

Improving Green & Lean Manufacturing in the Plastic Sector of Pakistan

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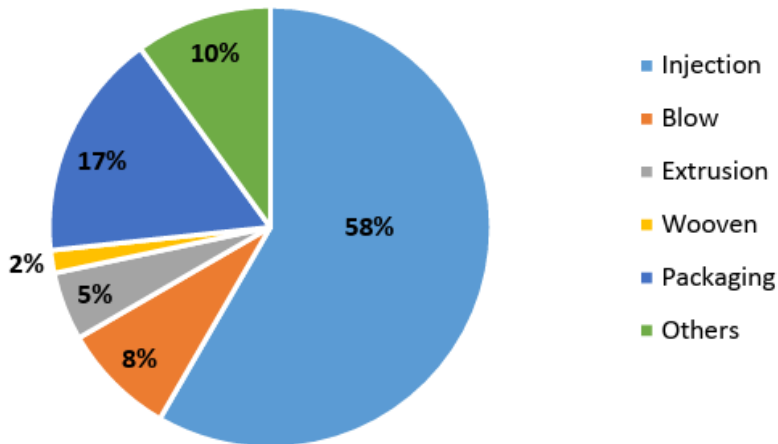
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Overview of Pakistan's Plastic Industry

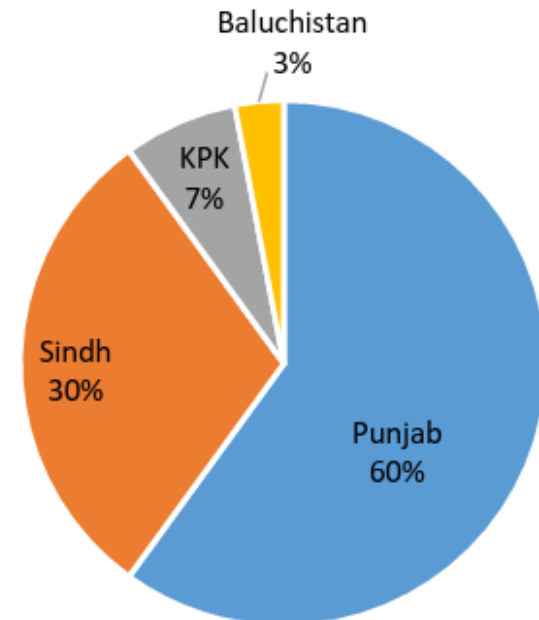
Bifurcation of Plastic Industry (%)



Segment	Quantity (tons)
Import	1,149,913
Export	202,480

- Pakistan has over 11,000 plastic processing units
- **The industry contributes 15% to GDP and employs over 1.2 million people**
- 3rd largest industrial sector

Concentration of Plastic Processing Units



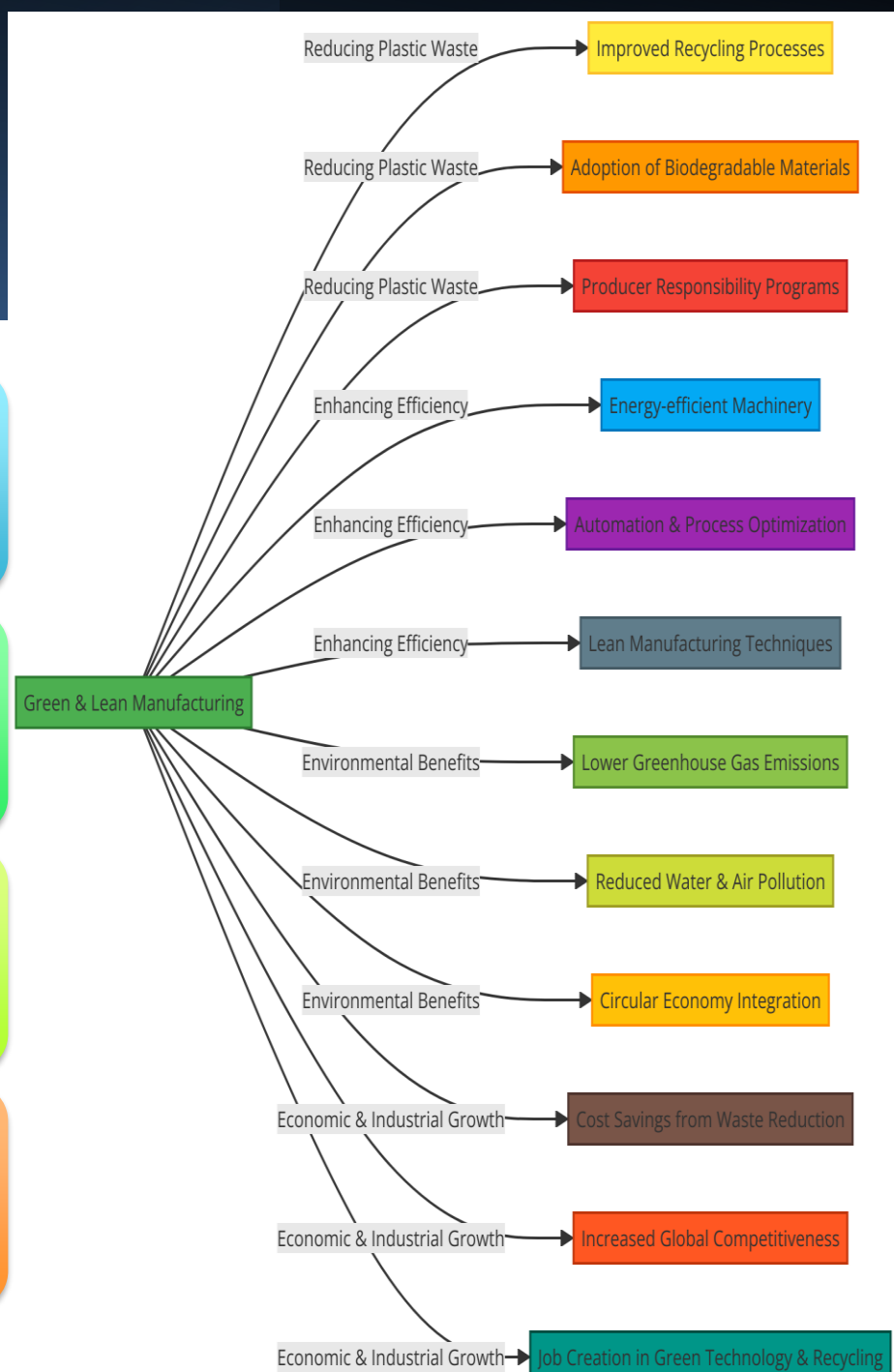
Importance of Green & Lean Manufacturing

Reducing waste, improving efficiency

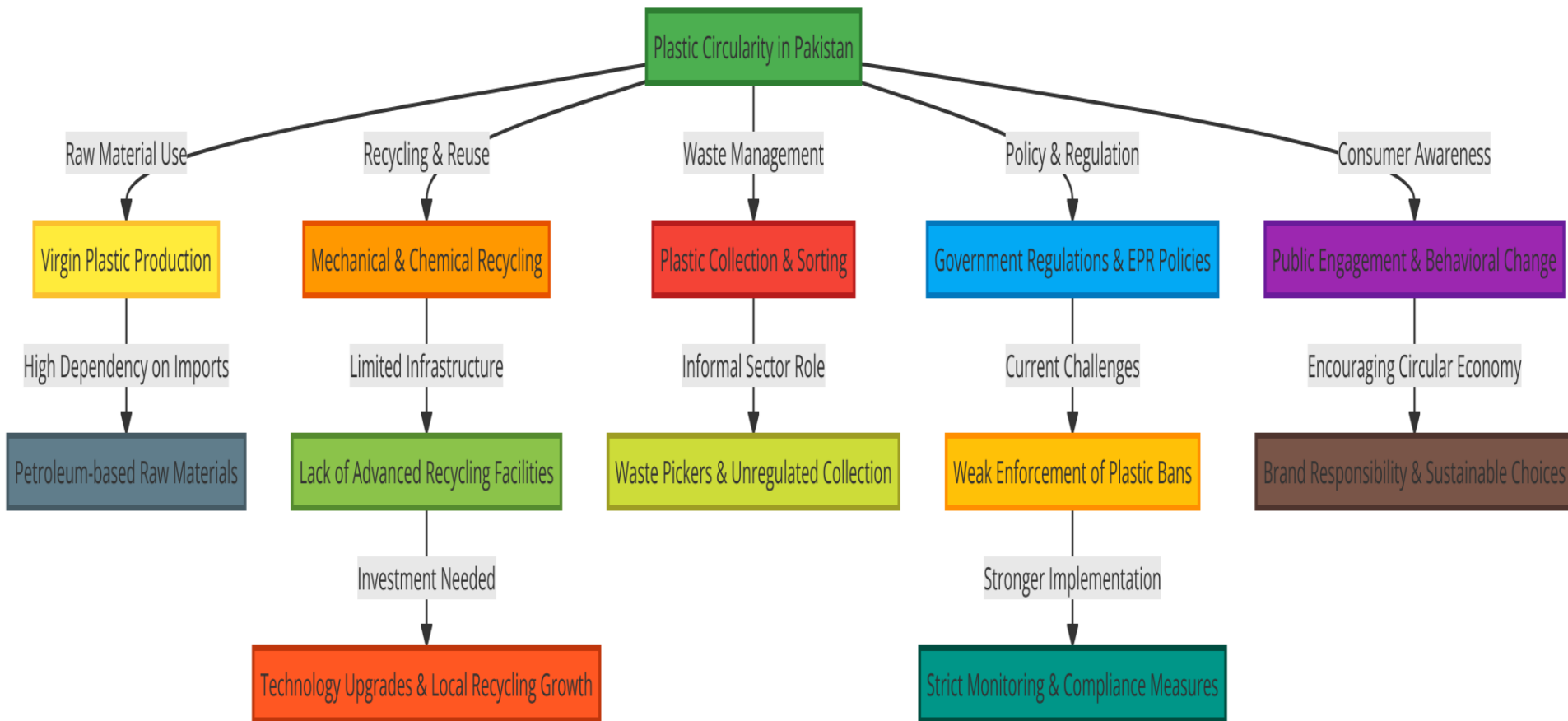
Sustainable and cost-effective solutions

Green industrialization in Pakistan is hindered by poor policy conceptualization and lack of technical expertise.

The absence of strategic frameworks limits the integration of green manufacturing practices.

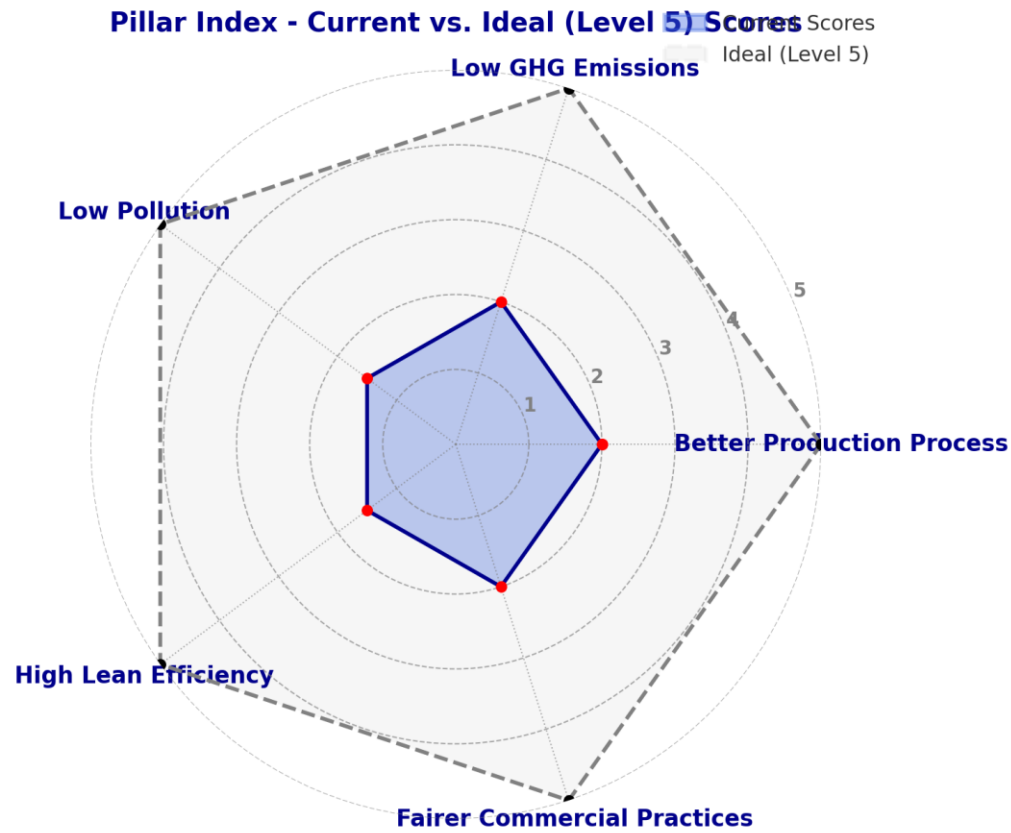


Plastic Circularity in Pakistan

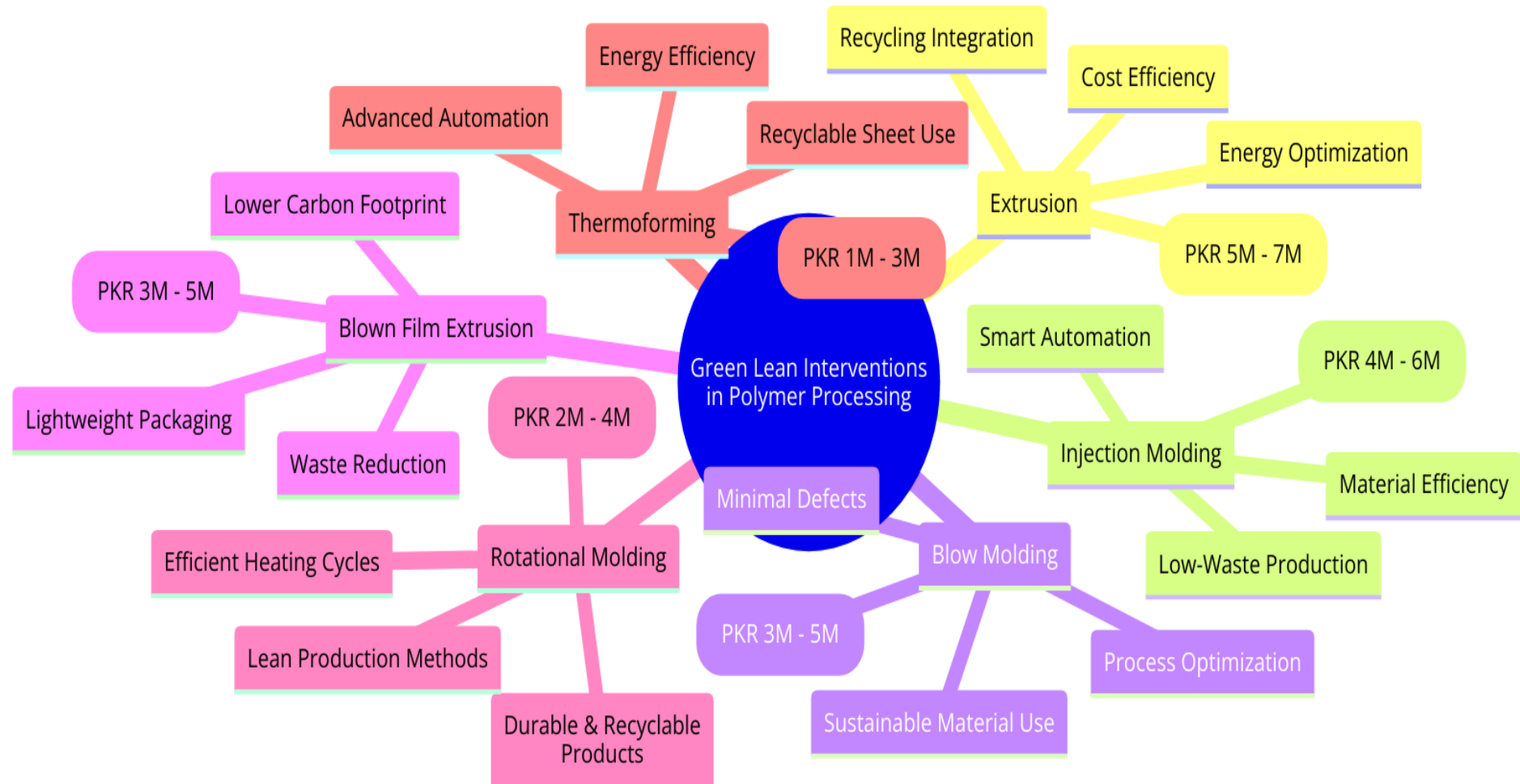


Current vs Ideal Status of Green Industrialization in Pakistan

- Immediate Term (0-1 Year): Regulatory enforcement, awareness campaigns
- Short Term (1-3 Years): Investment in energy-efficient technologies, circular economy models
- Medium Term (3-5 Years): Transition to renewable energy, industry-academia collaborations



Interventions Required for Green Industrialization of Plastic Sector



PVC and Plastic Kitchenware Industry



Better Production Process

- **Technical Training & Awareness**

PKR 10,000,000 for training programs in polymer science and equipment handling.

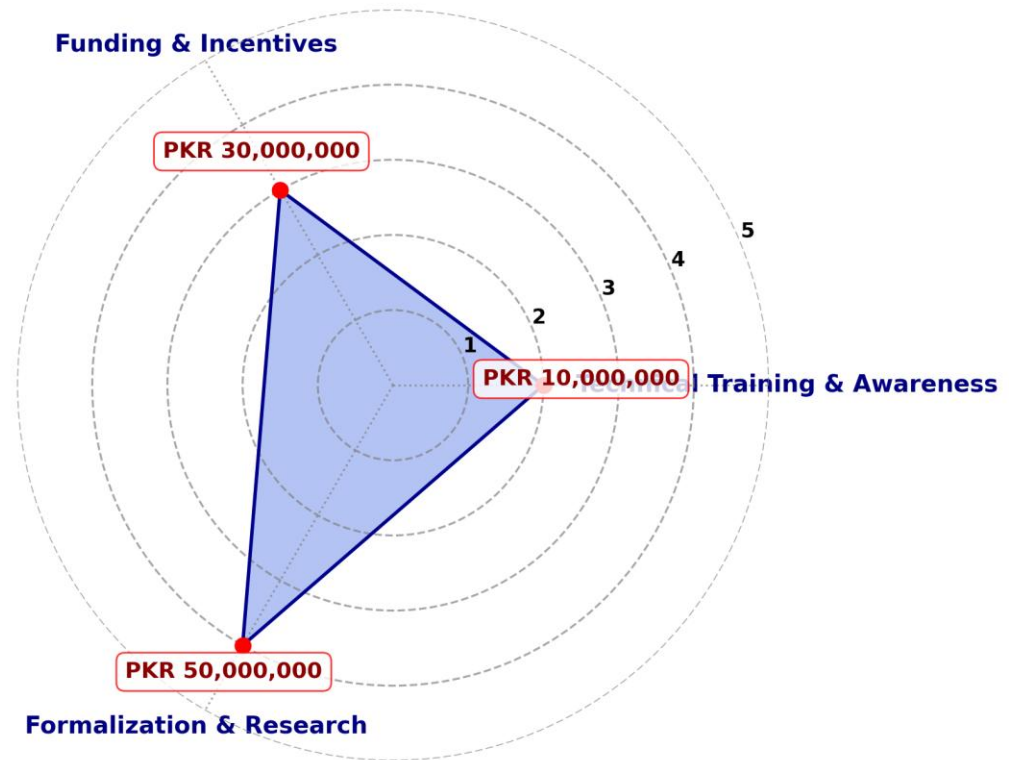
- **Funding & Incentives**

PKR 30,000,000 to support R&D, mold development, and recycling improvements.

- **Formalization & Research**

– **PKR 50,000,000** for integrating the informal sector and promoting bio-based polymer research.

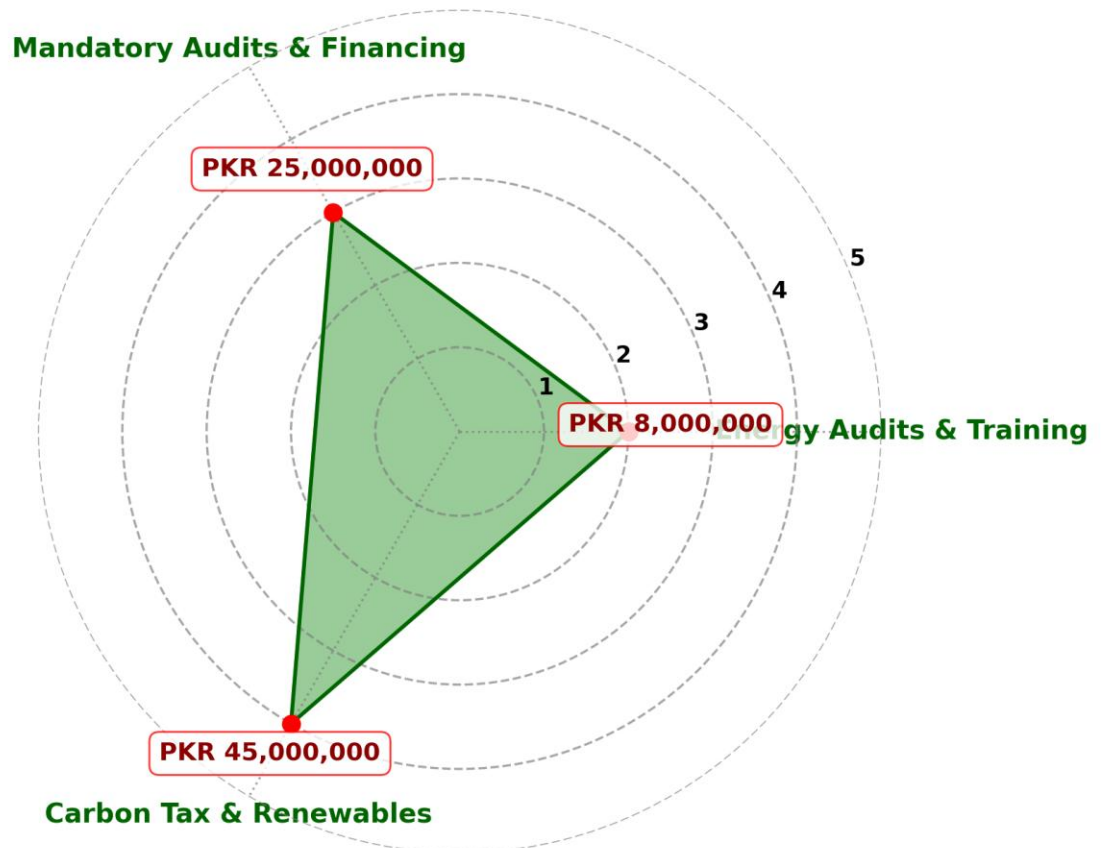
Better Production Process - Progression, Interventions & Cost (PKR)



Low GHG Emissions

- **Energy Audits & Training (Immediate Term)** – Workshops and subsidies for solar and electric upgrades.
- **Mandatory Audits & Financing (Short Term)** – Linking audit compliance to preferential financing.
- **Carbon Tax & Renewables (Medium Term)** – Implementing carbon taxes, extended producer responsibility, and renewable sourcing.

Low GHG Emissions - Progression, Interventions & Cost (PKR)

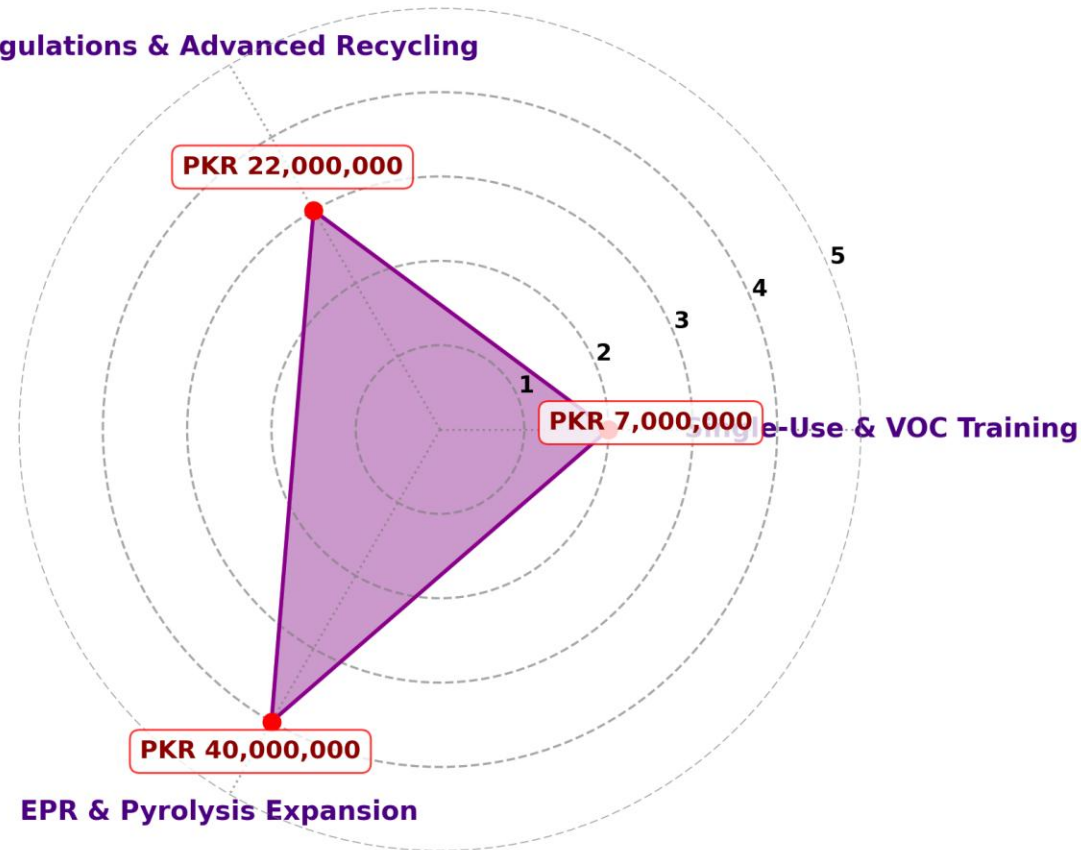


Low Pollution

- Single-Use & VOC Training (Immediate Term)**
 - Training inspectors and offering VOC capture courses.
- Regulations & Advanced Recycling (Short Term)** – Strengthening plastic scrap import rules and expanding chemical recycling.
- EPR & Pyrolysis Expansion (Medium Term)**
 - Scaling producer responsibility and developing pyrolysis for safe feedstock recycling.

Low Pollution - Progression, Interventions & Cost (PKR)

Regulations & Advanced Recycling



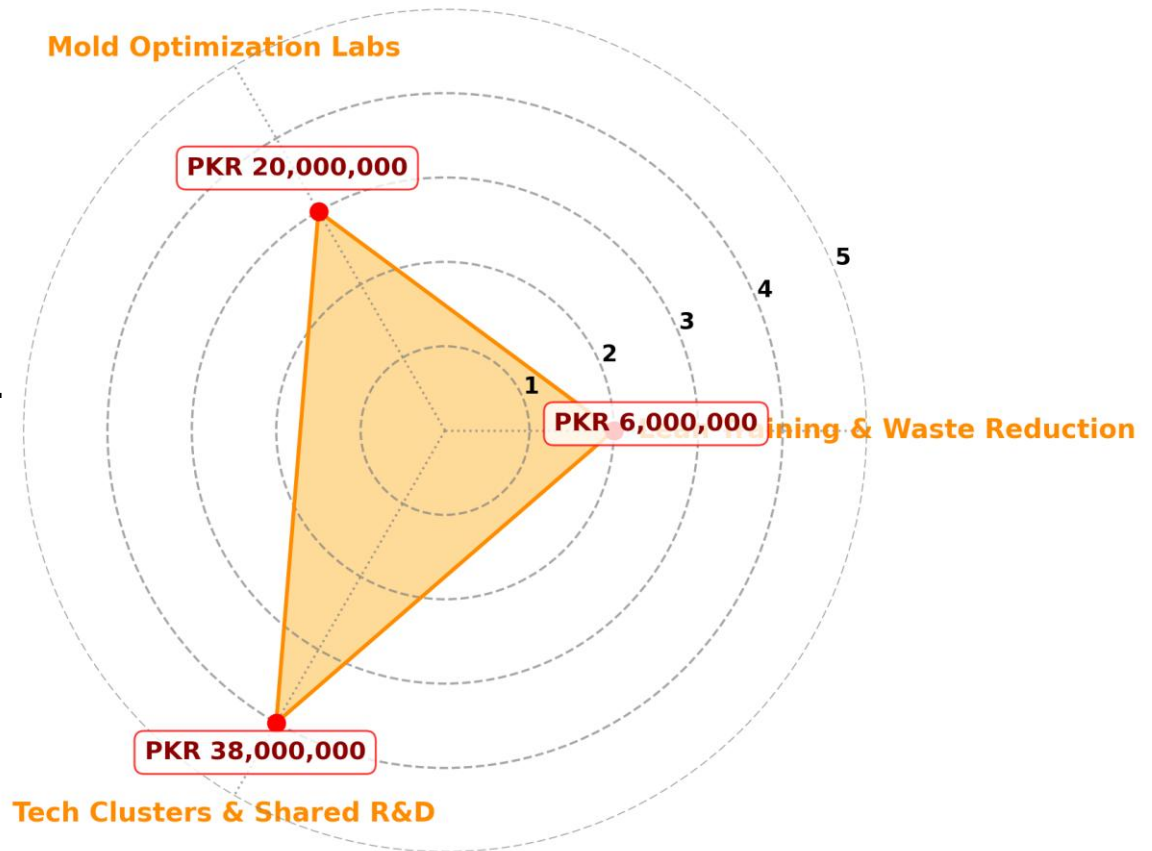
High Lean Efficiency

- **Lean Training & Waste Reduction (Immediate Term)** – Training in 5S, Kaizen, and material optimization.

- **Mold Optimization Labs (Short Term)** – University collaborations to improve quality and energy efficiency.

- **Tech Clusters & Shared R&D (Medium Term)** – Establishing specialized clusters for continuous process improvement.

High Lean Efficiency - Progression, Interventions & Cost (PKR)



Fairer Commercial Practices

- **Workplace Safety & OHS Training (Immediate Term)**

- Linking compliance to government contracts and mandating safety training.

- **Formalized Waste Picking & Child Labor Prevention (Short Term)**

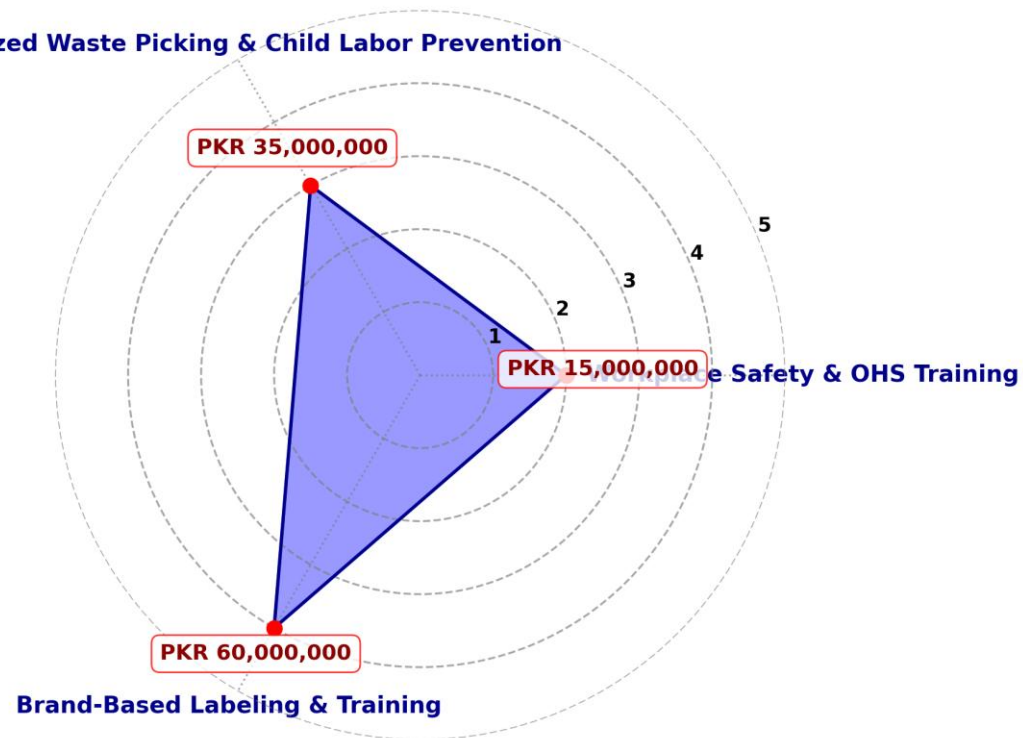
- Training waste pickers for better sorting and strengthening child labor prohibitions.

- **Brand-Based Labeling & Training (Medium Term)**

- Promoting corporate social responsibility with continuous learning for workers.

Fairer Commercial Practices - Progression, Interventions & Increased Cost (PKR)

Formalized Waste Picking & Child Labor Prevention



Thank You