Climate Change and Sustainable Development Among Women Fisherfolk Workers in Mandapam Block

J. Johnal Gladis Racheal[1]* and S. Karthikeyan[2]

[1]*Assistant Professor (SF), Department of Economics, The American College, Madurai, Tamil Nadu, India*

[2]*Associate Professor, Department of Economics & Centre for Research in Economics, The Madura College (Autonomous), Madurai, Tamil Nadu, India*

**Corresponding Author Email: johnalgladis15@gmail.com*

Abstract

Climate change is turning out to be a matter of great concern to the coastal communities who are dependent on fisheries and allied activities. Women fisherfolk play a very important role in the process of fish processing, drying, sorting, vending and marketing and any sort of variations in the climatic conditions and fish availability would directly impact their livelihood. The present study analyses climate change and sustainable development with special focus on women fisherfolk of Mandapam Block, Ramanathapuram District for 2026. The study has primarily relied on primary data collected from 90 respondents selected from five villages of Mandapam Block through interview schedule. Besides, secondary data were also used while reviewing the existing scenario of climate change and fisheries. The study explores the socio-economic conditions of the respondents along with their livelihood status while understanding the implication of climate change on their work profile and income-generation mechanisms. Moreover, the study also underlines the adaptation options and sustainable development initiatives taken by the respondents while identifying the lacunae in the existing system. The study concludes that scarcity of fish varieties, change in seasons and rough weather are a major concern to the women fisherfolk of Mandapam Block. The respondents have adopted alternate livelihood options, self-help groups, fish drying, storing and marketing as adaptive measures to combat the adverse impact of climate change. Nevertheless, a lack of institutional support and participation in sustainable development activities has been identified as a major challenge. The study recommends enhancing livelihood options, post-harvest facilities, climate change adaptation, financial assistance and women's involvement in fisheries management for sustainable development. A women-centric approach towards climate change adaptation would promote

sustainable livelihood options and aid in the socio-economic development of the coastal community of Mandapam Block.

Keywords: Climate Change, Sustainable Development, Women Fisherfolk, Coastal Livelihoods, Climate Adaptation, Fisheries

Introduction

Climate change has become a matter of great concern for the coastal communities and societies that are dependent on fisheries and allied activities. Women fisherfolk take part in a series of economic activities right from processing, drying and sorting to vending and marketing of fish and their products and contribute to the family's income and expenditure. Variations in the environmental conditions, especially, sea conditions, climatic patterns, fish availability and fishing seasons directly impact their livelihood. Mandapam Block is known to be a hotbed of fisheries which plays a significant role in the coastal economy of Ramanathapuram District. Thus, it becomes pertinent to understand the impact of climate change on the livelihood of coastal communities with special focus on women fisherfolk. Sustainable development involves a paradigm shift in natural resource management, livelihood security, gender issues and appropriate adaptation strategies. The present study attempts to deliberate on the experiences of women fisherfolk in the wake of climate change and focuses on the adaptation strategies undertaken by them to counter the adverse impact of ever-occurring climate change. The study has primarily relied on primary data collected from 90 respondents selected from five villages of Mandapam Block through interview schedule. The study highlights the livelihood status of the respondents, their adaptation practices and sustainable development initiatives with secondary data providing the requisite background information to understand the context.

Review

Shanthi, Mahalakshimi and Chandrasekaran (2017) studied the concerns of coastal women of certain districts of Tamil Nadu with special reference to the climate change and its impact on the lives and livelihoods of those dependent on fisheries. The study highlights the challenges faced by the respondents in terms of adapting to the adverse impact of climate change on fisheries which in turn impacts their livelihood in a great manner. The study is pertinent to the present study as it throws light on the vulnerabilities and challenges faced by the coastal women fisherfolk of Tamil Nadu who are reliant on fisheries. Oloko et al. (2024)

focused on gender issues and climate change with special reference to the fisheries management. The study underlines the need for incorporating gender issues while developing policies for fisheries management for sustainable development. Similarly, Shah et al. (2025) studied the adaptation strategies of the coastal fishing communities in dealing with the impact of climate change, variations in marine resources and other challenges. The study highlights the adaptation strategies adopted by the fishing communities and discusses the role of community-based organizations along with social support networks. It also underscores livelihood diversification as the key to sustainable development while recommending the need for policy-level interventions to address the challenges faced by women fisherfolk.

Objectives of the Study

1. To study the socio-economic profile and livelihood status of women fisherfolk with special focus on the impact of climate change on their employment status, income and other fisheries-related activities.
2. To study the adaptation practices and sustainable development initiatives undertaken by the respondents to counter the adverse impact of climate change and identify the lacunae in the existing system.

Data Source

The study can be based on primary data collected from 90 women fisherfolk through a developed interview schedule. The secondary data from government departments and fisheries institutions can also be utilized for the study to provide background and to evaluate the trends in climate and fisheries.

Results and Discussion

This section presents the results based on the primary survey conducted in the study area. The analysis focuses on the socio-economic profile of the respondents and the impacts of climate change on fisheries resources with special emphasis on fisherwoman's livelihood. Particular attention is paid to the changes in fish availability, income, employment, seasonal variations in livelihood activities and climate–related stresses. Additionally, the discussion highlights the adaptation measures taken by women fisherfolk and their awareness about sustainable development. The secondary data can be used for complementing the results of the primary study. Mandapam block belongs to Ramanathapuram district which has total 28 village panchayats.

Distribution of Respondents by Selected Villages

Table 1: Distribution of Sample Respondents in Selected Villages

S. No.	Selected Village	Number of Respondents	Percentage
1	Pamban	18	20.00
2	Vedalai	18	20.00
3	Pudumadam	18	20.00
4	Maraikayarpattinam	18	20.00
5	Vellariodai	18	20.00
Total		**90**	**100.00**

Source: Primary data.

Table 1 shows the distribution of the 90 women fisherfolk selected for the primary survey. The respondents were drawn equally from five selected villages of Mandapam Block, with 18 respondents (20.00 per cent) from each village. Equal allocation provides representation from each selected location and facilitates comparison of responses across the study area. The selected villages are included among the villages/panchayats associated with Mandapam Block.

Perceived Effects of Climate Change on Livelihood

Table 2: Perceived Climate Change Effects Reported by Women Fisherfolk

S. No.	Major Climate-Related Effect	Respondents	Percentage
1.	Decline/variation in fish availability	24	26.67
2.	Irregular fishing seasons	18	20.00
3.	Increased rough-sea conditions	17	18.89
4.	Reduction in working days	14	15.56
5.	Increased post-harvest losses	9	10.00
6.	Other climate-related difficulties	8	8.89
Total		**90**	**100.00**

Source: Primary data.

Table 2 indicates that variation in fish availability was the most frequently reported climate-related livelihood effect, accounting for 24 respondents (26.67 per cent)**.** This was followed by irregular fishing seasons, reported by 18 respondents (20.00 per cent)**,** while **17** respondents (18.89 per cent) reported increased rough-sea conditions. Reduction in working days was reported by 14 respondents (15.56 per cent)**.** Post-harvest losses and other climate-related difficulties accounted for 9 (10.00 per cent) and 8 (8.89 per cent) respondents respectively. The findings indicate that climate-related changes can affect women fisherfolk not only through fishing activity itself but also through associated processing, marketing and employment opportunities.

Socio-Economic and Livelihood Conditions of Women Fisherfolk

Table 3: Selected Livelihood Characteristics of the Respondents

S. No.	Livelihood Characteristic	Respondents	Percentage
1	Fish processing/drying	27	30.00
2	Fish vending/marketing	24	26.67
3	Fish sorting/cleaning	18	20.00
4	Multiple fisheries-related activities	13	14.44
5	Other allied activities	8	8.89
Total		**90**	**100.00**

Source: Primary data.

Table 3 shows that fish processing and drying constituted the major livelihood activity among the surveyed women, involving 27 respondents (30.00 per cent)**.** Fish vending and marketing accounted for 24 respondents (26.67 per cent)**,** while 18 respondents (20.00 per cent) were primarily engaged in fish sorting and cleaning. A further 13 respondents (14.44 per cent) participated in more than one fisheries-related activity. Only 8 respondents (8.89 per cent) reported other allied activities as their principal livelihood source. The pattern suggests that women's economic participation is concentrated in activities linked to the handling, processing and marketing of fish rather than harvesting alone.

Adaptation Practices and Sustainable Development

This section directly addresses the second objective**,** namely to examine the adaptation practices and sustainable development initiatives adopted by women fisherfolk in response to climate-related challenges.

Table 4: Adaptation Practices and Sustainable Livelihood Measures Adopted by Women Fisherfolk

S. No.	Adaptation/Sustainable Practice	Respondents	Percentage
1.	Diversification into alternative livelihood activities	21	23.33
2.	Participation in SHGs/savings activities	19	21.11
3.	Improved fish drying and storage practices	17	18.89
4.	Changing working time according to weather conditions	14	15.56
5.	Seeking institutional/government support	11	12.22
6.	Sustainable fishing/resource conservation awareness	8	8.89
Total		**90**	**100.00**

Source: Primary data.

Table 4 shows that diversification into alternative livelihood activities was the most common adaptation measure reported (21 respondents; 23.33 per cent). Participation in self-help groups and savings activities was reported by 19 respondents (21.11 per cent), indicating the importance of collective financial mechanisms in livelihood uncertainty management. Improved fish drying and storage practices were adopted by 17 respondents (18.89 per cent), while 14 respondents (15.56 per cent) reported adjustment of working time in accordance with weather conditions. Institutional or government support was reported by 11 respondents (12.22 per cent), whereas 8 respondents (8.89 per cent) indicated awareness or adoption of sustainable fishing and resource-conservation practices. Overall, the findings show that adaptation in women fisherfolk includes livelihood diversification and changes in fisheries-related activities, with participation in sustainable resource-management practices being relatively limited.

Findings

The study show that women fisherfolk in Mandapam Block continue to rely heavily on fisheries and related activities for their livelihoods. Fish processing, drying, sorting and vending are important sources of employment and income for them. The respondents

reported that changes in fish availability, irregular fishing seasons and rough-sea conditions have affected their working opportunities and income. Some women have experienced fewer working days and difficulty in preserving and marketing fish in unfavourable weather conditions. To address these challenges, respondents have adopted various livelihood strategies, including diversification into alternative income-generating activities, participation in self-help groups, improved fish-drying and storage practices, and adjustment of working time according to weather conditions. However, contribution in sustainable resource-conservation and access to institutional support remain relatively limited. The findings indicate that climate change is not only an environmental concern, but also a livelihood concern for women whose activities are closely linked with the fisheries sector.

Suggestions

- Women fisherfolk should be supported through skill training, small-scale livelihood diversification and affordable credit facilities to reduce their confidence on climate-sensitive fisheries-related employment.
- Enhanced cold-storage, drying, processing and marketing facilities should be provided locally to reduce post-harvest losses and strengthen women's income during difficult fishing seasons.
- Government departments and local organisations should support climate-awareness programmes, sustainable fisheries training and timely institutional support, with greater contribution of women fisherfolk in planning.

Conclusion

Climate change has become a significant livelihood concern for women fisherfolk in Mandapam Block, as many of their economic activities are directly or indirectly dependent on fisheries. The study indicate that changes in fish availability, weather conditions, fishing seasons and working opportunities can affect their income and employment security. Women are responding to these challenges by diversifying into livelihood activities, participating in self-help groups, improved fish-processing and adjustment of their working patterns. However, their ability to cope with continuing environmental changes depends greatly on their access to finance, infrastructure, market facilities, skills and institutional support. Sustainable development in coastal communities, therefore, needs to consider the economic contribution and specific needs of women fisherfolk. Strengthening their contribution in decision-making, promoting sustainable fisheries practices and improving post-harvest

facilities can contribute to more secure livelihoods. A coordinated approach, involving women's groups, local institutions and the government, can help build greater livelihood resilience, while supporting the long-term sustainability of coastal fisheries resources.

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