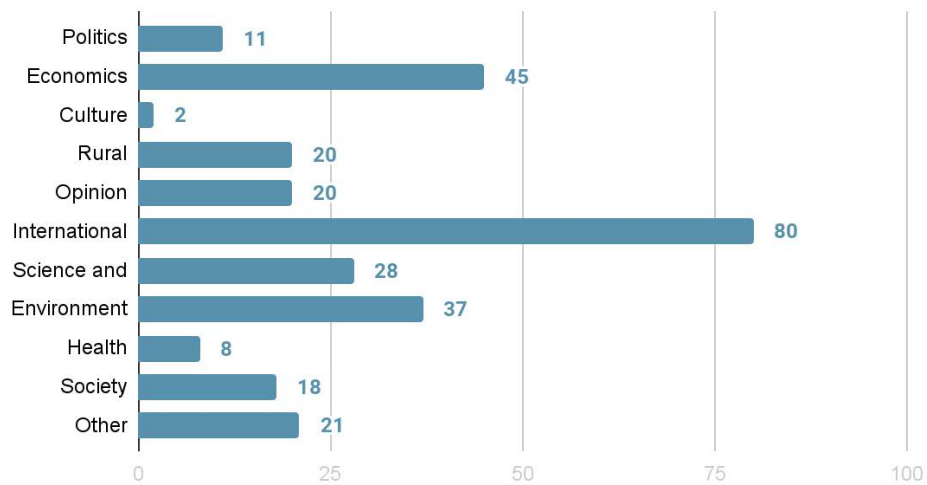


Figure 9.

When talking about news that refer to Uruguay’s NCCP, the distribution of the sample in sections changes and the economic information section becomes the one that holds the largest number of articles (Figure 10).

Although the international section continues to have prominence, it is due to news articles that are not necessarily contextualised in Uruguay but that refer to measures such as those contained in the NCCP or to topics aligned with some specific aspects of the national policy.

It is striking, especially compared to the number of media and sources that apply political frames to information about climate change and the NCCP, the relatively small amount of news published in the political section.

News outlet section

Amount of articles with information related to the CCNP

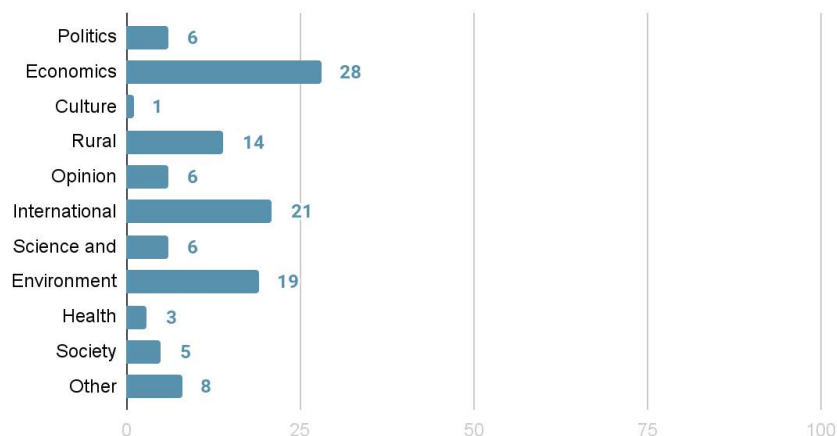


Figure 10.

3.4.2. Media framing and source framing

After this first approach through the sections of the outlets, the detailed analysis of the textual, visual and audiovisual content of the journalistic pieces on climate change showed that the framing that the national media predominantly apply when reporting on climate change is the political frame, detected in 91 of 289 articles (32%). That is, almost a third of the publications present climate information with an emphasis on discussions about government decision-making, negotiations and efforts in the field of politics or relations between countries or local governments. The economic framework appears in second place, found in information that emphasises challenges, consequences and costs of climate change from the point of view of resource management. This framing is seen in 62 articles, 21% of the sample. In third place, the scientific framework appears: when technical or scientific explanations of phenomena associated with climate change predominate. It is present in 53 articles, 18% of the sample (Figure 11).

Framing of climate change information

Amount of articles (entire sample)

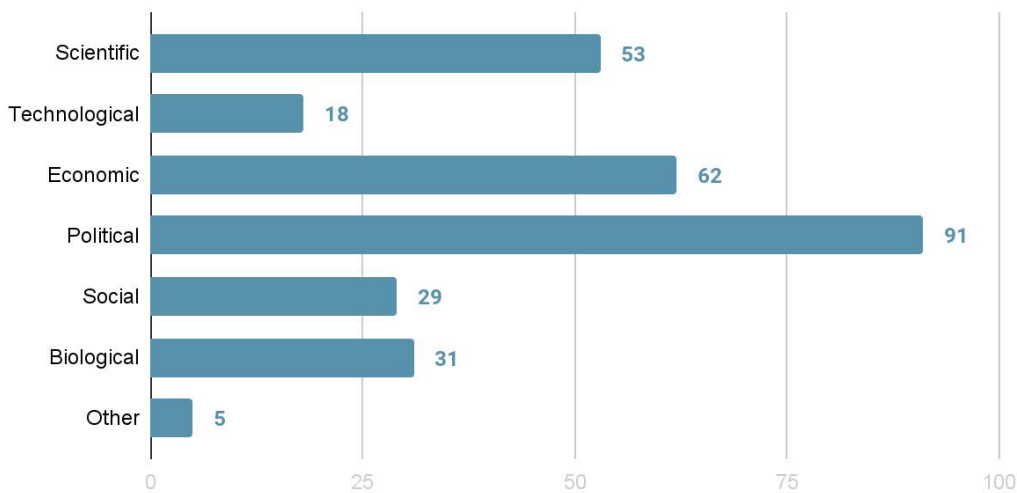


Figure 11.

The distribution is similar in general terms (with slight modifications, such as the decrease in political and biological frames) when, instead of taking into account the entire sample, the middle frame is observed in the articles that contextualise the topic of climate change in Uruguay (Figure 12).

Framing of climate change information

Amount of articles (about local context)

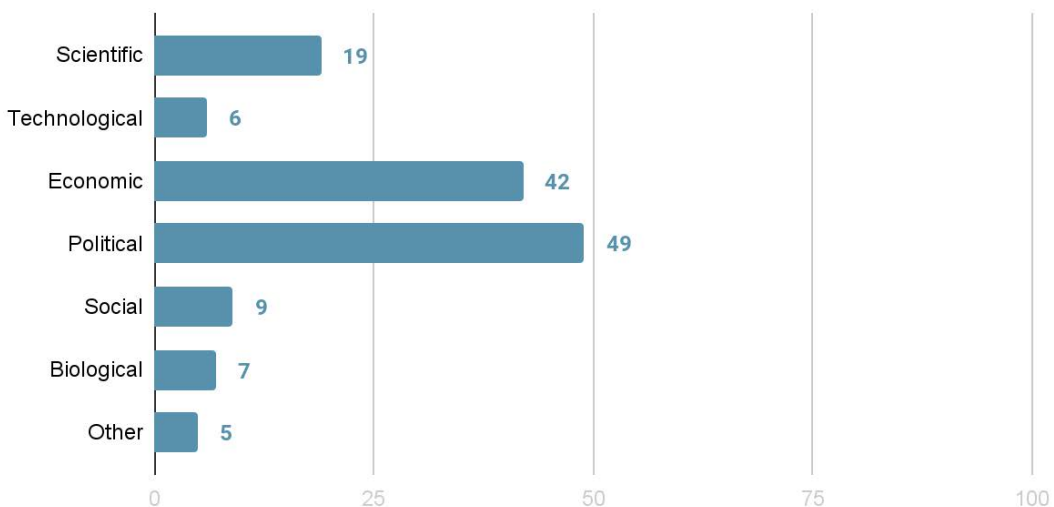


Figure 12.

However, when observing the more specific subgroup of articles that refer to aspects contained in the NCCP, the almost non-existent scientific approach given to the information stands out. The expected prominence of the political frame is followed by the economic frame (Figure 13).

Framing of climate change information

Amount of articles (that mention or allude to CCNP)

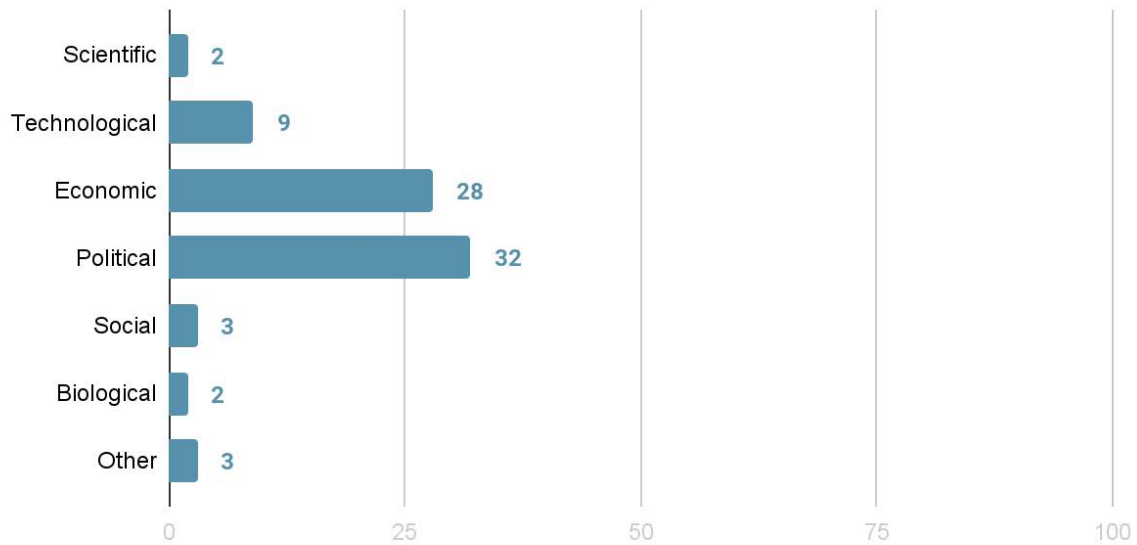


Figure 13.

In addition to observing the predominant framing in the articles (the journalistic outlet framing), this study analysed the quotes of every personal source consulted on topics related to climate change in all the articles of the sample in order to quantify source framing. Looking at the results, some aspects of the journalistic outlet's framing distribution were replicated. Of a total of 446 sources quoted by the media and who talk about climate change in their statements, 130 (30%) present a political frame in their speech on the subject. On the other hand, 89 sources (20%) frame the topic from an economic perspective, the same proportion that prioritizes the scientific frame (Figure 14).

Climate change sources framing

Amount of sources (entire sample)

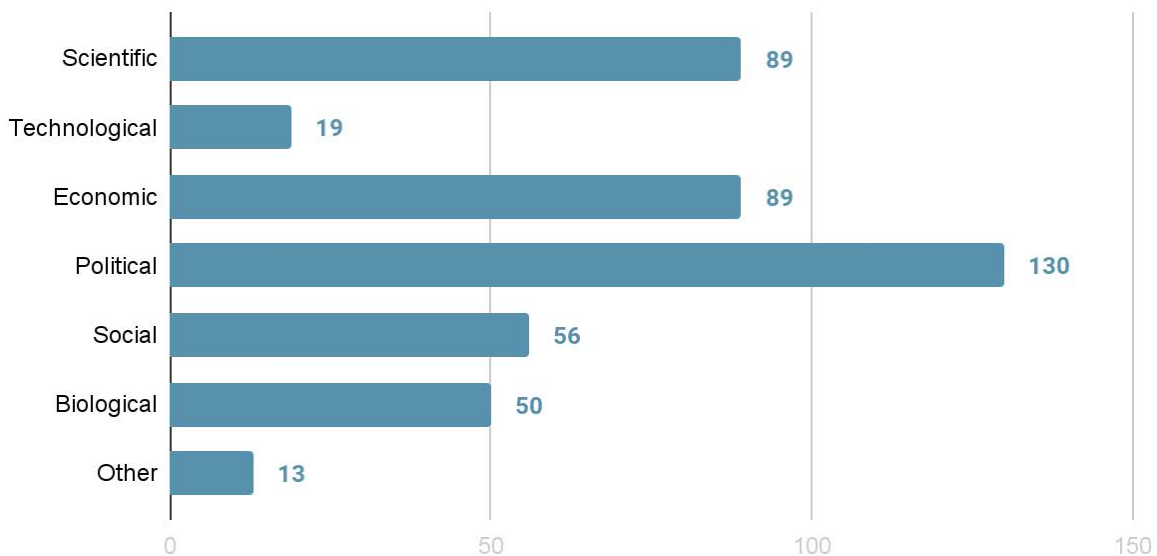


Figure 14.

Of the 446 sources quoted, 212 appear in articles that specifically mention or allude to some aspect of the NCCP or the NDC. The predominant frames in the discourse of these sources are political and economic, as was the case with the media's frame for this subgroup of news focused on national climate policy. Likewise,

the decrease in the number of voices that talk from a scientific standpoint quoted in articles that mention or allude to the NCCP is surprising: only 21 (9.9%) of 212 sources quoted across 117 articles (Figure 15).

Climate change sources framing (about CCNP)

Amount of sources

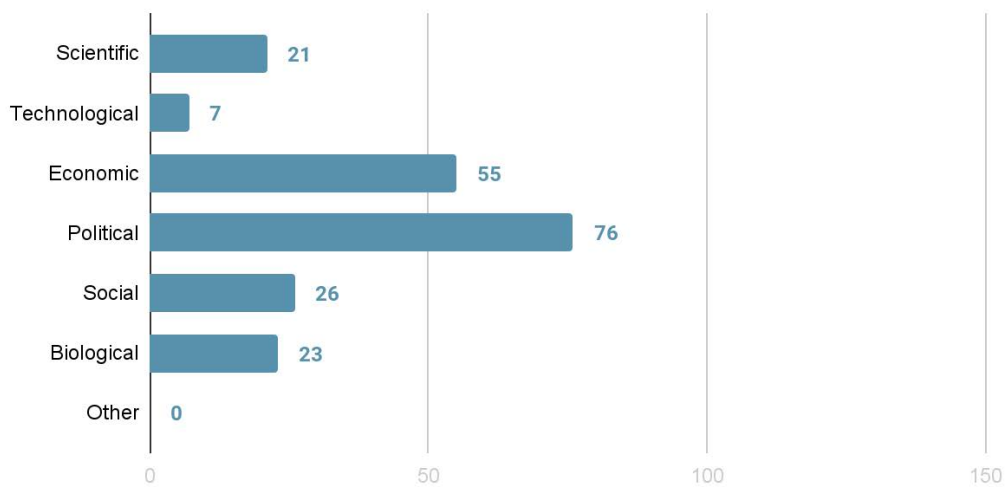


Figure 15.

Both when analysing the framing of each article globally and that of the quotes of individual sources, the little presence of the technological frame (which was intended to record the voices and articles that emphasise the presence and functioning of technological responses to climate change challenges) is noteworthy. Only seven (3%) of the 212 sources cited in the 117 articles that mention or allude to the NCCP promote a technological frame. At the same time, just nine (8%) of those 117 articles present a technological frame. In an era in which technological development is so present in every aspect of life, this lack of attention to its potential use with regards to potential responses to a severe threat such as climate change is striking.

A trend observed in the space awarded to opinion journalism is the almost absolute predominance of voices aligned with the scientific consensus on the presence and severity of climate change and global warming. Of the 37 articles that respond to the characteristics of this journalistic genre, only 1 presents a sceptical voice (defined as someone who, although does not deny climate change and global warming, questions the extent of their effects, the need to take drastic measures, the “certainty” offered by scientists who affirm that climate change is a serious reality that must be attacked now). There is no place for the opinion of denialist voices (those who deny that climate change and global warming are a real problem). While some could view this as a lack of diversity in the sources, when it comes to a phenomenon as widely supported by science consensus as climate change is, several voices have advised against “balanced” reporting (Boykoff & Boykoff, 2004; Bruggemann and Engesser, 2017).

3.5. Sources in climate coverage

The investigation revealed other aspects of the use of personal sources in the coverage of climate change in the five digital news outlets analyzed.

3.5.1. Amount and type of sources

On one hand, a third (97) of the articles analysed were written based on the testimony or the contribution of a single source of information, which can present problems regarding verification and contrast of data, from a journalistic normative perspective (Figure 16). On the other hand, also in about a third of the articles (92) information or statements from three or more than three sources are used.

Regarding the type of sources (Figure 17) that are most consulted by the analysed media when reporting on climate change, voices that come from the political sphere predominate (for example: diplomats, government agencies, government experts, political think tanks, members of intergovernmental political organisations). Of the 449 sources that appear in the entire sample, 162 (36%) are political sources. This data is consistent with the predominance of the political frame when discussing the issue of climate change and the NCCP in the national media.

However, scientific sources appear in second place (for example: members of scientific organisations or academia). There are 132 (29%) sources of this type quoted in articles on climate change or the NCCP. In this case, the number of sources of this type is not related to the frames present in articles that refer to the NCCP: the scientific frame is present in only two of these articles. This data reflects that the scientific point of view, when found in the corpus of this investigation, does not predominate in the articles about the national policy and usually takes a secondary role.

Amount of sources quoted

Amount of articles

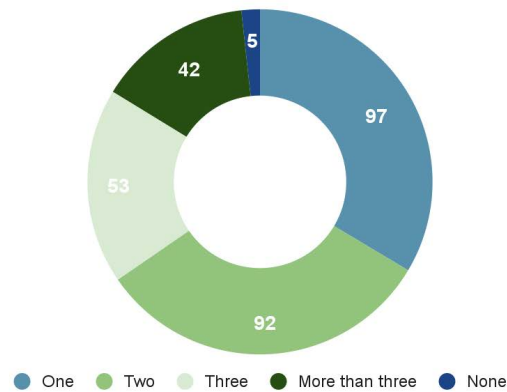


Figure 16.

Types of sources

Amount from a total of 449 quoted sources

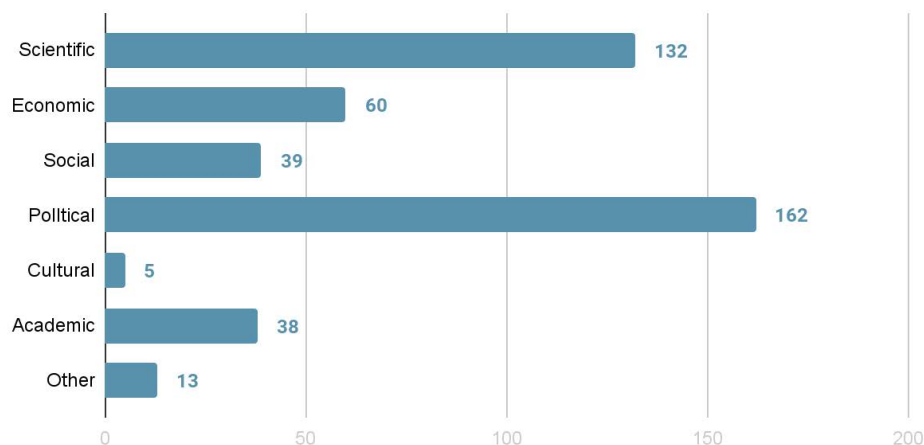


Figure 17.

4. Discussion and conclusions

The purpose of the study was to analyse the presence and framing of climate change in the journalistic content published by the most read Uruguayan digital press media, as an attempt to better understand the public conversation about the topic and how the national policy to comply with the Paris Agreement was considered. After having described the main findings, this section discusses them and displays some recommendations that may be of use to the various agents involved in climate change communication.

In the coverage performed by the news outlets Montevideo Portal, El Observador, Subrayado, El País and La Diaria, consisting of 289 digital journalistic articles, the consequences of climate change are slightly more recurrent than its causes and, among them, extreme climatic episodes stand out. This might respond to news making dynamic where “journalistic culture establishes as an event what really happened and not what is to come, a difficulty that is found in the risk coverage in general” (Lozano Ascencio et al., 2022: 539).

However, mentions of or allusions to emissions mitigation measures slightly exceed adaptation measures. In this sense, considering the low incidence of Uruguayan emissions in the global inventory and the high climatic vulnerability of coastal countries in the region, it would be advisable to intensify attention to adaptation strategies. If the greater variety of mitigation measures reported compared to adaptation measures contrasts with the high vulnerability of the region to climate change (IPCC, 2022; NDC, 2017), they otherwise confirm trends identified in the coverage of the topic (Gurwitt, et al, 2017).

In accordance with the global nature of the phenomenon of climate change, the focus on the national reality is found in just under half of the press articles analysed. This resonates with the findings of Stoknes (2014), who states that one of the barriers to effective communication about climate change is that information about the phenomenon is usually focused on its effects and causes in distant spaces, which reduces the

feeling of risk, harm and responsibility. One way for the national media analysed in this research to effectively inform their audience would be to place greater emphasis on the reality of climate change at the local level.

Nevertheless, a vast majority of the articles that do focus on the situation at the national level refer to some aspect contemplated in the NCCP. Some specific measures prioritised in the first NDC are addressed, but there it is more common to find references to NCCP general objectives.

Although mentions of climate policy measures are divided almost equally between mitigation and adaptation, the former are more atomized. Among the adaptation measures, references to the diversification of sources of the electrical matrix (the most mentioned measure) are clearly predominant; electrical accumulation technology and electrical generation via hydro source place the energy sector as the one given priority in the coverage of climate change by Uruguayan media. When we narrow our gaze to the journalistic articles contextualised in Uruguay, the mitigation and adaptation measures in the agriculture sector are almost equally present as the energy sector: management of the natural countryside and good practices in cattle raising are the most present mitigation measures, while the land use and management plans, along with the national agricultural plan, appear on top among the adaptation measures. This makes sense if we consider that the agriculture industry is the main force of Uruguayan economic system.

On the other hand, about half of the 73 NDC measures are absent in the digital press of this period. The question arises here as to whether this attention deficit corresponds to poor journalistic coverage of national activity or to the lack of newsworthy events or official communication regarding these measures defined in 2017. In any case, this presents a wide field of opportunities to publicise what is being done in pursuit of more sustainable production aligned with mitigation and adaptation to climate change in different sectors of activity. Or to report the lack of implementations.

Despite the relevance of the livestock industry in Uruguay and the fact that agriculture is the second most mentioned sector of activity after energy, methane is a gas with a minority presence among GHG in the news that refers to emissions. The prominence of CO₂ shows the weight of a tendency towards globalised coverage of climate change that displaces local challenges and opportunities, in the face of the expectation that national media will be the ones to bring this perspective to the table of the potentially diverse media repertoire of globalised citizens.

Regarding the framing of the information, the analysis of the most read digital press in Uruguay reveals a predominantly political approach to climate change, in which these actors appear taking charge of the problem at different levels, something that is not common globally (Vu et al., 2019). This predominance of the political framing of climate change is consistent with the idea that “the ideological perspective from which any important issue is treated is linked to the political measures that are adopted, and climate change is a phenomenon increasingly related to institutional agreements but also with specific national laws and regulations” (Jiménez-Gómez and Martín-Sosa, 2022: 534). On the other hand, the economic frame, which is one of the most frequent according to press analysis in different countries (Vu et al, 2019), appears in second place.

At the same time, the abrupt drop of the scientific framing when these are articles that report on national politics is eloquent. It raises concern since “the inclusion of the scientific context, which is omitted in many press articles, can help the understanding of environmental phenomena” (Corbett and Duffee, 2004, cited in León and De Lara, 2013: 93) and local science in particular could support the relevance of specific measures for the country’s reality. If the greater proportion of articles focused on the effects of climate change is taken into account, there could be an opportunity to include a scientific analysis of the causes that would help explain and contextualise the mitigation and adaptation measures proposed by the NCCP. Although the descriptions and explanations that come from the field of science already circulate in the digital universe, they are often presented in a way “too difficult to understand for many people” (Schäfer and Schlichting, 2014: 143), who will be affected but tend, paradoxically, to perceive it as something “far from their life world and biographical horizon” (Schäfer and Schlichting, 2014: 142). For this reason, journalistic coverage that, with precise knowledge of science (León, 2013), translates these descriptions and explanations based on scientific research into a language intelligible by the majority of the population is necessary.

Along the same lines, the focus on technological responses to the problem of climate change is presented in a marginal way. An example of this is green hydrogen, which, although it is the most promising development in recent times in terms of reducing emissions in industry, transport and energy (Medina et al, 2021), is practically ignored in the coverage of climate change by the most read media on digital platforms nationwide. Strengthening the communication of all plans related to the NCCP that involve green hydrogen as an alternative or as a solution is another recommendation that emerges from the analysis of the data carried out in this study, considering the statement that “it is one of the axes of the second energy transition that our country is beginning to undergo”, according to the Ministry of the Environment (Ministerio de Ambiente, 2021). Thus, an opportunity is presented to publicise an alternative while promoting explanations of climate change from a scientific-technical point of view that would contribute to preventing political polarisation regarding the issue.

Finally, a communication gap is detected in the scarcity of audiovisual content used to inform about climate change and the NCCP. This finding is relevant since it has been shown that visual resources have a greater impact on public engagement than other climate communication formats (Smith and Joffe, 2013: 28) and it is an arena where the local approach to the problem or the “solutions” is more effective than abstract or distant catastrophic records (O’Neill & Nicholson-Cole, 2009; O’Neill et al, 2013). Video –downloads and streaming dominate internet traffic (El País 2022, November 16) and visual content focused social networks (Instagram, YouTube and TikTok) have the attention of the group of social natives, between 18 and 24 years old (Eddy, 2022). This social group is particularly interested and concerned about the issue of climate change (BBC 2021, September 14). Taking into account that both social natives and digital natives (between 25 and

34 years old) are “fundamental audiences for media and journalists around the world and for the sustainability of the sector” (Eddy, 2022), the commitment to a format that they are willing to consume seems to be a potentially effective way to capture the interest of young audiences on digital platforms. Considering the increased accessibility to the production and distribution of audiovisual content, there is an opportunity to reinforce the videographic coverage of events with informative value on climate change in the national media.

The recommendations derived from the analysis and discussion of the results seem relevant in a context in which the “media is routinely criticised for covering [climate change] stories non-stop and not dedicating itself to connecting the broader dots or following the lasting consequences” (Neuman, 2023: 19). This study focused on Uruguay aims to offer empirical evidence that fuels the discussion of how to improve journalistic communication about climate change and climate policy.

References

- Abelá, Jaime Andreu (2001): *Las técnicas de análisis de contenido: una revisión actualizada*: Centro Estudios Andaluces. <https://bit.ly/3Gb0eQi>
- Akenji, Lewis (2021): *1.5-Degree Lifestyles: Towards A Fair Consumption Space for All*, Berlin: Hot or Cool Institute. <https://cutt.ly/QwwiU0ld>
- Akenji, Lewis & Huizhen Chen (2016): A framework for shaping sustainable lifestyles: determinants and strategies: UNEP. <https://bit.ly/3WCbwST>
- Badullovich, Nic, Grant, Will J., & Colvin, Rebecca M. (2020): “Framing climate change for effective communication: a systematic map” in *Environmental research letters*, vol. 15, n. 12, p. 123002. <https://doi.org/10.1088/1748-9326/aba4c7>
- BBC (2021, September 14): “Climate change: Young people very worried – survey”: https://www.bbc.com/news/world-58549373?utm_source=canva&utm_medium=iframe
- Berelson, Bernard (1952): *Content analysis in communication research*, Illinois: The Free Press.
- Bouman, Thijs & Linda Steg (2019): “Motivating Society-wide Pro-environmental Change”, in *One Earth*, vol. 1, n. 1, pp. 27-30. <https://doi.org/10.1016/j.oneear.2019.08.002>
- Boykoff, Maxwell & Jules M. Boykoff (2004): “Balance as bias: global warming and the US prestige press”, in *Global Environmental Change*, vol. 14, n. 2, pp. 125-136. <https://doi.org/10.1016/j.gloenvcha.2003.10.001>
- Brüggemann, Michael & Sven Engesser (2017): “Beyond false balance: How interpretive journalism shapes media coverage of climate change”, in *Global Environmental Change*, vol. 42, pp. 58-67. <https://doi.org/10.1016/j.gloenvcha.2016.11.004>
- Corbett, Julia B. & Jessica L. Duffee (2004): “Testing public (un)certainly of science: media representations of global warming”, in *Science Communication*, n. 26, pp. 129-151. <https://doi.org/10.1177/10755470042702>
- Eddy, Kirsten (2022): “The changing news habits and attitudes of younger audiences”, in *Reuters Institute for the Study of Journalism, Digital News Report 2022*, pp. 42-49. <https://bit.ly/3VWmGCf>
- El Observador (2022, April 16): “Tenemos un iceberg en la cara”: <https://www.elobservador.com.uy/nota/tenemos-un-iceberg-en-la-cara-20224165046>
- El País (2022, May 20): “Estudio revela que el cambio climático puede reducir las horas de sueño”: <https://www.elpais.com.uy/informacion/salud/estudio-revela-cambio-climatico-reducir-horas-sueno.html>
- El País (2022, November 16): “El vídeo periodístico en internet: entre el documental y TikTok”: <https://elpais.com/comunicacion/2022-11-16/el-video-periodistico-en-internet-entre-el-documental-y-tiktok.html>
- Entman, Robert M. (1993): “Framing: toward clarification of a fractured paradigm”, in *Journal of Communication*, vol. 4, n.3, pp. 51-58. <https://doi.org/10.1111/j.1460-2466.1993.tb01304.x>
- Gurwitt, Sonya, Kari Malkki & Mili Mitra (2017): “Global issue, developed country bias: the Paris climate conference as covered by daily print news organizations in 13 nations”, in *Climatic Change*, vol. 143, pp. 281-296. <https://doi.org/10.1007/s10584-017-2004-2>
- IPCC (2022): *Climate change 2022: impacts, adaptation, and vulnerability. Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge: Cambridge University Press. <https://bit.ly/3hswd12>
- Jiménez-Gómez, Isidro & Samuel Martín-Sosa (2022): “Análisis discursivo del escepticismo climático en los medios impresos y digitales españoles entre 2015 y 2021”, in *Estudios sobre el mensaje periodístico*, vol. 28, n. 3, pp. 525-536. <https://dx.doi.org/10.5209/esmp.80779>
- La Diaria (2022, January 18): “Unas 400 familias debieron ser evacuadas por la tormenta en Montevideo, informó el director del SINAÉ”: <https://ladiaria.com.uy/politica/articulo/2022/1/unas-400-familias-debieron-ser-evacuadas-por-la-tormenta-en-montevideo-informo-el-director-del-sinae/>
- Lakoff, George (2010): “Why it matters how we frame the environment”, in *Environmental Communication*, vol. 4, n. 1, pp. 70-81. <https://doi.org/10.1080/17524030903529749>
- Leiserowitz, Anthony, Carman, J., Buttermore, N., Neyens, L., Rosenthal, S., Marlon, J., Schneider, J., & Mulcahy, K. (2022): *International public opinion on climate change: Yale Program on Climate Change Communication and Data for Good at Meta*. <https://bit.ly/3BYiSZh>
- León, Bienvenido (2013): “La representación del cambio climático en los medios españoles”, in León, Bienvenido (ed.): *El periodismo ante el cambio climático. Nuevas perspectivas y retos*, Barcelona, UOC, pp. 11-44.
- León, Bienvenido & Alicia De Lara (2013): “Ciencia y cambio climático. Estudio de la cobertura del cambio climático en la prensa española”, in Mancinas Chávez, Rosalba & Rogelio Fernández Reyes (coords.),

- Medios de comunicación y cambio climático. Actas de las Jornadas Internacionales, Sevilla, Facultad de Comunicación de la Universidad de Sevilla, pp. 91-104. <http://hdl.handle.net/11441/36878>
- Lozano Ascencio, Carlos, Marcia Franz Amaral & Esther Puertas Cristóbal (2022): "Las catástrofes y los desastres en las noticias sobre el cambio climático en España de 2019 a 2012", in *Estudios sobre el Mensaje Periodístico*, vol. 28, n. 3, pp. 537-548. <https://dx.doi.org/10.5209/esmp.80591>
- Medina, Noelia, Martín Scarone, Wilson Sierra, Martijn Coopman, Cecilia Correa, María José González & Gonzalo Irrazabal (2021): *Hidrógeno verde: un paso natural para Uruguay hacia la descarbonización*, Rotterdam: Banco Interamericano de Desarrollo. <http://dx.doi.org/10.18235/0003761>
- Ministerio de Ambiente (2017a): *Política nacional de cambio climático*, Montevideo, Uruguay. <https://bit.ly/3PrsCjY>
- Ministerio de Ambiente (2017b): *Primera contribución determinada a nivel nacional al Acuerdo de París*, Montevideo, Uruguay. <https://bit.ly/3hrdxSZ>
- Montevideo Portal (2022, February 8): "El cambio climático y su lugar en las terapias psicológicas": <https://www.montevideo.com.uy/Ciencia-y-Tecnologia/El-cambio-climatico-y-su-lugar-en-las-terapias-psicologicas-uc812298>
- Neuman, Nic (2023): *Journalism, Media, and Technology Trends and Predictions 2023*, Oxford: Reuters. 10.5287/bodleian:NokooZeEP
- O'Neill, Saffron, Hywel T. P. Williams, Tim Kurz, Bouke Wiersma, & Maxwell Boykoff (2015): "Dominant frames in legacy and social media coverage of the IPCC Fifth Assessment Report", in *Nature Climate Change*, n. 5, pp. 380-385. <https://doi.org/10.1038/nclimate2535>
- PNUD Uruguay (2021): *Percepción social del cambio climático en Uruguay*. PNUD.
- Presidencia Uruguay (2022): *Gobierno presentó hoja de ruta para el desarrollo de hidrógeno verde*, Presidencia Uruguay. <https://bit.ly/3uRbGtS>
- Programa de las Naciones Unidas para el Medio Ambiente [PNUMA] (2021): *Hacer las paces con la naturaleza: un plan científico para abordar la triple emergencia del clima, la biodiversidad y la contaminación*, UNEP. <https://bit.ly/3PpXVvI>
- Radar (2022): *El perfil del internauta uruguayo 2021*, Montevideo: Grupo Radar.
- Reuters Institute (2022): *Digital News Report 2022*, Oxford: Reuters. <https://cutt.ly/LwwiA5la>
- Robbins, D. (2018): *Climate change, politics and the press in Ireland*, London: Routledge. <https://doi.org/10.4324/9780429451157>
- Sádaba, Teresa, Jordi Rodríguez Virgili & Manuel Bartolomé Castro (2012): "Propuesta de sistematización de la teoría del framing para el estudio y praxis de la comunicación política", in *Observatorio (OBS*) Journal*, vol. 6, n. 2, pp. 109-126. <https://doi.org/10.15847/obsOBS622012540>
- Schäfer, Mike & Inga Schlichting (2014): "Media representations of climate change: a meta analysis of the research field", in *Environmental Communication*, vol. 8, n. 2, pp. 142-160. <https://doi.org/10.1080/17524032.2014.914050>
- Stoknes, Per (2014): "Rethinking climate communications and the 'psychological climate paradox'", in *Energy Research & Social Science*, vol. 1, pp. 161-170. <https://doi.org/10.1016/j.erss.2014.03.007>
- Subrayado (2022, June 30): "Nueva decisión polémica de la Corte Suprema de EE. UU., ahora sobre el cambio climático": <https://www.subrayado.com.uy/nueva-decision-polemica-la-corte-suprema-eeuu-ahora-el-cambio-climatico-n872764>
- Vu, Hong Tien, Liu, Yuchen Liu & Duc Vinh Tran (2019): "Nationalizing a global phenomenon: a study of how the press in 45 countries and territories portrays climate change", in *Global Environmental Change*, vol. 58, pp. 1-9. <https://doi.org/10.1016/j.gloenvcha.2019.101942>
- Weber, Elke (2010): "What shapes perceptions of climate change?", in *WIREs Climate Change*, vol. 1, n. 3, pp. 332-342. <https://doi.org/10.1002/wcc.377>