



SEASONAL VARIATIONS OF WATER RESOURCE AND BIODIVERSITY IN THE TEMPLE PONDS OF KASARGOD DISTRICT, KERALA

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Abstract– The Temple ponds are the important ecological traditions of South India that have played a significant role in the conservation of water. Apart from serving as water harvesting devices, these ponds are found to be the habitat of a wide variety of flora and fauna. The main objective of this work is the documentation of the water levels of the temple ponds and its biodiversity. The study was carried out at different seasons, both during summer and rainy seasons in the year 2016. In this work we surveyed about 36 temple ponds in Kasargod district. The present study reveals that 31 ponds having water during late months of summer, two ponds dry out completely by the end of the hot summer season while three ponds reach the stage of drying out and do not have enough water for usage. Two ponds were covered with the macrophytes during summer season. It is observed that some flora and fauna that depend on such a water body keeps disappearing and might be lost ultimately in the future. The preservation of temple ponds can be achieved by encouraging active participation of local people and by involving local administrative bodies.

INTRODUCTION

The Temple ponds along with the sacred trees and sacred groves are the three most important ecological traditions of South India that have played a significant role in the protection and preservation of the environment (Amirthalingam M and Muthukrishnan N. 2004), since ancient times. The design of water storage has been important in India's temple architecture. Temples have historically played an important role in harvesting the surplus water in tanks; every village has at least one temple, associated with each of which is a 'Sacred grove' ('Kaavu') and a 'Sacred tank' ('Kulam'/'Thirtham'). For every pond, there was an unwritten views among the local folks. Apart from serving as water harvesting devices, these tanks are found to facilitate the growth of a wide variety of plants ranging from herbs to tree species in the surrounding moist banks,

as well as algal and other aquatic vegetation in the water. The main objective of this study is the documentation of the water levels of the temple ponds not only for the conservation of water in the district but also involving local communities in conservation initiatives. Further it is essential to know the status of the ecosystem since the temple pond is a sacred one for the people of the locality and is used for religious activities. The present work reveals some of the conditions of temple tanks of Kasargod district of Kerala. The preservation of temple ponds involves two processes, viz. conservation of water and conservation of biodiversity by maintaining the quantity and quality of water in the temple ponds. This can be probably achieved by encouraging active participation of local people and by involving local administrative bodies.

METHOD

We surveyed about 36 temple ponds in Kasargod district. Kasargod is one of the districts in the northern tip of Kerala. Kasargod is surrounded by Kannur district in the south, Mangalore in the north, Western Ghats in the west and Arabian Sea in the east. The landscape of Kasargod district is dominated by the characteristic coconut palms accompanying rolling hills and streams flowing into the sea. The study was carried out at different seasons, both during summer and rainy seasons in the year 2016. Extensive field trips were undertaken to survey the temple tanks in Kasargod and Hosdurg taluks of Kasargod district. Data were collected on water levels and biodiversity of the temple ponds. Interviews with the local people were conducted to gather information on the importance of the tanks in regard to their utilisation aspects as well as conservation aspects



Keral state

Kasargod district

Kasargod district

RESULTS

Totally we surveyed about 36 temple ponds in Kasargod district. This study reveals that 31 temple ponds having water during late months of summer, During summer season, two ponds dry out completely by the end of the hot summer season while three reach the stage of drying out and do not have enough water for usage. Three ponds were covered with macrophytes mainly lotus and water lillies even during summer season. Microalgal species are very common during the late summer season which imparts green color to the water.

Fishes like Magur, Shark Cat fish, Labio, Spotted snake head, Asiatic snake head, Tger Barb, Koi fish, Katla etc. and other animals like Turtle, Small water frog, Large frog(Rana), Water snake, Water spider, Crab, Duck, Crocodile etc. are the documented animal species found in the temple ponds. The survey of the temple tanks of Kasargod district shows that the tanks shelter in their vicinity several medicinal plants of great value for primary health care of local people. Some flora and fauna that depend on such a water body keeps disappearing and might be lost ultimately in the future.

Table-1. Water levels of the temple ponds of Kasargod Dist. during rainy and summer seasons

Sl No.	NAME OF THE TEMPLES	WATER CONDITION			
		R	S*	S**	D
1	Arat chira Neeleshwara	✓		✓	
2	Ananthapadmanabha Temple Ananthapura	✓	✓		
3	Bhagavathi Kshethram Palliyil Cheruvattur	✓	✓		
4	Bhagavathi Temple -1 Kuttmath Cheruvattur	✓	✓		
5	Bhagavathi Temple -2 Kuttmath Cheruvattur	✓	✓		
6	Bhagavathi Temple Mannampurath Kavuu Neeleshwara	✓		✓	
7	Bhagavathi Temple Muchilottu Neeleshwara	✓		✓	
8	Chakrapani Kshethram Trikkaripura 1	✓	✓		
9	Chakrapani Kshethram Trikkaripura 2	✓	✓		
10	Durgaparameshwari Temple Malla	✓	✓		
11	Durgaparameshwari Temple -1 Malla	✓	✓		
12	Durgaparameshwari Temple Agalpady	✓	✓		
13	Goplakrishna Temple Kumble	✓	✓		
14	Indian Railway Lake Neeleshwara	✓	✓		
15	Kshethrapalakan Maadathin keezhil Neeleshwara	✓	✓		
16	Kshethrapalakan Temple 1 Udinur	✓	✓		
17	Kshethrapalakan Temple 2 Udinur	✓	✓		
18	Madikai Madam Temple kanhangad				
19	Madam Temple Madikai	✓	✓		
20	Mahalingeshwara Temple Adoor	✓	✓		
21	Mahalingeshwara Temple Nettanige	✓	✓		
22	Mahavishnu Temple Bellur	✓	✓		



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23	Mahavishnu Temple Chakrapuram	✓	✓		
24	Mahavishnu Temple Narankulakara	✓	✓		
25	Neelakanteshwara Temple Thaliyil Neeleshwara	✓	✓		
26	Panchalingeshwara Temple Adhur	✓	✓		
27	Parthasarathi Temple Mujungavu	✓	✓		
28	Pudiyakulam Pilicode	✓	✓		
29	Sadashiva Temple Pudukai	✓	✓		
30	Subraya Temple Katukukke	✓	✓		
31	Subraya Temple Kumaramangala	✓	✓		
32	Umamaheshwara Temple Delampady	✓			✓
33	Umamaheshwara Temple Narampady	✓			✓
34	Veerabhadra Temple Cheruvathur 1	✓	✓		
35	Veerabhadra Temple Cheruvathur 2	✓	✓		
36	Vetlaikuramugan Kshethram Neeleshwara	✓	✓		

R= water during rainy season

S*= Usable water during summer season

S**= Unusable water during summer season

D = Completely dry condition during summer season

Table-2. Flora and Fauna found in the temple ponds of Kasargod District

Sl no	NAME OF THE TEMPLE	FLORA				FAUNA			
		R		S		R		S	
		Micro	Macro	Micro	Macro	Fishes	Others	Fishes	Others
1	Arat chira Neeleshwara	✓	✓	✓	✓		c,g		
2	Ananthapadmanabha Temple Ananthapura	✓	✓	✓	✓	1,2,3,4,5,7	a,b,c,d,e,f	1,2,3,4,5,7	A,b,c,d,e,f
3	Bhagavathi Kshethram Palliyil Cheruvattur	✓		✓		3,4	d	3,4	d
4	Bhagavathi Temple -1 Kuttmath Cheruvattur	✓		✓		3,5		3,5	
5	Bhagavathi Temple -2 Kuttmath Cheruvattur	✓	✓	✓	✓	3	c,e	3	c,e
6	Bhagavathi Temple Mannampurathu Kavu Neeleshwara	✓	✓	✓	✓	3,4	d	3,4	d
7	Bhagavathi Temple Muchilottu Cheruvathur	✓		✓		3	e	3	e
8	Chakrapani Kshethram Trikkaripura 1	✓	✓	✓	✓	1,2,3	b,d	1,2,3	b,d
9	Chakrapani Kshethram Trikkaripura 2	✓	✓	✓	✓	1,3	c,d,e	1,3	c,d,e
10	Durgaparameshwari Temple-1 Malla	✓	✓	✓	✓				
11	Durgaparameshwari Temple -2 Malla	✓	✓	✓	✓	3,4	d	3,4	d
12	Durgaparameshwari Temple Agalpady	✓	✓	✓	✓	1,3	c,d	1,3	c,d
13	Goplakrishna Temple Kumble	✓	✓	✓	✓		c,d,f		d
14	Indian Railway Lake Neeleshwara	✓	✓	✓	✓	1,2,3	b,c,d,f	1,2,3	b,c,d,f
15	Kshethrapalakan Maadathin keezhil	✓	✓	✓	✓	3		3	



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	Neeleshwara								
16	Kshethrapalakan Temple 1 Udinur	✓	✓	✓	✓	1,2,3,5	c,d,e, f,g	1,2,3,5	c,d,e, f,g
17	Kshethrapalakan Temple 2 Udinur	✓	✓	✓	✓	3	e,f	3	e,f
18	Madikai Madam Temple kanhangad	✓	✓	✓	✓	3,5	c,d,g	3,5	C,d,f
19	Madananteshwara Siddivinayaka Temple Madhoor	✓		✓		1,3	c,d	1,3	c,d
20	Mahalingeshwara Temple Adoor	✓	✓	✓	✓	1,2,3,4	c,f	1,2,3,4	c,d
21	Mahalingeshwara Temple Nettanige	✓		✓		1,2,3	c,d,e	1,2,3	c,d,e
22	Mahavishnu Temple Bellur	✓		✓		3		3	
23	Mahavishnu Temple Chakrapuram	✓		✓		2,3	d,e	2,3	d,e
24	Mahavishnu Temple Narankulakara	✓	✓	✓	✓	3	c,d	3	c,d
25	Neelakanteshwara Temple Thaliyil Neeleshwara	✓	✓	✓	✓	1,3,2,6	c,d,e, f,g	1,3,2,6	C,d,e ,f,g
26	Panchalingeshwara Temple Adhur	✓		✓		3	c,e	3	c,e
27	Parthasarathi Temple Mujungavu	✓		✓		1,2,3,4, 6,7	b,c,e ,f,g	1,2,3,4, 6,7	B,c,d e,f
28	Pudiyakulam Pilicode	✓		✓		8	c,d	8	c,d
29	Sadashiva Temple Pudukai	✓	✓	✓	✓	3,5	c,d	3,5	c,d
30	Subraya Temple Katukukke	✓		✓		2,3	c	2,3	c
31	Subraya Temple Kumaramangala	✓		✓		2,3	c,d	2,3	c,d
32	Umamaheshwara Temple Delampady	✓	✓			3	d,f		
33	Umamaheshwara Temple Narampady	✓	✓			3	d,g		
34	Veerabhadra Temple Cheruvathur 1	✓		✓		3	c,f	3	
35	Veerabhadra Temple Cheruvathur 2	✓	✓	✓	✓	2,3,5	d,g	2,3,5	d,g
36	Vetlaikuramugan Kshethram Neeleshwara	✓	✓	✓	✓	3,5	d,e	3,5	d,e

R = rainy season S = summer season * = annual terrestrial herbs on damp soil during summer

Fishes: 1. Magur 2.Shark Cat fish 3.Labio 4.Spotted snake head 5. Asiatic snake head 6.Tiger Barb 7.Koi fish 8.Katla

Other animals: a. Crocodile b.Turtle c.Small water frog d.Large frog(Rana) e.Water snake f.Water spider g.Crab . h.Duck

CONCLUSION

The preservation of temple ponds involves two processes, viz. conservation of water and conservation of biodiversity by maintaining the quantity and quality of water in the temple ponds.

This can be probably achieved by encouraging active participation of local people and by involving local administrative bodies. The panchayats concerned will be responsible for maintaining the temple ponds by involving the public. Since the

water from the temple tanks was not extracted for everyday uses, they served the vital purpose of recharging the underground water. They reduce the runoff water and help to increase the ground water, which ensures sufficient water in the

domestic wells during the summer months. The panchayats concerned will be responsible for maintaining the temple ponds by involving the public.

Plate-1: Water levels of the temple ponds of Kasargod district during summer & winter seasons









































1. Shri Bhagavathi kshethram. Kuttamath		2. Keezhil kshethrapalakan kshethram. Maadathi	
			
3. Vetteikurumukhan kshethram. Madikai maadam		4. Kaavu bhagavathi kshethram. Mannampurath	
			
5. Shri Bhagavathi kshethram. Muchilottu		6. Shri Mahavishnu kshethram., Narankulakura	
			
7. Pudiyu kula. Pilicode		8. Shri Bhagavathi kshethram. Palliyil	
			
9. Shri Chakrapani kshethra .Tthrikkaripur		10. Kshethrapalakan kshethra kottarum. Udinur	
			

Plate-2: Water levels of the temple ponds of Kasargod district during summer & winter seasons

11. Veerabhadra devasthanana. Chervathur (2 kere)		12. Vetteikurumukhan kshethram. Kottam	
			
13. Arat chira Mannampurath Neeleshwara		14. Shri Panchalingeswara temple. Adooru	
			
15. Shri Madananteshwara temple. Madhooru		16. Shri Parthasarathi temple. Mujangavu	
			
17. Shri Ahavishnu temple. Belluru		18. Mahavishnu durgaparameswri. Mundolu	
			
19. Shri Umamaheswara temple. Narampdi		20. Anantapadmanabha temple. Anantapura	
			

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