Faculty of Design

2020

Reducing Mining and Energy Consumption through Recycling of Fired Ceramic Waste

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Reducing Mining & Energy Consumption Through Recycling of Fired Ceramic Waste

- Doing more and better with less -

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RSD9 Relating Systems Thinking & Design

Circular Economies. Track 1

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Archeology has shown us that

ceramics remain unweathered

for centuries.

One ceramic production cluster in India annually uses

7.2 Lakh tons of clay

Annual wastage of fired pieces at this cluster

21,600 tons

Multiply this annual wastage by

50 years of production

Equivalent to a 18 storey building
of the size of a football field

Imagine

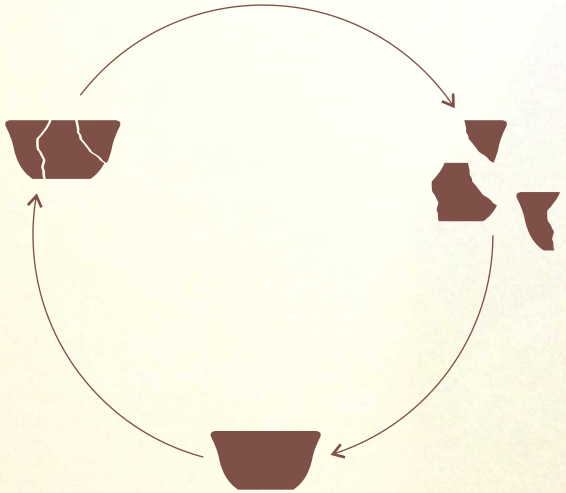
the prodigious amount of waste landfilled by production units across the country & the world ?

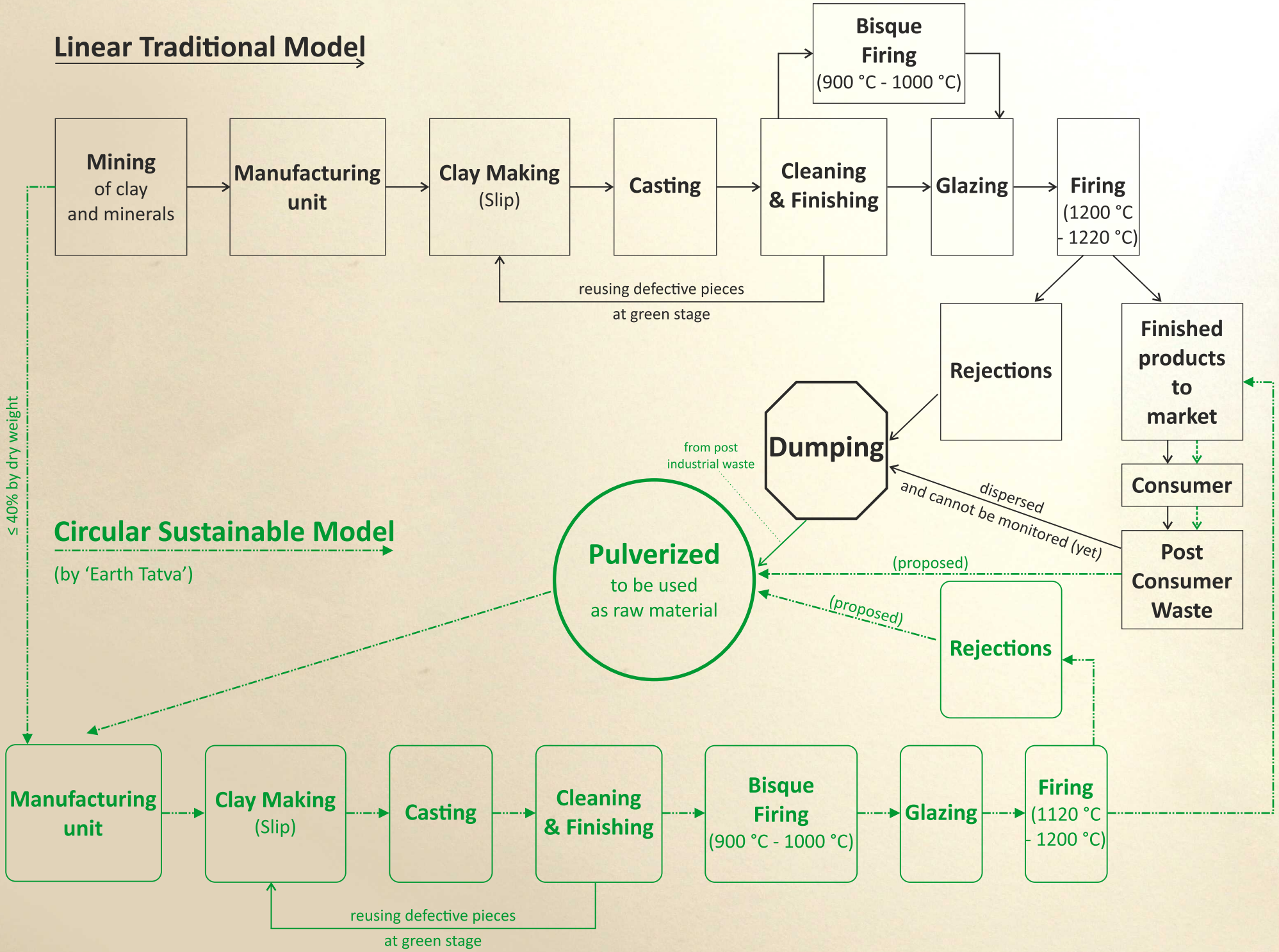
Solution

With Earth Tatva we reduce mining for natural resources by up to 60% by recycling post-industrial fired ceramic waste into a usable ceramic material.

We can use this material for various production cycles under a closed-loop zero-waste manufacturing process that adheres to the principles of circular economy. Supporting SDG-12.

Essentially, doing more and better with less.




Linear Traditional Model
Mining of clay and minerals
Manufacturing unit
Clay Making (Slip)
Casting
Cleaning & Finishing
Glazing
Firing (1200 °C - 1220 °C)
Bisque Firing (900 °C - 1000 °C)
reusing defective pieces at green stage
Rejections
Finished products to market
Dumping
from post industrial waste
dispersed and cannot be monitored (yet)
Consumer
Post Consumer Waste
≤ 40% by dry weight
Circular Sustainable Model
(by 'Earth Tatva')
Pulverized to be used as raw material
(proposed)
(proposed)
Rejections
Manufacturing unit
Clay Making (Slip)
Casting
Cleaning & Finishing
Bisque Firing (900 °C - 1000 °C)
Glazing
Firing (1120 °C - 1200 °C)
reusing defective pieces at green stage

Earth Tatva's 60% recycled ceramic wares | 35% stronger | 100% recyclable

Accelerating Socio-Enviro Balance

Benefits to:

Consumers

- Durable-responsible products
- Guilt-free lifestyle
- Affordable

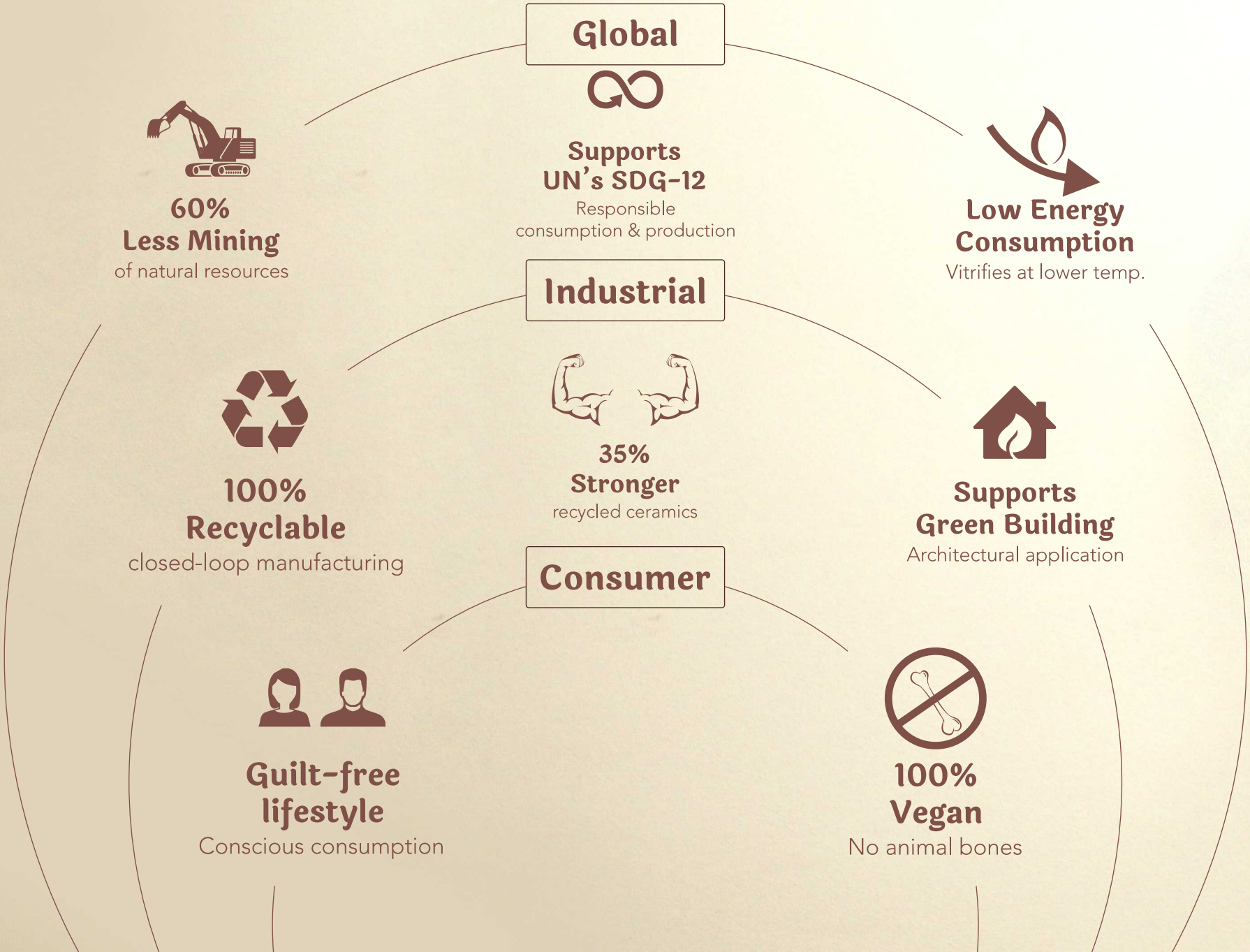
Industries

- Waste diverted from landfill
- Productive use of waste
- Less dependant on natural reserves

Environment

- Reduced mining by 60%
- Vacated landfills - Rejuvenated soil
- Lower carbon emission

Systemic Placement of the solution



Applications

Tableware

Architecture*

Furniture*

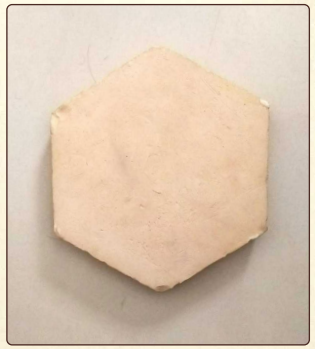
Sanitaryware*

Homedecor*

Gifting*

Planters*

Paver Blocks



*images sourced from world wide web

Questions to Consider

What is really driving the market?
consumer demand or industry supply

Questions to Consider

How do we bridge the gap between:
quality aesthetics & quality functionality
…without economic tradeoffs

Questions to Consider

Will increasing affordability make us respect natural resources?

or will it go against our vision

Thank You

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