

Sustainable Filmmaking Case Study

FEBRUARY 2024

Neandria

EKOFILM

SUSTAINABLE PRODUCTION PLATFORM

established as part of the "Connect 4 Environmental Sustainability in Film and the Media," supported by the British Council's Going Global Partnerships Programme



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Beginning...

Sustainable filmmaking practices have long been a key part of film production, particularly in the world's largest film industries, influenced by national regulations.

Like other sectors focused on environmental sustainability, these practices are primarily based on emission measurements, defined in terms of carbon dioxide, and referenced against global standards.

The data we use to highlight the benefits of sustainable practices in Türkiye are "approximate" results, derived by comparing information from local productions with national data and global reference values. We also note that carbon footprints and other emission calculations are always "approximate" and "average" due to the many variables involved. As we begin, we share some of the basic values in more easily understandable terms.

1 ton of carbon emissions

=



a round-trip flight from Istanbul to London



a 6,000 km journey by petrol car



2.5 tons of waste



charging 122 smartphones



producing 10 kg of red meat



2,500 cups of coffee



the annual average electricity consumption per person in Türkiye



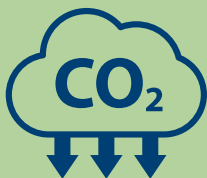
Neandria



Approximately **7,000** plastic bottles were prevented from being used.



4,000 sheets of paper were saved, resulting in energy savings of approximately **152 kWh**.



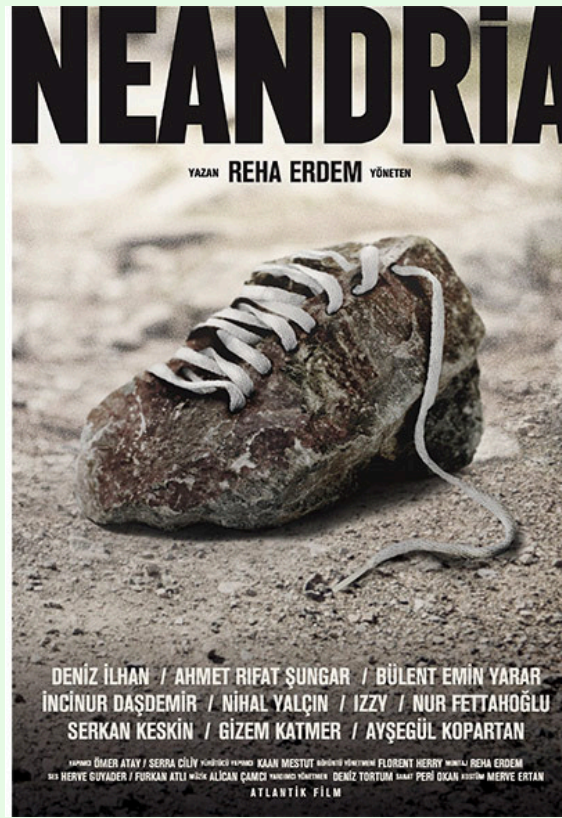
Approximately **1,500 liters** of diesel were saved, preventing **4.03 tons** of carbon emissions.



By avoiding the use of caravans, **42 tons** of wastewater were avoided.



Environmentally friendly solutions that would continue beyond the filming were implemented in the village, creating a **lasting sustainable impact locally**.



Award-winning director **Reha Erdem**, one of the prominent figures of independent cinema in Turkey, has presented his latest film, *Neandria* (2023), as an “**ecologically sustainable filmmaking initiative.**” The film had its world premiere at the Warsaw Film Festival, followed by a second screening at the Thessaloniki Film Festival.

The film's sustainability manager, **Kiraz Erdem**, believes that sustainable sets should become the “new normal” in the industry. During the environmentally conscious production planning process, the *Neandria* team conducted theoretical research on climate policies and sustainability, with support from academics **Associate Professor Hande Paker** and **Dr. Baran Alp Uncu**. They also sought advice from **Tankurt Mekik**, a specialist in sustainable production practices based in Canada.

As in many of Reha Erdem's films, *Neandria* explores the relationship between humans and the non-human natural world, emphasizing ecological awareness not only in its production process but also through its narrative.

The story is set in a small Anatolian village near the ancient city of Neandria. The protagonist, a young female runner, faces constant pressure from her surroundings and struggles to carve out her own path in life. The central plot revolves around her fight for survival and the controversy surrounding a planned "stone quarry project" in the area. As the natural and historical heritage of Neandria deteriorates despite all efforts, the young girl's life becomes entangled with hidden jealousies, fears, mysterious murders, and ambitions within her community.





When Reha Erdem was writing the script for *Neandria*, the idea of sustainable filmmaking had not yet come into play. The decision was made just before the pre-production phase began, and some additions were made to the script to support this approach during the shooting process.

During the pre-production phase, extensive research was conducted on global practices. Measures taken and creative solutions implemented in other films with a similar approach were studied. The findings were then analyzed to determine how they could be adapted to a project in Turkey and tailored to the specific conditions of the filming location.

A document was prepared to outline the environmental sustainability practices in filmmaking, their importance, and the objectives of *Neandria*. Every subsequent step in the production process was carried out in alignment with these goals and perspectives.



Meetings held during the pre-production phase were conducted **online** as much as possible to minimize the carbon footprint.



For mandatory in-person meetings, care was taken to avoid using **printed materials, plastic plates, or cups**.



The sustainable approach was explained to the crew in these meetings, and documents detailing objectives and goals were shared digitally.



The team was also advised not to print scripts while preparing for the shoot or coming to the set.



Transportation to the filming location was arranged by road. Two shuttle vehicles were scheduled to depart from a common point on the same date for all crew members.



Since the filming began with this perspective, numerous proactive solutions were developed throughout the six-week shooting process. Each crew member had specific responsibilities framed by environmental sustainability. The most critical aspect of these responsibilities was ensuring that every action taken prioritized this framework.



For unforeseen problems and situations that arose during filming, the crew developed solutions by carefully considering sustainability.

One example of this approach was on a day when a scene was planned to be shot in foggy weather, but the weather conditions were not as expected. Instead of using a fog machine that would consume energy, they opted for incense made from dried herbs to create the desired effect.



FILMING



WASTE MANAGEMENT

During a filming day, the daily consumption of plastic water bottles for a small crew of 35-40 people was estimated at nearly 160 bottles. By distributing reusable water bottles to the entire crew, approximately 7,000 plastic bottles were prevented from being used during the six-week filming process. For this sustainable initiative, the production collaborated with SuCo, a supplier chosen for their foldable, pocket-sized, and portable water bottles. Glass water dispensers were brought to the set, and these dispensers were transported to all filming locations, including mountainous areas. The presence of natural water sources in the village where filming took place supported this effort, and at times, bottles were refilled from the village fountains.





WASTE MANAGEMENT

Waste bins were provided to separate **plastic, paper, and glass waste**. Once full, these bins were transported by the crew to local municipal recycling centers in the nearby town.

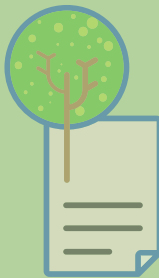
No printed paper was used throughout the filming process. All documents, including the script and daily schedules, were shared digitally with the crew. This practice is estimated to have saved around **4,000 sheets of paper**, resulting in energy savings of approximately **152 kWh**. This amount of energy is equivalent to nearly **half the average monthly electricity consumption of an individual** in Turkey.



For tea and coffee, which are in high demand on sets, **large thermoses** were used, and beverages were served in **glass cups**. This eliminated the use of disposable paper cups coated with plastic, which cannot be recycled due to the separation issue between the paper and plastic layers.



WASTE MANAGEMENT



On average, **24 trees** are cut down to produce **one ton of paper**, which is equivalent to around **200,000 A4 sheets**.



In cases where paper use was unavoidable, **recycled paper** was used to help reduce natural resource and energy consumption in the production process.

Using one ton of recycled paper prevents the cutting of **17 pine trees**, saves **1,750 liters of fuel**, and avoids the waste of **38.8 tons of water**.



✔ Throughout the filming process, **local solutions** were implemented for food preparation and sourcing. Meals for the crew were prepared by a group of locals from Kayacık village.

✔ **Reusable items** were used instead of disposable ones for serving.

✔ Ingredients were sourced from local farmers in Kayacık village and neighboring communities who practiced **sustainable agricultural methods**.

✔ These producers were identified with the help of the villagers, and weekly purchases were made regularly. On some days, the crew visited the town market where residents from nearby villages sold their produce.



CATERING

✔ When meals prepared for the film crew exceeded the required amount, the surplus was shared with the villagers.

✔ Additionally, food waste was repurposed as animal feed for the local livestock.

✔ Any waste unsuitable for animal consumption was transported to the villagers' composting areas, contributing to fertilizer production.






ACCOMODATION

During the filming process, the crew stayed at Kozlu Han Hotel, located in Kozlu village. The hotel consisted of units spread across different parts of the village.

The hotel has a **sustainable approach** by

 preserving the village's character by designing units that harmonize with the local architectural style,

 employing staff from the local community,

 and sourcing food ingredients from local producers in Kozlu and nearby villages.



COSTUME, MAKE-UP AND SET CONSTRUCTION



Environmentally friendly materials were prioritized in costume design, makeup, and set construction.



The makeup products were carefully selected to avoid those containing harsh chemicals.



Some costumes were sourced from Istanbul, while others were purchased from local markets.



One of the primary objectives was to preserve the integrity of the village and its natural surroundings. Instead of constructing artificial sets, the production made use of the unique features of real locations, selecting spaces that aligned with the scenes described in the script.



ENERGY EFFICIENCY and REDUCING FUEL USE

In outdoor shoots, using generators is often a necessity. While some parts of the world use alternative generator technologies powered by waste vegetable oil or similar fuels, these options are still rare and not yet suitable for large-scale productions.



During the filming of *Neandria*, a diesel generator that would typically consume around **80 liters of fuel** per day for lighting was not used.



Instead, **rechargeable LED lights** were employed, and electricity was supplied from the city grid.





ENERGY EFFICIENCY and REDUCING FUEL USE



For nighttime shoots in mountainous areas, **drone lighting** was used instead of generator trucks.



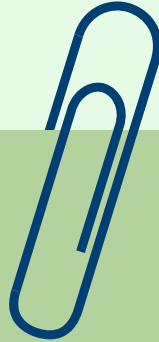
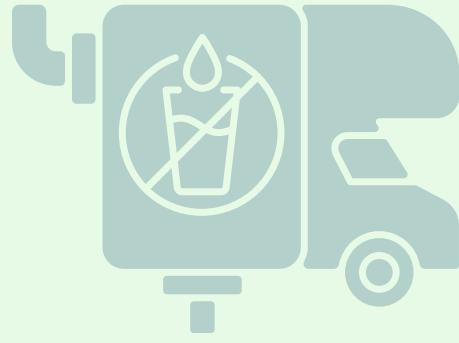
This approach saved approximately **1,500 liters** of diesel and prevented **4.03 tons** of carbon emissions.



1,500 liters of diesel is enough for a diesel car to make approximately **33 round trips between Istanbul and Ankara**.



4.03 tons of carbon emissions are equivalent to the emissions generated by **charging approximately 430 smartphones**; and the greenhouse gases that would be avoided by recycling **1,200 kilograms of waste** instead of sending it to landfills.



On a typical film set, caravans provided for lead actors and makeup and costume teams consume **fuel** during both transportation and on-set use, as they rely on generators for electricity. A standard dressing room caravan typically has a **wastewater tank** capacity of **200 liters**, while toilet caravans can hold up to **2 tons** of wastewater.



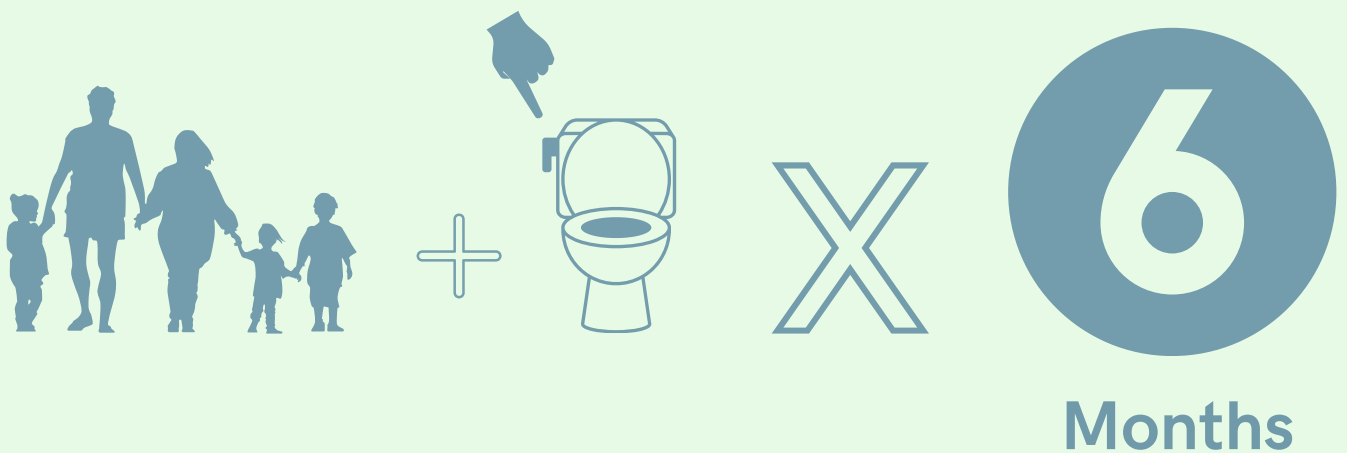
The production did not use caravans, which are usually considered essential on many sets. This choice helped **save fuel and energy** while also **reducing wastewater generation**.

Dressing room caravans, usually used by 1 or 2 individuals, need their **wastewater** tanks emptied approximately every 2-3 days. Over a 6-week filming period, a single caravan can generate around **4,200 liters of wastewater**. **Toilet caravans**, serving an average crew of 50 people, typically fill up within 2 days. Over the same 6-week period, this results in an estimated **42 tons of wastewater**.

4200 liters of wastewater is equivalent to the amount of water used for **60 showers**.



42 tons of wastewater is equivalent to **6 months of toilet water** consumption for a family of four.





ENERGY EFFICIENCY and REDUCING FUEL USE

Since the filming took place in a remote village near Çanakkale, far from the city center, **road transportation** was prioritized to avoid hundreds of miles of air travel.



The shooting schedule was aligned with the transportation plan, enabling the provision of collective transportation for actors traveling from Istanbul.



Throughout the filming process, the production relied on a minimal fleet of vehicles: two production trucks for transporting materials, one camera truck, one grip truck, a private vehicle for the director and producer, and one lighting truck. Efforts were made to minimize the mileage covered by these vehicles.



Each morning, two shuttle buses, sourced from a nearby town close to Kozlu village, transported the crew and cast from the hotel to the set.



POST- PRODUCTION



Finishing the filming, **the costumes and set materials** were shared with the local community for reuse.



Items such as bedding sets, small furniture, glasses, and cutlery used during the shoot were donated to the villagers and the village coffee house.



A key aspect of sustainable filmmaking is ensuring the reuse, recycling, or donation of costumes and set materials instead of turning them into waste.



POST- PRODUCTION

The promotions were carried out through social media. Sustainability measures and goals adopted during and after filming were communicated in digital formats. Special screenings of the film were also planned with sustainability in mind. As during the production phase, no disposable items such as printed paper or plastic cups were used, and posters were made from recycled materials.

The post-production budget remained consistent with the pre-production plan. Apart from problem-solving expenses during filming, such as the installation of an automatic water system, there were no budget overruns.

BENEFITS, CHALLENGES, and KEY TAKEAWAYS

The availability of industry-specific tools in Turkey for more accurate carbon footprint calculations, combined with the growing number of local suppliers offering eco-friendly solutions, will help encourage more sustainable practices.

In the case of *Neandria*



The lack of sufficient access to alternative and renewable energy systems is highlighted as a significant challenge.



In the year the film was shot, LED lights were much more expensive compared to today. Similarly, light drones were costly. Therefore, although electricity and diesel were conserved, the overall costs increased.



However, LED lights have become more widespread and continue to do so, making them more affordable. Considering the rising costs of diesel and electricity, it can be said that using LED lights today would reduce expenses.

BENEFITS, CHALLENGES, and KEY TAKEAWAYS



It was challenging to carry glass water dispensers, glass cups, and other items to every location during mountain-top shoots.



Coordinating the shooting schedule with the transportation schedule was challenging. Reducing the number of vehicles and not using private cars or caravans for the crew increased the workload, adding another layer of difficulty. With fewer vehicles, careful planning became crucial. For instance, the daily shooting schedule was organized to group actors so they could return to the hotel once their scenes were finished.



On set, it was important to anticipate potential changes due to lighting, weather, actors, or locations and prepare alternatives in advance. This helped minimize the need for multiple trips between the set and the town.



Without crew caravans, team members had to carry their own equipment, which increased the amount of labor needed.

BENEFITS, CHALLENGES, and KEY TAKEAWAYS

Despite all these challenges, the *Neandria* team embraced the sustainable production initiative. Being part of such a project was exciting for everyone. The sense of social responsibility, centered on respecting the natural environment, boosted team spirit. Initially, adapting to new practices was challenging, but over time, the green set conditions became the new normal for the crew.



For instance, the lighting team, which initially complained about connecting to the city grid and setting up the drone for hours every day, eventually began to enjoy the process.



By the end of shooting, even seeing a plastic water bottle in a town shop felt strange to the crew.



Contributing to a larger purpose beyond just completing a film was motivating.



Some crew members even reported struggling to adapt to the conditions of other projects they worked on afterward.

BENEFITS, CHALLENGES, and KEY TAKEAWAYS



Sustainable production practices increased interest in the film both domestically and internationally.



Many interviews were conducted on the topic, and it attracted attention from both audiences and industry professionals.



Especially during international screenings, the environmentally friendly and sustainable production practices raised a lot of curiosity and admiration.



Neandria team also created a lasting local impact by implementing environmentally friendly solutions that continued beyond the shoot.

For instance, during the summer, when natural water flow from the mountains decreased, water was supplied to the village houses from a storage tank. However, the storage system operated unnecessarily at times, causing water waste. After learning about this issue, the team integrated a new system into the tank, enabling water conservation.

Another contribution to the village was building a public toilet for the villagers' use after the shoot.

All the practices carried out during the filming process contributed to infrastructure, local employment, and production, aligning with the comprehensive environmental, social, and economic sustainability goals outlined in the **United Nations Sustainable Development Goals framework**.





From the crew

The main goal of *Neandria* was to show the impact of striving for sustainability, even though practices like using renewable energy and sourcing materials sustainably are not yet fully feasible in some areas of Turkey. Another aim was to inspire the audience to take action on these issues. The feedback we've received shows that this goal has been achieved. As sustainable filmmaking becomes more common, training opportunities will grow, and the industry will become more aware. Reaching a wider audience will also lead to the development of new solutions and methods.

In the coming years, global advancements can be adapted to Turkey, making sustainable filmmaking more accessible and potentially the new standard for the entire film industry. The arts, with their ability to present diverse ideas, lives, and perspectives, have the power to inspire change. On such a critical issue for our planet, the sector can play a key role in motivating people to act. To make this happen, the process of creating the story must align with this purpose, alongside the narrative itself. The steps taken in the arts have the potential to spark change across all industries.

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