Green Film Criteria for the Southern Swedish Context

A case study of sustainable film production and carbon footprinting

Ystads kommun

Green Screen
Interreg Europe

European Union
European Regional
Development Fund

film i skåne
part of business region skåne

CONTENTS

Report written by David Helsing and Alexandra Wu

Inquiries on this report should be sent to Mikael Svensson at mikael@filmiskane.se

BACKGROUND

The European Union is committed to lead the world's greenhouse gas emissions reduction and improve environmental quality. In light of this, the EU Interreg project Green Screen aims to reduce the carbon footprint of European film and TV productions. The partners of the project will share best practices, encourage local production companies to improve, and develop regional policies to support the development.

The municipality of Ystad is one of the partners and in autumn 2017, Film i Skåne, a Southern Swedish film funding agency, commenced a study with the municipality of Ystad on environmental work in film production in collaboration with three students from the International Institute for Industrial Environmental Economics at Lund University. The study suggested many ways to proceed with greening the film industry in Southern Sweden, and Film i Skåne has since managed to secure funds from Business Region Skåne to pursue some of these environmental initiatives.

Film i Skåne's long-term goal is to make green production practices in the region commonplace. To do this, a twofold approach was thought of: to require environmental criteria when selecting film productions to co-finance, and to provide a financial bonus at the end of projects if the production companies manage to fulfil certain environmental objectives during the production.

To move forward, Film i Skåne contracted sustainability consultants David Helsing and Alexandra Wu to conduct a case study to evaluate the current situation and possibilities, and develop draft criteria. It should be recognised that it will take time and resources to realise Film i Skåne's goals, and while a number of practices in Sweden can already be considered as sustainable, there is a need to define the criteria and develop standards that can be used to evaluate film productions in a meaningful and standardised way.

If successful, it is anticipated that these work routines will be shared with Green Screen parties and spread to the rest of the regional funds in Sweden, hopefully radically changing the way films are produced in the country (and potentially Scandinavia) over time, with the Skåne region being the frontrunner.

PROJECT DESCRIPTION

Objectives

To support the realisation of Film i Skåne's long-term vision and support the development of sustainable film production in Southern Sweden, this project had the following objectives:

1. Initiate a case study for learning purposes, looking at one production and try to apply environmental criteria to it, and evaluate this process.
2. Devise a set of environmental criteria that can be used to evaluate and implement sustainable film production in Southern Sweden.
3. Evaluate whether existing carbon footprint calculation tools are appropriate for the Southern Swedish context.

Activities

To achieve these objectives, the following activities were carried out:

1. Use the production *Systrar*, a Southern Swedish TV series production by production company Anagram, as a case study.
2. Undertake a carbon footprint assessment of *Systrar*.
3. Develop tentative environmental criteria for Film i Skåne.

CASE STUDY OF *SYSTRAR*

Systrar is a historical drama mini-series that is set in the late 1960s. It involved about 25 cast members and 58 crew members. For this project, access was given to the production manager in mid-May 2018. The purpose of performing a case study on *Systrar* was to gain hands-on experience on the current possibilities of sustainable film production actions in the Southern Swedish region, and to take the lessons learned from this experience to inform the creation of a set of environmental criteria for co-funding film production at Film i Skåne.

PRODUCTION SCHEDULE

1 January 2018
Preparations for pre-production phase

1 March 2018
Pre-production phase began

4 June to 7 August 2018
Production: Ystad (three weeks), Sjöbo (two weeks), Malmö (two days) and Stockholm (one day). Main filming location was an isolated farm house in Sjöbo. Post-production began at some point later in this period.

Mid-October
End of post-production phase

Mid-November
Expected final delivery of product.

Christmas 2018
Expected broadcasting date of the production.

As *Systrar* was already in pre-production at the start of this project, this case study started with mapping out a baseline of planned activities and assessing them from an environmental perspective, and limited the potential of change to the production phase. Based on the mapping exercise, an environmental plan was produced focusing on different aspects of film production in the pre-production, production, and post-production stages. It was formulated to show what an environmental plan for the current production would have looked like, *if* one had been produced. In addition to this, recommendations for improvements were made. The suggested environmental plan was used to gauge perception on buy-in and feasibility by the production team – without actual implementation of the plan during production. Instead, focus was placed on discussing how environmental plans can be implemented effectively in future film productions.

Summary of production practices, suggestions and feedback

While *Systrar* follows many conventional film production practices which prioritise time and cost-efficiency, it should be noted that many of these practices can already be viewed as sustainable. It was thought that this might be attributed to the fact there is a high level of environmental awareness among Swedes in general, and to the production managers previous efforts. However, certain practices did compromise environmental performance. Below are some highlights of the project's findings.

PRE-PRODUCTION

Travel

Meetings were held mostly online during this phase but a number of in-person trips were necessary between Stockholm and Ystad which were taken by train. Taking the train in Sweden is relatively low-impact, as the electricity produced in Sweden is mostly environmentally friendly. Still, avoiding the need for travel would be even better. Due to a tight schedule, air travel was also relatively common, especially among actors.

Car rental

Diesel and gasoline cars were rented in Skåne for location scouting and staff carpooled. Carpooling is a beneficial practice but would have been even better if electric vehicles were used, but this was difficult due to a lack of electric vehicles available at car rental companies.

Location Selection

Given the historical nature of this production, the priority criteria for location selection was whether it was suitable for a historical piece set in 1968 or before, followed by criteria based on

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practicality (e.g. proximity to other locations and permit requirements). Projects funded by Ystad Österlen Film Fund require shooting in Ystad – Film i Skåne requires shooting in Skåne. As a result, the number of locations was higher than average productions, though attempts were made to limit filming to as few locations as possible.

Staff Recruitment

Most of the staff was recruited locally but some specific staff members could not be accessed in the region (e.g. gaffer and grip), as there is a limited number available in Skåne, and they were already tied up in other productions. Recruiting locally would have been ideal from an environmental perspective, and this reveals a need to foster and grow the local supply of staff.

PRODUCTION

Travel

Some practices appeared to be less sustainable at the surface but turned out to prevent greater negative environmental impact overall. For example, during the shooting days at Sjöbo, a hotel was booked in Ystad which required daily transport of cast and crew to the shooting site. However, this actually prevented some people from flying home during each weekend break. Many cast and crew walked or biked during the shooting period in Ystad but the producer acknowledged that bikes could also have been used during the shooting period in Malmö.

Waste

The production manager acknowledged that most of the waste during the production phase was produced at the 'fika' (coffee/tea) table, especially on days with many extra actors on-site, given that it was not feasible to provide reusable cups for everyone. The use of reusable utensils was a norm among catering companies.

Waste separation on location of Systrar.

Electricity use

Lighting was paid for based on the amount of on-time, which incentivised good behaviour in switching off lighting equipment when they are not in use. But it was also noted that greater awareness can be placed on the energy efficiency rating of all equipment (lights, cameras, etc.) to improve on energy savings in the future, depending on cost implications and the availability of such equipment.

CARBON FOOTPRINT ASSESSMENT OF *SYSTRAR*

Any human activity creates impacts on the surrounding nature. One important impact is the amount of greenhouse gas emissions that are released. While the so-called carbon footprint is not the only important environmental factor to consider when producing a movie, it is one of the most talked about indices in recent years, as climate change is considered as one of today's largest threats.

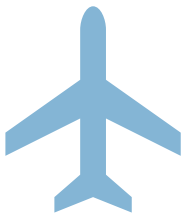
In this phase, an attempt was made to calculate the carbon footprint from the production of *Systrar*. It should be noted that the production team was not aware of this intention at the outset of production, so some data (e.g. amount of fuel and electricity used, waste generated, amount of material used, amount of food wasted) was not recorded in a way that could be used to comprehensively calculate the carbon footprint of the production. Nonetheless, it allowed for a preliminary comparison and assessment between different calculators.

Carbon footprint is the amount of greenhouse gases (GHGs) that is produced from human activities. Different GHGs (e.g. water vapor (H_2O), carbon dioxide (CO_2) and methane (CH_4)) have different capabilities in trapping heat in the atmosphere. The carbon footprint is expressed as the equivalent amount in CO_2, translating all other gases to CO_2 equivalents and summing them up.

There are different calculators available to easily estimate the carbon footprint of a film production, most notably Albert provided by the BAFTA consortium and the Green Production Guide by the Producers Guild of America (PGA). A preliminary evaluation of the robustness of these two carbon calculators within the Southern Swedish context was done in this project.

Here, the concept of 'additionality' is important. It refers to the emissions of extra activities carried out due to the film production. It is assumed that staff and actors would have continued their daily lives if they had not been involved with *Systrar*.

What film production activities produce GHGs?



TRANSPORTATION

Transportation is one of the main sources of GHG emissions. This comes from the combustion of fuel (in cars, trucks, ships and planes), and the use of electricity (in cars and trains) which needs different types of fuel to be produced. The preferable data to collect is the amount of fuel used or estimations on distance travelled by each transport type combined with the fuel efficiency for each specific vehicle. Or, the number of trips between the destinations for flights.

Data accessed in this study: Flights and distances travelled; rough estimations of how many vehicles of each type were used in each region; cost of diesel, gasoline and parking combined.

ELECTRICITY USE

Electricity is used for various applications (lighting, charging equipment, etc.). Electricity used from the socket is sourced from the national grid, and different types of fuel are used to produce the electricity which cause emissions upon use. Data to collect: Readings of amount of electricity used, type of contract (green or regular electricity).

Data accessed in this study: Rough estimation based on assumed daily average use.

FUEL USE

Any fuel use apart from transport, e.g. generator fuel use. Same as for transport, burning fuel produces emissions. Data to collect: Amount of fuel used per type of fuel.

Data accessed in this study: Rough estimation based on assumed daily average use.

ACCOMMODATION

Accommodation uses extra energy since it can be assumed that one's regular house is still 'running' (using energy for heating, appliances and electronics, etc.) even when the staff and actors are on set. It is difficult to estimate the extra impact from accommodation, but as there are online tools for estimating this, the number of nights per hotel is sufficient information.

Data accessed in this study: Actual number of nights at each hotel.

WASTE

Waste produces different emissions depending on how it is dealt with. Waste incineration is the norm in Sweden. Recycling produces less GHGs than combustion. Data to collect: amount of waste generated per type and how it was separated.

Data accessed in this study: None.

MATERIAL

Material, such as paper, paint, and wood, causes emissions when it is produced through production processes. Data to collect: how much is used of each type of material, and its quality (including whether it is certified or other production-related information).

Data accessed in this study: Estimation of paper use only.

FOOD

Producing food causes emissions. If cast and staff eat the same diet as usual, no extra emissions are created and none are saved due to the production. Data to collect: information about dietary guidelines, and the regular dietary habits of cast and staff.

Data accessed in this study: No particular diets were enforced, so this did not apply to the study.

Impressions of the carbon calculators for the Swedish context

In general, neither Albert or the Green Production Guide's calculators explicitly show which factors are used to calculate emissions (for example, how much a 'small car' emits per km). The desired features for the Swedish case are shown on the right.

	ALBERT	GREEN PRODUCTION GUIDE	DESIRED FEATURES
OVERALL IMPRESSION	Very simple to use, but requires a lot of clicking, which can be tedious. It is not clear if the calculations would apply to the Swedish case (for example when you estimate emissions through costs).	Very simple to use, and is an Excel sheet, so it is fast and easy to edit. It is not clear if the calculations would apply to the Swedish case (for example when you estimate emissions through costs). Has the feature of giving several options of entering data, which is good. Does not show exact results, and many cells cannot be edited.	Ease of use, while maintaining accuracy and transparency.
CALCULATION FACTORS	No explanation of how the calculations are done, or which factors are used to produce the results.	No explanation of how the calculations are done, or which factors are used to produce the results.	As the electricity, transport or fuel used in Sweden might differ, it would be beneficial to see what factors are used, or be able to alter them to fit the Swedish context.
SCOPE	Includes the post-production phase specifically, but not pre-production. However, post-production only includes the number of days spent in edit suites.	Does not have specific tabs for different phases, but they can all be included by adding rows in each aspect	

TRANSPORT	Limited choice of transport options, and does not take into account specific fuel efficiencies, and not clear what the options mean in all cases. Tedious and requires calculations on the user side, as you cannot add the total amount of fuel used or the number of each type of vehicle used.	Adequate, except no choice of electricity as fuel.	Sweden has regulations on how much biofuel must be mixed in, which would reduce how much GHG is actually emitted per liter of fuel used. This is most likely not reflected in the tools.
MATERIALS	Good choice of options	Good choice of options	
FOOD	No possibility of including data on dietary choices or food waste	No possibility of including data on dietary choices	If the production is vegetarian, that would imply a lower carbon footprint
WASTE	Good choice of options, but not clear how it is calculated	Non-intuitive, and no option of energy recovery	Energy recovery is very important in the Swedish context

Comparing the three calculation methods

The table below show the results in kg of CO_{2e} according to the aspects. While none of the calculations are exact due to insufficient data, it is apparent that Albert makes a lower estimation than the other calculations. Also, the PGA calculator only yielded results in whole numbers, which means that the electricity and accommodation emissions could not be compared (they were likely rounded downward to zero). It is anticipated that 55 000 kg $CO2_{2e}$ is in the ballpark of the actual footprint, as transport accounts for the main share of emissions, and a reasonable amount of data was obtained. Still, more detailed data would be desirable. 55 000 CO_{2e} is akin to the amount that about 14 average Swedes (3.8 t/year/person[1]) would emit for one year, so all in all, *Systrar* could be said to be a relatively low-carbon production (for comparison, Hollywood production *You Don't Know Jack* emitted about 592 000 kg CO_{2e}).

[1] According to the International Energy Agency. According to Naturvårdsverket, it is 10.5 t/person/year.

	CARBON FOOTPRINT ESTIMATIONS		
	ALBERT ($KG\ CO_{2E}$)	PGA ($KG\ CO_{2E}$)	OWN CALCULATIONS ($KG\ CO_{2E}$)
TRANSPORT	38700	N/A	N/A
AIR	N/A	11000	13620
CARS	N/A	N/A	39388
TRAIN	493	N/A	1388
ELECTRICITY	34	0	20
ACCOMMODATION	84	0	406
FUEL	1180	38000	N/A
WASTE GENERATION	3	N/A	28
MATERIAL USE	56	N/A	48
TOTAL	40550 $kg\ CO_{2e}$	49000 $kg\ CO_{2e}$	54898 $kg\ CO_{2e}$

Note: "Transport" includes air and car travel for Albert but for PGA this is included under "Fuel". "Fuel" use for Albert includes generators and for PGA this also includes non-aviation fuel use such as car travel. The waste generation and material use are included in PGA but it was unintuitive to use and not highly applicable to Sweden. PGA makes a slight underestimation compared to our own calculations, but is much closer than Albert's. In general, transport was by far the largest cause of emissions, and cars and trucks more so than the use of flights. For aspects not responsible for large emissions, ours and Albert's were closer. However, accommodation and waste generation were understated in Albert.

ENVIRONMENTAL CRITERIA FOR FILM I SKÅNE

Based on the lessons learned from the *Systrar* case study and other resources, a set of detailed criteria was prepared for Film i Skåne for the evaluation of the environmental plans of new film production applications (not included in this report).

The criteria are split into the three major phases of film production (i.e. pre-production, production and post-production). It serves as:

1. A guidance for greener film production in Southern Sweden,
2. An environmental plan template, and
3. An evaluation form for applicants applying to Film i Skåne.

The evaluation of applicants on their intended environmental practices in film production is based on a point system. The method for developing the maximum number of eligible points for each activity is based first on the activity's potential environmental impact (particularly climate change), followed by its potential behavioural impact and finally by its feasibility to implement in the production.

The project included suggested steps to implement the criteria to the Film i Skåne film fund application process. The criteria still need to be tested on a small number of productions as well as refined with feedback from producers and other stakeholders in the film industry before official launch.

NEXT STEPS

This report shows the results from the case study on the environmental performance of the film production of *Systrar*. It also resulted in a draft to judge the environmental criteria of productions seeking financial funding from Film i Skåne, as well as a template for companies to indicate their intended environmental practices.

However, much remains to be done before these can be applied in a successful manner to make film productions in Southern Sweden more sustainable.

- ⇒ In this case study, the production was only accessed from the late pre-production phase, at which point few changes could be implemented. Productions should be assessed and involved in this process before pre-production begins, to test the possibilities of implementing sustainable practices to a greater extent.
- ⇒ The draft environmental criteria need to be discussed with local film producers to judge the feasibility and applicability in the local context, and then be updated and trialled for a number of productions.
- ⇒ The payment scheme for implementing the criteria needs to be determined.
- ⇒ The carbon footprint exercise showed that the calculations done by tools provided by the market are not transparent in their calculations, and possibly understate the impact when applied to the Swedish context. Therefore, it should be considered that a GHG calculation tool be developed for the Swedish/Northern European context.
- ⇒ Finally, developing standardised data collection formats can improve the comparability of different productions.