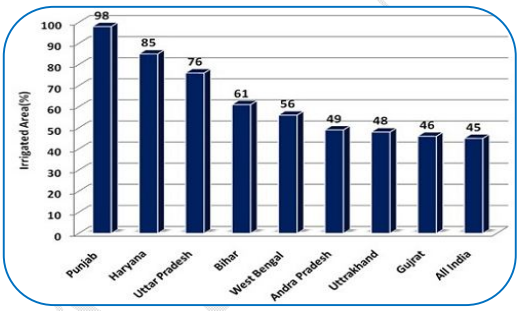
REVIEW OF RESEARCH
IMPACT FACTOR : 5.7631(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 8 | ISSUE - 6 | MARCH - 2019

DEVELOPMENT OF IRRIGATION IN HARYANA STATE: 2012-2015

Kirpa Ram
Astt. Prof. in Geography (Extension) , F.G.M. Govt. College, Adampur, Haryana.

ABSTRACT :



Haryana is largely a semi-arid region. Where mean annual rainfall varies between 300 to 1000 mm. Hence a large part of a state experience soil moisture deficiency. Even during rainy (Southeast Monsoon) season, the rainfall is not sufficient to meet the soil moisture requirements. The cropping season during winter (rabi) receives rainfall in a very small amount. The cultivation of crops on the sustained basis in areas like Haryana is possible only with the help of irrigation. In the erstwhile Punjab, of which Haryana was a constituent, various means were employed for irrigation for a long time. However, in traditional agriculture, irrigation was assigned merely a protective role. It provided insurance against the vagaries of rainfall such as drought and dry spells. But with the adoption of high-yielding varieties, chemical fertilizers and mechanization, irrigation has become the chief ingredient of the recipe of agricultural development.

KEYWORDS : *Agricultre, Development, Irrigation, Intensity etc.*

INTRODUCTION

Haryana came into existence on 1st November 1966 due to partition of Punjab under the Punjab Reorganization Act. In the beginning, there were seven districts and one division in Haryana. But at present it is divided into twenty one districts and four divisions. The present four divisions of the state are Ambala, Rohtak, Gurgaon and Hisar. Extending over an area of about 44,212 sq. km. from 27^{0}39' N to 30^{0}55'5" N latitudes and 74^{0}27'8" E to 77^{0}36'5"E longitudes.

OBJECTIVE OF STUDY:-

To study the spatial variation in the level of agricultural development in term of
(a) Irrigational development

Data Base

The present study based on secondary data. The district wise secondary data have been collected from Statistical abstract of Haryana, Economics and statistical Organization, Chandigarh. The data pertain to three dimensions i.e. 2012-2015(late two thousand ten). The collected data is tabulated and processed with the help of simple statistical techniques.

Case Study:-.

Among the physical factors, the climatic elements exercise more influence on agriculture of Haryana. These are responsible for causing both seasonal and spatial pattern in the state's agriculture. Haryana has three well defines cropping seasons, i.e. Kharif, Rabi and Zaid. The temperature and length of growing season are not limiting factors in cropping. Rainfall is most dominant single parameter that influences plant growth and crop production. The state shows considerable spatial variation in the

distribution of rainfall. The north western part of state has normal annual rainfall above 1000 mm. whereas the western part along Rajasthan border normally receives less than 300 mm rainfall. In general, the amount of mean annual rainfall decreases gradually or moving southwest wards from the northeastern region.

Haryana is largely a semi-arid region having persistent soil moisture deficiency even during rainy season. Hence the successful cultivation of crops in such areas is possible only with the help of irrigation. In the traditional agriculture irrigation was assigned a protective role. But with the adoption of HYV, chemical fertilizers and mechanization, irrigation has become the chief ingredient of agricultural input. The planned efforts towards development of irrigation facilities in Haryana began after the independences of the country. The eastern parts of the state experiences intensive irrigation. Whereas, the dry areas in the southern and southwestern parts of the state, have been provided protective irrigation through a network of lift irrigation schemes. During the reference period of the present study the gross area under irrigation from all sources has increased to 2984 thousand ha in 2012-15.

Area under irrigation has expended very fast since 1960s. Net area irrigated (NAI) constituted 83.55 percent of the Net Sown Area (NSA) in the state during 2012-15. Infact some of the districts in eastern part of state (Kurukshetra, Kaithal, Karnal, Panipat, Sonipat) are fully irrigated by individually owned shallow tube wells providing the farmers full control over irrigation maens . The irrigation map of the state has changed drastically during last three decads. Bhiwani, Mewat and Panchkula are least irrigated districts having less than 65 percent of NSA irrigated. This is because of lack of availability of canal water and saline ground water. Other districts in south and southwestern Haryana are moderately irrigated (65-80 percent). High proportion of irrigation area (80 to 95 percent) is found in western parts of the state and Ambala and Yamunanagar districts. In southern Haryana Faridabad, Gurgoan and Palwal are also included in this category. In western parts the proportion of the irrigated area is high due to Bhakra Canal System.

The intensity of irrigation has also increased substantially after 1960s. During the period 2007-10 intensity of irrigation was recorded 179 percent. This has direct bearing on the double cropping. There is a considerable spatial variation in the intensity of irrigation too. The southwestern and southern districts in the state had low intensity of irrigation in 2012-15. Mahendergarh and Rewari districts in particular have very low intensity of irrigation. These districts are dominantly tubewell irrigated. The shallow tubewell in this region provide irrigation during Rabi season only. On the other hand, the area lying between Hisar-Bhiwani in west and KarnalPanipat in east has very high intensity of irrigation.

The package technology was introduced in the state during mid-sixties. Since, the irrigation was the spearhead of new agricultural technology. Its application at the initial stage was confined to irrigated areas only. But the components of new technology (chemical fertilizer HYV seeds, insecticide and farm machinery) diffused very fast in other area.

Area under Irrigation

The successful expansion in area under irrigation has been one of the most striking features in agriculture of the state. There are two significant aspects attached to the development of irrigation in state. The first related to the fact that irrigation is not merely one of the input but a pre-requisite infrastructure on which also input and better cultivation methods can effectively be based. The second concerns with the almost explosive expansion in the utilization of the groundwater , particularly in districts of Kurukshetra, Kaithal, Panipat, Karnal, Sonipat, and Yamunanager through individually owned shallow tubewells providing the farmers with just the type of instant and controlled irrigation , which the new high –yielding varieties of demand along with the application of fertilizers.

Haryana
Sourcewise Proportion of Irrigated Area
2012-15
Table No 1.1

(In Percent)

S.No.	Districts	Canals	Tube wells	Other sources
1.	Ambala	12.28	86.58	0.87
2.	Panchkula	9.66	77.29	13.04
3.	Yamunanagar	2.54	97.45	0.00
4.	Kurukshetra	18.22	81.71	0.00
5.	Kaithal	49.08	49.08	1.82
6.	Karnal	31.95	68.04	0.00
7.	Panipat	33.56	66.43	0.00
8.	Sonipat	57.79	44.20	0.00
9.	Rohtak	69.61	30.38	0.00
10.	Jhajjar	64.21	35.78	0.00
11.	Faridabad	9.59	90.40	0.00
12.	Palwal	20.21	79.78	0.00
13.	Gurgaon	2.73	97.26	0.00
14.	Mewat	3.66	96.33	0.00
15.	Rewari	1.96	98.03	0.00
16.	Mahendergarh	1.49	98.50	0.00
17.	Bhiwani	47.65	52.17	0.00
18.	Jind	53.15	46.68	0.00
19.	Hisar	84.80	15.19	0.00
20	Fatehabad	60.03	39.96	0.00
21.	Sirsa	69.80	30.29	0.00
	Haryana	43.85	56.07	0.20

Source: Statistical Abstracts Haryana, Department of Economics and Statistical analysis Haryana, 2012-2015.

Haryana
Proportion of Net Area under Irrigation
2012-2015
Table no.1.2

(Area 000' ha)

S.No.	Districts	Net Irrigated area	Percentage to Net Sown Area
1.	Ambala	112.33	85.27
2.	Panchkula	10.66	45.41
3.	Yamunanagar	118.00	92.65
4.	Kurukshetra	151.00	101.00
5.	Kaithal	201.00	98.50
6.	Karnal	194.00	98.48
7.	Panipat	95.33	103.00
8.	Sonipat	152.00	98.49
9.	Rohtak	111.00	78.53
10.	Jhajjar	122.00	75.15
11.	Faridabad	59.00	93.16
12.	Palwal	61.00	87.98

13.	Gurgaon	77.00	92.03
14.	Mewat	72.33	62.71
15.	Rewari	104.00	82.98
16.	Mahendergarh	111.00	73.34
17.	Bhiwani	202.00	52.60
18.	Jind	216.33	92.31
19.	Hisar	252.66	75.67
20	Fatehabad	216.00	90.88
21.	Sirsa	354.66	90.03
Haryana		3085.51	84.55

Source: Statistical Abstracts Haryana, Department of Economics and Statistical analysis Haryana, 2012-2015.

Haryana
Intensity of Irrigation
2012-2015

S.No.	Districts	Irrigation Intensity (In %)
1.	Ambala	167
2.	Panchkula	236
3.	Yamunanagar	169
4.	Kurukshetra	184
5.	Kaithal	188
6.	Karnal	201
7.	Panipat	199
8.	Sonipat	199
9.	Rohtak	178
10.	Jhajjar	160
11.	Faridabad	190
12.	Palwal	190
13.	Gurgaon	130
14.	Mewat	149
15.	Rewari	112
16.	Mahendergarh	135
17.	Bhiwani	205
18.	Jind	200
19.	Hisar	219
20	Fatehabad	189
21.	Sirsa	186
Haryana		179

Source: Statistical Abstracts Haryana, Department of Economics and Statistical analysis Haryana, 2012-2015.

CONCLUSION-

Haryana is largely a semi-arid region having persistent soil moisture deficiency even during rainy season. Hence the successful cultivation of crops in such areas is possible only with the help of irrigation. In the traditional agriculture irrigation was assigned a protective role. But with the adoption of HYV, chemical fertilizers and mechanization, irrigation has become the chief ingredient of agricultural input. The planned efforts towards development of irrigation facilities in Haryana began

after the independences of the country. The eastern parts of the state experiences intensive irrigation. Whereas, the dry areas in the southern and southwestern parts of the state, have been provided protective irrigation through a network of lift irrigation schemes. During the reference period of the present study the gross area under irrigation from all sources has increased to 2984 thousand ha in 2012-15.

Area under irrigation has expended very fast since 1960s. Net area irrigated (NAI) constituted 83.55 percent of the Net Sown Area (NSA) in the state during 2012-15. Infact some of the districts in eastern part of state (Kurukshetra, Kaithal, Karnal, Panipat, Sonipat) are fully irrigated by individually owned shallow tube wells providing the farmers full control over irrigation maens . The irrigation map of the state has changed drastically during last three decads. Bhiwani, Mewat and Panchkula are least irrigated districts having less than 65 percent of NSA irrigated. This is because of lack of availability of canal water and saline ground water. Other districts in south and southwestern Haryana are moderately irrigated (65-80 percent). High proportion of irrigation area (80 to 95 percent) is found in western parts of the state and Ambala and Yamunanagar districts. In southern Haryana Faridabad, Gurgoan and Palwal are also included in this categories. In western parts the proportion of the irrigated area is high due to Bhakra Canal System.

The intensity of irrigation has also increased substantially after 1960s. During the period 2012-15 intensity of irrigation was recorded 179 percent. This has direct bearing on the double cropping. There is a considerable spatial variation in the intensity of irrigation too. The southwestern and southern districts in the state had low intensity of irrigation in 2012-15. Mahendergarh and Rewari districts in particular have very low intensity of irrigation. These districts are dominantly tubewell irrigated. The shallow tubewell in this region provide irrigation during Rabi season only. On the other hand, the area lying between Hisar-Bhiwani in west and KarnalPanipat in east has very high intensity of irrigation.

REFERENCE :-

Bhatia, S.S. (1967). Spatial Variation, Changes and Trends in Agricultural Efficiency in Uttar Pradesh, 1952-53, Indian Journals of Agricultural Economics 22 pp 68-80.

Bhalla, G. S. and Singh, G. (1997). Recent Development in Indian Agriculture: A State Level Analysis. Economic and Political Weekly 32(13).

Bhalla, G. S. and Singh, G. (2001), Indian Agriculture:Four Decades of Development.Sage Publications, New Delhi.

Chand, R. and K.C. johsi (1996). Agricultural Productivity in the Higher Himalaya, A Case Study, Indian Journal science 28(I) pp59-66

Chandal, R.S. and S.P. Asthana (1996). Spatial-Temporal Imbalances in Agricultural Efficiency in the Ganga Plain. National Geographical Journal of India, pp 106-115

Camellia,B.,(2012). Determinants of the Agricultural Productivity Growth Among Romanian Regions,,Annales Universities Apulensis Series Oeconomica, 14(1), 20122011, PP-145-149.

Chand, R., Garg, S., Pandey, L., (2009). Regional Variations in Agricultural Productivity A District Level Study, Discussion Paper NPP 01/2009.

Deolilker, A.B. (1981). The Inverse Relationship between Productivity and Farm Size: A Test using Regional Data from India, American Journal of Agricultural Economics 63(2) pp 275-279