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the DESI OON project

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Kishore Sakthivel

# the देसी ऊन project

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## About the project

Desi Wool Reimagined explores the potential of indigenous Indian wool as a contemporary apparel material.

Despite India's vast wool resources, most indigenous wool remains excluded from apparel applications due to its incompatibility with conventional spinning systems.

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# Opportunity

## The INDIAN WOOL Paradox

India is the 4<sup>th</sup> largest wool producer in the world. Yet the wool is not used in the apparel value chain



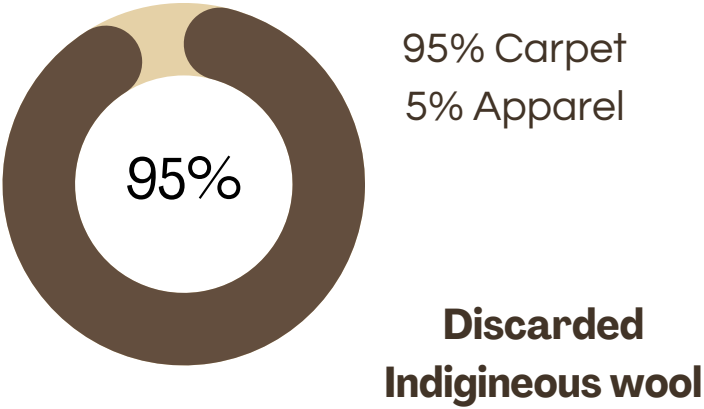
**148 Mn**  
**74 Mn**

Population of sheep and goat in India

**2nd**  
**16th**

Largest sheep population in world  
Wool producer in world

### How Indigineous wool is used in India

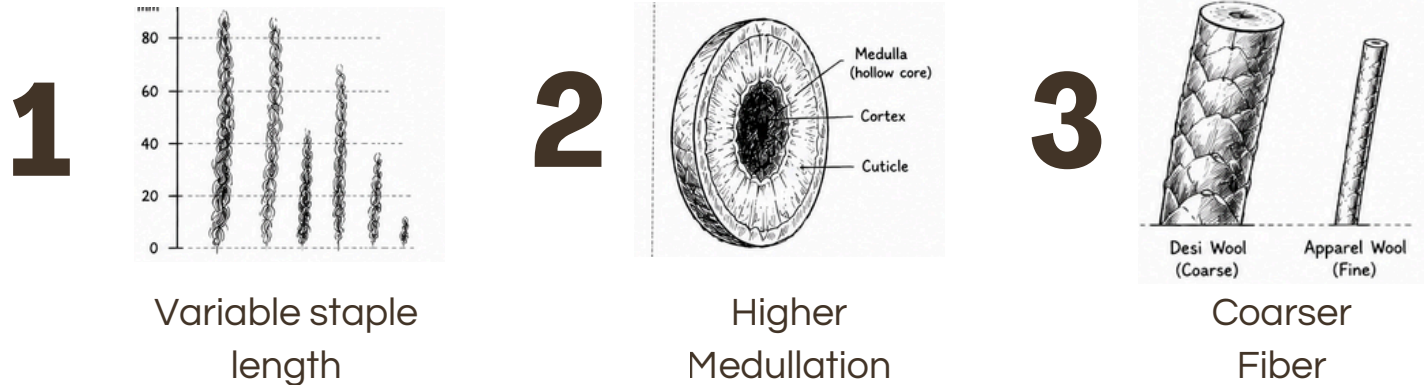


India has around 60 known Indigenous sheep breeds

### Key Insight

Why does a country with one of the world's 2<sup>nd</sup> largest sheep populations continue to depend on imported apparel-grade wool?

### Why is Desi Wool Overlooked?



# PROBLEM FRAME

Why is Desi wool absent from apparel?

## Properties required for Apparel Grade

### Fiber level

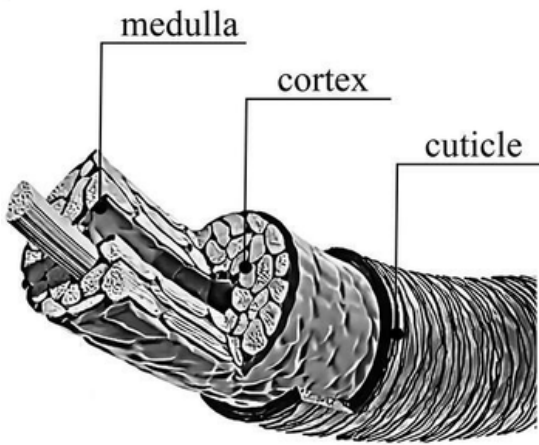
- <25 microns
- Less medullation (Ideally 0%)
- Uniform Staple length

### Yarn level

- Yarn smoothness
- Yarn strength
- Ability to Twist

### Fabric level

- Less hairiness
- Soft hand feel
- Lightweight



## Why India struggles in producing wool for apparel?

1

People's perception of winter wear

2

Sheeps in remote regions of Himachal

3

Centralized processing mixes different batches of wool together

4

Traditional methods of hand spinning and dyeing

5

Properties of each cluster wool like crimp, Staple length differs

6

Domination of cotton

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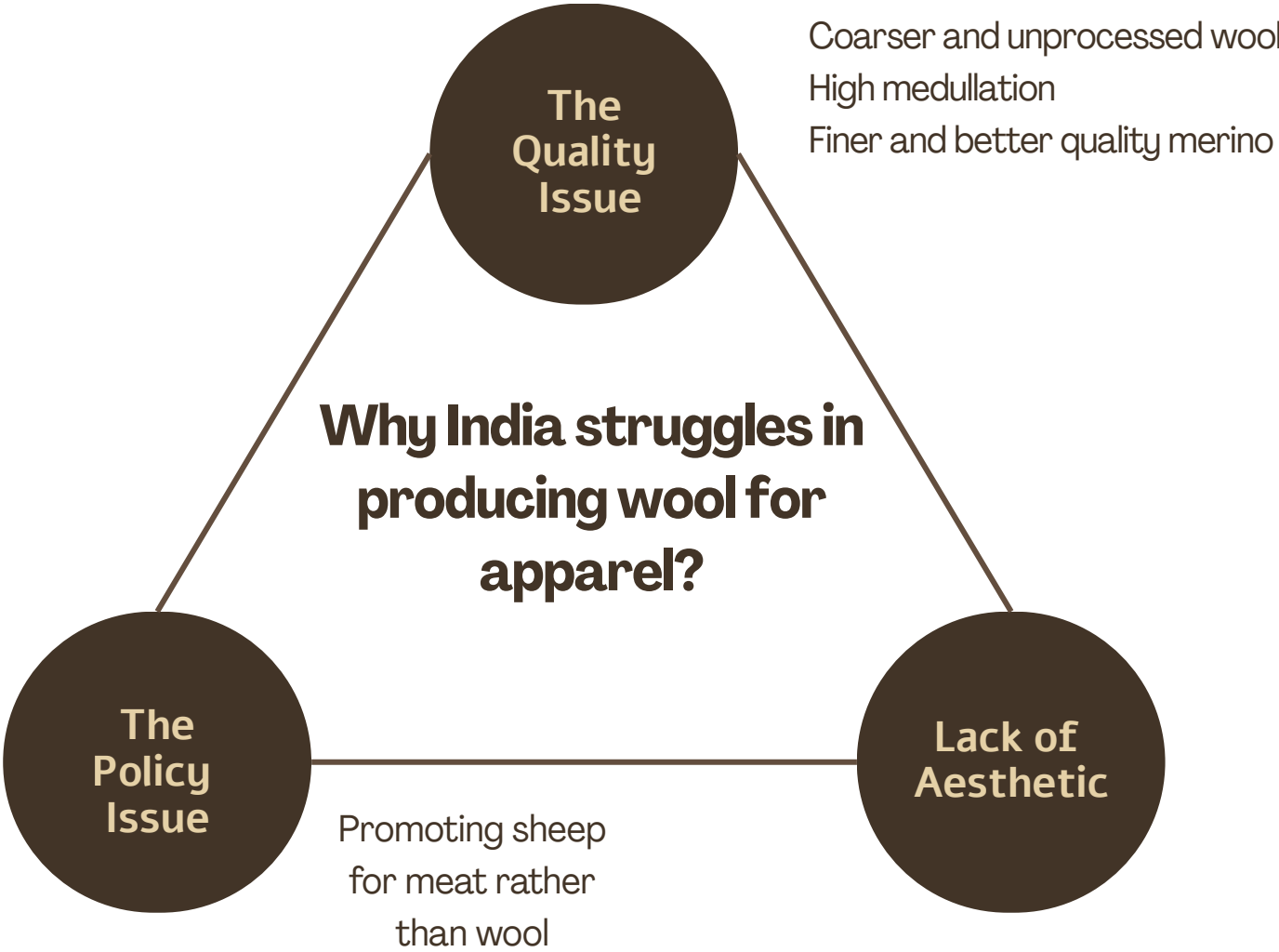
Not enough R&D in development of wool

8

Importing Wool from Foreign



# Understanding the Problem



# Material Analysis

## What makes Patanwadi wool unique?

### Material Properties

- High medullation
- Natural lanolin
- Coarse fiber diameter
- High resilience
- Strong felting ability

## How Patanwadi and Merino are different ?

| Property        | Merino Wool | Patanwadi Wool      |
|-----------------|-------------|---------------------|
| Fiber Diameter  | Fine & Soft | Coarse & Structural |
| Medullation     | Low         | High (Hollow Core)  |
| Felting Ability | Moderate    | Excellent           |

# Material Validation

| Property            | Result                         | Significance                               |
|---------------------|--------------------------------|--------------------------------------------|
| Elongation at Break | <b>42.92%</b>                  | Comparable to apparel-grade crossbred wool |
| Tenacity            | <b>1.55 g/den</b>              | Suitable for mechanical processing         |
| Spinnability        | <b>Conditionally Spinnable</b> | Suitable for woolen spinning               |

These findings are supported by the report’s assessment of elongation, tenacity, and spinnability.

These findings demonstrate that Patanwadi wool possesses the mechanical potential to move beyond traditional carpet applications and contribute to contemporary apparel.



# Problem Statement

Indian wool, despite its abundance and widespread availability, is largely excluded from contemporary apparel and confined to applications such as carpets. This is due to a misalignment between its coarse fiber properties, existing processing systems, and market expectations that prioritize softness and uniformity, resulting in the underutilization of a locally available material in higher-value design contexts.



## Material

HMW alter the tactile properties of coarse Indian wool so that it meets the comfort expectations of modern consumers?

## Marketing

HMW reposition garments made from local wool as premium, high-value essentials rather than low-tier commodities?

## Construction

HMW design a garment structure that leverages wool's odor resistance, allowing a user to wear it for days without washing?

# HMW?

## Material

HMW utilize strategic blending techniques to neutralize the scratchiness of the wool while retaining its durability?

## Marketing

HMW highlight the natural performance properties of Indian wool to create a competitive advantage in the contemporary apparel market?

## Material and Construction

**HMW make the "coarse" texture of the wool a desirable feature rather than a flaw?**

## Construction and Business

HMW design a everyday garment made up of wool that is appealing to the consumers while making it scalable?



## Design Brief

- India has one of the largest sheep populations in the world, yet the majority of its wool is confined to low-value applications such as carpets and rugs, with very limited presence in contemporary apparel.
- The coarse and medullated nature of desi wool has led to its perception as unsuitable for fashion, especially within systems that prioritize softness, smoothness, and uniformity. However, historically, wool played an essential role in pastoral communities across regions such as Kutch, where it functioned as a survival material adapted to climate, mobility, and resource availability.
- This project questions the current perception of Indian wool and explores how its inherent qualities can be repositioned within contemporary apparel through a material-led design approach.

## Inspirarion Board





**Mood Board**

# Desi Oon Reimagnied





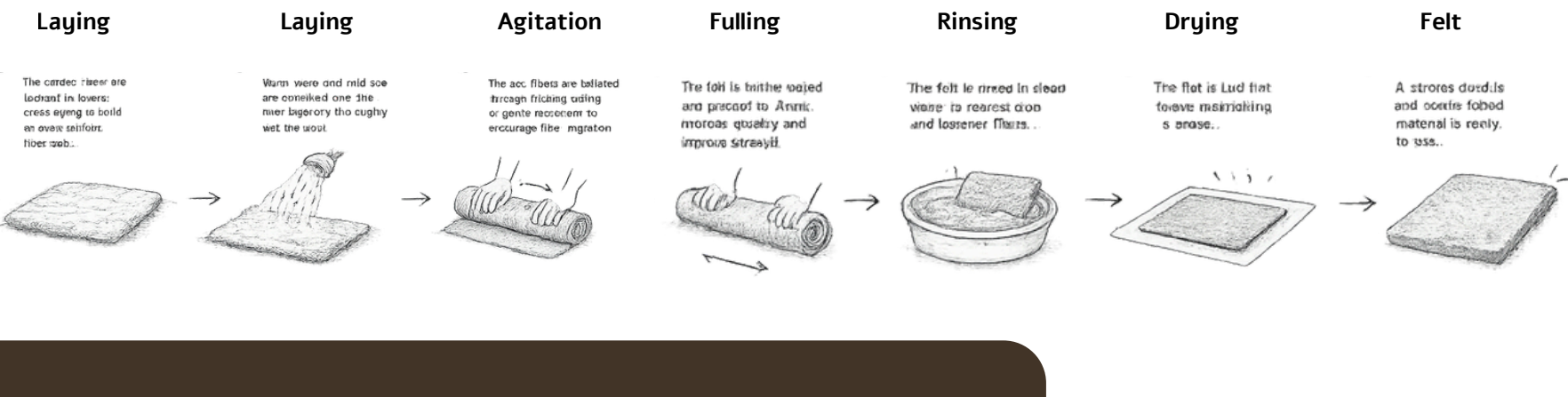
# Felting

The same characteristics that make Patanwadi wool difficult to spin make it exceptionally suited for non-woven felting applications.

## Why Felting Works for Patanwadi Wool

- **High Medullation**  
Creates bulk and trapped air pockets that enhance insulation.
- **Coarse Fiber Diameter**  
Provides structural integrity and dimensional stability.
- **Natural Scale Structure**  
Allows fibers to migrate and mechanically interlock without adhesives.
- **High Felting Affinity**  
Produces strong non-woven surfaces through physical entanglement.

## Felting Process



## Felting Explorations





# Archives



**Variable  
staple length**



**Carded Desi Wool**



**Raw Desi Wool**





# Archives



Laying Fibers



Agitation



Fulling





## Archives

### Zero waste Approach

Wet felting naturally shrinks wool during the fulling process. To eliminate unnecessary trimming, shrinkage experiments were conducted to determine an average 30% shrinkage. The patterns were enlarged accordingly before laying the wool, allowing the felt to shrink to the desired dimensions with minimal material waste.



## Sustainable Impact

- Utilizes an underused indigenous Indian wool resource.
- Supports local pastoral communities and regional value chains.
- Wet felting eliminates the need for spinning and weaving.
- Zero-waste pattern development minimizes material loss.
- Crafted from biodegradable natural fibers.
- Demonstrates new possibilities for contemporary Indian wool apparel.

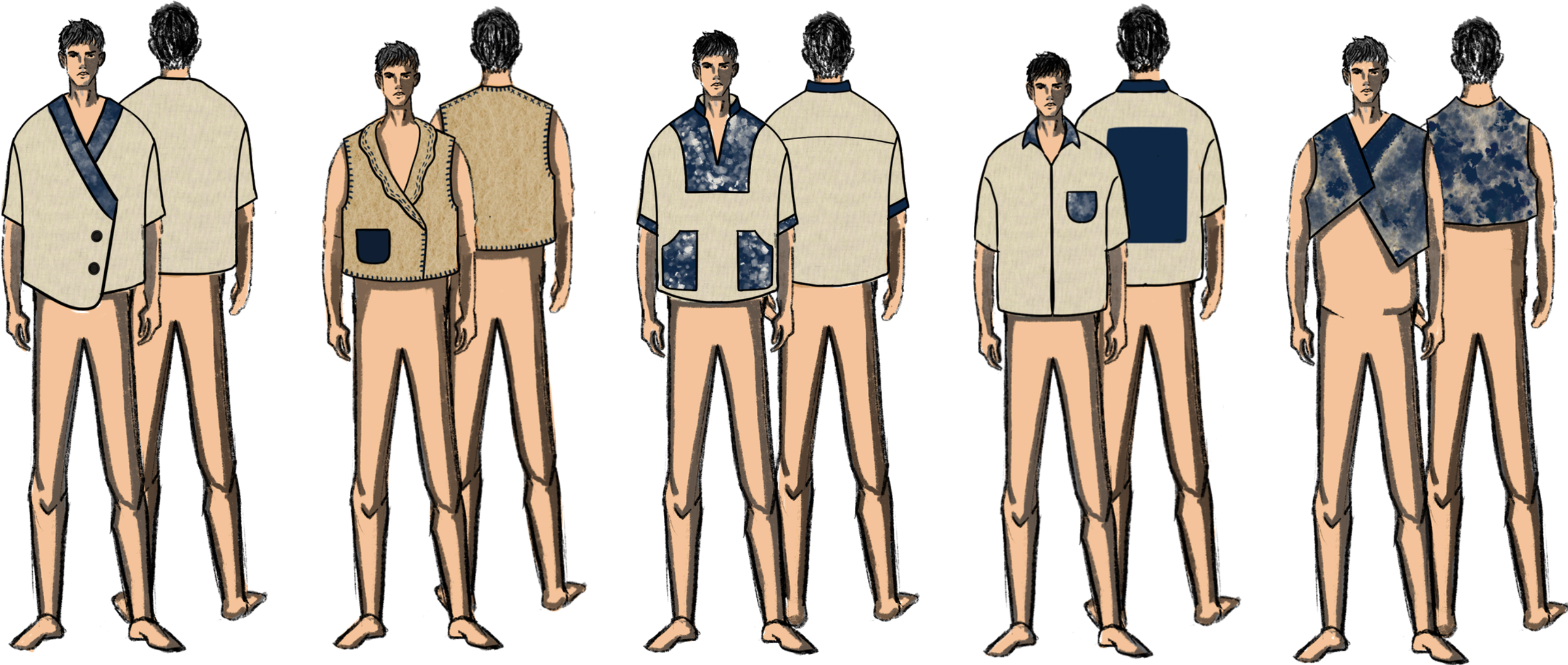
## Future Scope

- Explore woolen spinning using Patanwadi wool.
- Develop natural fiber blend yarns for apparel.
- Expand indigenous wool into scalable contemporary fashion.





# Lookbook





# Photoshoot

