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Agricultural Trends of Rainfed Areas: Perspective on Scheduled Tribes in Central India

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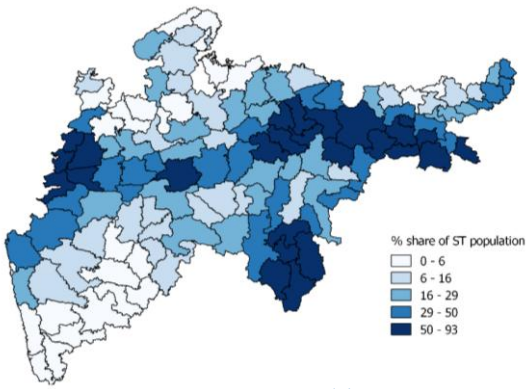
Introduction

The data brief focuses on four States that comprise Central India namely, Maharashtra, Chhattisgarh, Madhya Pradesh and Jharkhand. Using various sources of data, the brief shows that these States house a larger proportion of Scheduled Tribe population which are mostly rain-dependent for their agricultural use. However, despite the proportion of rain-dependency being higher, the Scheduled Tribe (ST) dominated areas in these States are producing more water-intensive crops than producing water-saving crops such as millets. A sustained shift towards producing more millets in ST dominated regions of Central India could help these regions to protect themselves from crop failures due to lack of irrigation and also improve the nutritional status of the people in these regions.

Demographic Characteristics

Chhattisgarh, Jharkhand, Madhya Pradesh and Maharashtra constitute 19.1 per cent of the country's population. However, these States together have a much high proportion of scheduled tribe population constituting 40.9 per cent out of the country's total scheduled tribe population.



Percentage share of Schedule Tribe in Central India, District-wise, 2011
Source: Census 2011, Ministry of Home Affairs

The ST population in central India holds about 3.2 per cent of the total holdings of the country comprising 4.5 per cent of the total area. This represents 36.4 per cent of the total ST population's holdings in the country and 46.8 per cent of the total area of STs in India.

The State-wise description of land-holdings in Central India is presented in *Table 1* below. Madhya Pradesh has the highest ST land holdings and area in Central India followed by Chhattisgarh. However, as a proportion to total land-holdings within the State, Jharkhand and Chhattisgarh have a greater share of ST land-holdings.

Table 1: Characteristics of ST population and their land holdings in Central India

State	Share of ST population in India's ST population (%)	Share of ST population in State's population (%)	District with highest share of ST population (%)	Share of ST land holdings in Central India (%)	Share of ST land holdings in the State (%)
Chhattisgarh	7.7	36.9	Dantewada (85.9)	27.5	34.1
Jharkhand	8.4	31.4	Khunti (76.3)	11.8	38.8
Madhya Pradesh	15.2	27.2	Jhabua (92.8)	42.6	20.9
Maharashtra	9.6	14.6	Nandurbar (79.7)	18.2	6.4

Source Census 2011, Ministry of Home Affairs and Agricultural Census of India 2010-11

Agricultural Characteristics

Existing Crop pattern

Central India predominantly produces high water-intensive crops such as rice, wheat, sugarcane. Rice and wheat are major crops with highest area under cultivation. Only in Maharashtra, the highest area under cultivation is Jowar which occupy 21.6% of the total area, followed by cotton.

The share of millet (which are water-saving crops) in area under cultivation is around 12.4% at an all-India level and is merely 3% in Jharkhand, 4.8% in Chhattisgarh and 8.5% in Madhya Pradesh. The share in Maharashtra is around 29.2% which includes 21.6% of area under Jowar. Within the millets, predominantly small millets are grown in Chhattisgarh and Madhya Pradesh; Ragi in Jharkhand and Jowar in Maharashtra.

Table 2: Crop Pattern – Area under cultivation, Major Crop vs Millets

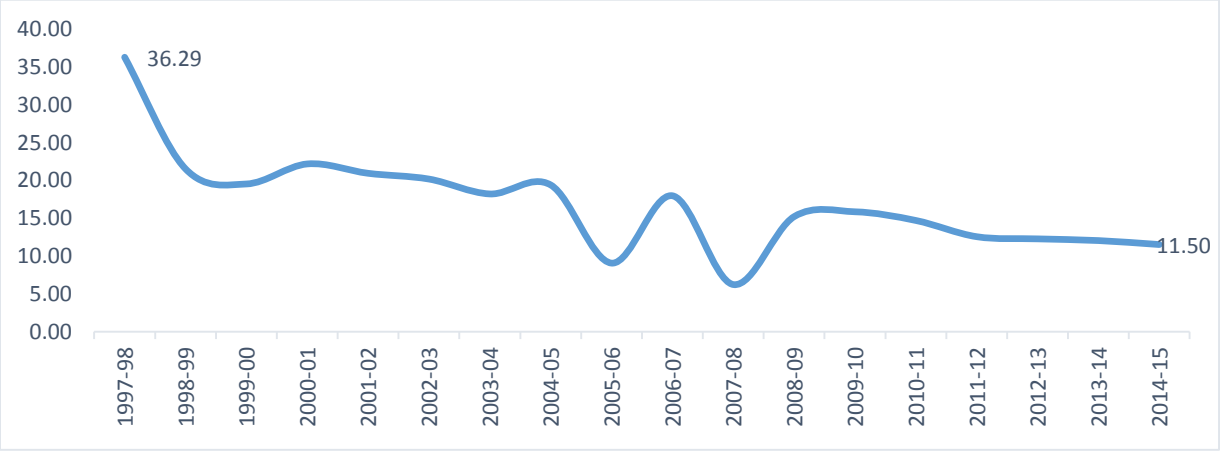
State	Crop	Area (%)	Crop	Area (%)	Highest Millet Crop Share	Share in millets (%)
Chhattisgarh	Rice	70.4	Millet	4.8	Small Millets	87.9
Jharkhand	Rice	82.2	Millet	3	Ragi	67.1
Madhya Pradesh	Wheat	22.3	Millet	8.5	Small Millets	49.9
Maharashtra	Jowar	21.6	Millet	29.2	Jowar	79.3
All India	Rice	25.18	Millet	12.4	Bajra	42.4

Source:: (1) APY, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India and (2) Agriculture Census of India, 2010-11

Area under cultivation and Production of Millets

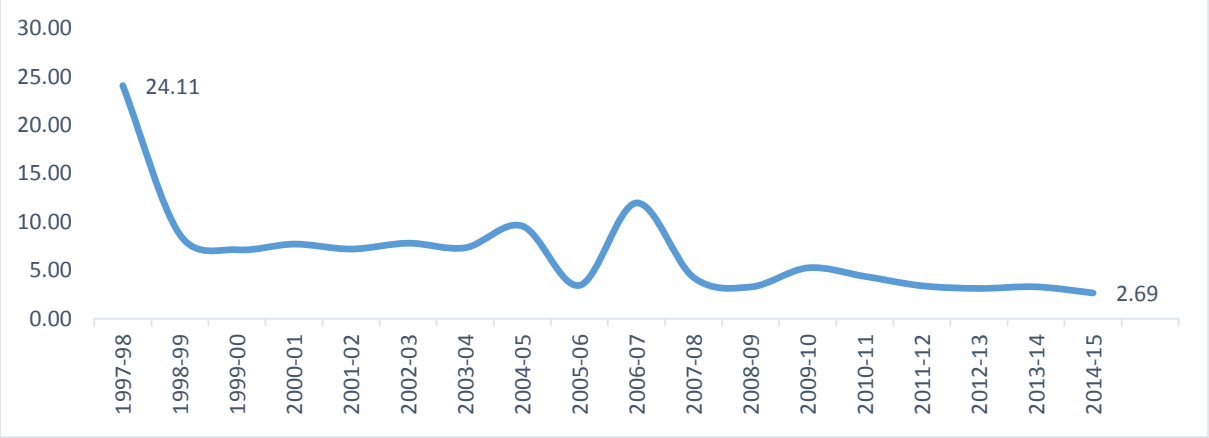
Despite being a water-saving crop and having high source of nutritional value, there has been a sustained decline in the both area under cultivation and production of millets at both all-India and Central India level during 1997-98 to 2014-15. The growth in production of millets is falling at a Compound annual growth rate (CAGR) of (-) 2.56 per cent, i.e. an average annual fall of approx. 2.6 per cent during 1997-98 to 2014-15. At all-India level, the fall in millets production is relatively less at (-) 0.43 per cent. During the same period, the area under cultivation of millets has also fallen at a CAGR of (-) 3.13% in Central India.

Graph 2: Share of millet in area under cultivation in Central India (%), during 1997-98 and 2014-15



Source: APY, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India

Graph 3: Share of millet production in Central India (%), during 1997-98 and 2014-15



Source: APY, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India

Rainfed vs Irrigated Area

Agriculture's dependency on rainfed irrigation can be seen from the fact that about 54 per cent of the total area of holdings in India and 73 per cent in Central India is unirrigated. The dependency is much higher in the Scheduled Tribes areas both at all India and Central India level.

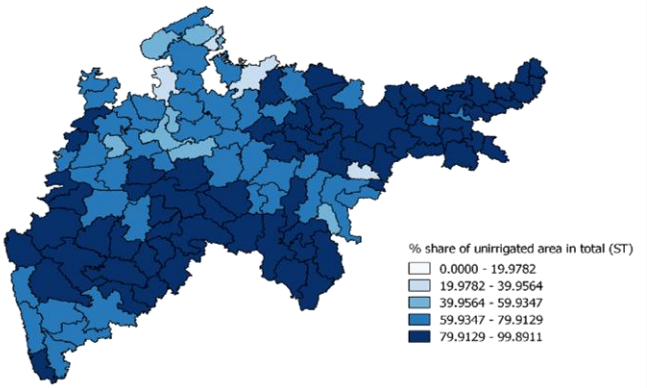
The all-India average for the rainfall dependency i.e. share of unirrigated area for Scheduled tribes is about 78 per cent and 85 per cent in Central India. The state-wise variation in Central India is from 80 per cent in Madhya Pradesh to 93 per cent in Jharkhand.

Table 3: Rain Dependency, Share of unirrigated area in total area, 2010-11

State	Share of unirrigated area in total area	
	All districts	ST districts
a. Jharkhand	90.3	93.4
b. Chhattisgarh	72.4	89.2
c. Madhya Pradesh	64.3	80.3
d. Maharashtra	80.3	87.3
Central India (a + b + c + d)	**73.0**	**85.1**
All India	**54.2**	**78.2**

Source: Agricultural Census of India, 2010-11

The severity of rain-dependence in ST groups across Central India can be seen from the district-wise plot in the graph below. The graph shows that majority of the STs groups in the Central Indian districts are severely rain-dependent. Also, it is clear that almost all of the ST dominated districts as highlighted in the Graph 1 are the districts with high share of unirrigated area.



Source: Agricultural Census of India, 2010-11

Rain-fed vs Irrigated area – Crop-wise

It is well known that various types of millets require considerably less amount of water to grow. In contrast, rice and wheat are one of the most water-intensive crops to produce. With the increasing water scarcity and rain-dependency, growing water-saving crops such as millets is the need of the hour. Table 3 below shows that in Central India more than 90% of the millets are grown in rain fed areas (highest in Chhattisgarh), while except Jharkhand the proportion is much less for wheat and rice. Similar trend is seen for

ST areas where the rain-dependency is relatively higher.

Table 4: Share of unirrigated area in Central India, Crop-wise

State	Rain-fed area (%)			
	All social groups		ST groups	
	Millet crops	Rice & Wheat	Millet crops	Rice & Wheat
Jharkhand	93.4	90.6	94.9	93.9
Chhattisgarh	98.5	68.1	99.6	87.4
Madhya Pradesh	91.8	37.6	96.6	64.32
Maharashtra	90.9	45.0	95.9	67.8

Source: 1) Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India and 2) Agriculture Census of India, 2010-11

Malnutrition Status

Table 5 below depicts the proportion of women in the age group 15-49 years who are anaemic in 2015-16. At an all India level, around 53.1 per cent of women were estimated to be anaemic. The proportion in Central India states is more than 50 per cent except in Chhattisgarh which is slightly lower at around 47 per cent. According, to the literature, there exist a correlation between anaemia deficiency and general malnutrition. Consumption of millets could be one potential source of iron and help reduce iron deficiency thereby improving the nutrition of the population especially women.

Table 5: Proportion of women in the age group 15-49 years who are anaemic (%), Central India, 2015-16

State	Proportion of women in the age group 15-49 years who are anaemic (%)
Madhya Pradesh	52.5
Maharashtra	52.5
Jharkhand	65.2
Chhattisgarh	47
All India	**53.1**

Source: National Family Health Survey, Round 4

Conclusion

States in Central India have shown a greater decline in area under cultivation and production of millets crops vis-à-vis all India decline. These states are highly dependent on rain-fed irrigation in particular the scheduled tribes population. Overall Maharashtra's dependency is slightly lower on rain-fed irrigation as compared to other Central India states, though the numbers are still high.

With the advantage of being water-saving and also requiring less fertilizers, shifting to millet production could be a solution for these states. Millets also have high nutritive, especially micro-nutrient value despite which their production and consumption has declined on a sustained basis. India's rain-dependence and malnutrition problem can be addressed by promoting a shift towards production of millets. This is particularly required in Central India where the dominance of scheduled tribes population is much higher.

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