

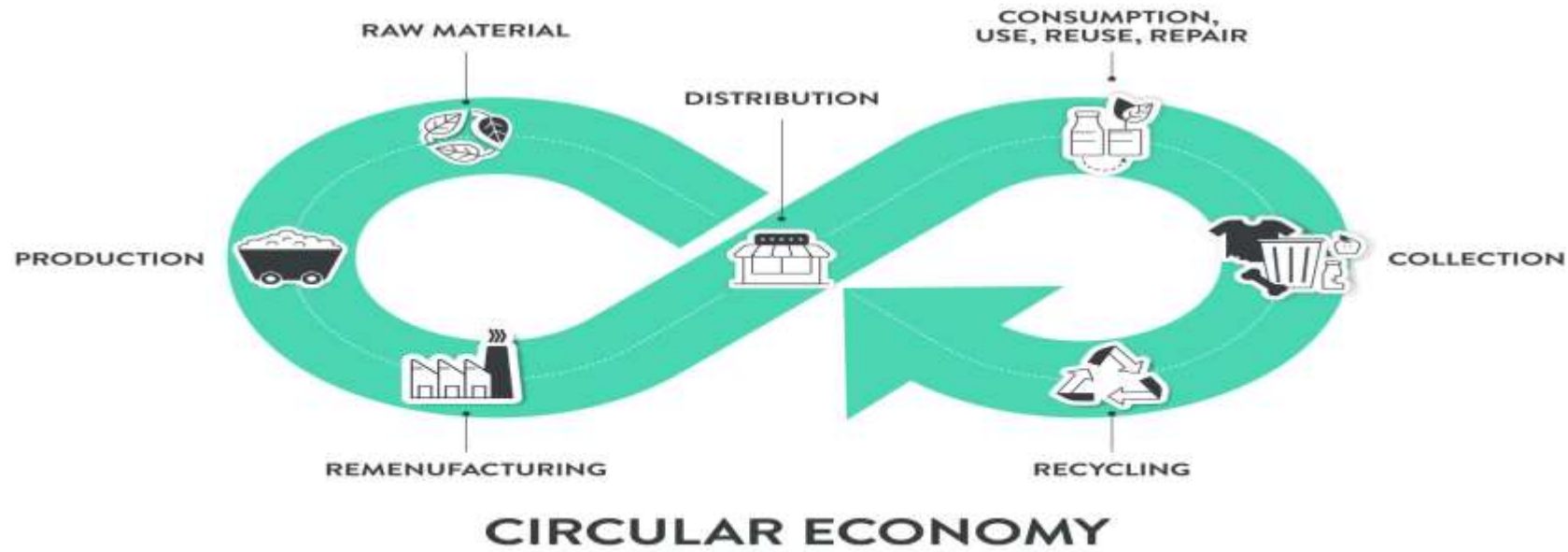
Gold Recycling and Circular Economy in India: Policy Pathways for Sustainable Development

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Linear and Circular Economy

LINEAR ECONOMY



CIRCULAR ECONOMY

The Gold Sustainability Paradox

High Gold Consumption

Large imports

Huge household stock

Cultural dependence

Low Recycling
Formalization

Informal systems

Weak policy

Environmental burden

Background and Context

- ▶ India is among the world's largest consumers of gold
- ▶ Heavy dependence on imports - India's gold imports in fiscal year **2025-26 (FY26)** reached an **all-time high of about USD 71.98 billion**
- ▶ Environmental and economic burden of mining and imports
- ▶ Rise of circular economy thinking globally

India's consumption of Gold

- ▶ Total annual demand (2025): 700-711 tonnes
- ▶ Jewelry demand: around 430 tonnes, affected by high gold prices
- ▶ Investment demand (coins, bars, ETFs): rising strongly as people increasingly view gold as a financial asset rather than only jewelry
- ▶ **“India's gold economy is consumption-driven rather than production-driven.”**

India's Relationship with Gold

Gold in India acts as

- a cultural symbol
- a financial asset
- a store of value
- a social security mechanism
- an investment instrument

Macroeconomic Implications

Large-scale gold imports can:

- ▶ widen the current account deficit,
- ▶ affect currency stability,
- ▶ and increase external sector vulnerabilities.

Thus, gold has implications not only for households but also for national economic policy.

Informal Gold Economy in India

- ▶ India also has a large informal gold ecosystem involving: local jewelers, small refiners, pawn brokers, and traditional gold exchange systems.
- ▶ Old jewelry is frequently exchanged, remelted, redesigned, and reused.
- ▶ This reflects an existing but largely unorganized form of circularity.
- ▶ However, much of this system lacks formal regulation, transparency, standardized recycling mechanisms, and technological efficiency.

Environmental Impact Of Gold Mining



Why Gold Recycling Matter for India?

Indian households are estimated to hold **between 25,000 and 34,600 tonnes of gold**

Since enormous quantities of gold already exist within households and markets, recovering and reusing secondary gold can:

- reduce import dependence,
- improve resource efficiency,
- lower environmental pressure from mining,
- and support sustainable development goals.

This makes gold recycling particularly relevant in the Indian context.

Literature Review

Author(s)

Key Contribution

Stahel (1982)

Closed-loop economy and resource efficiency

Ellen MacArthur Foundation (2013)

Circular economy framework

Hilson & Aubynn (2003)

Environmental impacts of gold mining

Hagelüken (2012)

Urban mining and metal recovery

Graedel et al. (2011)

Sustainable metal recycling

Kirchherr et al. (2017)

Circular economy and sustainability

World Gold Council

India's gold demand and recycling trends

NITI Aayog

Circular economy and policy support

Objective of the study

- ▶ Examine the role of gold recycling in India's circular economy
- ▶ Analyze environmental and economic implications of secondary gold recovery
- ▶ Identify gaps in India's gold recycling ecosystem
- ▶ Explore urban mining and sustainable resource management
- ▶ Suggest policy pathways for a formal and sustainable recycling framework

Variables for the study

Type of Variable

Variables

Dependent Variable

Sustainable Development / Circular Gold Economy

Independent Variables

Gold Recycling, Circular Economy Practices, Policy Framework, Technology

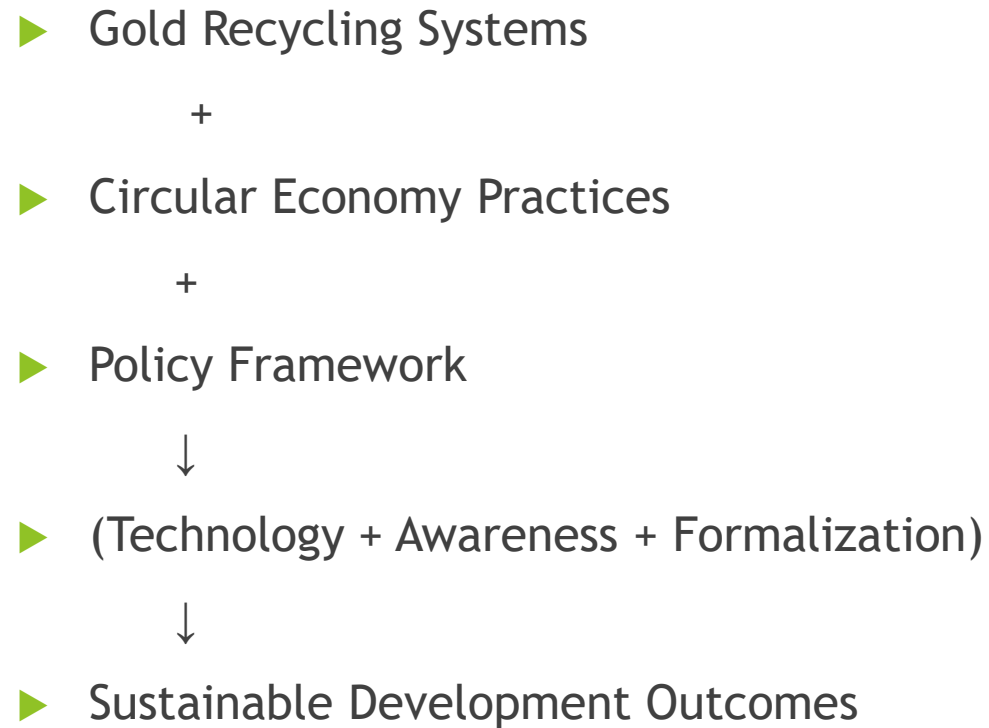
Mediating Variables

Consumer Awareness, Informal Sector, Institutional Support

Environmental Indicators

Carbon Reduction, Waste Reduction, Resource Efficiency

Conceptual Framework



Independent Variable

INDEPENDENT VARIABLES

- Gold Recycling Systems
 - Jewellery Recycling
 - Scrap Gold Recovery
 - E-waste Gold Recovery
- Circular Economy Practices
 - Reuse
 - Recycle
 - Recover
 - Urban Mining
- Policy & Institutional Framework
 - Recycling Policies
 - Government Incentives
 - Hallmarking & Regulation

Mediating Variable

MEDIATING VARIABLES

- Technology Adoption
 - Modern Refining Technology
 - Blockchain & Traceability
- Consumer Awareness
 - Sustainable Consumption
 - Recycling Participation
- Informal Sector Integration
 - Formalization
 - Skill Development

Dependent Variable

DEPENDENT VARIABLE

Sustainable Development

- Resource Efficiency
- Reduced Import Dependence
- Environmental Sustainability
- Reduced Mining Pressure
- Circular Gold Economy
- Economic Resilience

Data for the study

Data Category	Purpose	Sources
Gold Consumption & Imports	Understand demand and dependence	WGC, RBI
Gold Recycling Data	Assess recycling ecosystem	Industry reports
Environmental Data	Examine sustainability impacts	UNEP, OECD
Circular Economy Data	Link recycling with circularity	NITI Aayog
Policy Data	Analyze governance gaps	Govt reports

Policy Implication for the study

- ▶ The findings of the study is expected to indicate that gold recycling has the potential to become an important component of India's circular economy and sustainable development strategy.
- ▶ However, the current recycling ecosystem remains largely informal, fragmented, and weakly regulated.
- ▶ Therefore, several important policy implications emerge from the study.



Thank you