



An overview of literature on agroforestry management for sustainable livelihood and empowerment of rural women

Aliva Mohanty¹, Arpita Kumari Mishra²

¹ Associate Professor, PG Department of Gender Studies, Rama Devi Women's University, Bhubaneswar, Odisha, India

² Research Associate, ICSSR Project, PG Department of Gender Studies, Rama Devi Women's University, Bhubaneswar, Odisha, India

Abstract

Agroforestry is a relatively new name for a set of old land-use practices that has been prevalent for many centuries in different parts of the world under subsistence condition. In the context of agroforestry, gender is an important dimension to look at. Globally, nearly half of the human population is directly dependent on natural resources for its livelihood, and mostly indigenous and rural women depend directly on biodiversity to fulfil their daily subsistence needs. Until 1970, women were largely absent in farming, animal husbandry and forestry research. Furthermore, women's advocates, gender professionals, and feminists contend that working towards gender equality and addressing gendered power relations and inequities are crucial parts of sustainable development. In this context in the present paper attempt has been made to review the related literatures to see how far the agroforestry management is helpful for rural women to generate sustainable livelihood sources from agroforestry.

Keywords: agroforestry, gender, sustainable, management, equality

Introduction

The present paper aims at making a review of the available literature on "Agroforestry Management for sustainable livelihood and empowerment of rural women". The basic purpose hovers around the interest to generate insight into the phenomena of agroforestry management and to bring out the correlation between agroforestry and sustainable livelihood of rural women of Odisha, to identify correction or mitigation measures through sustainable livelihood sources for empowering the rural women of Odisha. The focus of the present review pertains to the following points. Focus: The study tried to bring the following thematic areas into focus for making knowledge review.

- To make a survey of the literature highlighting on the role of women in the management of agroforestry
- To make a review of the challenges experienced by women in agroforestry
- To collect and analyze the literature on women's control and access to productive resources, decision-making, and the factors affecting agroforestry practices.
- To study the interrelationship between the women's participation in and benefits from agroforestry, resulting in empowerment and sustainable livelihood.

Purview

The involvement of women in agroforestry is not at all a new concept. But the age-old practice of marginalization of women's contribution is a frequent phenomenon in any cultural, social, economic, and institutional field. Female farmers have always played a crucial role in agroforestry, particularly at the foundation of plant creation and management, even though there is almost no documentary record of this phenomenon, particularly in Odisha from a dynamic rural milieu. However, the present review of the

literature tries to review agroforestry from a gender perspective. The entire thought of utilizing the idea of gender is not just focusing on women yet rather purposes to exude with systems that challenge gender imbalance, subsequently guaranteeing that both men and women can settle on the choice, access resources impartially, stand secure on situations and advantage from development drives, for example, agroforestry. The whole idea of using the concept of gender is concentrating on women and strategies that challenge gender imbalance, thus ensuring that both men and women can make the decision, access resources equitably, hold positions, and benefit from development initiatives such as agroforestry. So also, the newly implemented Sustainable Development Goals (United Nations 2015:Goal5) promote women's role as a development effort and gender equality in policy advancement, which are now believed to be critical for the realistic turn of sustainable development. Throwing light on the role of women in agroforestry, the review in this paper mainly tries to focus on recent works from the national and international scenario as in the following sections

There is a plethora of intellectual research books and papers on "Agroforestry Management" which analyses the agroforestry management for sustainable livelihood of rural women. A few of them are cited below.

Women play an active role in the agricultural sector (IDLO, 2017) ^[1] and constitute the bulk of global agricultural producers (Mulugeta & Amsalu, 2014) ^[2]. Several authors and scholars have cited women's role in farming activity and their ability to sustain small and larger livestock. Women are the primary users of a wide variety of forest products, including fuel wood harvesting, medicinal skills, forest-based producers, and so on. They do most of the work in the initial parts of the establishment and reap multiple benefits

from the low-cost input in the agroforestry system (Ahlawat & Hasamati, 2009) ^[3]. Women's groups are considered crucial in the system. Nyasimi M and Huyer S (2017) ^[4], in the study on "*Closing the gender gap in Agriculture under climate change*," have also emphasized that women perform agriculture activities along with drudgery activities related to agriculture. Furthermore, women work in agriculture as self-employed farmers, unpaid employees in family farms, and compensated or uncompensated employees in other farms and agricultural enterprises.

Women's roles in agriculture are perceived as merely "support" rather than a substantial economic contribution to agricultural development was stated by Ms Banerjee, Mishra, Singh, Tahiliani (2016) ^[5], in their paper "*Role of women in agriculture sector in India*" Women take care of soil quality through organic recycling and encourage crop safety by conserving varietal diversity and genetic resistance. Women are making full efforts in agriculture and rural economic activities; their positions vary dramatically from one part of the world to another, where they have been financially sustainable, and the social forces are changing the agriculture sector. Yet, as far as agriculture is concerned, they are still unaddressed and felt significant contributors to financial growth in the agricultural industry. The involvement of women in agriculture, as well as the emphasis on various farming practices, which women mostly carry out, have been highlighted by Yaongam & Elizabet (2019) ^[6] and Jamali (2012) ^[7] in the article "*Participation of Rural Women in Agricultural Activities in India: A Review*" in the article "*The role of rural women in agriculture and its allied fields: A case study of Pakistan*". The two papers stated a related argument that agricultural practices observed to be mainly carried out by women are such as sowing, transplanting, application of manure, weeding, thinning, filling of gaps, harvesting, and cutting of grass, harvesting, winding, drying of crops, storage, grading, etc. Aside from farm operations, rural women engaged in other related activities such as animal shed cleaning, crop residue compilation, fodder collection, irrigating, dung cake preparing, milk production, milk processing, and ghee preparation. As a result, women accounted for nearly all of the activities associated with livestock management (Patra, Samal, & Kumar Panda, 2018) ^[8]. Das (2015) ^[9], in the study on "*Work Participation of Women in Agriculture in Odisha at the coastal district of Bhadrak*," found that rural women make up most agriculture and allied areas. And the work includes all from of agricultural cultivation to animal production to cottage business. From domestic and family upkeep through transportation of water, fuel, and feed. Rural women are heavily involved in all elements of agriculture, similarly to their each day work recurring of cooking, washing, and different domestic chores.

Various studies have cited the importance of participation of women in agroforestry practices, watershed conservation, tree enhancement, and forest sustainability and protection. Many studies have also noted that women largely depend on forests for food protection, subsistence needs, and livelihood security through the harvest, processing, and selling of non-wood forest products. Thus, it reflects that women are more concerned about the climate than men, and they are more likely to advocate preserving forest habitats. They constitute a substantial proportion of the forest industry's labor force, from nurseries to farmsteads and forest management to wood-processing, as Kiptot and Franzel (2011) ^[10]

discovered in their research "*Gender and Agroforestry in Africa: Are Women Participating?*" The majority of female farmers work as agricultural laborers.

Gender discrepancies are evident not just apparent in the roles of men and women in forestry. Various researchers and academics have highlighted the usage of forest resources from a gender viewpoint (Colfer *et al.*, 2016) ^[11]. Sustainable forest management strives to decrease forest loss and deforestation while also assisting in poverty reduction and other socioeconomic advantages, for example, through sustainable development activities and enhanced access to forest value chains and markets (World Bank, 2016) ^[12]. According to studies, males manage vital forest commodities marketed on the market, such as lumber, primarily to commercialize forest goods (Aguilar *et al.*, 2011) ^[13]; FAO 2015 ^[14]; Agarwal, 2009 ^[15]). Women's resource control would be based more frequently on managing and utilizing fuel wood, feed, and non-timber items (FAO, 2015) ^[16]. In greater detail, Colfer *et al.* (2016) ^[17] and FAO (2013) ^[18] noted in the study "*Forests, food security, and gender: links, inequalities, and priorities for action*" that women's abilities and activities are often tied to home tasks. Women also have a vast understanding of trees and forests, including the fuel wood, feed, biodiversity, species diversity, management and usage for diverse purposes, and safeguarding measures. Women continue to play a crucial role in the value chains of forests and agroforestry. They are critical to their profitability and, as a result, to their families' wellbeing and food security. Agriculture, logging, timber, hunting, and fishing are among the top priorities, skills, and activities for men. However, politicians and service providers frequently discourage women's participation in forest value chains.

According to Ingram, Schure, Tieguhong, Ousseynou, Awono, and Iponga (2014) ^[19], men profit from the value of forest products in the Congo Basin. Women, who were more prone to gather goods for home consumption, were harmed by a lack of customary ownership of valuable trees and financial difficulties. It gives recommendations for achieving gender equity in agroforestry to maximize women's benefits.

Although women's significant contribution to the workforce, they are often overlooked and undervalued. Women also play an essential role in the formal and informal forestry sectors. Women account for 43% of the global agricultural working force. Despite abundant evidence that women are involved in several dimensions of agricultural production, data on women's agricultural involvement continue to be under-reported. (FAO 2011) ^[20]; Sugden *et al.* 2014 ^[21]; Doss 2015 ^[22]. The role of women in agriculture, particularly in many African and Asian countries, paved the way for a possible study of gender inequalities in agriculture and the potential benefits of eliminating these gender inequalities, was discussed in a paper by the *Agriculture and Economic Development Analysis Division (ESA) of the Economic & Social Development of United Nation* (2011) ^[23]. Using Time-use survey highlights how men and women share their time and further accentuated the difference in women's contribution to agriculture between countries and within countries. The workload of rural women exceeds that of men and involves a higher proportion of unpaid household duties related to food preparation and fuel and water collection. Women's participation in agriculture and food processing is essential. Women's role in rural labor markets

suggests a great deal of geographic variation, but women are over-represented in unpaid, seasonal, and part-time jobs (FAO report, 2011) ^[24], and the available statistics suggest that for the same work, women are typically paid less than men. It also points out that women's positions are varied and differ across regions and countries, without being aware of their disproportionate land ownership, money, property development, human capital, and other productive resources. It is inaccessible to implicit and makes good strategy design for women in farming. Whereas in India, the only time use survey ever conducted showed that women spent 51% of their time on unpaid work (India Ministry of Statistics and Programme Implementation, 1998) ^[25]. Although women perform the majority of the grueling labor in agriculture, they are rarely acknowledged as farmers. They incentivize this effort instead of unpaid farmworkers or as underpaid workers (Jayati, 2015) ^[26]. And as per the Food and Agriculture Organization (2009) ^[27], in terms of value, volume, and hours worked, women in India are major food producers. In 2009, 94 percent of the female labor worked in cereal production, while 1.4 percent worked in vegetable production and 3.72 percent were involved in fruits and spice crops. And according to an International Labour Organization study, tribal women and lower castes face greater marginalization, despite accounting for 81 percent of women farmers in India (Bala, 2010) ^[28].

Apiculture also includes the participation of women farmers. Approximately eight lakh bee colonies exist in India now. Considering that modern beekeeping began in India just three decades ago with the establishment of the Khadi and Village Industries Commission (KVIC), the number of bee colonies and beekeeper's cooperatives in India now is 8, 10, 807, and 169, respectively. It has accomplished remarkable. Kerala, Tamil Nadu, West Bengal, Bihar, Orissa, Himachal Pradesh, Kashmir, Punjab, Meghalaya, and the Andaman and Nicobar Islands are among the states with active beekeeping cooperatives. Apiculture is widely discussed as a potential technique of empowering rural women. According to Bianca and McDonough (2015) ^[29], women continue to pursue subsistence farming and beekeeping on a modest scale, which has helped increase household income and female involvement. The primary product is honey, which is marketed through informal methods. Women are enthusiastic about the prospect of increased diversification through value-added products, and extra training to better market access may give additional benefits.

Many researchers have addressed the role of women in the Community Forestry Program. Sanjay (2017) ^[30] analyzes the "*Panchakanya Community Forest User Group Nuwakot District, Nepal*" as a case study to examine the roles and variables that influence women in the Community Forestry Program. Women use the community forests for numerous forest products that are essential to their livelihood security and livestock. The study revealed that women had indigenous knowledge and highly specialized skills about forest species, traits, and applications. Women are equally knowledgeable about their Sylvie cultural work, including cultivating, gathering, and creating new materials from forest products. In the study, women's engagement in the Community Forestry Program is limited. Women's primary job responsibilities are primarily labor-intensive activities, with little attention in charge-related decision-making. Naganan (2014) ^[31] stated that rural women's management

of sustainable ecosystems in the paper "the role of indigenous women in forest conservation in upland Kalinga province, northern Philippines." The research sites are indigenous communities or villages in the Kalinga province with active women's groups' crucial roles in environmental protection and conservation.

Women play a vital role in the conservation and management of sustainable ecosystems was mentioned by Tyagi (2011) ^[32] in the paper "*Role of Mountain Women in Environment Governance in India*." Women have always been active in maintaining and safeguarding their natural resources in mountain locations from time immemorial. Women have demonstrated how land, water, forests, and other natural resources may be exploited and maintained using their unique abilities and traditional knowledge. They have established their system and methods for sustaining and managing the resources that are the foundation of their families' and communities' survival.

Women experience a variety of challenges in the agroforestry system. Slathia (2015) ^[33] mentions unequal property rights as a severe problem in her article "participation of women in agricultural production," and relatively few women have land ownership rights directly in their names. Limited access to agricultural land limits women's livelihood alternatives and exacerbates financial hardship, particularly in female-headed households. According to Catacutan and Naz (2015) ^[34], women, particularly those from minority groups, face more significant agroforestry constraints than men. However, this is mainly due to a lack of land, labor, and collateral assets for women. In general, interrelated difficulties confronted by women are such as a lack of information, a poor educational level, and restricted access to extension services have impeded adoption. According to Bradshaw (2013) ^[35], women have limited access to productive resources and perform all un-mechanized agricultural duties, which adds to their burden due to a lack of equipment and sufficient technology. Women have less sway over decision-making, both within and outside the home.

According to Nyasimi and Huyer (2017) ^[36], women farmers face several production constraints, including societal and gender norms and insufficient resource availability, exacerbated by climate change. Climate change adaptation technologies disproportionately affect marginal women farmers due to a lack of resources, agricultural services, awareness, and a high illiteracy rate (Srivastava and Srivastava 2017) ^[37]. Furthermore, climatic stress exacerbates poverty and exacerbates existing gender inequities in access to climate change resources (Demetriades and Esplen 2008) ^[38].

The critical constraints to women in adopting agroforestry are a lack of knowledge about agroforestry technologies (Worldagroforestry.org). Many scholars have pointed out that, to promote and protect women's involvement and rights in agroforestry, NGOs and governments' programs and schemes fail to meet gender-sensitive and gender justice demands in all governance processes connected to the forest and land governance. Furthermore, few scholars have focused on the effects of industry growth on forestry areas and relocation, posing a threat to women's livelihoods. Women typically endure the burden of industrial advancements while reaping the benefits. Displacement, loss of land and livelihood, environmental repercussions, the availability of formal employment for community members,

and an intake of a transitory male workforce are all issues typically presented by land-based and extractive industrial activities. These difficulties may have differing effects on men and women, referred to as gendered effects (Toumbourou, Fauzi-Rachman, and Sirimorok, 2016) ^[39].

In the research "achieving gender justice in Indonesia's forest and land governance sectors," Marcoes (2015) ^[40] noted civil society organizations (CSOs) that execute forest conservation strategies and programs to react to the challenge of forest loss. Still, the program lacks gender justice, which is an increasing problem. More particularly, the report sheds light on the effects of expanding land-based and extractive industries, as well as the difficulties that women confront. The conventional decision-making structure of society, barriers to consulting with women while negotiating the development of industry, access to land, remuneration, and royalties all of which disempower women. Because the pay and royalties are paid on "the behalf of the head of the family," which is patriarchal in structure and communities, thus, increases women's economic dependency on males, disempowers them, skews gender relations, and exacerbates existing disparities.

Furthermore, if a male representative is not present, female-headed families may not get compensation. Loss of land and displacement can result in the loss of livelihoods and increasing labor pressures for women to provide for their families (Vanclay, 2017) ^[41]. Women have historically been responsible for satisfying the subsistence requirements of their families, but owing to land loss, they are no longer able to do so. Displacement and the transition from a subsistence to a cash-based economy can result in the loss of traditional values and ways of life. These involve separating women's expertise from their sources of income and the loss of traditional medicinal knowledge (United Nations, 2013) ^[42]. These can undermine women's traditional place in society, mainly if newly formed gender roles highlight women's domestic duties and reproductive tasks while undermining their creative and leadership responsibilities. Women face prejudice in the job, whether in a mine or on a farm. Employment and training options are frequently prioritized for males, and women may be restricted to the most menial, low-paying occupations.

One of the significant challenges women have experienced both from the government and the Judiciary is the act, i.e., the Forest Right Act (FRA), which was enacted in 2007. The effect of this provision has been pointed out by many research groups which primarily surrounded women's right on forest land. According to Sarin (2010) ^[43], the state progressively seized the rights and privileges of local people in the name of development, utilizing different techniques of forestland consolidation and land diversion, finally disempowering and displacing numerous indigenous tribes from their habitations.

A case study conducted by Oxfam India discovered similar issues encountered under the Forest Rights Act of 2006 by women in Jharkhand. Concerning women's legal and customary rights to forest land, they discovered that women had less economic power, limited access to government programs, and lower literacy than males (Landesa.org, 2016) ^[44].

Final outcome of the Review

Thus the foregoing review of literature brings the following salient facts to the forefront.

- Agroforestry is not a new concept but an age-old practice. The literature demonstrates that women in agroforestry are obsessed with the dominating position of masculine standards.
- Women's roles in agroforestry may vary geographically. But women are equally involved in agroforestry practices, watershed conservation, tree enhancement, and forest sustainability and protection. Women's roles in agroforestry are not restricted to agriculture or livestock maintenance. Women are also conducting other sorts of agro farming such as home gardening, ally cropping, apiculture, fishing, nursery, and so on. It is also evident that with a lack of awareness and misunderstanding of women's primary role in developing, maintaining, and transmitting tradition and know-how in the agroforestry system. The majority of the literature also contributed that women are unpaid, underpaid, or employed as labourers in the global agro farming industry.
- The patriarchal society's traditional social limitation confines women to the interior realm. Women are almost typically assigned to the subsistence sector rather than the economic sector. It has also been followed by realizing that women are not passive objects of growth but relatively active subjects and agents of talents, knowledge, and abilities that have been rendered unseen. Women, although being one of the most important contributors to the economy, remain invisible to planners.
- The significant challenges that women face in agroforestry are as following: control of forest resources and economic possibilities, affected mainly by climatic distress, lack of land rights; low level of education, lack of technological; lack of extension service; inadequate access to financial support, lack of participation and limited opportunities in decision-making in the development process, lack of knowledge about land rights and confront higher obstacles than males in entering and profiting from markets, particularly more traditional markets.
- Women have significant access to NTFP, which essentially assists them in generating money and meeting food security. The review also emphasized that when women have more income and control over the asset, it increases children's education, health wellness, less mistreatment, economic dependence on males is reduced, and negotiating power within the home improves. Furthermore, studies show that women frequently own fewer animals than men in rural regions; yet, livestock assets are often more equitably distributed between men and women than other assets such as property. The proportion of women's assets in livestock is unknown, as is whether and under what conditions women would prefer to grow their livestock assets over their other assets if given the opportunity. Active and purposeful policymaking is essential for women to become equal partners in food security, food production availability, access, usage, and stability.
- According to the literature, women have an essential and critical part in agriculture. Farm women's participation in agricultural decision-making was extremely low. Because women's impact has not been recognized, male dominance in-home and economic decision-making have persisted even in places where

women are the primary producers of labor. Most farm women are illiterate, have little understanding of modern agricultural practices, confront male control, and have limited mobility due to various cultural taboos.

- The situation is similar to that of women's land rights as in decision-making scenario. The literature gave an idea that women in agriculture do not own the land on which they work; instead, they are classed as "cultivators" or "agricultural laborers," in contrast to landowners, who are referred to as "farmers." However, these solutions fall short of addressing challenges in the implementation. When women get a plot through males, they are obligated to donate the proceeds from farm sales to a man, and they have little control over how the money is used. There is no assurance that adding women to title documents would give them the authority to overrule customary traditions and assert their rights. As a result, while women in title deeds are critical to legitimizing their rights, such action must be accompanied by knowledge and assistance.
- Various projects related to women's empowerment in agroforestry have assisted in portraying positive outcomes in their social and economic dimensions regarding household decision making, income generation, mobility, family wellbeing. And also facilitated women increase awareness to use agroforestry resources in a significant way. And the potential contribution of NTFPs farming to poverty reduction and livelihood enhancement has aided women.

Grey Areas that needs further Academic touch and Treatment

After making a thorough review of the available literature, the following grey areas have been chalked out that needs special academic touch and treatment which can be given through the present study.

Gender disparities in the agroforestry system have been repeatedly mentioned in the above literature, and gender roles in agroforestry are not gender-neutral. There are hardly any studies from a gender perspective on the empowerment of rural women through their participation in agroforestry in the Nuapada District of Odisha. In the Nuapada district, land rights, access to assets and decision-making at the household level, and the agroforestry system are not adequately documented. The literature on the topic that is available in the Odisha context focuses primarily on the condition and difficulties faced by women as a women farm laborer in the Bhadrak district, to overcome families with the poverty-migration trap with agro farming in Bolangir and Nuapada, the impact of the watershed on livelihood of women in Balangir district; access to NTFP of Nuapada and Boudh district of Odisha and on the role of women in community joint forest management in Mayurbhanj District, etc. Specifically, in the context of the Nuapada district of Odisha's, no literature describes the role of women in agroforestry management, the obstacles they face, and the advantages they gain from agroforestry, resulting in empowerment sustainable livelihood for women. The present study hopes to contribute to this knowledge gap and generate insights for addressing gender and agroforestry issues in the Nuapada district of Odisha. The present study is made to understand women's involvement in agroforestry

and managing sustainable livelihood, which is crucial for women's empowerment in the Nuapada District of Odisha. From a gender perspective, the present study attempt to know –

- The locally adapted agroforestry options by women,
- The level of women's participation and try to understand the local social-ecological system,
- The focus on roles and responsibilities opted by women's and men's in agroforestry,
- The constraints to women's participation in agroforestry practice in the study area
- The women's access to and control over resources, education and knowledge, and involvement in decision-making.

The current study is based on Vandana Shiva's (1998) theory, which places a high value on the "feminine principle" as a source of life. Women, according to her, are the original providers of life and custodians of the environment, and western patriarchal development techniques and science have replaced the feminine principle and oppressed women, non-western people, and the environment. Shiva went on to claim that the union of patriarchy and capitalism had subjected women to the environment. Similarly, Bina Agarwal (1993) articulated women's victimization in political, economic, and gender dimensions. For her, patriarchy and the pleasure and privatization processes impoverish women and make them the most vulnerable to environmental catastrophe.

Similarly, the feminist theory contends that patriarchy is the primary source of women's oppression, subjugation, and abuse. Women, according to Shiva and Agarwal, should be the primary players in environmental management. This is owing to their proximity to the resource base as a result of their everyday survival chores, and they are caught in the crossfire of environmental deterioration. They felt that being the privileged environmental steward was the route to women's liberation. Women are being driven to take acts that are more beneficial to ecological conservation and regeneration.

Reference

1. Strengthening women's customary rights to land | IDLO.
<https://www.idlo.int/news/highlights/strengthening-womens-customary-rights-land>
2. Mulugeta M, Amsalu T. Gender, participation and decision-making process in farming activities: The case of Yilman Densa District, Amhara Region, Ethiopia. *Journal of Economics and Sustainable Development*, 2014;5(1):28-34.
3. Ahlawat SP, Hasamati. Seed source variation in pod and seed characteristics of *Acacia nilotica* ssp. *indica*. *Ann. Arid Zone*, 2009;46(2):189-196.
4. Nyasimi M, Huyer S. Closing the gender gap in agriculture under climate change. *Agric Dev*, 2017;30:37-40.
5. Ms Tanu shree Banerjee, Ms Aanchal Mishra, Dr Prachi Singh, Mrs Garima Tahiliani. A Study on the Role Played by Women in Agriculture Sector in India. *International Journal of Recent Trends in Engineering & Research (IJRTER)*, 2016, 02(11). [ISSN: 2455-1457].

6. Elizabeth H, Ramsan Yaongam. Participation of Rural Women in Agricultural Activities in India: A Review,2019:10:47-50.
7. Jamali Khalida. The Role of Rural Women in Agriculture and it's Allied Fileds: A Case Study of Pakitan, 2009.
8. Patra M, Samal P, Kumar Panda A. Constraints and opportunities for women in agriculture in India. *Journal of Pharmacognosy and Phytochemistry*,2018:7(5):2092-2096. Retrieved from <http://www.phytojournal.com/archives/2018/vol7issue5/PartAJ/7-5-231-885.pdf>
9. Dr Lipishree Das. Work Participation of Women in Agriculture in Odisha. *IOSR. Journal of Humanities and Social Science (IOSR-JHSS)*,2015:20(7):66-78. e-ISSN: 2279-0837, p-ISSN: 2279-0845. Accessed from: <http://www.iosrjournals.org/iosr-jhss/papers/Vol20-issue7/Version-3/L020736678.pdf>
10. Kiptot E, Franzel S. Gender and agroforestry in Africa: are women participating? ICRAF Occasional Paper No. 13. Nairobi: World Agroforestry Centre, 2011.
11. Colfer CJP, Sijapati Basnett B, Elias M. Gender and Forests: Climate Change, Tenure, Value Chains and Emerging Issues. Bogor: CIFOR, 2016.
12. World Agroforestry Centre (ICRAF), 661b15.11, 662b15.12 World Bank, 3.
13. Aguilar L, Quesada-Aguilar A, Shaw DMP. (eds) *Forests and Gender*. Gland, Switzerland: IUCN and New York, NY: WEDO, 2011, 122.
14. FAO. Mainstreaming Gender into Forest Policies in Asia and the Pacific, 2015. http://www.fao.org/fileadmin/templates/rap/files/meetings/2015/150212_final_report.pdf.
15. Agarwal B. Gender and forest conservation. The impact of women's participation in community forest governance. *Ecological Economics*,2009:68(11):2785-2799.
16. FAO. Mainstreaming Gender into Forest Policies in Asia and the Pacific, 2015. Available at http://www.fao.org/fileadmin/templates/rap/files/meetings/2015/150212_final_report.
17. Colfer CJP, Sijapati Basnett B, Elias M. Gender and Forests: Climate Change, Tenure, Value Chains and Emerging Issues. Bogor: CIFOR, 2016.
18. FAO. Forests, food security and gender: linkages, disparities, and priorities for action. Background paper presented at the International Conference on Forests for Food Security and Nutrition, F.A.O., Rome, Italy, 2013. Assessed from: <http://www.fao.org/forestry/37071-07fcc88f7f1162db37cfea44e99b9f1c4.pdf>
19. Ingram V, Schure J, Chupezi Tieguhong J, Ousseynou N, Awono A, Midoko I ponga D. Gender implications of forest product value chains in the Congo Basin. *Forests, Trees and Livelihoods*,2014:23(1-2):67-86.
20. Food and Agricultural Organization of the United Nations (FAO). State of the World's Forests 2011. FAO, Rome, Italy, 2011.
21. Sugden F, Maskey N, Clement F, Ramesh V, Philip A, Rai A. Agrarian stress and climate change in the Eastern Gangetic Plains: Gendered vulnerability in a stratified social formation. *Global Environmental Change*,2014:29:258-269.
22. Doss C. Intra household bargaining and resource allocation in developing countries. *World Bank Res Obs*,2013:28:52-78. <https://doi.org/10.1093/wbro/lkt001>
23. ESA working paper No-11-02. * The Sofa team was lead by Terri Raney and included Gustavo Anríquez, Andre Croppenstedt, Stefano Gerosa, Sarah Lowder, Ira Matuscke and Jakob Skoe, 2011. <http://www.fao.org/3/am307e/am307e00.pdf>
24. Food and Agricultural Organization of the United Nations (FAO). State of the World's Forests 2011. FAO, Rome, Italy, 2011.
25. India Ministry of Statistics and Programme Implementation. Time Use Survey, 1998. Available from <http://mail.mospi.gov.in/index.php/catalog/130>
26. Jayati Ghosh. Unseen Workers: Women in Indian agriculture. Frontline Print edition, 2015. Assessed from https://www.macrosan.org/cur/apr15/pdf/Unseen_Workers.pdf
27. FAO. Gender and Food Security: Agriculture, 2008. Available at: <http://www.fao.org/Gender/en/agri-e.htm>.
28. Bala N. Selective Discrimination against women in Indian agriculture- A review. *Agricultural Reviews*, 2010, 224-228.
29. Cristina Bianca, Pocol and amp; Mc Donough, Molly. Women, Apiculture and Development: Evaluating the Impact of a Beekeeping Project on Rural Women & # 39; s Livelihoods. *Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Horticulture*,2015:72:10. 15835/buasvmcn-hort:11423.
30. Shrestha Sanjay. Master's Thesis Women's Roles in Community Forestry Program: A Case of Panchakanya Community Forest User Group of Nuwakot District, Nepal. Submitted to Ritsumeikan Asia Pacific University, 2017. Assessed from: <https://core.ac.uk/download/pdf/92529052.pdf>
31. Edgar M Naganag, DPA*. The Role of Indigenous Women in Forest Conservation in Upland Kalinga Province, Northern Philippines. *International Journal of Advanced Research in Management and Social Sciences*, 2014, 3(6). ISSN: 2278-6236. Assessed from: <https://garph.co.uk/IJARMSS/June2014/8.pdf>.
32. Tyagi Rani. Role of Mountain Women in Environment Governance in India, The Indian Society of Ecological Economics, 2011. available at: <http://www.mtnforum.org/sites/default/files/publication/files/4097.pdf>
33. FAO. Smallholders data portrait, 2015. (available at <http://www.fao.org/economic/esa/esaactivities/esa-smallholders/dataportrait/en/>).
34. Naz, Farhat, Catacutan, Delia. Gender roles, decision-making and challenges to agroforestry adoption in Northwest Vietnam. *International Forestry Review*, 2015:17:22-32. 10.1505/146554815816002266.
35. Bradshaw S. Women's decision-making in rural and urban households in Nicaragua: the influence of income and ideology. *Environment and Urbanization*, 2013:25(1):81-94. <https://doi.org/10.1177/0956247813477361>.
36. Nyasimi M, Huyer S. Closing the gender gap in agriculture under climate change. *Agric Dev*,2017:30:37-40.
37. Srivastava N, Srivastava R. Women, work, and employment outcomes in rural India. *Econ Polit Wkly*,2017:45(28):49-63.

38. Demetriades J, Esplen E. The gender dimensions of poverty and climate change adaptation. *IDS Bull*,2008;39(4):24-31. <https://doi.org/10.1111/j.1759-5436.2008.tb00473.x>
39. <https://programsetapak.org/wp-content/uploads/2016/06/Achieving-Gender-Justice-in-Indonesias-Forest-and-Land-Governance-Sector.pdf>.
40. <https://asiafoundation.org/2015/05/20/indonesia-achieving-gender-justice-in-land-and-forest-governance/>.
41. Frank Vanclay. Project-induced displacement and resettlement: from impoverishment risks to an opportunity for development? *Impact Assessment and Project Appraisal*, 2017;35(1)3-21. DOI: 10.1080/14615517.2017.1278671
42. <https://www.ohchr.org/documents/publications/realizing-womensrightstoland.pdf>.
43. Sarin M. Democratizing India's forests through tenure and governance reforms. *Social Action*, 2010, 60.
44. <https://www.landesia.org/annual-report-2016/>