

# Green Film Production for All

Pilar Orero

Universitat Autònoma de Barcelona, Spain

Sarah McDonagh

Universitat Autònoma de Barcelona, Spain

## Abstract

*As an emerging field of study, Environmental Media Studies explores the connections between the environment, culture, and media, examining the ways in which media representations shape our understanding of and attitudes towards the environment and the natural world (Starosielski and Walker 2016, Shriver-Rice and Vaughan 2019). However, there are currently two significant omissions from Environmental Media Studies. The first pertains to language accessibility, as information needs to be translated and disseminated across various languages and cultures. The second is the availability of media content to all audiences, including those who have difficulties accessing the visual or audio channels. Here, Media Accessibility, as a research discipline, can provide insights that can expand the scope of Environmental Media Studies to include issues of accessibility.*

*This article aims to establish connections between the fields of Media Accessibility and Environmental Media Studies by examining how these two fields complement each other in terms of theoretical and practical insights. A case where both fields can jointly address issues related to accessibility and sustainability is by using subtitles as a metric to gauge a film's level of engagement with climate change. In this article, we propose the use of subtitles as an additional indicator in the Carbon Calculator used by the film industry. Furthermore, we suggest developing the subfield of Green Media Accessibility to investigate resource use, social equity, and environmental communication in the wider media sphere.*

**Keywords:** Green media, Sustainability, Accessibility, Subtitling, Accessible filmmaking

## Introduction

Media Accessibility initially emerged as an applied academic discipline that prioritized the needs of users, employing different methodologies to address communication problems for people with different abilities (Orero 2022). In recent years, academic interest in Media Accessibility has steadily increased in parallel with the proliferation of screens and alternative forms of media. After its inception within the field of Translation Studies, more specifically in Audiovisual Translation, Media Accessibility has progressed into a distinct area of study, as evidenced by the growing number of PhDs, articles, and conferences on the subject: for example, Media for All and Advanced Research Seminar on Audio Description (ARSAD). This increase in awareness of the importance of

accessibility is in response to societal pressures and legal precedent, which have become major drivers of change.

Environmental Media Studies is a field of research that intersects with a range of diverse disciplines (Cox and Pezzullo 2016). As stated by Shriver-Rice and Vaughan (2019), this interdisciplinary field seeks to establish a dialogue between the social sciences and the humanities (Cubitt 2005, Markowitz, Hodge and Harp 2014). Its objective is to promote a constructive synergy between ecocriticism and environmental communication, and to foster connections between environmental justice activists and social scientists focused on political ecology (Ingram 2004, Ivakhiv 2013). Ultimately, Environmental Media Studies aims to encourage critical thinking about the environment and its relationship with society (Ghosh 2016).

In contrast, the field of Media Accessibility has specifically focused on equal access to information or 'communication inequality' caused the unequal access to digital resources (Ryan and Brown 2015), examining emerging media practices and solutions to secure communication equity across languages and cultures, media formats and devices.

When examined together, Media Accessibility and Environmental Media Studies, provide valuable insights into the accessibility of information related to the climate crisis, including the role of subtitles as an additional media asset for environmental monitoring (Orero and Shvets forthcoming).

## Films for all

For some viewers of film, accessing the content may be difficult due to the audiovisual nature of the medium. Sight issues or cultural misunderstandings may prevent some people from fully understanding the visual narrative. Additionally, venue limitations, such as obstructed views or uncomfortable seating, can present obstacles to accessibility, particularly in some film festivals. Sound is also an element which may not be accessible to all audiences. Music, sound effects, dialogue, information related to cultural markers, language, or plot intricacies, can all serve as potential impediments for film viewers. These barriers may be influenced by other factors such as the film genre, venue, or audiences' abilities.

In a democratic society we strive for equal access to media for all citizens and this access is enshrined as a Human Right in the Convention of Rights of Persons with Disabilities (CRPD) (2006). The CRPD states that people with disabilities are entitled to enjoy all human rights and fundamental freedoms such as: education, independent living, health, employment, freedom from

violence, and accessibility to information. Similarly, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) issued the Paris Declaration on Broadcast Media and Climate Change: A Public Service Remit in 2009, which underscored the vital role of communication in informing and educating the public about the realities of climate change and the cost of inaction.

The Declaration recognizes that broadcast media, including radio and television, can reach large audiences and serve as a powerful tool for education and public awareness. It emphasizes the importance of ensuring that the media industry fulfills its public service responsibility to inform the public with accurate and impartial information on climate change, and to promote sustainable development and environmental protection. It also encourages the development of partnerships between broadcast media, civil society, and other stakeholders to promote sustainable development and climate action. Although the Declaration does not explicitly mention disability, it recognizes the need for a comprehensive and inclusive approach to climate communication that reaches all sections of society, including vulnerable groups.

Against the backdrop of the Declaration (2009) and the CRPD (2006), we propose the concept of Green Media Accessibility to address the accessibility of information about the climate crisis. In addition to this aim, we acknowledge the importance of information access for all and the responsibility of broadcasters to enhance their skills in the areas of sourcing scientific information, producing, and sharing high-quality content and establishing training partnerships. Public tv and radio, whether broadcast or streamed online are the easiest ways to access reliable information. In addition, they can educate people about the effects of climate change and increase public awareness of the urgent need to address it. Measuring the information about climate change provided by public broadcasters also offers a wealth of data that can be interpreted to understand current environmental concerns.

## Green Film

The issue of climate change has started to receive attention in the film industry in recent years (Brereton 2005; Rust, Monani and Cubitt 2013). The first concerted effort to address sustainability in the film industry emerged from CineRegio<sup>1</sup> - a network of regional film funds based in Europe. The network began with 15 regional film funds from 11 different European countries and now represents 52 regional film funds from 12 EU Member States, Norway, Switzerland, and UK. The mission of Cine Regio is to support film-related schemes and services, foster social cohesion, and develop regional infrastructure. Its main objectives are:

- To exchange views, perspectives, good practices and information for the benefit of the European film industry, including integrating new regional film funds.
- To raise awareness, represent and promote regional audiovisual interests across Europe, including members' interests towards European institutions and other organisations which play a role in determining the set of rules and conditions for regional film funds.
- To strengthen the co-development and co-production of audiovisual products, fusing talents and resources in different regions for a wider market - including stimulating artistic, technical and creative exchange and know-how throughout Europe.

In 2012, Green-Regio started as a branch of Cine Regio. In the 2013 Cannes Film Festival, Regio issued its first interim report<sup>2</sup> which has been followed by reports in 2014<sup>3</sup>, 2015<sup>4</sup>, 2017<sup>5</sup> and 2020<sup>6</sup>. The "Sustainability in Vision" report was based on experiences of sustainable productions in different countries and examines collaborative ways to promote sustainability in the industry in an accessible and cost-effective way. It touches on setting the "Green Production" strategies and practices in the wider context of the audiovisual sector's "Corporate and Social Responsibility" agenda. Green-Regio reports are created from use cases, and highlight approaches such as: a simple, robust and systematic methodological approach to sustainability, partnership for awareness projects, standardising international certification, education and training, and promoting the use of various accessible and compliant carbon tracking software for production.

In the UK, the organisation Albert<sup>7</sup> was established in 2011 with a focus on media production. According to its website, Albert has a two-fold mission: to inspire and empower the industry to create content that supports a vision for a sustainable future, and to restore the environment by minimizing waste and carbon emissions during productions. Albert also provides certification, offers a carbon calculator, and publishes regular reports to support these goals. Albert's "Subtitle to Save the World<sup>8</sup>" investigates how UK broadcasters are using their content to educate and motivate viewers to address the Net Zero challenge.

Other EU-based sustainable initiatives include the Sustainability for Public Service Media department at the European Broadcasting Union (EBU) which began in 2020 and have a working group examining the environmental transition of broadcasting. The focus of this working group is how to move to a greener audiovisual sector, not only in production, but also in the broadcast industry more generally: from conservation to public procurement. They also look at different areas such as: power consumption, the shelf life of projectors and cameras, trucks and transport, special effects, and catering for crews, storage and recycling of sets, waste treatment, and even the cost of streaming. EBU also organises an annual summit, inviting experts from the fields of finances, economy, broadcast engineering, manufacturers, media

distributors, media producers. They also organize a roundtable with use cases from EU public broadcast. EBU issues reports, such as the Green Production<sup>9</sup> where resources are listed, and presentations that allows for a chronological study of the areas of interest in green media.

## Green Subtitles

Subtitles are the most popular form of Media Accessibility, which serve two purposes. Firstly, subtitles provide a translation or transcription of any utterance, including song lyrics, allowing for textual analysis, which enables people with hearing difficulties to read dialogue and other audio-based information in written form. Secondly, they allow viewers to enjoy films in noisy environments, such as public transport. Recent EU legislation has resulted in a significant amount of written text in various EU languages. This presents an opportunity to understand not just the sustainability of film production and distribution, but also sustainable narratives, and the focus on climate change as a media topic. Albert in 2019 started using subtitles to “analyse how the broadcast industry is covering climate change on our screens.” Every year they publish a report, based on the research performed by Deloitte. The research started with data from BBC, ITV, Channel 4 and Sky, representing 40 channels and 128,719 distinct programmes between September 2017 to September 2018. To replicate this research, it is important to understand the choice of corpus gathered, analysis tools and methodology. Unfortunately, this is not possible with Albert because the information provided about the glossary (or themes) is vague. For example, they mention that “the themes for analysis were chosen based on those which fell within the UN’s sustainable development goals that relate to the environment.” These themes include:

- Food: food waste, vegan, meat free, vegetarian, meat substitute, food miles.
- Resources: upcycle, single use, recycle, environmental impact
- Travel: electric vehicle, hybrid car, clean air, carbon offset, electric car
- Energy: green energy, solar power, wind power, renewables, clean energy
- Climate Knowledge: carbon emissions, climate change, carbon footprint, global warming, eco-friendly

However, these categories are not in keeping with the language used in TV programmes, which are designed for diverse audiences: ranging from children to older people. Additionally, the justification for the word choices for each theme is unclear: “Words were chosen to populate each theme using a combination of manual selection and machine learning.” Lastly, Albert do not elaborate on the tools used for their selection: “The word list was then expanded using language association tools however not all new terms were added as some were considered false positives (e.g.,

“vegetable” strongly related to “vegan” but in most instances was not relevant to environmental impact).” Consequently, it is impossible to replicate this process as there is no further information regarding words or tools used.

Although Albert does not meet scientific standards, it represents a promising first step towards using subtitles for media content analysis. According to Albert’s website (2019) they would like to “capture full sentiment analysis to indicate whether our television coverage of the topic is neutral, positively or negatively biased.” And while they reported that it wasn’t possible to attribute sentiment to every instance of the search terms they analysed, they carried out spot checks to indicate relevance and build a picture of sentiment. General spot checks confirmed that across all the findings, 90% of instances were used in the context expected, i.e., using beef to refer to food rather than climate arguments. According to Albert, “exploring beef in more detail, analysing 100 of the 14,984 total mentions of beef revealed that 95% of these mentions were in the context of beef as a food source, 5% of mentions were out of context and 0% were in relation to reducing beef consumption in order to reduce our carbon footprint.” Although the subtitle analysis performed by Deloitte for Albert should be viewed as an industry-led study, the objective is intriguing as it appears to reveal significant media trends. For 2021, Albert concluded that “word frequency associated with five key sustainability topics: food, travel, resources, energy, and climate knowledge.” According to Albert’s report, it is worth noting that the green discourse in UK media is not increasing. The 2021 report found 14,540 mentions of climate change, while climate justice, climate action and climate solution only received 296 mentions collectively. However, due to the absence of details about Albert’s methodology or analysis tools, this data is open to interpretation.

Another example of subtitle analysis comes from the Spanish public broadcaster RTVE, taken from a presentation on “SDGs key programming, taken from the 2023 EBU summit.<sup>10</sup> According to the RTVE webpage<sup>11</sup>, the tool is defined as follows: Parliament 2030 is an innovative tool that tracks, gathers, and offers information on the activity of the RTVE programmes related to the Sustainable Development Goals (SDGs). Designed to overcome the challenges posed by the cross-cutting nature of the 2030 Agenda, SDG Programming classifies information related to the SDGs thanks to an advanced automatic mass labeling system. This innovative technology allows users to browse TV content related to the SDGs through a free and open online search engine. The information provided is essential for the monitoring and accountability of the implementation of the 2030 Agenda at the national level. It works by creating a database through an automatic mass labeling process that classifies it according to its relationship with any SDG or goal. It combines advanced computer science - necessary to scrape 520 subtitling hours in which information is published and transformed into a structured database - with the design of SDG

dictionaries that automatically relate folksonomies to objectives and targets. Then, through an intuitive, attractive, and accessible search engine, it offers all the relevant information in reusable formats. Users can select their own search terms to tailor searches to their needs, as shown in figure 1.



Figure 1 – User interface of RTVE SDG app

Again, as in the case of Albert, no information is provided about the corpus, tools or methodology beyond what is published on the website. Like Albert, RTVE's analysis lacks scientifically rigor. However, it does provide a valuable example of how to collect indicators for sustainable media content.

## Conclusions

The environmental crisis has had a profound impact on almost all aspects of our lives (Shome and Marx 2009). Yet, discussions about the topic are normally confined to the limited scope of nature-themed films or documentaries, not mainstreamed into popular film (Murray and Heumann 2009). By integrating the topic of sustainability into all films, from arthouse to blockbusters, we can elevate this once-peripheral issue to a prominent position in the public consciousness (Nisbet et al. 2010, Roser-Renouf et al. 2014). However, understanding, measuring, and effectively reporting the degree to which the topic of sustainability is featured in film is challenging. While some analyses and methodologies exist, these can be difficult to implement and time-consuming. Currently, there are no automatic tools to measure large language-based films. Seeking to remedy this critical oversight, this paper sought to explain the need to subtitle all films and propose subtitles as a metric to measure the coverage of climate change related topics in film. By using subtitles as a measurable raw data to develop metrics to gauge the quantity of sustainability-related content in film we can better understand how climate change is currently covered in Catalonia. Nevertheless, developing indicators for different sustainable media components is dependent on the collection of reliable data. Armed with this knowledge, we can develop strategies and benchmarks to promote sustainability as a concept and contribute towards Net Zero targets.

## End Notes

- <sup>1</sup> [https://www.cineregio.org/about\\_cineregio/the\\_story\\_so\\_far/2005/](https://www.cineregio.org/about_cineregio/the_story_so_far/2005/)
- <sup>2</sup> [https://www.screen south.org/wp-content/uploads/2020/02/Screen-South-2016-Environment-Policy-FINAL.pdf?\\_ga=2.127782477.1924804755.1680338427-81341374.1680338427&\\_gl=1\\*1npjnzK\\*\\_gaODEzNDEzMzNuMTY4MDMzMzODQyNw.\\*\\_ga\\_ZBES40NZTV\\*MTY4MDMzMzODQyNj4xJEU\\*MTY4MDMzMzODQyM54wLjAuMA](https://www.screen south.org/wp-content/uploads/2020/02/Screen-South-2016-Environment-Policy-FINAL.pdf?_ga=2.127782477.1924804755.1680338427-81341374.1680338427&_gl=1*1npjnzK*_gaODEzNDEzMzNuMTY4MDMzMzODQyNw.*_ga_ZBES40NZTV*MTY4MDMzMzODQyNj4xJEU*MTY4MDMzMzODQyM54wLjAuMA)
- <sup>3</sup> [https://www.cineregio.org/dyn/files/pdf\\_download/7-file/V12%20+ Sustainability%20in%20Vision%20FINAL%20200614.pdf](https://www.cineregio.org/dyn/files/pdf_download/7-file/V12%20+ Sustainability%20in%20Vision%20FINAL%20200614.pdf)
- <sup>4</sup> [https://www.cineregio.org/publications/green\\_regio\\_report\\_2015/](https://www.cineregio.org/publications/green_regio_report_2015/)
- <sup>5</sup> [https://www.cineregio.org/publications/green\\_regio\\_report\\_2017/](https://www.cineregio.org/publications/green_regio_report_2017/)
- <sup>6</sup> [https://www.cineregio.org/publications/green\\_regio\\_report\\_2020/](https://www.cineregio.org/publications/green_regio_report_2020/)
- <sup>7</sup> <https://wearealbert.org>
- <sup>8</sup> <https://wearealbert.org/editorial/wp-content/uploads/sites/6/2021/09/albert-subtitle-report-2021.pdf>
- <sup>9</sup> <https://tech.ebu.ch/groups/greenproduction/greenproductioninitatives>
- <sup>10</sup> <https://tech.ebu.ch/publications/demo-rtve-2030-sdgs-key-programming>
- <sup>11</sup> <https://rtve.politicalwatch.es>

## Acknowledgements

This article has been partially funded by the following: H2020 funded Project GreenSCENT Grant no. 101036480, 2021SGR00077 and 2021XARDI00007. The authors are part of the Catalan Research Group TransMedia Catalonia 2021SGR00077 and the Network ACCESSCAT 2021 XARDI 00007.

## References

- Brereton, Pat. 2005. *Hollywood Utopia: Ecology in Contemporary American Cinema*. Bristol: Intellect Books.
- Cox, Robert, and Pezzullo, Phaedra. 2016. *Environmental Communication and the Public Sphere*. Thousand Oaks: Sage.
- Cubitt, Sean. 2005. *EcoMedia*. Amsterdam: Rodopi Press.
- Ghosh, Amitav. 2016. *The Great Derangement: Climate Change and the Unthinkable*. Chicago: Chicago University Press.
- Ingram, David. 2004. *Green Screen*. Exeter: University of Exeter Press.
- Ivakhiv, Adrian. 2013. *Ecologies of the Moving Image*. Waterloo: Wilfred Laurier Press.
- Markowitz, Ezra, Hodge, Caroline, and Harp, Gabriel. 2014. *Connecting on Climate: A Guide to Effective Climate Change Communication*. New York: The Trustees of Columbia University.
- Maxwell, Richard, and Miller, Toby. 2012. *Greening the Media*. Oxford: Oxford University Press.
- Murray, Robin L., and Heumann, Joseph K. 2009. *Ecology and Popular Film*. New York: SUNY Press.
- Nisbet, Matthew C., Hixon, Mark., Moore, Kathleen, and Nelson, Michael. 2010. 'Four cultures: New synergies for engaging society on climate change.' , *Frontiers in Ecology and the Environment*. No. 8:6: 329-31.
- Orero, Pilar. 2022. Translation, Accessibility and Minorities. In E. Bielsa (ed.) *The Routledge Handbook of Translation and Media*. London: Taylor Francis: 384-399.

Orero, Pilar and Alex Shvets. Forthcoming. The role of text-to-type and genre in the analysis of subtitles: Towards measuring how green is media. *Linguaculture*.

Roser-Renouf, Connie,, Stenhouse, Neil, Rolfe-Redding, Justin, Maibach, Edward W., and Leiserowitz, Anthony. 2014. 'Engaging diverse audiences with climate change: Message strategies for global warmings six Americas.', *Handbook of Environment and Communication*, Oxon: Routledge: 368–86.

Rust, Steven, Monani, Salma, and Cubitt, Sean (eds). 2013, *Ecocinema: Theory and Practice*, New York:: Routledge.

Ryan, Charlotte, and Brown, Kimberly Freeman. 2015. To act in concert: Environmental communication from a social movement lens. in A. Hansen, and R. Cox. (eds), *The Routledge Handbook of Environment and Communication*, Oxon:: Routledge: 131–42.

Shome, Debika, and Marx, Sabine. 2009. *The Psychology of Climate Change Communication: A Guide for Scientists, Journalists, Educators, Political Aids, and the Interested Public*, New York: The Trustees of Columbia University

Shriver-Rice, M., & Vaughan, H. 2019. What is environmental media studies? *Journal of Environmental Media*, no. 1(1): 3–13.

Starosielski, Nicole, and Walker, Janet (eds). 2016. *Sustainable Media*, New York: Routledge.