

Changing Cropping Pattern and Water Crisis in Marathwada

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Introduction

Marathwada region has been facing unprecedented water scarcity since 2011. A poor monsoon is a major factor that has dried up its major water sources. Climate change, mostly due to groundwater exploitation, is another contributing factor. But skewed water policies and their faulty management is a more crucial issue that has turned water problems of the region into a crisis. Improper water management can pose intricate problems for human survival. The widening gap between demand and availability of water is a worrisome issue. Efficient water management is needed to save the fragile ecosystem and the consequent water crisis.

This study is centered on the nature of water scarcity and the changing cropping patterns resulting in inter-regional water issues across Marathwada and Western Maharashtra. The research is based on the theories of water resource management, especially centralized versus decentralized management of water resources.

Several studies have been carried out in recent years to show changes in behaviour of cropping pattern in various states of India. Review of relatively important studies relevant to the present analysis has been presented, a review of past research helps in identifying the conceptual and methodological issues relevant to the study.

This research is trying to understand the intensity of the water scarcity in the region, finding the causes, multidimensional nature of the problem, its implications. And at the end it is suggesting some policy and management related measures to resolve the problem.

Marathwada:

Marathwada is one of the sub-regions of Maharashtra. Its total population of 1.87crore (2011Census) is spread across eight districts – Aurangabad, Jalna, Beed, Latur, Osmanabad, Parbhani, Nanded and Hingoli. This region is notable for its backwardness and drought condition. Between 1984 and 1994, the regional disparities, instead of reducing, have increased by about 4 1/2 times. Disparities in Marathwada, as indicated by the proportion of backlog, increased from 23.56 per cent to 30.13 per cent. (Special Responsibility of the Governor)

Methodology:

The present research is both quantitative and qualitative in nature. While the secondary data will come from library resources, primary data has been collected from a variegated sampling frame, consisting of rural and urban farmers, members of study groups and NGOs and other stakeholders. The field-level study has been conducted across Marathwada and 500 respondents interviewed as a sample. Responses have been obtained through personal interviews by administering structured, semi-structured and open-ended interview schedules to the respondents. Semi-structured schedules used the Likert Scaling System to

locate the data across the interval scale. Software like SPSS or 'R' may be used for data analysis.

Changing Cropping Pattern of Marathwada

Growing water intensive crops in a water-scarce area is a major cause of drought. Security of the minimum support price (MSP) on sugar attracts farmers to sow sugarcane and it results in heavy ground water extraction. Sugarcane requires 4,300 MCM of water for a full season. (Tapati Mukhopadhyay: 2016)

An experiment in a drought-prone Pudukkottai district of Tamil Nadu showed how mono-cropping with paddy has become a bane of farmers of the region. It demonstrated the need to grow different crops, instead of focusing on just one. (Prabu M.J.: 2017)

Sugarcane: a dream crop - Sugarcane is a thirsty crop, far thirstier than Marathwada can sustain. Since it needs to be watered around the clock for a year, farmers often connect pipes to the field and leave the water running. When water from traditional sources runs out, they sink bore wells at huge personal expense, in the hope that sugarcane will bring the returns to pay for them. Farmers plant sugarcane because it brings immense profits through a network of government-promoted subsidies that include a minimum support price to farmers and incentives for starting sugar factories. Marathwada has around 46 of Maharashtra's 205 sugar factories. (Rohini Mohan: 2015)

Sugarcane acreage has increased by 6,500 hectares since last year. Not only growing but its crushing, too, needs tremendous amounts of water. According to a report Gangakhed Sugar Factory in Parbhani alone consumes a whopping 45 lakh litres of water every day from Masoli Dam. With a huge 42 percent rainfall deficit in 2014, crushing took place unhindered in more than 46 sugar factories in all eight districts of Marathwada in 2015. This explains how sugar factories exploit availability of water to their advantage. (SANDRPreport, oct-2015)

There is a need to work on the possibilities of farmers changing their traditional cropping pattern. Drought-resilient crops like jowar (sorghum), bajra (pearl millets), oil seeds like groundnut and safflower have yielded place to water-guzzlers like cotton, sugarcane and soyabean that yield high returns and are easy on labour. Although initially this improved the returns, it also brought to fore a massive demand for water. Where the area under irrigation is only 12 percent, opting for sugarcane and soybean is not a very good idea. Not only does it affect the farmer, but it also the fodder availability for cattle as well. Drastic fall in *jowar* and *bajra* has hampered the availability of dry and green fodder. (Shraddha Ghatge: 2016)

Experts say that farmers favouring mono-cropping should be encouraged to go for intercropping. Instead of growing a single cash crop like sugarcane or soybean, farmers should grow *jowar* along with *tur* in a 4:2 ratio or *bajra* and *tur* in ratio of 3:3. This minimises the risk of production. Legumes like pea, cow or chick pea, *masoor* and beans may be ideal for this practice.

For the dry region like Marathwada, introduction of less water intensive crops like oilseeds and pulses is more desirable. The region has a big potential for horticulture development such as sweet lime, pomegranate, etc. A shift to such crops might be a mode of the problem. (Moin Qazi: 2017)

Changes in the Area of Crop Cultivation (Crop wise in Marathwada, area in '00' hector)

Crop	Area of cultivated land (area in '00' hector)		
	Year 2005	Year 2012	Year 2018
Sugarcane	1022	2164	3133
Soyabean	6460	9945	19326
Jawar	17197	13300	4864

The table show that the Changes in the Area of Crop Cultivation. It is a shift of the figures from 2005 to 2012 and at last at 2018.

1. The Area of Crop Cultivation of Jawar is decreasing from 17.19 lakh hectares in 2005 to 13.30 lakh hectares in 2012 and 4.86 lakh hectares in 2018.
2. When land under sugarcane and Soyabean cultivation is increasing. Area of Sugarcane cultivation is increasing from 1.02 lakh hectares in 2005 to 2.16 lakh hectares in 2012 and 3.13 lakh hectares in 2018.
3. At the same time the Soyabean cultivation is increasing from 6.46 lakh hectares in 2005 to 9.94 lakh hectares in 2012 and 19.32 lakh hectares in 2018.

It is clear that the market-oriented cash crops are taking the place of the conventional crops in Marathwada region.

Changing Cropping Pattern is major factor for water crisis

Uneven distribution of water to crops, the crops like sugarcane has given more importance and gave more water. Most of the farmers shifted their crops from conventional to cash crops like sugarcane. Plantation of more water demanding crops like sugarcane, cotton instead of traditional rain fed crops like Jawar, Bajra & oilseeds. Preference to Market oriented cash crops: market is driving force for selecting the crop pattern in the region.

Excessive planting of sugarcane: Sugarcane major reason for exploitation of available water. Flood Method of irrigation is wastage of 60% water. Sugar factories - need lots of water for crushing. Mono cropping system instead of mix cropping has been adopted in the region, it affects adversely and major cause for loss and at the end farmers suicide.

Major Conclusions

1. Water scarcity is due to improper management of available water in the region
2. Changing Cropping Pattern is major factor for water crisis
3. Lack of political will and regional centric approach of political leadership has exacerbated water problems
4. Lack of Popular awareness is multiplying the intensity of problem
5. Proper cropping pattern, decentralized water management approach, people's awareness and participation need to resolve problem

Recommendations:

1. Promotion of water efficient technologies of irrigation such as drip irrigation for sugarcane cultivation
2. In the medium and long term, rational cropping patterns should be planned and implemented
3. Government should assure for better and justified price for conventional crops like Jawar, Bajara & Oil seeds

4. Suggestions related to Sugarcane- Shifting the sugarcane & sugar factories to locations with assured rainfall, the excessive release of water for sugarcane should be stopped, area under sugarcane should be reduced
5. Enhancing ground water level through The projects like Jalayukt Shivar, Pani Adva Pani Jirava should be implement proper, need for holistic programme for rainwater harvesting, Decentralizedvillage centricapproach in water management
6. Promoting Peoples participation through Strengthening the ‘Water Users Associations
7. Jirayat(Non-irrigated) farming of sugarcane for jaggery should be advocated

References

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