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Enabling Sustainable Innovation in Fashion through Crafted Material Remediation.

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This paper investigates the use of fashion as a tool for social and environmental impact. Through an analysis of the methodologies of creation and distribution of selected sustainable fashion collections, it sheds light on the exploration of material remediation as a catalyst for community development. Featuring five case studies of collections by fashion brand Vanina 1, the paper investigates the importance of cross disciplinary design frameworks and social entrepreneurship models to accelerate sustainable innovation. The design process detailed in the study merges architectural tools with traditional fashion to enable the development of innovative sustainable materiality and zero-waste manufacturing techniques. The social enterprise business model detailed in the paper, which prioritizes impact over profit, allows to accelerate sustainable research and development in luxury fashion. Led in collaboration with non-governmental organizations focusing on waste management, women empowerment, education and assistance to displaced persons, the collections selected include: (1) the 'Delicatessen' evening bags repurposing non-recyclable food packets through a process of handcrafted origami and parametric digital laser cutting, (2) the 'Conserved' collection developed as a capacity building project within refugee camps in Lebanon, (3) the 'Leaves' jewellery series exploring waste-based sustainable 3d-printing, (4) the 'Les Eternelles' evening bags transforming plastic waste into a versatile marble-like texture, and (5) the 'Light of Beirut' capsule collection handcrafted with the glass shattered by the 4th of August blast of Beirut. Each of these collections presents a different framework and allows to extract guidelines to enable material innovation, ethical production and smart manufacturing in a fast-paced fashion market. 'Delicatessen' shows how the use of traditional handcraft in tandem with emerging technologies can enable the repurposing of problematic waste. It also highlights the importance of local and global collaborations to facilitate sustainable innovation 2. 'Conserved' sheds light on the potential of fashion to engage community development through sustainable humanitarian action 3. 'Leaves' exemplifies how the advancement of digital fabrication technologies can lead to sustainable innovation in fashion luxury 4. The study of 'Les Eternelles' shows the research-driven design and craftsmanship process of creation of value from waste. 'The Light of Beirut' raises questions about the cultural relevance of fashion and its responsibility as a vehicle of ethical communication. The paper concludes with a reflection on the business models and design frameworks needed to accelerate sustainability in fashion today.