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A Study On Bangladesh Television (BTV): Integrating Aesthetical Innovation & Eco-Friendly Sustainable Set Design Practices

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Abstract
Bangladesh Television (BTV) is the national public broadcaster and its role in shaping the country's visual communication and cultural identity cannot be overemphasized. But its set-production methods are still based on short-life materials and high-energy technologies that encourage both waste and environmental damage. In this paper, I investigate the potential for BTV to combine aesthetic invention with ecological set-design practice that can continue their visual story methods in a manner which is decoupled from global environmental damage. Based on a qualitative literature review, the paper relies on international "sustainability" guidelines, industry reports and emerging theoretical concepts such as Industry 5.0. Sustainable set design, if facilitated through modular build, natural materials and low-energy technologies, can present creative opportunities rather than restrictions. The challenges that arise in real life within Bangladesh's broadcast sector, including resource deficiencies, technological divides and limited training resources are also illuminated. Proposals are focused on the importance of establishing a comprehensive set of sustainability standards, building up capacities, and facilitating a stepwise transition to eco-friendly production processes. The study situates BTV to pioneer green broadcasting in the region by fusing cultural aesthetics with environmental ethics.

Keywords: *Bangladesh Television, Sustainable Set Design, Eco-Friendly Production, Aesthetic Innovation, Industry 5.0, Green Broadcasting, Carbon Footprint, Visual Communication.*

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I. Introduction

Television as a Cultural Force Television remains a powerful cultural force in Bangladesh, affecting public opinion and shaping national identity; it provides the viewers with shared visual culture. Bangladesh Television (BTV) is the state-owned television network and, as the country's only TV channel, its history on air is related to Bangladesh's own history of independence. The sets of news, drama, entertainment and educational productions alike are among the primary visual frames that establish tone, atmosphere and meaning.

But despite this significance, building TV sets in Bangladesh typically relies on resource-intensive materials such as plywood, thermocal, plastic sheets, synthetic paint and energy-intense lighting. These materials are usually thrown away after only one use short-term, adding to waste and pollution problems. Studies demonstrate that international film and TV production results in high levels of carbon emissions and waste (Vestberg, 2023). Radio and streaming architectures are also a relevant source of energy consumption and emissions (Borja et al., 2024).

The trend is catching on among production companies and broadcasters around the world. For example, BAFTA's Albert program provides sustainability production standards that encourage carbon tracking, material reuse and the use of low-energy technologies (BAFTA Albert, 2023). These are the instances where creative dedication and environmental commitment can co-mingle.

This research investigates the potential for BTVs to pursue aesthetic innovation while also engaging with sustainable set design through a critical synthesis of indigenous craft traditions, prevailing global sustainability models, and human-centric Design/Industry 5.0 principles. The purpose is to offer practical strategies that foster BTV's visual identity while being lightweight on the environment.

Objectives of the Study

- To analyze how aesthetic innovation contributes to effective television set design in Bangladesh.
- To identify sustainable design approaches relevant to broadcast production and assess their applicability for BTV.

- To examine how global sustainability frameworks and Industry 5.0 principles support creative, eco-responsible set design.
- To propose a conceptual guideline for integrating environmentally friendly practices into BTV's set-production process.

Research Questions

- How might BTV mitigate the environmental impact of set design without compromising artistic integrity?
- What kind of cultural and aesthetic experiments are possible in the world of Bangladeshi broadcasting?
- How does eco-effective creativity interact with sustainable action frameworks and Industry 5.0?
- What shifts in institutions, the economy and technology are necessary for BTV to move towards sustainable production?

II. Literature Review

Aesthetic Invention in the Design of Television Receivers

Visual aesthetic requires the judicious use of materials, textures and lighting, and cultural motifs to support visual storytelling. Applied background: They're at a much-needed draw / exposure test for lines. Thus, the artistic style facilitates enhanced audience identification and narrative comprehension (Vestberg, 2023).

Bangladesh's visual language has such a treasure trove of tools to work with: from bamboo craft, jute decoration and handwoven textiles, terracotta and folk motifs. Each of these could be elements that can redefine how BTV presents itself as an aesthetically aware entity. Natural materials can also be utilized in relation to captivating visual styling and environments (Green Film Shooting, 2015).

Sustainable and Eco-Friendly Design Principles

In sustainable set design, the goal is to reduce waste and environmental impact by focusing on material use, energy efficiency, and life cycle planning. Efficiency options including stage modularity, recycled materials, safe finish alternatives and LED lighting are frequently recommended (Winstead, 2024).

Research shows that when you can close the loop and utilize materials and resources through a circular design process, creativity gets fueled while simultaneously saving money (and the environment) (Film Local, 2025).

Sustainability and Media Production on a Global Scale

Globally, film and TV are transitioning to low-carbon, low-waste operations. Disposable supplies, energy-consuming lighting, and ineffective processing are these carbon footprint factors (Vestberg, 2023).

The British Academy of Film and Television Arts (BAFTA Albert), for such, offers a number of resources including emissions monitoring and sustainable production certification (BAFTA Albert, 2023). The European Broadcasting Union also encourages energy-efficient technologies throughout broadcast facilities.

Environmental Costs of Broadcasting

Outside of production processes, the infrastructure of broadcasting and streaming themselves are a part of our shared climate problem. The energy footprint of transmission systems, data centers and digital services is an increasing percentage of worldwide emissions (Borja et al., 2024).
This also emphasizes the necessity of sustainability throughout all steps of production.

Industry 5.0 and Human-Centered Sustainable Design

Now, Industry 5.0 highlights combining human creativity with technology in ways that revolve around environmental consciousness and emotional engagement (Brauner et al., 2024).

This point of view advocates for the incorporation of indigenous handwork, natural components and cultural flair in set design. Industry 5.0 perceives sustainability not simply as a barrier but rather as an opportunity for creative ascendancy (Sariışık & Demir, 2025).

Conceptual Framework

Based on a theoretical framework that links three fundamental areas: aesthetic innovation, sustainable design principles and human-centric sustainability within Industry 5.0, the study explores how BTV can move towards green set-production practices.

Aesthetic Innovation as Creative Foundation

At the core of visual communication is aesthetic innovation. Scenography is formative for atmosphere, figure reception and thematic distinctness. Bangladesh The use of indigenous materials, for example bamboo, jute and handloom textiles can offer meaningful possibilities to create visual environments that are culturally

relevant (Vestberg, 2023). These materials provide expressive possibilities while reducing dependence on synthetic substances.

Sustainable Design as Environmental Foundation

The framework is built upon environmental and technical sustainable design. It superimposes waste prevention, energy saving and lifecycle thinking. Modular building, reusable materials and energy efficient lighting are some of the best practices used around the world (Winstead, 2024; Film Local, 2025).

The idea behind the BAFTA Albert model shows how production crews can adopt and manage their carbon foot printing through planning, measuring and reuse of materials (BAFTA Albert, 2023).

Industry 5.0 and Human-Centric Creativity

In this context, Industry 5.0 underscores the integration between human creativity, cultural knowledge and sustainability-motivated technologies (Brauner et al., 2024; Sarıışık & Demir 2025).

In putting forth this pillar, television set design is considered an art form that bears emotional value, cultural relevance and ethical responsibility. It increases the theme of recycling and how traditional artisan practices can be modern, eco-friendly practices.

Integrated Conceptual Model

The framework locates BTV's sustainable set design at the crossroads of:

- Creative innovation: Promoting creativity and cultural expression.
- Sustainability: Minimizing the impact on the environment and resource use.
- Industry 5.0: Making sure the system remains human-centric, organic and resilient.

The three connected domains interact to influence the choice of materials, the construction of sets, lighting selection and design thinking. The integrated model offers a comprehensive road map to shift BTV's production culture.

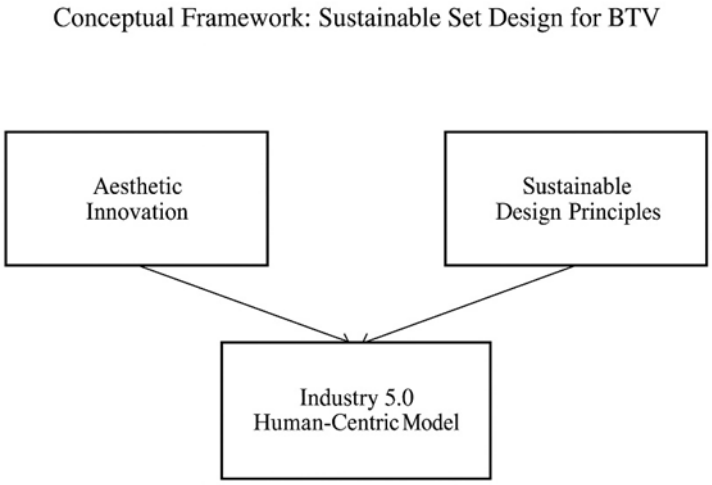

Figure 1: Conceptual Framework Diagram

Relevance to the Study

The theoretical framework is consistent with the study aim, guiding:

- Materials selection and sustainable design choices,
- Combining cultural aesthetics with eco-friendly manufacturing,
- Interpretation of international sustainability models for Bangladesh,
- Implications of findings for Industry 5.0's creative and moral emphasis.

It therefore forms the framework within which findings and recommendations are made.

III. Methodology

This study is a qualitative literature review and search using international reports, academic literature and professional guidelines.

Selection Criteria
Sources were selected based on:
- Relevance to 'green' film/TV production and set design;
- Credibility (peer-reviewed, institutional, or professional);
- Recency (last 10 years unless seminal);
- Relevance to BTV and Bangladeshi broadcasting settings.

Analytical Approach
The interpretive synthesis was employed to:
- Spot design, sustainability, and technological trends;
- Compare world best practices with the limitations of local;
- Link the findings to the framework;
- Generate strategic recommendations for BTV.

IV. Findings And Discussion

The Importance of Sustainable Set in BTV

BTV's use of disposable supplies and energy-intensive lighting follows global trends in high levels of carbon emissions and waste production (Vestberg, 2023). This carbon footprint can be significantly reduced by moving towards modular construction and natural materials.

Aesthetic Opportunities Through Sustainability

The use of sustainable materials such as bamboo, jute, clay textures, and reclaimed wood can help create unique looks that don't just do less environmental damage. These materials provide the film with warmth, depth, and cultural authenticity (Green Film Shooting, 2015).

Global Frameworks Supporting BTV's Transition

The carbon-tracking tools and material reuse guidelines of BAFTA Albert provide BTV with an example of down-to-earth applications with which to enhance its sustainability (BAFTA Albert, 2023). This EBU recommendation also reinforces the need for greener systems throughout broadcast processes.

Constraints in Bangladesh's Broadcast Sector
Key constraints include:
- Limited financial resources;
- Outdated equipment and lighting;
- Deficient education in sustainable design;
- Inconsistent availability of eco-friendly materials;
- Institutional resistance to change.

Industry 5.0 as a New Lens of Transformation

Like the Industry 5.0 philosophy, BTV would be characterized by the integration of human creativity, local craftsmanship and sustainable technologies. This encourages environmentally responsible and culturally expressive sets.

V. Recommendations

BTV should:
- Create sustainability standards similar to BAFTA Albert;
- Incorporate modular and reusable set pieces;
- Purchase LED and low-energy lights;
- Educate designers and technicians on how to design sustainably.;
- Work with local craftsmen to incorporate cultural resources;
- Develop the tools to measure carbon for monitoring;
- Adopt circular design processes to reduce waste.

VI. Conclusion

This research demonstrates the potential of combining aesthetic novelty with sustainable design for sets in BTV, offering a major possibility to develop its visual identity also by becoming eco-friendly. Designing sustainably is far more than limiting waste and saving energy; it's an opportunity for creative expression with natural and heritage-rich materials. Despite being limited in resources and technology, BTV can navigate these

limitations to adopt international sustainability standards and principles of Industry 5.0. Strategically planned and institutionally supported, BTV has the potential to be a South Asian leader in green broadcasting.

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