

Resource Servitization:

A New Paradigm for Sustainable
Resource Management

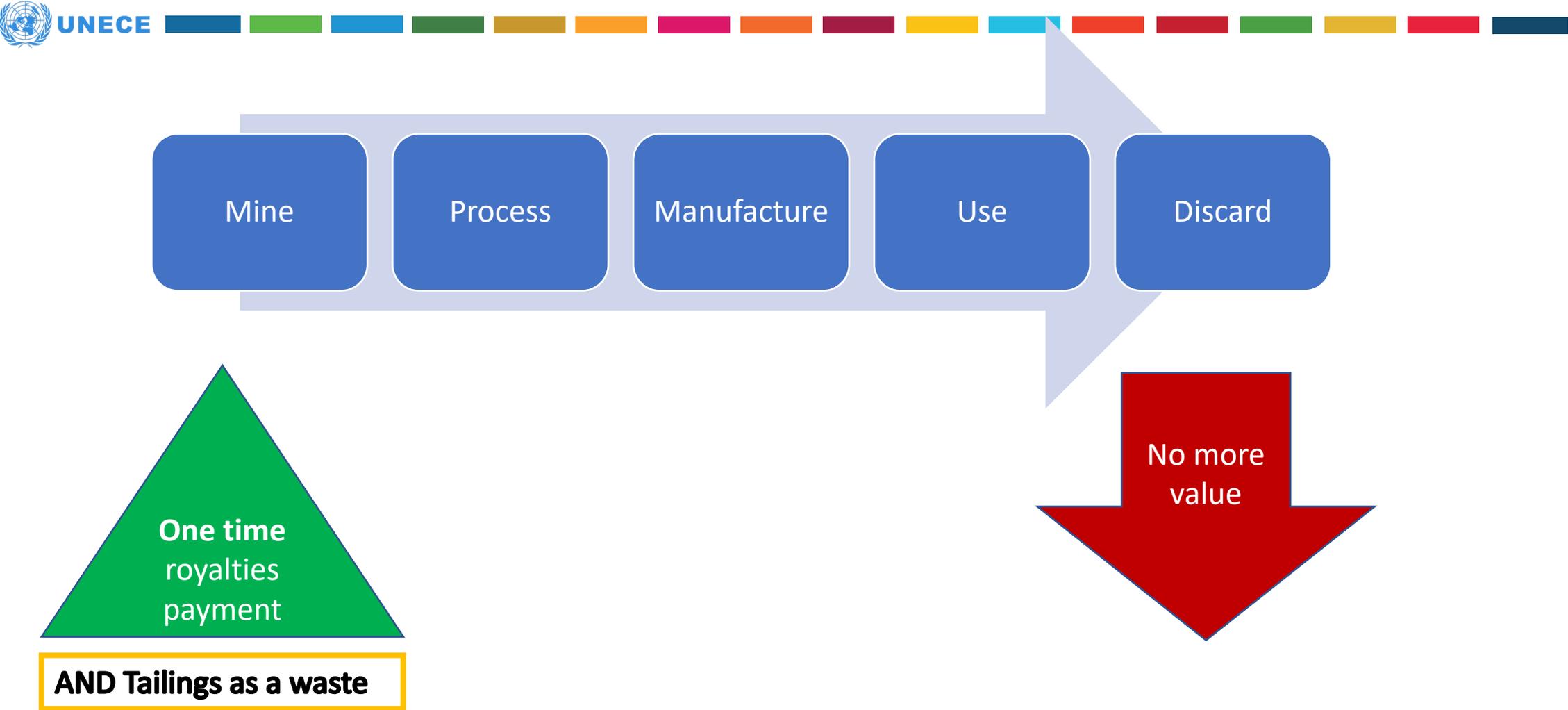


RESOURCE MANAGEMENT WEEK 2023
ASSURING SUSTAINABILITY IN RESOURCE MANAGEMENT

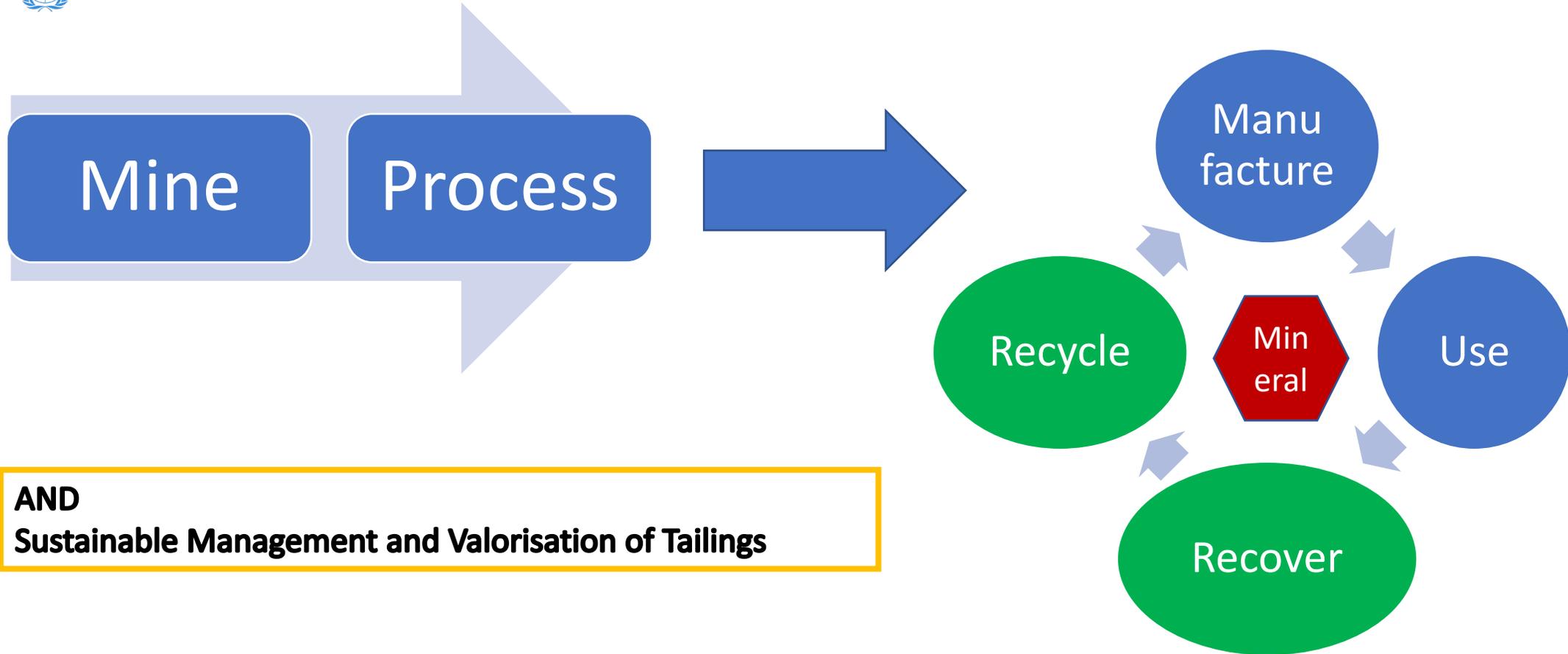


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Typical Linear Model



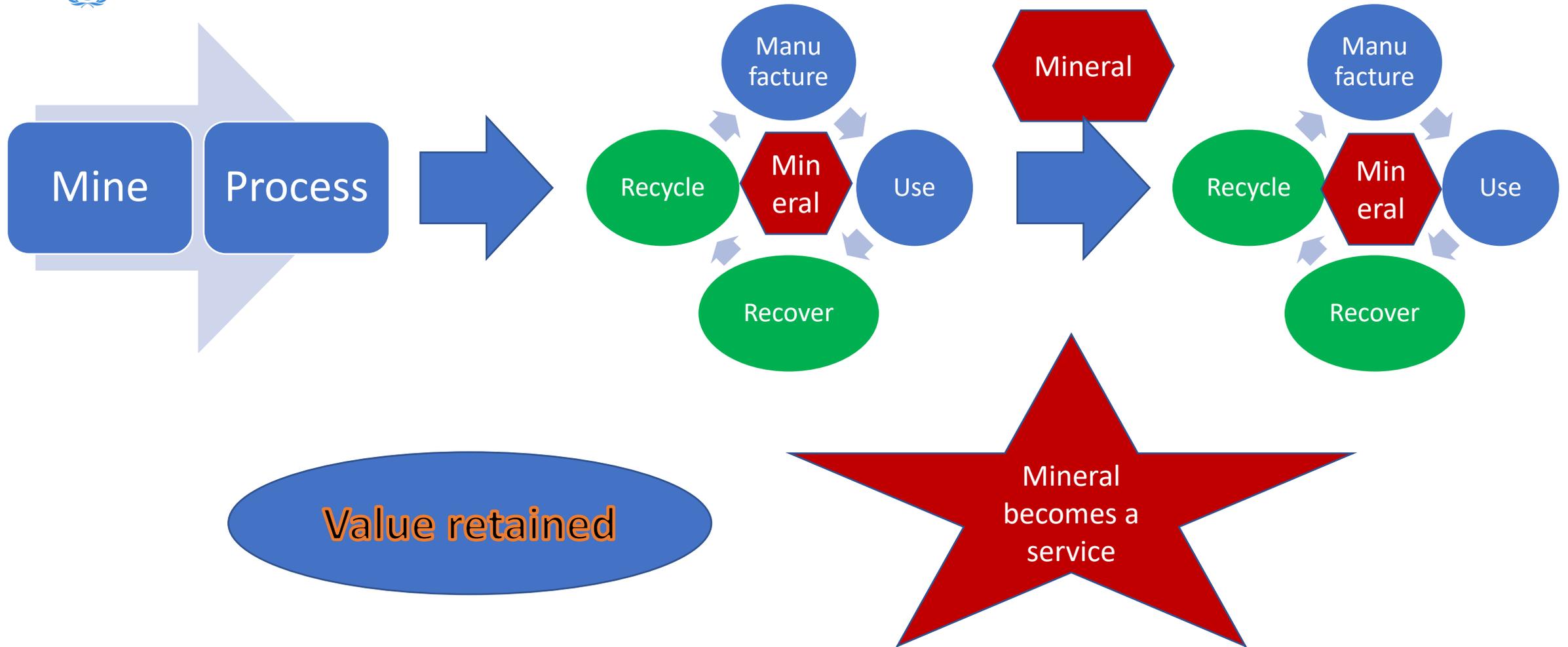
Typical Circular Model



**AND
Sustainable Management and Valorisation of Tailings**

Circular Model

Re-use of mineral = Mineral as a Service

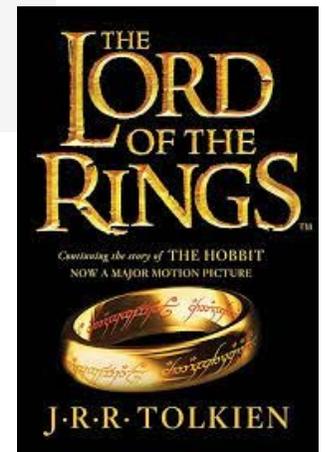


Sustainability and Fairness

From Value Chain (linear) to Value Ring (circular)



- Music Industry
 - Copyright is paid each time a song is bought or played
- Circular Mining: from value chain to value ring
 - Who has the right on the ore ?
 - How to share the value through multiple use of the same material?
 - Can/ Should the initial owner of the ore get remunerated each time the mineral is used ?
 - Is there an incentive for the mining country to encourage recycling and a circular model?



Circular Model Royalties Concept



Mineral as a Service

Technology Enabler

Royalties
Immediate at Mining Time
Additional at Recycling Time

Blockchain
Traceability

How can it be implemented ?

At least for one cycle



- **Step 1: Mining**
 - Royalty paid to country, as per conventional model
 - Additional payment made, and put in a trust fund managed by a third party
 - Blockchain initiated to trace the mineral
- **Step 2: Use in first cycle**
 - Additional payment stays in trust fund
 - Blockchain to trace the mineral
- **Step 3: Recover to recycle**
 - Trust fund gives back money
 - X% to the country of origin of the mineral
 - Y% to the mineral recycling operator

Economics and Policies Benefits



- The mining country has an incentive for the recycling of its mineral
 - Participates to sustainability of mineral resources
 - The industry has also an incentive to go circular
 - Aligned with mining country
 - The “fresh” material is made a little bit more expensive while the recycled material is made a little bit less expensive
- ➔ incentivise recycling economics

Ethics and SDGs Benefits



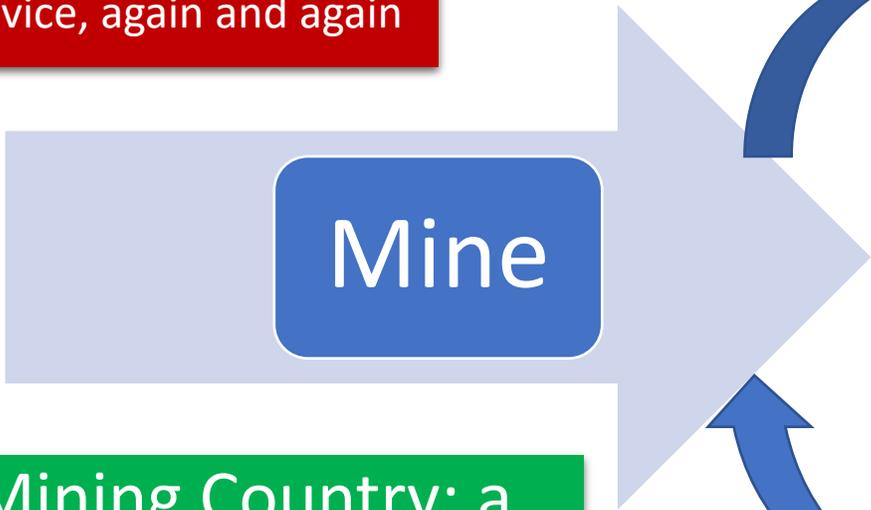
- Mineral becomes a service to manufacture goods on a circular basis
 - Reduce pressure on limited resources
- Ethics and Fairness: the country (or region) of origin
 - retains a right on the mineral in each cycle of its use
 - gets an income when the mineral that it has provided is re-used
 - the recycler is using the service provided by the mineral
- Bonus of having an additional income 10 to 20 years after initial mining
 - Governance
 - Opportunity to fund development on a longer period

The New Paradigm of Resource Servitization

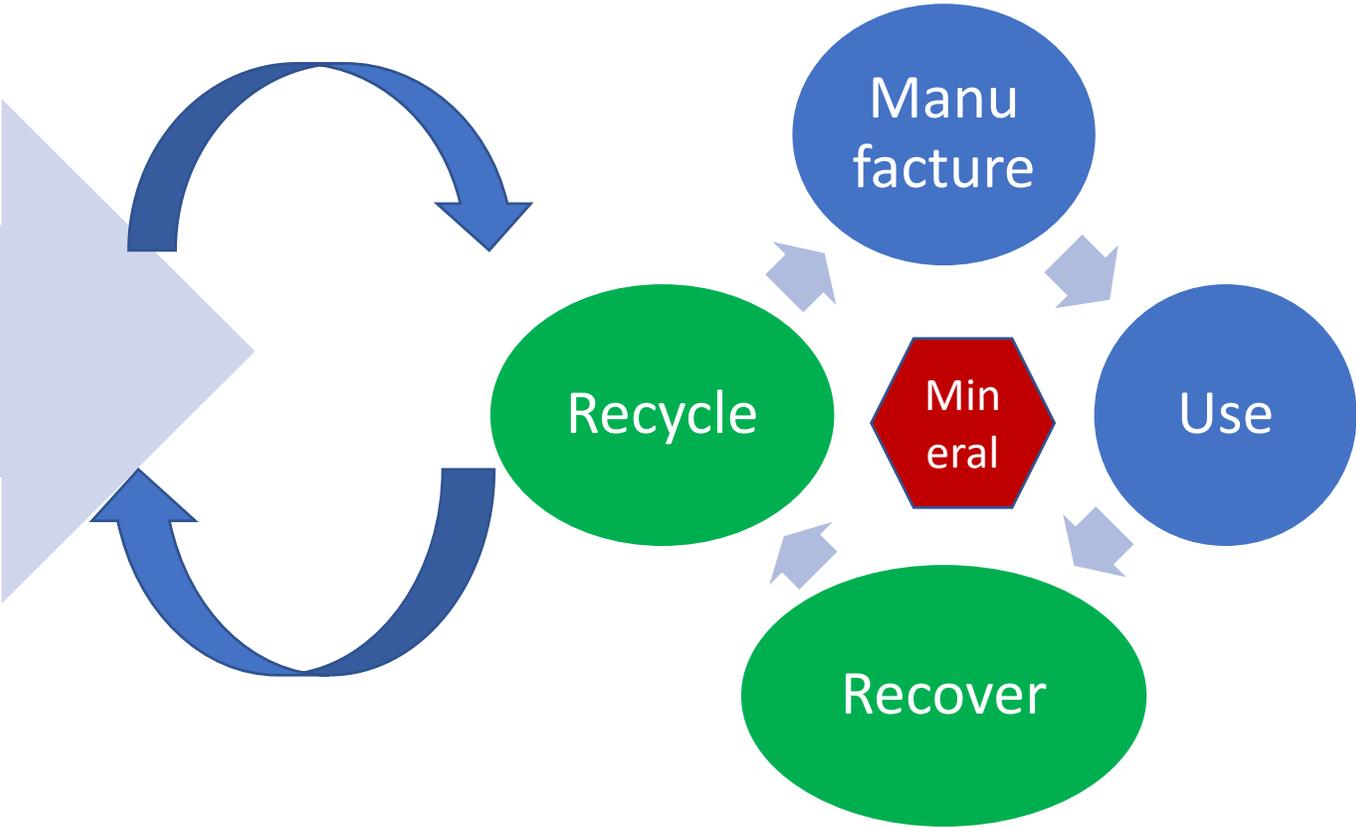
Long Term Partnership



Mineral is providing a service, again and again



The Mining Country: a service provider which remains in the loop again and again



Addendum: clearing the historical waste



- Tailings from previous mining operations are often a burden
 - Land use
 - Environmental monitoring
- Tailings, old and new, often contain valuable minerals
 - and smart thinking can find a good use for the tailings
 - Example: PhospateGypsum
- Tailing management and valorisation is a value adding service
 - And when an additional flow is created, it can be a new loop !

Thank you!

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The Sailing Brain Consulting

Date 26 | 4 | 2023, Geneva



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