**Chapter Two: Literature Review**

**2.1 Overview of Global and Local Tyre Recycling**

Scholars have underscored waste recycling as a pivotal element in environmental conservation and economic resilience. In Kenya, studies indicate that while initiatives in the recycling of plastics and metals have advanced, rubber waste—especially tractor tyres—remains underexploited due to infrastructural and policy limitations (Mwangi, 2022; NEMA, 2023).

**2.2 International Case Studies**

**African Context**

Recent research in Africa demonstrates that mechanical transformation processes (e.g., crushing and compaction) can effectively convert tyre waste into materials for construction and industrial use (UNEP, 2024). Such approaches have led to significant cost savings and environmental benefits, suggesting that similar techniques could be adapted within Kenya’s Jua Kali ecosystem.

**European Union Initiatives**

Many EU countries such as Belgium, Italy, and the Netherlands have implemented Extended Producer Responsibility (EPR) systems that mandate tyre manufacturers take responsibility for the disposal and recycling of tyres. These policies have successfully reduced environmental hazards and increased recycling rates, thus serving as a potential model for Kenya (UNEP, 2024).

**Swiss Innovations**

In Switzerland, companies like Tyre Recycling Solutions (TRS) employ advanced recycling technologies that economically transform used tyres into new raw materials. Their success is attributed to an integration of state-of-the-art machinery and robust policy support, resulting in efficient, cost-effective processing lines (WHO, 2022).

**2.3 Implications for the Jua Kali Sector**

The literature suggests that adopting international best practices—such as the technical innovations seen in Switzerland and the policy frameworks established in the EU—could substantially benefit the Kenyan recycling industry. By incorporating these methods alongside locally driven ingenuity, the Jua Kali sector can overcome existing limitations, improve environmental outcomes, and access broader markets.