EUROPEAN ACADEMIC RESEARCH
Vol. I, Issue 10/ January 2014

ISSN 2286-4822
www.euacademic.org

Impact Factor: 0.485 (GIF)
DRJI Value: 5.9 (B+)

Changing Weather of Indian Thar Desert

BALWAN SINGH
SUS Govt. College
Matak Majri, Karnal
India
MAHIMA
A.I.J.H.M. College
Rohtak, India

Abstract:

Floods in India are the major aspects of weather associated with the abundance of monsoon rains. Nearly 40 million hectares of India is flood prone & every year nearly 8 million hectares of land is affected by floods. But flood in the deserted area of Rajasthan is the example of extreme rainfall during the monsoons. Rajasthan's Barmer & Jaisalmer districts are lying in the heart of Thar desert & normally receive the lowest rainfall in India. But in August 2006 this region experienced the unexpected & unusual in terms of monsoon rains. The erratic & heavy rainfall in August 2006 has turned a large part of the deep desert country into a vast submerged landscape.

Key words: Climate extreme, monsoon, changing cycle, submersible, global warming, sand dunes

Introduction:

Seasonal cycle of weather in the Thar Desert is changing. The intensity of rainfall in the districts of Thar is increasing very rapidly. Now the Daily Mean Rainfall in the desert is more than the annual rainfall of the past few years. Kayak River of chundi area of Jaisalmer district had almost lost its existence and people have made temples etc. pakka structures in its bed. But due to the heavy rainfall in the recent past all structures

got submerged in the water of this river. Rail tracks were displaced from their original place in Jodhpur Barmer railway line. Many colonies existing in the bed of Luni River were submerged by the running water of the river. Many residential areas & schools were surrounded by water in the Pokran area due to heavy rainfall. This changing cycle of weather is clearly visible in the Pali, Nagaur, Jodhpur, Jalaur, Jaisalmer, Barmier, Bikaner & Churu districts of western Rajasthan.

Objective:

The objective of this paper is to review the changing rainfall pattern in the desert area of Western Rajasthan and the management of water logging and flood water after heavy rainfall.

Analyses and Interpretation:

Why did this change occur? There are many obvious and imaginary explanations that have been forwarded to provide an apt answer to the question. Around ten years ago the scientists of England researched and claimed that earth is bending half a degree from its axis every thousand years. Due to this, there would be a drastic change in seasonal cycle. None believed them in their times but they were proved right in late years. Winter at present starts lately and continues till March. Monsoon has also stretched at length. Analysis has also forecasted that by 2030 the western area of Rajasthan would turn into a swamp. The signs have already started appearing on the scene. The average rainfall is increasing in desert areas. The dusty storms have become less frequent in areas. The sea-winds from south-west have increased the average humidity in the concerned areas. Rajasthan's Barmer & Jaisalmer districts are lying in the heart of Thar Desert & normally receives the lowest rainfall in India. But in August 2006 this region experienced the unexpected & unusual in terms of monsoon rains. The erratic &

heavy rainfall in august 2006 has turned a large part of the deep desert country into a vast submerged landscape. Thar Desert region under Barmer & Jaisalmer districts have an average rainfall of 280 mm annually. But during the monsoons of 2006 it received more than 600 mm of rains within three days.

The astonishing scenes of flood in 2006 in Barmer – Jaisalmer are still alive in the memory of all when a heavy life toll thrashed everyone's soul, not only dozens but thousands of houses were ransacked. It was the same area where there was nominal rainfall happened till recent years. But when rain changed its course and confronted the mentioned area, the whole scenario got a surprising change.

One another reason behind this change, is the increase in agriculture area. The ground water based agriculture that started in 90's in desert area like Jaisalmer has played a vital role in it. Submersible water pump based irrigation pattern that started initially in the area of chandhan of Jaisalmer district have spread up to south-west of district. Other than the increase in humidity in atmosphere, there is a wide increase in the number of plants which in turn has lessened the speed of wind. Due to this factor, the atmosphere is made suitable for rains. Enough rainfall has reduced the required quantity of water supplied by submersible pumps for kharif.

An interesting phenomenon is visible midst the whole scene. It goes without saying that the average rainfall has increase but, very interestingly, while some areas are getting more than enough rainfall, their adjacent areas get nominal rainfall at the same time. Even drought is witnessed in these areas.

Director, Arid Forest Research Institute, Jodhpur opines the same and says that rainfall is not happening evenly at all places. There may be certain local reasons behind it but nothing can surely be declared at present. Researches are being still conducted. According to him global warming can be a possible reason for all this. He says that rainfall is enough so far as

quantity is concerned but the span of rainy season has decreased. That means the day it rains, it rains very heavily which results in loss of life and property. Last year (2012) many areas of Nagaur availed no rain at all while other areas got more than enough rain. Similarly due to no rainfall, state govt. had to declare many areas of Jaisalmer, Bikaner and Barmer as drought hit areas.

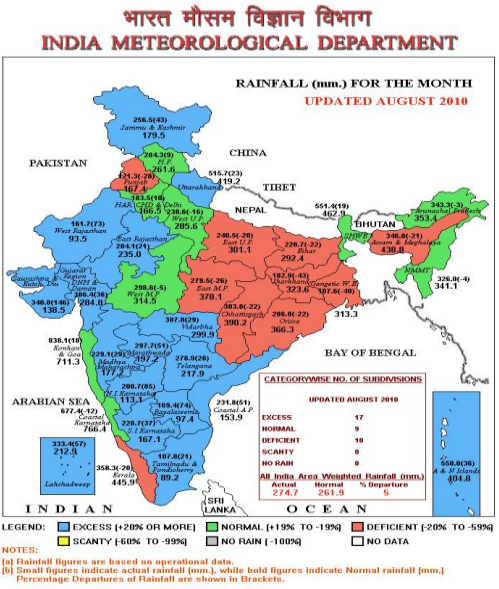
Anyhow, increase in average rainfall has no doubt brought prosperity in desert but it is not only finishing off the deserted area as an effect but also posing threats to the existence of many species of flora and fauna. It has also affected the cropping pattern & crops cycle. As per guidelines provided by scientists, the best period for sowing mustard is between Oct 5^{th} to 20^{th} as an ideal temperature exists for the purpose but now a days, this temperature has shifted to November due to climatic change. November season is said to be best for sowing wheat since we get an ideal temperature of around 22 degrees and around in the months but during last few years, the pattern has changed and the same temperature is now available in December.

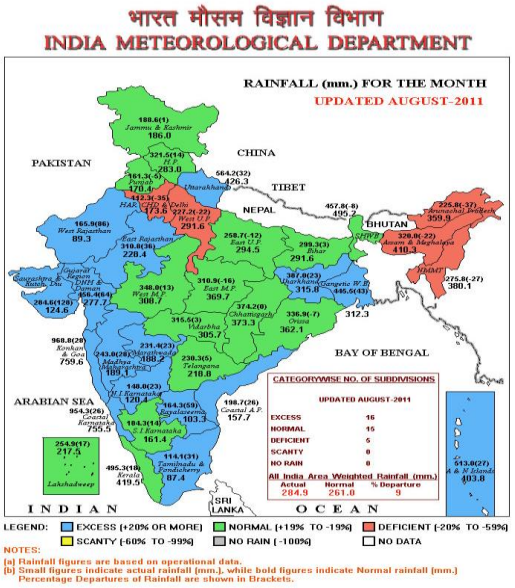
Decreasing desert area has also affected tourism. Many tourists from different part of world remarked after visiting Rajasthan's desert area that they have learnt and listened much about desert that allured them to visit it. But to their extreme surprise, they witnessed a nominal area of Sam and khuhadi as desert area.

According to some observations on the climatic changes of the area, says about these changes that Indira Gandhi Canal Scheme's launching can be the most vital reason behind the problem. It has brought many other problems along with a natural benefit i.e. bringing about greenery in the area.

Western Rajasthan is generally considered India's hot/warm state. A few years ago, it was a less dense area as far as its population was concerned. Sand-dunes were used to get cooled down after sunset but now-a-days due to increase in population, sand-dunes have lessened in their number. A scene

of man-made cemented and concrete – buildings has covered up the areas. Due to which the nights here are no more cool nights. The farmers are encouraged to procure cash crops with the start of canal-system in new areas but it has destroyed the fertility rate of the soil within 10-12 years. Now, these farmers have started feeling deceived on this account. Farmers recall the past while saying that there was a time when little rains made harvest flourish in the fields. But at present the condition is totally reversed. The condition today is so hopeless that in spite of excess use of tube well water and fertilizers what farmers get is a dull harvest. Through the rains are frequently happening but rain-cycle has got disturbed and there is no regularity in the cycle.

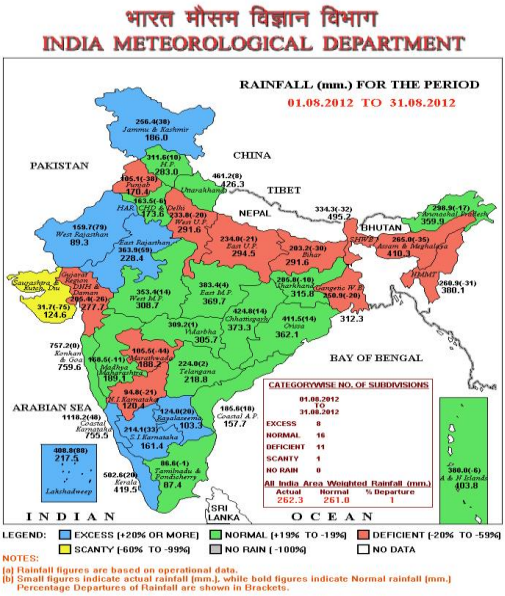


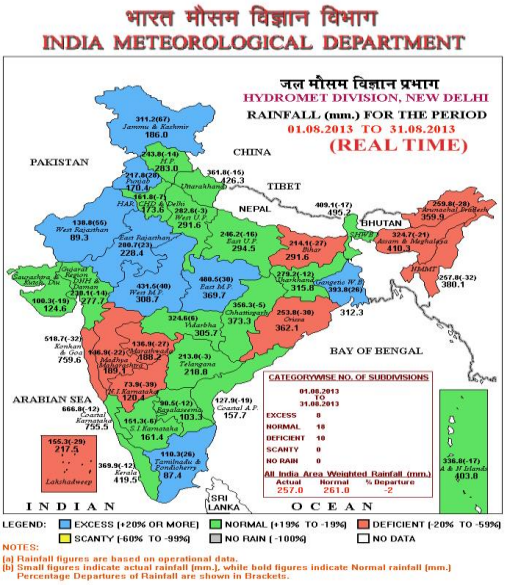


ANNUAL RAINY DAYS

Years	Barmer	Jaisalmer	Jodhpur
2000	11	5	11
2001	16	13	19
2002	9	5	9
2003	22	13	23
2004	12	4	13
2005	13	10	22
2006	24	16	18
2007	21	14	21
2008	20	12	24
2009	12	12	12
2010	23	21	31
2011	19	12	24
2012	13	13	23

Source: IMD, Pune


भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT
RAINFALL (mm.) FOR THE PERIOD
01.08.2012 TO 31.08.2012
PAKISTAN
CHINA
TIBET
NEPAL
BHUTAN
BAY OF BENGAL
ARABIAN SEA
INDIAN OCEAN
SRI LANKA
CATEGORYWISE NO. OF SUBDIVISIONS
01.08.2012 TO 31.08.2012
EXCESS 8
NORMAL 16
DEFICIENT 11
SCANTY 1
NO RAIN 0
All India Area Weighted Rainfall (mm.)
Actual 262.3
Normal 261.0
% Departure 1
LEGEND: EXCESS (+20% OR MORE) NORMAL (+19% TO -19%) DEFICIENT (-20% TO -59%)
SCANTY (-60% TO -99%) NO RAIN (-100%) NO DATA
NOTES:
(a) Rainfall figures are based on operational data.
(b) Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)
Percentage Departures of Rainfall are shown in Brackets.

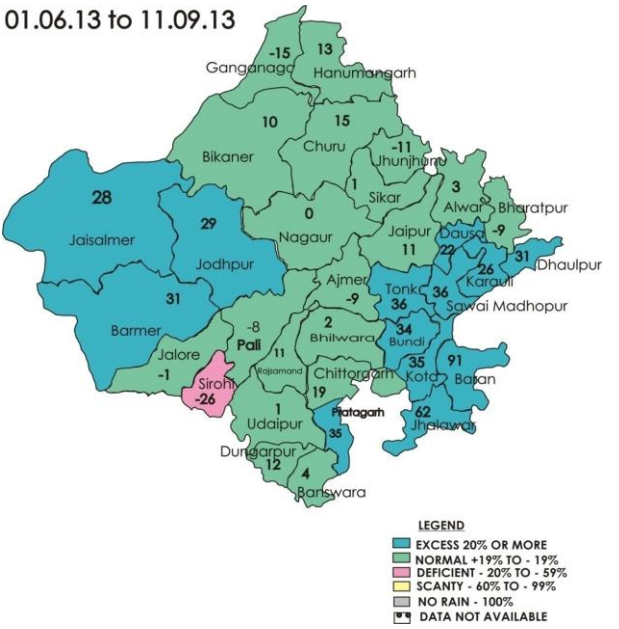

भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT
जल मौसम विज्ञान प्रभाग
HYDROMET DIVISION, NEW DELHI
RAINFALL (mm.) FOR THE PERIOD
01.08.2013 TO 31.08.2013
(REAL TIME)
PAKISTAN
CHINA
TIBET
NEPAL
BHUTAN
BAY OF BENGAL
ARABIAN SEA
INDIAN OCEAN
SRI LANKA
CATEGORYWISE NO. OF SUBDIVISIONS
01.08.2013 TO 31.08.2013
EXCESS 8
NORMAL 18
DEFICIENT 10
SCANTY 0
NO RAIN 0
All India Area Weighted Rainfall (mm.)
Actual 257.0
Normal 261.0
% Departure -2
LEGEND: EXCESS (+20% OR MORE) NORMAL (+19% TO -19%) DEFICIENT (-20% TO -59%)
SCANTY (-60% TO -99%) NO RAIN (-100%) NO DATA
NOTES:
(a) Rainfall figures are based on operational data.
(b) Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)
Percentage Departures of Rainfall are shown in Brackets.

DISTRICTWISE RAINFALL DISTRIBUTION

01.06.2013 TO 11.09.2013

STATE/UT/MET.SUBDIVISION DISTRICT (NAME)	ACTUAL (mm)	NORMAL (mm)	%DEP	CAT.
STATE:RAJASTHAN				
METSD:WEST RAJASTHAN				
1 BARMER	302.6	230.2	31%	E
2 BIKANER	233.9	212.3	10%	N
3 CHURU	335.5	292.4	15%	N
4 HANUMANGARH	268.2	236.8	13%	N
5 JAISALMER	194.7	152.4	28%	E
6 JALORE	374.7	378.6	-1%	N
7 JODHPUR	334.8	259.5	29%	E
8 NAGAUR	330.3	330.7	0%	N
9 PALI	389.8	425.1	-8%	N
10 SRI GANGANAGAR	162.2	190.3	-15%	N

Source: IMD , Pune



Rajasthan: Rainfall

Rainfall data of Indian meteorological department through maps and tables showing that almost every year, Rajasthan (particularly western part) received the excess amount of rainfall.

Conclusions:

There is no doubt that a climatic condition in the desert area of country is changing and the desert area of country is experiencing the increased number of rainy days. Due to all this the agriculture and cropping pattern is also changing with the changing weather conditions. Keeping in mind all these changes farmers should also adopt the suitable varieties of cropping. Decreasing desert area is also a matter of concern from the tourism point of view. If desert area and number of sand dunes is decreasing then it will be a negative sign for the tourist potential of the area.

After the heavy rainfall in this area the water does not drain out because of an impermeable layer of sub- surface

gypsum. It is experienced that after heavy rain Tertiary terrains in the desert area of Rajasthan invariably become sites of water logging and floods. Keeping in view the frequency of the problem of water logging and floods in the above area, proper water management approach is required to reduce the loss of life, property, agricultural products and materials in future. Proper water management may include development of network of canals for draining out water for its utilization in irrigation and storage purposes, construction of suitably spaced wells and bore wells for recharging well identified aquifers, channelizing water to already identified palaeochannels and unused barren depressions, construction of more water tanks and enlarging existing tanks and ponds to increase their water storage capacity.

In short, increasing rains has completely changed the life of the desert be it positive or negative but the decisive results of the researches pertaining to the same problem are still awaited.

BIBLIOGRAPHY:

_____. Indian Meteorological Department, Pune.

_____. IMD*, Annual Report*, 2007.

_____. www.thehindu.com.

_____. *Frontline*, September 26, 2008.

_____. *India Today*, September 4, 2013.

Laul, V.P. and Laul, Vivek. 2007. "Floods in Barmer and other Tertiary terrains in Rajasthan." *Current Science* 92(5): 568.