



REVIEW OF RESEARCH

ISSN: 2249-894X

IMPACT FACTOR : 5.7631 (UIF)

UGC APPROVED JOURNAL NO. 48514

VOLUME - 8 | ISSUE - 9 | JUNE - 2019



IMPLEMENTS OF PROGRAMS UNDER THE DROUGHT CONDITIONS IN AGRICULTURAL SECTORS IN THE SOLAPUR DISTRICT

Dr. D. S. Harwalkar

Asst. Prof. in Geography , Mauli Mahavidyalaya, Wadala , Tal. N. Solapur, Dist. Solapur.

ABSTRACT:

The scarcity of water in any region leads to drought conditions of that region. It is also related with the climatic conditions of the region such as annual amount of rainfall and its spatial distribution. A drought is a period of below average precipitation in a given region, resulting in prolonged shortages its water supply, whether atmospheric, surface or ground water. Therefore, drought is a complex natural phenomenon of short and irregular occurrence of annual rainfall, which is linked to climatic factors; biological factors such as the growth period and stage of the vegetation cover environmental factors like site, soil properties and depth and agro-economic factors. Attempts are being taken from time to time to overcome the drought conditions of the region and to provide the minimum needs of the population of the district, are undertaken by the state government. In Solapur district has frequently occurred the drought conditions. In the first year of the fifth five year plan the World Bank (IDA) in conjunction with the central and state Governments implemented this program in the districts of Ahmednagar and Solapur. At the revised sixth five-year plan (1980-85) Government of India, appointed a task force headed by Dr. M.S. Swaminathan, Member of planning commission, to assess the work done by D.P.A.P.



KEYWORDS: scarcity of water , whether atmospheric, surface.

• INTRODUCTION

Drought is when an area gets less than its normal amount of rain over months or even years. Crops and other plants need water to grow, and land animals need it to live. Drought is a disaster which usually takes place slowly. It is difficult to decide the time of it starts and its end. Its effects often build up slowly over a long period of time and may last from months to years after rain resumes.

Drought is a continuous period of dry weather due to lack of rain. Therefore, drought is a complex natural phenomenon of short and irregular occurrence of annual rainfall, which is linked to climatic factors, biological factors such as the growth period and stage of the vegetation cover environmental factors like site, soil properties and depth and agro-economic factors. In metrological terms drought has been defined as a deficiency in percent of the normal rainfall. Years with 50

percent or less rainfall than the normal are called drought years. According to rainfall drought fall into three district rainfall categories viz. arid, up to 375 mm, semi arid 376 to 750 millimeter, and Sub-humid 751 to 1125 millimeter Drought can be also defined with the help of the aridity index, which expresses the annual water deficit in relation to the potential evaporation, transpiration or water need in percent.

(Ia = D/Pe X 100)

Where,

I = Aridity index,

D = Diversification from normal rainfall,

PE = Potential evapo-transpiration

Drought will be consequently defined by the departure from the mean of the aridity index. In socio-economic sense, drought is a period of intense economic stress, resulting from growing agricultural unemployment, acute shortage of water and fodder for livestock's and a decline in cropped area. The soil scientists and ecologists have defined the drought in the context of the water balance of the soil and reduction in natural pasturage. To the farmer, the drought is a period during which his normal farms operation is hampered, and the farm production suffers by decline to varying degrees. In the present study, rainfall is used as criteria for identifying the drought conditions.

• **OBJECTIVES:-**

1. To implements the various programs in under the drought conditions.
2. To understand the various problems created in drought conditions.

• **DROUGHT CONDITIONS IN THE SOLAPUR DISTRICT:-**

Special variations in the rainfall within the district are observed. The rainfall is irregular and scanty in Solapur District. In Solapur District there are some years has recorded drought conditions. In these years rainfall occurred minimum average rainfall region as a whole.

1. **Drought Year 1952-53:-** In the year 1952-53 the normal rainfall of Solapur district was recorded 724 mm but in this year actual rainfall was only 495 mm. This shows that in this year, the actual rainfall was very low as compared to normal rainfall and the standard rainfall criteria used for defining scarcity of rainfall which fit in the category of drought prone year. During this year Solapur district was affected by scarcity condition due to low rainfall which adversely affected cropping pattern. To overcome, the scarcity in the region under study measures were undertaken by the government to relieve the distress, caused by the scarcity.
2. **Drought Year 1965-66:-** During this year, the annual rainfall was 504 mm, but its less than normal rainfall of 750 mm. During the year the scarcity conditions prevailed in Solapur district till 30 September 1966, which was mainly caused by the failure of rains.
3. **Drought Year 1970-71:-** The actual amount of the rainfall was 590 mm during 1970-71, where as the normal rainfall was 724mm. During this period, 956 villages in the district were affected by scarcity of water.
4. **Drought Year 1972-73:-** The real amount of rainfall was lowest during the year 1972-73, which accounted to 270mm. It is in fact, quite lower than the normal rainfall of Solapur district. During this year, there are 883 villages in the district were affected by famine and chronic scarcity of water.
5. **Drought Year 1976-77:-** In this year the amount of annual rainfall was very less of about 498 mm. It was less than of normal rainfall of Solapur district. Many of the villages has faced scarcity of water conditions in the district. Government implemented so many programs and measures, which were taken during this year to overcome the existing problems caused by the drought.
6. **Drought Year 1989-90:-** The district normal rainfall was 802 mm, but the actual rainfall was only 455 mm. The rainfall was very low compared to normal rainfall and the standard rainfall criteria used for defining scarcity for the year 1989-90, declared a drought year. About 164 villages from Barshi, Pandharpur, Malshiras and Karmala and 58 villages from Sangola tahsils were affected by drought conditions.
7. **Drought Year 2000-2001:-** This year the annual rainfall was recorded only 575 mm. It was less than the normal rainfall of 750 mm. During the year 2000-2001, scarcity conditions prevailed in Solapur district till 30 September 2001. It was mainly caused by the failure of rains. Scarcity conditions were prevailed in few villages in the district. Many programs and measures were also undertaken by government in this year.

• **Measures and Programs Undertaken to overcome the Drought Conditions in Agriculture Sectors in Solapur District:**

Attempts are being taken from time to time to overcome the drought conditions of the region and to provide the minimum needs of the population of the district, are undertaken by the state government given as below:

1. Soil and Water Conservation :-

The drought prone areas are severally affected by soil erosion and infertility, which depletes the capacity to retain moisture in the soil for the required period. Thus, soil and water conservation methods become basic activity for any program taken in drought prone areas for sustaining agricultural production, soil conservation aims at improving lands by adopting suitable techniques according to the topography. Contour bunding, Nala bunding and land leveling schemes are undertaken in soil and water conservation measures in drought prone area in several places in the some parts of Maharashtra.

2. Water Harnessing :-

In order to utilize the underground water in the absence of rainfall the water harnessing is carried out by private landholders as well as by government. In respect of percolation tanks, harnessing is achieved through digging of wells or bore wells in the down streams of percolation tanks in the field owned by the farmers in various places of the drought prone areas.

3. Dairy Societies:-

Dairy Societies provide milk and its products to the people in the region, accordingly the arrangement have been made for marketing the increased milk production so that the livestock owners receive from time to time the benefit of extra economic returns, for this purpose the program of establishment of dairy societies have been undertaken in the region.

4. Dry Farming:-

In the region under study, the rainfall is irregular and scanty so that dry farming is very important. In 1933, the dry farming research was established in the region. The research station was started with an object to carry out systematic and scientific research on allied aspects of dry farming so as to get reasonable production of Rabi Jawar, Sunflower and important pulses, even under adverse conditions of soil, climate and rainfall. Subsequently, emphasis is given on the production technology of all dry land crops. The research station also provides centre of demonstration for the newly evolved techniques in dry farming to the farmers of drought prone areas of Maharashtra in general.

5. Fertilizer Use under Dry Lands :-

Different kinds of fertilizers are used in dry lands only by a few farmers, in fact there is disbelief amongst the farmers that fertilizers would be harmful in dry lands. Soils of dry land areas falling under semi-arid agro-climatic zone, which are low to medium in available nitrogen (112 to 480 Kilogram per hectare), and phosphorus (10 to 35 Kilogram average P_2O_5 per hectare) but rich are potassium (250 to 900 Kilogram average K_2O per hectare). However, it has been proved that fertilizer is important next to moisture in dry lands.

6. Cropping System:-

Research on pure inter and sequence crop system is in progress in order to increase the production, some of the important measures have been suggested as under :

i) Early sowing of Rabi crops :-

As a measure to correct it, early sowing of Rabi crop has been recommended. This helps to make moisture available for plant growth. It has been found useful for both Rabi jawar and safflower in the region. On an average of 4 year, jawar yields have been improved by 30 percent as a additional grain

production while 73 percent fodder production has been increasing. For safflower, the yield increase has been found to be of the order of 78 percent over the traditional sowing.

ii) Sequence Cropping :-

Rainfall received during June to August is conserved and then Rabi crops are sown. In order to explore the possibilities of growing two crops by using available soil moisture during June to August, sequence cropping is recommended. The sequence of green gram followed by Rabi Jawar or Bajra followed by Gram are the best suited in the region under study.

7. Block Plantation of Private Land :-

In order to increase the fodder productivity of marginal farmers and to enhance the carrying capacity of these land and to put the marginal and sub marginal land in proper land use, a block plantation on private land development program is designed in the region under study.

8. Farm Forestry:-

To encourage farmers to grow trees of economic value, yielding small timber, fuel wood and fodder for his domestic use a scheme of plantation of trees by individual farmer either on bunds of his farm or on the waste land in the nearby field is undertaken. This has helped farmers in many ways and prevents soil erosion as well.

9. Animal Husbandry:-

The drought prone areas are endowed with reputed breeds of cattle and sheep, generally their number is also quite large. However, their milk yield is very low. So it does not help much in diversifying sources of income of drought prone area farmers. Additionally this livestock's population adds tremendously to soil erosion through overgrazing. This in turn has led to critical livestock food supply situation. It is also noticed that in these areas rearing of sheep and goats on organized lines is not only negligible but is positively discouraged. Due to this, the farmers in these areas lose an opportunity to further diversify their sources of income. In this background, the objective of animal husbandry and dairy development programs in drought prone areas would be to upgrade the breed of cattle to increase the milk yield to organize marketing of milk on co-operative and scientific basis and to develop sheep goat rearing on organized lines.

10. Proper Planning of the Crop to Suit the Soil Capabilities:-

Proper crop planning according to soil capability is essential in drought conditions. Therefore, lands up to 45 centimeter depth need to be diverted for Kharif crops. Shallow soils up to 20 centimeter deep should be diverted for gross growing and pasture. Such land use planning measures also taken in some parts of the district.

11. Programs Undertaken:-

The rural work programs was started in 1970-71 as a central sector scheme in selected areas of the district and identified as drought prone. Later it was converted into drought prone area program (D.P.A.P.). It was implemented from 1974-75 as a active program in the identified blocks per district with 50 percent central assistance. About 1.12 lacks hectares of the states area is drought prone and the program covered entire this area. In the first year of the fifth five year plan the world Bank (IDA) in conjunction with the central and state Governments implemented this program in the districts of Ahmednagar and Solapur. At the revised sixth five-year plan (1980-85) Government of India, appointed a task force headed by Dr. M.S. Swaminathan, Member of planning commission, to assess the work done by D.P.A.P.

The objective of DPAP includes the following points.

1. Raising the economic status of the poorer sections of the rural population through measures like improvement in cropping pattern, yields and through supplementary occupation like dairy, fisheries and forestry.
2. Raising the productivity status of the land and water, live stock resources through their optimal use.
3. Soil and moisture conservation including promotion of proper land use practices.
4. Promoting more productive dry land agriculture based on the soil, water, climate resources of the areas.
5. Development and productive use of the water resource of the area.
6. A forestation including farm forestry.

• **CONCLUSION:-**

In short, it may be concluded that the some parts of Maharashtra is a drought prone area also a Solapur district. Generally the rainfall is scanty, erratic and not evenly distributed, so the crop cultivation and production is very difficult. The crops are not growing well because of water availability period is very short. In the drought years of 1952-53 to 2000-2001, the intensity was very high in Solapur district compared to other drought years. Many programs and measures to overcome drought conditions are being undertaken by State government such as Nala Bunding, Contour leveling and shaping water harnessing, block plantation, farm forestry, animal husbandry, dairy societies and cropping system. These measures have helped farmers in enhancing the economic conditions to a greater extent in Maharashtra State.

• **REFERENCES:-**

1. Majid Hussain(1996): Systematic Agricultural Geography, Rawat Publication, Jaipur.
2. Dr. Y. S. Khan (2006): Fundamentals of Environmental Studies Prakash Offset, Pune.
3. Government of Maharashtra (1991): Drought pone areas programs.
4. Indian Metrological department (IMD): Climatological tables of observatories in India Government of India (2001): Rainfall and drought in India.
5. Jutta Dikshit (1984): Identification of drought prone areas and production of crops expectation in Maharashtra. Geographical review of India, Vol.45, Dec. 1984.
6. Maharashtra Census office Bombay (1977): Maharashtra State Gazetteer Solapur. District.
7. Patil, N. D. and Umarani, N.K. (1981): Improved crop production Technology for drought prone areas of Maharashtra.
8. Reddy, N.B.K. and Singh V. R. (1978): "Delimitation of Drought prone area in India. A Geographical approach," Proceedings of the all India symposium on drought prone areas of India, Department of Geography.