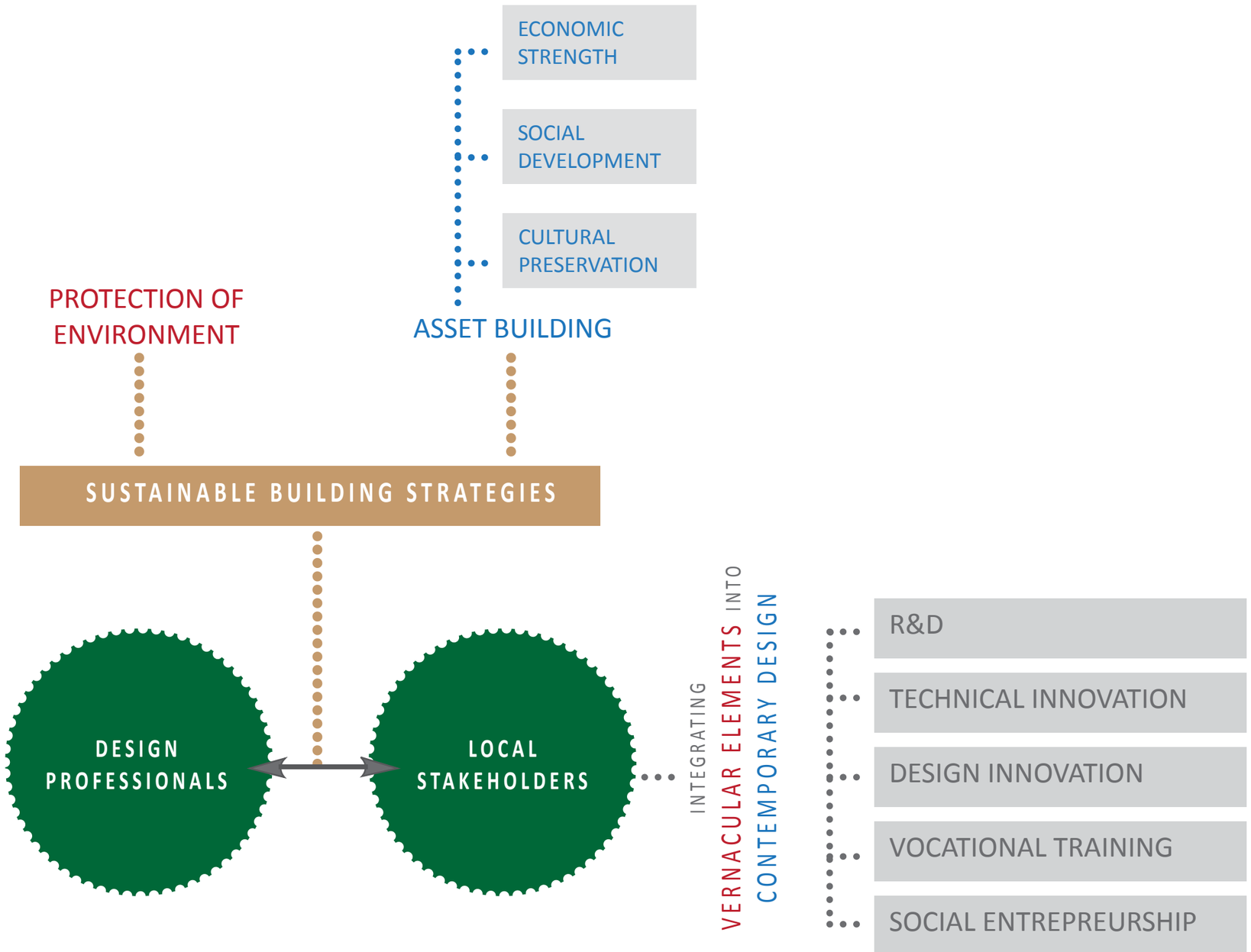
# INTRODUCTION




Known as the DevBhoomi or the 'abode of Gods' this region is blessed with rare beauty and natural resource. It is also home to unique cultural traditions reflected in its built heritage that attracts people from the world over. At the same time communities in the remote settlements lag behind in social and economic development, lacking access to basic healthcare, education and importantly sustainable livelihoods, aggravated by climate change. In recent years traditional building skills have been rapidly disappearing and has not been replaced by newer technolgy which is appropriate to the context.

**Access to livelihood, promotion of cultural heritage and protection of environment through sustainable building practises, are thus the cornerstones of our initiative.**

# CONTEXT

## UTTARAKHAND

### GEOGRAPHY

LATITUDE: 28°43' N-31°27' N

LONGITUDE: 77°34' E-81°02' E

ALTITUDE: 1000-3000 SQ FT

### AREA

51,125 sq km(19,739 sq mi)

### DEMOGRAPHY

POPULATION : 10,116,752

DENSITY : 189/sq km

HDI : 0.515

LITERACY RATE : 79.63%

SEX RATIO : 963




## KUMAON REGION

The Kumaon region of Uttarakhand lies in a temperate and sub-tropical mountain region lying at an altitudinal range of 1000-3000 meters above the sea level in.

Majority of the people are subsistence farmers growing temperate fruits and cash crops, which they supplement by wage labour.

The area suffers from a rapid depletion of forests cover threatening natural resources and resulting in an acute seasonal scarcity of water.

Poor health due to ignorance, superstition and low awareness on sanitation measures; few non-agricultural income options and low standards of primary education are some of the other prevalent problems.

# CHANGING CONTEXT

FEATURES OF
PRE-URBANISED AND
POST-URBANISED
SETTLEMENT

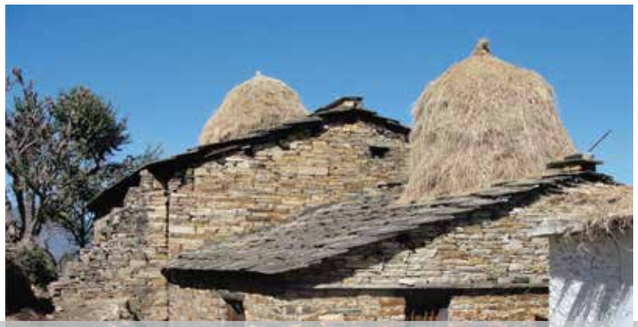
VERNACULAR ARCHITECTURE

FOLLOWING TERRAIN

SUSTAINABLE PRACTICES

**The architecture of the Kumaon mountain region exhibits traditional building practices singular to that region.**

The stone masonary, wooden structural elements, sloping slate roof and intricately carved timber members are some of the inherent features of Kumaon architecture. Such building practices are in harmony with the hilly terrain.



**The need** is to come up with innovative solutions to incorporate the traditional building practices into contemporary building systems in a way that is justified and suitable to the time and place of the architecture.

UNPLANNED DEVELOPMENT

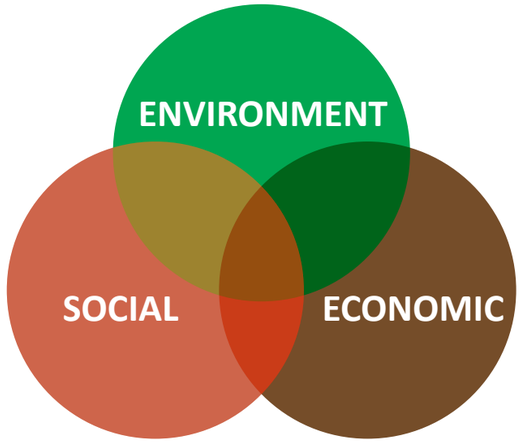
CONTEXT-INSENSITIVE

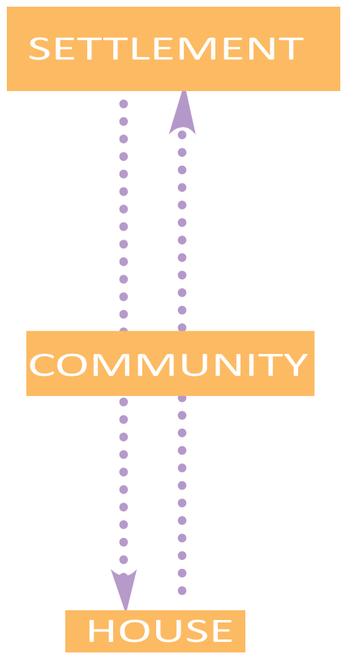
UNRESPONSIVE TO TERRAIN

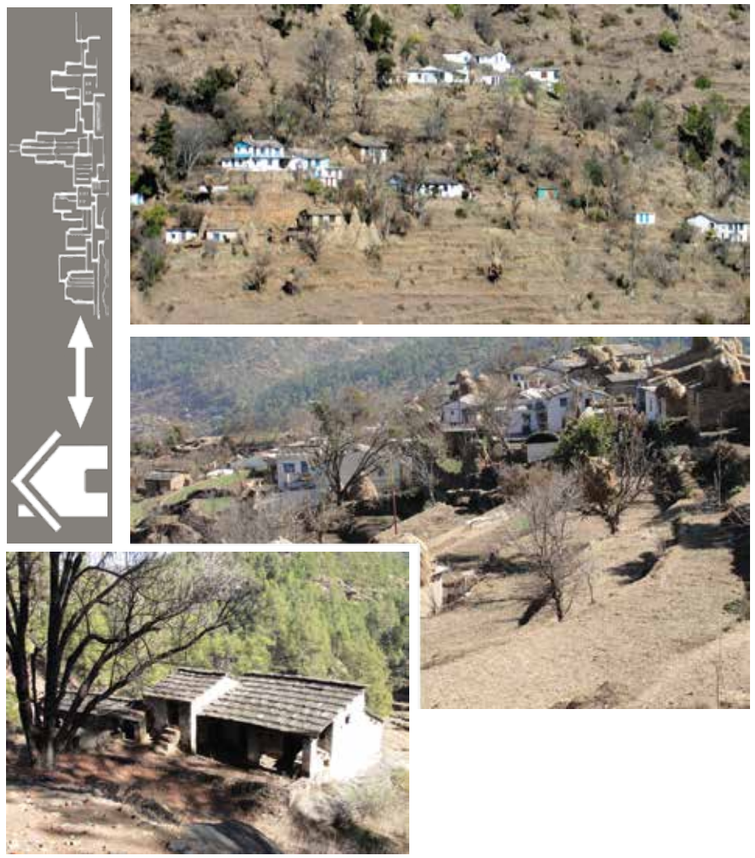
**Due to rapid urbanisation, there has been a visible shift in the building practices of mountain regions.**

Cities like Almora, that have become the prey of rapid urbanisation, are now a model of haphazard and unplanned development of the environmentally sensitive zones. The vernacular building practices are replaced with contemporary techniques devoid of most of the building principles necessary to such regions.

# OBJECTIVES



## 1. ENVIRONMENTAL <--> SOCIAL <--> ECONOMIC SUSTAINABILITY

Building practices encompassing environmental, social and economic aspects specific to mountain regions.

**Environmental:** Such regions are environment sensitive falling under high seismic zone.To achieve a synchronisation between the building and the environment, the building systems in addition to reducing the damage to environment (by having a low carbon footprint), must also upgrade the surrounding. For instance, growing Oak trees whose roots retain the water in the soil, thereby increasing the chances of natural springs.

**Social:** Contemporary architecture to employ the traditional systems and local techniques of building and represent the local architectural expression. Globalisation and urbanisation have deprived the contemporary construction of the vernacular features, which requires to be reversed.

**Economic:** The process of building, simultaneously supporting the livelihoods of locals , both during and afterwards the project.

## 2. MACRO <--> MICRO DEVELOPMENT

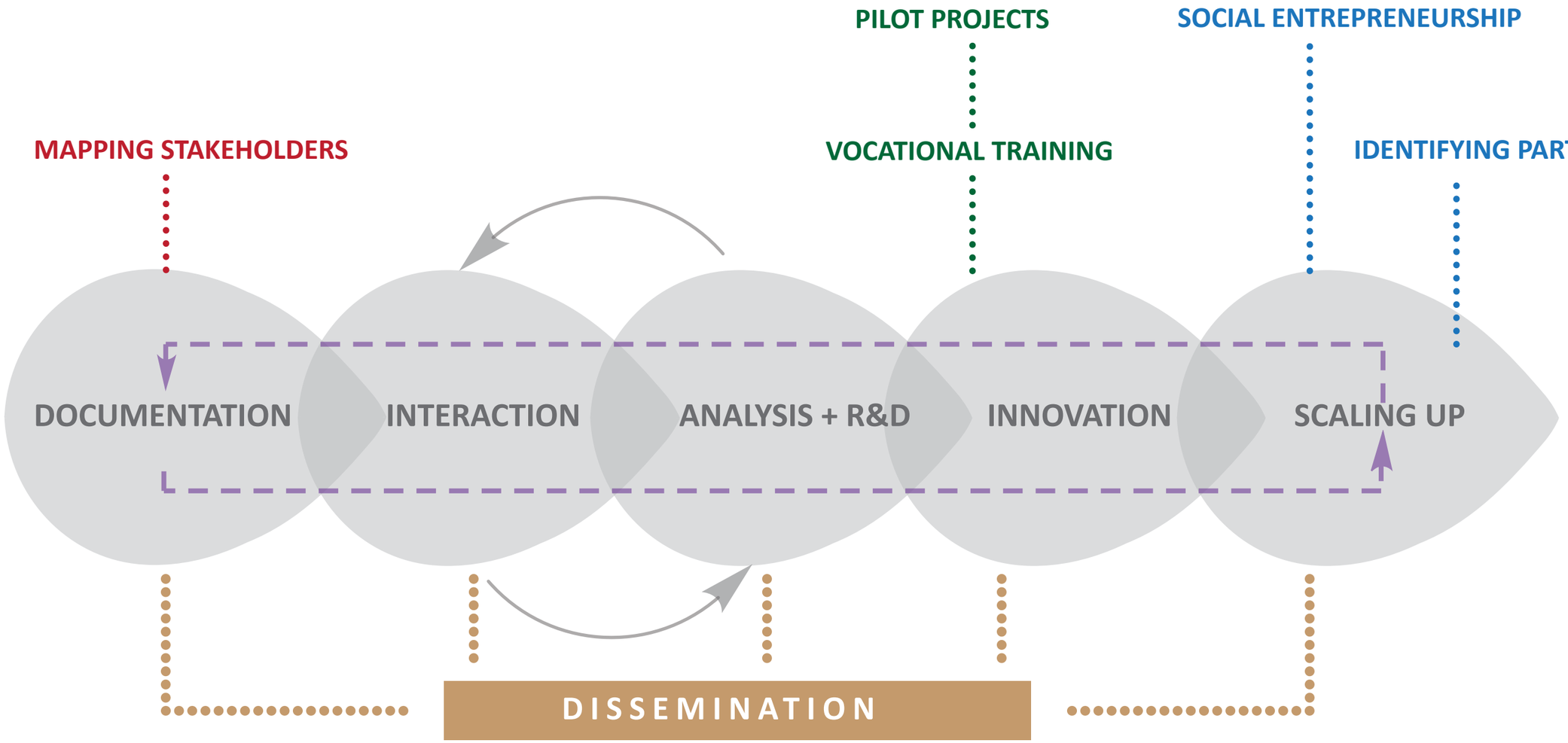
A thorough study of vernacular architecture ranging from a single structure at the micro level to the whole settlement at the macro level. The structure reveals the building methods and processes. On scaling up, the structures form a settlement and display a character singular to that community. Thus, the study at macro and micro level becomes a pre-requisite to their sustainable development.

## 3. URBAN-RURAL RELATIONSHIP

Uttarakhand has two varying facets of way of living-urban and rural. With only a few of the cities urbanised, Uttarakhand still has a high number of villages that attract tourists from cities to experience the simple lifestyle. Availing this opportunity to explore technology in the rural areas and to create an interface that bridges the urban-rural infrastructure.

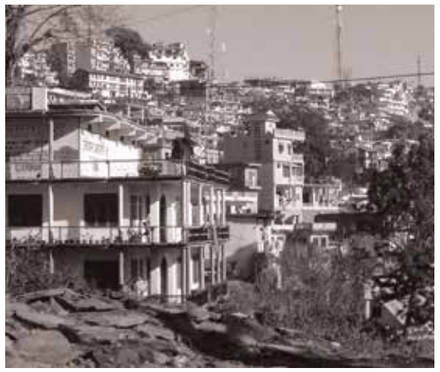
# PROCESS

The process followed in the projects is depicted through the diagram below. At each stage, particular actions have been identified. Dissemination makes process transparent, invites a wider feedback and acts as a open-source of information and knowledge. Each stage has a specific role that renders the whole process thorough completeness. This process includes identification and involvement of relevant stakeholders at each stage.



# PROJECTS

Key projects have been identified in the Uttarakhand rural regions based on the underlying objectives. Alongwith the core concepts, these projects also target at balance the hill ecosystem and sustain the livelihoods of the inhabitants.

## GREEN TECHNOLOGY

Identifying and multiplying the green technologies in the built structures to preserve the ecological balance. The ongoing projects include :

- -Mass Oven
- -Carbonless Cooking Stove

## HERITAGE CONSERVATION

Preserving and reviving the rural heritage including both tangible and intangible assets.

TANGIBLE:

- -Skills
- -Structures

INTANGIBLE :

- -Cultural Practices

## RURAL INFRASTRUCTURE

Directing the pilot projects at upgrading the rural infrastructure. Some examples include :

- -Anganwadis
- -Schools
- -Homestays

## URBAN RENEWAL

Interventions in urban areas to reverse the adverse affects of unplanned urbanisation of rural sectors.

# PROJECTS GREEN TECHNOLOGY

***"Incorporating green technologies in built environment."***

The sensitive environmental setting of the built structures in Himalayan regions requires and facilitates for a broad scope of green technologies to be employed in building systems. There is an underlying need to encourage this process in order to maintain the ecological balance of such regions. This project serves as an initiative to induce and accelerate the use of green technologies in built environment of Himalayan regions, while focusing on building the livelihood assets of the locals in this venture.

**EXPLORE** → **TRAIN** → **DELIVER**

## IDENTIFYING AND TESTING :

Identifying the sustainable and affordable building technologies and testing their efficiency, targeting both low-cost, local areas as well as external regions.

## TRAINING :

Train apprentices in the implementation of such technologies.

## PILOT PROJECTS :

Pilot projects which are needed like schools or houses where the technologies can be tested as well as workers are trained at the same time.