ANALYSIS OF UTILITY OF RAIN PREDICTIONS IN VIDARBHA AND MARATHAWADA

BY

ANAND M. SHARAN

PROFESSOR

DECEMBER 25, 2014

MECHANICAL ENGINEERING DEPARTMENT

FACULTY OF ENGINEERING, MEMORIAL UNIVERSITY OF NEWFOUNDLAND, ST. JOHN'S, NEWFOUNDLAND, CANADA A1B 3X5; FAX : (709) 864 - 4042

E-MAIL: asharan@mun.ca

ABSTRACT

Here, the utility of rain predictions way in advance of the coming monsoon season is analyzed for areas such as Marathawada and Vidarbha. It is concluded that such predictions do have utility and that the farmers' suicides can be reduced.

1. INTRODUCTION AND DATA ANALYSIS

There are numerous reports in TV and newspapers about farmer's suicides in these two areas. Recent works on this subject are available in [1-4]. In these works as well as in[5-8] these suicides have also been studied and concluded that:

(a) Rainfall is quite erratic,

(b) Some wrong types of crops are planted such as sugarcane which requires plenty of water whereas actual rainfall in these areas is very meagre. This wrong choice of crop has been introduced due to political considerations.

(c) Poor farmers are made to take all the risks of crop failure whereas seed sellers and others get their money from these poor farmers ahead of the actual outcome –crop failure.

(d) A large number of ministers have vested interests in sugar mills which have heavy subsidies from the government .

In view of above rain prediction studies were carried out so that these farmers would have idea in advance if the crop is going to fail in case there is drought. This way, their exposure to loans will be minimized.

Rain predictions are made in [2,3] where expected rain in 2013 to 2015 was made where the data that was available was up to 2012 only. Data from the website [9] was downloaded by accessing the data – one district at a time where data on all the districts was not available.

The results are shown in Tables 1, and 2. The rain in Vidarbha in Table 1 shows that the amount of rain was excessive and this rain total of all the monsoon months was equal to 57.4 inches where the average rain for Vidarbha is only 35.4 inches. Fig. 1 shows that this amount rain was unprecedented and it has extremely small probability. However, the prediction was for 39.8 inches indicating excessive rain.

If the farmers relied on prediction – they would not have been thinking that it would be a normal year or there is possibility of a drought. Thus, the prediction made about 6 months in advance would have been quite useful in planning for the crops in the new monsoon season.

Now coming to Marathawada, the rain data is shown in Table 2. Here, the total rain prediction is 27.5 inches whereas the actual rain was 27.9 inches against the average of 27.4 inches. So, the prediction for Marathawada was right on the dot.

2. CONCLUSIONS

Based on the analysis and data, it is concluded that:

1. Planting of wrong types of crops which require far more water than the average rainfall can provide - is part reason for water shortage for poor farmers.
2. Rain prediction is helpful to farmers and can lead to decrease in suicide cases.

3. The governments are not lending support to farmers or scientists who do research where data should be made available easily. Up to date data should be available on the web unlike in [9].

3 **REFERENCES**

1 Prediction of Rain in Vidarbha, India, Based on Vidarbha's Historical Rain Data http://www.engr.mun.ca/~asharan/RAINVIDARBHA/RAIN_VIDARBHA_V4.pdf

2 Prediction of Rain in Bihar, India Based on Historical Bihar's Rain Data http://www.engr.mun.ca/~asharan/RAINBIHAR/RAIN_BIHAR_V12.pdf

3 On the Rainfall in Marathawada and the Need for Farmers to Have an Alternative Source of Income, http://www.engr.mun.ca/~asharan/RAINMARATHAWADA/RAIN_MARATHAWADA_V2.pdf

4 Monsoon Season Rain Prediction for the Year 2015 for Telangana, India Based on Telangana's Historical Rain Data, http://www.engr.mun.ca/~asharan/RAINTELANGANA/RAIN_TELANGANA_V2.pdf

5 An open letter to Devendra Fadnavis, http://www.downtoearth.org.in/content/open-letter-devendra-fadnavis

6 A review of water issues in Maharashtra in 2013, http://sandrp.wordpress.com/2014/01/08/a-review-of-water-issues-in-maharashtra-in-2013/

7 Maharashtra's irrigation system tied in knots, **http://www.business-standard.com/article/economy-policy/maharashtra-s-irrigation-system-tied-in-knots-114081500028_1.html**

8. Droughts in Maharashtra: Lack of management or vagaries of climate change?, http://www.indiawaterportal.org/articles/droughts-maharashtra-lack-management-or-vagaries-climate-change

9.   India Meteorological Department District Rainfall Data for Last Five Years   , www.imd.gov.in/section/hydro/distrainfall/webrain/maharashtra/wardha.txt

TABLE 1 RAIN IN VIDARBHA

NUMBER	DISTRICTS	RAIN IN WARDHA IN 2013				
		JUNE	JULY	AUGUST	SEPTEMBER	JUNE TO SEPTEMBER
		1	2	3	4	5
1	WARDHA	306.9	495.1	168.9	94.4	
2	AKOLA	315.7	317.3	280.5	233.2	
3	CHANDRAPUR	425.4	785.7	344.4	113.8	
4	GADCHIROLI	483.9	846.8	525.6	174.1	
5	GONDIA	323	853.6	501.3	128.2	
6	NAGPUR	390	478.7	339.3	101.6	
7	WASHIM	463.6	305.6	261.6	148.1	
8	ACTUAL AVERAGE (mm)	386.9	583.3	345.9	141.9	
9	ACTUAL AVERAGE (inches)	15.233	22.963	13.620	5.587	57.4
10	PREDICTION	6.887	10.755	11.521	10.628	39.8
11	32 YEAR AVERAGE	6.653	11.546	10.924	6.317	35.4

TABLE 2 RAINS IN MARATHAWADA

| NUMBER	DISTRICTS	RAIN IN MARATHAWADA IN 2013				
		JUNE	JULY	AUGUST	SEPTEMBER	JUNE TO SEPTEMBER
		1	2	3	4	5
1	Aurangabad	162.5	165.5	119.4	151.6	
2	Nanded	197.3	452.4	199.6	132	
3	Parbhani	143.3	369.6	150.8	183.6	
4	Latur	135.1	333.5	153.1	115.1	
5	Beed	127.6	205	92.3	152.8	
6	Hingoli	127.6	205	92.3	152.8	
7	Jalna	183.5	244.6	125.7	154.5	
8	Osmanabad	111.3	238.4	76.5	210.2	
9	AVERAGE(mm)	148.5	276.8	126.2	156.6	
10	ACTUAL AVERAGE(INCHES)	5.8	10.9	5.0	6.2	27.9
11	PREDICTION	4.3	7.4	5.4	10.4	27.5
12	32 YEAR AVERAGE	5.1	7.6	8.4	7.3	27.4
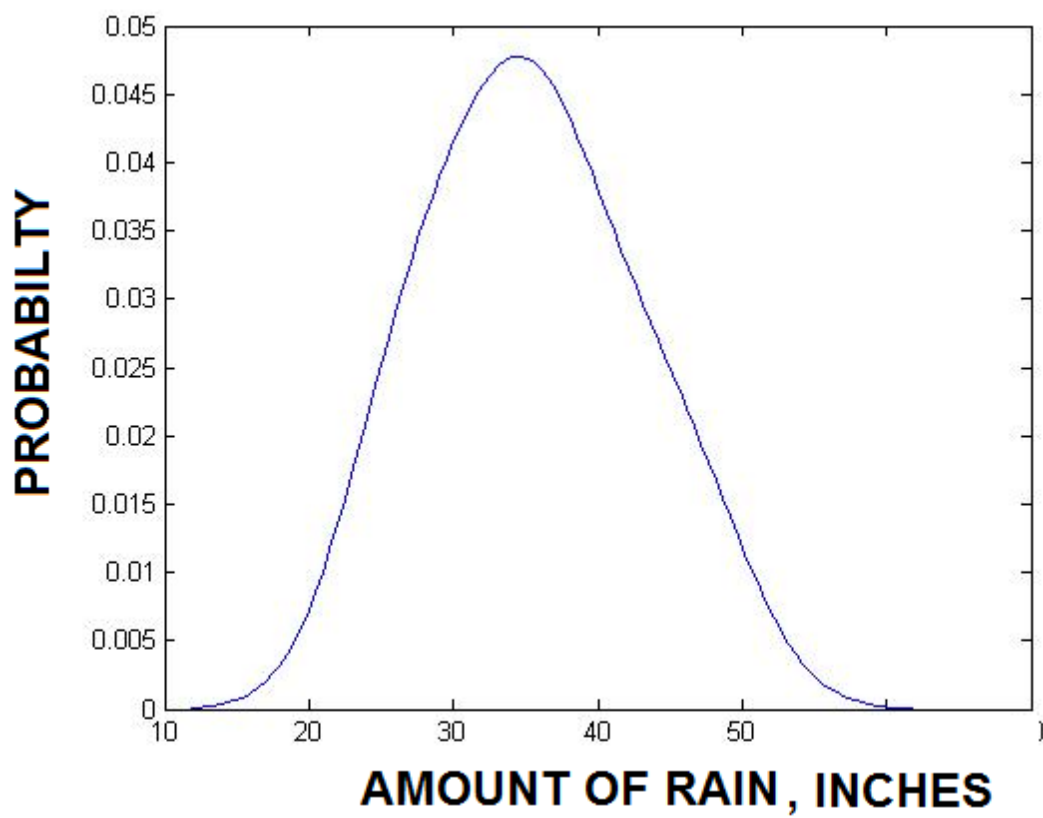
FIG. 1 PROBABILITY OF RAIN IN VIDARBHA