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Cultural Landscape as a Framework for Sustainability: Case of Kaveri Basin

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***ABSTRACT**: (Cultural landscapes are) combined works of nature and humankind, they express a long and intimate relationship between peoples and their natural environment (Operational guidelines, 2008, UNESCO World Heritage Committee). Cultural landscape is an operational framework that rightly captures the essence of people, place and time within a single capsule. Currently there are 114 properties with 5 trans-boundary sites on the World Heritage List that have been included as cultural landscapes. While some sites display sustainable land use pattern, others occupy a position in public memory representing spiritual belief or local history. Culture and nature co-evolves supporting each other in such landscapes. In all of these sites intangible traditions closely contribute to the sustainable ways of living including protection of the commons to guiding sensible development. As cultural landscapes are holistic in its boundary definition, identification and documentation of such landscape units and integrating them into formal planning frameworks is what is advocated in this paper. To understand the case better, the example of Kaveri river basin is studied. A mapping exercise was undertaken in which natural and cultural components of Kaveri river basin are delineated and an attempt is made to redefine the basin as a cultural landscape. The insights gained by this study shows us the importance of identification, protection and management of cultural landscapes as heritage sites for the cause of sustainable development.*

KEYWORDS: Cultural landscape, Kaveri, heritage, sustainability, land use

1. INTRODUCTION

The term Landscape literally means shaped land. Nature has its ways of shaping lands through long term processes. Erosion, deposition of sediments, floods, drought, weathering, distribution of vegetation, evolving fauna-flora, shifting courses of rivers and coastlines are instances of such processes to mention a few. These are processes that are incredibly slow, allowing nature to adapt itself to the changes. The question of sustainability arises when man begins to shape the land for his own benefit. Agriculture is one of such activities that largely began to transform the land use since Neolithic times. Gradually, various human activities have contributed to land use and land form changes. Building activity is one such process that has significantly shaped our global landscapes. These are cultural processes of shaping lands. The major difference between natural and cultural processes being the pace in which it takes place. Cultural factors that shape landscapes are significantly quick and visibly evident. This aspect sometimes leaves a large impact in the landscape and its systems. Environmental impact such as climate change, massive deforestation, undesired changes in the topography and basin characteristics, threat of disappearance of fauna and flora species, excessive pollution are some of the impacts the global population is facing.

Landscapes are dynamic by nature and constantly evolving through natural and cultural forces. One cannot imagine landscapes to be static and frozen. In fact, human activities should be visualized as a part of the matrix of such landscapes. Our well-being depends on how integral our activities are to the landscapes we are placed in. Human activities are not isolated from the landscape itself. On one hand if landscape provides the opportunity and resources for human activity, on the other humans shape the landscape itself as per their needs and vision.

The imbalance created in the units of landscape due to non-coherence between socio-cultural and natural forces that shape these landscapes are of utmost concern today. A deeper insight of how these forces act in coherence could be useful and relevant for today's concerns about sustainable way of life. Further, practical concerns of how could one identify and delineate an independent, self-sufficient, sustainable parcel of landscape where natural and cultural forces embrace each other is a question often dwelt upon. Such landscapes that are melting pot of natural and cultural processes could be called cultural landscapes. These landscapes represent a defined boundary where nature and culture harmoniously work with each other. They are a result of long time process.

Hence, for a sustainable future, it is very promising to visualize the entire globe as a jigsaw of defined parcels of cultural landscapes that are independent and self-sufficient. As cultural practices found in such landscapes are diverse, so is the diversity of the resultant cultural landscape itself. Our development frameworks and policies must make a conscious and systematic attempt to identify, delineate and manage cultural landscapes across the globe to foster a diverse and sustainable future. Knowledge systems embedded in such landscapes are of vital nature awaiting to be tapped and incorporated into the development plans.

India has a variety of geomorphological land mass and also known for its diverse cultural traditions. Rivers and river basins are lifeline to Indian way of life. This paper attempts to examine Kaveri river basin as a cultural landscape where the basin acts as a container for nature and culture to flourish. Like any other river basin, Kaveri basin offers a variety of topographical and climatic context. But the history and culture has uniquely interpreted the opportunities offered by the basin. Eventually physical components and the intangible attributes have become inseparable and inter-dependent. This relationship demonstrates unique ways in which the communities handle their settlement organization, optimized use of land, water and other resources. One cold also witness how sacred and cultural associations with the water bodies, hills and places have built a unique landscape of Kaveri, making it a landscape of cultural memory.

2. CONCEPT OF CULTURAL LANDSCAPE

In 1927, Carl O Sauer observed how cultural landscapes are made up of "The forms superimposed on the physical landscape." Faegri (1988) sees cultural landscape as an anti-thesis to untouched, unspoilt natural landscape. The human geographers define a cultural landscape as "A concrete and characteristic product of the interplay between a given human community, embodying certain cultural preferences and potentials, and a particular set of natural circumstances. It is a heritage of many eras of natural evolution and of many generations of human effort." (Wagner and Miskell, quoted in Fowler, 1999, p.56)

Further, for operational purposes, National Park Service defined cultural landscape as a geographic area that includes both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity or person or exhibiting other cultural or aesthetic values. National Park Service, for practical purposes identified four types of cultural landscapes namely Historic sites, Historic designed landscapes, Historic vernacular landscapes and Ethnographic landscapes. As the categories themselves suggest, these landscapes are identified by the strong thematic character they possess such as historic or ethnographic. Having said that, these categories are named so for efficient identification of intangible parameters associated with the landscapes and to manage them efficiently. Though a dominant

Table 1: Tool for identification and delineation of cultural landscapes. Source:Venkatachary, B, Kawathekar, V. (2018)

Parameters for Delineating CL boundary	Components of Cultural Landscape	Remarks on Intangible
1. Interdependency	1. Parcels of land	1. Landscapes seem to inspire people to learn and practice intangible traditions
2. Iner-relationship	2. Land form	2. Intangible cultural expressions are preserved in traditional environments only by putting in place a method or system to transmit from generation to generation
3. Combined Evolution	3. Fauna-Flora (Habitats)	3. Intangible as Cultural expression (as a medium to capture the spectacular aura of Nature and comprehend to Man)
4. Appropriate Scale and Distribution	4. Viewpoints	4. Picturesque landscapes seem to attract more artistic, spiritual and intellectual

		activities
5. Visual and Ecological Harmony	5. Routes and Networks	5. Sentiments such as Spiritual or National only seems to be bonded or attributed to a landscape using intangible cultural tradition
6. Resilience in Natural and Cultural systems	6. Human Activity	6. Intangible as Bond within human and society interacting with the landscape (Promoting Social Cohesion)
7. Shared Values	7. Boundary reflecting the combined work of Man-Nature	7. Intangible as a source of knowledge helping continuity of cultural processes
8. Multiple or Shared Ownership	8. Villages	8. Intangible as a Regulatory Mechanism in CL. Eg. Taboos and cultural Norms
9. Social Cohesion	9. Water Systems and other Infrastructure	9. Intangible catalyses Resilience
10. Clearly demarcated human Activity zone	10. Climate and Season	10. Intangibles dictated by the landscape (Eg. Materials for musical instruments etc)
11. Accessibility of Resources to the inhabitant and their Rights	11. Visual realm of heavenly bodies	11. Gives Time Dimension to Man-Nature Relationship (Rhythm etc.)
12. Geological boundaries and Natural processes	12. Artificial Landscapes	12. Intangibles create spiritual relationship with land
13. Character and Sense of place	13. Built structures	13. Intangibles used to celebrate landscape
14. The boundary of CL should be adequate to maintain the property's Values (OUV in case of World Heritage)	14. Archaeological remains	14. Intangibles enable Inter-cultural interactions
15. Adequate Material evidence suggesting the continuous process of the landscape	15. Visible and Invisible Natural and Cultural Resources	
16. Core and Buffer Zone	16. Traditional Knowledge Systems	

theme was identified, nevertheless these landscapes were not mutually exclusive.

In 1992, the World Heritage Convention came up with the first international instrument to identify and protect cultural landscapes. Inclusion of cultural landscapes in World Heritage list. The committee redefined cultural landscape as combined works of nature and of man.

The definitions of Cultural landscape have evolved over the years to reflect the evolving paradigms. Over the years, the definitions of cultural landscape have included perspectives of geographers to that of artists and architects. Today it is seen as a holistic parcel of landscape that packages tangible components and intangible attributes into one interwoven matrix.

Owing to varying definitions and parameters considered by diverse scholars and institutions to understand cultural landscapes, a tool that has been recently developed to identify and delineate cultural landscapes (Venkatachary, B., & Kawathekar, V. 2018) (See Table 1). This tool has been developed by studying the parameters from the inscribed world heritage cultural landscape properties and by accommodating the evolving definitions of cultural landscape from the existing literature. This tool not only offers the parameters to identify cultural landscape, but also provides with a check list for documenting cultural landscape sites into physical components and intangible attributes.

3. KAVERI BASIN AS CULTURAL LANDSCAPE

Kaveri is one of the major South Indian rivers. The river originates from a spring on Brahmagiri mountains of Coorg district in Karnataka. It flows south and east through three Indian states of Karnataka (34,273 SqKm), Kerala (2,866 SqKm) and Tamil Nadu (43,856 SqKm), also touching upon the union territory of Pondicherry (160 SqKm) emptying itself into the Bay of Bengal from Poompuhar, Tamilnadu. The Kaveri basin is estimated to cover an area of around 81,155 square kilometers. Some of its major tributaries include the Shimsha, the Hemavati, the Arkavati, Honnuhole, Lakshmana Tirtha, Kabini, Bhavani River, the Lokapavani, the Noyyal and

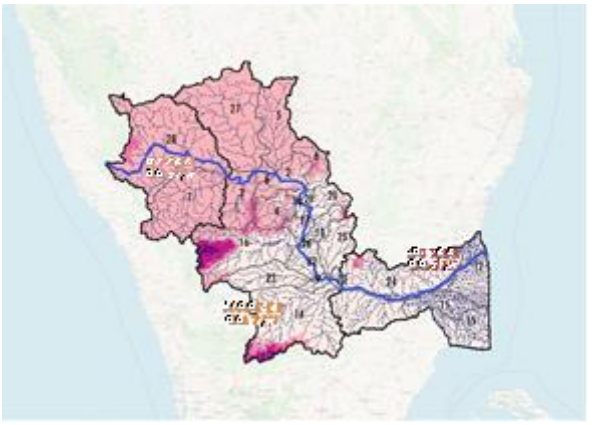

Figure 1: Map showing Kaveri river basin (Source: Author)

the Amaravati River. The river flows towards south- east for about 800 kilometers in total. Mid way through the river's course, it takes a sharp descent of around 100 meters at Shivanasamudra waterfalls. The river has always played a role of food bowl for ancient kingdoms and modern cities of South India alike by supporting irrigated agriculture for centuries. Today, hydro-electric power is also harnessed from the Kaveri river.

3.1. Natural systems

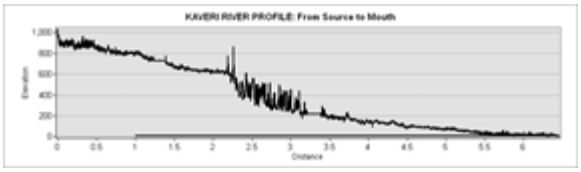

Figure 2: Sectional profile of Kaveri river. (Source: Author)

We know that the natural processes involved in the formation of any landscape is not only a long term one, but also begins millions of years ahead of the cultural processes. Therefore, natural systems and land forms serve as a stable canvas to begin with the delineation of cultural landscape boundaries. In case of Kaveri river, the river basin and watershed boundary was used as geomorphological boundary to begin with.

The unique characteristics of the basin makes it a distinct platform for a specific kind of landscape to develop. By investigating its physical characteristics, the entire basin could be divided into three parts, the upper, middle and the lower basin. Further, a watershed mapping was carried out to understand the independently function parts of the basin. 28 such catchment areas were identified that constructs the entire basin. These catchment units are not just independent as a natural module, but they also become a part of the basin system by draining their share of water into the major

course. Not just that, but each of them also has distinct geomorphological character that is indicated in the landscape metrics as shown in table 2.

The upper basin is characteristic of steep slopes, and uneven landforms, quite a bit of erosion is common in this part of the basin. Though this land is not suitable for agriculture, it supports forests and wildlife in plenty. Middle basin is known for its waterfalls and rapids owing to quick and sharp changes in land forms here. Water in the river gets deeper here and gushes with force. Riverine habitats get diverse in this part of the basin and offers opportunities to produce hydro-electricity. River section in the lower basin gets wider and known for its fertile lands due to deposition of top soil carried from the upper basin. More or less land form becomes even and offers plenty of opportunity for agriculture. One of the most important feature of the lower basin is its delta. Delta of Kaveri basin that begins somewhere around Thanjavur is not only fertile but also forms a wetland habitat that nurtures wide variety of fauna and flora. Delta has always been an attraction to human civilization as it supported socio-cultural activities.

Various tributaries, distributaries and the catchments documented are shown in figure 1. The tributaries and distributaries along with the river forms numerous confluence points. Some major confluences that are of natural and cultural significance were also documented in the process. 177 such confluences were recorded out of which 8 are identified to be of cultural relevance.

3.2 Cultural systems

Kaveri basin cultural landscape shows evidence of human occupation since pre-historic times. Archaeological evidences suggest multiple layers of cultural evolution in the basin. It has seen the agricultural revolution of the Neolithic age as well as the artistic renaissance of the middle ages. The mountains and forests from upper and middle basin had been home for numerous tribal cultures to flourish. Various empires such as Chera, Chola, Pandyas, Vijayanagar and other sub-ordinate kingdoms found the basin extremely resourceful and expanded from here. Delta of Kaveri witnessed the earliest Bhakti movement in action in such huge scales. Thousands of temples consecrated between 5th cen. CE to 17th cen. CE of historic importance dot the lower basin of

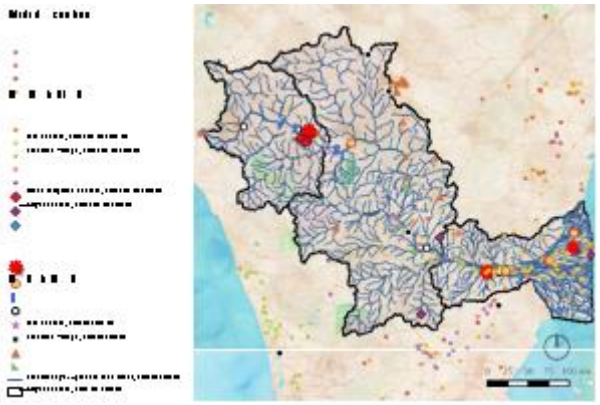

Figure 3: Map showing the historic and contemporary cultural representations (Source: Author)

Kaveri. Banks of Kaveri has been a host to Carnatic music and various other forms of Folk and indigenous music. Music is an inherent part of cultural lives of people. Historic atlas of south Asia developed by the French Institute, Pondicherry points towards the phenomenon of land donations given to communities of artists and priests (See figure 4). Subsequent to land grants, dense clusters of Siva / Vishnu temples and residential colonies of Brahmin priests (Agraharam) appears in the delta region by around 900 CE to 1300 CE. At the same time, reservoirs, canals and sluice were seemed to be developed to sustain the economic prosperity and Ayyavole guilds were established all across to sustain the artistic production, including music and architecture.

Table 2: District wise landscape metrics, Kaveri basin.(Source: Author)

STATE	ZONE_CODE	DISTRICT NAME	LANDFORM ELEVATION							
			MIN	MAX	RANGE	STD	VARIETY	MAJORITY	MINORITY	MEDIAN
KARNATAKA	1	Bangalore Rural	296	1306	1010	115.352927	994	906	297	764
	2	Bangalore Urban	680	1037	357	55.571638	347	869	680	860
	3	Chamrajnagar	209	1816	1607	197.065495	1602	665	209	754
	4	Chikmagalur	772	1179	407	47.23351	406	935	772	941
	5	Hassan	759	1283	524	54.541104	518	867	759	900
	6	Kodagu	747	1642	895	115.460562	878	900	747	908
	7	Kolar	925	1415	490	90.975767	473	965	930	1013
	8	Mandya	371	1134	763	96.174924	763	730	371	730
	9	Mysore	559	1307	748	76.704614	711	666	559	749
	10	Tumkur	614	1275	661	48.973594	655	794	614	798
KERALA	11	Idukki	457	2535	2078	477.373511	2072	1944	457	1665
	12	Kozhikode	791	1684	893	315.478481	211	1576	791	1534
	13	Palakkad	431	2188	1757	301.678107	1671	822	436	791
	14	Wayanad	662	2043	1381	131.836904	1371	755	667	799
PONDY	15	Karaikal	1	57	56	4.365019	54	9	45	10
TAMIL NADU	16	Ariyalur	2	144	142	21.423668	140	35	130	43
	17	Coimbatore	238	2261	2023	214.742375	2004	354	238	371
	18	Cuddalore	1	96	95	9.512869	96	13	94	15
	19	Dharmapuri	168	1379	1211	228.428114	1201	219	168	554
	20	Dindigul	137	2536	2399	497.363658	2400	290	141	306
	21	Erode	109	2291	2182	301.247951	1774	260	109	279
	22	Karur	55	994	939	70.97458	923	163	914	158
	23	Nagapattinam	1	102	101	5.637115	95	9	85	11
	24	Namakkal	67	1408	1341	247.066162	1338	174	67	190
	25	Nilgiris	289	2633	2344	548.044188	2337	923	289	1589
	26	Perambalur	25	547	522	51.262066	512	123	25	111
	27	Pudukkottai	14	215	201	23.08238	197	102	14	117
	28	Salem	129	1648	1519	218.620465	1515	219	129	298
	29	Thanjavur	1	140	139	19.882065	138	17	131	25
	30	Thiruvarur	1	98	97	6.400107	92	13	88	14
	31	Tiruchchirappalli	17	989	972	106.140289	972	86	17	106

For planning purposes and look into the prospects of holistically resolving the disputes by reinforcing the idea of the landscape. The knowledge for which could come from documenting how historically cultures engaged itself continuously over centuries to look at the fair distribution of natural resources amongst people.

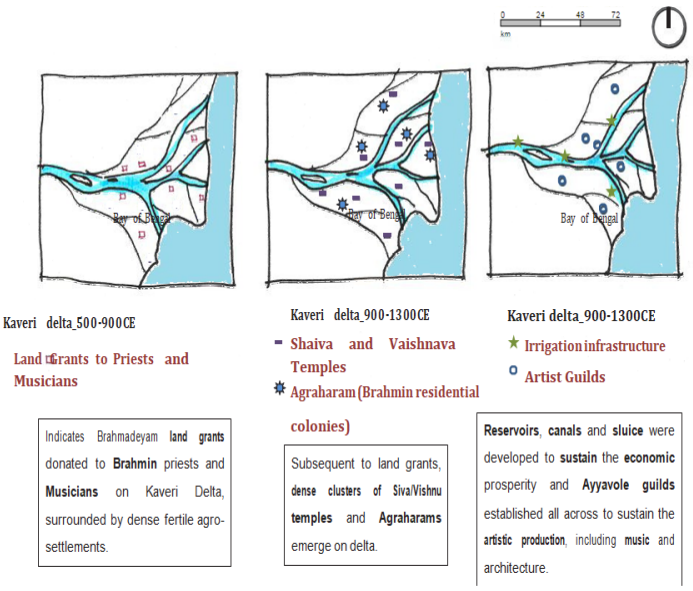

Figure 4: Map showing the land grants offered in Kaveri delta. (Source: Author)

3.3. Reading the Kaveri cultural landscape

Figure 3 shows various thematic readings of Kaveri basin cultural landscape. These readings are very important part of the process of delineating the cultural landscape boundary as they bring out the attributes of the landscape and makes sure the integrity of the landscape is preserved.

Kaveri basin cultural landscape could be read as a landscape of stories, symbols, meanings and memory. The river and landscape seem to tie stories and memories together. There are several legends about how the river Kaveri came into being. Chapters 11–14 of the Skanda Purana (also known as the Kaveri Purana) narrate many of them. These stories do not only stay in public memory, but also is physically manifested in terms of memorials, temples and so on as shown in figure 3. Kaveri basin could also be read as a landscape of culture, arts and tradition owing to its historical origin and current practices of artistic tradition including visual arts, music, dance and theatre. Tamil Pann music, Carnatic music, Bharatanatyam and Bhagavata Mela are a few to mention here that gained huge popularity having been nourished in the cultural landscape. The diversity in the river course and its geomorphology provides opportunity for diverse human activity and thus the emergence of diverse cultural and artistic traditions in the basin.

Kaveri basin should also be read as a landscape of resource, sharing and interdependency. Various resources including the river water, fertile lands, mines, human resource are shared across the boundaries. They are interdependent and interwoven to form a landscape economic system. Disputes regarding sharing of resources recently encountered should not be seen as a disintegration of the system, rather it should be seen as something that reinforces the idea of co-operation and interdependence essential for the system to be sustainable. This paper proposes the idea of cultural landscape to be taken into consideration

4. CONCLUSION

The idea of cultural landscape is still evolving. The practical tools for identification, evaluation and management of cultural landscapes are being continuously strengthened. But, nevertheless, it gives a large hope for a paradigm change in the way we look at administrative boundaries for a sustainable future. The very fact that cultural landscapes are an amalgamated representations of natural, socio- cultural and socio-economic systems reinforces our hopes for a sustainable way of life. Kaveri basin cultural landscape demonstrated in this paper takes a snap shot of how one could use a simple framework to read layers of cultural landscape and map the same to obtain a working boundary. The practical difficulties that are involved in administering transboundary parcels of land and resources are not addressed in this paper. Taking a look at world heritage nominations that are cultural landscape properties could throw some light on the same. Looking at cultural landscapes as a new framework for development could take human society towards a much desired holistic and sustainable future.

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