TQO Fast Fashion

In 2026, the global fashion industry stands at the intersection of economic growth, consumer culture, and environmental degradation. Fast fashion—a business model characterized by rapid production cycles, low-cost garments, and frequent trend turnover—has transformed the way clothing is designed, produced, and consumed. While this model has increased accessibility and affordability for consumers worldwide, it has also generated significant ecological and social consequences.

As environmental pressures intensify and climate targets become more urgent, the fast fashion industry has come under growing scrutiny from governments, civil society, and international organizations. This committee is tasked with examining the environmental impacts of fast fashion and exploring pathways toward more sustainable production and consumption practices.

Fast fashion relies on speed and volume. Brands rapidly translate runway or social media trends into mass-produced clothing, often releasing new collections weekly rather than seasonally. To maintain low prices, production is frequently outsourced to regions with lower labour and manufacturing costs, while materials such as synthetic fibres are favoured for their affordability and versatility.

This system encourages high levels of consumption and short garment lifespans. Clothing is increasingly treated as disposable, with many items worn only a few times before being discarded. As global demand for apparel continues to rise, particularly in emerging markets, the environmental footprint of the fashion industry has expanded accordingly.

One of the most significant environmental consequences of fast fashion is its contribution to climate change. The industry relies heavily on energy-intensive processes, including textile manufacturing, dyeing, transportation, and retail distribution. Synthetic fibres such as polyester are derived from fossil fuels, further increasing greenhouse gas emissions across the supply chain.

Water usage and pollution are also major concerns. Textile production requires vast quantities of water, particularly for cotton cultivation and fabric processing. In many manufacturing regions, untreated wastewater containing dyes, chemicals, and microfibers is discharged into rivers and lakes, degrading ecosystems and threatening access to clean water for local communities.

Waste generation represents another critical challenge. Millions of tons of textile waste are produced annually, much of which ends up in landfills or is incinerated. Synthetic materials can take decades to decompose, while even natural fibres may release methane as they break down. Recycling rates for textiles remain low, and second-hand markets are often unable to absorb the volume of discarded clothing.

Additionally, the release of micro plastics from synthetic garments during washing has emerged as a growing environmental threat. These particles enter aquatic systems, accumulate in food chains, and pose risks to both wildlife and human health.

Although this committee's primary focus is environmental, the social and economic dimensions of fast fashion are closely linked to ecological outcomes. Low production costs

are often achieved through weak environmental regulations and limited enforcement in manufacturing countries. This can create a "race to the bottom," where environmental standards are sacrificed to attract investment.

At the same time, the fast fashion industry provides employment for millions of workers worldwide and contributes significantly to national economies. Any efforts to reform the industry must therefore consider potential economic disruptions, particularly for developing countries that depend on textile exports.

Consumers also play a central role. Marketing strategies and digital platforms encourage frequent purchases and reinforce unsustainable consumption patterns. Changing consumer behaviour remains a major challenge, even as awareness of environmental issues grows.

By 2026, a range of responses to fast fashion's environmental impacts are underway. Some governments have introduced extended producer responsibility schemes, requiring brands to contribute to waste management and recycling. Others are exploring regulations on textile waste, chemical use, and environmental transparency.

Within the industry, voluntary sustainability initiatives have emerged, including commitments to use recycled materials, reduce emissions, and improve supply chain traceability. While these efforts signal progress, critics argue that voluntary measures lack accountability and may amount to "greenwashing" without binding standards.

International cooperation on textile sustainability remains limited. Differences in regulatory capacity, economic priorities, and development levels complicate the creation of unified global frameworks.

It is necessary to address the environmental harms of fast fashion while balancing economic development, consumer access, and social equity. Key questions include how to reduce emissions and waste across the fashion lifecycle, how to promote sustainable materials and circular economy models, and how to ensure that environmental regulations do not disproportionately harm vulnerable economies or populations.

A range of policy approaches are open, including international guidelines, incentives for sustainable innovation, consumer education initiatives, and mechanisms for holding producers accountable. Cooperation between governments, industry, and civil society will be essential to achieving meaningful change.

In 2026, fast fashion represents a defining challenge for environmental governance in a globalized world. The decisions made by this committee have the potential to influence not only the fashion industry, but broader efforts to align economic activity with planetary boundaries.

TQO Sustainable Practices in Nuclear Power

As global demand for energy continues to rise alongside the urgency to combat climate change, states are increasingly examining low-carbon energy sources that can support sustainable development. Nuclear power remains a controversial yet significant component of the global energy mix, providing approximately 10% of the world's electricity while emitting minimal greenhouse gases during operation. However, concerns regarding radioactive waste, safety, and environmental impact persist.

This briefing paper examines two key sustainable practices in nuclear power that aim to address ecological and environmental concerns: the closed nuclear fuel cycle and advanced waste management, and the development of Small Modular Reactors (SMRs) with enhanced efficiency and safety features. Both practices offer pathways for reducing environmental risks while maintaining nuclear power's role in a low-carbon future.

One of the primary environmental criticisms of nuclear energy is the long-term management of radioactive waste. Traditional "once-through" fuel cycles use uranium fuel only once before disposing of spent fuel as waste, leading to large volumes of long-lived radioactive material. A more sustainable alternative is the closed nuclear fuel cycle, which involves reprocessing spent fuel to recover usable materials such as uranium and plutonium.

The closed fuel cycle significantly reduces the volume and toxicity of nuclear waste requiring long-term storage. By recycling usable fuel, states can decrease the demand for newly mined uranium, thereby limiting environmental degradation associated with uranium mining, such as habitat destruction and groundwater contamination. Additionally, advanced waste management techniques, including vitrification (encasing waste in glass) and deep geological repositories, reduce the risk of radioactive leakage into ecosystems.

From an ecological perspective, minimizing surface storage of waste lowers the potential for soil and water contamination. Countries employing advanced waste management practices can better protect biodiversity and human health, particularly in regions vulnerable to seismic activity or flooding.

Despite its benefits, the closed fuel cycle raises concerns related to cost, technological complexity, and nuclear proliferation risks. Reprocessing facilities require strict regulatory oversight to prevent the diversion of nuclear materials for non-peaceful purposes. Furthermore, public opposition to waste storage facilities remains a major obstacle, often driven by fears of environmental contamination.

For the Ecology and Environment Committee, the key challenge lies in balancing environmental protection with international security and public trust. Promoting transparency, international cooperation, and adherence to International Atomic Energy Agency (IAEA) safeguards is essential to ensuring that advanced waste management remains both sustainable and secure.

A second sustainable practice in nuclear power is the development of Small Modular Reactors (SMRs). Unlike traditional large-scale nuclear power plants, SMRs are smaller, factory-built reactors designed for flexibility, efficiency, and enhanced safety. Their modular nature allows for incremental deployment, making them suitable for diverse geographic and economic contexts.

SMRs offer several ecological benefits. First, their smaller size reduces land use and environmental disruption during construction. This is particularly important in ecologically sensitive areas where large infrastructure projects could threaten local ecosystems. Second, many SMR designs incorporate passive safety systems, which rely on natural physical processes such as gravity and convection rather than active mechanical systems. These features significantly reduce the risk of accidents and radioactive releases into the environment.

In addition, SMRs can support sustainable development by providing reliable, low-carbon electricity to remote or developing regions that lack access to large power grids. When paired with renewable energy sources, SMRs can help stabilize energy supply while reducing reliance on fossil fuels, thereby lowering air pollution and greenhouse gas emissions.

While SMRs are promising, they are not without challenges. The widespread deployment of SMRs could increase the number of nuclear facilities globally, potentially complicating regulatory oversight and waste management. Although each reactor produces less waste individually, the cumulative environmental impact must be carefully assessed.

Furthermore, many SMR technologies are still in developmental or early deployment stages. Long-term ecological impacts, including waste disposal and decommissioning, require further study. The committee must consider whether current international environmental regulations are sufficient to govern these emerging technologies.

Nuclear power, when managed responsibly, can contribute to global sustainability goals by providing low-carbon energy with limited air pollution. The closed nuclear fuel cycle with advanced waste management and the development of Small Modular Reactors represent two important sustainable practices that address key environmental concerns associated with nuclear energy.

Encourage international cooperation on safe nuclear waste management and geological disposal solutions. Promote research and development of SMRs with strong environmental and safety standards. Strengthen international regulatory frameworks to ensure ecological protection, transparency, and non-proliferation.

By carefully evaluating these practices, the international community can better determine how nuclear power may fit into a sustainable and environmentally responsible global energy strategy.

TQO Environmental Impacts of Sound and Light Pollution

Sound and light pollution are increasingly recognized as significant yet often underestimated forms of environmental degradation. Unlike traditional pollutants such as plastics or chemical waste, sound and artificial light leave no physical residue. However, their impacts on ecosystems, wildlife behaviour, and human health are substantial and long-lasting. As global urbanization, industrial activity, and technological development accelerate, the spread of excessive noise and artificial lighting presents a growing challenge for environmental governance and sustainable development.

Sound pollution, commonly referred to as noise pollution, is defined as unwanted or harmful sounds that disrupt natural or human systems. Major sources include road traffic, aviation, railways, industrial machinery, construction activities, and maritime shipping. While sound pollution is frequently discussed in the context of human health, its ecological consequences are equally severe. Many animal species rely on sound for communication, navigation, mating, and predator avoidance. Excessive noise interferes with these processes, threatening biodiversity and ecosystem stability.

Marine environments are particularly vulnerable to sound pollution. Increased global shipping, offshore drilling, and naval sonar systems have dramatically raised underwater noise levels. Studies have shown that whales and dolphins, which depend on echolocation, experience disorientation, altered migration routes, and in some cases mass strandings due to intense acoustic disturbances. Fish and invertebrates are also affected, as chronic noise exposure can reduce reproductive success, impair growth, and disrupt feeding behaviours. These impacts threaten marine food webs and the livelihoods of coastal communities dependent on healthy oceans.

Terrestrial ecosystems face similar challenges. Noise pollution from roads and urban areas has been shown to reduce bird species diversity, as constant background noise interferes with birdsong used to attract mates and defend territory. Some species are forced to abandon habitats altogether, leading to ecological imbalances. Chronic noise stress can also elevate cortisol levels in animals, weakening immune systems and increasing mortality rates. As protected areas and wildlife reserves become increasingly encroached upon by infrastructure development, the need to address sound pollution becomes more urgent.

Light pollution refers to the excessive or misdirected use of artificial light, particularly at night. It includes skyglow, glare, light trespass, and over-illumination. Although artificial lighting plays an important role in human safety and economic activity, its uncontrolled expansion has far-reaching environmental consequences. Natural cycles of light and darkness are essential for regulating biological rhythms in both animals and plants. Disrupting these cycles can have cascading ecological effects.

One of the most well-documented impacts of light pollution is its effect on nocturnal wildlife. Many species, including bats, insects, amphibians, and mammals, depend on darkness for foraging and reproduction. Artificial lighting alters predator-prey relationships, often benefiting predators while exposing prey species to increased risk. For example, artificial lights attract insects, leading to population declines that affect pollination and food availability for other species. Sea turtles are another prominent example, as hatchlings rely on natural moonlight reflections to navigate toward the ocean. Artificial coastal lighting disorients them, resulting in increased mortality.

Light pollution also affects migratory birds, which use stars and natural light cues for navigation. Bright urban lighting can cause birds to become disoriented, leading to collisions with buildings and exhaustion from prolonged flight. Millions of bird deaths annually have been linked to artificial lighting in urban areas. Additionally, plants exposed to artificial light may experience altered flowering and growth cycles, affecting ecosystem interactions and agricultural productivity.

The environmental impacts of sound and light pollution are closely linked to broader issues of sustainable development, urban planning, and energy use. Importantly, these forms of pollution often disproportionately affect developing regions and biodiversity-rich areas, where regulatory frameworks and monitoring capacity may be limited. Despite growing scientific evidence, sound and light pollution remain inadequately addressed in many national environmental policies and international agreements.

The international community has taken some steps to address these challenges. The United Nations Environment Programme (UNEP) has highlighted noise pollution as an emerging environmental issue, while several countries and cities have implemented regulations on nightime lighting and urban noise levels. However, global coordination remains limited, and existing measures are often fragmented or weakly enforced. There is a need for greater international cooperation, standardized monitoring methods, and the integration of sound and light pollution into environmental impact assessments.

In conclusion, sound and light pollution represent significant threats to ecological integrity and biodiversity. Their invisible nature should not diminish their importance on the global environmental agenda. Addressing these challenges requires a combination of technological innovation, stronger regulatory frameworks, public awareness, and international collaboration. The Ecology and Environment Committee has a critical role to play in promoting sustainable solutions that balance human development with the protection of natural ecosystems, ensuring a healthier environment for present and future generations.