

A brief study of the Irrigated Area and Sources of Irrigation and Area Under Major Crops in M.P.

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ABSTRACT

I have done a brief research on the irrigation system here in the context of Madhya Pradesh, under which I have studied these. Four rivers, Son, Mahanadi, Narmada, wainganga cable the chief of Madhya Pradesh. [Algappa,A 1977]

In which there are has been told about surface water and ground water, along with these rivers ,the total area of Madhya Pradesh and the distance of these rivers together which the surface and ground water has been extracted. [Basu,A.K. 1963]

After this,I have presented a brief study under the irrigation of major crops in the paper by briefly describing all the means of irrigation and irrigation in Madhya Pradesh by describing the source wise irrigated area and crops wise irrigated area and so on.[Batisse,M.1964]

Through which some important information related to irrigation and agriculture of Madhya Pradesh was obtained and this is the purpose of my research paper that I can briefly explain the situation between Madhya Pradesh irrigation and agriculture by briefly researching the situation and finally It will be said that the essence of my research is that the information about irrigation and agriculture of Madhya Pradesh can be obtained.[Browh,R.M.1994]

1. Introduction

Madhya Pradesh in India as known as the heartland of India and is a land-locked state whose latitudinal ranges from 21°6' North latitude to 26°30' North latitude and longitudinal extension is between 74°9' East longitude to 82°48' full longitude.[Dubey,R.S. 1987]

Madhya Pradesh has 125080 sq.km Seats under the total irrigated area and the total surface water up to 45 cubic.km., ground water 5 cubic. km. simily the son River (Area 54255 sq.km.),Mahanadi River (Area 87387 sq.km.),Narmada River(Area 90715 sq.km.) and wainganga River (Area 12326 sq.km) have been studied. Along with this the distance of all rivers of Madhya Pradesh and inter-state surface water and ground water has been extracted.[Degan,Gedon 1988]

Out of the total area of 125080 sq.km. of Madhya Pradesh, Narmada River has the maximum area of 90715 sq.km. and the lowest is of 12326 sq.km. wainganga. According to Table-4 it has described the types of rainfall in a total of 50 districts under year 2010-11 in which the maximum number of districts fall under normal rainfall.[Garland,John,H. 1950]

In Madhya Pradesh canals are irrigated by tanks, wells and tubewells etc. under this I have studied the study of 1990 and 2009 and found out the percentage change.

Under Table-5 I have described the major crops like Paddy,Maize, Wheat, and Joe, and Oil seeds, sugarcane and Cotton under pulses according to the crops of Madhya Pradesh.[Hussain,S.K.1976]

2. Objectives

- Explanation of irrigation and agriculture in Madhya Pradesh.
- Means of irrigation and their true use.
- Impact of irrigation on agriculture.
- Explanation of total related to agriculture.
- Role of means of irrigation of major crops.
- Surface water and ground water area of irrigation and major crops in Madhya Pradesh.

3. Materials and Methods

In this paper I have used comparative descriptive and explanatory method using necessary reference books Madhya Pradesh Irrigation statistics and data obtained by doing research by myself.

4. Results

As a result in relation to the research paper it can be said that there is a difference of 70825 sq.km. in the son river area 54255 sq.km. compared to 125080 sq.km. areas under irrigation in Madhya Pradesh. Similarly the difference of Mahanadi is 37693 sq.km. the difference of Marmada River is 34365 sq.km. and the difference of venganga is 112754 sq.km. But if surface water is compared to Madhya Pradesh the Difference of son river has increased to 15.71 sq.km. and the difference of Mahanadi has increased to +7.43 sq.km. and the difference of Narmada river is 4.18 sq.km and finally the difference of vainganga river is 40.47 sq.km.[Table-2]

If the ground water of Madhya Pradesh is compared with the rivers, the son river has made a difference of 1.3sq.km. the Mahanadi has increased by +0.25 sq.km. and the difference of

the Narmada river has come by 0.48 sq.km. and the Vainganga has come out by 4.09sq.km.[Table-2]

In the research I have only found the difference of major rivers in which it has been found that the difference between the area of Narmada River and Son River has come 36460sq.km.and the difference of Narmada and Mahanadi has come 3328 sq.km. and the difference of Narmada River and venganga has come 78389 sq.km.[Table-3]

Similarly in the context of surface water the difference of 11.53 sq.km. Narmada river and Son river, Mahanadi river and Narmada river has increased by +11.61 sq.km. and the difference between Narmada river and Vainganga has 36.29 sq.km. If we look in terms of ground water we find that the difference between Narmada River an Son River comes 0.83 sq.km. and the difference between Narmada River and Mahanadi increase +0.73 sq.km. and the difference between Narmada River and Vainganga become 3.61 sq.km.(Govind, Nalini 1986).

Similarly according to Table-4 under the year 2010-11 the rainfall types are divided into 50 districts according to the types of rainfall in which the maximum 34 District under normal rainfall and the least only two districts Barwani and Umaria under Deficient rainfall. But 14 districts under Excess rainfall Table-1

and if seen further there is only 9% increase between normal rainfall and actual rainfall.

Further according to the data displayed in Table-5 6.39%, Tanks-1.52%,wells and Tubewells 17.70% of reactive change percentage canals under the year 1990 and year 2009 and 15.46% of reactive change under other sources and in the net irrigated area and net area sown it was 37.6 (000' ha.) in the year 1990 and 43.2 (000'ha.) in the year 2009.similarly under the gross irrigated area and gross area sown was 23.5(000'ha.) in the year 1990 and 32.3 (000'ha.) in the year 2010.[Table-5]

If we look at Table-6,it describes the crops wise Irrigated area and all the important crops are described in 1999-2000 and 2009-10 Absolute change and Reactive change percentage.Like paddy Absolute change in the year 1999-2000 and year 2009-10 was 59.00% Maize 4.00%,Wheat-47.00% and Berly 12.00%. [Table-6]

Finally as a result it can be said that Madhya Pradesh completeness is very much dependent on the monsoon in terms of agriculture like India. (Jones, G.E. 1963).

Total area of major river of Madhya Pradesh Surface water and available ground water

River	Total area water (sq.km.)	Total available surface water (cubic.km.)	Total available ground water (cubic.km.)
M.P.	125080	45	5
Son	54255	29.29	3.69
Mahanadi	873387	52.43	5.25
Narmada	90715	40.82	4.52
Banganga	12326	4.53	0.91

Source:- Irrigation-Statistics-MPWRD

FIGURE-1(Table-1)
Total Area of Major River of Madhya Pradesh(Sq.Km.)

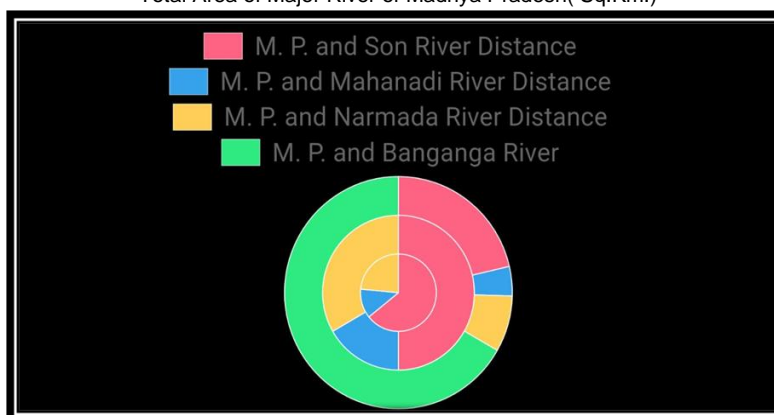


FIGURE-2(Table-1)
Total Surface Water of Major River of Madhya Pradesh(Cubic.Km.)

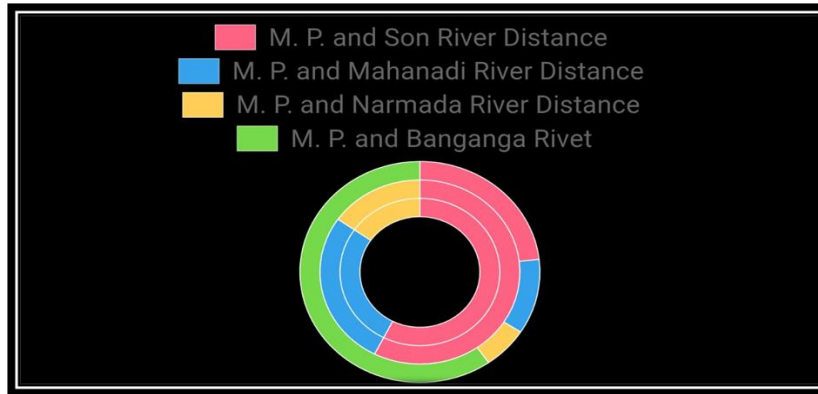


FIGURE-3(Table-1)
Total Available Ground Water of Major River of Madhya Pradesh(Cubic.Km.)

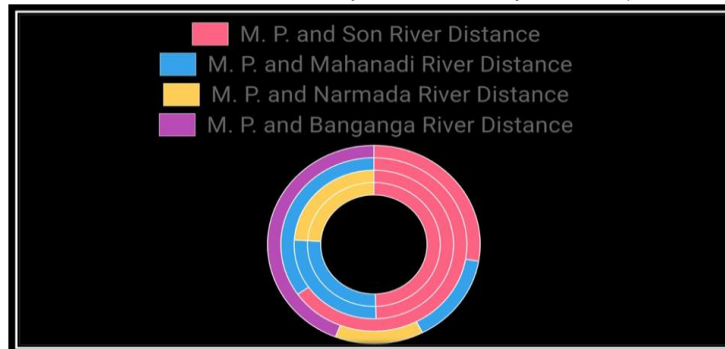


Table-2
Water use and area distance of major river of Madhya Pradesh

Total water use and area in (M.P.)	M.P.(sq.km.)	Son river (sq.km.)	Distance MP and Son (sq.km.)	Mahanadi River (sq.km.)	Distance M.P. and Narmada (sq.km.)	Narmada River (sq.km.)	Distance M.P.and Narmada	Banganga River (sq.km)	Distance M.P. and Banganga (sq.km.)
Total area (sq.km.)	125080	54255	70825	87387	37693	90715	34365	12326	112754
Total available surface water (cubic-km)	45	29.29	15.71	52.43	+7.43	40.82	4.18	4.53	40.47
Total available ground water (cubic-km.)	5	3.69	1.31	5.25	+0.25	4.52	0.48	0.91	4.09

Source:- Irrigation-Statistics-MPWRD

FIGURE-4(Table-2)
Total Water Area Distance of Major River of Madhya Pradesh(Sq.Km.)

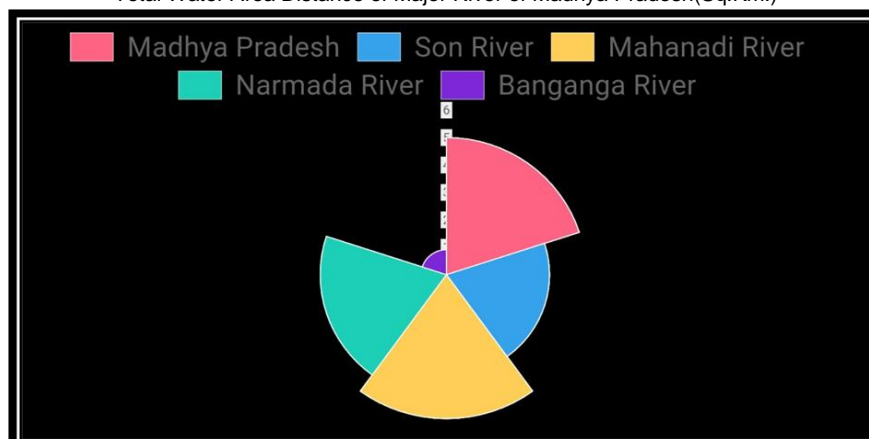


FIGURE-5(Table-2)
Total Available Surface Water Distance of Major River of Madhya Pradesh(Cubic.Km.)

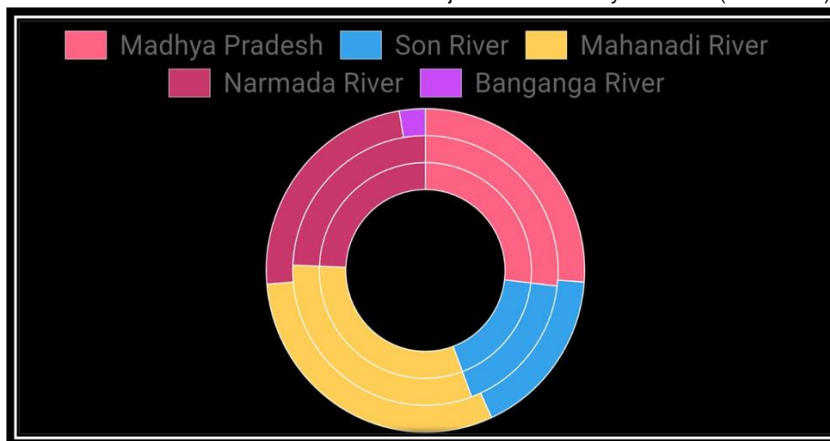


FIGURE-6(Table-2)
Total Available Ground Water Distance of Major River of Madhya Pradesh(Cubic.Km.)

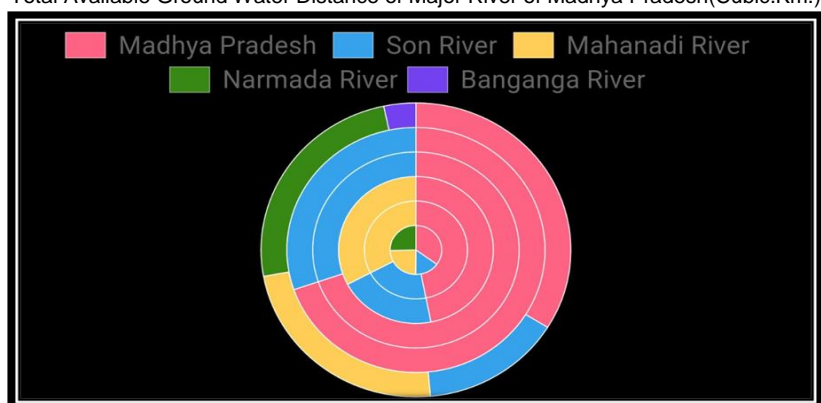


Table-3
Difference between the total surface water and total ground water area of major rivers of M.P.

Area and Use of water of river in M.P.	Naramda River	Son river	Distance	Naramda River	Mahanadi River	Distance	Naramda River	Banganga River	Distance
Total area (sq.km.)	90715	54255	36460	90715	87387	3328	90715	12326	78389
Total available surface water (cubic-km)	40.82	29.29	11.53	40.82	52.43	+11.61	40.82	4.53	36.29
Total available ground water (cubic-km.)	4.52	3.69	0.83	4.52	5.25	+0.73	4.52	0.91	3.61

Source:- Irrigation-Statistics-MPWRD

Table-4
Types and status of Rainfall in 50 districts of M.P. (2010-11)

Types of Rain	Districts
Excess rainfall (+20% & above)	Singroli, Betul, Harda, Sidhi, Jhabua, Khandwa, Burhanpur, Hosangabad, Dewas, Sehore, Rewa, Ujjain, Shivpuri, Indore. (Total=14 River)
Normal rainfall (+19% to -19%)	Ratlam, Morena, Mandsaur, Bhopal, Datia, Jabalpur, Guna, Alirajpur, Chhind-wara, Rajgarh, Katni, Bhind, Shajapur, Gwalior, Neemuch, Mandla, Sheopur- Kala, Khargone, Damoh, Panna, Satna, Vidisha, Narsinghpur, Ashoknagar, Raisen, Seoni, Tikamgarh, Dhar, Shahdol, Sagar, Dindori, Chhaterpur, Balaghat, Anuppur. (Total=34 River)
Deficient rainfall (-20% to -59%)	Barwani, Umaria. (Total=2 River)
Narmal rainfall of state (mm)	911.9
Actual rainfall of state (mm)	992.4
% increase	+9%

Source:- Irrigation-Statistics-MPWRD

FIGURE-7(Table-4)
Types of Rainfall Excess Rainfall,Normal Rainfall and Deficient Rainfall District in M.P.(Year 2010-11)

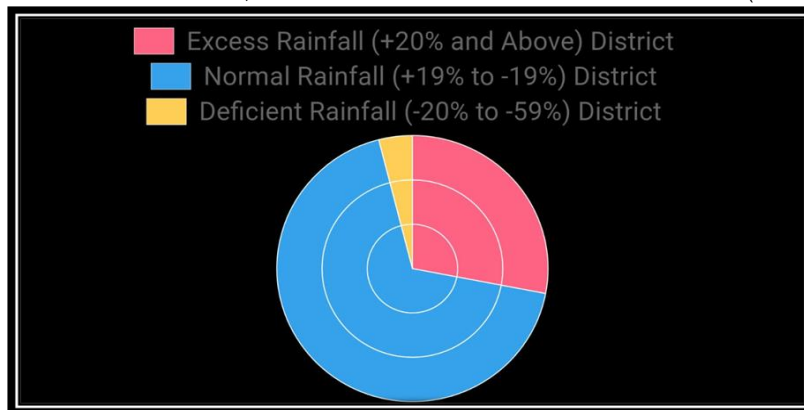


Table-5
Source wise Irrigated Area in M.P.
(000' ha.)

Sources	1990-00	2009-10	Absalute change	Relative change (%)
Canals	1002	1066	64.00	6.39
Tanks	132	130	-2.00	-1.52
Wells&Tube-wells	3712	4369	657.00	17.70
Other Sources	815	941	126.00	15.46
Net irrigated area	5661	6506	845.00	14.93
Gross irrigated area	5828	6714	886.00	15.20
% of Net irrigated area to net area sown	37.6	43.2	5.60	----
% of gross irrigated area to gross area sown	28.5	32.3	3.80	----

Source:- Irrigation-Statistics-MPWRD

FIGURE-8(Table-5)
Source Wise Absolute Change Irrigated Area(000'ha.) in Madhya Pradesh

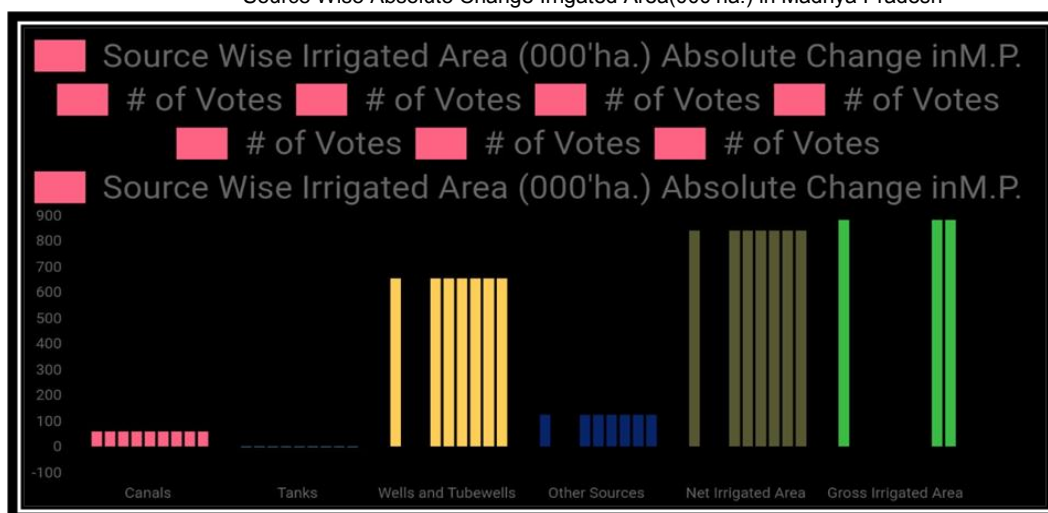


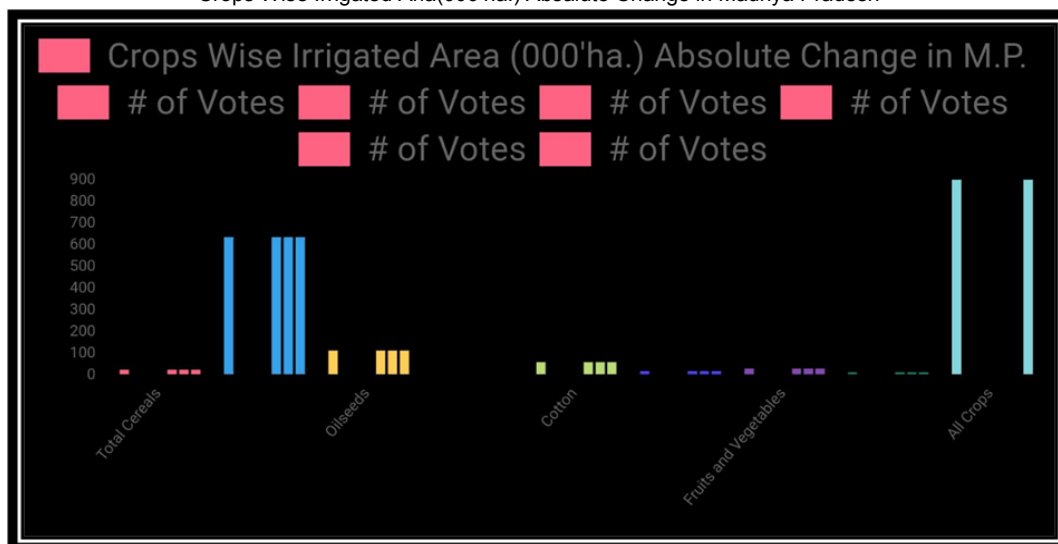
Table-6
Crops wise Irrigated Area in M.P.
(000' ha.)

Crops	1990-2000	2009-10	Absolute change	Relative change (%)
Paddy	244	303	59.00	24.18
Maize	11	15	4.00	36.36
Wheat	3399	3352	-47.00	-1.38
Barley	29	41	12.00	41.38
Total creals	3684	3711	27.00	0.73

Gram	941	1474	533.00	56.64
Others	138	241	103.00	74.64
Total Pulses	1079	1715	636.00	58.94
Oilseeds	322	432	110.00	34.16
Sugarcons	76	80	4.00	5.26
Cotton	194	252	58.00	29.90
Spices& Condiments	234	254	20.00	8.55
Fruits& Vegetables	186	216	30.00	16.13
Other crops	39	54	15.00	38.46
All crops	5814	6714	900.00	15.48

Source:- Irrigation-Statistics-MPWRD

FIGURE-9(Table-6)
Crops Wise Irrigated Area(000'ha.) Absolute Change in Madhya Pradesh



5. Discussion

If we talk about this research topic in discussion then everyone will say that this is a very important topic for research because the result I have received from doing research on this topic is very informative and when I have asked some people If we discussed about the subject they should also tell it a very good topic on which a research paper has been written so that I can know about the irrigation sources and crops of irrigation in Madhya Pradesh information has been received and know this topic is a very effective subject.

6. Conclusion

In conclusion it can be said about this research paper that Madhya Pradesh and major rivers related to surface water and ground water irrigated area in Madhya Pradesh have been the most increase and most of 34 districts of Madhya Pradesh fall under normal rainfall and under Deficient Rainfall only two districts are Barwani and Umari.

Similarly in the context of source wise irrigated area, Absolute change has been reduced -2.00% only under Tanks but most of the increase is visible only.

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