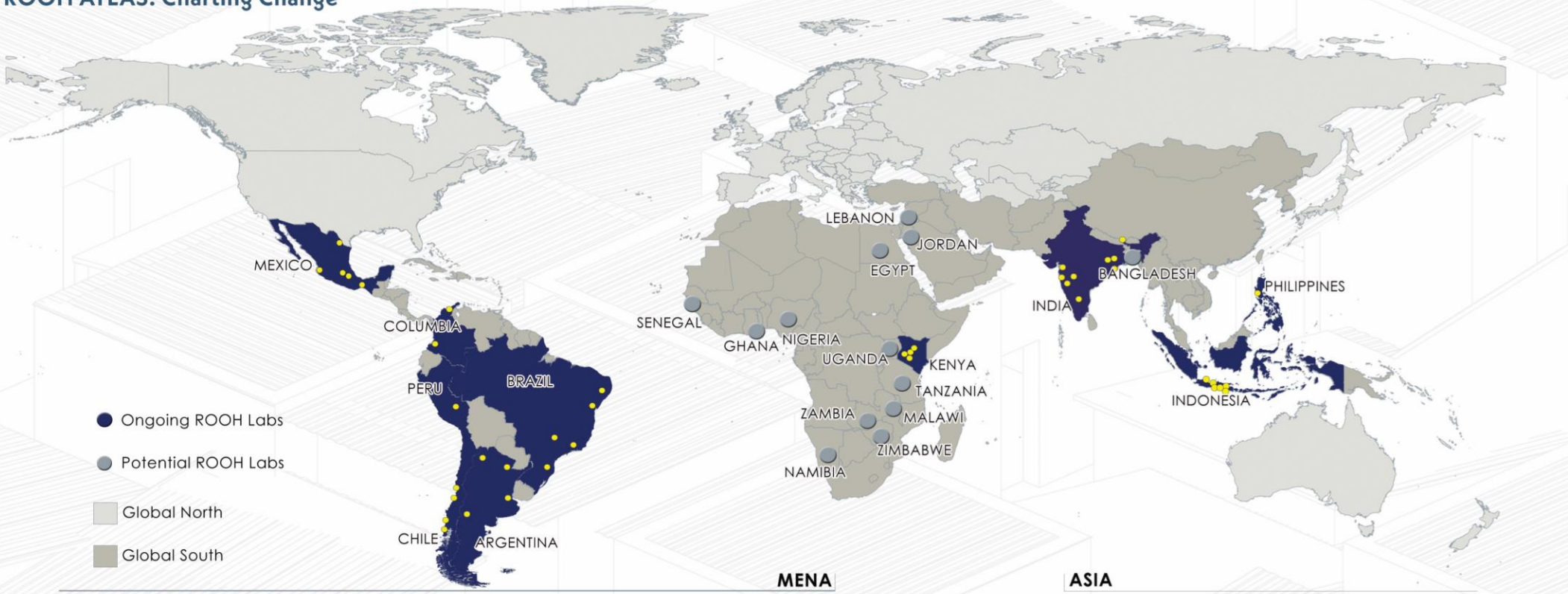
ROOH ATLAS: Charting Change



ROOH LABS

LATIN AMERICA

MEXICO PHASE -1
- Colalixpa
- Hornos de Zoquiapán
- De noviembre
- Montebello
- Manantial

COLUMBIA PHASE -1
- Isla la Loma
- Arrayanes

BRAZIL PHASE -1
- Gamboa
- Tiradentes
- Terra Nossa
- Sao Jeronimo
- Fazendinha

CHILE PHASE -1
- Nueva Esperanza
- Ribera del Río

PERU PHASE -1
- El Trébol

ARGENTINA PHASE -1
- La Ciénaga
- Punta Taitalo
- El Mirador
- Río Luján

ASIA

INDIA

PHASE -1

Pune | Pimpri | Mumbai | Ahmednagar | Surat | Bengaluru | Bhubaneshwar | Cuttack | Paradeep | Gangtok

PHASE -2

INDONESIA PHASE -1
- Jakarta
- Bandung
- Yogyakarta

PHILIPPINES PHASE -1
- Manila

AFRICA

KENYA PHASE -1
- Nairobi
- Kaimbu

Manila, Philippines

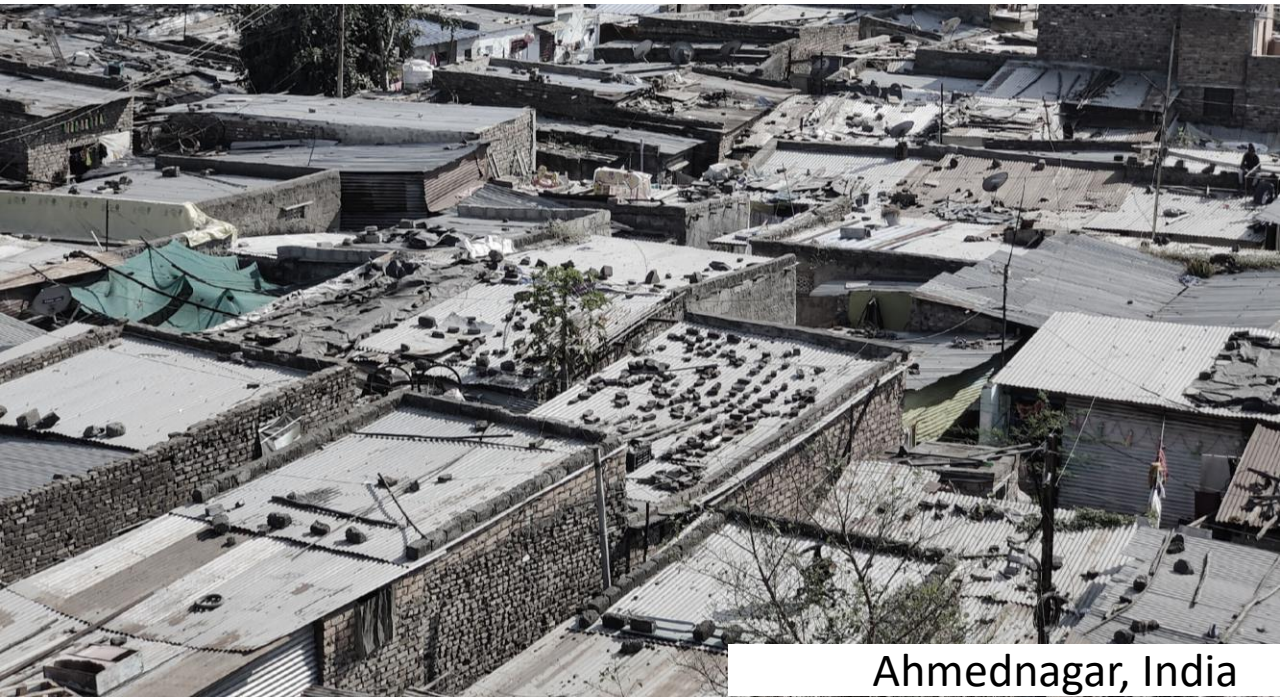
Jakarta, Indonesia

Kibera, Nairobi

Cuttack, India

Yogyakarta, Indonesia

Bengaluru, India



Ahmednagar, India

Gangtok, India

5 A’s of Roof Over Our Heads (ROOH)

01 Affordable

Building materials that are affordable can improve the lives of people in informal settlements by reducing their financial burden.

02 Adaptable

Using flexible building materials that can be easily altered or extended as needed can help the informal residents to adapt their homes to their changing needs.

03 Accessible

Building materials must be accessible to the informal community in terms of transportation, storage and handling.

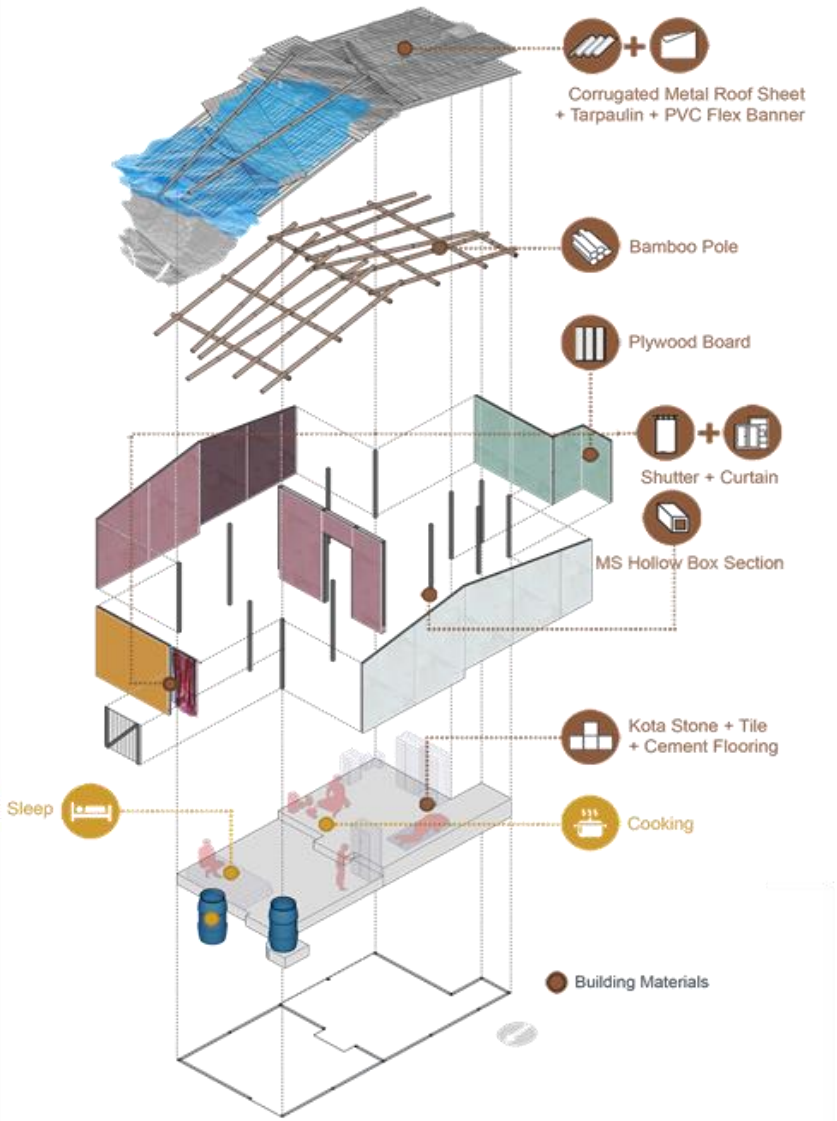
04 Available

Building materials need to be readily available in the local area to ensure that construction can be carried out w.r.t time efficiency, cost effectiveness, convenience.

05 Acceptable

Building materials must be acceptable to the local community in terms of cultural, social and aesthetic considerations.

Phase 1: Documentation under ROOH



INFERENCES:

	Materials	*1Thermal conductivity	*2 Shelf Life of the Material	*3Type of Material Acquisition	*4Execution Method	*5Cost of Materials	*6Recyclability
ROOF	Corrugated Metal Sheet	■■■■■	■	New	Skilled	**Rs 75** per kg	■
	Tarpauline	■□□□□	■	New	Un-Skilled	**Rs 5** per sqft	■
	Flex Banner	■□□□□	■	Scavenged	Un-Skilled	**0**	■
	Plywood Board	■□□□□	■	Scavenged	Un-Skilled	**0**	■
STRUCTURE	Bamboo Poles	■□□□□	■	New	Un-Skilled	**Rs 90** per pole	■
	Timber Poles	■□□□□	■	Secondhand - Paid	Skilled	**Rs 120** per pole	■
	Timber Sections	■□□□□	■	Scavenged	Skilled	**0**	■
	MS Hollow Sections	■■■■□	■	Secondhand - Paid	Skilled	**Rs 64** per m	■
SKIN	Plywood Boards	■□□□□	■	Scavenged	Un-Skilled	**0**	■
	Corrugated Metal Sheets	■■■■■	■	New	Skilled	**Rs 90** per kg	■
	Timber Planks	■□□□□	■	Secondhand - Paid	Un-Skilled	**Rs 24** per m	■
	Tarpaulin	■□□□□	■	New	Un-Skilled	**Rs 5** per sqft	■
	Polycarbonate Sheet	■□□□□	■	Secondhand - Borrowed	Un-Skilled	**Rs 12** per sqft	■
	Flex Banner	■□□□□	■	Scavenged	Un-Skilled	**0**	■
PLINTH	Kota Stone	■■□□□	■	Secondhand - Paid	Skilled	**Rs 100** per piece	■
	Ceramic Tiles	■■□□□	■	Scavenged	Un-Skilled	**0**	■
	Plain Cement Concrete	■■□□□	■	New	Skilled	**Rs 8** per sqft	■
	Terrazo Tiles	■□□□□	■	Secondhand - Paid	Un-Skilled	**Rs 30** per piece	■

*1 Thermal conductivity denotes the heat absorbtion property of the material. Low thermal conductivity denotes better indoor thermal comfort.

*2 Shelf life of the material is perceived from the primary survey with the users based on life span of the materials.

*3 The materials are often bought from the nearby material market - **"New" & "Secondhand -Paid"** ;
The materials granted from workplace or from neighbors without any payment - **"Secondhand - Borrowed"** ;
The materials obtained from demolition sites, road or wastes - **"Scavenged"**.

*4 The materials installed and assembled with help of masons and labour are coined as **"skilled"** ; The incremental changes/ repairs self done are coined as **"unskilled"**

*5 Cost of the material is incurred from primary user survey and market survey; the prices are subjected to change.

*6 The property of the material to be re-used or repurposed to a same/different material after the shelf life is over.

LEGENDS:

Recyclability

■ Good ■ Neutral ■ Bad

Shelf Life of Material

■ Short ■ Medium ■ Long

Thermal Conductivity:

■□□□□ 0.0 - 1.0
■■□□□ 1.0 - 5.0
■■■□□ 5.0 - 10.0
■■■■□ 10.0 - 50.0
■■■■■ Above 50.0

Phase 2: Demonstration under ROOH

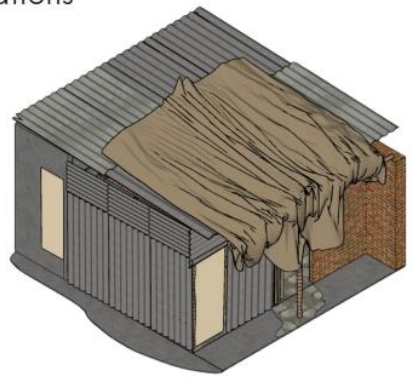
Surat - Hot, Dry & Humid

ROOH Phase 2 Demonstrations

Name: Vaishali Ashok Nanware
House type: Semi-permanent
Household size: 5
Area : 20 sq.mts
Family Occupation: Auto Driver
Family Income: 20,000/-
Cumulative cost incurred in construction: 87,000/-
Maintenance every year: 1000-1200/-

Process of the ROOH Demonstration

- **Co-Creation & Site Preparation –** Engage with the resident to align the design with their aspirations and challenges; initiate demolition and site clearing.
- **Structural & Thermal Integration –** Lay PCC foundation, construct walls with EPS thermal insulation for shared walls, and apply plaster to enhance resilience.
- **Roofing, Flooring & Finishing –** Complete roofing, flooring, and final finishes, ensuring durability, comfort, and alignment with residents' needs.



Aspirations

Red Brick Wall

Cement Sheet Roof

Vitrified Tile Flooring

The house, with its low plinth, was highly vulnerable to flooding, allowing rainwater to seep in and cause damage. Inside, heat buildup made living conditions unbearable. A mix of metal sheets, cement sheets, wooden members, and plastic further compromised comfort and durability. By introducing climate-responsive materials, we're addressing both flooding and thermal stress early observations already show a temperature drop of 5-6°C, significantly improving livability.

Before

Material: Cement Corrugated Sheets
Challenges: Heat, Rainwater seepage

Material: Wood, Cardboard, Plastic
Challenges: Heat, Pest, Security, Privacy, Frequent maintenance

Material: Wooden planks, Scaffolding Bamboo
Challenges: extreme temperature, Prone to termites and rotting, Strength

Material: Terrazzo Tiles
Challenges: Uneven surface and level

Materials Used & Benefits

Fly Ash Brick Walls & Vedic plaster
Cost effect, Keeps house cool

PPGI Sheet Roof
Reflects Heat

Terracotta Tile Flooring
Reduces indoor temperature

Cost of Construction: 1,39,000/-
The proposed materials are locally available and more efficient against issues related to climate while being cost effective as they save money on frequent maintenance and energy (electricity)

"I was not aware of these materials before ROOH team explained its benefits, my house has turned out better than I had imagined it to be "
- Ashok

After

Material: PPGI sheet
Performance: Reflects heat, No seepage

Material: Fly Ash Brick, Vedic Plaster(Interior)
Performance: Increased Security, Low maintenance

Material: Fly Ash Brick, Metal Sections
Performance: Increased Stability, less heat transfer

Material: Terracotta Ceramic Tiles
Performance: Keeps interior cool