



CARIIAA
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ASSAR
Adaptation at Scale in Semi-Arid Regions

Changes in Land Use Land Cover (LULC) and its influence on gender dynamics

CARIIAA-ASSAR Working Paper

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This study addresses how land use land cover changes influenced on gender dynamics in terms of roles and responsibilities, drudgery and decision making in various livelihoods and daily essentials.

Key words: Land use land cover, gender, decision making, drudgery, agriculture, urbanization

About CARIAA Working Papers

This series is based on work funded by Canada's International Development Research Centre (IDRC) and the UK's Department for International Development (DFID) through the **Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA)**. CARIAA aims to build the resilience of vulnerable populations and their livelihoods in three climate change hot spots in Africa and Asia. The program supports collaborative research to inform adaptation policy and practice.

Titles in this series are intended to share initial findings and lessons from research and background studies commissioned by the program. Papers are intended to foster exchange and dialogue within science and policy circles concerned with climate change adaptation in vulnerability hotspots. As an interim output of the CARIAA program, they have not undergone an external review process. Opinions stated are those of the author(s) and do not necessarily reflect the policies or opinions of IDRC, DFID, or partners. Feedback is welcomed as a means to strengthen these works: some may later be revised for peer-reviewed publication.

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About ASSAR

All authors of this working paper are team members in the ASSAR (Adaptation at Scale in Semi-Arid Regions) project, one of four hotspot research projects in CARIAA. The international and interdisciplinary ASSAR team comprises a mix of research and practitioner organisations, and includes groups with global reach as well as those deeply embedded in their communities. The ASSAR consortium is a partnership between five lead managing institutions - the University of Cape Town (South Africa), the University of East Anglia (United Kingdom), START (United States of America), Oxfam GB (United Kingdom) and the Indian Institute for Human Settlements (India) – and 12 partners – the University of Botswana, University of Namibia, Desert Research Foundation of Namibia, Reos Partners, the Red Cross/Crescent Climate Centre, University of Ghana, ICRISAT, University of Nairobi, University of Addis Ababa, Watershed Organisation Trust, Indian Institute for Tropical Meteorology, and the Ashoka Trust for Ecology and the Environment.

Working in seven countries in semi-arid regions, ASSAR seeks to understand the factors that have prevented climate change adaptation from being more widespread and successful. At the same time, ASSAR is investigating the processes – particularly in governance – that can facilitate a shift from ad-hoc adaptation to large-scale adaptation. ASSAR is especially interested in understanding people's vulnerability, both in relation to climatic impacts that are becoming more severe, and to general development challenges. Through participatory work from 2014-2018, ASSAR aims to meet the needs of government and practitioner stakeholders, to help shape more effective policy frameworks, and to develop more lasting adaptation responses.

Why focus on semi-arid regions?

Semi-arid regions (SARs) are highly dynamic systems that experience extreme climates, adverse environmental change, and a relative paucity of natural resources. People here are further marginalised by high levels of poverty, inequality and rapidly changing socio-economic, governance and development contexts. Climate change intersects with these existing structural vulnerabilities and can potentially accentuate or shift the balance between winners and losers. Although many people in these regions already display remarkable resilience, these multiple and often interlocking pressures are expected to amplify in the coming decades. Therefore, it is essential to understand what facilitates the empowerment of people, local organisations and governments to adapt to climate change in a way that minimises vulnerability and promotes long-term resilience.

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Abstract

The study examines the various changes in land use patterns over the last 18 years, and how they impact gender dynamics in the Mula Pravara river basin. The objectives include trying to determine whether there have been any changes in gender roles and responsibilities and workload, apart from also trying to determine if there has been a change in women's involvement in decision making. Structured interviews with both quantitative and qualitative elements were conducted in three areas or 'Hotspots' which have undergone three different kinds of land use change in the Mula Pravara region and were identified using a previously conducted study. The findings suggest that there is a change in cropping pattern across the three hotspots, and a change in livelihood pattern in the hotspot which has seen a shift from agricultural land to urban settlements. It was also found that despite being women being involved in most agricultural activities, men still remain the primary decision makers of the household in all three hotspots. Women's involvement in decision making is the least in the area which has seen an increase in urbanisation. Moreover, it was also found that there has been a decrease in workload and drudgery for women because of increased access to piped water supply and an LPG gas connection.

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1. Setting the context:

Over the last couple of decades, there has been a rapid and large-scale shift in rural land use patterns in many parts of the world. For example, uncultivable or cultivable waste land has been brought under cultivation, and agriculture land is gradually getting urbanized with an increasing amount of built-up area (Curry et al., 2001; Petit, 2009). Apart from environmental consequences, all of these changes in land use patterns can have both positive and negative socio-economic consequences on rural communities (Kruger, 2005).

Moreover, land use change could be a major driver of change in the provisioning services of our ecosystems (Van Vuuren et al., 2005). It is important to also note that several livelihoods in rural areas are largely dependent on these very ecosystem services. Ecosystem provisioning services consist of all “the products obtained from ecosystems”, which include food, water, fuel etc., and the livelihoods dependent on these services mainly include agriculture and livestock production, among others (Yang et al., 2018). Women and men tend to have different perceptions and preferences in using, regulating and managing ecosystems, which are influenced by their respective social roles and responsibilities (Djoudi et al., 2011).

If a gender lens is used in this context, one can say that some of these livelihoods are dominated by men, and some by women. Even within agricultural or livestock production, there are certain activities that are associated with women and some with men. For example, women are usually engaged in cleaning of animals, sheds, milking and feeding animals, winnowing, weeding, threshing, transplanting, manually handling loads, etc. (Gasson, R. 1980). In a broader context, it is a predominant misconception in society that women’s roles are only restricted to the domestic sphere and involve cooking, fetching water for the household, caring for the children and the elderly, and managing all the household chores (Upadhyay, 2005). However, women have always played a crucial role as farmers or labourers in agricultural production, livestock production, animal husbandry, and in other allied activities.

In India, women's estimated contribution to farm production is considered to be between 55% and 66% (Shiva, 1991). Their work is usually unpaid, unrecognized, and isn't considered productive or as 'economically active employment' (Dutt, 2017). They are also usually considered to be the most vulnerable and overburdened section of society (Kale et al., 2015). However, over the years, women's contribution to the field of agriculture, food security and nutrition, horticulture, and other sectors is slowly being recognized, despite still being undervalued (Dutt, 2017). The nature and extent of involvement or participation of women depends upon region, crop type, farming systems, production cycle, age, caste, class, and ethnic group (Doss, 2011; Lal et al., 2011).

Men's work, on the other hand, is considered to be productive and income generating. They are more likely to be involved in herding of grazing animals, in marketing of products, constructing housing, apart from farming operations (Upadhyay, 2005). Hence, one can say that while men can focus singularly on activities that are considered to be productive, women are forced to carry out a large number of activities which include reproductive tasks and community management tasks (Duncan et al., 2004). If agricultural production is considered, subsistence crops or food crops are regarded as women's crops, whereas cash or export crops are considered as men's crops. The basic idea behind this is that women are responsible for feeding the household and thus prefer to grow food crops; and men, on the other hand, are responsible for providing a steady income and thus prefer to grow cash crops (World Bank/FAO/IFAD, 2009).

The policies that are in place largely fail to recognize and accept the intersection of social relations and identities (Rao et al., 2017). Women usually get paid lower wages, and also have limited political power in the public domain, and minimal decision making power within the household. The distribution of labour, work, and wealth also tends to be skewed and in favour of men. Women are also restricted in terms of their mobility, and hence, have less access to markets in order to sell their produce. For instance, apart from playing an important role in agricultural and livestock production, and managing all the household chores which involve cooking and taking care of children, women also have always had to

perform labour intensive tasks like fetching water and fuelwood which have often involved walking for long distances (Upadhyay, 2005).

Gender roles are reflected in the respective tasks and responsibilities associated with men and women, and the differing expectations of them. Gender roles aren't determined by biological factors, but by various socio-economic factors and the cultural situation (Paul et al., 2016).

However, in the agricultural sector, traditional gender roles have been evolving over the years. Women have been taking on certain 'male' activities, but without acquiring the same rights that men have. Further, there has been increasing mechanization of agriculture over the last decade, which has in turn, relieved men of certain tasks which were traditionally their responsibility (Behera et al., 2013). Women also don't have to walk long distances to fetch water as compared to earlier because of improved availability of water (Kale et al., 2015). Hence, it is evident that gender roles do exist in the agricultural sector, as they do in all other spheres of society. It is also evident that these gender roles are subject to change along with societal, economic, environmental, and other changes.

These differences are compared in three areas or 'hotspots' that were identified using a study that was conducted between 1982 and 2016 and have shown a significant change in the land use/land cover pattern (Duraismy et al., 2018). The objective of the study is to examine the impact of these changes in land use patterns on gender dynamics (roles, responsibilities and decision making of women and men).

2. Methodology

Study location and selection of villages

The study was conducted in the Mula Pravara river basin in Ahmednagar district. Duraisamy et al. (2018) examined the land use land cover changes between 1991 and 2016 in the region and identified hotspots of change, namely, an increased cultivable land from fallow land, increase in area under horticulture plantations and change from agricultural land to built-up area or settlements. Two representative villages were randomly selected from within the identified hotspots to understand the impact of these changes on the gender dynamics.

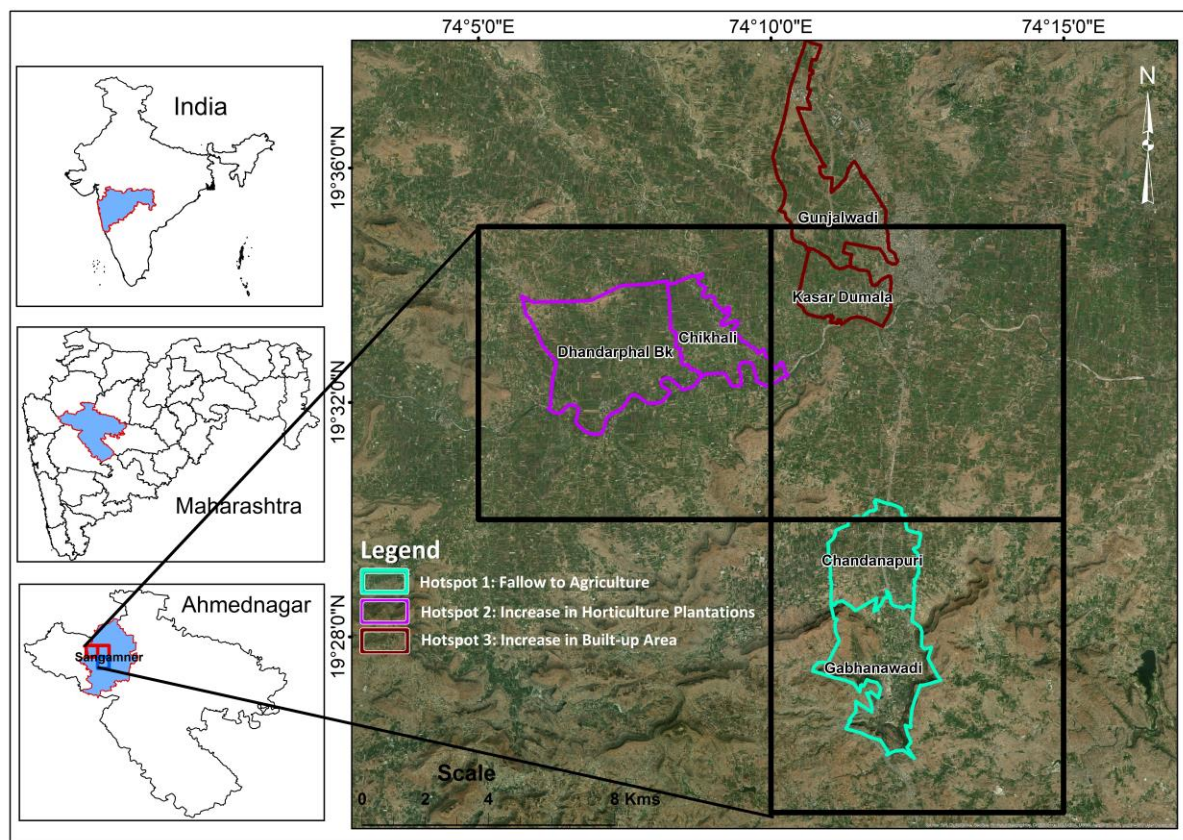


Figure 1 Map of study location

Method of data collection and sampling:

The basic objective of the study was to understand how changes in changes in land use and land cover (LULC) have an impact on certain aspects of gender. Considering this, a mixed

research design was chosen, which was mostly quantitative in nature, but also had certain qualitative aspects.

Random sampling was also used to select about 20-40% of the total households in a village for interviews. A total of 255 households were interviewed using a structured questionnaire (Table 1)

Table 1 Distribution of sampled households

	Distribution of sampled household			Total sampled HHs
	Fallow land to Agriculture	Food crops to cash crops	Agriculture to settlement	
Total	102	101	52	255
Percentage	40%	40%	20%	100%

Apart from household interviews, 6 key informant interviews were conducted with ASHA and Aanganwadi workers from the three hotspots. This was done in order to get a more holistic picture of the various developments in the villages in the last decade, and also to understand whether there have been any changes in gender roles and relations. An in-depth unstructured interview was conducted for this purpose.

Frameworks considered:

The study used tools from Harvard Analytical Framework, namely activity profile and access and control profile in order to analyze certain specific aspects of gender roles and relations, and how they are influenced by or related to these ecosystem changes (March et al., 1999). The Activity Profile was used to understand gendered division of labour and tells us which activities the men and women of the household are predominantly engaged in for livelihood purposes, household purposes, and otherwise and the time is spent for each of the activities by the men and women of the household, apart from also the age category of the members. The Access and Control Profile gave an understanding of the extent of involvement of men and women in decision making (March et al., 1999).

3. Findings and Analysis

For the analysis, the hotspots were categorized as Hotspot 1 (increased cultivated area from fallow land), Hotspot 2 (increased area under horticulture plantation) and Hotspot 3 (increased area under built-up from agriculture).

Household profile

Table 2 Socio-economic characteristics of the sampled households

Variable	Hotspot 1 (N=102)	Hotspot 2 (N=101)	Hotspot 3(N=52)
Landholding category (N=255)			
Landless	1 (0.98)	0 (0.00)	9 (17.31)
Marginal (up to 2.5 acres)	63 (61.76)	67 (66.34)	36 (69.23)
Small (2.6 - 5 acres)	32 (31.37)	29 (28.71)	5 (9.62)
Medium (5.1 - 10 acres)	5 (4.90)	4 (3.96)	2 (3.85)
Large (10.1 acres and above)	2 (0.98)	1 (0.99)	0 (0.00)
Caste category			
SC	4 (3.92)	4 (3.96)	7 (13.46)
ST	7 (6.86)	1 (0.99)	3 (5.77)
OBC	12 (11.76)	13 (12.87)	8 (15.38)
General	79 (77.45)	83 (82.18)	34 (65.38)
Average annual income in Rs.			
Agriculture	120039.22 (61%)	164207.92 (69%)	109846.15 (51%)
Farm labour	4686.27 (2%)	7029.70 (3%)	6634.62 (3%)
Livestock	35127.53 (18%)	55502.55 (23%)	36480.77 (17%)
Skilled labour	4215.69 (2%)	2475.25 (1%)	4230.77 (2%)
Non-farm labour	2254.90 (1%)	1386.14 (1%)	5192.31 (2%)
Micro-business	2254.90 (1%)	0.00	4615.38 (2%)
Job	26960.78 (14%)	8693.07 (4%)	46634.62 (22%)
Total	195539.3	239294.6	213634.6

About 65% of total households interviewed belonged to marginal landholding category and owned land up to 2.5 acres, followed by small farmers who comprised 25% of the total. Majority of the households belonged to General (Maratha) caste category (77% of total sample households), followed by Other Backward Class (OBC) category (13%). Agriculture was the main source of income in Hotspot 2, and this income was much higher than the

income from agriculture in the other two Hotspots. This can be attributed to the shift from food crops to horticulture plantations (Duraismy et al., 2018).

In the third hotspot, although income from agriculture is fairly high, private/government jobs, or from non-farm labour and micro businesses are also important sources of livelihood. Interest on savings acquired through selling of the land is also one of the major income sources. (Key informant interviews - Sarpanch).

Demographic details of sampled households

Table 3 Demographic details of study population

Variable	Hotspot 1 (N=398)	Hotspot 2 (N=378)	Hotspot 3 (N=220)
Gender			
Male	218 (54.77)	209 (55.29)	113 (51.36)
Female	180 (45.23)	169 (44.71)	107 (48.64)
Age			
0-5	2 (0.50)	1 (0.26)	2 (0.91)
6-15	21 (5.28)	21 (5.56)	16 (7.27)
16-35	141 (35.43)	127 (33.60)	91 (41.36)
36-55	186 (46.73)	186 (49.21)	88 (40.00)
56+	48 (12.06)	43 (11.38)	23 (10.45)

The number of men is higher than women in all three hotspots and the sex ratio is given in Table 1. Majority of the household members were in the age group of 36-55 years in each of the hotspots.

Hotspot wise changes in Land use land cover pattern and income

A) Hotspot 1 (Increased cultivated area from fallow land):

According to Duraismy, Hotspot 1 is where there has been a 98% increase in agricultural land area due to the conversion of fallow and uncultivable to agricultural land from 1991 to 2016 (Duraismy et al., 2018). The same was observed in the sample villages wherein there has been a decrease in fallow land in all three cropping seasons (monsoon, winter, summer). So far as cropping pattern is concerned, in 2001, pearl millet, wheat and fodder were the only major crops grown in the area, whereas in 2017-18, onion and pomegranate cultivation has also begun.

B) Hotspot 2 (Increased area under horticulture plantation):**Table 4 Percentage change in the major crops grown in the study area**

Major crops grown	Previous (2001)	Current (2017-18)	Percentage change
Pearl Millet	1.42	1.35	-5%
Wheat	1.35	1.03	-24%
Fodder	0.57	0.67	18%
Sugarcane	1.30	1.47	13%
Onion	0	0.90	100%*
Pomegranate	0	1.90	100%*
Maize	0	0.89	100%*

*Change in cropping pattern observed with the uptake of crops like onion, pomegranate and maize.

In this region, there has been a decrease in the average area used for cultivation of food crops like pearl millet and wheat, along with a simultaneous uptake of commercial crops like sugarcane, onion, and pomegranate. It was also observed that pomegranate wasn't grown before 2001, and is currently the crop with the highest average area.

Moreover, pomegranate is a perennially grown crop, and the results show a 189% increase in the perennially irrigated land since 2001. This, in turn, has been putting pressure on groundwater resources, considering sugarcane, pomegranate, and fodder crops like lucerne, guinea grass, etc. are perennial crops which are almost completely dependent on groundwater resources.

The income from agriculture is highest in this hotspot among the hotspots, which can be attributed to the shift to commercial crops. Along with this, the percentage increase in number of livestock is also the highest in Hotspot 2. Alongside this, households currently prefer to grow their own fodder (increased area under fodder by 18% from 2001-18) or use crop residue as their main source of fodder, unlike in 2001, when they would let their animals openly graze.

C) Hotspot 3 (Increased area under built-up from agriculture):

There has been an overall decrease in area for the major crops grown, along with a 50% decrease in the cultivable land in the area. Hotspot 3 is also where there has been an increase in built-up area by 195% alongside an urban expansion in the land that was earlier used for agriculture (Duraismy et al., 2018).

In this hotspot, unlike the others, 22% of the total average income is from private or government jobs. This is because there has been an urban expansion in the agricultural lands close to the urban fringe areas, as mentioned above. Because of this urbanisation, there are

various companies like Malpani, among others, which have been providing employment opportunities to the people in the villages for over a decade. The prices of land have also gone up tremendously owing to the growing urbanisation and the proximity to Sangamner town, because of which several farmers in the villages have sold parts of their agricultural land. (Key informant interview - Aanganwadi worker)

Moreover, apart from the agricultural land being sold to companies, several farmers were also forced to give away their agricultural land for the construction of a highway, which again is part of the process of urbanisation. The next section looks into how gender roles and responsibilities were affected by these changes in land use patterns.

Roles and responsibilities of the men and women across three hotspots

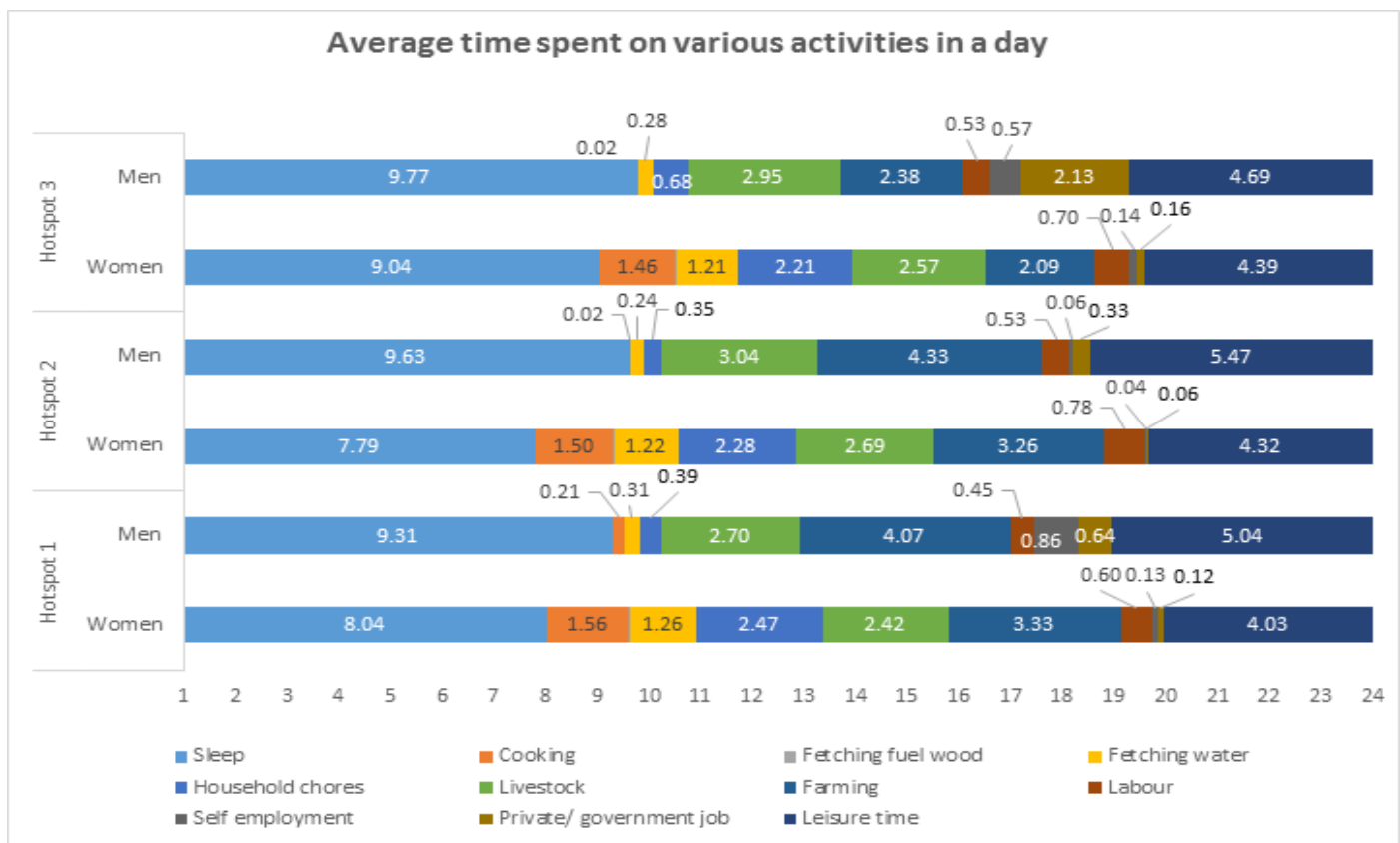


Figure 2 Activity profile of the men and women

From the data, it is evident that women are also largely involved in the agricultural sector in all the three hotspots, although their involvement is marginally less than men in terms of time. The activity profile chart shows that the time spent by men on farming activities is slightly higher than women in all three hotspots. However, women are involved in the most labour intensive activities, which include helping in land preparation, sowing, weeding,

harvesting and post harvesting tasks such as cleaning and storage of produce, seed conservation etc., although they spend lesser time than men for farming. This is similar to observation by Ghosh et al., (2014), that women are involved in all aspects of agriculture, from crop selection, land preparation, to planting, weeding, pest control, harvesting, crop storage, etc. In Hotspot 3, unlike the other two hotspots, women are also involved in marketing of agricultural produce, and this may be because of the proximity of the marketplace.

The time spent by men on agriculture is the highest in Hotspot 2, and the time spent by women on agriculture is the highest in Hotspot 1. If the time spent by both men and women is combined, then it is highest for Hotspot 2. This directly correlates with the average annual income from agriculture, which is highest for Hotspot 2, followed by Hotspot 1. The time spent on agriculture and the income from agriculture is the least in Hotspot 3, considering this hotspot has witnessed a decrease in land under agriculture and a simultaneous increase in urban settlements and built-up area (Duraismy et al., 2018).

It was observed that the change in time spent by men and women on agriculture since 2001 in Hotspot 1 and 2, that there is a very marginal increase in the time spent by men, and a very marginal decrease in the time spent by women. This may be because of the mechanisation of certain activities that were earlier performed by women, based on the crop changes that have occurred in the last 20 years. The time spent by men and women on agriculture has decreased in Hotspot 3.

The time spent by men on livestock is also marginally higher than the time spent by women. The time spent by both men and women, as well as their combined time, is the highest in Hotspot 2, which also has the highest number of livestock as shown earlier. Moreover, there has been an 18% increase in the time spent by women on livestock care in Hotspot 2 since 2001. Correspondingly, the income from livestock is also the highest in Hotspot 2. Hotspot 1 has the least number of livestock and also the least income from livestock rearing. Men and women also spend the least amount of time on livestock care in Hotspot 1.

In addition to livestock rearing and farming, men in Hotspot 3 also have private jobs or government jobs. However, in the other two hotspots, agriculture and livestock are the primary sources of income. However, on the other hand, the women in this Hotspot are involved in *beedi* (mini-cigar) making, and some of them even go to the companies to work or teach in schools in the village or in the nearby towns, (key informant). Hotspot 3 has a considerable migrant population because of the increasing urbanisation.

Apart from the gender differences that exist in the abovementioned sectors, the differences in workload between men and women, and the difference in their involvement in decision making was analyzed for three hotspots.

Workload/ Drudgery:

For the purpose of this study, an increase in leisure time, along with a decrease in time spent on activities like fetching water or fuelwood, etc., were used as an indicator for a decrease in drudgery levels. Drudgery is generally conceived as physical and mental strain, fatigue, monotony and hardships experienced while doing a job (Wankhade et al., 2015).

In all three hotspots, the amount of time spent on leisure is lower for women as compared to men. Insofar as change in leisure time is concerned, there is an increase in leisure time for both women and men, although the increase is higher for women than for men. Table-- illustrates that men spend next to no time or a very negligible amount of time on fetching water, cooking, and on household chores. These activities have traditionally been performed by women and continue to be in all three hotspots. However, it was also found that there has been a significant decrease in the amount of time spent by women to collect water and fuelwood for cooking in the last 20 years in all the three hotspots. This could be attributed to the availability of tap water and stand post water supply for drinking from the gram panchayat, and LPG gas connection for cooking.

Hence, according to the data, there has been a decrease in the workload for both men and women, and a decrease in drudgery for women as a consequence of this.

For women, the decrease can be attributed to the decrease in time spent to collect water or fuelwood. For men, it can be hypothesized that the increase in leisure time is because of an increase in mechanization of agriculture, which usually relieves men of certain labour intensive tasks.

Decision making:

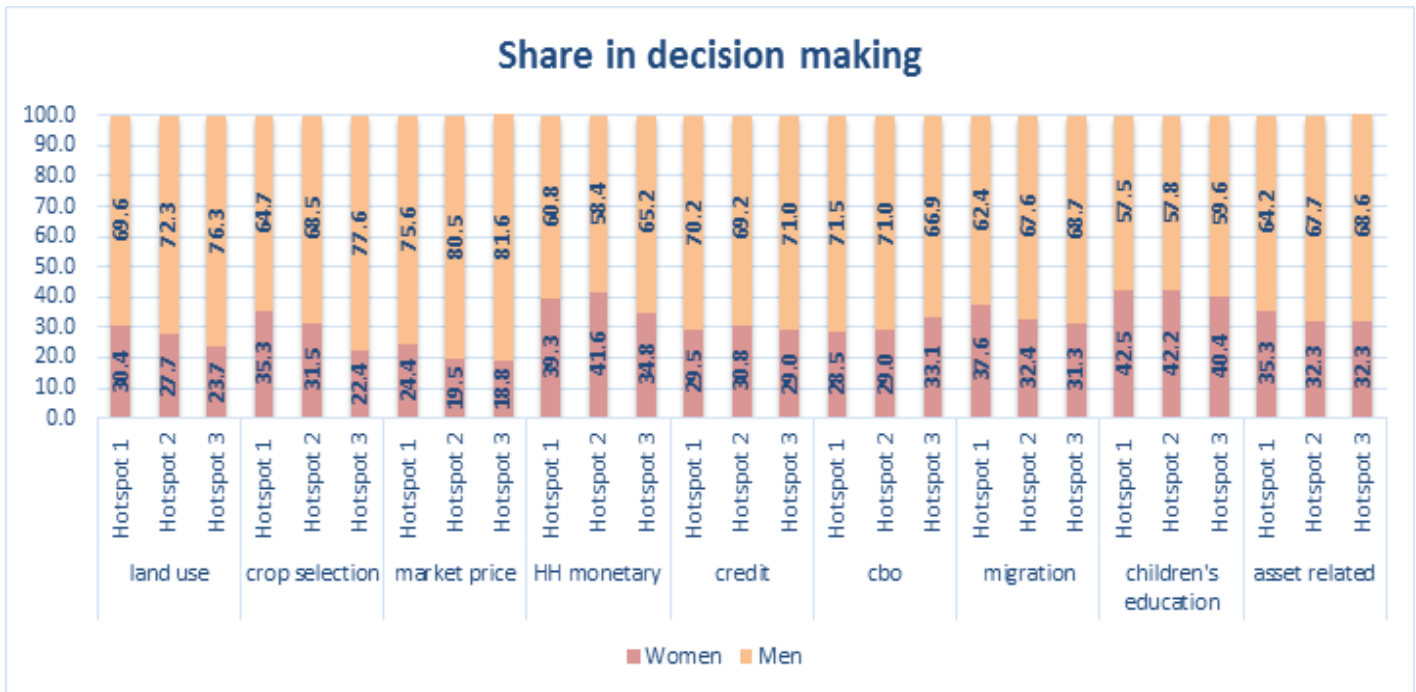


Figure 3 Share in decision making by men and women

The above chart depicts that men are the chief decision makers of the household. Men’s involvement in decision making is higher than women’s on every single parameter that was considered. Additionally, women’s involvement has been less in all these parameters. Bala (2010) states that opinion of women isn’t considered during the decision making process for farm activities, despite their active role in farm activities.

Within the hotspots, it was observed that women’s involvement in decision making is the highest in Hotspot 1 and the lowest in Hotspot 3. Hotspot 1, where there has been an increase in cultivable land, is where there is maximum participation of women in decision making for 7 out of 10 of the parameters considered. Few of women informally said that they are merely informed or consulted to some extent before a decision was taken, but theirs was never taken as the final word.

In short, even though there have been changes in ecosystem provisioning services, no major change is seen in terms of an increased involvement of women in the decision making process. In Hotspot 3 that, despite there being an increase in urbanization, there doesn’t seem to be a higher or equal participation of women in decision making as compared to the other two hotspots.

Crop preferences by men and women

Table 5 Priorities of crops by men and women

Crop type	Priorities of crops					
	Hotspot 1		Hotspot 2		Hotspot 3	
	Men	Women	Men	Women	Men	Women
Cash Crop	II	I	I	II	I	II
Fodder Crop	III	III	II	I	III	I
Food Crop	I	II	III	III	II	III

The above table tries to show the difference in how men and women prioritize the crops grown by the household. High value crops like pomegranate (fruit orchards) or sugarcane are given the first priority by both men and women, in households that grow these crops. This is usually followed by fodder crops if they have a large number of livestock. Interestingly, in Hotspot 1, women also gave first priority to cash crops, and men gave first priority to food crops. When asked the reason for this, their response was, “We can purchase staple food from market if we have enough money in our hands, but we can’t get good returns with food crops”. In Hotspot 2, women gave first preference to fodder crops, as this hotspot has the highest number of livestock, and 23% of the share of total income is derived from livestock. In Hotspot 3, where agriculture land is being converted to settlements, cash crops and fodder crops are prioritized.

However, despite the difference in prioritization of crops by men and women, the decisions revolving around crop selection or crop changes are primarily taken by men only in all three hotspots. In Hotspot 1, men took almost 66% of the decisions on crop changes, 68% in Hotspot 2, and 74% in Hotspot 3. In Hotspot 2 and 3, women’s involvement is quite negligible and up to 1 % and 2 % respectively. Very few of decisions regarding crop changes were taken by both men and women together.

4. Conclusion

It can be concluded that most of the activities are assigned to men and women by their respective custom. Activities performed by male are based on greater physical power, skill and requires lesser time while activities assigned to female is based on little less physical power, lower skill and more time consuming. Due to some changes happened in eco system

provisioning services like in land use changes, women's burden to fetch fuel wood and water has been drastically reduced in each scenario. Drudgery level of women is increasing as they spend their time to other livelihood activities as well along with cooking and household chores. Despite such a big involvement, her role and dignity has yet not been recognized in each scenario. Their occupational work distribution are also varies due to social and cultural constraints, gender bias in the society. But this study pointed out that where urbanisation has increased lower the decision making power of women as compare to other scenarios of agriculture. Crop changes related decision are also taken by male members of the household. After considering all these concerns in the face of changing land use land cover pattern special gender action plan at local level to be made to assure men and women's equal involvement in decision making as well as work distribution.

A change in cropping pattern can be observed across the three hotspots, and a change in livelihood pattern can be observed in Hotspot 3, both of which have a bearing on the provisioning services of ecosystems. The changes in the three hotspots include intensification of agriculture, increased dependence on groundwater, and on livestock as an income source, and an increase in cultivation of commercial crops like pomegranate and sugarcane, among others.

It can be concluded that women are involved in most crop management activities. However, despite their active involvement in agriculture, men still remain the primary decision makers for most agriculture related, household, and economic decisions in all the three hotspots.

In the hotspot where agricultural land is converted into urban settlements, there is an increased dependence on non-farm sources of income. The sources include salaried employment in the private or public sector, micro and small enterprises, non-farm wage labour, etc. However, it was seen that men's employment opportunities diversified, whereas women continue to be employed in crop management activities to a large extent, and only a minority of them are employed in areas other than agriculture. Despite the urbanization and development that has occurred in this hotspot, women's involvement in decision making was the least as compared to the other two hotspots.

It can be seen that there is an increase in leisure time for both men and women in all three hotspots, although the leisure time itself is higher for men as compared to women. The increase in leisure time is greater for women and it can be concluded that this may be because of the significant decrease in time spent by women to collect water and fuelwood in the last twenty years. This is due to increased access to piped water supply and an LPG gas connection. Hence, it can be said that there is a decrease in workload, and a decrease in drudgery because of this.

5. References

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