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Sustainable Fisheries and Gender Inclusion: Insights from the MMKY Initiative in Odisha, India

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ABSTRACT

In Odisha, the fisheries industry supports more than 1.5 million people who rely on inland and marine resources for their food security, nutrition, and rural livelihoods. Low productivity and economic fragility result from the sectors continued limitations due to antiquated procedures, poor infrastructure, a lack of institutional finance and the effects of climate change. In order to tackle these issues, the Odisha government launched the *Mukhyamantri Matsya Jeevi Kalyan Yojana* (MMKY) or Chief Minister's Fishermen Welfare Scheme, in November 2023, allocating ₹2,239 crore for 2024–2029. Through combined financial, technological, and social initiatives aimed at inland farmers, women's self-help groups (SHGs), and traditional fishermen, this state-specific project aims to revitalise the industry. Financial support for boats, nets, and cold chain facilities, the promotion of sustainable aquaculture technologies like biofloc, training and capacity building and scholarships for fisher families are examples of core interventions. According to literature and policy assessments, MMKY represents a paradigm change by integrating female empowerment, sustainability and livelihood security into a single framework that is in line with the Blue Economy and Sustainable Development Goals. With an emphasis on SHG involvement, this article examines the schemes execution in the Gajapati area. It looks at the advantages that women have, especially in terms of improving their economic prospects, abilities, and social recognition, as well as the difficulties they face, such insufficient knowledge, bureaucratic hold-ups and structural obstacles.

Keywords: Rural Livelihoods; Self Help Groups (SHGs); Sustainable Development Goals and economic opportunities

1. INTRODUCTION

Gender mainstreaming and sustainable fisheries management are increasingly seen as interrelated concerns in the pursuit of equitable development. For millions of people, fisheries provide food, income, and a means of subsistence, but their long-term viability depends on governance that strikes a balance between protection and utilisation. The fact that women make up a significant portion of the working force in this industry is crucial (Chambon *et al.*, 2023; Galappaththi *et al.*, 2022).

According to Kelling *et al.* (2025) women make up around 40% of those working in small-scale fisheries globally, yet they have historically been excluded from fisheries governance. Women in the fishing industry often face unequal access to funding, training, and decision-making possibilities, according to research. Therefore, gender-blind policies might undermine long-term outcomes and perpetuate social inequities. The need of gender-inclusive approaches that integrate ecological sustainability and social justice for sustainable fisheries development



outcomes is becoming more widely acknowledged (Oloko *et al.*, 2024; Lawless *et al.*, 2021).

In fact, research indicates that a stronger focus on environmental stewardship and long-term ecosystem health is associated with women's involvement in resource management. Therefore, including gender considerations into fisheries governance is not just a social justice issue but also a tactical necessity to improve fishing communities' sustainability and resilience (Chambon *et al.*, 2023; Frangoudes & Gerrard, 2018). The coastal state of Odisha in eastern India provides a fascinating setting for investigating the connection between sustainable fishing and gender inclusion. The state has a 575-kilometer coastline, more than 7.1 lakh hectares of freshwater and 4.2 lakh hectares of brackish water, as well as a wealth of interior water resources, including biodiverse ecosystems like Chilika Lake and Bhitarkanika mangroves. These endowments have made fisheries an essential component of Odisha's economy and food chain (Patra *et al.*, 2020). (https://odishaforest.in/admin/data/documents/publication_file_1682200290.pdf). Between 2019 and 2024, the state's fish output increased from 8.2 to 11.2 lakh metric tonnes, indicating significant growth potential. This growth hasn't, however, entirely resulted in widespread sustainable development. There is room for efficiency improvements as Odisha's inland fish productivity (approximately 0.57 tons/ha) is still just about half of the national average. (<https://www.intellectap.com/unlocking-the-potential-of-freshwater-fisheries-in-odisha-a-blog-by-natural-resource-management-team-at-intellectap/>). The *Mukhyamantri Maschyajibi Kalyan Yojana* (MMKY), or Chief Minister's Fishermen Welfare Scheme, a flagship program that specifically combines gender-inclusive empowerment with sustainable fisheries development, was introduced by the Odisha government in 2024 in response to these issues. With a five-year implementation period (2024–2029) and a sizeable budget of ₹2,239 crore, the MMKY project seeks to help the fishing community holistically while integrating environmental stewardship and equitable principles. (<https://pmujwalayojana.in/odisha-mukhyamantri-maschyajibi-kalyan-yojana/>). The initiative is expected to support 14 lakh individuals, including 7.32 lakh women who are part of self-help groups (WSHGs) and around 6.67 lakh traditional fishermen. MMKY aims to expand women's involvement in the fisheries value chain and guarantee that they contribute to the sector's expansion by specifically focussing on women's collectives alongside fishermen. Key aspects of the fisheries industry, such as resource protection and economic livelihood assistance are addressed by the schemes 17 coordinated sub-schemes (Eurich *et al.*, 2026; Solano *et al.*, 2021).

2. OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

- i. To evaluate the implementation and outreach of the Mukhyamantri Matsya Jeevi Kalyan Yojana (MMJKY) in Gajapati district with specific reference to women Self-Help Groups (SHGs).
- ii. **To assess the socio-economic benefits and capacity-building outcomes** experienced by fisherwomen engaged in MMJKY-supported activities such as financial support and training programs.
- iii. **To identify the major challenges and structural barriers** affecting effective participation of SHGs under MMJKY, and suggest policy measures to enhance sustainable fisheries development in the district.

3. METHODOLOGY

To conduct the study, data were collected through a survey method. Face to face discussions also were done with the District Fisheries Officer and the Assistant District Fisheries Officer. The list of the SHGs that worked with the DFO for the MMKY scheme was obtained. Further, from the list a sample of 16 SHGs were taken up for the survey. Two questionnaires were prepared for the purpose. One questionnaire was for the SHGs with regard to their participation in the MMKY scheme and to understand the benefits gained and the challenges faced by the SHGs. The researcher has covered 7 SHGs. The second questionnaire was for the SHG members to collect information regarding the socio-economic impact on the members by participating in the SHG and the MMKY scheme. Researchers have covered 66 number of SHG women.

4. RESULT AND DISCUSSION

The data collected were compiled (Microsoft excel) and analysed. The analysis is provided in two segments. One is about the SHG and their engagement in the MMKY scheme. Another segment is regarding the analysis of data related to the women members of the SHG.

4.1. SHG DATA ANALYSIS

The SHGs has taken up village ponds, with the consent of village panchayat, for pisciculture under the MMKY scheme which was provided to them by the DFO. The personnel from DFO provided them with training and support for the same.

The Mukhyamantri Matsyajibi Kalyan Yojana (MMKY) has made it easier for a number of Self-Help Groups (SHGs) working to improve livelihoods and sustainably fish

Table 1. SHG Profile

Sl. No	Name of the SHG	Established Year	Block	Member	Year in which entered MMKY scheme	Pond size (in hectares)	Reason for choosing the scheme and agreed to implement
1	Malika mahila manndal	2023	Gumma	10	2024	1.80 hectares	Income Generation
2	Sai Baba	1997	Gosani	11	2024	2.00 hectares	Income Generation
3	Sai Ram WSHG	2016	Gumma	10	2024	0.60 hectares	Income Generation
4	Ma Santoshi	2005	Gosani	11	2023	1.00 hectares	Income Generation
5	Sri Bira Hanuman SHG	2004	Gosani	10	2024	1.00 hectares	Income Generation
6	Maa swarasati SHG	2019	Gumma	10	2024	0.80 hectares	Income Generation
7	Sri Nivas Shakti	2002	Gosani	13	2024	0.40 hectares	Income Generation

Source: Authors, 2026

Table 2. Type of support was received

Sl. No	Name of the SHG	Types of support was received				
		Equipment	Training	Financial Aid	Fish Feed	Subsidy
1	Malika mahila manndal				✓	✓
2	Sai Baba	✓	✓		✓	✓
3	Sai Ram WSHG	✓	✓		✓	
4	Ma Santoshi	✓	✓		✓	✓
5	Sri Bira Hanuman SHG	✓	✓		✓	✓
6	Maa swarasati SHG	✓	✓		✓	
7	Sri Nivas	✓	✓		✓	✓

Source: Authors, 2026

in Gajapati district and its component blocks. Founded in 2023 under Gumma block, the Malika Mahila Mandal SHG has ten members and joined the MMKY scheme in 2024 with the primary goal of increasing household income through sustainable aquaculture-based enterprise. The eleven-member Sai Baba SHG, established in Gosani block in 1997, joined the scheme in 2024 in an effort to increase revenue generation and diversify its sources of livelihood. The Gumma block's Sai Ram Women Self-Help Group (WSHG), established in 2016 with 10 members, joined the MMKY scheme in 2024 with the intention of increasing economic resilience through fisheries-based activities. The eleven-member Ma Santoshi SHG, established in Gosani block in 2005, became part of the MMKY scheme in 2023, driven by the prospect of income augmentation and community-based fisheries management. The Sri Bira Hanuman SHG, founded in Gosani block in 2004 with 10 members, was brought into the scheme in 2024 to support financially viable ventures that follow sustainable aquaculture practices.

Established in Gumma block in 2019 with 10 members, the Maa Swarasati SHG joined the MMKY scheme in 2024 with the intention of improving women's participation in fisheries value chains and their quality of life. The thirteen-member Sri Nivas Shakti SHG of Gosani block, founded in 2002, was eventually brought

into the scheme in 2024 with a focus on establishing income-oriented fishing activities. By combining gender-responsive economic empowerment with sustainable fisheries development, these SHGs together embody MMKY's inclusive approach to empowering rural people, particularly women, in Odisha coastal and inland aquaculture sectors.

Table 2 outlines the types of support received by seven Self-Help Groups (SHGs) across five categories: equipment, training, financial aid, fish feed and subsidy. Fish feed emerges as the most universally received support, with all seven groups getting it, while equipment and training were provided to six out of seven groups all except Malika Mahila Mandal, which received only fish feed and subsidy. Notably financial aid stands out as the least accessed form of support, with none of the seven SHGs reporting having received it, suggesting a gap in direct monetary assistance despite other forms of support being relatively widespread. Subsidy was received by five groups, with Sai Ram WSHG and Maa Swarasati SHG being the exceptions that did not receive it.

Table 3 shows the types of fishery activities that each of the seven Self-Help Groups (SHGs) are involved in under the Mukhyamantri Matsyajibi Kalyan Yojana scheme, covering four categories: capture, culture, processing, and marketing. All seven SHGs—Malika Mahila Mandal,

Table 3. Type of fishery activity involved in the MMKY scheme

Sl. No	Name of the SHG	Type of fishery activity involved in MMKY Scheme			
		Capture	Culture	Processing	Marketing
	Malika mahila manndal	✓	✓	✓	✓
	Sai Baba	✓	✓	✓	✓
	Sai Ram WSHG	✓	✓	✓	✓
	Ma Santoshi	✓	✓	✓	✓
	Sri Bira Hanuman SHG	✓	✓	✓	✓
	Maa swarasati SHG	✓	✓	✓	✓
	Sri Nivas	✓	✓	✓	✓

Source: Authors, 2026

Table 4. Average hours per day/week spent in fisheries activities and yearly yield

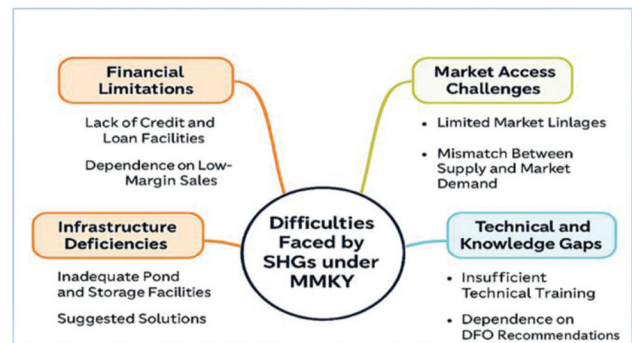
No.	Name of the SHG	Average hours per day/week spent in fisheries activities	Yield
1	Malika mahila manndal	10 hours/ week	1Quintal
2	Sai Baba	7-8 hours / week	1 st time
3	Sai Ram WSHG	2 hours per day	500-600kg
4	Ma Santoshi	3-4 hours per day	600kg
5	Sri Bira Hanuman SHG	2-3hours per day	1 st time
6	Maa swarasati SHG	2hours per day	10kg
7	Sri Nivas	3hours per day	1 st time

Source: Authors, 2026

Sai Baba, Sai Ram WSHG, Ma Santoshi, Sri Bira Hanuman SHG, Maa Swarasati SHG, and Sri Nivas are marked with checkmarks across all four activity types, indicating that every group is uniformly engaged in the complete fisheries value chain, from capturing and culturing fish to processing and marketing the produce, rather than specializing in only one or two activities.

Table 4 presents data on seven Self-Help Groups (SHGs) engaged in fisheries activities, showing their average time investment and yearly yield. Time commitment ranges from 2 to 10 hours, reported inconsistently as either daily or weekly figures across groups, while yields vary widely from 10 kg to 1 quintal (100 kg) among those with recorded harvests. Notably, three of the seven groups Sai Baba, Sri Bira Hanuman SHG and Sri Nivas are in their first cycle and have no yield data yet and there appears to be no clear correlation between hours invested and output, as seen with Ma Santoshi (3-4 hrs/day yielding 600 kg) versus Maa Swarasati SHG (2 hrs/day yielding only 10 kg), suggesting factors beyond time input influence productivity.

The Mukhyamantri Matsyajibi Kalyan Yojana (MMKY) assessment of the challenges faced by Self-Help

**Figure 1.** Challenges Faced by SHGs Women.

Source: Authors, 2026

Groups (SHGs) reveals several interrelated institutional, technical and financial constraints that nevertheless affect the long-term sustainability of community-based fishing enterprises. According to the Malika Mahila Mandal SHG, restricted market access is the primary barrier to ensuring fair pricing and consistent demand. Members stressed the necessity of financing support to enhance market connections and transportation. The Sai Baba SHG requested loan facilitation to increase procurement capacity after reporting problems getting a dependable range of high-quality fish saplings (Kau machha), which affected both productivity and profitability. The variety Kau is being encouraged by the DFO because it grows and multiplies (Breeding) very fast. But the same variety is not in demand in the regional market and hence cannot sell at a good price. In similar lines, Ma Santoshi SHG, Sri Bira Hanuman SHG and Sri Nivas Shakti SHG all identified a lack of infrastructure as a major constraint, specifically in the areas of pond management, storage and post-harvest handling. They suggested credit-based interventions to improve production efficiency and construct tangible assets. The Maa Swarasati SHG emphasised the need for financing support to grow its fishing activities (working capital), even though it did not name a specific operational

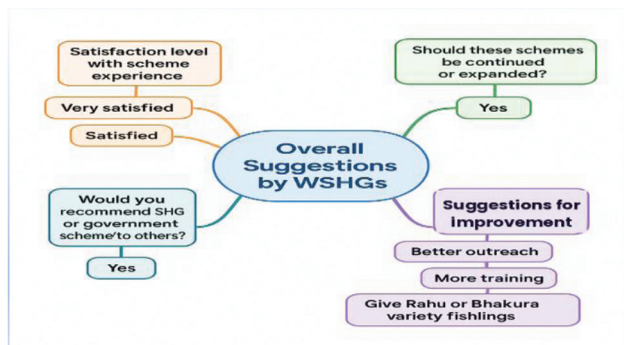


Figure 2. Overall Suggestions by SHGs.

Source: Authors, 2026

concern. When taken as a whole, these observations show that the main issues facing SHGs backed by MMKY are restricted market access, poor infrastructure, a lack of technical expertise and credit limitations. In Odisha rural aquaculture sector, addressing these through more training in simple and vernacular language, mandatory training for the members of the SHGs, skill development, input supply support (fish variety) and infrastructure development would be crucial to achieving the twin objectives of gender-inclusive economic empowerment and sustainable fisheries management.

The Mukhyamantri Matsyajibi Kalyan Yojana (MMKY) Self-Help Groups (SHGs) have contributed an overall recommendation analysis that provides a detailed and accurate understanding of beneficiary satisfaction, future ideas and suggested improvements for effective implementation. The Malika Mahila Mandal SHG expressed its delight with the government initiative and said it would firmly support its continuation and extension. It also proposed better outreach to let more rural women and communities to benefit from similar chances. Although the Sai Baba SHG reported a neutral level of satisfaction and agreed to promote the program to others, they recommended further technical training, faster benefit processing, and the availability of fish species known as Rahu and Bhakura, which are more in demand and yield better market returns. All of the Sai Ram WSHG, Ma Santoshi SHG, Sri Bira Hanuman SHG, Maa Swarasati SHG and Sri Nivas Shakti SHG expressed satisfaction with their experiences with the scheme, confirmed that they would be willing to suggest MMKY to other SHGs and unanimously agreed that it should be extended to reach more fisher communities. Together, these SHGs recommended more regular and hands-on training sessions to improve their technical proficiency in aquaculture management and marketing, as well as improved outreach and quicker administrative and financial processing. All things considered, the answers show that beneficiaries view MMKY as a successful

program for promoting sustainable fisheries, women empowerment and livelihood production. To further improve the program's effectiveness, inclusivity and long-term impact in Odisha rural aquaculture industry, they all underlined the need for more awareness, capacity-building initiatives and prompt administrative reaction.

Table 5. Consolidated frequency and percentage table of individual respondents (N = 66)

Category	Count	Percent
<i>Age</i>		
Young (20–39)	17	25.76%
Middle (40–59)	37	56.06%
Old (60+)	12	18.18%
Total	66	100.0%
<i>Household Income</i>		
30 – 50 thousand	23	34.85%
51 – 70 thousand	29	43.94%
Above 70 thousand	14	21.21%
Total	66	100.0%
<i>Caste</i>		
General	11	16.7%
OBC	35	53.0%
SC	12	18.2%
ST	8	12.1%
Total	66	100.0%
<i>Education</i>		
Graduate	2	3.0%
Higher Secondary	8	12.1%
Secondary	23	34.8%
Illiterate	33	50.0%
Total	66	100.0%
<i>Marital status</i>		
Married	51	77.3%
Widowed	15	22.7%
Total	66	100.0%
<i>Role in SHG</i>		
Member	54	81.8%
President	6	9.1%
Secretary	6	9.1%
Total	66	100.0%
<i>Leadership status</i>		
Member	54	81.8%
Leader	12	18.2%
Total	66	100.0%
<i>Training received</i>		
Yes	13	19.7%
No	53	80.3%
Total	66	100.0%

Category	Count	Percent
<i>Engaged in income-generating activity (SHG)</i>		
Yes	66	100.0%
No	0	0.0%
Total	66	100.0%
<i>Loan taken through SHG</i>		
Yes	17	25.8%
No	49	74.2%
Total	66	100.0%
<i>Decision-making power compared with before</i>		
Increased	63	95.5%
Remained same	3	4.5%
Decreased	0	0.0%
Total	66	100.0%
<i>Governance/community meeting participation</i>		
Regular	25	37.9%
Occasionally	41	62.1%
Never	0	0.0%
Total	66	100.0%
<i>Public speaking confidence</i>		
High	14	21.2%
Moderate	52	78.8%
Low	0	0.0%
Total	66	100.0%
<i>Respondents by SHG</i>		
Ma Santoshi	11	16.7%
Maa Swarasati SHG	10	15.2%
Malika Mahila Mandal	6	9.1%
Sai Baba SHG	6	9.1%
Sai Ram SHG	10	15.2%
Sri Nivas	13	19.7%
Sri Veena Hanuman SHG	10	15.2%
Total	66	100.0%

Source: Authors, 2026

The consolidated table shows that respondents come mainly from the OBC category (35; 53.0%), followed by SC (12; 18.2%), General (11; 16.7%) and ST (8; 12.1%). In terms of age, most respondents fall in the middle age group of 40–59 years (37; 56.06%), followed by the young age group of 20–39 years (17; 25.76%), while the smallest share (12; 18.18%) are aged 60 years and above. Household income is modest and concentrated in the middle bracket: 29 respondents (43.94%) earn ₹51–70 thousand, 23 (34.85%) earn ₹30–50 thousand, and only 14 (21.21%) earn above ₹70 thousand. Educational attainment is low: exactly half of the respondents (33; 50.0%) are illiterate, 23 (34.8%) have secondary education, 8 (12.1%) have higher secondary education, and only 2 (3.0%) are graduates. Most respondents are married (51; 77.3%) and the rest are widowed (15; 22.7%). Fifty-four respondents (81.8%) are ordinary members, while 12 (18.2%) are leaders, made up of 6 presidents and 6 secretaries (9.1% each). Support through the SHG is uneven: only 13 respondents (19.7%) received training and 53 (80.3%) did not (section F); all 66 (100%) are engaged in an income-generating activity through the SHG and only 17 (25.8%) took a loan while 49 (74.2%) did not. The empowerment indicators are largely positive: 63 respondents (95.5%) say their decision-making power has increased compared with before, 3 (4.5%) say it remained the same, and none report a decrease; 25 (37.9%) attend governance or community meetings regularly and 41 (62.1%) occasionally, with none never attending; and 14 (21.2%) have high public speaking confidence while 52 (78.8%) have moderate confidence and none have low confidence. The respondents belong to seven SHGs, the largest being Sri Nivas (13; 19.7%) and Ma Santoshi (11; 16.7%), followed by Maa Swarasati SHG, Sai Ram SHG and Sri Veena Hanuman SHG with 10 respondents

Table 6. Assessment of Impact before/after being a member of a SHG (1 = Very Low, 2 = Low, 3 = Moderate, 4 = High, 5 = Very High)

Statement	Number of members		Percentage	
	Before	After	Before	After
Overall quality of life (Level of personal income, Ability to save money, Frequency of financial contributions to household expenses, Confidence in participating in community meetings, Decision-making power in the family, Awareness of government welfare schemes, Participation in training programs.)				
Very Low	0	0	0	0
Low	29	0	43.94	0
Moderate	19	40	28.79	60.60
High	12	17	18.18	25.76
Very High	6	9	9.09	13.64
Total	66	66	100	100

Source: Authors, 2026

(15.2%) each, and Malika Mahila Mandal and Sai Baba SHG with 6 (9.1%) each. Overall, the table describes a group of respondents who are predominantly of middle age with modest, middle-bracket household incomes, mostly OBC and half of whom are illiterate, in which every respondent is engaged in an income-generating activity through the SHG and nearly all report increased decision-making power, with none reporting that they never attend meetings or have low public speaking confidence, although most rate their meeting participation and confidence only as occasional or moderate and training and credit reach relatively few.

The women members were asked to discuss how they felt their general quality of life has changed as a result of joining the SHG. They assessed a number of factors, including individual income, saving capacity, household income contribution, self-assurance in attending community meetings, family decision-making authority, knowledge of government programs and involvement in training initiatives. According to Table 15, the majority of SHG members stated that their quality of life had significantly improved and they credited their affiliation with the SHG for these improvements.

4. CONCLUSION

The Mukhyamantri Matsyajibi Kalyan Yojana (MMKY) is a significant intervention that has improved the sustainability and inclusivity of the fisheries sector in Odisha, according to the present study. The programs focus on integrating livelihood development and gender equality has resulted in social change and economic empowerment by enabling women's self-help groups (SHGs) to participate in worthwhile fishing related activities. The findings indicate that the majority of the participating women, who are primarily middle aged and come from socioeconomically challenged families, have profited from increased access to institutional loans, training, infrastructure, and market contacts. Their active involvement in all stages of the fisheries value chain, from capture and culture to processing and marketing, exemplifies the plans approach to achieving gender inclusion and sustainable fisheries management. Procedural delays in loan facilitation, limited access to high-quality inputs (fish variety), poor market linkage and limited infrastructure all continue to impede the achievement of program goals. Further, putting more of a focus on education, financial literacy and digital inclusion for fisherwomen would help the industry develop resilient and independent communities. The MMKY is a forward-thinking paradigm that operationalises the Blue Economy tenets and closely relates to the Sustainable Development Goals (SDGs) 5 and 14,

which deal with gender equality and life below the sea, respectively. Future research might concentrate on long-term evaluations of ecological results, institutional performance and income diversification in order to better assess the MMKY long-term effects on sustainable rural lives.

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Declaration of Conflicting Interests

The authors declare no conflict of interest.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this manuscript, the authors have not used generative AI or AI-assisted technologies. The authors independently developed the conceptual framework and scholarly arguments and remain fully responsible for the accuracy, originality, and integrity of the manuscript.

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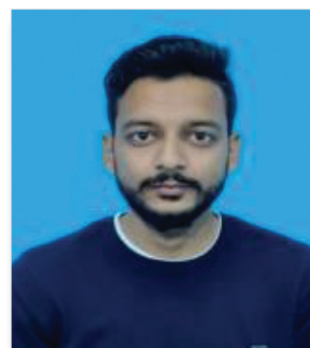


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