A regenerative model for reviving traditional practices: A case of Bhariya Tribe, Patalkot, India.

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Abstract

Tribal societies around the world demonstrate unique sustainable methods of living and traditional knowledge systems, although they are insulated from the outside world. In Patalkot, a valley encompassed by Satpura ranges and forests in the Chhindwara district of Madhya Pradesh, India resides such a tribe known as the Bhariyas. Historically, they are a tribe who possess a broad knowledge base of the complex ecological system in their own localities and have spent significant time in strengthening this value system from one generation to another. However, in the past decade, the young tribesmen have abandoned incorporating this learning framework into their values. Thus, remaining traditional practices continue to be at risk. This paper assesses the situation and proposes a model with modification in construction techniques and material usage to devise strategies that may address the revival of the dying traditional knowledge system to enhance the socio-economic conditions of the villagers.

Keywords: Patalkot; Traditional Knowledge System; Socio-Economic Status

Introduction

India is rich in genetic resources and associated traditional knowledge and has been identified as one of the countries with significant biodiversity. Traditional knowledge has been used for centuries by Indian indigenous and local communities and has been the mainstay of their existence. The dominant parts of Indian individuals live in villages and yet we lack opportunities for our rural population to utilize these resources for socio economic benefits. Similarly, the village of Patalkot lies in a secluded area of India where conventional herbal practices are performed on a substantial scale. Their forests are rich in biodiversity and plentiful therapeutic plants.

The herbal practitioners of the village specialize in curing health disorders known as bhumkas who belong to the bhariya tribe in Patalkot. This knowledge has been passed by word of mouth from one generation to another. Despite such wealth of biodiversity and cultural resources, Patalkot is yet to conserve and sustainably exploit its resources

commercially and make its benefit available to the common people. Lack of development initiatives in these areas have led to the deterioration of the economic condition of the individuals, who are now left with no choice other than relocating for employment opportunities. The tribe has started to lose the essence of traditional values since they think it is pointless to sustain their livelihood. With technological advancement and change of social behavior, this store of traditional knowledge is lost and is becoming secluded from the daily practices of the larger population. The present study aims to find a sensible intervention that has the potential to rejuvenate the traditional knowledge and connect the therapeutic benefits with the larger population (Acharya, 2016).

Methodology

First, it is necessary to reassess our interpretation of vernacularity of Patalkot by addressing the subject in the context of globalization, politics, and cross-cultural inter-dependencies. Secondly, it should assess the phenomenon of how vernacularity has transformed itself with respect to its treatment, manipulation, reconstruction, preservation and the level of interaction at the individual and community level. This assessment is three-fold, as follows:

- Understand the reasons behind declination of the practice and lack of interest displayed by the young generation in the traditional practice by conducting a primary survey and collecting secondary data. Interviews with primary focus on bhumkas family through stratified sampling in karream-rated village of Patalkot.

- A detailed primary and secondary research to analyze the socio-economic status of villagers, through primary observation, other literature review and analyze data from socio economic census, studies and surveys of various government organizations. Documentation of the local dwelling units and built forms to develop the understanding of their construction detail and material usage, required to carry out the intervention sensibly in the village.

- Case study of similar context to understand the scale of intervention and other salient features required for sensible implementation of proposal.

Based on the collected information, interviews, documented data of dwelling units and current socio-economic status, a conceptual proposal is framed. This proposal includes modification in existing construction techniques and material usage integrated with traditional knowledge. In the end, followed by guidelines of development and ownership proposals, future research and scope are discussed.

Need for the Study

Due to the continuing developments in the medicinal field, various socially valued medicinal plant species have been exploited commercially. People have devised ways to profit from selling the timber and endangering species of herbs in large quantity. These plants eg: gloriosa superbaare (Kalihari), Curculigo Orchiodes (Kali Musli) (Acharya, 2016) important for maintaining the ecosystem of Patalkot are today in the brink of extinction. Deforestation and other impacts of turbulent modernization have completely changed the landscape of the forest covered valley in the past decade. Indeed, reviving traditional

knowledge with participatory approach through vernacular interventions should now be identified as an important pathway for biodiversity conservation and socio-economic rejuvenation.

Background: Patalkot

The Patalkot valley is located in Tamia tehsil of Chhindwara district. Located 3000 feet above the Mean Sea Level, it is known for its horse-shoe shape, deep gorge that segregates the valley, and the scenic beauty canopied with the Satpura mountain ranges and forests. (Acharya, 2016)

Census Data of Karream-Rated Village, Patalkot, Chhindawara District, M.P							
Total Village Area		Total Number of Households		Total Population (Including Houseless Populations)		Population Age Group - (0-6)	
420.21 Hectaers		110		Male	Female	Male	Female
				275	264	135	106
Scheduled Tribes Population		Schedule Caste Population		Literates		Illiterates	
Male	Female	Male	Female	Male	Female	Male	Female
275	263	0	0	135	106	140	158
Total Workers		Main Workers (MW)		Other Workers (Main Workers)		Household Industry Workers (Main Workers)	
Male	Female	Male	Female	Male	Female	Male	Female
132	135	26	7	16	5	0	0
Agriculture Labourers (Main Workers)		Cultivators (Main Workers)		Marginal Workers		Cultivators (IC)	
Male	Female	Male	Female	Male	Female	Male	Female
8	2	0	0	106	128	59	3
Agricultural Labourers (IC)		Non Workers		Other Workers (Marginal Workers)		Household Industry Workers (MW)	
Male	Female	Male	Female	Male	Female	Male	Female
44	125	143	129	3	0	0	0

Figure 1: Census Data of Karream-Rated Village, Patalkot, Chhindawara District,M.P
Source: Census Data of India, 2011

The village is developed in patches as per the availability of flat land. It is the home to tribal culture majorly constituted by the Bhariya tribe (about 80%) and the Gond tribe (about 20%). Doodhi river bifurcates the valley and is the primary source of water in the region.

Overview of Karream-Rated Village, Patalkot:

The residents of Patalkot have many traditional skills. However, these skills are not enough to fulfill their daily needs. With the gradually depleting resources, people are molding themselves according to modern lifestyles. Students drop out of schools to work as manual labourres to support their families financially. Payment under MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act - 2005) by the government is often ineffective, thus people migrate to work as daily labor in other cities to earn a regular income. Almost every household owns livestock and is involved in farming, such that the needs of their daily lives are fulfilled within the closed circle of their neighborhood. (Acharya, 2004)

Socio-Economic Status of Patalkot

Patalkot is a rural agricultural area with a declining economy. Unavailability of alternate source of income urge the villagers to migrate to cities. They even have to compromise with their living standards, necessities and education of children. In the present times of vast modernization, Patalkot continues to be characterized by low economic activity and lack of physical and social infrastructure.

Table 1: Family status of karam-rated villagers

	Father	Mother	Elder Son	Elder Daughter / Daughter-in-Law	Younger Son / Grand Son	Younger Daughter / Grand Daughter
Agriculture	✓	✓	✓	✓	✓	✓
Bhumka	✓		✓			
MGNREGA	✓	✓	✓			
Government Servant	✓	✓	✓	✓		
Unskilled Labour	✓	✓	✓	✓		
Seasonal Work on Fields	✓	✓	✓	✓	✓	
Grow and Sell Weed	✓		✓			
Sell Mahua	✓	✓	✓	✓	✓	✓
Selling illegally Herbs	✓		✓			
Fishing in River	✓	✓	✓	✓	✓	✓
Waiter or Odd Jobs	✓		✓		✓	
Education Ongoing			✓		✓	✓

Source: Author (Interview)

Present Status of Bhumkas

The bhumkas organization consists of 11 people in karam-rated village, the lack of proper promotion and pre-conceived prejudices adhered to the street hawkers in the main cities. The younger generation finds it difficult to carry this traditional knowledge forward for sustaining their livelihoods. Herbs price range from 300-800 rupees (Indian Currency) per 100kg. The herbs of the required specification are difficult to grow in large scale and the price of the raw material available in market is very low. Thus, the tribal people are disinterested in selling herbs in large quantities to small vendors due to insufficient amounts, and small vendors do not allow companies to buy herbs directly from the bhumka organization. (Khatri, 2010)

Integrative interventions through Architecture

The strategies to protect the village needs to be so designed, that the children and youth can play an important role in the rehabilitation process, and the village experiences a holistic development. Understanding vernacularity through existing built typologies of dwelling, their construction techniques and material usage, with its wider context like existing vegetation, river and natural boundaries should be considered in the new developments. It should be compatible with existing “traditional” and “rural” character. The model should be beneficial to all the villagers and not restricted to bhumkas only, which need a physical space to work and encourage others to help them revive the socio-economic conditions.

Documentation - Dwelling Unit

The average Bharia house is 8.5 x 7.5 mt unit. Wall construction is by rammed earth, using bhusa, matti, gobar (cow dung) as aggregates and a mixture of clay and cow-dung for plaster. Mud walls are smeared with chhui matti (lime) and walls are pattern decorated, using geru (brick colored clay). A typical Bharia house consists of a living room called bhitar, an open front veranda called usari, and a small courtyard called angan.

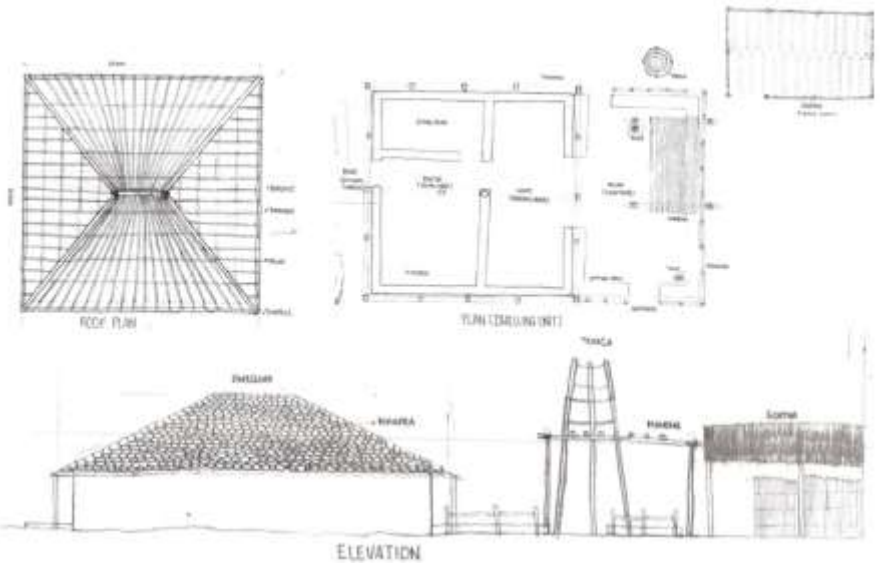


Figure 2: Dwelling unit plan, roof plan and elevation of bhariya tribe at Patalkot
Source: Author

Few houses have usari (drawing area) in the front and back of the living room (Kurup, 1986). The floor of the house remains katcha (mud washed) and coated with cow-dung and water mixture, weekly to keep its surface plain and smooth. The living room is used as the kitchen during the day and as a bedroom by night. Mandha, tonga and goatha are other key structures of a unit for different purposes.

Limitation of Architectural Construction Techniques and Material Usage

The life span of a traditional dwelling unit of Bhariya tribe is 12-15 years, which require regular renovations to sustain. Walls constructed through stabilized rammed earth with high clay percentage, weakens when in contact with water. A typical dwelling unit of the tribe constituted wooden log supports, requiring at least 10 developed trees (hard wood) to construct one dwelling unit. Due to restrictions on further cutting of trees by Satpura forest department, they faced limitations in construction, with respect to material availability. This forced them to use fly ash brick, burnt brick and RCC for constructing their structure. These constraints and a quest for modernization have thus led to a visible change in the built form typology of the dwelling units throughout the village.

Modification in Construction Techniques and Material Usage

Table 2: Existing and Modification in Construction Techniques and Material Usage at Patalkot

Structural Elements	Construction Techniques and Material Usage		Availability
	Existing	Modification	
Foundation	Technique	Technique	
	- Stabilized Rammed Earth	- Stabilized Rammed Earth + Stepped CSEB Foundation	
	Material	Material	
	-Red soil with high clay percentage	- Red soil with low clay percentage (Tested)	- On site, Ridge part of Patalkot
	- Bhusa + Gobar (Cow Dung)	- Bhusa + Gobar (Cow Dung) + 5% Cement	- On site + Cement from Market
	- Trench of 600 x 500 mm	- Trench (under guidance of expert) of 500 x 500 mm	- Learned form Technician
		- 380 x 380 x 200 first layer of CSEB above GL	- Equipment needed on site
		- 270 x 270 x 200 second layer of CSEB above GL	
		- CSEB block of 295 x 140 x 90 or as per requirements	- Others binding material needed
Wall	Technique	Technique	
	- Stabilized Rammed Earth	- Stabilized Rammed Earth + DPC + Reinforcement Bar	
	Material	Material	
	- Red soil (High Clay Percentage)	- Red soil with low clay percentage (Tested)	- On site, Ridge part of Patalkot
	- Bhusa + Gobar (Cow Dung)	- Bhusa + Gobar (Cow Dung) + 5% Cement	- On site + Cement from Market
	- 300 mm Wall Thickness	- 270 mm Wall Thickness	- Wooden Framework
	- Plaster with Red soil + Cow dung	- Plinth beam all along the wall of 50mm thick (DPC)	- Cement + Sand form Market
	- Chuna Matti (Facade Treatment)	- Damp Proof Course - 1:3 (Cement : Sand)	
		- Water Proofing layer - Lime Mortor + Adhesive	- Near by availability
		- DCP on Sill and Linter Level of 1:3 (Cement : Sand)	
		- Plaster with Red Soil + Cow Dung + 7.5 % Cement	
		- Steel Bars of 10 mm Dia (only for more than one floor)	- Near by availability (Market)
		- Ring Beam of DPC (1:3 - Cement :Sand)+ WPC	
Roof	Technique	Technique	
	- Wooden Log Truss	- Bamboo Truss	
	Material	Material	
	- Wooden Log of different diameter	- Bamboo logs of different diameter	- On site + Market
	- 1 (200 mm dia) - Barendi	- 23 (120 mm dia) - Dendrocalamus Strictus	
	- 14 (200 mm dia) - Thambo	- 56 (100 mm dia) - Dendrocalamus Strictus	
	- 8 (100 - 150 mm dia) - Therali	- Joinery Material (Nuts and Bolt + Metal Plates + Rope)	- Learned from Technician
	- 16 (75 - 100 mm dia) - Rafters	- Sand stone slate (15-20 mm thick)	- Available in Chhindwara District
	- 80 (25 - 75 mm dia) - Purlins	- Khupra Tile (soil + bhusa + gobar)	- On site
	- Thatched (Wheat Fiber)	- Plastic Sheet for waterproofing	- Available in Chhindwara District
	- Khupra Tile (soil + bhusa + gobar)		
Flooring	Technique	Technique	
	- Katch floor using Cow Dung	- CSEB Tile or Red Oxide Finish or Sand Stone	
	Material	Material	
	- Cow Dung + Clay + Bhusa	- Red soil with low clay percentage (Tested)	- On site, Ridge part of Patalkot
	- Earth filling (Granulars)	- CSEB Tile (Bhusa + Gobar (Cow Dung) + 5% Cement)	- On site + Cement from Market
		- Sand Filling (1:12 - Sand : Aggregate)	- Sand from Market
		- PCC (Plain Cement Concrete) - 10 mm thick	- Market
		- PCC (Cement : Sand : Aggregate - 1:5:10)	- Market
		- Earth Filling (Granulars)	- On site
		- Rex Oxide finish (Alternative)	- As per near by availability
		- Sand Stone finish (Alternative)	- Available in Chhindwara District
Road and Pathways	Technique	Technique	
	- Concrete (Road + Bridges)	- Morrum Road + Small Concrete Bridges	
	Material	Material	
	- RCC Road	- Red soil with low clay percentage (Tested)	- On site, Ridge part of Patalkot
		- CSEB (Bhusa + Gobar (Cow Dung) + 5% Cement)	- On site + Cement from Market
		- Morrum (red soil) - 75mm thick	- On site available
		- Sand Filling - 25 mm thick	- Market
		- Surface Water Collection Channel (Cement : Sand)	- Market
		- Rubble Masonary - Reatining Wall	- On site

Source: Author

The existing structure needs modifications for strengthening and an increased life span. The wooden log truss replaced with bamboo (dendrocalamus strictus) truss is feasible in terms of strength and availability. Thus, arises a need for training the local people, the modern techniques of bamboo joinery and wall construction to maximize the strength and feasibility of structure. CSEB is a better construction material techniques for wall construction more convenient sustainable and cheaper. A finished $1m^3$ of CSEB masonry is always cheaper than fired bricks: 19.4% less than country-fired bricks and 47.2 % less than wire cut bricks. (Auroville).

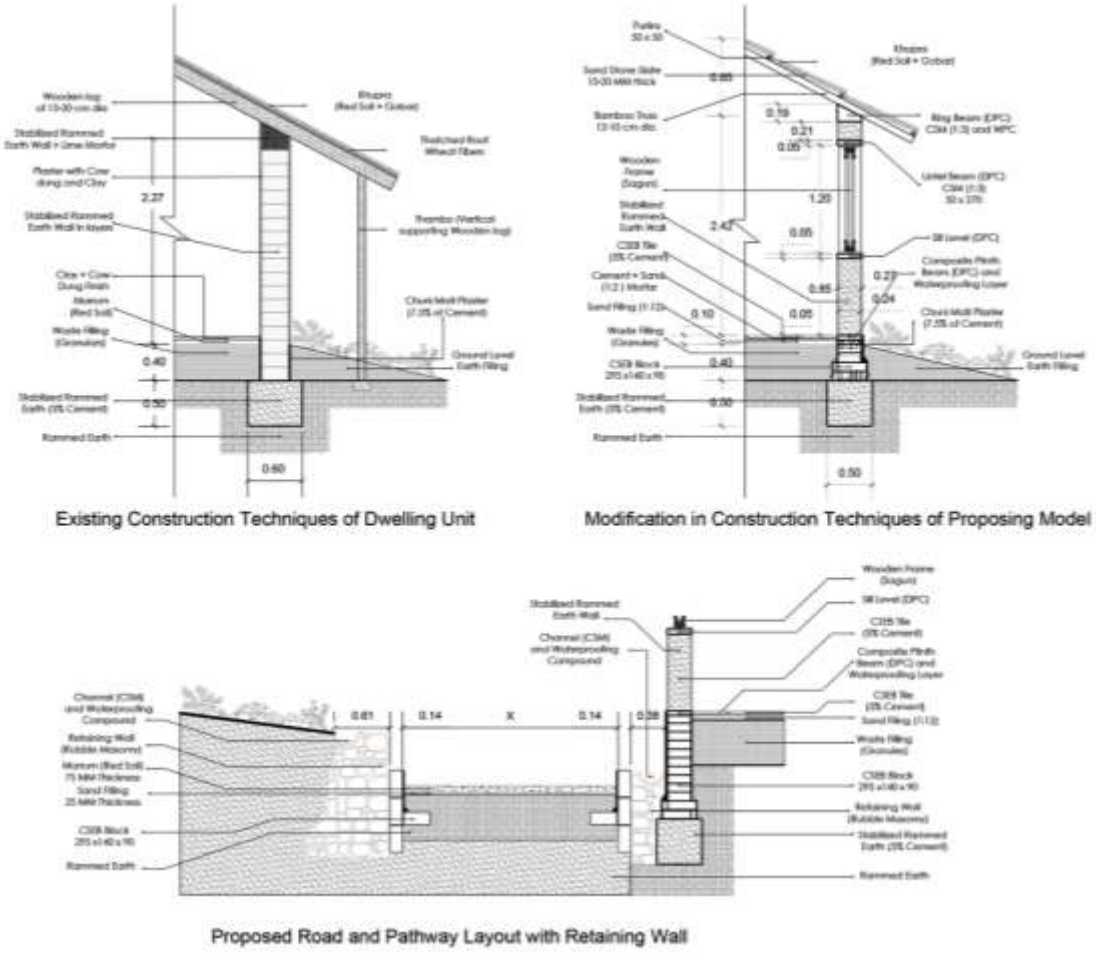


Figure 3: Construction Details of Traditional Dwelling Unit & Modification for PDM
Source: Author

(IV) **Case Study - Weaving Village at Gandhmow, Sualkuchi, Assam**

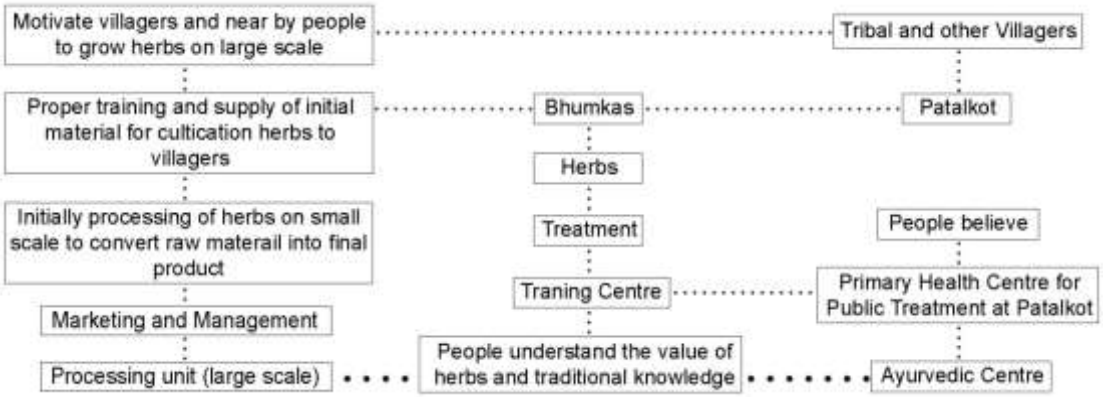
Gandhmow Village, Sualkuchi, Assam, India, is situated 30 Km from Guwahati City on the banks of river Brahmaputra (ETP at Sualkuchi, Kamrup, Assam). The Silk industry of Assam is a traditional cottage industry, which plays an important role in the socio-economic development of the rural people. Presently, the weavers of the region perform multiple roles of being producers and traders of handloom products. In this process of earning, they preserve their culture and heritage values within their community. All this is possible through a strong working organization that asserts a spatial and financial mobilization for empowering weavers

and providing them with an identity to obtain government schemes, health insurance, credit and market linkages. Sustainable efforts of utilizing local workforce for building infrastructure and providing employment helped the region in making a place in the nation map for handloom sector. It thus created a chain system where local people prepare the raw material to the final product, maintain the quality and sell under the brand name of Sualkuchi silk.

Figure 4*:* Weaving Village at Gandhmow, Sualkuchi
Source: Author

Hypothesis: Patalkot Development Model

On the basis of the study, the following objectives for the hypothesis was formulated. Various strategies can be undertaken to identify Patalkot as an Ayurvedic village. If initial support from tribal welfare society can help, it may attract companies to buy their products and thus support growth of medicinal herbs in large quantities in Patalkot.



Flow Chart 1: Patalkot Development Plan
Source: Author

Further provision for maintaining the quality of raw material by adequate techniques can help them earn good amount to sustain better lifestyle. It is therefore a need of the hour to establish a traditional medicine center in Patalkot. Monitor and promote the collection of herbs by the Bhumkas through research agencies companies and other institutions. Introducing Ayurvedic center will help Bhumkas market product in a better way, by reducing the gap between the healers and sufferers. A Processing unit to process the herbs will help not only Karam-rated but the remaining villages of Patalkot also, by providing employment and market (Thakur, 2004).

Guidelines to be framed for PDM

There are multiple aspects of the proposed model i.e. infrastructure, marketing and management being one of the most crucial keys to its success. Initially, the model can be funded by government under the fifth schedule of constitution to revive the traditional

knowledge and upliftment of villagers. In the later stages, depending on the clientele and PDM management, the implementation of model shall follow certain guidelines framed by tribal advisory considering R & D requirement, in collaboration with the Forest Department, so that there is no violation of rules and regulations as mentioned by the Department of Indian Forest Management.

Clientele: Tribal Welfare Group
: Any Private Organization collaboration with Gram Panchayat
: Participatory Process (Initially government funded than to Villagers Community)
: Satyakam Jankalyan Samiti (Local NGO involve with Villagers in Partnership)
: Villagers themselves (with the help of Loan and Stage wise Development)

An understanding of the scale of implementation is required to process this model. A single village cannot fulfill the requirement of the processing unit. Cultivation in many places lack amenities such as water sources, cultivation techniques, soil specification and shading; these factors require phase-wise implementation of the steps to be carried out in the project. Training locals for the cultivation of plants, and regular assessment of the quality of herbs should be considered throughout this process. Selection of construction material for infrastructure is important and should follow the context and in the proposed interventions.

In the initial phase, framing the market strategy for propagating Patalkot as an ayurvedic village by promoting its natural resources, forest abundant, natural views and healing spaces can be a head start to the entire project. Representatives amongst the villagers for planning the aspects of the model framework, its circulation, transportation, services, water supply, and management of departments can be worked out cohesively for the successful implementation of strategies. The project considers the overall development and revival of the traditional knowledge of tribal people in Patalkot and nearby areas through a series of interdependent phases, where each phase is established according to respective timelines to stabilize the implementation. A number of clients can initiate the model, but the primary goal of any such initiative is that all the rights should be under the villagers and proposals are to be framed as per the development of villagers.

Future Scope and Research

There are certain constraints, with the implementation in terms of non-adaptability of construction techniques and clarity of understanding the ownership and implementation pattern of the model. Involving local panchayat, tribal welfare groups and villagers of Patalkot, in the discussion of the execution of the project, financial viability and its positive aspects with time, a coherent solution for effective implementation of model can be asserted. A comparative economical study of both structures can be analysed, to assess the feasibility of the new construction techniques. A financial study of the model can derive many important key factors for the phase-wise development and enhance the role of government in this model to achieve success.

Conclusions

The multiple aspects of development model in Patalkot are focused in a people centric intervention. Architecturally, the building units can be modified with more feasible construction techniques to establish a platform to work despite the constraints. Strategically, the small processing unit can be propagated through efficient marketing, while the Ayurvedic centre can enhance its scale gradually to work out long term solutions by incorporating

training and modern ways of treatment. Establishing trust and understanding amongst the villagers through a participatory model, with suitable public policies and devised strategies, the model strives to create employment opportunities, improved lifestyle, and provide them with a sense of identity.

Patalkot therefore stands a chance to become a unique destination, rather than just a treatment procedure, such that if the same structure were to be conveniently placed in any other site, it would prove to be unsuitable there. By providing infrastructure for the promotion, display, and dispatch of traditional culture, knowledge and goods, it will assist the native community. The traditional knowledge thus has a potential to revive its old glory through careful interventions keeping in mind that the new proposal does not overpower the sanctity of the place.

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