OMBURO:
the link between water access, re-housing and mycelium

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from too little *to too much*

WATERBODIES &
NOMADIC CULTURES:

What is the relation between waterbodies and nomadic cultures - in the context of Namibia?

MIA BARNARD

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INSTITUTION

Technische Universiteit van Delft
TU Delft

Faculty of Architecture and the Built Environment
Julianalaan 134, 2628 BL Delft
The Netherlands

CONTRIBUTERS

Architecture and Research
Vanessa Grossman
Theory and History
Rachel Lee
Building Technology
Rufus van der Ban
Industrial Design and Mycelium
Joana Martins (IDE)

AUTHOR

Mia Barnard
DOB | 11 March 1997
Student Number | 4612949

MSc Architecture
Explore Lab Graduation Studio

EFL STICHTING

TU Delft

abstract

Namibia has been home to some of the world's oldest ethnic groups since the dawn of civilization. One of these cultures is the Himba, often referred to as 'the last true pastoral nomads' of Africa. They are known for inhabiting the water-scarce desert region of Kunene in Namibia for centuries. Now, various factors, including climate change and the absence of governmental support, are forcing the Himba population to decide which aspects of 'modern' culture to incorporate into their everyday lives.

After decades of declining rainfall and rising temperatures, drought and *omakururukiro yokuti* (over-utilized land and vegetation) are the reality. The Himba is therefore forced to rely on their nomadic origins for survival, and to travel southwards, 'following the water', to Windhoek which is the capital of Namibia. On arrival, they are confronted with inequality apparent in the African urban built environment and take part in the rapid urbanization of Windhoek. They settle in *townships*, in *shacks*, located on the outskirts of the city, where access to water and sanitation is limited. Due to landscape topology, climate change and other factors, the high possibility of flooding poses a new risk. Indeed a life-threatening choice: surviving drought in Kunene or surviving floods in Windhoek.

As a result, water is not only important in culture, migration, and climate change. It also has an impact on the built environment and livelihoods in Windhoek townships, particularly Katutura (meaning "the place we do not want to be"), where access to water is limited, creating a disconnect from "access to citizenship." Consequently, the project is centered around the African proverb: *Return to old watering holes for more than water; friends and dreams are there to meet you*, with the goal of creating a communal area for the community to gather and engage in water-related activities, translated to *Omburo* (waterhole).

Omburo raises the following question: "*How can we rethink architecture in a world with finite resources*?" by generating the search for novel indigenous building materials. This then led to the introduction of mycelium in conjunction with local indigenous encroachment bushes, which can be used to create sustainable building elements (building blocks) and serve as the primary construction for incremental housing in the township, all while creating job opportunities and improving Katutura's socioeconomic conditions.

As a whole, *Omburo* can be regarded as a waterhole integrated with mycelium spores that spreads across the township while establishing a community area where 'friends and dreams' can be met.

OMBURO

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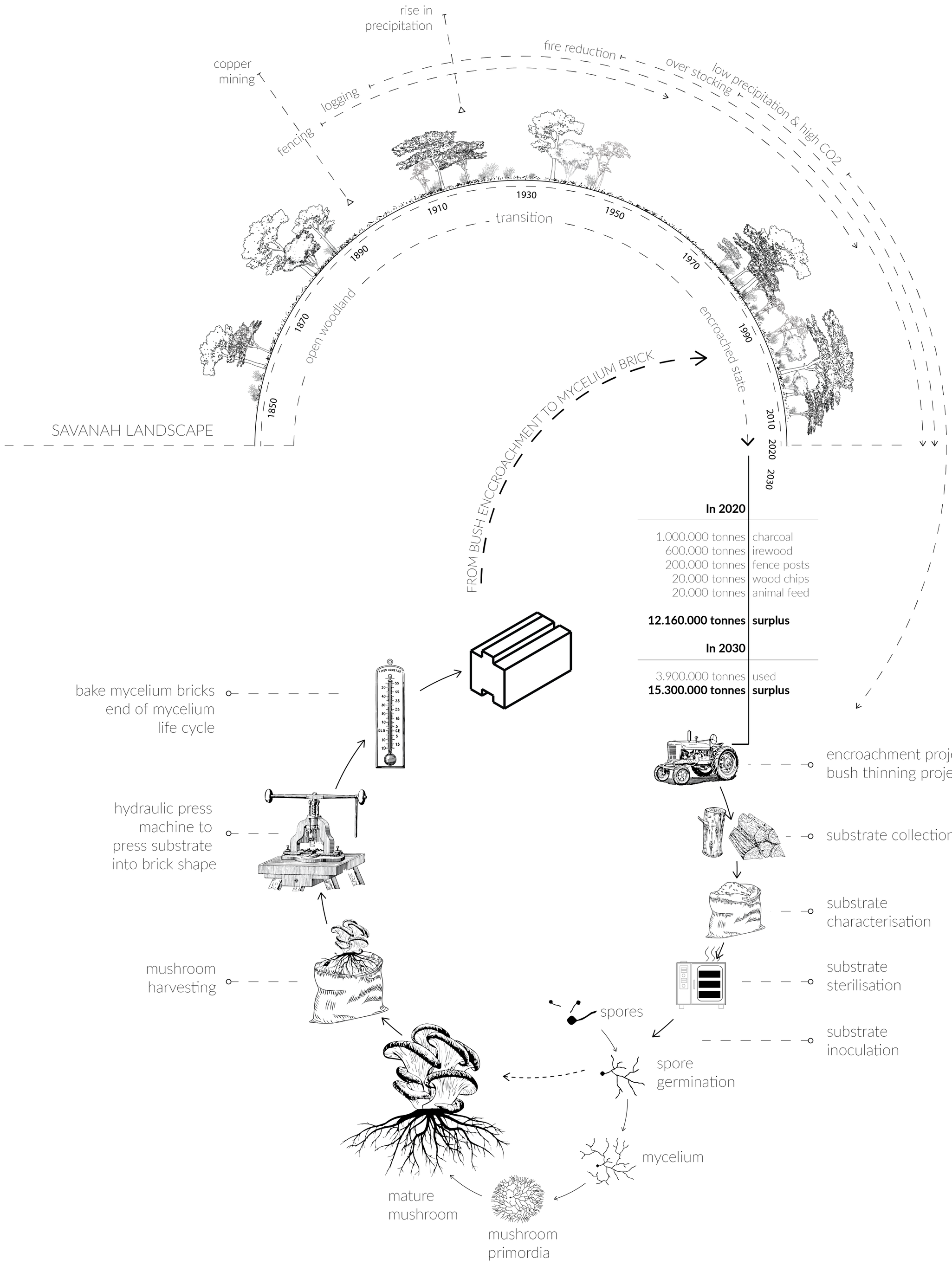
FROM BUSH TO BRICK

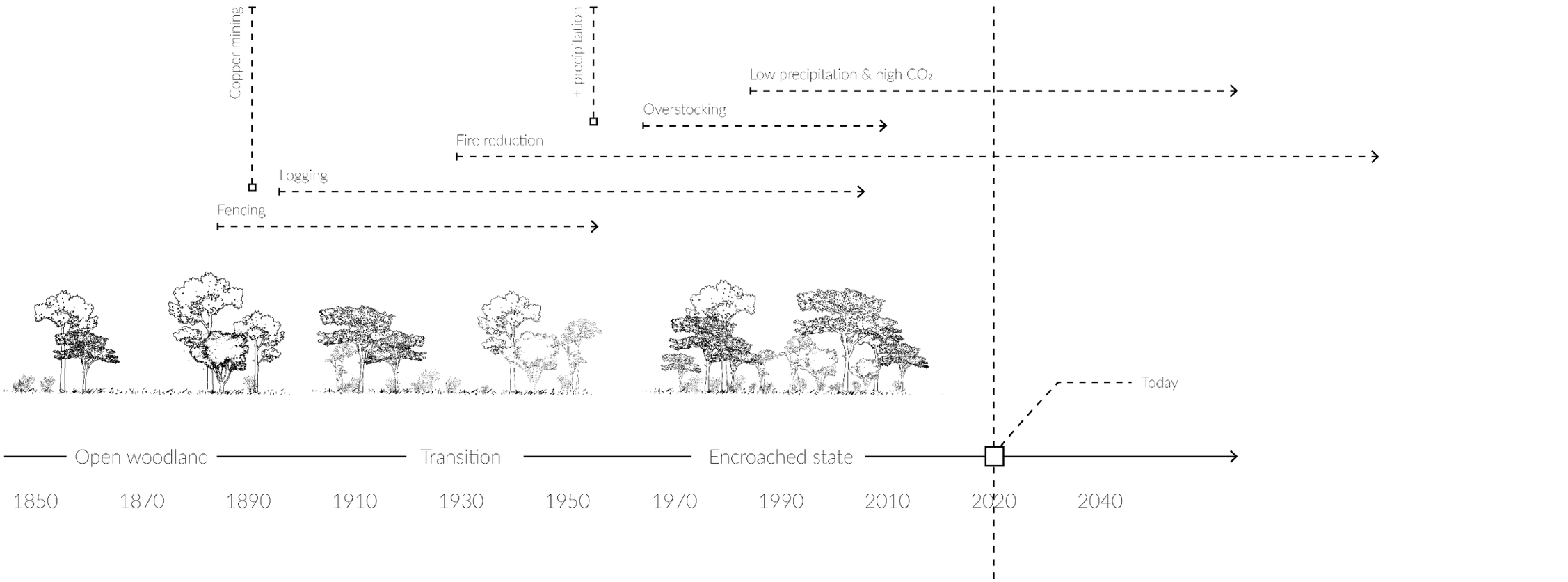
Omburu's mycelium brick-making process. The materialisation project intends to use new and innovative indigenous materials as a new medium for developing a more sustainable vernacular architectural type. To begin, work is focused on utilising encroachment bushes in Namiba. Second, in conjunction with oyster mushroom (mycelium spore), that might potentially be harvested as a source of income for the community.



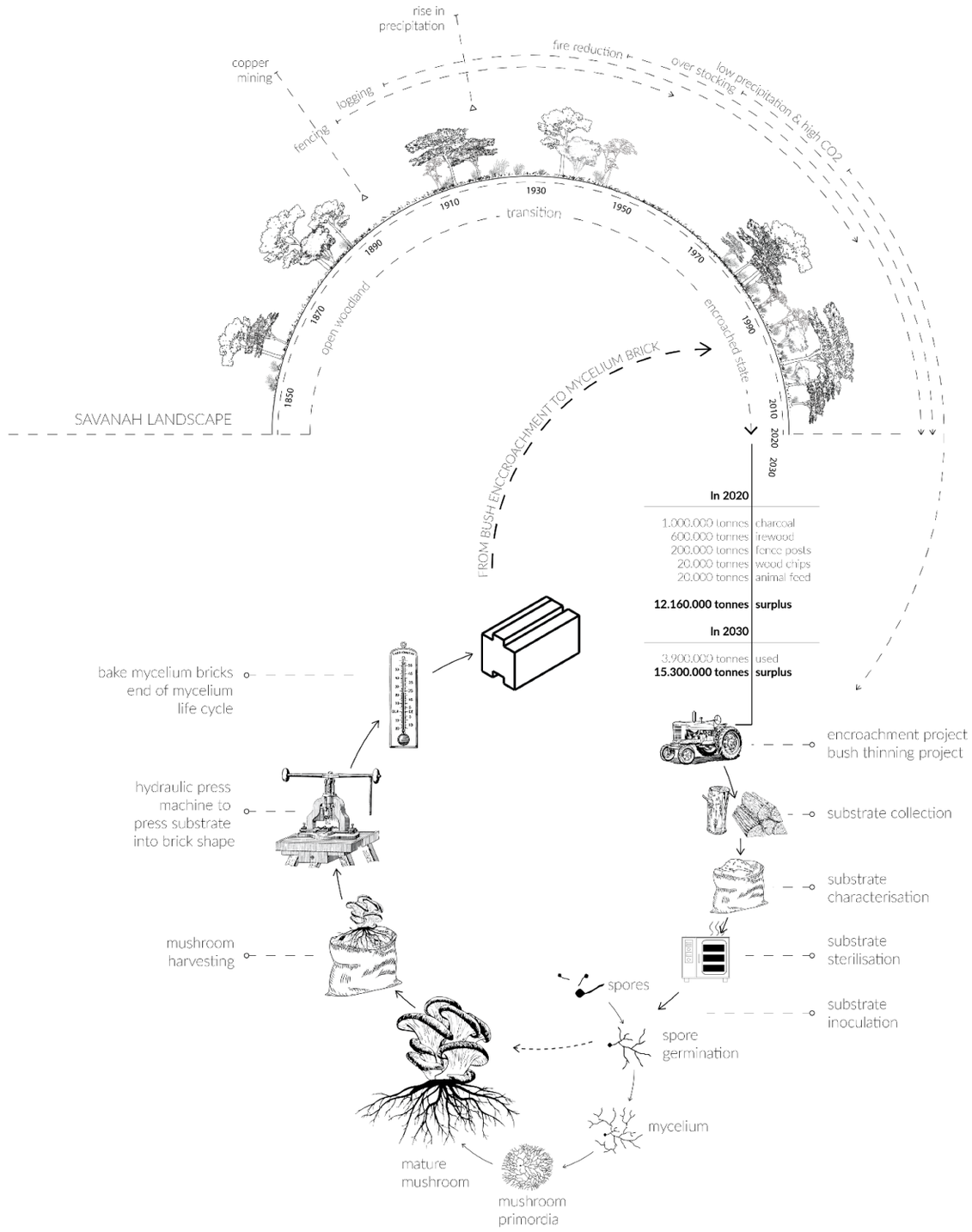
MATERIALITY

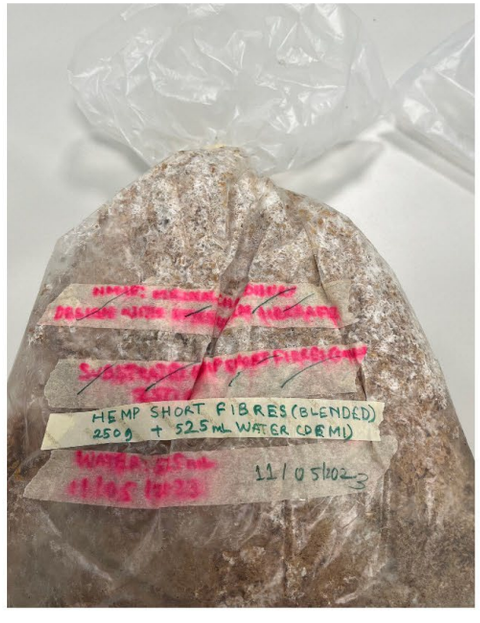
"How can we rethink architecture in a world of finite resources?"

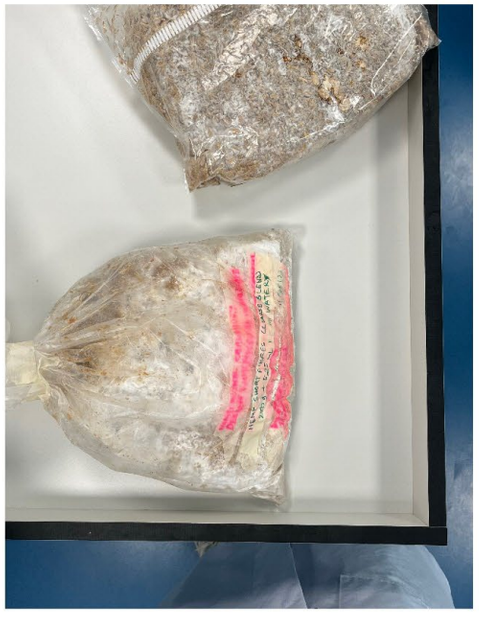
How do we design for Omburo?


Copper mining
+ precipitation
Low precipitation & high CO_2
Overstocking
Fire reduction
Logging
Fencing
Today
Open woodland
Transition
Encroached state
1850
1870
1890
1910
1930
1950
1970
1990
2010
2020
2040

In 2020	
1.000.000 tonnes	charcoal
600.000 tonnes	firewood
200.000 tonnes	fence posts
20.000 tonnes	wood chips
20.000 tonnes	animal feed
12.160.000 tonnes	**surplus**
In 2030	
3.900.000 tonnes	used
15.300.000 tonnes	**surplus**


rise in precipitation
copper mining
logging
fencing
fire reduction
over stocking
low precipitation & high CO2
1850
1870
1890
1910
1930
1950
1970
1990
2010
2020
2030
open woodland
transition
encroached state
SAVANAH LANDSCAPE
FROM BUSH ENCCROACHMENT TO MYCELIUM BRICK
In 2020
1.000.000 tonnes charcoal
600.000 tonnes firewood
200.000 tonnes fence posts
20.000 tonnes wood chips
20.000 tonnes animal feed
12.160.000 tonnes surplus
In 2030
3.900.000 tonnes used
15.300.000 tonnes surplus
encroachment project
bush thinning project
substrate collection
substrate characterisation
substrate sterilisation
substrate inoculation
spores
spore germination
mycelium
mushroom primordia
mature mushroom
mushroom harvesting
hydraulic press machine to press substrate into brick shape
bake mycelium bricks end of mycelium life cycle


HEMP SHORT FIBRES (BLENDED)
250g + 525mL WATER (OR MI)
11/05/202



approx. 13-15 days

"from bush to brick"

1 day — prepare

5-7 days — inoculate

grow — container - dark room

5-7 days — incubator — container - light room

1/2 days — bake 12h at 180°

harvest KIKA SHOP

buy a brick economy | job

Mia Barnard
4612949

Mycelium brick - building
block dimensions

scale 1:10