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Rural Women's Response to Climate Change: An Exploratory Study of Women's Grassroot Network in Odisha

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Abstract

The emergence of debates on gender and ecology allows the rethinking of social institutions like Women'sSelf Help Groups (SHGs), which are foundations for encouraging green practices at the community level. The collective voice that helps these groups to become economically self-sufficient is also reflected in their environmental decision-making when a more significant cause of climate change is involved. Such networks of women become the axes of social relations within which green practices are subtly nurtured and shaped to achieve the larger collective agenda of climate change. The network of WSHGs offers social capital to rural women, creates diverse 'gendered subjectivities 'and endows them with a collective voice, be it conservation of their land, forest, water, crop diversity or confronting gendered norms.

Within this background, the proposed exploratory study, holds utmost importance, will probe the emerging collective consciousness of women on climate change issues, examining their larger environmental responsibility in local situations, wherein the women remain at the bottom of decision-making. This is a field-based study of WSHGs, which were selected purposively from the two districts of Odisha. This study explores the role of WSHGs in creating a social space for peasant and *Adivasi* women to engage with the question of climate change in rural contexts.

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Keywords

Women's Self-help Groups; Climate Change; Food Security; Environmental Roles; Collective Action; Green Practices; India

Introduction

There is ample evidence that the world is undergoing climatic and environmental change, primarily in agriculture, water, health, and natural resource management. The vulnerability of small and marginal farmers from local communities is escalating, as they primarily interface with the agricultural sector (Lenka et al. 2022). The debate and dialogue on climate change on international platforms have contributed to the formation of consensual opinions to address the impending threat. However, the initiation of actions on mitigation strategies at national, regional, and local levels appears crucial. This underscores the importance of collective action at the grass-roots level, where the impact of climate change is most keenly felt.

Climate change, as part of the process of 'cosmopolitanisation', is a global ecological concern that has sparked theoretical debates, empirical studies, and policy discourses at regional and global levels (Beck 2000, cited in Saito 2011). It is gradually incorporating multiple perspectives of ethnicity, class, gender, and social order into its discourse. However, research studies and policy documents such as the 4th and 5th Intergovernmental Panel on Climate Change (IPCC) reports indicate that the projected risks of climate change will be disproportionately experienced by small and marginal farmers, and indigenous communities (Furgal and Seguin 2006; cited in Caritas India 2021). This foregrounds the urgent need for institutional interventions, which in turn necessitates the strengthening of collective action at the grassroots and building resilience among local communities, including Women'sSelf Help Groups (WSHGs) (Caritas India 2021).

WSHGs merit the interest of policymakers and gender researchers' interest when discussing women's empowerment. Their role in micro-financing and livelihood contributing to women's economic empowerment has been widely studied but their participation in 'environmental decision-making' (Roucheleau & Nirmal 2015, p. 793) could be a new way of analysing WSHG's role in climate change. The paper argues that the functioning of WSHGs in an ecological space deserves academic attention because, in India, they potentially offer a platform to deliberate meaningful engagement of *Adivasi* and peasant women with climate change issues. According to Ulrich Beck (2014), climate change created a 'global community of shared risks' which induces new patterns of economic, social, cultural and political transformations in global and local communities simultaneously. Therefore, addressing these changes requires the strengthening of local networks and institutions. The paper outlines the interface between grassroot network, environmental decision-making and climate change as an everyday process of self-transformation within the community. Environmental decision-making in this context reflects women's voices, dialogue, learning and experiences in articulating impacts, risks and mitigation strategies pertaining to climate-resilient agriculture and food security.

Conceptualizing Cosmopolitanism

Cosmopolitanism originates within the moral and political philosophy of social sciences. Within sociology and anthropology, cosmopolitanism has emerged as a significant theoretical concept to understand the diversity of issues relating to the growth of the global community, globalization, and transnational movements (Beck 2000, cited in Saito 2011). In political theory, the concept is relevant to understanding universal principles, consciousness, rights, and relations, but within social sciences, cosmopolitanism has created a possibility of understanding global issues through the lens of the local (Delanty 2008). Gerard Delanty argues that cosmopolitanism is not exclusively a Western idea but rather a condition of self-understanding; therefore, it can empirically exist anywhere and everywhere. In its empirical sense,

cosmopolitanism can exist in everyday life practices (Beck 2000, cited in Saito 2011). According to Delanty (2008), cosmopolitanism refers to 'a transformation in self-understanding as a result of the engagement with others over issues of global significance. It is concerned with identifying processes of self-transformation arising out of the encounter with others in the context of global concerns' (p. 218). While taking this conceptualization forward, this paper tries to postulate that climate change and food security are issues of global concerns that have involved local communities in the global south to undergo a process of self-transformation by initiating sustainable practices in their daily life. Delanty proposes the idea of critical cosmopolitanism as an approach that can empirically apply the dimensions of cosmopolitanism to the analysis of society. Here, dimensions of cosmopolitanism include reflexivity, dialogue, and learning, which enable society or communities to undergo a process of self-transformation by either acquiring a new culture or conserving the local culture and identities. Within this conceptual framework, the intent is to analyse women's participation in SHGs, which strengthens green practices at the community level.

Review of Literature

Women's empowerment through micro-credit programmes has interested academic scholars and development practitioners. In India, the outreach of the micro-credit programme to the poorest of the poor has largely been possible through the SHG-bank model. SHGs or women's networks have facilitated inter-loaning, small group savings and collateral-free bank loans for rural women in addition to forging relationships among women to engage in collective action in a wide range of intersecting issues over ecological health, land use patterns, access to safe water and sustainable livelihood (Davidson & Sanyal 2017; Rocheleau & Nirmal 2015).In India, it is one of the collectivities which has given space to poor, rural,*Adivasi*and peasant women to engage in issues about natural resource management, watershed development projects and group farming, thus for communities it needs to be strengthened (D'Silva &Pai 2003; Kumar 2009; Agarwal 2010). These groups have enabled poor women to participate in microfinancing programmes to become financially independent, to start an income generation activity and contribute to asset creation (Sooryamoorthy 2007; Kabeer 1998 cited in Sooryamoorthy 2007). Research studies have shown that these groups resolve conflict and sustain collective action under diverse conditions (D'Silva &Pai 2003; Agarwal 2010). SHG or women's social network is not a mechanism that only works for women's economic empowerment. Rather, it has played a significant role in creating sustainable livelihoods in rural areas by protecting the forests and other natural resources (Agarwal 2000, cited in Leder et.al 2019).

For instance, Joint Forest Management (JFM) was successful in states like Odisha, Uttarakhand, and other tribal regions with a history of self-help movements. SHGs organize local people to preserve the forest and nurture local leaders who can mobilize collective action ((D'Silva & Pai 2003) Clement et al. (2019, p. 3) described the notion of gendered 'subjectivities', which indicate that increased social consciousness among women, better access to new information, and up-skilling have made women better and enlightened decision makers as a group. The practice of having regular interaction in meetings and subsequent joint initiative by SHGs enable women to think about and articulate local issues like climate change and food security. In the context of rural livelihood, SHGs have also played a pivotal role in supporting women in making sustainable living and becoming capable of developing coping mechanisms to survive various kinds of risks. Here, SHGs are not mere platforms to access credit. They work as a network of women from marginalized groups within which discussions on social issues and environmental decision-making take place across castes and communities. Therefore, addressing the global threat of climate change from a gender perspective can include discussions on women and their engagement with community-based institutions like WSHGs, which create a social space for women to have engaging dialogue over climate vulnerabilities, agriculture, health, and community survival.

Climate vulnerability is defined as everyday risk factors that local communities face due to variable weather patterns, but different adaptive strategies that WSHGs adopt consciously help them to survive and minimize their risks. For the present paper, climate risks and vulnerabilities are conceptualized around crop cultivation, loss of indigenous agricultural seeds, and food security. As part of the climate adaptation measures, documenting the role of SHGs is helpful as it could contribute to preparing and implementing a gender-participative climate change action plan in regional and global forums.

The paper has a conceptual purpose to put together the dimensions of cosmopolitanism to empirically understand how SHGs are contributing to mitigating climate change by initiating change within the community. One of the key elements of cosmopolitanism is a network, which induces consciousness or awareness among people to discuss global risks in public and work out solutions to address such risks collectively. When women from marginalized communities initiate discussion about climate change, it reflects the transnational circulation of 'foreign objects', or ideas, leading to the growth of cosmopolitanism (Saito 2011, pp. 125-126). SHG as a network implicitly plays a role in the growth of cosmopolitan ideas or issues like climate risks and becomes a part of what Saito calls 'cosmopolitics'.

The study probes the emerging social consciousness of women on climate change issues while examining their larger environmental responsibility in local situations, wherein women remain at the bottom of decision-making. The literature on SHG and its interface with ecology draws an implicit understanding that the functioning of saving and credit groups varies depending on the contextual factors present in a local area. Within this background, the study proposes to address the central questions: Can SHGs be built as community institutions to mobilize collective actions around issues of climate change? How can SHGs, as a network of women, participate and contribute to addressing global ecological risks? The research objectives of the paper include, first, exploring the role of SHGs in addressing issues about climate change and food security; second, mapping the nature of work SHGs undertake about promoting climate-resilient agriculture within the community.

Methodological Framework

This is a field-based exploratory study of WSHGs belonging to subsistent communities in districts of Odisha. WSHGs were purposively selected from Kandhmal and Mayurbhanj districts of Odisha. Primary data were collected using unstructured interviews and Focus Group Discussions (FGDs). Discussion was also held with key informants, such as Civil Society Organizations (CSOs) officials working with WSHGs in the area. Five SHGs were selected for the present study. In the initial phase of data collection, five FGDs were conducted with the study's research participants. Discussions were held on broader themes, including understanding climate change, women's participation in addressing climate risks, women's ecological knowledge of farming, and the nature of knowledge-sharing practices within SHGs. Primary insights and narratives were also retrieved from the field diary of earlier research work conducted during 2012-2016. Virtual interactions with critical informants were held on themes of government-supported schemes and their outreach to the WSHGs about promoting climate-resilient agricultural practices.

About the Field Area

Weather variability has affected Odisha significantly because of its geographic location, which has a tropical climate with high temperature, high humidity, medium to high rainfall, and short and mild winters. The changing weather pattern has impacted the economic condition of people primarily dependent on agriculture for their income and livelihood (Lenka etal. 2022).With a geographical area of 1 55,707 sq. km and a long coastline of 480 km, and with a continental shelf area of 24,000 sq. km along the Bay of Bengal, the State is vulnerable to changing climate and the threat of frequently occurring climate events (cyclones, warm and dry summers). The State's agriculture sector frequently suffers from natural calamities

like cyclones, droughts, and flash floods, which generously influence the production and profitability of horticulture (Odisha Community Tank Development & Management 2019).

Crop, livestock, fishery and forest are the main sub-sectors of a broad agriculture. The State observed transient growth in crop area, production, productivity, food security, and irrigation during the year, leading to a rise in the farmers' income. Though the contribution of the crop sector to Gross State Domestic Product (GSDP) in Odisha has consistently reduced over the decades, from the 1950s till the early 2010s, it started improving from 2011-12, but the trend is varying. The formulation of State Agriculture Policy 2013 and the impetus to the SHGs given through Mission*Shakti*paved the way for the growth and diversification of agricultural practices (Odisha Community Tank Development & Management 2019).

The women's SHGs in the study districts opt for horticultural crops or vegetable cultivation, which offers them immediate economic return due to the lower growing period and available market in the proximity. Although paddy cultivation remains the mainstay for poor farmers in these districts, changing weather patterns with erratic rainfall has shifted the focus of cultivation to pulses, vegetables, millets and, in a few cases, the adoption of livestock in a mixed farming system. Several initiatives of government and NGOs have brought in more women to horticulture and livestock rearing in a group approach, wherein the belief held is that it makes up for the loss in paddy due to unpredictable changes in rainfall patterns. WSHGs are the beneficiaries of various government-supported programmes such as Millet Mission, Integrated Rain-fed farming, NICRA, and capacity building and training support imparted through Mission *Shakti*. The economic transformation could be seen among these poor women who have remained part of this social network at the grassroots (Odisha Community Tank Development & Management2019). These women's groups face innumerable challenges in the wake of changing weather and rainfall patterns but have successfully adapted to the changing vagaries of weather and climate threats.

ROLE OF WOMEN IN CLIMATE ADAPTATION AND MITIGATION INITIATIVES IN ODISHA: REFLECTIONS FROM PAST RESEARCH

National Innovation on Climate Resilient Agriculture (NICRA) is a flagship programme of the Ministry of Agriculture & Farmer's Welfare (MoA&FW), Government of India, implemented by various State governments with technical support from the State Agricultural Universities (SAUs) (Lenka et al. 2022). This network project of the Indian Council of Agricultural Research (ICAR) intends to build and restore the agriculture system and prepare it against weather changes in climate-vulnerable districts. The initiative to promote climate-resilient agriculture at the village level became viable in Odisha with the support of WSHGs. Various studies have been undertaken in Odisha which documented the engagement of WSHGs towards environmental action at the community level and also narrated various adaptation strategies that *Adivasi* and peasant women adopt to fight climate-related stresses that impact their livelihood and food security.

The Bonda tribal community, in the face of nature's unpredictability, has shown remarkable adaptability. The households of Dantipada village in Bondaghati, Koraput, traditionally reliant on a millet-centered mixed cropping system, have shifted to paddy cultivation. However, the Bonda women, acutely aware of their families' food security needs, have continued to grow a variety of millets – finger (*ragi*), foxtail (*kakum* or *kangani*), barnyard (*sanwa*), proso (*chena*) and pearl (*bajra*). This resilient choice ensures the community's food and nutritional security. For the Bonda tribe, intensified millet cultivation has come with the support of Odisha Millet Mission & Integrated Framing for Rainfed Areas, which addresses their food and nutrition security and income security with a government-supported procurement system (Mohanty 2021).

Climate-resilient agricultural practices may be a new concept, but the community strategy to combat weather variability and crop failure is an age-old practice in Nayagarh. With the support of UDYAMA, an NGO in Nayagarh, farmers have come together to revive the traditional concept of a seed and grain bank.

This community-led initiative not only sustains local biodiversity but also acts as a buffer stock for local seed varieties. The 12 community grain banks are a testament to the power of collective action in addressing immediate seed needs when the government supply is scarce and in contributing to the preservation of local biodiversity (Climate Action Network South Asia n.d.).

The WSHGs in Khalagaon village in Jagatsinghpur are the foremost witnesses to climate disasters, and periodic cyclones are among them. Over the years, the villagers realized that dependence on agriculture alone would not address their economic insecurity, which is linked to cyclones and accompanying rainfall that affects the cropping system and cultivation pattern in this coastal district of Odisha. Now, the women members of the community have adopted composite farming methods, which allows them to diversify from cultivating pulses and potatoes to rearing goats to sell milk to local cooperatives and meat to vendors in the nearby markets. Diversification from agriculture to livestock is a community-level initiative that ensures them against unpredictable weather patterns with cyclonic storms followed by heavy rainfall (Kumar 2022).

In Odisha's context, earlier scientific studies documented the role of SHGs as promoters of climate-resilient agriculture. However, the research studies need to study the intersection of gender power relations and ecology to conceptualize how women from different castes, class and other social locations have developed coping strategies like adapting new knowledge about climate-resilient agricultural practices. The WSHGs also involve themselves in preserving their local knowledge, which reduces the vulnerabilities that emanate from changing weather patterns. Various scientific studies document the interface between SHGs and their role in ecology, but they are less theorized as an area of academic research in disciplines of gender studies and sociology.

Data from the Field

In this paper, field data have been organized around the themes of cultural practices for soil and nutrient management; plantation to check salinity ingress to paddy fields; cultivating millet as a strategy for water conservation; community grain banks; and adoption of composite farming methods to address livelihood insecurities. During the FGDs, when questions were asked what climate change is, one of the women farmers in the age group of 20-25 responded, 'for us it is the loss of rice crop (*Dhana chasa*). In our village, most of us are having *padarjami*(dry land) which requires adequate rain for cultivating rice. Another respondent shared, 'this year there was no rain in our village (*Pancha khanda gaon*), so the entire *pada* (kinship groups living in the same locality) experienced loss of paddy'.

The above narratives indicate the multifaceted impact of climate change on the income of rural households and how the risks of climate change involve economic, social, and gendered costs for rural women.

Nature of Green Agricultural Practices

Mahila Mandal (SHG) in Kandhamal district still practises seed preservation of their significant crops, such as paddy, turmeric, ginger, mustard seeds and pulses, using indigenous and local methods.

> **Case Note (CN1, Office Bearers of Maa Tarini SHG):** The women peasants from *Maa Tarini* Mahila Mandal narrated, 'the local seed varieties are not prone to pest, still we keep it safe owing to the variable weather conditions. Seeds are considered sacred to us; therefore, they should not be affected by pests and diseases. We preserve seeds and food grains of pulses (black gram, green gram and *kuluthadali*) in a container made with bamboo because, when we face food shortage before the next harvest, we take them out and consume them. If we preserve them with modern methods, we will have a problem taking them as food'.

The peasant community belonging to *Kandha* (Kondh) community has a cultural belief that the sacredness of sustainable farming can only be retained through its seeds. Therefore, the damage of seeds for local crop varieties is hard to bear for the peasant communities of tribal inhabited districts. In Kandhamal, women members of SHGs preserve seeds of local rice, maize and pulses over generations to meet the community's demands in case of crop failure due to unprecedented rain, delayed monsoon and sudden outbreak of pests. During the FGD, the women members of a SHG in the *Dadaki* Panchayat in Kandhamal district reported:

> **'Our area has a farmers' group, which civil society organizations (CSOs) have formed to provide credit/ group loans. This small credit enables the farmers (*Chasi*) to purchase medicines, paddy seeds and vegetable seedlings. These SHGs promote the preservation of the local seed varieties of the region. When we go for group meetings of mothers (*Ma manakara*), we share the importance of preserving local seed varieties through discussions and dialogue with groups from other villages'.**

One of the key informants (an official who runs a CSO) from Thakurmunda block of Mayurbhanj district said that women SHG groups cultivating *Rabi* crops in Thakurmunda prefer cultural practices for pest management over modern practices. Traditional practices are believed to be more effective in checking pest infestations, which usually occur after paddy harvest at the onset of the winter season. These practices are proving to be effective in pest control due to changing weather conditions such as unseasonal rainfall, warmer winter, and early summer. Intensification of paddy cultivation with higher fertilizer use leads to many insect pests, especially the brown hopper, subsequently affecting the*Rabi crop*, a mainstay of sustainable income for rural households.

Women farmers learn about sustainable farming practices by participating in training sessions on making compost (organic manure), using integrated pest management methods and organizing seed and grain banks at the community level. Women members of *Kamalini* and *Ma Mangala* SHGs of Thakurmunda block from Mayurbhanja district of Odisha share that they learnt to make vermin compost (a scientific method to prepare manure with organic waste) and process organic manure and pesticides to cultivate seasonal vegetables like brinjal, tomato, local beans (*Jhata*), gourds and so on. One of the study's key informants, a volunteer at the CSO, shared that 'women SHG members are given training to adopt traditional practices of vegetable farming by organizing capacity-building workshops. They have been given training on crop diversification in the region, in which women groups are encouraged to cultivate new vegetables and crops such as mushrooms, *ragi*, and finger millet, which are easily cultivable on arid land and require less water. He continued, 'our organization and other Non-Governmental Organizations (NGOs) in the block have also aligned various activities of WSHGs with the government programmes like Mission *Shakti* and Millet Mission to encourage and support grass root women to cultivate *ragi* and little/minor millets in the dry regions of Odisha. These initiatives have enabled women to go for crop diversification in Thakurmunda block to reduce the risks and impact of climate vulnerabilities for the marginalized communities'.

Women are also seen as the primary caretakers of nurseries, which offer them additional livelihood options at the village level. With the help of WSHGs, women learn about new seed varieties and earn money by selling saplings to the local CSOs. When the women become a part of an SHG, they are trained on green practices, including preserving local seed varieties to protect the community from crop failure due to weather variability. The primary data reiterates the idea of inter-generational sustainability practices, which help communities to survive climate risks (Chambers & Conway 1991 cited in Krishnaraj 2006).

WSHGs of Dadki panchayat in Kandhamal district of Odisha shared how peasants from the Kondh community follow certain cultural practices like cultivating four varieties of rice in a pattern keeping weather compatibility in mind. During the FGDs, members of SHG responded that cultivating paddy in a specific order helps to check the outbreak of pests due to unprecedented and erratic rain. When women members of SHGs meet (*ma mankara meeting hue)*, they informally share cultivation methods with the representatives of civil society organizations. One of the office bearers of *Ma Tarini* (the name of the

group) SHG reported, 'we first cultivate *Anta* (a local paddy variety), followed by *Punia* (another local paddy variety). After harvesting these crops, we cultivate hybrid rice (*sarakardhana*) such as *Lalata* and *Ambari*.' They stated that peasants preferred to cultivate local paddy initially, which they believed minimized the loss of paddy crop, enabling them to address household food security for the year. Women peasants' efforts also help maintain crop diversity in a particular geographical area. One of the key informants in the Thakurmunda block shared that women farmers from SHGs like*Kamalini, Ma Santoshi andMa Mangala*are engaged in processing jackfruit, mango and paddy, which brings them additional income. Through this, they also learn to cultivate new crops like mushrooms and gain knowledge about allied agricultural activities to meet household needs during the seasonal failure of paddy.

SHG Network as a Platform for Knowledge Sharing

In Kandhmal district, women respondents said they share and discuss issues related to the conservation of their immediate forest (*Jangala*), natural resource management and sustainable agricultural practices in meetings. Even when there were discussions by NGOs about health, sanitation and the environment, women informally shared their concerns about cropping practices and effective management of impending crop failure by adhering to local practices. In this context, SHGs and their interaction with local NGOs strengthened the rapport, where women peasants share their ecological knowledge about farming, climate change and the importance of resource conservation. The dialogue within SHGs or small farmer groups becomes the dynamic component of a 'lateral communication'network within the local communication system in which women mutually share issues related to ecology, climate change and farming (Mundy &Compton 1995, p. 120). This indicates that the social embeddedness of the SHG network provides a collective space for marginalized women to represent their voices and form a shared consciousness about environmental roles and responsibilities at the community level. The weekly or monthly meetings of WSHGs enable women to engage in dialogue related to climate change, agriculture and forests. These group meetings are initiating subtle changes in women's everyday life.

SHGs are perceived as sustainable platforms for outreach and dissemination of the community's ecological knowledge base. Women find this community-based institutional space comfortable for discussing, learning, and organizing women at the grass-roots and for learning about ecological challenges.

> **Case Note 2: One of the members of *Kamalini* WSHG in Thakurmunda shared her experience of organizing women farmers to promote climate-resilient agriculture. She belonged to the Scheduled Tribe (ST) community. She stated, 'I have taken a leadership role in organizing around 200 women members of different SHGs in the region to promote mushroom farming and the cultivation of small millet by promoting Farmers' Produce Organizations (FPOs). I have organized women in clusters to support initiatives like processing traditional jackfruit and mango varieties. We have involved 100 WSHG members in producing and marketing jackfruit and mango products, including mango pickles, jackfruit chips and jackfruit flour.**

SHGs, as embedded in social relations of caste, class, tribe, and community offer a naturalized mechanism for disseminating local knowledge of farming to the next generation of women. This network facilitates interpersonal and intergenerational communication of information within the community, reflecting the idea of collective knowledge sharing, particularly in the domain of sustainable farming, pest management, and cultivation of new crop varieties. It supports the earlier research which states SHGs as communities need to be strengthened and expanded (Kumar 2009) as they allow rural women to engage in dialogue, learn, and take initiatives to address, narrate, and assess the risks of climate change. The above narrative reflects that WSHGs are the network of social relations that provide an enabling space for rural

women to have dialogue, allowing them to imagine new possibilities for addressing eco-social issues in the local settings (Leder et al. 2019).

A participant in the FGD, Kandhmal reported: 'I belong to the low-income group. We have formed SHGs in our village, and I am an active member of that group. NGOs organize meetings related to agriculture, and they discuss the protection of our immediate environment. In the meetings, we shared many local practices of seed preservation, such as mixing paddy seeds in cow dung paste before sowing. It saves seeds from the potential threat of pests. NGOs also discuss practices relating to forest conservation and saving forests from destruction. They discuss how important it is to leave specific forest patches to grow and save it for the future.'

During the FGD discussion, other members responded that they discussed agriculture-related problems in SHG meetings. They shared different practices of seed preservation and mixed cropping with other women members of the group. They responded that they preserve pulse seeds (*Kalaki, Kandula, Kulthi)* and black gram with *Mahula/Mahuli* oil (a flower available in the local forest, also used for making local liquor) and turmeric powder. After complete drying of seeds, peasants mix them in a semi-solid paste prepared with turmeric powder and *Mahula* oil, *Gara Tela, and keep it* in a pouch made with *Sala* and *Siali* (trees found in the local forest) leaves. These leaf containers are hung from the kitchen roof.

Women also share their own local practices about sustainable farming in group meetings, which reinforces the belief among women from different caste and ethnic communities and age groups to preserve their indigenous farming culture and disseminate relevant practices to the next generation of women farmers. WSHGs, as a network, initiated self-transformation in daily life by aligning their actions with environmental goals, and such collaborations within the group and outside the group provide ground to form a 'silent revolution' (Lindberg et al. 2011) for realizing cosmopolitan agendas at the global scale.

Conclusion

The emergence of debates on gender and ecology allows the rethinking of social institutions like Women'sSelf Help Groups (WSHGs), which are foundations for encouraging green practices at the community level. The collective voice that helps these groups to become economically self-sufficient is also reflected in their environmental decision-making when a more significant cause of climate change is involved. Such networks of women become the axes of social relations within which green practices are subtly nurtured and shaped to achieve the larger collective agenda of climate change. The network of WSHGs offers social capital to rural women, creates diverse 'gendered subjectivities 'and endows them with a collective voice, be it conservation of their land, forest, water, crop diversity or confronting gendered norms. The conservation of indigenous seed varieties by women collectives in remote villages of Odisha bears testimony to women group's allegiance to cosmopolitan risks like climate change and their meaningful actions associated with environmental justice.

The study reflects the everyday experiences of women peasants embodying their subtle efforts in environmental decision-making at the local level. The network of WSHGs is shaped by the social location of rural and peasant women in their efforts for socio-economic empowerment, thus has enabled women to undergo a process of self-transformation in daily life by participating in group meetings at the community level. SHGs, as a collective structure at the grass root, exhibit the potential to become the space for conserving green practices across the global south. WSHGs can be seen as an embodied space in which economic, social and ecological consciousness are mutually present and collectively exist within this network. The primary data reflects SHGs' roles as silent bearers of green practices in a micro-ecological setting. The underlying assumption behind SHG formation in such micro settings is their economic and social empowerment. Still, it also offers a mutual space for members from different caste, class and *Adivasi* communities to deliberate and participate in actions related to environmental concerns.

These grassroots institutions have become the foundation for women from marginalized communities to have a collective voice in decision-making where more significant causes of climate change or environmental decision-making are involved. It empowers them with a collective voice, be it conserving their ecological settings or confronting the social and gendered norms. Case narratives and literature related to the conservation of indigenous seed varieties and coastal plantation to check salinity ingress due to sea level rise in remote villages of Odisha bear testimony to women's consciousness and change regarding climate adaptation and mitigation measures and the meaningful actions associated with their environmental decision-making in daily life. WSHGs as a grassroot community manifest the co-existence of economic, social and ecological consciousness among women and recognise the need for strengthening such institutions which can contribute to cosmopolitan goals of environmental protection. This paper offers an alternative lens to interpret roles of WSHGs beyond their social and economic functions.

Limitation

The present paper is conceptualised within a small set of primary data, therefore the analysis and interpretations are context specific. It is a reflective paper which can be expanded to study the grassroot institutions and its engagement with ecology and gender politics.

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References

Agarwal, B. 2010, 'Rethinking agricultural production collectivities', *Economic and Political Weekly*, vol. 45, no. 9, pp. 64-78. https://www.jstor.org/stable/25664172

Beck, U. 2014, 'How Climate Change Might Save the World', *Development and Society*, vol. 43, no. 2, pp. 169-183. https://www.jstor.org/stable/deveandsoci.43.2.169. https://doi.org/10.21588/dns.2014.43.2.002

Caritas India 2021, *Documentation of Traditional Climate Resilient Crops and Agricultural Practices in the Selected Blocks of Odisha*, Caritas India, New Delhi. https://caritasindia.org/GlobalProgramIndia/wp-content/uploads/2022/03/Documentation-of-Traditional-Climate-Resilient-Crops-and-Agricultural-practices-in-the-selected-blocks-of-Odisha.pdf

Clement, F., Harcourt, W. J., Joshi, D., & Sato, C. 2019, 'Feminist political ecologies of the commons and commoning', *International Journal of the Commons*, vol. 13, no.1, pp.1-15. https://doi.org/10.18352/ijc.972

Climate Action Network South Asia (CANSA) n.d., *Climate Resilient Agriculture Practices: Nayagarh and Balangir*, Retrieved 2024-04-11. https://cansouthasia.net/climate-resilient-agriculture-practices-nayagarh-and-balangir/

Davidson, T.& Sanyal, P. 2017, 'Associational participation and network expansion: Microcredit self-help groups and poor women's social ties in rural India', *Social Forces*, vol. 95, no. 4, pp. 1695-1724. https://doi.org/10.1093/sf/sox021

Delanty, G. 2008, 'The cosmopolitan imagination', *Revista CIDOB d'Afers Internacionais*, no. 82-83, pp. 217-230. https://www.jstor.org/stable/40586351

D'Silva, E. & Pai, S. 2003, 'Social capital and collective action: Development outcomes in forest protection and watershed development', *Economic and Political Weekly*, vol. 38, no.14, pp. 1404-1415. https://www.jstor.org/stable/4413405

Krishnaraj, M. 2006, 'Food security, agrarian crisis and rural livelihoods: Implications for women', *Economic and Political Weekly*, vol. 41, no.52, pp. 5376-5388. https://www.researchgate.net/publication/262126808_Food_Security_Agrarian_Crisis_and_Rural_Livelihoods_Implications_for_Women

Kumar, D. S. 2009, 'Participation in self-help groups activities and impacts: Evidence from south India', *The Bangladesh Development Studies*, vol.32,no.3, pp.1-18. https://www.jstor.org/stable/40795727

Kumar, M. 2022, 'Women farmers of Odisha navigate impacts of extreme weather events while pushing for recognition', *Mongabay*, January 4.https://india.mongabay.com/2022/01/women-farmers-of-odisha-navigate-impacts-of-extreme-weather-events-while-pushing-for-recognition/

Leder, S., Sugden, F., Raut, M., Ray, D., & Saikia, P. 2019, 'Ambivalences of collective farming: Feminist political ecologies from eastern India and Nepal', *International Journal of the Commons*, vol. 13, no.1, pp. 105-129. https://doi.org/10.18352/ijc.917

Lenka, S., Panigrahi, R. S., Mohapatra, B., & Patnaik, B. R.2022, 'Knowledge level of farmers on climate resilient agrotechnologies curtail the climatic change effect in the NICRA district of Odisha', *The Pharma Innovation Journal*, vol. 11, no.4, pp. 13-17. https://www.thepharmajournal.com/archives/2022/vol11issue4S/PartA/S-11-3-89-375.pdf

Lindberg, S., Athreya, V. B., Vidyasagar, R., Djurfeldt, G., & Rajagopal, A. 2011, 'A silent "revolution"? Women's empowerment in rural Tamil Nadu', *Economic and Political Weekly*, vol. 46, no. 13, pp. 111-120.https://www.jstor.org/stable/41152292

Mohanty, A. 2021, 'How a tribal community in Odisha is battling climate change with traditional farming', *IndiaSpend*, June 29, Retrieved 2024-04-11. https://www.indiaspend.com/climate-change/tribal-community-odisha-battling-climate-change-with-traditional-farming-758207

Mundy, P. A. & Compton, L. 1995, 'Indigenous communication and indigenous knowledge', in Warren, D. M., Slikkerveer, L. J., & Brokensha, D. (eds), *Indigenous Knowledge Systems: The Cultural Dimension of Development*, London: Intermediate Technology Publications, pp. 112-123. https://doi.org/10.3362/9781780444734.007

Odisha Community Tank Development & Management Society 2019,*Odisha Integrated Irrigation Project for Climate Resilient Agriculture: Project Implementation Plan*. https://octdms.in/oiipcra/pdf/oiipcra_disclosure/Project_Implementation_Plan.pdf

Rocheleau, D.& Nirmal, P. 2015, 'Feminist political ecologies: Grounded, networked and rooted on earth', In Baksh, R. & Harcourt, W. (eds), *Oxford Handbook of Transnational Feminist Movements*, Oxford University Press, Oxford, pp. 793-814. https://www.academia.edu/11873725/Feminist_Political_Ecologies_Grounded_Networked_and_Rooted_on_Earth. https://doi.org/10.1093/oxfordhb/9780199943494.013.032

Saito, H. 2011, 'An actor-network theory of cosmopolitanism', *Sociological Theory*, vol. 29, no. 2, pp. 124-149. https://doi.org/10.1111/j.1467-9558.2011.01390.x

Sooryamoorthy, R. 2007, 'Microcredit for microenterprises or for immediate consumption needs?', *Sociological Bulletin*, vol.56, no. 3, pp.401-413. https://doi.org/10.1177/0038022920070305