

IMPACT FACTOR:4.197(IJIF)

ISSN: 2454-5503

# CHRONICLE

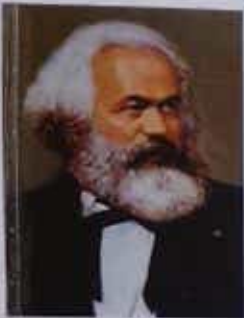
OF HUMANITIES AND CULTURAL STUDIES (CHCS)

VOL. 5 NO. 1

SPECIAL ISSUE- 1

FEBRUARY 2019

A Peer Reviewed Bimonthly International Journal



**Special Issue On  
Marathwada Economic Association,  
36<sup>th</sup> State Level Conference**

Organised by

**Shri Datta Arts, Commerce & Sci.  
College Hadgaon Dist. Nanded**

**Date: 04<sup>th</sup> & 05<sup>th</sup> Feb. 2019**

Special Issue Editor

**Dr. Dilip Kakde**

Chief Editor

**Dr. Kalyan Gangarde**



*Mahatma Gandhi Education and Welfare Society's*

**CENTRE FOR HUMANITIES AND CULTURAL STUDIES, KALYAN (W)**

www.mgsociety.in +91 8329000732 Email: chcskalyan@gmail.com

20	कार्ल मार्क्स यांचे आर्थिक विचार	प्रा. डॉ. मंडले एस.यु.	
21	कार्लमार्क्स व डॉ. आंबेडकर यांच्या आर्थिक विचारांची तुलनात्मक चर्चा	मस्के महादेव तुळशिराम	73
22	कार्ल मार्क्सचा भांडवलवादी सिध्दांत	प्रा.डॉ. तवार ए.टी. प्रा. मडावी ए.डी.	76
23	कार्ल मार्क्स यांच्या विचारांची प्रासंगिकता	प्रा.डॉ.रत्नाकर रामराव कांबळे	78
24	कार्ल मार्क्स यांचा साम्यवादी जाहीरनामा: एक अभ्यास	प्रा. विशाल चंद्रशेखर वेंतुरे,	83
			88

मराठवाडयातील शैक्षणिक अनुशेष

25	मराठवाडयातील शैक्षणिक अनुशेषाची जिल्हानिहाय स्थिती	प्रा.डॉ. रमेश शिंदे	95
26	मराठवाडयातील शैक्षणिक अनुशेष	कु महाजन सविता प्रकाशराव	99
27	मराठवाडयातील शैक्षणिक सुविधांचा अभ्यास	प्रा. डॉ. पी. डी. जाधव प्राचार्य डॉ. एस. डी. स्वामी	101
28	मराठवाडयातील शैक्षणिक अनुशेष	प्रोफेसर डॉ. के.के. पाटील सतिष दिलीपराव तोडकर	105

मराठवाडयातील दुष्काळ : सध्यास्थिती आणि उपाय

29	A CRITICAL STUDY OF IRRIGATION SYSTEM IN MAHARASHTRA	CHAVAN SHIVAJI HARIBHAU	115
30	Recommendation Made by Marathwada Development Board and Annual Report - 1994-95	Dr. A. M. Korade Prakash T. Kharat	120
31	Drought in Marathwada: Its Causes and Drought Management	Dr. Dinkar Takale*	123
32	A Study of Variability of Rainfall and Readiness of Drought in Marathwada Region	Mr. Nitin Dhawale	129
33	हवामान बदलामुळे मराठवाडयाचे वाळवंट	डॉ.एन.एन.मुंडे,	132
34	दुष्काळमुक्त मराठवाडा : दशा आणि दिशा	प्रिती विश्वनाथ रातोळे,	139
35	मराठवाडयातील दुष्काळ : सध्यास्थिती आणि उपाय	डॉ. तुकाराम व्ही. पोवळे	143
36	दुष्काळाच्या दृष्टीनगत मराठवाडा	प्रा.हळदेकर एम.बी.	146
37	मराठवाडयातील दुष्काळाची सध्यास्थिती आणि उपाय	डॉ.राजेत्री अप्पाराव जाधव प्रा.जितेंद्र पांडुरंगराव काळे	148

## Drought in Marathwada: Its Causes and Drought Management

Dinkar Takale\*

Professor & Head, Dept. of Economics  
Lalbahadur Shastri College, Partur Dist. Jalna

### I. Introduction:

Indian economy is mainly based on the rural and agro-based structure. The development of agriculture sector depends on the actual departure of rainfall. If the average rainfall is more or less as compared to normal rainfall then its impact on agriculture can be adverse. Some part of the country or region is widely included low monsoon zone. Agriculture productivity or production can be reduced due to the shortage of rainfall. This is the situation of meteorological drought. The effect of this type of drought on agriculture and other sector of economy was adversely. In Maharashtra, every year the drought is occurs in the some part of region. Vidarbha, Marathwada, Khandesh, Kokan and Western part of state are the major zone as per the weather or climate base zone. Out of this zone, Marathwada and Vidarbha are facing major drought hit zone in the state. The drought had been existence in Marathwada region of the state in the year 2012, 2015 and 2016. In the current year (i.e. 2018-19) Maharashtra government has declared drought like situation in all districts of Marathwada region and maximum number of tehsils included in this drought like condition. Now a day, Marathwada is also known as Dushkalwada (drought hit place). Therefore, the paper is an attempt to make the explanation of basic questions regarding drought such as which causes are responsible for occurring drought hit situation. The paper also tries to discuss

the impact of drought on agricultural production, employment, industry and trade, drinking water, livestock position etc.

### II. Drought: Meaning

Drought should have several definitions but universal definition of drought is not seen. According to Wilhite and Glantz's (1985)<sup>1</sup> views regarding the definition of drought is clearly indicates four types of drought meaning as per drought nature. These four primary drought meanings are as under:

- A) Meteorological drought
- B) Agricultural drought
- C) Hydrological drought
- D) Socio-economic drought

The meteorological drought depends upon the level of dryness period and the lack of rainfall days over a specific period of time. This type of drought is different level from place to place and different climatic zone. The second type of drought is agricultural drought which is related to some characteristics of meteorological drought. According to Indian Meteorological Department (IMD), drought is a situation when the rainfall is less than 25 percent of the normal rainfall. Deficit of rainfall and its measurement<sup>2</sup> among various categories are presented in Table 1.

**Table 1. Rainfall and Its Classification**

Sr. No.	Departure of Rainfall as Compared to Average Rainfall	Classification of Rainfall
01	60 % or more	Large Excess
02	20% to 59%	Excess
03	-19% to 19%	Normal
04	- 59% to - 20%	Deficient
05	- 99% to - 60%	Large deficient
06	100%	No rain

Source: *Indian Meteorological Department data*

Above Table indicates that if last three classifications are existence then the drought is occurring in that specific region. According the

measurement of this classification, the Maharashtra government has declared drought hit situation in various tehsils and mandals.

**II. Objectives of the Study:**

The present research paper is considering the following objectives.

1. To study the various causes of drought.
2. To examine the impacts of droughts on agriculture sector.
3. To evaluate the Government's drought management policy.
5. To suggest corrective measures against drought hit situation.

**III. Methodology:**

The present research paper is based on only secondary data. This data is collected from various Government reports, private publications, IMD data and other relevant publications.

**IV. Droughts in India:**

Drought is a weather-related situation affecting various regions of the country and causing significant damages in agricultural activities and loss of employment. Several droughts and famines have occurred in ancient India and during the British period. But most attention for policy makers has been given about drought management policy after India's planning period. The present study is focus Indian drought condition from last two decades. India's rainfall condition is affected due to changes of climate situation, increasing of air and water pollution, loss of forest and exploitation of natural resources. The failure of rainfall in some parts of India results in the scarcity of drinking water, reduction of crop yields and loss of rural

(agro-base) employment. This is especially true of major drought prone areas of the country such as Marathwada region of Maharashtra, southern Karnataka, Andhra Pradesh, Gujarat etc. Rainfall data of the country indicates that there has been a severe drought every eight to nine years. India faced 22 major droughts between 1871 to 2002.<sup>3</sup> several droughts has been recorded in the major part of the country after 2002. Large number of districts have affected by drought from last nineteen years. The data is presented in Table 2.

**Table 2 :Drought Affected Districts in India Since 2000**

Year	2000	2001	2002	2003	2004	2009	2012	2014	2015	2016	2018
No. of districts affected	168	115	383	118	223	338	122	105	283	265	259

Source: IMD, \*depend the deficit of rainfall data on 28 Sep. 2018

Some part of the country, drought like position has been seen every year from the beginning of 21<sup>st</sup> century. In the second world, drought in India is a regular occurring almost every year in some Indian states.<sup>4</sup> In the year 2016, 266 districts across 11 states have declared drought. Some of these districts were repeated drought over the past three years. Maharashtra, Karnataka, Uttar Pradesh and Andhra Pradesh were leading states in the drought of 2016. According to IMD data, about 251 districts of the country which rainfall data were available received deficient rainfall (9 percent deficient rainfall) and declared drought like situation in the year 2018-19.

**V. Drought in Maharashtra:**

Now Maharashtra State is a drought hit state in the country from last two decades. Near about 50 percent of population lives in the drought prone areas. Deficient rainfall is reported once in every in five years. The worst drought years and their affected districts observed over Maharashtra state are shown in Table 3.

**Table 3: Drought Affected Districts in Maharashtra**

Year	19 96	19 97	20 01	20 02	20 03	20 08	20 12	20 16	20 18
No. of districts affected	07	17	23	33	11		17	21	32 *

Source: Compiled data of IMD, \* declared up to Dec, 2018

The Maharashtra Government declared drought hit 182 tehsils spread across 32 districts in the year 2018-19. The state's relief and rehabilitation department have studied the conditions on the ground of deficient rainfall. Near about 136 tehsils are facing severe drought conditions, which means more than 60 percent crops have been damaged, while the remaining 46 tehsils are facing moderate drought, where crop damaged is more than 33 percent. About 17 districts of Vidarbha and Marathwada regions facing drought like situation in the year 2018-19. In the month of December 2018, Government of Maharashtra again declared drought in additional tehsils and mandal's. Therefore, the drought hit tehsils have increased up to 182 and district affected more than 32.

**VI. Drought in Marathwada:**

Marathwada region of the Maharashtra State is a drought affected regions. Therefore, this region is also known as 'Dushkalwada'. This region

has faced drought hit situation three years out of five years (drought years – 2014, 2015 and 2018). Marathwada regions has had rainfall about half of the normal average. According to Government data, drought hit affected peoples in Marathwada have been migrating to the cities such as Aurangabad, Nashik, Pune and Mumbai. Farmers in the region have no hopes from Rabi season. Table 4 shows that the overall position of rainfall and drought affected tehsils in the region.

**Table 4: Rainfall Analysis and Drought Affected Tehsils in Marathwada (2018)**

Sr. No.	District	Total Rainfall for Year 2018			Rainfall Percentage	Rainfall Deficient (%)
		Normal Rainfall	Actual Rainfall	Rainy Days		
1	Aurangabad	734.1	358.9	25	48.89	51
2	Jalna	750.4	430.4	29	57.36	42
3	Beed	743.4	344.1	31	46.29	53
4	Latur	865.2	546.9	48	63.21	36
5	Aurangabad	807.2	505.1	42	62.57	37
6	Nanded	1017.5	799.5	52	78.57	21
7	Parbhani	830.3	509	36	61.30	38
8	Hingoli	956.3	710.6	49	74.31	25
Average		838.05	525.56	39.00	61.56	38

Source: Rainfall Recording and Analysis, Department of Agriculture, Maharashtra State

According to rainfall analysis of Agricultural Department, overall 38.44 percent deficient rainfall in Marathwada region has been declared in the drought year 2018-19. Drought hit situation in Beed and Aurangabad districts are high level and normal drought is seen in Nanded district. All districts in Marathwada region have deficient drought.

## VII. Causes of Drought in Marathwada Region:

Droughts have many causes. Some of which are discuss broadly into two basic category i.e natural causes of drought and manmade causes of drought.

### Natural Causes of Drought:

#### 1. Loss of rainfall:

The main cause of drought is loss of rainfall. The percentage of rainfall in Marathwada region is very fluctuates from district to district. Last ten years data about actual rainfall indicates low rainfall as compared to normal rainfall in various districts of the region. Drought hit situation is occur due to loss of water. In the year 2018, the deficient in rainfall departure in Mrarathwada region is 22 percent as compared to normal rainfall. Major cause of low production and employment in the agriculture sector is loss of rainfall. So, major crops have damaged due to shortage of rain water.

#### 2. Climate Change:

Climate change is another important cause of drought. The climate change is impacting weather pattern of the region and also effects on water cycle system. The longer dry spells is occur due to the changes of climate situation. As a result of these, dryness is increased and creates drought hit condition. Climate change like El Nino, which effects on wind and rainfall patterns, has been blamed for droughts. Change of weather will effects rainfall and cropping pattern.

#### 3. Land and water temperature:

The effects of increase or decrease of water temperature on weather and rainfall departure is

effective. More rainfall and longer dry spell can be occur due to the increases in temperature of sea water. Impact of adverse changes on rainfall as well as weather condition are creates due to the causes of high temperature of land and water.

#### 4. Soil moisture level:

Generally soil moisture range is from 10 percent to 45 percent. This range can be higher during and after watering. Water in the soil is stored on the surface of the soil particles. Soil moisture is important for any plant growth. Lack of soil moisture content over a growing season is a basic indicator of drought.

#### 5. Supply and demand of water issue:

Drought situation is generally depends on the supply of water and demand for water. Scarcity of water creates only if the demand for water is increase than the supply of water. In the dry season, water level is very low as compared to normal season. Demand for water in the use of crop production and other purpose can be fulfilling only the available of sufficient water. In Marathwada region, water demand is increasing day by day due to growth of population, but supply of water remains as an aversely constant. Water level is deep and deep due to the over absorbs of water from land and its effects drought like situation observed.

#### 6. Increase in rainfall gap:

Agricultural production can be affected by dry spell from one rainfall to second rainfall. Income of farmers from crop production have decreased if the low rainfall days during agricultural season. This is the one natural cause of drought.

### Man made causes of drought:

### 7. *Poor management of Water:*

Utilization of rain water is most essential. Thousands of cusecs of rainwater is being wasted as water bodies have not been desalted in the past several years.<sup>5</sup> Therefore, rain water harvesting is most essential to avoid wastage of rain water in the specific water zone. Most of the excess rainfall water flow is going to oceans through rivers. The management of this water is not efficient and therefore water availability of water in summer season is very difficult.

### 8. *Over farming:*

Irrigated land is more than twice crops in a year. But maximum number of cultivation is depending on rain fed water. The availability of rainfall water and its use for agricultural crops is essential for increasing productivity. Use of land for the cultivation of various crops is growing and use of water is increased. Therefore, water level is decreasing. Water scarcity has huge impact on agricultural production.

### 9. *Erosion of land:*

Land erosion is the process by which material on the surface of the land is moved. The loss of soil from the erosion of land may be reflected in the reduction of crop. Hence, the drought like position become dangerous mode.

### 10. *Deforestation:*

Deforestation of trees led to the frequent floods and drought because the soils loosen up the binding due to the cutting of trees. Therefore, drought is occurred by deforestation.

## *VIII. Drought Management Policy and suggestive Remedies:*

Government has set up the Drought Management Group to coordinate the efforts to deal with drought in various districts and region. Drought management policy has taken various steps to fight against drought affected regions. These suggestive remedies or corrective measures has analyzed into two types:

A] Short-term Measures

B] Long-term Measures

Administrative mitigation short-term measures for the control of high degree drought hit condition has discussed in the following manners.<sup>6</sup>

### *Short-term Measures:*

- 1) Allocation of additional days of work under MGNREGA to the peoples living in drought hit areas like Marathwada region.
- 2) To provides various subsidies (debt interest subsidy, electric bill subsidy etc.) for farmers in drought affected areas.
- 3) Increase compensation amount to recover of damaged crops through crop insurance policy.
- 4) Fodder camp should be increase in drought affected region.
- 5) Water tankers should be provided to the fulfill drinking water availability.
- 6) The State government will also bear examination fees of students in the drought prone zone.

### *Long-term Measures:*

- 7) To increase irrigation facility.
- 8) To increase watershed development programmes in drought hit areas.

9) Government should be provided to farmers regarding the new techniques of crop pattern.

10) Strong crop insurance company should be established in dry land areas.

#### **IX. Conclusion:**

Drought-2018 in Marathwada region has seen high degree level. The impact of this drought on large number of farmers, agro-based industrialist, agricultural workers and other agriculture related peoples is very badly. Total 44 tehsils out of 47 drought affected tehsils are 'severely' drought in the region. The condition is quite bad everywhere. Due to lack of water, farmers could manage only fifty percent production in Kharif season and could not sow in the Rabi season. The problem of fodder for animals has been arisen and their prices have shot up. Therefore, there is need to solve the problems of drinking water in summer season, fodder shortage for animals and employment generation.

#### **References:**

1. Wilhite D.A. and Glantz M.H. (1985), Understanding the Drought Phenomenon: The role of Definitions, Water International 10(3), pp. 111-120.
2. Indian Metrological Department – Official website: [www.imd.gov.in](http://www.imd.gov.in)
3. Drought forever, [www.downtoearth.org.in](http://www.downtoearth.org.in)
4. A Rapid Assessment of the Impact of Drought on Children and Women in India (2016), Report from UN Children's Fund – 20 April 2016.
5. 'Rainwater going waste', Special Report, The Hindu (TN edition), 20 Nov. 2015.

6. Press Information Bureau, GOI, Ministry of Agriculture & Farmers Welfare, 14/09/2015