



POLICY Brief

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Why Helping the Environment Helps Women: Understanding the Links between Resource Availability and Gender Equality in India

In many developing countries, environmental degradation and the resulting loss of natural resources can have significant social and economic impacts, especially on disadvantaged groups such as poor, rural women. A SANDEE study looks at the impact of the availability of three key natural resources – water, forests and fodder – on villagers in the Jhabua district of Madhya Pradesh in India. It aims to provide a better understanding of the link between the scarcity of such resources and gender inequality.

The study finds that individuals spend approximately 1.5 hours each day on collecting natural resources (mainly water and fodder) in Jhabua. Since there are over seven people in the average household, this means that households spend more than ten hours each day collecting resources from the commons. Furthermore, the average time spent by a woman in resource collection is almost double the time spent by a man. The study concludes that, overall, resource scarcity contributes to increased time in collecting resources. This is particularly true for women and children. However, this link between scarcity and time allocation is not direct and straight-forward — seasonal patterns of resource availability, storage possibilities and employment opportunities contribute to a more complex picture.

The study highlights key resource management initiatives that would help free up women's time. Increase in free time would allow women to undertake paid employment and education and gain more self-reliance and social status. Thus, this study shows that environmental protection and resource conservation go hand in hand with improved social and gender equality.

Eight resources are collected from common land directly by the households in the Jhabua area. These resources are water, fuel wood, fodder, wood for construction, *mahua* flowers, *mahua* seeds, gum and *tendu* leaves. Households also spend time collecting fodder indirectly by grazing their animals on common land. Water, fodder grazed by livestock and fuel wood are the three main resources collected by the sample households – the time spent collecting water, grazing animals and fuel wood makes up over 96% of the total time households spend collecting natural resources. Because these three predominate, they are the main focus of the study.

WATER, FODDER AND FUEL WOOD IN JHABUA

The study is the work of a team of researchers from the University of Delhi. The data for this study comes from the Poverty and Environment Project, a joint undertaking of Resources for the Future, Washington DC, and the Centre for Development Economics, Delhi School of Economics. Information was obtained on household income, the time that villagers took to gather resources and resource availability from 543 households in 60 villages in the district of Jhabua in the Indian state of Madhya Pradesh. Jhabua is a predominantly tribal district located at the western border of the state. Its agriculture and climate are typical of the semi-arid tropics; namely, the main type of cultivation is rain-fed subsistence agriculture and there is extensive dependence on natural resources. Of the total land area in the district, 54% is classified as agricultural land, 19% as forestland and the rest as degraded land.

This policy brief is based on SANDEE working paper No. 23-07, 'Who Collects Resources In Degraded Environments? A Case Study From Jhabua District, India' by Neetu Chopra and team, Delhi School of Economics, University of Delhi, Delhi 110007, India. The full report is available at www.sandeeonline.org



Information about the availability of water, grazing and fuel wood was collected in various ways. Satellite images and ground measurements were used to estimate the availability of forest and grass biomass. Information on the depth of ground water in the study area was collected from the Madhya Pradesh Groundwater Department. Information was gathered to give a year-long picture of the availability of all three resources. This picture was vital as resource availability changes according to the season. An agricultural year in Jhabua is divided into three seasons – kharif (rainy season and the prime agricultural season), rabi (winter) and summer.

Most of the increase in water collection time is an increase in women's collection time: men, on average spend only 0.59 hours per day collecting water in this season; women spend 2.33 hours. The study used qualitative analyses to understand some of the gender differences in Jhabua. It was found that there were a range of factors that explained the large disparity between the amount of time women and men collect water in the summer. Firstly, summer is the time when agricultural activity is at its minimum. At this time many men migrate in search of work elsewhere. Indeed, most of the men of working age go out of the village in search of work. Women, in comparison, do not tend to migrate. They are mainly responsible for the household and also there are few paid employment opportunities open to them within or near their villages. This scenario means that women have a greater opportunity to look for scarce water resources in the summer and help the household coffers by saving the cost of buying water. It is clear from these findings that the amount of time women must spend collecting resources, especially water, is dictated in a very significant way by their social role and position. This predicament places them in a difficult situation – they spend a lot of time collecting resources because they cannot earn money; yet they cannot earn money because they have to spend a lot of time collecting resources.

INVESTIGATING GENDER DIFFERENCES

Many of the differences in the resource collecting behaviour of the men and women from Jhabua cannot be explained through simple economic analyses. This is well illustrated by the disproportionately large amount of time that women spend collecting water in comparison to men when water availability decreases in the

JUDGING SCARCITY AND COLLECTION TIMES

The study finds that resource collection in Jhabua accounts for approximately 1.5 hours per capita per day. An average 7-member household effectively spends 10 hours per day on this activity. Households spend most of their time collecting water and tending grazing animals — around 0.63 hours per day per capita in water collection and 0.61 hours per day per capita in grazing. Overall, women are primarily responsible for the collection of resources—the average time spent by a woman in resource collection (1.7 hours per day) is almost double that of the average time spent by a man (0.94 hours per day). Women spend the most time collecting water: 1.25 hours per day per woman from each household. Children, on average, work for more than an hour collecting resources every day (more than male adult villagers).

Table 1: Hours Spent per Day in a Year in Resource Collection (524 Households)

	All resources	Water	Grazing	Fodder	Fuelwood	Other resources
Collection Time per Capita	1.42	0.63	0.61	0.04	0.13	0.01
Collection Time per Male	0.94	0.24	0.57	0.04	0.09	0.01
Collection Time per Female	1.71	1.25	0.21	0.06	0.20	0
Collection Time per child	1.34	0.30	0.94	0.02	0.07	0.01



SEASONAL DIFFERENCES IN WATER AND FODDER COLLECTION

Time spent collecting water increases with water scarcity. Since water is scarce in summer, time spent in water collection shows a dramatic increase in this season compared to kharif and rabi. Households do not store water and there are no options available in lieu of collecting water, such as tankers and tap water.

If time spent to collect water increases with scarcity, time spent on grazing decreases with scarcity. When it comes to fodder, the time spent by villagers tending grazing animals increases with increased availability of fodder in the commons. This is reflected in seasonal behaviour: with increased fodder availability during kharif, households take their animals out for grazing more often. Households spend less time grazing animals when fodder levels are low in the summer. During these times, stored fodder obtained from crop residues as well as collected from the commons, is used. Supplemental fodder is purchased from markets, or obtained from private trees in the form of

leaf fodder if needed. Therefore, grazing animals in times of plenty during the kharif helps households conserve their precious stocks of stored fodder.

COMPLETING THE PICTURE WITH FUELWOOD

The situation for fuel wood is slightly more complex. In areas where more wood biomass is available villagers are more likely to collect fuel wood. Fuel wood collection shows an increase when the resource is abundantly available mainly because firewood can be easily stored. In addition, firewood can be easily sold at



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Table 2: Number of Households that Collect Various Resources during Year and by Season

	All resources	Water	Grazing	Fodder	Fuelwood	Other resources
Year	524	503	364	76	269	63
<i>Kharif</i>	508	470	347	34	42	5
<i>Rabi</i>	504	472	303	47	184	16
Summer	499	471	196	10	212	37

market. Fuel wood collection is more productive during the summer/dry season when the wood is dry and there is more time to spare for this activity. In contrast, villagers reluctance to collect firewood in kharif is partly because in this season fuel wood is often wet and therefore heavy to carry and difficult to store. Also, kharif being the main agricultural season, time for resource collection activities gets reduced for the entire household.

Reviewing the findings on water, fodder and fuel wood, it is clear that the impact of resource availability on the amount of time that villagers spend collecting is not uniform. However, on balance (and mainly due to the large amount of time taken collecting water in the summer) resource scarcity is found to increase the amount of time that villagers – and in particular women – have to spend collecting natural resources.

HELPING WOMEN BY HELPING THE ENVIRONMENT

These findings show that resource scarcity forces women to spend long hours collecting the basic necessities of life. Improved natural resource management, which reduces resource scarcity, could significantly free up women's time. As mentioned previously, freeing up women's time could allow women access to paid employment and education. Moreover, it would reduce the need for children to drop out of school and could therefore contribute to the education and empowerment of girls. This premise is particularly true in the case of water, which cannot be stored like fuel wood and fodder. Therefore, focusing on watershed management and water conservation and collection should be a priority for resource management projects. It is also clear from this study that natural resource management needs to be mainstreamed into programs that focus on poverty alleviation and gender equality.

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