

STUDY OF CONSEQUENCE OF ELECTRICITY SHORTAGE ON PERFORMANCE OF COOPERATIVE IRRIGATION SCHEMES IN KOLHAPUR AND SANGLI DISTRICTS.

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ABSTRACT

Western Maharashtra plays very important role in cultivation of main cash crops like sugarcane, grapes, and cotton of the region. Other crops like jawar bajara, rice, ground nuts, and oil seed are also harvested. Western Maharashtra consists of five districts. All five districts are providing swiftness to the agricultural development of state. Agriculture represents its importance from the truth that it has vital supply and demand links with the manufacturing sector and is a source of livelihood for the rural population of India and it symbolizes the backbone of rural livelihood security system. The total food grain production in the state was 15.4 million tones in 2007-08 and about 11.7 million tones in 2008 -09[1]. Irrigation schemes in Sangli and Kolhapur districts are the magic of agricultural developments of this region. Kolhapur and Sangli districts are the largest user of fertilizer per hectare in Maharashtra. Co-operative production of sugarcane is in practice in the district since the last 200 years. Sugarcane is irrigated using the traditional Phad method of irrigation. Without any written law, agreements or rules, this practice is ceaselessly working merely on the basis of mutual understanding between the farmers and their co-operative attitude. But due to the shortage of electricity these schemes and whole agriculture sector has come under risk. Authors have studied the demand and supply of electricity to agriculture in Sangli and Kolhapur districts and also conducted the survey through questionnaire about electricity and irrigation schemes to collect and analyze the data. It is found that in both the districts power shortage hampering the growth of agriculture sector.

INTRODUCTION

Before 1960 the natives of the Sangli and Kolhapur districts particularly farmers were facing many problems due to insufficiency of each and every commodity. People were getting fewer opportunities of revenue generations; employments did not exist in both the districts. Farming sector was solely dependent on rain water. Only jirayati (none irrigated) farming was cultivated in rainy season only. The productivity of farm sector was very stumpy. There were no infrastructural developments in the both the districts. Personal growth of farming community was hindered.

From 1965 the total scenario starts changing, due to the Successful execution of cooperative

sugar factories; wonderful changes takes place in the farming sector. In Ahmednagar district Dr. Vikhe Patil started first cooperative sugar factory at Pravaranagar , also late Shree Tatyasaheb Kore started Warana Cooperative sugar factory in Warananagar of Kolhapur District [2]. Those great people light up a small new epoch of development and new era of rural development commenced. Today 22 cooperative sugar factories are producing sugar from sugarcane cultivated by farmers of these districts. And nowadays Sangli and Kolhapur districts are famous as sugar belt in the country. Sugar cane is the cash crop which is the raw material of the sugar factories. Sugar cane requires regular water supply for

proper growth. Due to the construction of various dams on rivers became perennial source water supply. The managements of the sugar factories started lift irrigation schemes on cooperative basis. The lift irrigation schemes are not only performing a significant job to develop the economy of the farmers in Sangli and Kolhapur districts but also increasing productivity of all crops taken by farmers. The majority of the lift irrigation schemes are established on the river banks during last 40 years. Now there are three types of lift irrigation schemes, i.e., co-operative lifts, sugar factory lifts, and private lifts. Krishna, Warana, Panchganga, Kumbhi, Kasari, Morana and other few rivers are the lifelines of the farmers and making their life flourish in both the districts. State government has already constructed dams on each main river hence rivers are perennial [4]. Farmers of both the districts have successfully ventured cooperative organizations. Cooperative Irrigation schemes are one of the essential organizations working successfully in these districts. With the help of cooperative sugar factories these schemes are making more amazing transformation in the life of these people.

The main objectives of these cooperative irrigation schemes are:

* To carry water by means of pumps from the source of water to the main delivery chamber which is situated at the top most point in the command area.

*To distribute this water to the fields of the beneficiary's (share holder) by means of suitable and proper distribution system [1].

It is observed that till 2004 - 05 cooperative irrigation schemes were working smoothly in both these districts with the help of Maharashtra State Electricity Board, which was responsible for regular electricity supply. For better performance of these schemes one of the important ingredients is electricity,

consistent and quality supply of electricity is essential for the lifting of regular flow of water from available source. Continuously lifted water is distributed to the farms of the farmers as per their requirements. If supply of the electricity is 24 hours in a day than pump sets will lift the water for whole day and distribution function will continue as per planned schedule and farmers will get their turn as per their need of crop. But after 2005 it is found that electric supply to the farming sector is becoming irregular. Initially farmers were getting confused due to the miss management and sudden power cut off. Author has taken these issues for study.

While studying it is found that there is more difference between demand and supply of electricity in all over Maharashtra. To cope up with the demand; the state electricity agencies (Mahavitaran) has implemented pre arranged load shedding for agricultural sector. The author has carried out research to find out the effect of electricity load shedding on performance of cooperative irrigation schemes.

METHODOLOGY

The investigation is carried out from January 2009 to September 2010; the authors have ensured the electricity supply to industry and agriculture sector of these districts of western Maharashtra. It is found that the Power shortage in the western Maharashtra particularly in the villages is a major issue. Farmers, small industrial and business related communities were violent during the corresponding period, several agitations; disputes, sticks were carried out by them. While investigating it is found that dissimilarity in the demand & supply of electricity was a major cause of all these problems. In this region it is also found that at normal hours of a day i.e. when demand is not exceeded, the power supply was inadequate.

The researcher has used stratified sampling method to collect the information by circulating prepared questionnaire to the respondents.

ANALYSIS

In Maharashtra MSEB has split in to different companies to cater the generation, transmission, and distribution of electricity in the state. Mahavitaran has responsibility to supply the electricity to consumers in Maharashtra. Information of electricity supply to different types of consumers is collected and created a comparative table for proper understanding. Here data is composed to differentiate the supply of electricity provided to farmers and industries in the selected region for year January 2009 to September 2010.

Table No. I: Electricity supply to industrial and agricultural sectors in Maharashtra [5].

Month	Average Electricity Supply per day	
	Electricity supply industries (hrs/day)	Electricity Supply to farms (hrs/day)
January 2009	24	8 to 10 hrs/day
February 2009	24	
March 2009	24	
April 2009	24	
May 2009	24	
June 2009	24	
July 2009	24	
August 2009	24	
September 2009	24	
October 2009	24	
November 2009	24	
December 2009	24	
January 2010	24	
February 2010	24	
March 2010	24	
April 2010	24	
May 2010	24	
June 2010	24	
July 2010	24	
August 2010	24	
September 2010	24	

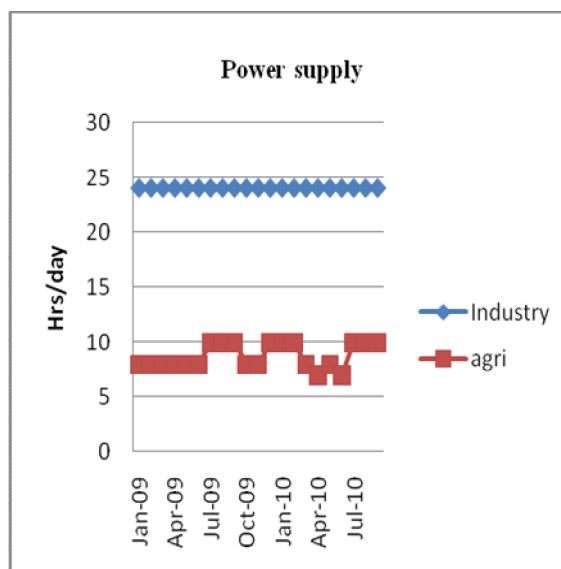
Source – Central Electricity Authority

From the above information it is clear that pre arranged load shedding was not implemented in MIDC zones of Maharashtra, i. e. 24 hours electricity supply was provided to the industrial sector. On the other hand Mahavitaran has implemented electricity load shedding particularly to agricultural sector and small businesses associated in villages and towns.

It is clear that in the month of April, May, June 2010 maximum electricity load shedding of 13 hours / day. Approximately 11 to 12 hours electricity load shedding per day is observed in Western Maharashtra; it is very difficult to carry out smooth execution of different activities related to electricity uses [8].

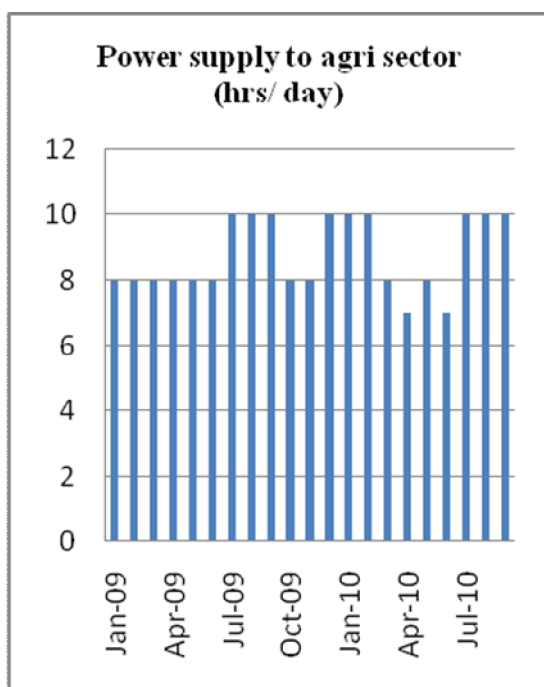
The visionary leaders with the help of government have successfully solved the problem of water shortage by building dams on the rivers in districts. The perennial rivers viz. Krishna, Warana, Panchaganga, and other few rivers are flowing all over the area Sangli and Kolhapur districts. The water stored in the upper stream is let out in the river frequently which makes available assured supply of water for lift irrigation.

Graph No. I: provides the electricity load shedding and supply for study period [5].



Cooperative irrigation schemes are exclusively dependent on continuous & consistent supply of electricity for water lifting and distribution of it by electric pumps to respective farm [7]. It is observed that more than 12 to 14 hours of electricity load shedding has been implemented to manage electricity shortage. Actually irrigation schemes require 24 hour supply of electricity for better management it is very difficult task to manage the water distribution and all schemes are continuously tolerating the shortage of electricity in the study period. Certainly there are financial and monetary losses to these organizations, which have been studied by author.

Graph No. II shows the power on / off status in a day to agricultural sector.



It is experienced that Mahavitaran has provided only more or less 55 to 60 % electricity to agricultural. Three phase connections required to small scale as well as businesses in cities and towns also received risk of pre arranged and sudden electricity

load shedding [6]. To study the consequences of electricity load shedding researcher has carried out survey by circulating prepared questionnaire among 20 chairmen and manager of different cooperative irrigation schemes in Sangli and Kolhapur districts, also conducted personal interviews with associated people.

Table No. II – shows response of chairmen and managers of cooperative irrigation schemes on electricity load shedding

Sr. No	Question	Response (%)	
		YES	NO
1	Electricity load shedding is implemented to scheme:	100	00
2	14 hours load shedding is observed by you.	90	10
3	Are you paying MSEB bills regularly:	96	04
4	Is there any delay to complete one round?	98	02
5	Is there any decline in production of crops?	95	05
6	Is there any fall in revenue earning of scheme?	100	00
7	Schemes are not using alternative source for electricity?	100	00
8	Due to load shedding is there any conflicts between farmers and scheme staff?	85	15
9	Due to load shedding scheme Expenses increased.	80	20
10	Farming sector will get 24 hours electricity in 2012.	30	70
11	24 hours electricity supply/day is must for development of farming sector.	75	25

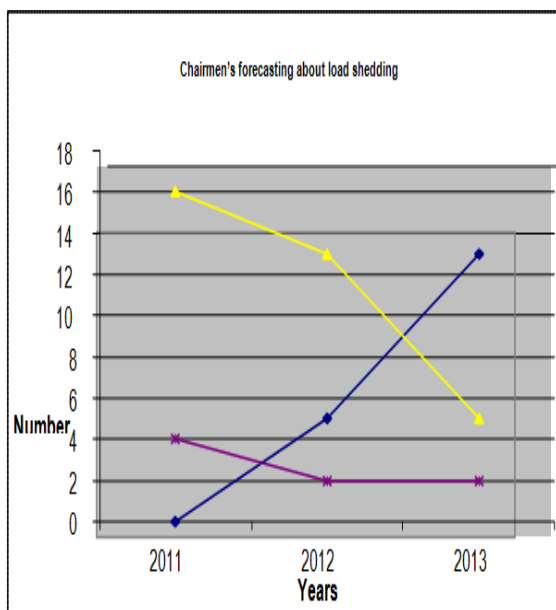
From the above table it is clear that all water irrigation schemes have suffered a lot. They are survived only due to their own planning and adjustments. There is pre arranged power off and also farmers have experienced sudden power cut which is more irritating. From the above response it is found that majority threat to agriculture sector is due to electricity shortage.

Following table III shows the opinions of chairmen about to improvements in supply / to be continued same load shedding / increased load shedding in next three years.

Table no. 3: Opinions of chairmen

Opinion of Chairman	2011	2012	2013
Decrease in load shedding	-	5	13
Same status of load shedding	16	13	5
Increased load shedding	4	2	2

Graph No. III: the chairmen's opinion about electricity supply and load shedding to farming sector.



From the above table and graph it is clear that chairmen have the conclusions that in year 2011 there will be same or more electricity load shedding than 2010. But 65 % chairmen have anticipated that demand and supply of electricity will cope up in year 2013. From the graphical lines it is clear that the majority of respondents have hope that in 2013 there will be less / no electricity load shedding to farming sector.

Summary and Conclusion: There are lots of irrigation schemes in the Sangli and Kolhapur the district with different forms like private irrigation schemes, individual cooperative irrigation schemes, all are working efficiently to cope up with available electricity for developments of agricultural area by circulating water as per requirements of the farmers. Researcher has studied 20 cooperative irrigation schemes in Sangli and Kolhapur districts. From this study researcher has focused on different dilemma of farmers and scheme holders. It is observed that there is more burden of making a turn of watering to whole area on schemes management. It is also found that due to 11 to 12 hours pre arranged load shedding the managers and chairmen have experienced more delay in turn of circulation of water and crop fading problem. These schemes are not using any other source for electricity; mostly these schemes are dependent on electricity provided by MSEB.

With Pre arranged load shedding it is observed that there is sudden power cut off also implemented, which creates extreme conflicts, stress, mental trouble to farmers and worker of the schemes which can not be calculated financially but people are coming on the road. From the interaction with managers of schemes it is clear that If Mahavitran provides only 16 to 18 hours electricity per day schemes will manage the water circulation effectively and existing problems will be solved. Overall experiences of respondents are not expecting the improvement or decrease in load shedding in this year.

For the betterment of agricultural sector irrigation schemes are playing crucial role hence it is necessary to implement the strategy to supply continuous and quality electricity supply minimum 16 to 18 hours / day.

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