



**BAMBOO
VILLAGE
TRUST**



Cave Urban

GROW YOUR OWN CITY

World Bamboo Congress 2024



Arief Rabik

Executive Director
Bamboo Village Trust



Arief Rabik, influenced by Ubud's bamboo forests and his mother's legacy, initiated the Bamboo Village Initiative (BVI) for ecological restoration through social forestry. Extending his Environmental Bamboo Foundation's work, he now takes the BVI's mission worldwide with the Bamboo Village Trust (BVT), inviting collaboration for global impact.



Jed Long

Co-Founder
Cave Urban



Jed Long, is a co-founder of Cave Urban alongside Nici Long and Juan Pablo Pinto. Jed blends architectural design with art, research and innovation.

A Churchill Fellow and PhD candidate, Jed is exploring the uptake of bamboo outside of traditional cultures of use.

GROW YOUR OWN HOUSE

24 Years Ago, ZERI and Simon Velez set out a vision for bamboo as a locally grown sustainable building material.



GROW YOUR OWN ~~HOUSE~~ CITY

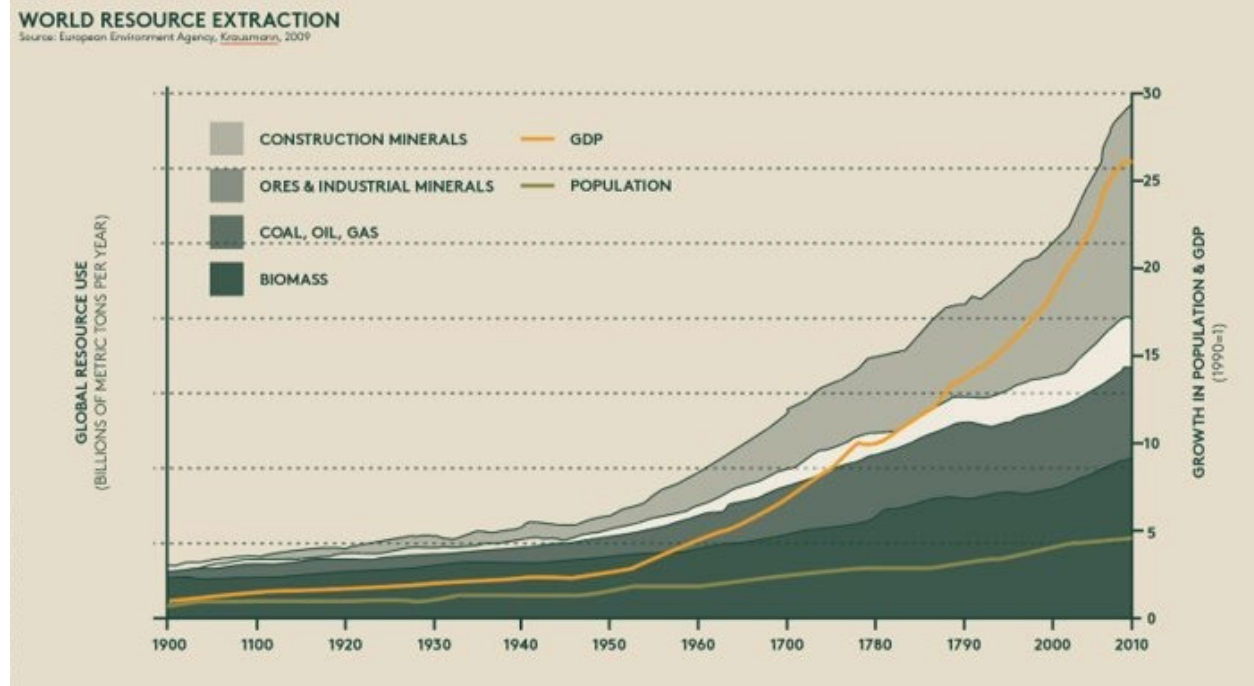
Growing urban
population

+

Increase in
consumption per
capita

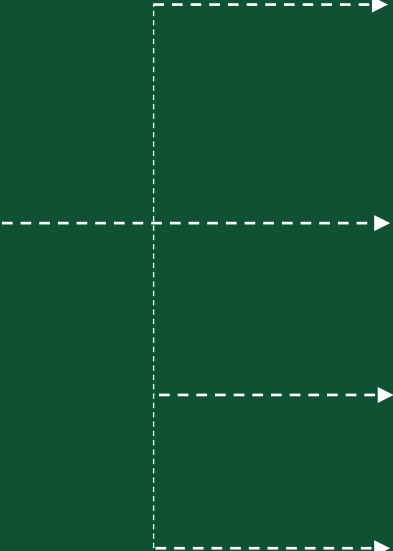
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***GROWTH IN DEMAND
FOR MATERIALS***
(mostly non-renewable)



GROW YOUR OWN CITY

Why Cities?



The built environment accounts for **nearly 40% of global CO2 emissions** due to construction, operation of buildings and infrastructures, materials production and transportation

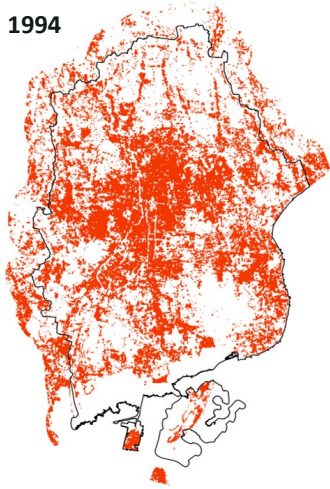
60% of global resource consumption and **50%** of global waste generation can be attributed to the built environment

Highly biologically diverse or fertile land is often consumed by **urban growth and sprawl**

35% of construction waste ends up in landfills without any treatment

DENPASAR

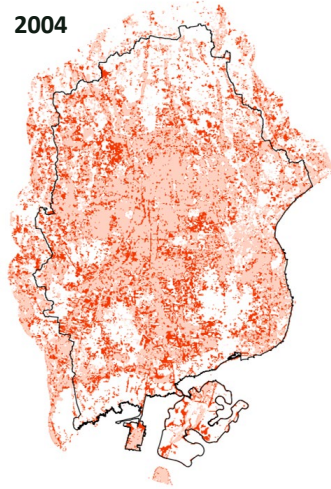
1994



29.8%

(3,750 ha)

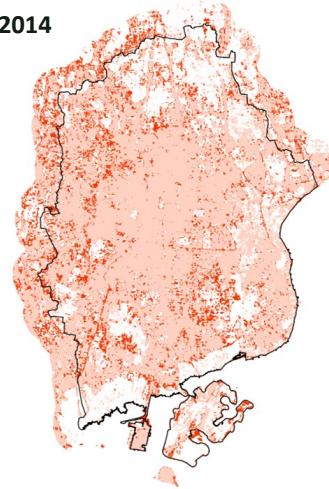
2004



45.5%

(5,725 ha)

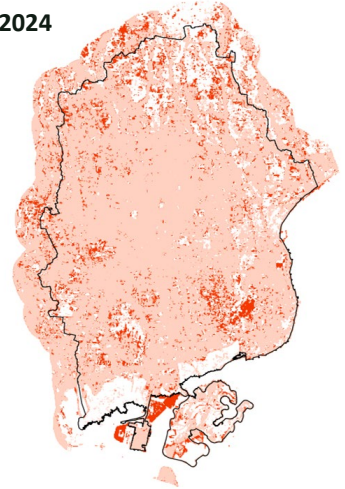
2014



58.3%

(7,336 ha)

2024



69.8%

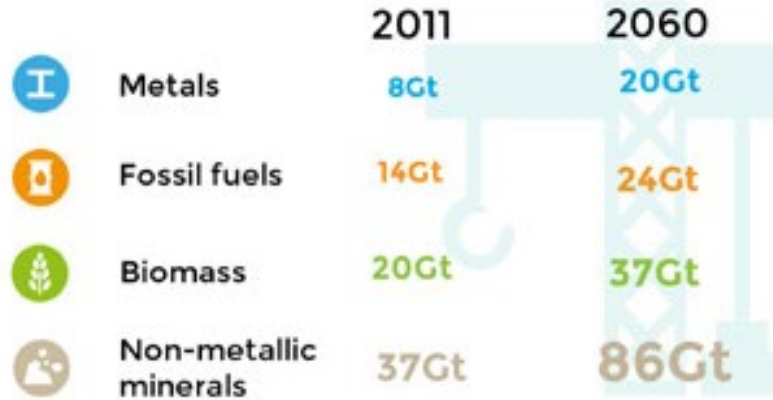
(8,786 ha)



 Area built up previously  Area built up during the decade

Our demand for **non-renewable** building materials is growing

Materials use increase



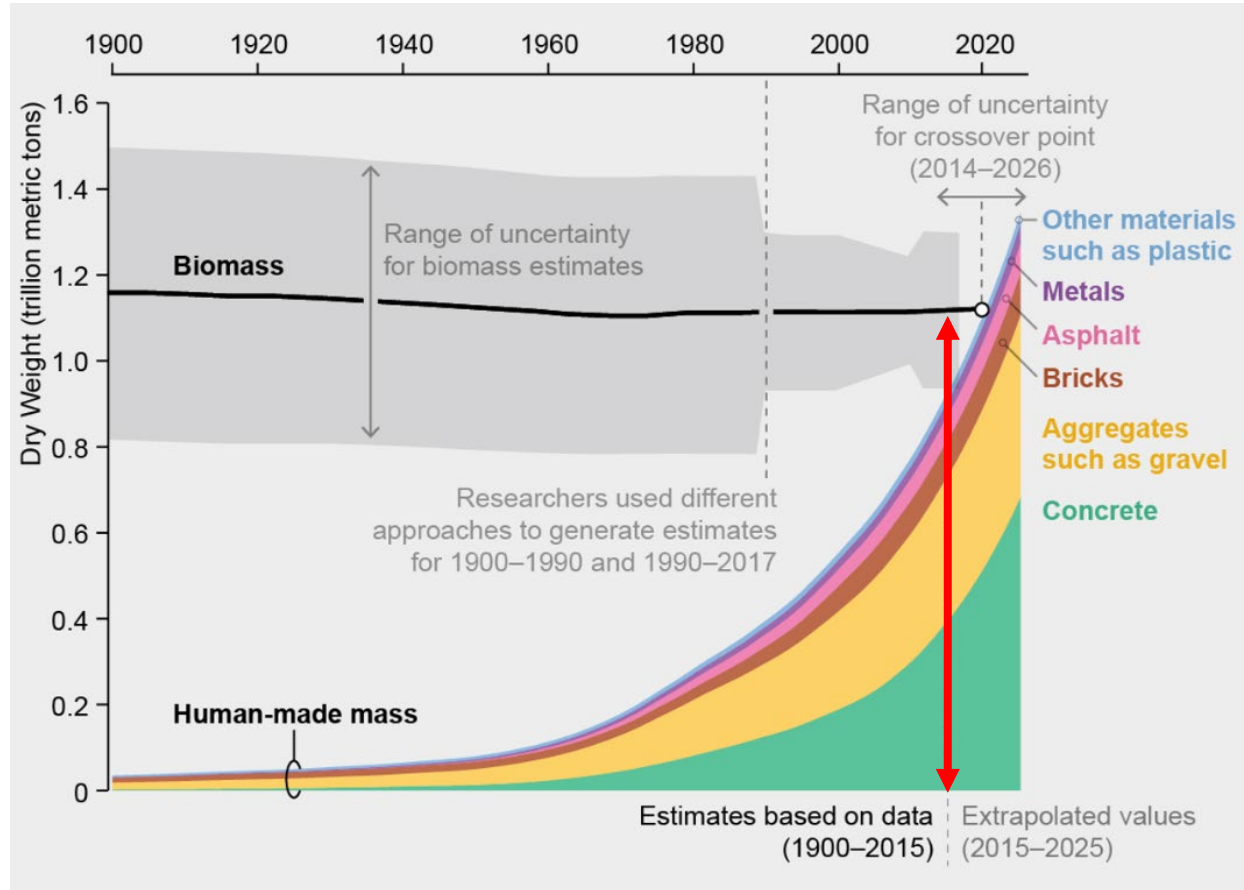
Source: OECD Global Materials Resources Outlook to 2060



We are addicted to concrete.

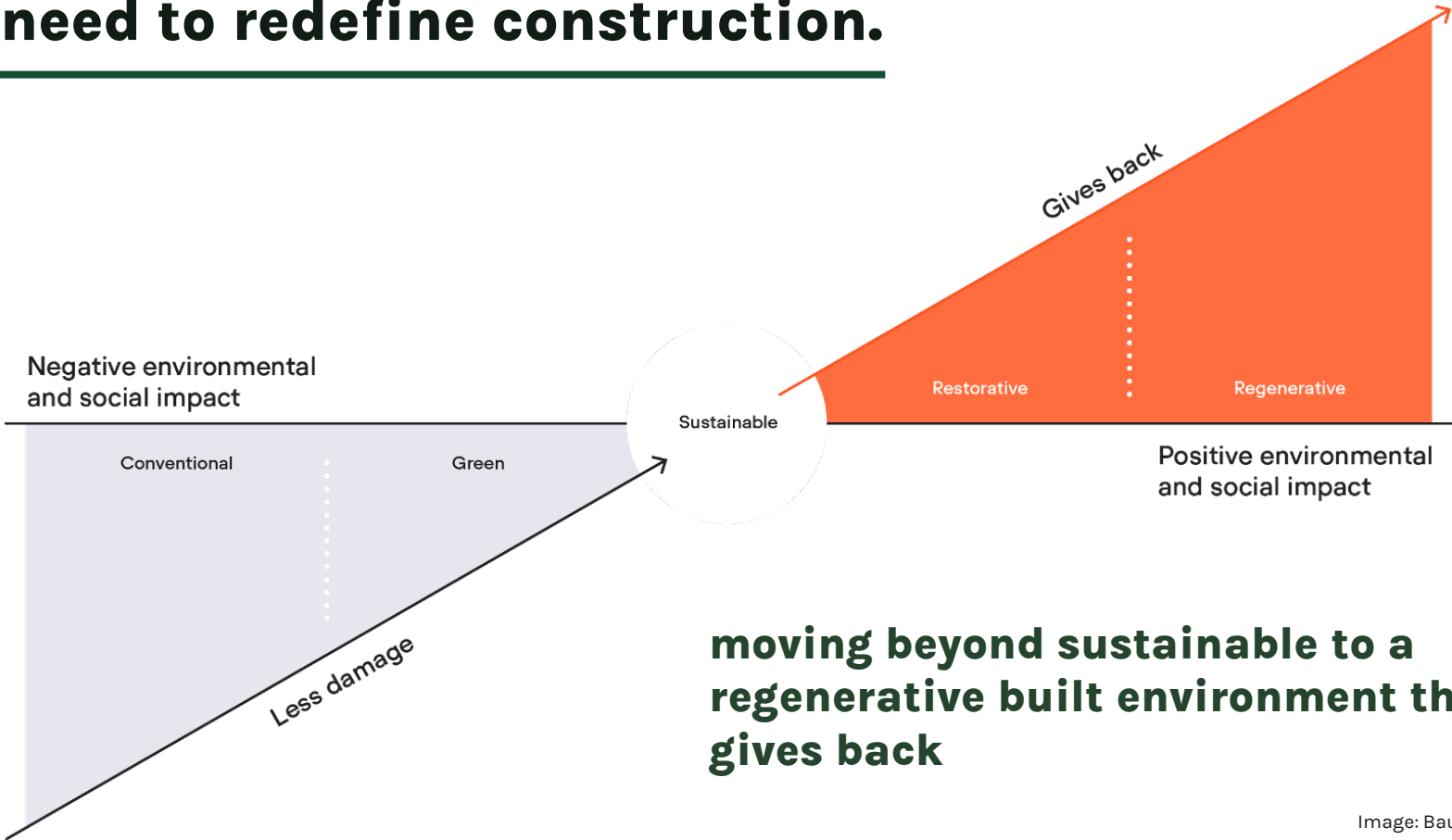
- Cement production causes **8%** of worldwide Carbon emissions.
- **4.5 Gt** consumed per annum
- **40 Gt** Sand and Gravel per annum
- 1 ton of cement = **590kg CO₂** from production
- 1m³ of concrete (~2.6t) = **330kg/t CO₂**

HUMAN MADE-MASS NOW EXCEEDS LIVING BIOMASS



What can we do?

We need to redefine construction.

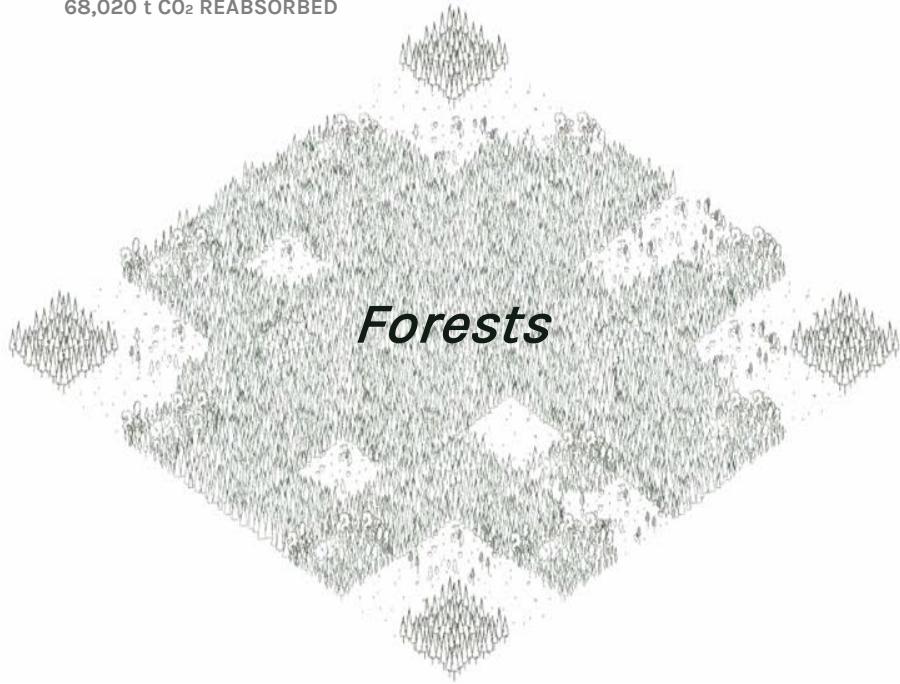


moving beyond sustainable to a regenerative built environment that gives back

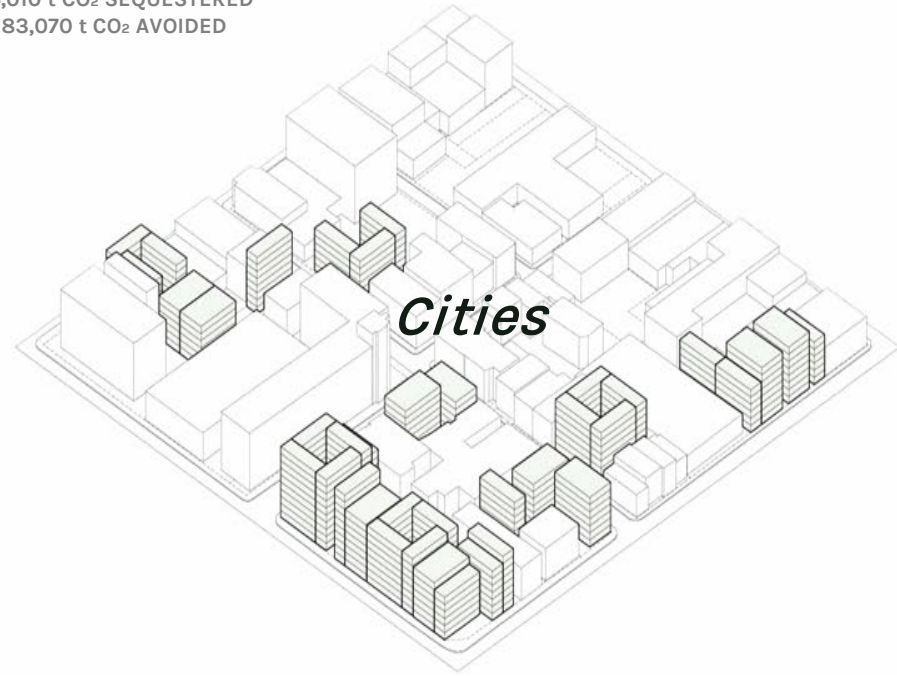
Image: Bauhaus Earth

WE HAVE TO GROW OUR OWN CITIES!

68,020 t CO₂ REABSORBED



34,010 t CO₂ SEQUESTERED
83,070 t CO₂ AVOIDED



Alan Organschi, Yale University, Grey Organschi Architects

CURRENT TIMBER FORESTS DON'T HAVE THE CAPACITY TO MEET DEMAND

Global consumption of timber products already **exceeds the sustainable supply** capacity of the world's forests.

A **diverse range of bio-based solutions** is required to meet demand for renewable building products.

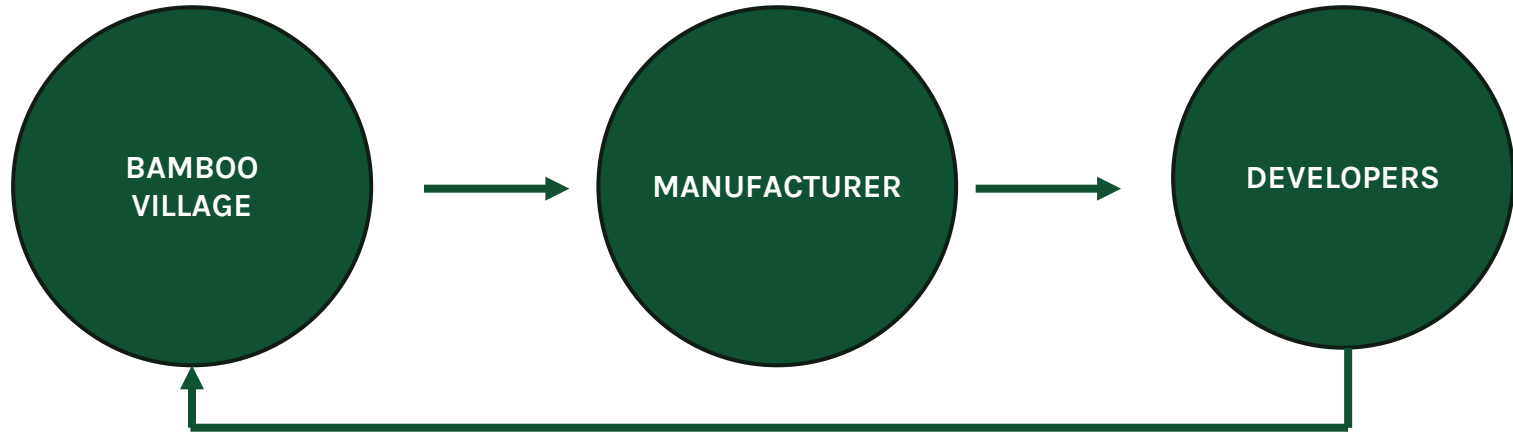
Planetary Boundary for Global Timber Consumption



**What is the role
of bamboo
in this critical
transformation?**

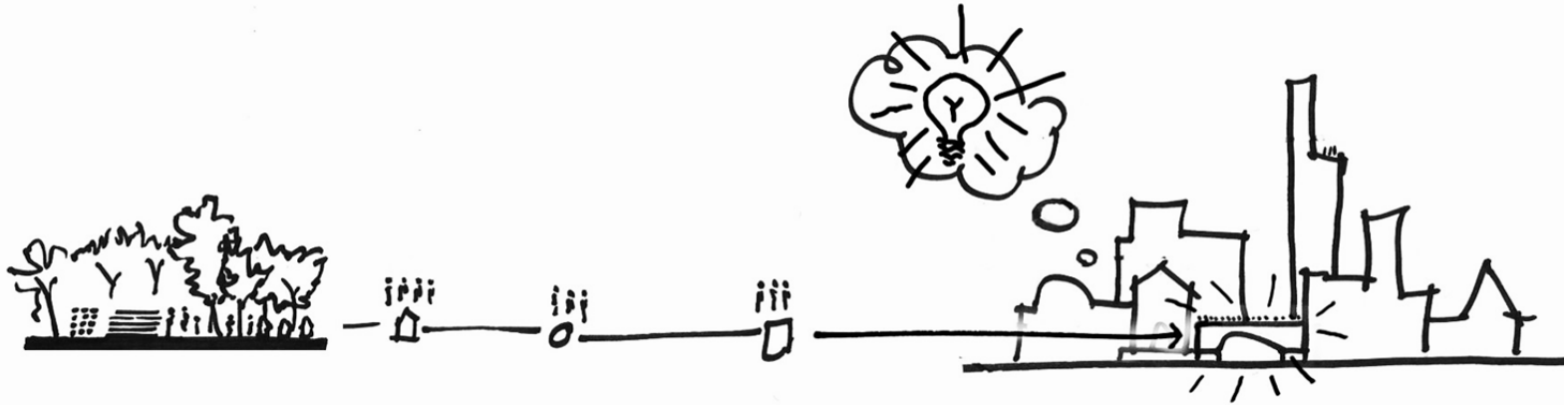


GROW YOUR OWN CITY - VISION



Creating **demand** for engineered bamboo products to **support** the **restoration** of degraded land and carbon **capture and storage** within the **built environment**

How do we
Connect Cities with Forestry Systems?



VALUE CHAIN DESIGN IS KEY

IT TAKES A VILLAGE TO CREATE A VALUE CHAIN



DEGRADED LAND



AGROFORESTRY



RURAL POVERTY



RESTORATION
ECONOMY



CONSTRAINED MARKET



STANDARDISE

WE WANT TO HELP FARMERS GROW CITIES



The Bamboo Village Trust, targets the restoration of 400,000 hectares of degraded land by 2030.

To create **restoration economies**



There is 1 billion hectares of sleeping land throughout the tropics





**We don't believe in bamboo...
We believe in bamboo villages**



THE 4 PATHWAYS & FUNDS

BAMBOO VILLAGE MODEL



**SITE SELECTION
PHASE**
(GIS Based Analysis)

Max Duration

2 WEEKS



**CHAMPION
ACTIVATION
PHASE**

Max Duration

1 YEAR

GRANT SIZE:
\$10,000.

DELIVERABLE:
4 PLANS (OPERATIONAL, BUSINESS PLAN,
BENEFIT-SHARING, TENURIAL ACCESS)



**COOPERATIVE
ACTIVATION
PHASE**

Max Duration

1 YEAR

GRANT SIZE:
\$40,000

DELIVERABLE:
EXECUTION OF EACH PLAN,
A REPORT.



**SOCIAL
FORESTRY
ACTIVATION**

Max Duration

1 YEAR

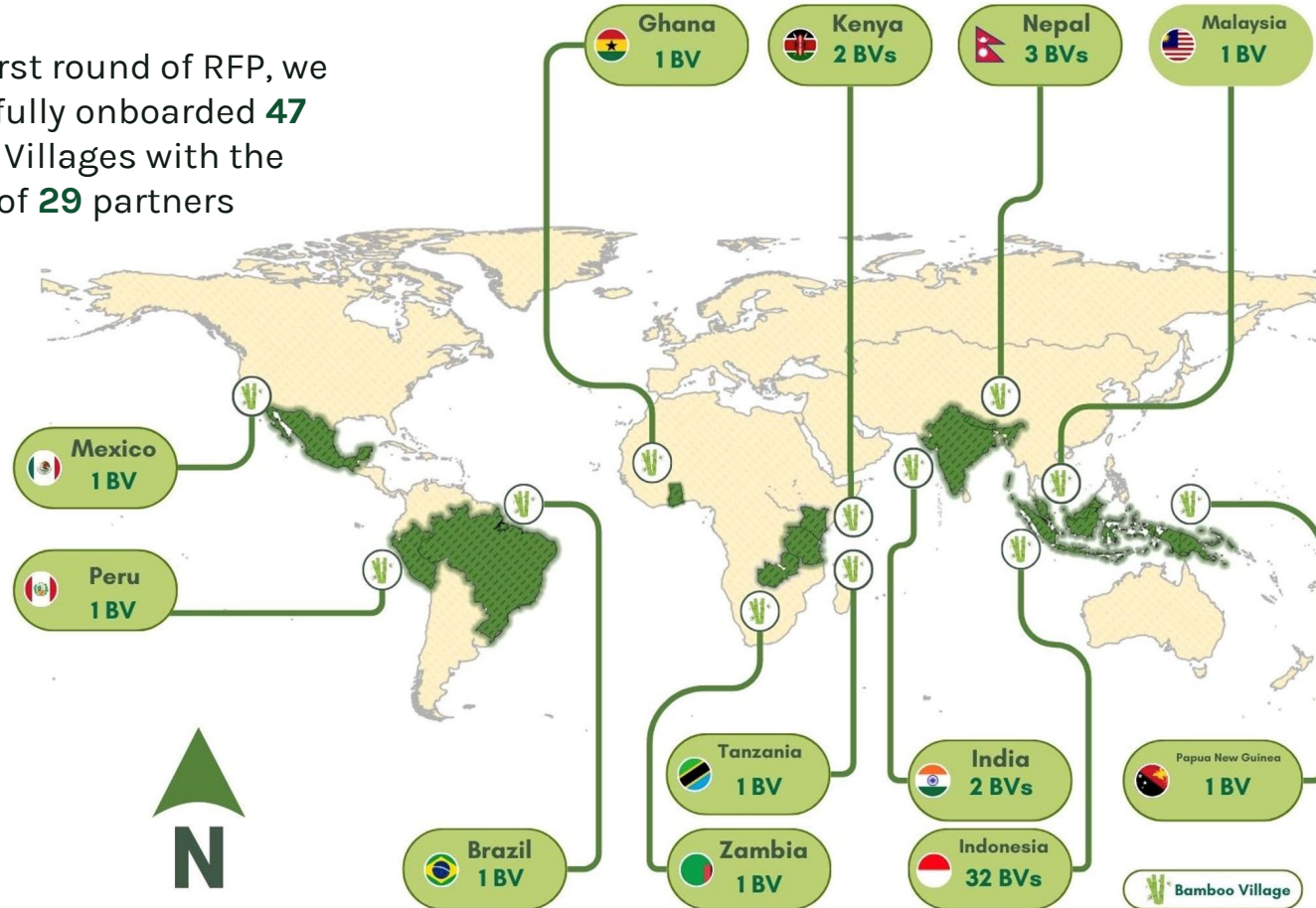
GRANT SIZE:
\$100,000

DELIVERABLE:
BAMBOO CLUMP REACHES 2- 3 METERS IN
HEIGHT, OPERATING VILLAGE SYSTEM.

GRANTS DISBURSEMENT ARE UPON COMPLETION OF EACH PHASE.

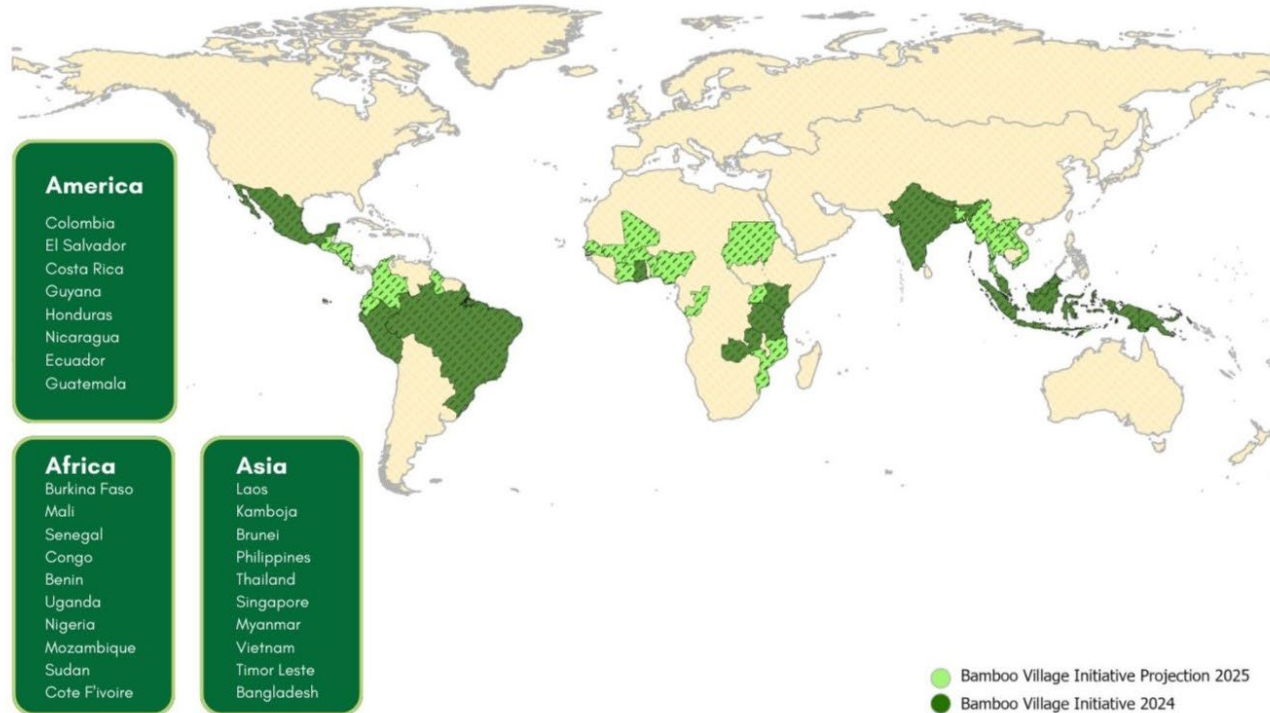


In this first round of RFP, we successfully onboarded **47** Bamboo Villages with the support of **29** partners

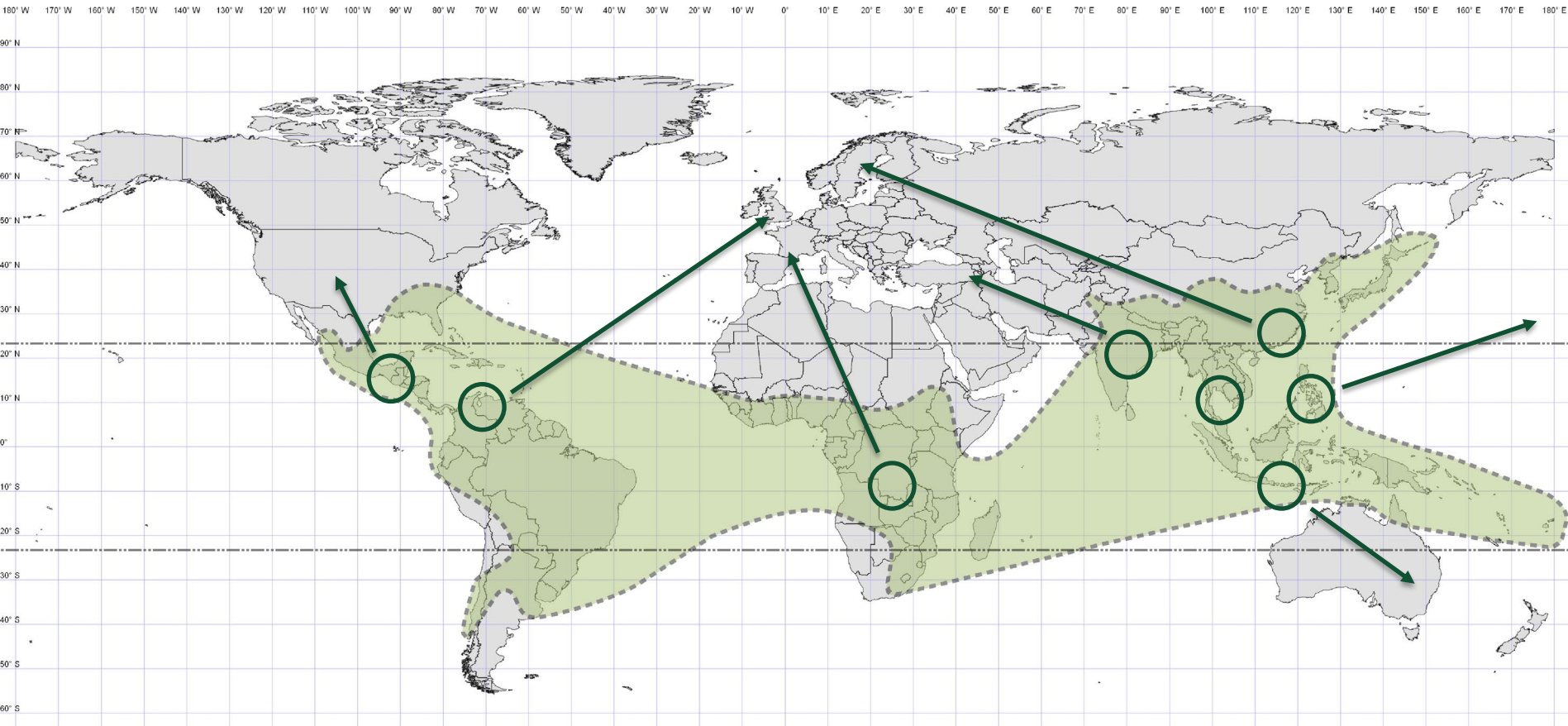




Second Round Projection Bamboo Village Initiative March 1st, 2025



HOW CAN WE WORK TOGETHER TO CONNECT PRODUCERS TO DEVELOPERS?



ENGINEERED BAMBOO VALUE CHAIN



PRODUCERS



DEVELOPERS

We know the potential of Engineered Bamboo

How do we unlock it?



Existing Timber
Knowledge



Carbon
Sequestration



High Annual
Yield



Value
Addition



Cave Urban

LEARNING BY MAKING



Cave Urban

THE GENERAL STORE

2016

Woodfordia, Australia

Design: Cave Urban

Manufacturing: Indobamboo



SHADE PARADE

2018-2020
Woodfordia, Australia
Design: Jorg Stamm + Cave Urban
Manufacturing: Indobamboo



Cave Urban

SOCIAL HOUSE

2020

Bajawa, Indonesia

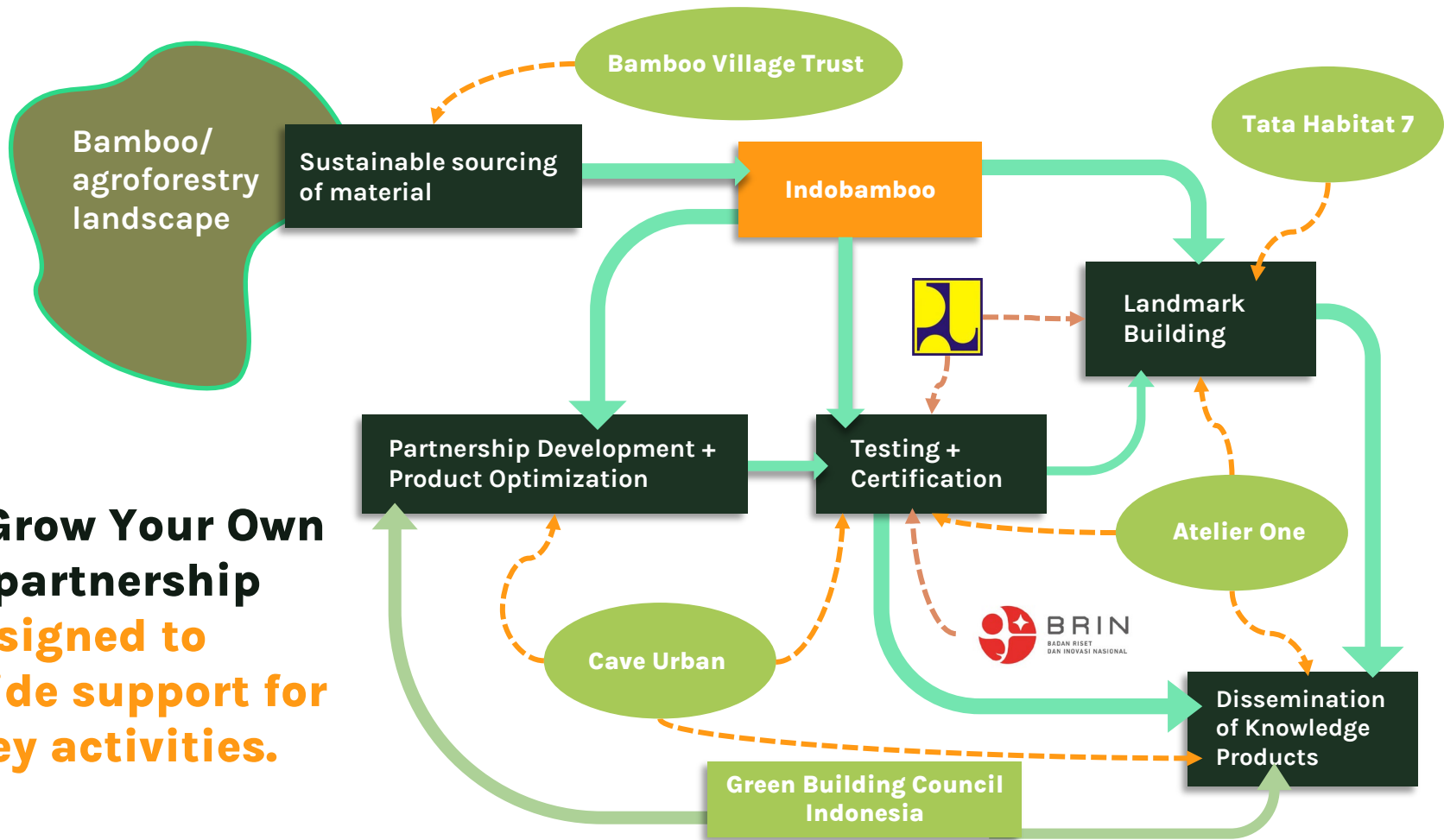
Design: Cave Urban

Manufacturing: Indobamboo

WE DEVELOPED PROOF OF CONCEPT AT A BUILDING LEVEL

SCALING TO A CITY LEVEL IS OUR NEXT STEP

The Grow Your Own City partnership is designed to provide support for all key activities.



GROW YOUR OWN CITY – CONNECTING FORESTS TO CITIES

Government



Research



Industry



Cave Urban

Advocacy



Funding

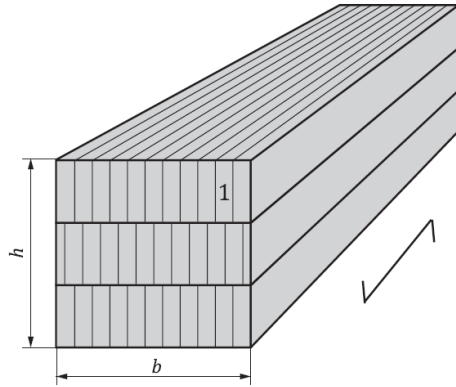


STRUCTURAL LAMINATE BAMBOO

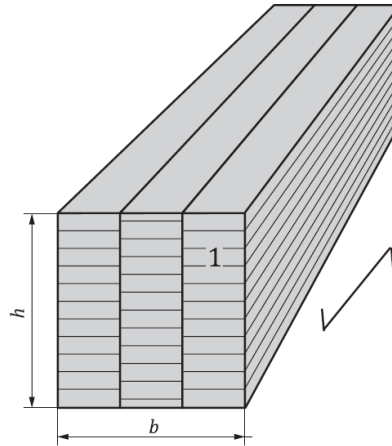


Quality control is critical!!!

TESTING TO ISO 23478



a) Horizontal board orientation



b) Vertical board orientation

Key

b width, b

h depth, h

1 bamboo lamina

↗ indicates parallel to fibre orientation

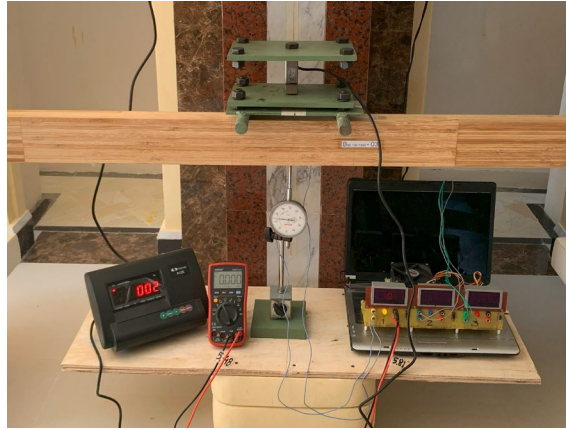


SHEAR TEST AT COVENTRY UNIVERSITY

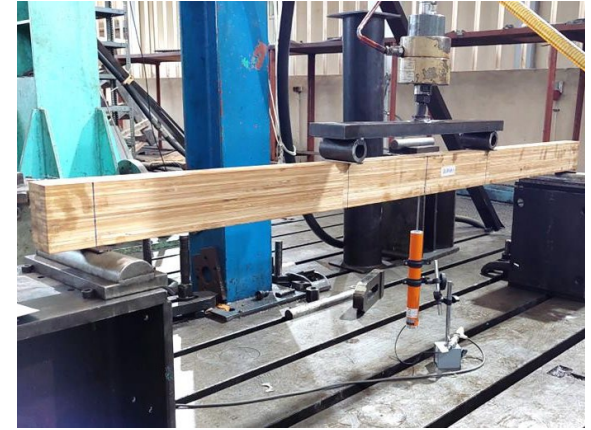
STRUCTURAL TESTING



In Factory

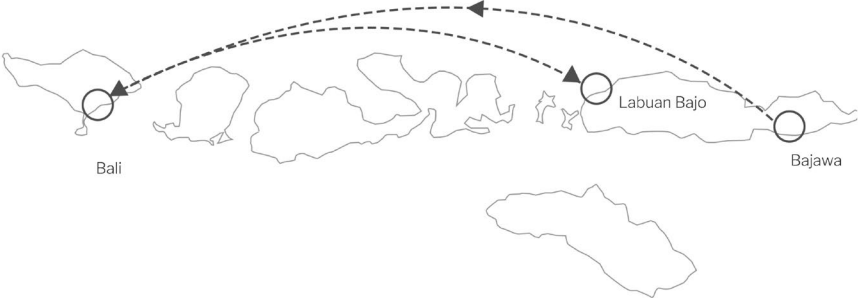


Bali Polytechnic

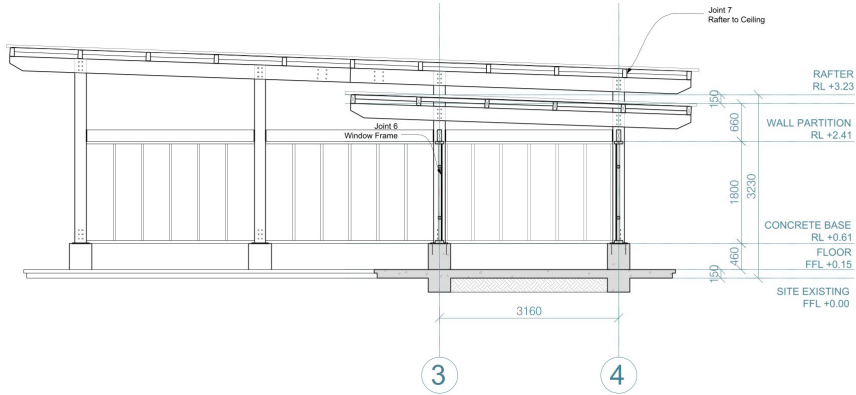


**National Research +
Innovation Agency (BRIN)**

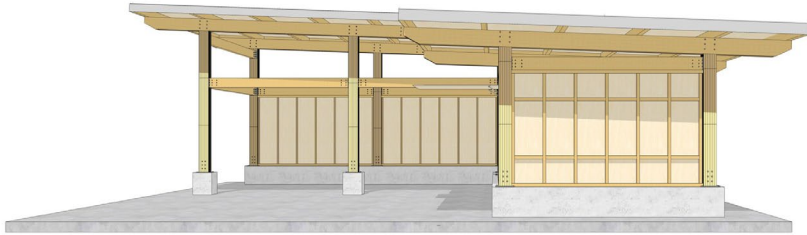
FOREST TO FACTORY + BACK AGAIN



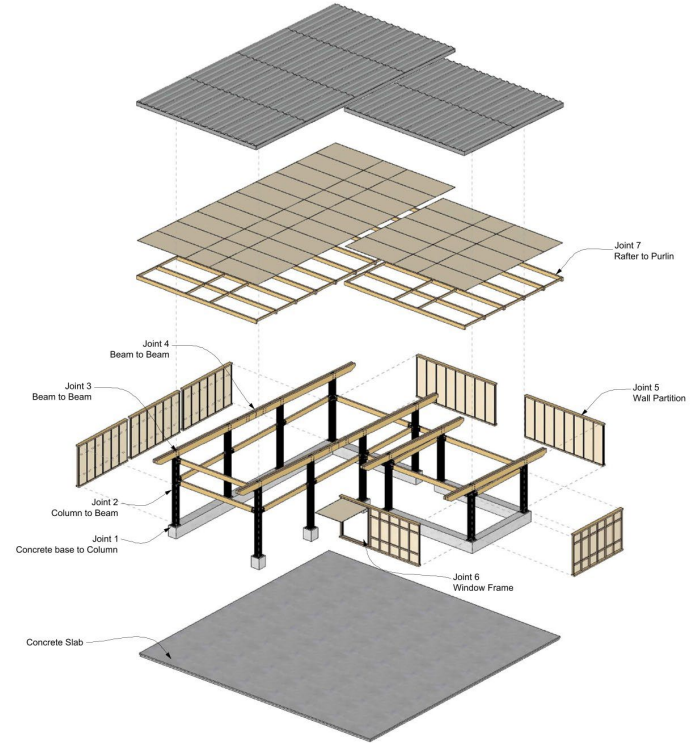
SECTION



3D PERSPECTIVE



AXONOMETRY

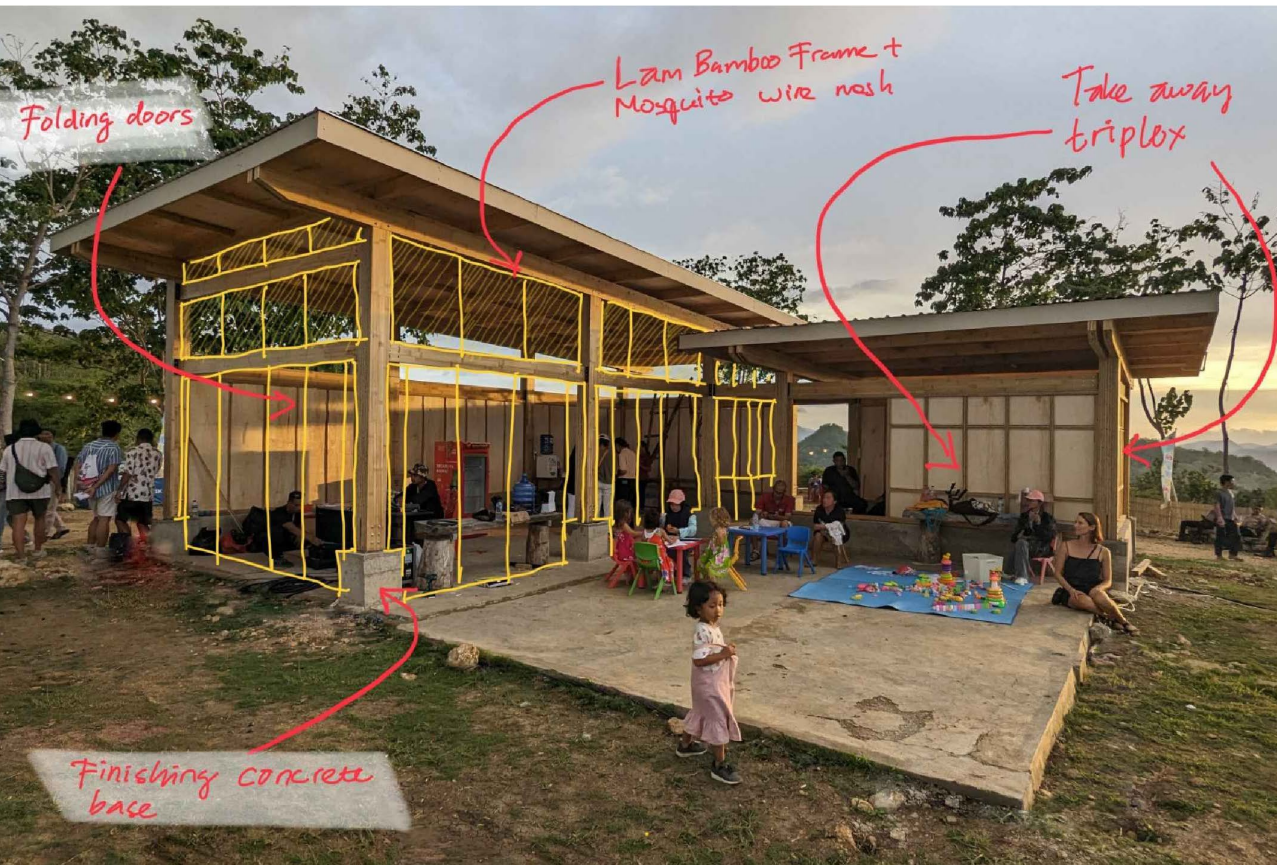












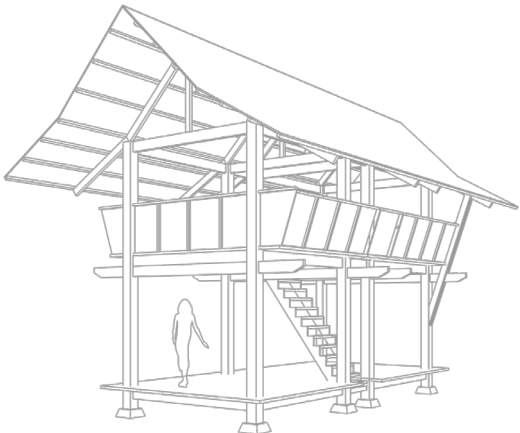
BUILDING PERFORMANCE

ORDER	1 building
VOLUME	6 m ³ of laminate bamboo
CO₂ LOCKED UP IN PRODUCT	9,9 tonnes
AGROFORESTRY ACTIVATED	1.85 ha / year
CO₂ SEQ IN ECOSYSTEM	71 tonnes
ENERGY PRODUCED	16 kw solar panel

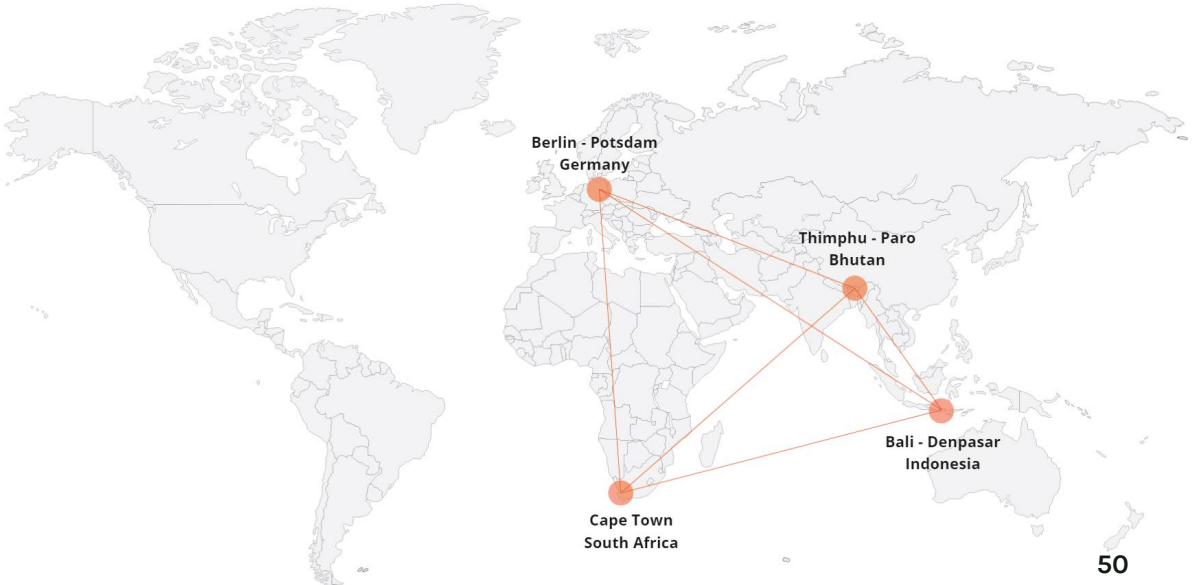
IMPACT

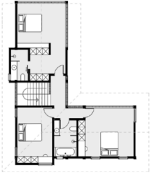
		P4G Period				
		Current	Year 1	Year 2	Year 3	Year 5
		2023	2024	2025	2026	2028
IMPACT	ORDERS	10	32	50	75	200
	VOLUME	92 m ³	1,609 m ³	2,630 m ³	4,718 m ³	15,674 m ³
	CO ₂ LOCKED UP IN PRODUCT	203 tonnes	3,544 tonnes	5,791 tonnes	10,389 tonnes	34,514 tonnes
	AGROFORESTRY ACTIVATED	18.5 ha	323 ha	528 ha	948 ha	3,061 ha
	CO ₂ SEQ IN ECOSYSTEM	712 tonnes	12,461 tonnes	20,363 tonnes	36,531 tonnes	121,356 tonnes
	JOBS CREATED	70	140	193	477	1,160
	REVENUE GENERATED PER YEAR	\$ 155k	\$ 1.68m	\$ 2.55m	\$ 4.09m	\$ 13.91m

GOALS FOR 2024



BAUHAUS ● EARTH





LESTARI DEVELOPMENT

2024
Bali, Indonesia
Design: Cave Urban
Manufacturing: Indobamboo



HOUSING MODULE

2024

Woodford, Australia

Design: Cave Urban

Manufacturing: Indobamboo

GROW YOUR OWN CITY

The partnership seeks to drive the development of Indonesia's zero-carbon building industry by catalyzing the commercial uptake of structural engineered bamboo for multi story construction in urban environments.

By aligning the efforts of key partners and utilizing engineered bamboo products, Grow Your Own City envisions a future where sustainable urban development and environmental stewardship converge, setting a precedent for other tropical nations to follow.

Together we hope to make this a reality.

Thank You

