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& Council of Architecture, New Delhi

Criteria 3 – Research, Innovations and Extension (110)

3.3- Research Publication and Awards (25)

3.3.1: Number of research papers published per teacher in the Journals notified on UGC care list during the last five years (10)

N	Title of Paper	Name of Author	Name Of Journal	ISSN Number
0				
1	Understanding the Conversion of	Ar. Dipeeka Arbatti	International Journal of	ISSN 2319-
	Existing Agrarian Landscapes into		Engineering Research (IJER)	6890(ONLINE)
	Designed Agro Tourism			2347-501 (PRINT)
	Destination to Conserve			
	Associated Cultural Heritage and			
	Ecology: Shrirampur Taluka,			
	Ahmednagar			
2	Understanding the Character of	Ar. Dipeeka Arbatti	International Journal of	ISSN 2319-
	Open Spaces of an Urban Village		Engineering Research (IJER)	6890(ONLINE)
	on the Urban-Rural fringe of a City,			2347-501 (PRINT)
	to derive Design Strategies for its			
	Longevity: Nanded Village, Pune			
3	Architecture –	Ar. Rajeshwari	International Journal of	ISSN 2319-
	Beyond Design : Exploring	Jagtap	Engineering Research (IJER)	6890(ONLINE)
	Architectural Profession			2347-501 (PRINT)
	through Quality Management			



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Understanding the Conversion of Existing Agrarian Landscapes into Designed Agro Tourism Destination to Conserve Associated Cultural Heritage and Ecology: Shrirampur Taluka, Ahmednagar

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Abstract: Traditional agrarian landscapes form part of cultural and natural heritage, ecological integrity and scenic value of landscapes make rural areas attractive for the establishment of enterprises, places to live, tourism and recreation businesses. Agriculture and Tourism brings in together booming sector now a days, called Agro Tourism. This research focuses on understanding the character of Agrarian Landscapes and planning, designing of agro tourism destination, for conservation and enhancement of existing habitat and Temple. Offering new employment and income generating opportunities for rural populations, including agro tourism as expression and cultural exchange of agricultural practices, artistic heritage, craftsmanship, culinary traditions.

Keywords

Agrarian Landscapes, Agro Tourism Designing, Ecology, Heritage, Habitat, Conservation

Introduction To The Topic

The first dimension of Agro- tourism is the agriculture. Agriculture, earlier in the broadest sense, included activities aimed at the use of natural resources for welfare of the human being and it included all primary activities of production. However, agriculture generally means the growing and raising crops and livestock. Over the years it has emerged as an enterprise that encompasses all production activities integrated on commercial lines to maximize profits at minimum costs on bases. Agriculture is backbone of Indian economy. Majority of our country lives in the rural areas. Approximately 70% of the Indian population is dependent on Agriculture And allied fields. Hence it is the largest part of our economy. This sector's contribution towards GDP is decreasing and farmers are finding it difficult to carry the agricultural activities without an additional income. It is observed that excesses of modern agriculture technologies causing damages to the local ecology. The returns from farming are slow and low of which the price is determined not by the farmer but somebody else.

The second dimension of the concept in agro -tourism is related to Ecosystem which include biodiversity, organic farming systems, and ecological systems, Hence agro-tourism means making little environmental impacts as far as possi-

ble, help to sustain the indigenous populace, thinking and encouraging the preservation of wild life and habitats when visiting the places. Farming activity is a key factor in shaping the visual features of rural areas and creating valuable habitats for wildlife.

Aim

To design an agro tourism destination and conserve associated cultural heritage and ecology.

Objectives

- To study tourism profile of Ahemadnagar district.
- To study Connectivity & Road Network pattern.
- · To study agricultural profile of Ahemadnagar district

Scope

Study focuses on planning & designing of agro tourism destination To conserve & enhance existing habitat for peacocks & other wildlife associated with the site.

Limitations

Scope of the the study is limited to only Khandala village.

Need Of The Project

The combination of agriculture and tourism, under the scope of a rational development, may help towards a sustainable way of maintenance and planning of the rural landscapes. Farming activity is a key factor in shaping the visual features of rural areas and creating valuable habitats for wildlife.

Agro tourism is developed as a sector with the aim of not only a development instrument for local people who are dependent on agricultural production, but also for sustaining the agricultural lands. Since few years the expected yield has reduced affecting the monetary returns obtained from farming, hence additional resources are needed for bread and butter in agrarian communities also in many areas, farming practices and land management associated with highly valued land-scapes are at risk. By proposing such a project we can conserve it. Indirectly, the study would throw light on how to reduce the rapid growth of urbanization and negative impacts on villages and project public awareness and participation.



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Study Area

Khandala village is a tourist place in Shrirampur taluka, District Ahemdagar. Famous for ganesh temple and it is believed that the idol of lord Ganesha is self embedded. The temple is surrounded by agricultural fields & peacocks are seen in this area.

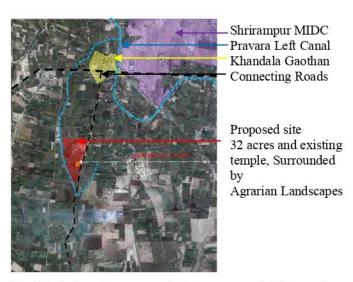


Fig No-1 showing proposed site, surrounded by agrifields, connecting Roads and major landmarks

Methodology

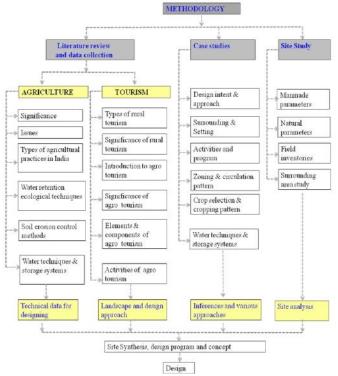


Chart No-1- Methodology

A. Literature Study

Literature study is conducted through reading books, research papers etc.

1. Agricultural Profile

To understand the significance and issues at regional level, different types of Agricultural practices based on geographical locations of India, different types of water techniques and storage techniques adopted according to region and climatic conditions, ecological methods for soil erosion control, Cropping Pattern Of Ahemadnar District.

2. Tourist Profile

This study is conducted through interview and reading method. To understand and study types of tourism, significance, elements of agro tourism, Division wise Norms for agro tourism designed by MART (Maharashtra State Agri Rural Tourism), Tourist profile of Ahemadnagar District.

B. Case Studies

This study is conducted through books and live case study. Mapping, Interview method and observations in case of live case study. Case studies has been selected by having certain parameters such as setting, intent of project, scale. To understand Design approach, activities and program briefs, zoning, circulation, services, Movement Pattern, Crop selection, Natural parameters, Water Requirement.

C. Site Study

This study is conducted through site visit, field inventories, survey, mapping, interview method. To study manmade parameters like Visual, Aesthetic, View Corridors, Economic, Social, Cultural, Religious, Cultural/Religious/Heritage Value, Functional, Human Ownership, Physical Connectivity Built Form. To study natural parameters of region for understanding of Soil Type, Rainfall, Hydrology, Slope, Relief, Hydrology, Vegetation study at site level to derive a synthesis map.

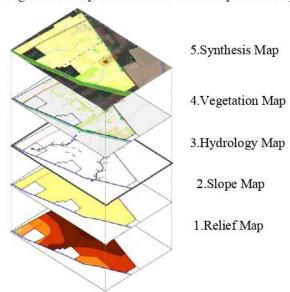


Fig No-2 Showing Layers Of Site Analysis

Findings and Conclusions

Results of Literature Study, Case Study Analysis, Site analysis are as follow.



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No	Parame- ter	Result
A		Literature Study
1	Agricul- tural pro- file	Rabbi crop- jowari, wheat, gram, maize. Kharif crop- bajara sugarcane, maizesummer crops- groundnut, mug. Highly suitable slope for all the crops is <3m, sprinkler, flood water, drip irrigation are irrigation methods used, maximum crop duration is 4 months for each crop, sugarcane require 2-3 years.
2	Tourist profile	District is having presence of tourist attractions like Religious, Wild Life, Nature, Heritage, Agriculture. Religious tourism is the main typology which is observed in the district.
В		Case study
	Book case study	In case of technology park emphasis was given to different cultivation and Experiments, site setting plays an im- portant role in formulating design brief of project, cropping pattern etc
	Live case study	Zones were divided in following manner 80% agricultural zone,18% tourist zone 02% of educational zone Agricultural zones were totally segregated from tourist zone. Limited areas of the agricultural zone were accessible to tourists. Maximum area under orchard plantation
С		Site Study
1	Manmade parame- ters	Experience of agricultural lands and orchards while going to temple from Sangmner road, view dry and barren land and agri fields. Acting as a tourist point. Farmers come and sale their products on chaturthi day, when devotees come for worshiping. Temple area has been used for religious, recreation activities and social gatherings.
2	Natural parame- ters	District is having black catton soil, medium deep black soil. Elevation height of taluka is between 300m-600m, from mean sea level. Shrirampur taluka receives rainfall between 500mm-800mm. District falls under scarcity zone. According to agro climatic zones of district shrirampur lies in scarcity zone. Other than rainfall taluka get manmade water supply from Pravara left canal built on Bhandardara dam. Site is having species like, neem, coconut, vad, pimpal, audumbar, mango, babul, subabhul,chandan, lal chinch and overall site has 0-2% slope.

Final Design Output

From all the base study site has been divided into three zones Tourist zone, Agricultural zone and Nature zone. Design approach for this project is informative, Educational, Recreational, conservation of communities like pot maker, stone mason, Bangle saler (kasar), Folk dancers, Village jatra, existing temple, habitat associated. Concept is Celebration of Hindu festivals as per Marathi calendar and agrarian seasons (Kharif, Rabbi, Summer), to conserve traditional systems, which is been derived from site context.

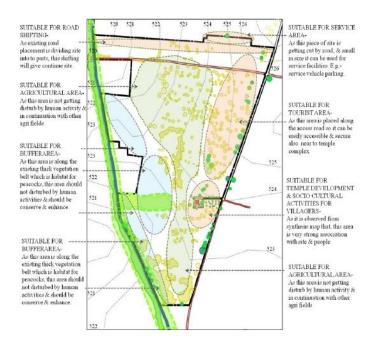


Fig No- 3- Suitability Map Derived from Synthesis Map Showing area suitability for activities.

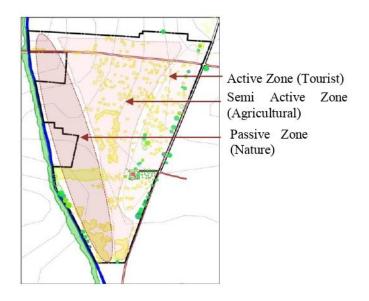


Fig No- 4- Zoning Map Derived from Suitability Map

Tourist zone is placed in such a way that it is easily approachable have minimum disturbance to agri zone and nature zone. Planting pallet for this zone has been selected by studding cultural importance of plants in Hindu festivals. Flowering species has been studied according to their blooming season wise and planted along that months festival celebration area or activity zone.



Fig No-5-Final landscape layout for Agro Tourism Dstination.

Agricultural zone is placed in such a way that it could act as a buffer between nature zone and tourist zone. Agrarian landscapes are ever changing due to production of kharip, rabbi, summer seasonal crops, hence for, visual character of each piece of land would be different in each season. Orchards will act as transition between these two zones.

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Nature zone has been placed and design in such a way that, minimum human intervention will happen in this area. It is combined with existing grove of *Caesalpinia bonduc* which is habitat for peacocks and many other birds on site. one existing water canal is present along these groves, which get waters twice a year. Such a water feature is helpful for developing and conserving bird and other fauna. Hence, to get water throughout the year, longitudinal trench has been designed which will also prevent direct human intervention with grove of *Caesalpinia bonduc*. Three storied plantation, fruit and flower bearing species has been selected for this zone, for enhancement and conservation of existing fauna.

Acknowledgement

P.G. Thesis Guide Prof. Aarti Verma, BNCA ,SPPU, Data collection- Ahemadnagar town Planning Office, Shrirampur Tahasil office, Rahuri Vidyapith

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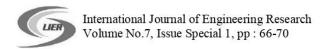
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Understanding the Character of Open Spaces of an Urban Village on the Urban-Rural fringe of a City, to derive Design Strategies for its Longevity: Nanded Village, Pune

Ar. Krutika A. Madkaiker¹, Ar. Dipeeka Hivarkar - Arbatti²

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Abstract: Urban villages are hinterlands trapped in an urban premise; which are engulfed in the surrounding development. Their association with the natural parameters, which initiated their settlement, are lost. Nanded village on the fringes of Pune city is one such settlement, which in spite of having historical significance, productive soil with association of water bodies like river and stream, is facing similar issues of surviving in the peripheral development. The paper aims to analyse the condition of existing open spaces left in the village for deriving workable strategies, to determine its permissible usage and establish a role in the village upliftment.

Keywords: hinterlands, urban premise, fringe, engulf, strategies, upliftment

I. Introduction

A specific category of settlements of the urban poor in the city can be termed as the urban villages or the gaothan areas. They grow like fungus in an otherwise manicured landscape in the vicinity. Their association with the natural parameters, which initially embarked their settlement, are lost, and they inhabit in isolation. These are dense settlements with intense issues related to the livelihood. They are original villages that have adapted to the current development pattern in their vicinity and have submitted to the paradigm shift. The cities spread out gradually to the hinterlands due to the increasing pressures of population; the villages on the urban-rural fringe transform at a slower pace. This extension engulfs the villages, acquiring their agricultural lands and bringing change in the occupational pattern of the villagers. This leads to a revolutionary change in the economic base of the community. In India, the urban villages are existing pockets of villages which have got cramped among the rapidly rising city around them, leaving these villages at the mercy of their own growth. They lack in basic facilities such as roads, water and sanitation, haphazard construction with buildings serviced by narrow streets. 'The urban village is where the prime change happens in the landscape component. The main areas where the transformation is seen are:

- Transformation of major landscape elements (water body, hills, natural flora & fauna, soil, etc.)
- Transformation of infrastructure elements (schools, commercial centres are built in the urban village)
- Transformation of land uses (change from agricultural land-use to residential/industrial/recreational land use)

- Transformation in occupational structure (people shift from working in agricultural field to working in the informal sector in the city)
 - Transformation in social structure, [1]

One of the approaches to organise the development and transformation of such villages is by adopting green infrastructure (GI) networks. This study of the village is a representative case of developing strategies for the existing open spaces in such left out patches of settlements. This would give the village an identity which would minimise the social barrier they face with the inhabitants in the surrounding new development.

Aim:

To develop strategies for the different character of open spaces found in the urban village through green infrastructure methods for making the village self sufficient, improving the quality of life.

Objectives:

- To study the evolution of Nanded Gaothan
- To understand user preferences by conducting interviews of the residents
- To understand the suitable green infrastructure methods which can be adopted considering the requirements of the open spaces

Scope

The open spaces of micro to macro scales are identified within the village, the characters are studied and strategies are suggested for it to become self-sufficient.

Limitations:

- The study is limited to the extent of Nanded Gaothan.
- The strategies are given catering the entire gaothan and considering the requirements of the villagers.
- The proposals are given at the strategic locations after analysing the site and considering the constraint of open spaces.

II. Methodology

Referring to published articles and books exploring the concept of 'The Urban Village'	Three cases of different contexts a) 2 of Model Villages Ralegan Siddhi Hiware Bazaar	Photographic documentation Interview of Villagers Data procured from site, summarised in sheet
Studying policy framework for Green Infrastructure in India	b) 1 of Project ''Garbage to Gardens' by Manda Karlsson and Annie Soder • Inferences	Site Analysis Identifying potentials for landscape interventions List of requirement from the site Policy framework and Design strategies for the Site Design intent, landscape proposal

Figure 1 - Methodology Table

• Literature study:

Studying the concept of Urban Village through research articles and books; understanding Green Infrastructure techniques.

Case Study:

Three case studies were selected, two based on model villages and one based on transition of an open space used for sorting garbage into a garden.

Observational study:

Analysis of site through Photographs, Interviews, Natural parameters, Manmade parameters, Activity mapping, Identifying open space structure and its analysis

On the basis of literature review, case study and site analysis, giving demonstrative design strategies for the identified open space structure was the next stage.

i. Literature Study:

Green Infrastructure [2]

Table 1: Attributes of Green Infrastructure

Attributes	Examples of places	Examples of functions provided
Fish and wildlife resources	Wildlife refuges, landscape linkages / wildlife corridors, ecobelts, streams and lakes	Provide habitat for wildlife, support animal migration, maintain population health
Watersheds or water resources	Riparian or stream buffers, wetlands, flood plains, groundwater recharge areas	Protect and restore water quality and quantity, provide habitat for aquatic and wetland organisms

Recreation and health resources	Parks, greenways, blue ways, trails	Encourage exercise and active lifestyles, provide space for outdoor activities, create places for solitude and respite, connect communities, connect people with nature, provide alternative transportation
Cultural resources	Historic or Archaeological sites, educational sites / facilities, town / country open spaces	Preserve link to cultural and natural heritage, foster education through 'nature classrooms', protection of cultural site / integrity
Working lands with economic values	Farms, orchards, ranches, managed forests	Protect working lands as a business as well as a place; maintain rural character and traditions, support sectors of the economy.

ii. Case Studies:

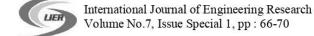
Two case studies representing Model Villages were referred, namely Ralegaon Siddhi and Hiware Bazaar both from Ahmednagar. Issues faced by the village then were:

- Acute water crisis, reason being village cited in drought prone and rain shadow region
- · Limited seasonal agriculture
- Unavailability of fodder and fuel wood
- Forced migration of the farmers to surrounding towns and cities in search of work
- Deprived of its only source of income agriculture
- Residents turning to local liquor production, giving rise to vandalism
- Lacked in basic facilities of primary education and health

To mitigate these issues the principles enforced and implemented in both the villages were:

- Watershed Management
- Use of non-conventional energy resources
- Shramdan
- · Ban on Grazing
- Ban on Tree cutting
- Ban on Liquor
- Family Planning
- Voluntary Labour

Another case study referred to was a study done by Manda Karlsson and Annie Söder, who gave design proposals for two decentralised waste management units in Pune, India and



published their work under the title 'Garbage to Gardens'. One of their sites in Pune was a small area currently used as sorting space for the disposed household dry waste. The main approach was to improve the work conditions of the rag pickers, by providing a substantial shade to protect from sun and rains, and give it a tidy appearance to improve the hygiene of the place [3].

III. Site Survey

About the Site:



Figure 2 - Nanded Gaothan Boundary: 25 acres

Pune's urban area has been expanding on an average rate of about 500m per year for the last two decades or so. Human habitations are encroaching upon the farm land, orchards on fringes, affecting the riverine habitat the most. In this rapid urbanization, the villages on the fringes get transformed, forming urban villages or gaothan. One such urban village is Nanded Gaothan, in the vicinity of the upcoming Magarpatta's Nanded City township situated 8kms towards South from Pune City. The area is 25 acres catering 2669 households. The site gradually slopes towards the river. In the past peoples association has been the strongest towards the river and the stream.

The Surveys:

The surveys were conducted at two levels, for children and adults. The conclusions brought a better understanding of the association of the people with the different forms of water bodies in their vicinity; their lifestyle and their preferences of the activities at the river front. People's choice of activities and their understanding of the current open spaces helped derive the strategies.

Percentiles of people's opinion on the kind of riverfront activities

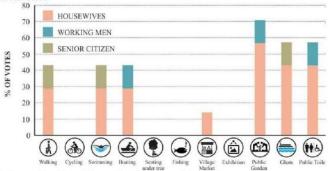


Figure 3 - Bar Chart showing people's preference

The graph represents the activities given to the people for choosing their preferences, the group was deliberately categorised as 'Housewives' 'Working Men' & 'Senior Citizens'.

A cumulative highest vote came for 'Public Garden' followed by 'Ghats and 'Public Toilets' It was concluded from the survey that people need allocated open spaces apart from recreation as it forms an integral part of their everyday life.

Percentile of students' preference on the kind of riverfront activities

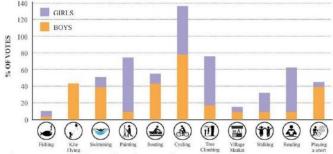


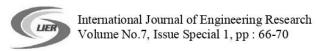
Figure 4 – Bar Chart showing students' preference

The survey was conducted to understand what children preferred the most if the existing river front was restored. A mixed age group of 10 years was selected from the Zilla Parishad School, the only one in the vicinity. The cumulative vote went to 'Cycling', followed by 'Tree climbing' and 'Painting' chosen by the Girls and 'Kite Flying' and 'Boating' chosen by the Boys. Many students shared how these activities were once a part of their growing up years, which now has faded since degradation of natural resources and infrastructure.

IV. Results and Tables

Table 2 – Open Space Character Analysis with Proposed Strategies

1) TY	POLOGY	RIVER		
Availab	le Open Spaces	River &	Pot-	
		Riverfront	holes	
Owners	hip	Irrigation	Irrigation	
		Department	Depart -	
		Ar .	ment	
Existing Use		Seating spaces,	Drying of	
		Crematorial	clothes &	
		activities	cow dung	
		and Visarjan	cakes	
		activities		
Approx	imate Area	0.53 km stretch		
Conce	Functional	0000		
rn	Social			
	Visual			
	Environmental			
Policy	Activities	Ban on polythene ba	gs,	
		Ban on dumping waste into the		
		river, Provision of b		
		Ghats, Fine levied, F		
		pollution, Restricting noise		
		pollution, Maintenance of Public		
		Toilets, Cow dung collection		
		Bank, Public Garden, Collection		
		bank for Nirmalya, I		
		washing, Fishing, Bi		
		the streets, Cycle tra	집중 기계 (전기 기계 중 계 20 개 기계 등)	
		waste water segregat	ion at the	
		point of generation		



	Ť		
	Techniques		
		Waste Water Treatment	Rain Water Harvesting
		(1)	
		Weed Management Removal of pollutio tolerant species	
	Built	Prohibition of between the 25 Low rise built	built spaces in 5 year flood line, spaces, Maximum the upland area of
	Material		[83334]
		Eco-friendly Materials	Pervious Materials
	Planting		
			loriculture Flowering Hydrophytes Fragrant Species
2) TYI	POLOGY	STREAM	
Availab	le Open Spaces	Open Spaces	Along The Stream
Owners		Irrigation Depa	
Existing			g place, Fishing
	imate Area	0.4 km stretch	
Conce	Functional		
rn	Social		1
000000k	Visual		(
	Environmental		
Policy	Activities	Creating buffe	r corridor through
Tolky	Activities	plantation, Bar bags, Ban on d water into the	n on polythene lischarge of waste stream, Ban on es, Ban on cattle
	Techniques		
	-2	Stream Restoration Techniques	n Soil Stabilisation Techniques
	Built		
	Material		
	Planting		
		Water Retaining Species	Hydrophytes - Submerged, Emerged & Floating
	POLOGY	EXISTING O	PEN SPACES
	POLUGI		
Availab	le Open Spaces	Vacant Plots	Incidental Open Spaces
Availab	le Open Spaces		7.0
	le Open Spaces hip	Plots	Spaces

Approx Conce rn Policy	Functional Social Visual Environmental Activities	18000 sqm = 4.45 acres Community Open Space, Retaining cultivable land, Provision for Village Market, Open spaces for events & festivals, Local species Floriculture, Community Supported Agriculture (CSA)	untreated & unsegregated waste (turned into Garbage Depot) 1786 sqm = 0.4 acres Spill over space for Crematory activities, Nursery, Seed Banks, Play area within the school premise, Segregation and Treatment of collected waste
	Built	No built structures on agricultural plot, Built space required should not be more than 3 m	Built space required should not be more than 3 m.
	Material		Use of eco friendly building materials, Earth bags used for the sorting and collection area, Prohibition on concrete, Organic fertilisers – by product of waste
	Planting	Crops - okra, fenugreek, spinach, Sugarcane. Fruit trees - mango, sapota, guava, tamarind, Custard apple, jambhul. Floriculture with plants like marigold, kagda, mogra, gerbera, Hedychium	Large Canopy Evergreen Floriculture & Hydrophytes

		coronarium, were cultivated in the past by the settlement. Large canopy evergreen trees should be used in community spaces	Flowering Fragrant Species
4) TYF	POLOGY	FARMLAND	s
Availab	le Open Spaces	Farmlands	
Owners	hip	Private	
Existing	Use	Residential	
Approx	imate Area	33600 sqm = 8	3.3 acres
Conce	Functional		
rn	Social		
	Visual		
	Environmental	0000	
Policy	Activities	Agro forestry	
	Techniques	-	
	Built	_	
	Material	_	
	Planting		
5) TYF	POLOGY	INFRASTRU OPEN SPAC	
Availab	le Open Spaces	Streets and N	
Owners		Gram Panchay	rat
Existing	Use	Junction or Cr	oss-over spaces
	imate Area	5000 sqm = 1.	
Conce	Functional		
rn	Social	0000	
	Visual		
	Environmental		
Policy	Activities		
	Techniques	Stormwater Management Rain Water Harvesting	Waste Water Treatment
	Built		
	Material	Prohibition on use of Concrete	Pervious Materials
	Planting	Cynodon dacty Saccharumaru	for Bio swale : vlon (retz) Trin, undinaceum Retz, ontaneum Linn, noides Stepf.

Oldenlendia corymbosa Linn,
Rungia repens Nees, Karanj,
Taman

V. Conclusion

In a transformed setting land use, open spaces, mature trees etc should be preserved. Commercial activities like mills, barber shop, vegetable market should merge in the village setting rather than cafes, retail outlets, boutiques, etc reflecting on the facade, signages and building heights. Waste segregation and treatment area can be transformed into a garden sufficing the need of recreation.

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Ludwigia parviflora Roxb,



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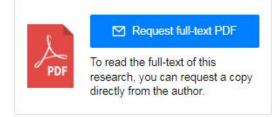
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