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Participation in activities related to environmental conservation among BMC members in Kerala

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Abstract
Environmental conservation has become a pressing global concern, and community participation plays a crucial role in its success. In the context of Kerala, the involvement of local governance bodies, such as Biodiversity Management Committee (BMCs), is instrumental in implementing and promoting sustainable environmental practices. This study aims to assess the level of BMC members participation in activities related to environmental conservation across different regions of Kerala, focusing on lowland, midland, and high range areas. Based on the biodiversity richness and ecological sensitivity four blocks each were selected purposively from lowlands of Kannur and Alappuzha districts, midlands of Kollam and Malappuram districts and high ranges of Wayanad and Idukki districts of Kerala. In total, 12 blocks were identified for the study. A sample of 180 BMC members were selected from the 6 districts for the study purpose. Data was collected on four key parameters: time spent on conservation activities, actual participation in environmental initiatives, assumed leadership status, and the ability to mobilize people for conservation efforts. The data collected from the respondents were scored, tabulated and analysed using appropriate statistical methods, including Mean, Standard Deviation (SD), Standard Error (SE), One way ANOVA and Pearson correlation coefficient. Overall mean score illustrated that the mean total participation score for all districts is 2.17, which indicates a low level of involvement of BMC members in activities related to environmental conservation activities across the sampled districts. Among the regions and districts, BMC members of Kollam (2.59), Kannur (2.58), and Alappuzha (2.42) showed a better level of involvement when compared to the Wayanad (2.03), Idukki (2.02), and Malappuram (1.51). Among the parameters, time spent (2.47) and participation in environmental activities (2.33) were the major determinants of the level of involvement of BMC members followed by assumed leadership status (2.11) and mobilizing people (1.91). Similarly, the BMC members from lowland regions (2.50) displayed the highest mean scores in time-spent (2.77) participation (2.62), assumed leadership (2.42), and mobilizing people (2.18). This ANOVA result implies that there are significant differences in BMC members engagement in environmental conservation activities among the different districts. Overall, the findings highlight the critical role of BMC members participation in environmental conservation efforts. By understanding the regional variations in participation, policymakers and stakeholders can tailor their approaches to address specific challenges and capitalize on the strengths of each area. Inclusive and proactive participation from BMC members across all regions is required for promoting sustainable practices for a greener and healthier Kerala.

Keywords: Biodiversity management committee (BMC), participation and environmental conservation

Introduction
The state of Kerala, situated amidst the verdant environs of southern India, is renowned for its rich biodiversity and breath taking natural landscapes. Unfortunately, the delicate ecosystems of this region are currently facing a multitude of challenges, including population growth, urbanization, and climate change. A significant portion of the Western Ghats biodiversity hotspot is experiencing a decline in quality due to various factors, including but not limited to, human activity, overgrazing of farm animals, and deforestation Mahanti and Kumar (2018) [7]. A recent study by Thomas *et al.* (2023) [5] highlights that home garden systems are currently facing several challenges due to the shrinking availability of per capita land and the growth of market economies. The intensifying demand for land to cater to the burgeoning population has led to a significant loss of species, primarily due to habitat loss, fragmentation, invasive species, amplified tourist traffic, and pollution. Anthropogenic activities are considered the primary contributing factor to environmental degradation (Jones *et al.*, 2023) [1]. As per the findings of KSBB (2023) [2], habitat alteration, pollution, sand mining, over-exploitation, fish poisoning, alien invasive fish species, dynamiting, and electrocution have been identified as the major threats to the environment. According to a UN report released in 2019, a staggering number of one million species, out of an estimated eight million species, are at risk of

extinction, and this could happen within a few decades. This alarming finding has been reported by scientists, who have emphasized the urgent need for adopting measures to protect these species.

Therefore, Active participation in activities related to environmental conservation is of utmost importance in the state of Kerala, not just for the well-being of the state but also for the entire planet. As a response to these challenges, Biodiversity Management Committees (BMCs) have been established throughout the state. Composed of dedicated members, these committees play a pivotal role in safeguarding Kerala's environment.

The National Biodiversity Authority (NBA), State Biodiversity Boards (SBBs), and Biodiversity Management Committees (BMCs) are the operational arms for the Biodiversity Act and its associated rules at the national, state, and local levels. As per Section 41 of the Biodiversity Act 2002, Section 22 Sub Division (1)-(11) of the Central Biological Diversity Rule 2004, and Section 20 Sub Section (1)-(17) of the Kerala Biological Diversity Rule 2008, all Local Self-Government Institutions are mandated to constitute BMCs within their area of jurisdiction. This is crucial for implementing the Biodiversity Act and ensuring effective management of biodiversity at the local level (GOK, 2023) [3].

The Biological Diversity Act grants the local bodies' Biodiversity Management Committees (BMCs) the authority to promote the conservation, sustainable utilization, and documentation of biological diversity. This includes safeguarding habitats, conserving land races, folk varieties and cultivars, domesticated stocks and breeds of animals and micro-organisms, and documenting knowledge pertaining to biological diversity. One of the key functions of BMCs is to prepare, maintain, validate, and periodically update the People's Biodiversity Register (PBR) in consultation with the local communities (KSBB, 2020) [8].

The active participation of BMC members in activities related to environmental conservation is of paramount importance, as it signifies a grassroots approach to addressing pressing ecological issues. Through their efforts, BMC members ensure the protection of the state's unique flora and fauna while also promoting sustainable development. Their commitment fosters a harmonious coexistence between human communities and nature and contributes to the preservation of Kerala's natural heritage. The role played by BMC members in environmental conservation efforts is critical and underscores their significant contribution to the well-being of future generations.

Methodology

Based on the biodiversity richness and ecological sensitivity four blocks each were selected purposively from low lands of Kannur and Alappuzha districts, mid lands of Kollam and Malappuram districts and high ranges of Wayanad and Idukki districts of Kerala. Specifically, Thalassery and Payyannur blocks were chosen from Kannur district, while Muthukulam and Harippad were selected from Alappuzha district. From Kollam district, Sasthamkotta and Chadayamangalam were identified, while Nilambur and Wandoor were chosen from Malappuram district. From Wayanad district, Sulthanbathery and Mananthavady were selected, and from Idukki district, Devikulam and Nedumkandam blocks were chosen for the study. In total, 12 blocks were identified for the study. Random selection were used to choose 5 Panchayats from each block, resulting in a total of 60 Panchayats selected for the study.

BMC members comprise the respondent category. From each Panchayat selected, 3 BMC members each were identified randomly. Hence, 15 BMC members were selected from each block. Thus 60 BMC members each were selected from lowlands, midlands and high ranges. Therefore a total of 180 BMC members were selected from the 6 districts for the study purpose.

A well-structured open-ended interview schedule was used for data collection from the BMC members. The data collected from the respondents were scored, tabulated and analysed using appropriate statistical methods, including Mean, Standard Deviation (SD), Standard Error (SE), One way ANOVA and Pearson correlation coefficient.

Participation in activities related to environmental conservation was defined as the level of involvement of BMC members in activities with an environmental cause, individually or as a part of any social organization concerned with environmental activism (Smitha, 2011) [4]. Participation in activities related to environmental conservation was measured using the scoring procedure followed by Smitha (2011) [4]. The scoring procedure elicited the BMC member's involvement in terms of time spent, participation in activities, assumed leadership status, and mobilizing people and each to be rated on a five-point continuum namely Strongly Disagree (SD), Agree (A), Undecided (UD), Disagree (DA), and Strongly Disagree (SD) with scores of 5, 4, 3, 2 and 1 respectively.

Results and Discussions

Participation in Activities Related to Environmental Conservation

The level of involvement of BMC members in activities related to environmental conservation has been defined as their participation in initiatives either individually or as a part of any social organization concerned with environmental activism (Smitha, 2011) [4]. This is an essential indicator of performance effectiveness. Therefore, the following section presents the district and region-wise variations in participation activities related to environmental conservation as categorized under the following headlines.

District-wise mean score of components of participation of BMC members in environmental conservation activities

The results of the district-wise mean score of components of participation of BMC members in environmental conservation activities are presented in Table No. 1.

The result presented in Table 1 based on the overall mean score illustrated that the mean total participation score for all districts is 2.17, which indicates a low level of involvement of BMC members in activities related to environmental conservation activities across the sampled districts.

Among the region and district BMC members of Kollam (2.59), Kannur (2.58), and Alappuzha (2.42) showed a better level of involvement when compared to the Wayanad (2.03), Idukki (2.02), and Malappuram (1.51).

Table 1: District-wise mean score of components of participation of BMC members in environmental conservation activities

Districts	Time Spent	Participation in activities	Assumed leadership status	Mobilizing people	Mean Total	SD	SE
Lowland-Alappuzha	2.70	2.53	2.33	2.10	2.42	0.26	0.05
Lowland-Kannur	2.83	2.70	2.50	2.27	2.58	0.24	0.04
Midland- Kollam	3.00	2.93	2.57	2.27	2.59	0.33	0.06
Midland- Malappuram	1.77	1.57	1.43	1.27	1.51	0.21	0.04
High range-Idukki	2.20	2.10	1.93	1.83	2.02	0.17	0.03
High range-Wayanad	2.33	2.17	1.87	1.73	2.03	0.27	0.05
Mean Total	2.47	2.33	2.11	1.91	2.17	0.25	0.02
SD	0.46	0.49	0.44	0.39			
SE	0.08	0.09	0.08	0.07			
ANOVA - F- value - 11.915; p Value - 0.001*; CD - 0.379							

Among the parameters, time spent (2.47) and participation in environmental activities (2.33) were the major determinants of the level of involvement of BMC members followed by assumed leadership status (2.11) and mobilizing people (1.91).

In the case of time spent, Kollam (3.00) has the highest score followed by Kannur (2.83), Alappuzha (2.70), Wayanad (2.33), Idukki (2.20) and Malappuram (1.77) districts.

The participation in activities of BMC members in environmental conservation activities, Kollam (2.93) showed the highest participation followed by Kannur (2.70), Alappuzha (2.53), Wayanad (2.17), Idukki (2.10) and Malappuram (1.57) districts.

The result on assumed leadership status also Kollam (2.57) had a high leadership status followed by Kannur (2.50), Alappuzha (2.33), Wayanad (1.87), Idukki (1.93) and Malappuram (1.43).

On analyzing the mobilizing people, Kollam (2.27) and Kannur (2.27) districts shared a high score followed by Alappuzha (2.10), Idukki (1.83), Wayanad (1.73), and Malappuram (1.27).

In the case of district-wise comparison, the results infer that the districts vary in terms of time spent, participation in activities, assumed leadership status, and mobilizing people.

Kollam (2.59) has the highest scores for time spent (3.00), participation in activities (2.93), and assumed leadership status (2.57), indicating that BMC members in the Kollam district are more actively involved in various activities and demonstrate leadership qualities.

Malappuram (1.51) has the lowest scores, suggesting that BMC members in the Malappuram district have lower participation in activities (1.57), time spent (1.77), assumed leadership status (1.43), and mobilization of people (1.27). The results were in line with O' Brien (1997) [9] and Malathesh *et al.* (2009) [10].

One-way ANOVA was done to analysis of district-wise variation in the participation of BMC members in environmental conservation activities, the ANOVA results presented in Table No.1 provide significant insights. The results reveal a significant variation in participation levels across various districts, with a significance level of 1 per cent, as evidenced by the F-value of 11.915 and an exceptionally low p-value of 0.001. This ANOVA result implies that there are significant differences in BMC members' engagement in environmental conservation activities among the different districts.

Region-wise mean score of components of participation of BMC members in environmental conservation activities

The results of region-wise mean score of components of participation of BMC members in environmental conservation activities are depicted in Table No.2

Scrutiny of Table No. 4 reveals the region-wise mean score of components of participation of BMC members in environmental conservation activities. The components assessed include time spent, participation in activities, assumed leadership status, and mobilizing people.

Table 2: Region-wise mean score of components of participation of BMC members in environmental conservation activities

Regions	Time Spent	Participation in activities	Assumed leadership status	Mobilizing people	Mean	SD	SE
Lowland	2.77	2.62	2.42	2.18	2.50	0.26	0.03
Midland	2.38	2.25	2.00	1.77	2.10	0.27	0.03
High range	2.27	2.13	1.90	1.78	2.02	0.22	0.03
Mean	2.47	2.33	2.11	1.91	2.21	0.25	0.02
SD	0.26	0.25	0.27	0.24			
SE	0.05	0.05	0.05	0.04			

The results showed that among the regions, BMC members of lowland showed better level of involvement (2.50) or participation in environmental conservation activities followed by midland (1.77) and high range (2.02)

In the lowland region, they spent an average of 2.77 units of time, showed a mean score of 2.62 for participation, 2.42 for assumed leadership status, and 2.18 for mobilizing people. The standard deviation (SD) for these scores was 0.26, indicating moderate variability. The standard error (SE) for these mean scores is quite small, at 0.03.

Moving to the midland region, BMC members had slightly lower mean scores compared to the lowland region. They reported a mean score of 2.10 for overall participation, with individual component scores of 2.38 for time spent, 2.25 for participation, 2.00 for assumed leadership status, and 1.77 for mobilizing people. The standard deviation (SD) for these scores ranged from 0.25 to 0.27, similar to the lowland region. The standard error (SE) is also 0.03.

In the high range region, BMC members reported an overall mean score of 2.02 for participation in environmental conservation activities. Their time spent averaged at 2.27, participation at 2.13, assumed leadership status at 1.90, and mobilizing people at 1.78. The SD for these scores was in a similar range as the other regions, with small variations. The

SE for the mean scores was 0.03.

In summary, the lowland region demonstrated the better level of participation in environmental conservation activities among BMC members, with the midland and high range regions reporting slightly lower scores. These mean scores provide insights into the levels of engagement and leadership within BMCs across these regions and can be valuable for assessing and improving biodiversity management and conservation efforts.

Relationship between participation of BMC members in environmental conservation activities and independent variables

The results of Pearson correlation analysis were taken into consideration for analysing the influence of independent variables on the participation of BMC members in environmental conservation activities in Kerala. The results are presented in Table 3.

Examining the participation of BMC members in environmental conservation activities, it could be evident from the table 3 that out of 12 independent variables, four variables namely self-confidence, decision-making ability, participation efficiency and environmental awareness were positively and significantly correlated at 1 per cent level of significance.

Table 3: Results of Correlation between participation of BMC members in environmental conservation activities and independent variables

Sl. No.	Independent variables	Correlation coefficient 'r' value
1	Age	-0.036
2	Gender	-0.233**
3	Education	0.173*
4	Job experience	-0.020
5	Environmental concern	0.186*
6	Self-confidence	0.231**
7	Leadership	0.073
8	Perception of workload	0.130
9	Decision-making ability	0.216**
10	Political orientation	0.120
11	Participation efficiency	0.446**
12	Environmental awareness	0.256**
* Significant at 5 % level ** Significant at 1 % level		

Examining the participation of BMC members in environmental conservation activities, it could be evident from the table 3 that out of 12 independent variables, four variables namely self-confidence, decision-making ability, participation efficiency and environmental awareness were positively and significantly correlated at 1 per cent level of significance.

The results of our study indicate that environmental concern exhibits a positive and significant correlation at a 5% level of significance with the participation of BMC members in environmental conservation activities. On the other hand, gender displays a significant and negative correlation with the aforementioned participation, at 1% level of significance. Age and job experience also had a negative correlation with the performance effectiveness of BMCs.

Self-confidence among BMC members is critical as it instills belief in their abilities to contribute meaningfully to biodiversity conservation initiatives. A member with unwavering confidence is more likely to engage actively in discussions, share innovative ideas, and take calculated risks in decision-making processes.

In the context of biodiversity management, decision-making ability is paramount, as it involves navigating complex ecological challenges and balancing the diverse interests of stakeholders. Effective decision-makers within the BMC can assess the ecological impact of choices, consider the long-term consequences of their actions, and adapt strategies to address emerging threats.

Participation efficiency, involving the active engagement of all committee members, is crucial for fostering collaboration and ensuring that the diverse expertise within the committee is harnessed for comprehensive biodiversity management. When all members contribute to the decision-making process, it increases the likelihood of success in conservation efforts.

Environmental awareness among BMC members is fundamental for understanding the intricate relationships within ecosystems, staying abreast of scientific advancements, and grasping the broader implications of management decisions. A well-informed and environmentally conscious committee is better equipped to formulate and implement strategies that align with the principles of sustainability and conservation.

In essence, the performance effectiveness of BMC members is directly tied to their self-confidence, decision-making ability, participation efficiency, and environmental awareness, as these attributes collectively contribute to the committee's ability to navigate the complexities of biodiversity management and make informed, impactful decisions for the preservation of ecosystems.

Empirical evidence suggests that there exists a negative correlation between the age and job experience of biodiversity management committee (BMC) members and their performance effectiveness. One possible explanation for this perceived negative correlation could be linked to a tendency among more experienced and older members to be entrenched in conventional viewpoints and resistant to change. As biodiversity management requires flexibility and openness to evolving scientific understandings, technologies, and community dynamics, reluctance to incorporate novel ideas or adapt to emerging environmental challenges can impede the committee's ability to devise effective conservation strategies. However, it is important to note that this negative correlation is not a universal rule, as experienced individuals can bring valuable insights, knowledge, and leadership skills that can significantly enhance the effectiveness of biodiversity management efforts. Successful BMCs often benefit from a diverse mix of experience levels, fostering a collaborative environment where both seasoned experts and younger members can contribute their unique perspectives to address the multifaceted challenges of biodiversity conservation.

These findings suggest that environmental awareness and gender-based factors play a crucial role in determining the engagement of BMC members in environmental conservation activities.

Conclusion

Environmental conservation has emerged as a critical global concern in recent times, necessitating active participation from individuals and communities. In this regard, the role of local governance bodies, especially the Biodiversity Management Committees (BMCs) in Kerala, has become indispensable in facilitating and promoting sustainable environmental practices. The district-wise mean score of BMC members' participation in environmental conservation

activities revealed an overall mean score of 2.17, indicating a low level of involvement across all sampled districts. The results further indicate that the districts differ in terms of time spent, participation in activities, assumed leadership status, and mobilization of people. In comparison, Kollam (2.59) scored the highest for time spent (3.00), participation in activities (2.93), and assumed leadership status (2.57), indicating active involvement and leadership qualities of BMC members in the district. Conversely, BMC members in Malappuram district scored lower in participation in activities (1.57), time spent (1.77), assumed leadership status (1.43), and mobilization of people (1.27). The ANOVA test revealed significant differences in BMC members' engagement in environmental conservation activities among different districts. Furthermore, the results showed that BMC members in lowland regions demonstrated a better level of involvement (2.50) in environmental conservation activities, followed by midland (1.77) and high range (2.02) regions. Overall, the findings highlight the critical role of BMC members participation in environmental conservation efforts. By understanding the regional variations in participation, policymakers and stakeholders can tailor their approaches to address specific challenges and capitalize on the strengths of each area. Inclusive and proactive participation from BMC members across all regions is required for promoting sustainable practices for a greener and healthier Kerala.

References

1. Jones E, Wooden CE, SV VV, Sivanpillai R. Threats to the sacred groves of Kerala. In Biological and Environmental Hazards, Risks, and Disasters. Elsevier; c2023. p. 191-196.
2. KSBB [Kerala State Biodiversity Board]. KSBB home page [on-line]; c2023. Available: https://keralabiodiversity.org/thretend-taxa-of-kerala/ [27 October 2023].
3. GOK [Government of Kerala]. Biodiversity Management Committees (BMCs). Kerala State Biodiversity Management Committees, Thiruvananthapuram; c2023, p. 1-68.
4. Smitha KP. Environmental Concerns in the Department Projects on Rice Farming Under Decentralized Planning. Ph.D. thesis, Kerala Agricultural University, Thrissur; c2011, p. 309.
5. Thomas A, Bhaskaran S, Kurien S, Thomas UC. Kerala Home Gardens Nurturing biodiversity. [on-line]; c2023. Available: file:///C:/Users/reshm/Downloads/KeralaHomeGardensNurturingbiodiversity-LEISAINDIA.pdf [25 Nov.2023].
6. UN [United Nations]. World is ‘on notice’ as major UN report shows one million species face extinction[on-line]; c2019. Available: https://news.un.org/en/story/2019/05/1037941 [25 Nov.2023].
7. Mahanti P, Kumar S. Issues Related to Biodiversity Hotspot in Western Ghats (Kerala). J Biodiversity Conservation. 2018;1(2):1-2.
8. KSBB [Kerala State Biodiversity Board]. Experiences of Decentralized Biodiversity Management- Kerala. Kerala State Biodiversity Board, Thiruvananthapuram; c2020. p. 160.
9. Tomblin JB, Records NL, Buckwalter P, Zhang X, Smith E, O’Brien M. Prevalence of specific language impairment in kindergarten children. Journal of speech, language, and hearing research. 1997 Dec;40(6):1245-1260.
10. Malathesh GB, Shivamurthy M, Reddy BS, Jyothi MS. Constraints encountered by farmers in selected farming systems in eastern dry zone of Karnataka. Mysore Journal of Agricultural Sciences. 2009;43(4):772-778.