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## LEATHER FOOTWEAR & APPARELS: THE KEY TO SUSTAINABILITY AND FASHION

**Abstract.** This review article explores the crucial role of leather footwear and apparel in achieving sustainability within the fashion industry. It delves into the leather production process, which utilizes by-products of the meat, dairy, and wool industries, and examines the material's unique qualities such as aesthetic appeal, texture, and breathability. The article highlights the transition of leather garments from practical necessities to fashionable items and discusses the challenges and advancements in sustainable leather production. It also addresses emerging trends, such as transparent leathers and exotic leather sources, and emphasizes the importance of sustainable skills development to ensure the industry's growth and environmental responsibility.

**Keywords:** leather footwear, leather apparel, sustainability, leather production, fashion industry, eco-friendly fashion, by-products.



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**Introduction.** Sustainability has gained considerable attention among leather industry consumers and the community at large and the industry has been equipping itself to need of the hour. The leather industry is based on utilizing and processing a by-product of meat, dairy and wool industries – over 99% of global leather production is made from the hides or skins of cattle, sheep, goats and pigs. Leather is very unique commodity that links the rural farmer to the fashion world. Leather as a natural material offers numerous advantages over synthetics like aesthetic appeal, feel, texture, and breathability. Historically, leather footwear and apparels have been less of a luxury and more of necessary as other materials were not available as protection against the cold. Nevertheless, leather garments have generally evolved worldwide from weather clothing to fashion products [1,2].

**Analysis and discussion.** Garment leathers have a delicate grain, elegant patterns, soft feeling and full flexibility, and its clothing style is closely following the changes of international fashion. In the actual design process, some of the style shape, structural change, and even some of the design cannot be achieved. Then, based on these data, the principles in the costume design and performance technology was explored by combining with formal beauty rule in design and the

formal beauty characteristics and technique was set out. Eventually, to achieve free change in fashion design for garments and fictile diversification of formal beauty, the development perspectives and new direction of garment leather were analyzed by its clothing style features. The leather footwear and apparel industry is facing its challenges in terms of sustainability and environmental impact. The carbon footprint load attached to the leather apparel industry will continue to impact the environment if the industry does not switch to energy from renewable sources [3].

*Futuristic developments.* Leather a natural material, offers scope to be used as an innovative material. As fashion and trend changes frequently, leather manufacturers and product makers face the challenge of providing leathers that have to maintain aesthetic and technical properties based on market and fashion needs. In the fashion industry, leather is considered to be one of the preferred materials due to their unique grain structure and lively feel. Design changes rapidly according to the trends and tastes of people. Advances in the fashion designing & apparel industry have led to innovation and new prospects in the footwear, garment and accessory design [4].

All the process operations produce their characteristic effects on the skins by their chemical, physical and biological actions. All these effects combine to create the much-desired properties in the final leather. The nature of the material, concentration of chemicals, temperature and duration for processing the skins influence the quality of leather. Best quality of the leather is the result of skillful balancing of all these operations. As thermal wear, the leather apparels continuously need changes in their texture and design. A lot of researches have been done to produce revolutionary transparent leathers. The transparent leathers exhibit the fashionable innerwear as well as fulfill the purpose of thermal wear [5].

Many newly developed metal-free organic tanning system paves the way for cradle-to-cradle approach to create a circular economy and sustainable development in leather manufacturing [6-8]. Fish skins too are a new trend and sustainable source of raw material for apparel. Exotic leathers such as alligator, emu and ostrich are relatively new to the apparel production compared to sheep and cow hides. But due to increased fashion emphasis on exotic leather apparel, these exotic leathers became an essential part of leather fashion apparel and footwear products [9].

Fashion and apparel manufacturers around the globe are increasingly investing in sustainable solutions. Skills are important to ensure productive and healthy workforces, in safe work environments. Sustainable skills development to enhance operators' skills and produce technically better products for the consumers and help establish Brands is the need of the hour.

Fashion and culture will not only help to professionalize the industry, but also provide a platform for technologists and fashion professionals to come together under one umbrella endeavoring to foster the growth of fashion business. The traditional skills need resurgence through contemporarization using new designs, branding and technological support. The need to design, produce and market products that are in consonance with our lifestyle and value systems and are ergonomically synergistic to aid in better living will be the driving force [10].

**Conclusion.** As leather exhibits aesthetic and multifunctional properties, they are most preferable materials for leather garments. Recently leather footwear and apparels have been found to have much less carbon footprint when compared to synthetic nonbiodegradable materials. Leather has been a high fashion apparel material for centuries and fashion designers have used leathers as attractive clothing and footwear material for many design themes.

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### **БЫЛҒАРЫ АЯҚ КИІМ МЕН КИІМ: ТҰРАҚТЫЛЫҚ ПЕН МОДЕРНИЗАЦИЯНЫҢ КІЛТІ**

**Аңдатпа.** Бұл шолу мақаласы сән индустриясында тұрақтылыққа қол жеткізудегі былғары аяқ киім мен киімнің маңызды рөлін қарастырады. Ол ет, сүт және жүн өнеркәсібінің жанама өнімдерін пайдаланатын былғары өндіру процесіне арналған және эстетикалық тартымдылық, құрылым және тыныс алу сияқты материалдың бірегей қасиеттерін қарастырады. Мақалада былғары киімнің практикалық қажеттіліктен сәнді заттарға ауысуы және тұрақты былғары өндірісіндегі қиындықтар мен жетістіктер талқыланады. Ол сондай-ақ мөлдір тері және экзотикалық тері көздері сияқты жаңа тенденцияларды қарастырады және саланың өсуі мен экологиялық жауапкершілікті қамтамасыз ету үшін тұрақты дағдыларды дамытудың маңыздылығын көрсетеді.

**Тірек сөздер:** былғары аяқ киім, былғары киім, тұрақты даму, былғары өндірісі, сән индустриясы, экологиялық сән, өндіріс қалдықтары.

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#### КОЖАНАЯ ОБУВЬ И ОДЕЖДА: КЛЮЧ К УСТОЙЧИВОМУ РАЗВИТИЮ И МОДЕ

**Аннотация.** В этой обзорной статье рассматривается важнейшая роль кожаной обуви и одежды в достижении устойчивости в индустрии моды. Она посвящена процессу производства кожи, в котором используются побочные продукты мясной, молочной и шерстяной промышленности, и рассматривает уникальные качества материала, такие как эстетическая привлекательность, текстура и воздухопроницаемость. В статье подчеркивается переход кожаной одежды от практической необходимости к модным вещам и обсуждаются проблемы и достижения в области устойчивого производства кожи. В ней также рассматриваются новые тенденции, такие как прозрачные кожи и экзотические источники кожи, и подчеркивается важность развития устойчивых навыков для обеспечения роста отрасли и экологической ответственности.

**Ключевые слова:** кожаная обувь, кожаная одежда, устойчивое развитие, производство кожи, индустрия моды, экологичная мода, отходы производства.