Exploration of a sustainability model for pan-national co-productions within film and television

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1. Introduction

The Danish television industry is a cornerstone of the country's cultural and economic landscape. Known for its innovative storytelling, world-class cinematography, and global hits, such as *Broen (The Bridge), Riget (The Kingdom), Borgen, The Rain* and *Forbrydelsen (The Killing)*, Danish television has carved a unique niche in the international market. With a reputation for producing high-quality content, the industry not only reflects Danish values but also serves as a powerful medium for storytelling that resonates beyond borders.

Key facts

Production and economic contribution

- The annual revenue of the television sector is 1.9 billion DKK (2022) (Stoll, 2024b).
- In 2022, the Danish Producentforeningen distributed 890 million DKK on 21 productions (Nielsen, 2022).

Viewership

- The average Dane watches 90 minutes of television daily (Stoll, 2024a).
- Danish films reach 30 foreign markets per year (Øfsti & Bengesser, 2024).

Employment

- In 2022, there were 6032 workers in the television sector with 5217 in full-time employment (estatistik, 2024).
- A survey on the mental work environment amongst film and TV-workers in the Danish journalists' association from 2019, indicted that over a third of the 230 respondents experience stress and pressure from work to impact their private lives (Pedersen & Stangerup, 2019).

With the vital and strategic role of the Danish television industry as a cultural and economic force, the sector's role in furthering the country's environmental and social sustainability goals and targets merits attention. The environmental impact in terms of CO₂ emissions and social status in the areas of diversity, equality and inclusion, along with governance measures within this industry need to be considered. Similar to building, marine, food, and energy sectors, evidence-based guidelines must be developed and adhered to.

Environmental impact

Statistics indicate that the Danish television industry has a notable environmental impact, with key contributors including travel, material use, and energy consumption during productions (Svennevig, 2023). However, precise data on these impacts are scarce and not consistently monitored. Although tools for CO₂ calculations, green production guidelines, and certifications are gaining traction, their adoption within the industry remains limited. The increasing number of multinational co-productions further complicates efforts to measure and report environmental impacts, as these projects often span multiple countries with varying standards and practices.

Without a common industry-wide approach, productions that aim to adopt green practices often find the existing guidelines and tools daunting and complex. Producers may feel overwhelmed by

the process, frequently perceiving sustainable practices as cost prohibitive. To advance environmental sustainability within the Danish television industry, it is essential to develop a comprehensive yet user-friendly framework that is accessible to productions of all sizes, budgets, and formats. Such a framework would streamline adoption and foster an industry-wide commitment to greener practices. These actions are crucial for the media sector as the emissions produced by one hour of a programme are equivalent to driving around the world twice; for productions like the drama series used in the case study, the average carbon footprint is three times greater (BAFTA albert, 2024).

Social consciousness and action

Similar to the fragmented approach to environmental sustainability, the Danish television industry currently lacks a unified framework for addressing social issues such as equality, diversity, and inclusion. While individual productions may incorporate these themes, there is no consistent or industry-wide effort to promote social consciousness across the sector. Furthermore, the industry's behind-the-scenes workforce remains predominantly homogeneous, which restricts the inclusion of diverse perspectives in decision-making and creative processes. While some productions are beginning to make strides in addressing this issue, progress has been slow, and there remains a need for industry-wide commitment to ensure equal opportunities for marginalized groups.

This scattered approach limits the industry's potential to drive meaningful change. To ensure a more socially responsible and inclusive future, the Danish television industry needs a cohesive strategy that integrates social issues into all aspects of production, both on-screen and behind the scenes. Compared to the minimal level of maturity within environmental sustainability in terms of tools and guidelines, resources within social sustainability are far more limited. Besides the lack of clear guidelines on social measures, measuring and benchmarking the social actions is more or less unexplored. With the right strategy, a more inclusive and socially responsible industry can enable Denmark to become as renowned for its sustainability as it is for its stories.

2. Purpose

The purpose of this research project is to explore and develop a framework to make adopting a sustainability model for pan-national co-productions in the film and television industry a reality. By integrating environmental and social sustainability practices, the project aims to create accessible guidelines that support production teams in adopting greener and more inclusive methods. Through collaborative case studies and innovative tools like the Green Producers Tool (GPT), the project seeks to measure and reduce carbon footprint while addressing social dimensions such as diversity and equity in production processes. This work aspires to drive meaningful change and establish standardized sustainability practices across international productions.

3. Methodology

The research aims to make environmental and socially sustainable measures easily adaptable to film and television productions by introducing green practices to bring down overall CO₂ impact and social actions to bridge the gaps in inequality and create safer working environments. To achieve this, the research project put forward a set of environmental and social guidelines that will make it easier for each department in the production phase to adapt green and social measures within lighting, transport, travel, costume, etc. The guidelines are aimed for use by specialists in each production department, thereby making implementing green measures the responsibility of everyone in their individual roles. This research focuses on production processes and does not include pre- and post-production.

Case study approach

To conduct the research, a case study approach using a fictional miniseries consisting of 6 episodes of 45 minutes each was used, where the aforementioned guidelines were applied to episodes 2-6, which are set in Argentina. To apply the environmental and social guidelines, 4 production concepts were used (see Figure 1 below) each represented by one or several production partners. Each production concept worked with environmental and social sustainability practices to provide different solutions to doing a holistically sustainable production. Industry media experts calculated the financial budget for producing this series using one of four methods. This investigation seeks to provide such data and show how social and environmental sustainability apply to various production concepts.



Figure 1: Production concepts used to test the case study

Tiered guidelines for environmental sustainability

The environmental sustainability guidelines offer a tiered set of green practices that are developed based on research of existing practices and guidelines. The guideline development process commenced with an exploration of all existing green guidelines, calculator tools and schemes available and used by film and television productions around the world. This desk-based research with iterative inputs from partners is a considerable part of the work done by the research team in the initial phase of the research and provided the catalyst for developing the guidelines produced by the research team.

The data collected in this process was further analysed, compiled and restructured into a format adapted to each production department. Additional research within each department was conducted to support a more detailed decision-making process providing information on sustainability certifications for hotels, energy efficiency for items in the lighting department, department relevant recycling, etc.

The goal with the guidelines per department is to spread out the responsibility and include a broader aspect of the production than just a single green manager. For each production department, the guidelines are structured in a listed order of options for the production department to choose a sustainability approach based on their budget and capabilities. Option 1 represents the most environmentally sustainable approach, followed by Option 2 and subsequent choices with decreasing levels of sustainability. Additionally, a set of separate guidelines are compiled with general environmentally friendly practices applicable to each and everyone involved in the production. Presenting the guidelines in this way and dividing it per production department makes it easier to apply green practices to each area of the production. A goal is also to encourage the production crew to take ownership of the sustainability and approach the green challenges as part of the creative process.

Each production concept creates a budget for the production of the miniseries while including points from the guidelines in the decision-making and recording the choices. The goal is to measure and analyse the carbon impact from the various production concepts and to do so, the carbon calculator tool Green Producers Tool (GPT) is applied (Green Producers Club, 2024).



The tool generates an emission budget based on the production activities such as production office, studio, travel, accommodation, and materials purchase and indicates the level of emission across different production departments and categories. The tool is linked to a scientific database containing information on emission factors that converts the production activities into carbon dioxide-equivalents (CO₂-eq). This metric is used to compare the emissions of different greenhouse gases based on their global warming potential.

The emission factors integrated in the GPT takes a Life Cycle Assessment (LCA) aspect into account. LCA considers emissions from activities or processes related to the life cycle stages of a product:

- 1. Raw materials: the extraction of raw materials needed to produce the product.
- 2. Production: the resources and energy needed to produce the product.
- 3. Use: the actual use of the product.
- 4. Recycling & end-of-life: how the product is recycled or disposed.

Weighted social sustainability guidelines

The social sustainability guidelines offer a range of approaches covering multiple social dimensions. Developed by a comparative study of existing social sustainability practices in other fields as well as internal knowledge and expertise, the social sustainability guidelines present a range of topics with individual actions for integration. Each action has a weighted score based on the value or required efforts to implement it or budget needs. The total score from each topic gives the production concept an indication of their level of commitment to the social sustainability efforts and allows for reflection and continuous work to improve inclusion, health, safety, and a better work environment.

4. Partners

This research project has been the collaboration of several partners both financial and academic. The academic team consists of researchers from Technical University of Denmark (DTU) and VIA University College with financial support from Vision Denmark and the Danish Agency for Higher Education and Science. The case study partners for this project include New Era Production (Denmark), La Suma & Cimmaron (Uruguay), Wonder Maria Films (Portugal), Windelin Consulting & NextNew Studio (Denmark) and Saga Film (Iceland). Additionally, Filmgear (DK) and Igelkott Studios (SE), has provided data for the VP production concept.



Figure 2: Project collaboration partners

5. Process

Figure 3 illustrates the collaborative process between the research team and the partners. Each production concept applied the environmental and social guidelines in iterations when determining their budget.



Figure 3: process flow chart and collaboration between the research team and project partners.

This diagram illustrates the iterative process of developing and testing sustainability guidelines across production concepts. The workflow includes collaboration with case study partners, data collection, guideline application, and emission budget analysis using the GPT. The process allows for integrating environmental and social sustainability practices, enabling a comparative evaluation of different production scenarios with each iteration. Key feedback loops ensure continuous improvement and adaptability to diverse production contexts.

Disclaimer: Only 2 production concepts were able to apply the guidelines in iterations and provide production budget options.

6. Production concepts & data

Concept 1 – Filming on location in EU

This production concept considers filming at a destination with a shorter travel distance than the script location. Two locations in Portugal were chosen as fitting alternatives to achieve/match the intended scenery. With 10 nights in one location and 79 nights in the second location, the production partner will engage local crew and cast members as well as flying in 3 cast members from Denmark and 3 cast members from Argentina.

Concept 2 – Virtual production

The virtual production concept seeks to reduce the need for travel to distant filming locations by recreating environments within a virtual studio. This approach utilizes large LED screens of varying sizes to display images powered by a gaming engine. The Danish production partner employs a screen setup with up to 270-degree coverage and an overhead display, setting a high standard but also demanding significant energy to operate the screens and associated computing systems over a duration of 69 production days. Unlike traditional production methods, virtual production requires extensive pre-production work, including the animation and design of virtual environments. Approximately 50% more time is allocated to the shooting schedule for preparation days, involving a smaller crew dedicated to stage setup, lighting, and other technical requirements. The cast and crew members consists of locally hired Danish crew and 34 members traveling from Argentina.

Concept 3 – Remote production

This concept embraces a remote production scenario set in Iceland. The remote concept deals with a hybrid scenario of filming on location combined with online or remote participation by select crew. The vast majority of the cast and crew members are hired locally, and the concept takes the advantage of utilizing private accommodation and means of transportation. 2 crew members will travel to Iceland from Denmark for the production. The Icelandic landscape poses some limitations in terms of matching the visuals of the script location, which consequently reduces the feasibility of this production concept.

Concept 4 – Filming on Location in Latin America

With this production concept, the case study takes the approach of filming at a location closest to the script location in terms of geographical and cultural proximity. The production partner in Uruguay will engage 95 local crew members for 68 nights. For the production, some crew members will travel to Uruguay from Denmark and Argentina, while 37 cast members will travel from Denmark and the remaining 14 cast members will be hired locally.

7. Findings

Based on the investigation of the aforementioned production concepts, this section aims to summarize the key findings of each production scenario's environmental and social sustainability assessment.

Environmental sustainability findings

This research project assessed emission levels from each production concept in energy, transportation, travel and accommodation categories. This simplification is based on data from 3000 productions that used the albert carbon calculator tool to report production carbon footprint (BAFTA albert, 2024); of the productions that submitted footprints, 467 were from 38 different countries, making this dataset an appropriate baseline for multinational productions. With this large sample, one could observe the Pareto Principle: over 80% of emissions from a typical hourlong drama production come from energy, transportation, travel, and accommodation-related activities. This decision excludes other categories such as food & beverages, equipment, and recycling & waste, which contribute relatively little to the overall production carbon footprint.

To compare the findings to the existing industry, the numbers from the BAFTA albert Annual Review 2023 (BAFTA albert, 2024) were employed as a baseline. According to the report, a typical drama TV series production emits 48 tons CO₂-eq per hour episode; across all genres, the average emissions is 16-ton CO₂-eq per hour, highlighting the need to reduce emissions for this genre in particular. As this research project investigates a drama TV series production of 5 episodes, each production concept is compared against a scaled baseline of 240 tons CO₂-eq. The



findings from each production concept are presented against the industry standard in the chart below.

Figure 4: Total calculated emissions in tons CO₂-eq for each production concept case plotted with the industry standard for drama tv series production.

Findings from Individual production concepts



Filming on location in the EU





On location filming in EU is generally just above but rather close to the industry standard for energy and accommodation, however, for transportation/travel, this production concept was found to be far below, as illustrated in the chart. A reason for this lies in the conscious integration of more sustainable means of transportation such as electric cars and trains rather than diesel cars.

Virtual production

Remote production





Virtual production showed to have highest concentration of the calculated emissions in the transportation/travel category with 86%. This seems to be corresponding to the industry standard. Another interesting find is in the energy-related emissions. As virtual production involves use of virtual studios to a different extent than other production concepts, this was expected to have a high emission level. However, due to the limitation by only focusing on the production phase, this research project excludes assessing the energy consumption related to pre-production activities.



Figure 8: CO₂-eq % distribution

The *remote production* case reported an overall very low carbon footprint compared to both the rest of the production concepts but also the industry standard. The emissions from this particular production concept were expected to be in the lower range due to the hybrid production constellation. Specifically in the energy category, as the production is located on Iceland which benefits from electricity being generated from renewable sources such as geothermal and hydropower.

Filming on location in Latin America



On location filming in Latin America has the highest footprint due to the travel distance and size of crew travelling long distances. Locally, the production team has tried to incorporate sustainable practices with arranging fewer vehicles to transport groups of people on a daily basis and well as using local crew and cast where possible.

How does the choice of sustainability options influence the production costs

Overall, the CO₂-eq emissions will differ between different types of productions, e.g. Drama causes app. 3 times as much CO₂-eq then the average genre (BAFTA albert, 2024). But as shown in this study it also differs between different production concepts. The economic cost also varies between different production concepts and here it is investigated how much CO₂-eq are emitted per euro budgeted. In the first graph all production concepts are included but it should be kept in mind that costs also varies geographically.



Figure 11: CO₂-eq emissions per Euro

The reduction of CO₂-eq emissions in option 1 compared to option 2 also comes with a cost. In this study it can only be studied for on-location production concepts. In the **On location filming** *in* **EU** the more sustainable option costs 3.5% more and it leads to a 2.5% reduction of CO₂-eq compared to the least sustainable option. In the **On location filming in Latin America** production concepts the more sustainable option has a 12.5% higher costs and leads to a 11.7% reduction of CO₂-eq compared to the least sustainable option.

Social sustainability findings

The production concepts worked with integrating social sustainability aspects in their respective productions according to the given guidelines. Across the three areas of 'DEI (Diversity, Equality, Inclusion), 'Health & Safety', and 'Justice & Labor Rights', the production partners recorded a score based on the total included initiatives.

Disclaimer: Findings can only be presented for two out of the four production concepts.

Filming on location in the EU		
Category	Score	
DEI	20 (of 46)	
Health & Safety	33 (of 71)	
Justice & Labor Rights	23 (of 36)	
TOTAL	76 (of 153)	

Filming on location in Latin America		
Category	Score	
DEI	9 (of 46)	
Health & Safety	20 (of 71)	
Justice & Labor Rights	25 (of 36)	
TOTAL	54 (of 153)	

The scores are further elaborated in the section below.

8. Analysis

The focus area of the research is the various departments in the production phase and does not consider pre- and post-production. The total CO_2 numbers for each production concept vary greatly and for each production concept the highest contributor varies.

The heaviest emission levels are observed for producing on location in Latin America and the opposite case exists for the remote production concept. The key reason for the variation in carbon footprint is the travel distance and mode of travel.

The results showed 3 out of 4 production concepts have higher emission levels in the Energy category. The carbon footprint from energy consumption constituted an average of 46% across the production concepts. Only the virtual production concept was found to have higher emission levels in the transportation/travel category constituting 86% of the calculated carbon footprint.

Filming on location in EU		49 %
Virtual production	₽ ¥	86 %
Remote production		43 %
Filming on location in Latin America		45 %

Figure 12: Category with highest calculated emission levels for each production concept.

To efficiently implement sustainability initiatives on the production of a TV series with the purpose of bringing down the associated carbon footprint, it is important to understand which area to focus on – where the greatest impact can be made. Figure 12 below aids in visualizing the emission distribution for each production concept across categories.



Figure 13: Total emission for each production concept with distribution across categories. The staggered bar chart clearly shows accommodation to be the category with the lowest footprint compared to the other categories of energy and transportation/travel.

The calculated footprints from the production concepts can be further assessed on a category basis with inclusion of the estimated industry standard from BAFTA albert Annual Review 2023 (BAFTA albert, 2024).





On

location

LatAm

opt 1

On

location

LatAm

opt 2

Remote

Virtual

Breakdown of environmental sustainability impact findings

On

location

On

location

EU - opt 1 EU - opt 2

Filming on location in EU

- The production concept encountered various accommodation options with sustainable initiatives, however, this aspect was not possible to record or differentiate in such detail in the GPT (carbon calculator tool).
- Developed infrastructure and possibilities to source energy from the power grid for the majority of the production. Electrical power banks were used for the remainder of the energy supply – the production concept fully avoided using fossil fuelled generators for instance.
- Electrical cars are available for rent, although the trucks and vans are powered by fossil fuel.
- Between Option 1 and 2, the production partner employed additional vehicles for equipment transportation as well as utilizing gasoline powered small cars instead of electric. Additionally, transportation of people by train was substituted with buses.

Virtual production

- The production concept presents an opportunity to optimize filming efficiency by having two setups to move back and forth in between. While filming on one setup in a studio, the second set can be prepped in a neighbouring studio.
- The production concept reduces the need for built sets and minimizes the use of construction materials. However, it remains uncertain whether the virtual alternative is more advantageous, efficient, or cost-effective than the physical version in terms of resource usage.
- The production concept was found to be a very versatile option as the vast majority about 90% of the production was estimated to be performed in the virtual setting (68 out of 75 shooting days).

Remote production

- Great use of local crew utilizing private accommodation and means of transportation.
- Only a few vehicles were rented for the production while also being powered by electricity.
- Benefits from energy and electricity generated based on renewable sources with low CO₂ intensity.

Filming on location in Latin America

- Filming in Latin America aligns with the script's cultural and geographical context. Uruguay's strong renewable energy infrastructure offers an authentic setting, though on-location energy for this case study relies on non-renewable sources.
- The local production partner has implemented group transportation to minimize daily vehicle use, lowering CO₂ emissions. Between Option 1 and 2, the producer also has the option to use electric vehicles to transport cast and crew to the location.
- For the long-distance travel, which is the highest contributor in this production category, the CO₂ numbers can be reduced by switching from business class to economy class travel for cast and crew travelling from Denmark to Uruguay.

Social sustainability analysis

Social sustainability is a relatively underexplored topic within the film industry. This research project aimed, with the posed guidelines, to gather and structure a selection of initiatives in a tangible way to support productions.

Within each production concept, certain measures within social sustainability were being applied such as membership in trade unions, safety measures, diversity casting and hiring, etc. However, these measures were not collective conscious efforts with a measuring system previously for the production partners. This section dives into the various approaches that are included in the scores

recorded by 2 of the 4 production concepts (presented in the Findings section). Additionally, the social impacts from each of the production concepts are evaluated.

Filming on location in EU

This production concept is set in Portugal, a country with a well-established culture in terms of social sustainability. The recorded score highlights diverse inclusion efforts, both on and off-screen, alongside initiatives such as anti-bullying measures, crew-wide decision-making participation, and scheduling that aligns filming with childcare and caregiving responsibilities. Regarding health and safety, the score addresses a range of measures to ensure mental, emotional, and physical well-being, including protocols for night shoots and adherence to safety certifications. Portugal's film industry benefits from a well-established union system that supports workers and fosters engagement with local communities.

Virtual production

Based on communication with the virtual production partner, it was found that a significant portion of VFX work is conducted remotely. This production concept offers flexibility, allowing crew members to work either in a studio or from a remote location. The workforce typically consists of a mix of permanent employees and freelancers. However, the prevalence of remote work poses challenges in monitoring and ensuring suitable working conditions. Although, on-set health and safety can be better controlled, especially in terms of stunts and working with children. With the studio setup, virtual production usually has a fixed meeting point during the production that helps establish a daily rhythm for the crew and by allowing filming of night scenes during daytime, supports a greater work-life balance. Working in a studio setting can be better for those with mobility impediments or neurodiverse individuals who appreciate a more routine setting than the unpredictability of on-location shooting. The VFX industry remains highly male-dominated, with diversity levels comparable to those of traditional studio-based productions. Additionally, the virtual production concept is generally underrepresented ethnically within the film and TV industry. In terms of inclusion, a notable drawback is that VFX workers are often required to provide their own equipment and training. This contrasts with other production concepts, such as on-set roles like runners, which tend to attract individuals from more diverse socioeconomic and experiential backgrounds.

Remote production

Unfortunately, this research project is not able to present any findings on social sustainability in the remote production concept.

Filming on location in Latin America

This production concept involves collaboration with partners from Uruguay, a country with a relatively small film industry. While this presents challenges in terms of diversity and social representation, the production concept recorded a high score for equality both on and off-screen. This reflects adherence to local regulations and efforts to provide training and skill development opportunities for production roles. In terms of health and safety, the production concept incorporates initiatives such as anti-harassment policies, prioritizing sitdown lunches, and implementing physical safety measures. Moreover, the Uruguayan film industry operates under union regulations, particularly regarding night shoots, and complies with local safety laws.

9. Conclusions and moving forward

This research project sought to explore a sustainability model for the film and television industry and create a framework for integrating environmental and social sustainability practices across international productions. Additionally, a goal was to develop guidelines and standardized sustainability practices to support production teams in decision-making while adopting greener and more inclusive methods. Globally, many people have a gut instinct that certain production concepts such as remote and virtual production offer greener alternatives to traditional on-location filming practices. Thus, these technology-intensive concepts are blooming as a way to save the planet despite a lack of concrete data to show a reduced carbon footprint. This project has worked with a collaborative case study including various production concepts and employed innovative tools to measure the production carbon footprint while also addressing social dimensions in the industry.

The guidelines developed by the research team is applicable to any size of production and therefore can be used as an industry-wide tool to help productions choose more sustainable options, irrespective of their production concept. Based on feedback from the project partners, the guidelines were appreciated as an easy-to-use tool, although, they were noted to lack comprehensive coverage of all the possible choices within each department during the production process. Therefore, the guidelines developed by the research team, in its current form and level of details, can be considered 'phase 1' of creating a framework that allows productions to choose between different sustainable options.

The guidelines were applied and tested in the case study across 4 different production concepts, which provided insight on their respective environmental impacts. The research found that the remote production concept had the lowest carbon footprint while the concept of filming on location in South America had the highest footprint. However, it cannot be concluded that the remote production concept constitutes the most sustainable option. It is important to note that the type of production concept that would be most sustainable to any project is individual to the project. Factors such as script, technical requirements, etc, play a major role in influencing the choices and capabilities for each department. This research project works with a number of limitations and factors that impacts the findings.

- The study works with a limited assessment by first of all solely focussing on the production phase and excluding activities related to the pre- and post-production phases. Secondly, the assessment considers the three key categories: accommodation, transportation/travel, and energy, and it is important to note that these do not encompass all aspects of a production's environmental impact. For projects in the film and television industry beginning their sustainability journey, analysing all production categories (e.g., food & beverages, equipment, waste & recycling) is crucial.
- Another major limiting factor to the findings lies in the lack of uniformity in the level of detail in the guidelines and the employed carbon calculator tool: Green Producers Tool (GPT). The guidelines were developed by the research team independently and not in

conjunction with the GPT, which meant that the level of details which the production partners used from the guidelines could not, in all instances, be captured in GPT. One example hereof is for the accommodation category.

 The applied carbon calculator tool was chosen based on requirements for level of detail but more importantly also availability. Many carbon calculator tools exist on a global scale and each with different functionalities and levels of detail. It is unknown whether a different tool would have generated similar results or painted a different picture of the findings.

The social and environmental sustainability guidelines developed in this project can in conclusion provide a valuable framework for productions at various stages of their sustainability journey. These guidelines aim to address the differing levels of familiarity and maturity in adopting sustainable practices, offering flexibility and inclusivity across a wide spectrum of production scenarios.

The environmental sustainability guidelines accommodate accessibility for beginners in terms of the tiered structure that allows productions new to sustainability to identify and adopt simple, practical actions as a starting point. With options tailored to each production department (e.g., lighting, transport, set design), the guidelines make sustainability efforts approachable and less overwhelming and by providing multiple levels of actions, productions with limited budgets or capabilities can still make meaningful progress toward reducing their environmental footprint. In addition, the guidelines offer advanced features for productions with more established sustainability agendas by encouraging a deeper integration of green practices, such as renewable energy sourcing, low-emission transportation and material lifecycle considerations. Furthermore, the integration of tools like the Green Producers Tool (GPT) facilitates measurable progress, enabling teams to track and analyse their carbon footprint effectively.

The social sustainability guidelines offer structured actions across various dimensions such as Diversity, Equity, and Inclusion (DEI), Health & Safety, and Justice & Labor Rights. With approaches designed to be as universally applicable as possible, they allow teams to implement initiatives regardless of budget or production scale. Examples include anti-bullying measures, scheduling accommodations for caregivers and inclusion-focused hiring practices.

The guidelines created through this project provide a strategic solution to one of the primary barriers to the adoption of sustainable practices in the screen industry: the concentration of responsibility for green measures on the green manager. This issue is particularly evident in larger-scale productions, where the complexity and scope of operations often exceed the capacity of a single green manager. The guidelines enable the distribution of accountability across individual production departments, ensuring that every team is directly involved in implementing green measures within their area of expertise. This approach reduces the burden on a single green manager, who would otherwise need to possess specialized knowledge of multiple production areas (e.g., lighting, transportation, costume design).

The investigations performed by this research project was a preliminary step to address the research gap regarding sustainability practices in the film and television industry. It is recommended to further the research by investigating the pre- and post-production phases and calculating the emissions of the related activities. This broader approach would allow for a more informed understanding of where meaningful changes can be implemented. Additionally, a comparative study could be conducted on assessing production carbon footprints with use of various carbon calculator tools. A clear opportunity lies in expanding the developed guidelines in a subsequent phase, incorporating more detailed considerations for each department and refining the tiers within the guidelines. Further development for the guidelines could be to work in collaboration with a carbon calculator tool, where the guidelines and the tool could complement each other.

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