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Socio-Economic Impact of Chandoli Dam: Perception Based Study of the Selected Villages of Warna River Basin

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Abstract:

The present study forms a part of Warna river basin in Maharashtra State of India, which includes the Chandoli dam (Warna dam). Warna River is a major tributary of the Krishna River, which forms the northern boundary of Kolhapur, and rises in Sahyadri ranges of Maharashtra. The dam is benefited to 105 villages in the basin, having a command area of 50131 hectares for irrigation facilities. The focus of the research work is to determine the socio economic impact of dam.

Keywords — **Socio-Economic Impact, Warna Dam, Questionnaire Survey, Disparity.**

I. INTRODUCTION

In the agricultural practices , the role of irrigation is also important . The irrigation system helps to increase the crop productivity and also support the crops during the unfavourable climatic conditions. Gleick ; Postel and Dynesius have reported that, Forty per cent of crop production comes from the 16% of agricultural land that is irrigated . "Irrigated lands account for a substantial portion of increased yields obtained during the Green Revolution. Unless water-use efficiency is increased, greater agricultural production will require increased irrigation." (Gleick, 1993; Postel, 1996 & Dynesius, 1994) [1]–[3]. The main objective of research work is to assess the socio-economic impact of dam in the study area. The socio-economic study and impact of dam or reservoir have carried out with some indicators for socio-economic status of command area (i.e. study under consideration) [4], [5].

II. METHODOLOGY

The stratified sampling method has used for socio-economic impact of dam. The basin area of river has stratified into three parts i.e. upstream basin, middle stream and lower stream basin. From each 3 part of basin area, 7-7 villages have selected along left and right side of Warna basin. Overall, 21 villages have selected to study the socio-economic impact of Warna dam. The fieldwork consists of participant observation and informal interviews. The socio-economic studies have carried out on these sites. The aspects included in the socio-economic surveys like number of households which are affected due to construction of dam like educational attainment, family annual income, occupational structure, types of houses, land ownership, cropping pattern, soil and farm types, improvement in crop production and productivity. Questionnaire have formulated on account of all the relevant aspects mentioned above. The methodology also includes individual household case study and institutional analysis. Door to door house hold survey has carried out for the collection of large data and stratified sampling method is used.

III. DISCUSSIONS:

SOCIO-ECONOMIC IMPACT OF CHANDOLI DAM

The assessments of the socio-economic impacts of the Warna dam for the villages of basin area have been attempted. The primary data has collected from 21 selected villages (from warna basin villages) using questionnaire.

A. Education:

The provided bar chart (fig. 1) depicts the education quality and literacy which is divided

among 5 categories i.e. 1st to 4th standard , 5th to 10th standard , 12th standard, graduate and post graduate respectively. The children sent to 1st to 4th standard is higher in Khundalapur i.e. 24%, then successively followed by village Dhavali (22 %), Mandur (21%) and Jakhale , Yelapur and Sandoli remains steady at 20%.

Similarly standard pursuing 5th to 10th standard are higher than any other group of literacy. Lot of emphasis is given to this group of education as it manifests approximately 47% of students pursuing this education in Shigaon followed by Sandoli (45%), Tandulwadi (43.5%) Bhendawade (40.5%). In contrast low education rate by this group is shown by village i.e Dhavli (17%) and Khundalapur (26%). The students taking 12th standard education is higher in villages such as Dhavli, Jakhale, Hingangaon, Kandur. Whereas, students studying in 12th standard is very subtle in Khundlapur (6%) successively followed by Sandoli (11%), Yelapur and Shigaon (12%). The students preferring graduate education is very meagre as compared to other literacy groups, the highest value is demonstrated by Kandur (16%), followed by Tandulwadi and Kapshi (12%) , Rethare (11 %), Bilashi (10.5%), Jakhale (5.5%), Kavathesar (6%) etc.

The students preferring post graduation are very less than all other literacy group. It's highest in Dhavli and Kavthesar villages contributing 6 %, then followed by Bilashi (5%), whereas some villages show nearly handful of students pursuing this educations i.e. Sandoli, Rethare, Hingangaon, Yelapur, Bhendawade etc.

On the other hand, illiteracy rate is rises in Khundalapur, demonstrating 43% and successively followed by Mandur, Borpadale, Kapshi etc. Whereas low illiteracy rate is depicted by Hingangaon i.e. less than 10%.

B. Family Income:

Figure no. 2 shows the annual income of the families in the villages. It reveals that, more than 70 % of people from Khundlapur village shows annual income of family as below 10,000/-. Whereas, rest of the villages such as Jakhale, Yelapur, Tandulwadi, Sandoli, Borpadale, Hingangaon, Bhendawade, Kandur, Bilashi Minche are getting annual income i.e. less than 10,000/-. Consequently, villages like Shigaon shows more than 58 % of families having annual income in the range of Rs. 50,000-1,000,00/- Which is then followed by Dhavali (55%), Tandulwadi comprising of 43%, Chavare (39%) and Borpadale contributing 34% of families having annual income in the range of 50,000/- to 1,00000/-.

The families have annual income above 1 lakh are very meagre, therefore highest range is contributed by Bhatshirgaon (18%), followed by Rethare (17%), Bhendawade (18%) and Bilashi (15%). Rest of the villages contributes annual family income less than 10% in this range.

C. Occupational Structure :

The given pie chart (fig.3) delineate occupational structure in different sectors i.e. farmer, self employed, farm workers, daily wages, house wives, retired, education, job and unemployed.

Occupation procured through educational sector is higher than any other sector, contributing to 30%. Farmers contribute to 24%. People procuring occupation through farm labour contributes to 10% , 3 % people are self employed, apart from that 2% peoples are daily livelihood and is based on daily wages, out of that 8% of the people doing job. On the other hand, in occupational structure 29% of the women are housewives, 3% are retired.

D. Type of Houses :

The given bar chart (fig.5) marked the types of houses for selected 21 villages, the categories of the houses are divided into four types i.e. Hut, Kuccha , Paccha and RCC houses. More than 80% of people of Shigaon, Hingangaon prefer to live in Pakka houses. This trend is sequentially followed by Jakhale Kavathesar, Yelapur, Charan, Tandulwadi, Bhatshirgaon, Kapshi, Sandoli, Rethare, Dhavali, Bhendawade, Chavare, Bilashi, Minche, Chikurde, Mandur and Khundalapur.

People preferred to residing in Kaccha houses are higher in Kandur area showing 41% followed by Borpadale (40%), Bhatshirgaon, Bilashi and Khundalapur. This kind of houses are rarely preferred in Tandulwadi and Kavthesar , that is demonstrating less than 1 % of residence.

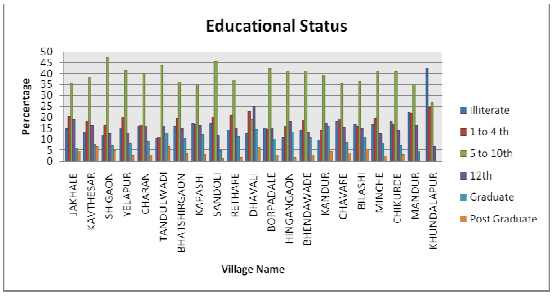


Fig. 1 - Educational status of 21 selected villages

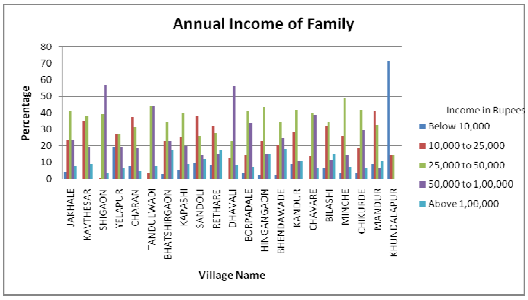


Fig. 2 - Annual income of family

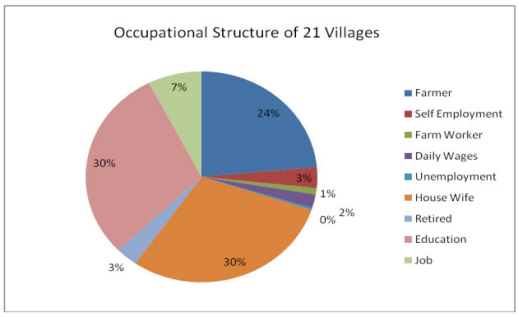


Fig. 3- Occupational structure

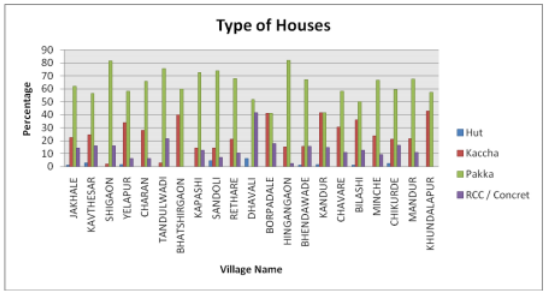
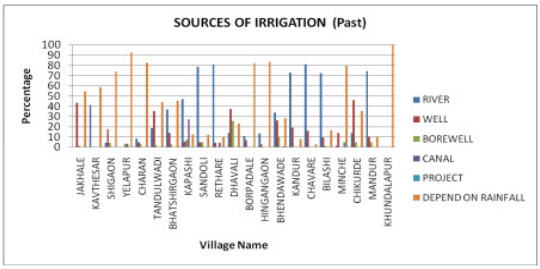


Fig. 4 - Type of houses



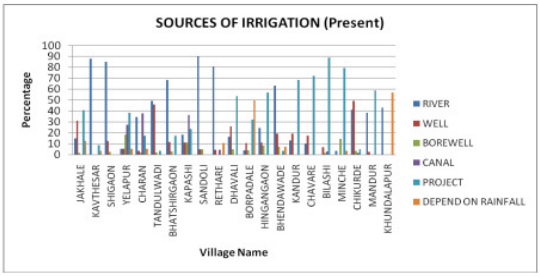
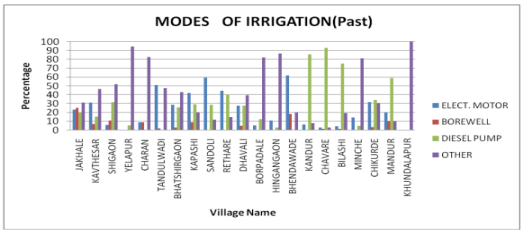


Fig. 5- Sources of irrigation (past and present)



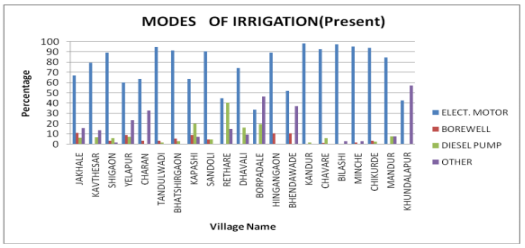


Fig. 6- Mode of irrigation (past and present

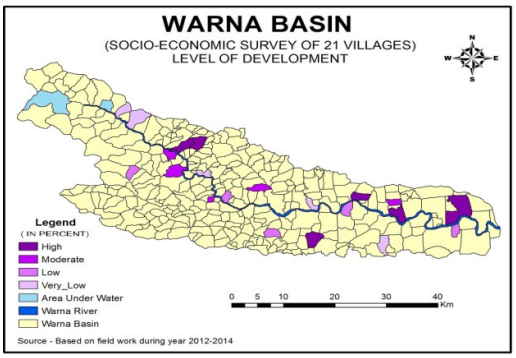


Fig. 7- Level of development: 21 selected villages

RCC houses are prominently high in Dhavali village contributing to 41%, which directly plunge down to half of its value shown by Tandulwadi (20%). Rest of the villages show less than 10% of residence living in RCC buildings/houses. The settlement in these villages are well planned.

E. Sources of Irrigation(Past and Present):

The bar graph (fig. 5) shows the past and present situation of irrigation sources which are mainly divided into river irrigation, well, borewell, canal irrigation, projects and irrigation based on rainfall.

Villages like Jakhale, Shigaon, Yelapur, Charan, Tandulwadi, Hingangaon, Minche, Kandur are mostly depends upon river for sources of irrigation. Wells are widely utilised in Chikurde, Charan, Tandulwadi and Dhavali. Around 50% of people prefer to well for irrigation in Chikurde. Whereas, Kavathesar, Shigaon, Chavare, Mandur and Khundlapur have no wells as a source for irrigation.

Borewell irrigation as a resource is prominently used in Minche contributing for 15% and Yelapur 10%. Some villages like Tandulwadi, Kapshi, Dhavli, Borpadale, Bilashi, Minche and Mandur depends on Project run by government. Nevertheless due to lack of irrigation facilities and scarce development leads to depends many villages on the rainfall, i.e. Khundlapur Borpadale and Kavathesar. Lastly it is concluded that after the dam construction the water is available in river and therefore most of the villages are provided irrigation sources by river.

F. Mode of Irrigation (past) :

Figure 6 shows the graph that depicts the mode of irrigation in the village of the kolhapur and sangli districts. The mode of irrigation are further divided into four categories i.e. Electric Motors, borewells, diesel pumps and other.

The villages such as Sandoli contributing to 60% of electric motors use for irrigation purpose. Similarly, Bhendawade contributes to 61% of irrigation through motors. This trend is below 61% which is shown by the villages - Jakhale, Kavathesar, Tandulwadi, Kapshi, Rethare, Chikurde. Villages like Borpadale, Hingangaon, Bilashi, Chavare, Mandur, Minche shows the use of motors less than 5 % for irrigation. Whereas, people in Yelapur and Khundlapur do not prefer motor for irrigation purpose.

The usage of borewell trend is less than 20% throughout the present villages. Only Jakhale shows the uses of borewell for iirigation above 20%. Diesel pumps are widely used in villages like Kandur, Chavare, Bilashi and Mandur contributing to 85%, 90%, 70%, 69% and 59% respectively. Many other villages utilize prominently other source for irrigation these are Yelapur (92%), Charan (82%), Borpadale (81%) Hingangaon (84%) and Minche (80%). Specifically, Khundalapur utilised motors on wide range for irrigation contributing 100%.

G. Mode of Irrigation (present):

The provided graph (fig.6) explicitly demonstrates mode of irrigation for the present status. Almost all the 21 villages contribute to 80% use of electric motors for irrigation. Prominently, Kandur, Bilashi, and Tandulwadi demonstrates the use of motors around 90%. Borpadale shows 30% of the usage for motors whereas, Rethare and Mandur contributes 42%. The use of borewell for irrigation has been depleted on great scale, most of villages herein contributes only less than 10% of use. Some villages such as Rethare, Kandur, Bilashi, Mandur and Khundalapur shows un-utilization of borewell. Amongst all the villages Rethare shows higher use of diesel pumps compare to the other villages which contribute 40%. Which is then followed by Kapshi and Borpadale. Also, many villages maintains their place in the use of other mode of irrigation facilities.

Therefore comparatively, it reveals that the use of other sources for modes of irrigation i.e. diesel pumps, bore wells have drastically plunged in the present scenario. whereas, uses of motors for irrigation have drastically upsurge in the present duration.

LEVEL OF DEVELOPMENT (FOR 21 VILLAGES) :

The provided computed data (table 1) exhibits socio-economic status of the villages of districts Sangli and Kolhapur. Then, composite index of each village demonstrates level of development. On the basis of computed composite index, the level of

TABLE I
Socio-Economic Indicators of 21 Villages (Warna Basin)

VILLAGE NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	COMPOSITE INDEX	LEVEL OF DEVELOPMENT
JAKHALE	0.49	1.65	1.60	1.93	3.26	1.86	3.04	0.00	1.28	1.24	0.98	0.00	1.08	0.98	0.00	2.29	0.71	22.39	HIGH
KAVTHESAR	1.07	0.93	0.79	0.96	1.15	0.59	0.94	6.38	1.13	1.01	1.20	0.57	1.08	1.24	0.94	0.34	0.00	20.33	HIGH
SHIGAON	0.91	1.06	1.34	0.94	0.96	0.94	0.81	1.94	1.01	1.13	1.27	0.00	1.08	0.84	2.45	2.81	0.56	20.04	HIGH
YELAPUR	0.93	1.24	0.67	1.35	1.03	0.76	1.49	0.67	1.05	1.01	1.07	1.52	0.95	0.88	2.95	0.88	1.20	19.66	HIGH
CHARAN	0.97	0.99	1.24	0.45	0.92	1.06	0.93	0.00	0.87	1.04	1.03	1.39	0.96	0.59	0.00	5.68	1.14	19.29	HIGH
TANDULWADI	1.01	1.06	0.80	2.06	0.44	1.10	1.05	2.00	0.95	0.96	1.18	2.24	1.04	1.04	0.00	0.97	1.06	18.96	HIGH
BHATSHIRGAON	1.10	0.84	0.87	0.73	0.50	0.74	0.95	2.43	0.78	0.86	0.67	0.89	1.02	0.79	2.45	1.02	1.82	18.45	MODERATE
KAPASHI	1.08	0.86	1.16	0.80	1.11	0.80	0.00	1.20	1.13	1.10	1.28	0.42	1.00	0.69	2.91	0.00	2.84	18.37	MODERATE
SANDOLI	1.25	0.82	0.79	1.48	0.38	0.81	1.23	2.01	1.45	1.30	1.31	0.95	1.08	1.17	0.90	0.82	0.13	17.86	MODERATE
RETHARE	1.15	1.05	1.37	2.05	1.84	0.67	1.27	0.57	1.41	1.29	1.27	0.28	1.08	1.25	0.91	0.24	0.00	17.68	MODERATE
DHAVALI	1.11	1.01	1.09	0.86	0.97	0.84	1.29	0.30	1.20	0.78	0.21	0.57	0.54	0.45	0.00	2.76	3.57	17.55	MODERATE
BORPADALE	1.05	1.05	0.99	0.86	1.66	0.81	1.20	0.00	0.80	0.95	0.95	1.40	1.02	0.84	0.93	0.00	2.52	17.02	LOW
HINGANGAON	0.70	0.44	0.00	0.00	0.00	1.32	0.00	0.00	0.21	0.76	0.19	6.96	0.46	0.56	0.00	0.00	4.39	15.99	LOW
BHENDAWADE	0.93	1.01	0.91	1.15	1.01	0.93	0.86	1.36	1.26	0.92	1.16	0.47	1.08	1.22	0.39	0.82	0.00	15.48	LOW
KANDUR	1.09	1.19	1.45	0.49	0.83	1.06	0.70	0.00	1.08	1.12	1.24	0.00	1.08	1.17	2.91	0.00	0.00	15.41	LOW
CHAVARE	0.95	0.99	1.13	1.06	0.18	1.15	1.07	0.00	1.08	0.80	0.86	1.87	1.08	1.20	1.54	0.40	0.00	15.36	LOW
BILASHI	1.04	1.15	1.71	1.28	1.31	0.95	0.84	0.00	0.91	0.75	0.90	0.78	1.08	1.29	0.00	0.22	0.00	14.21	VERY LOW
MINCHE	0.96	0.99	1.19	1.63	0.94	0.91	1.01	0.00	0.90	0.83	1.19	0.45	1.08	1.28	0.00	0.00	0.22	13.57	VERY LOW
CHIKURDE	1.08	0.83	0.90	0.65	0.96	0.66	1.35	0.72	1.02	1.01	0.96	0.26	1.04	1.25	0.43	0.00	0.24	13.38	VERY LOW
MANDUR	1.20	0.77	0.51	0.28	0.75	2.03	0.32	0.00	0.76	1.07	1.19	0.00	1.08	1.19	1.28	0.67	0.00	13.09	VERY LOW
KHUNDALAPUR	0.93	1.07	0.48	0.00	0.81	1.02	0.64	1.42	0.73	1.04	0.91	0.00	1.08	1.11	0.00	1.08	0.59	12.92	VERY LOW

Note: 1) 5 to 10th 2) 12th 3) Graduate 4) Post Graduate 5) Self Employment 6) Farmer 7) Job 8) Farm Worker 9) Income above 25000 (10) Pakka and RCC house 11) Fertile 12) More than 5 acre 13) River, Well, Canal, Borewell, Project 14) Motors 15) Borewell 16) Diesel Pump 17) Other

development is categorised into four part i.e. High, moderate, low and very low.

a. Level of Development : High

Among the 21 villages, six villages lied in this category, i.e. Jakhale , Kavthesar, Shigaon, Yelapur, Charan and Tandulwadi, their composite index are 22.39, 20.33, 20.04, 19.66, 19.29 and 18.90 respectively. In this group, Jakhale represent highest number of population who are self employed , also most of these people are farmers. This village utilises river, well, canal, bore well and diesel pumps as a modes of irrigation. Kavthesar represents highest number of farmers than any other villages contributing to 6.38 (normalised value).

b. Level of Development : Moderate

This group is incorporated by Bhatshirgaon, Kapshi, Sondoli, Rethare and Dhavali. Except Rethare village all the other villages uses other sources for irrigation. Mostly , these villages are depends upon river, well, canal, borewell, any other project, motor and diesel pumps for irrigation. People from Kapshi village holds no jobs in private or government sector. Dhavli village prominently depends upon diesel pumps for irrigation. Rest of the factors such as education, annual income of families represents moderate values. Moreover, these people prefer to live in house which said to be pakka or have RCC construction.

c. Level of Development : Low

The villages that falls under this group are Borpadale, Hingangaon, Bhendawade, Kandur and Chavare. Most of these villages except Borpadale and Hingangaon is not rely on other sources for mode of irrigation. On the other hand, Hingangaon, significantly utilizes other sources for irrigation, also there are no graduate and post graduate students. Moreover, there are very meagre amount of population having government and private jobs and no farm labours too.

d. Level of Development : Very Low

The villages that incorporated under this category are Bilashi, Minche, Chikurde, Mandur and Khundalapur. The people from these village show very low socio-economic development. As the composite index of these villages lies between 14.21, 12.92. Khundalapur have no post graduate students. Moreover, Mandur and Khundalapur have no people who is having farm land more than 5 acres. Most of these villages depends on all the modes of irrigation. Only, Mandur people do not utilize other sources for irrigation. On the other hand, these villages show very meagre values of self employment, farmers, farm labours. Most of these people have family income less than or near to rupees 25,000 per annum.

e. Overall view:

The villages whose composite indexes falls in between 22.39- 18.96 shows high level of development (fig.7). These villages shows good value of self employment which is highest in Jakhale (3.26), also peoples from Jakhale holds jobs in government or private sector contributing to 3.04. On an average villages such as Jakhale, Kavthesar, Shigaon, Yelapur, Charan and Tandulwadi shows high value of all the basic aspects such as 5th-10th standard, 12th standard, graduates, post graduates, self employment, farm labour, income above Rs.25,000/-, high fertile land. Very few villages such as Kavathesar (0.57), Yelapur 1.52 and Charan with a value of 1.39 depicts farmers having land above 5 acre. Whereas, Jakhale and Shigaon don't have farm land above 5 acres.

The villages falling in the range of moderate to low level of development are Bhatshirgaon, Kapashi, Sandoli, Rethare, Dhavali, Borpadale, Hingangaon, Bhendawade, Kandur and Chavare. These all villages represents low number of farm labourers. Hingangaon highly utilizes other mode of irrigation. The villages falling under low level of development are Bilashi, Minche, Chikurde, Mandur, Khndlapur. As these villages have very subtle percentage of values for the parameters like education from 5-12th standard and graduation, Post graduation, Rate of employment in various sectors. Mandur demonstrates high number of farmers going to the farm land as farm labour contributing to 2.03, whereas, other villages represents composite index value i.e. 1. Similarly, Chikurde and Minche donot use diesel pump for irrigation purpose. Rest of villages of this category utilize less having index value of 1. These villages also share very low level of development due to lack of education, lack of employment and practices for irrigation methods, which is not well organised.

IV. CONCLUSIONS

The huge water is stored in the reservoirs and dams during the monsoon period and supplied to the downstream basin region. The fresh water from reservoir is useful for drinking purpose, irrigation and industrial purpose. In this way, dams and reservoirs in many regions of India provides water and significantly supportive measures for the growth of the regions, also affects on the socio-economic development of the region. When irrigation facilities have providing through the means of such large dams, then directly, it helps to increase all the related facilities that are concerned with the regional development and the growth of the concerned region. Due to irrigation facilities socio-economic status of the region or river basin are highly and positively influenced by the dam. Therefore, arrangement of new irrigation system which provide water supply continuously for agricultural purpose is the urgent need. It helps to improve cropping pattern and increasing employment opportunities as well as family annual incomes, in this connection government should provide some subsidies to improve the irrigation system and mode of irrigation facilities.

ACKNOWLEDGMENT

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APPENDIX-

Questionnaire :

Socio-Economic Survey- Warna River Basin

(This Questionnaire has prepared by Dr Jagdish B. Sapkale)

Name of Surveyor: **Date:** **Location:**
1. Name of Your Ancestral / Permanent Village : 2. Head of the Family : 3. Name of the Interviewee : 4. Age 5. Sex : Female_____ Male_____
6. Education: (A) Illiterate (B) Standard I to IVth (C) Standard V to Xth (D) Up to XIIth (E) Graduate (F) Post Graduate
7. Occupation :
8.Religion: 9. Caste : 10. Sub Caste: 11. Family Type: (A) Joint Family (B) Single Family:
12. Total Number of Family Members :

13. Details of the Family Members : Name of Family Members : Age: Education: Relation With Head of the Family: Female/Male: Occupation : Migration: Annual Income:
14. Annul Income of Family: (A)Less Than 10,000 Rupees (B) 10,000 to 25,000 (C) Rs. 25,000 to 50,000 (D) 50,000 to 1,00,000 (E) More than 1,00,000Rupees
HOUSE 15. House Number : 16.: Gat No of House :
17. Type of House: (A) Hut, (B) Kachcha House (C) Pukka House (Stone Wall) D) R.C.C./Concrete House
18. Area of House : Square Feet: Square Metre :
19. Material Used in the Construction of House : Wood/ Bricks/ Stones/ Cement/ Tin Shed / Soil/ Iron/ Any Other
20. Total Number of Rooms in your house:
21. Transportation Facility/vehicle available with you: Bi-cycle/ Bullock Cart / Motorcycle / Scooter /Tractor / Truck/Rickshaw/ Tempo/ Car/Jeep/ Any other
22. How old is your house?
23. Important items Articles Available in your house: Landline Phone/ Mobile Phone/ T.V/ Computer /Laptop /Washing machine/Freeze Other
FARM 24. Are you having your own Agricultural land: (A) Yes: (B) No:
25. If yes GAT No. of Agricultural Land:
26. Total area of Agri.Land : Hectare: Acre: Guntha(R):
27. Distance of Agri. Land From House : Km: Meter:
28. Type of Agri. Land : Arable: Hectare: Acre: Guntha(R): Horticulture: Hectare: Acre: Guntha(R): Uncultivated/Barren: Hectare Acre: Guntha(R):
29.Distance of Agricultural Land From ---------- River :
30. Is there any Progress in Agricultural Productivity after Construction of Dam ?
31. Prior to Dam construction, What type of irrigation facility & equipment were used for Agriculture ?
32. Now after Dam Construction, what type of irrigation & equipment is used ? River/ Well/ TubeWell/Canal/ reservoir/Dam /Depend on Rainfall / Electric Pump/Bore-well with electric Connection/ Diesel pump/ Other
33. Texture of Agricultural Land: (A)Fertile: (B) Unfertile
34. Is there any change after 20 to 25 yrs.
35. Any Other Change ? Soil erosion etc :
36. What type of Fertilizers used for Agriculture ? (A) Organic: (B) Chemical Fertilizers: (C) Both:
37. Agricultural Crops taken presently : Average Production : Sugar Cane/ Rice/ Jawar/ Maize/ Ground nut/ Vegetables/ Other
38.Prior to Dam Construction i.e.20-25 years back, The crops that were taken: Average Production : Sugar Cane/ Rice/ Jawar/ Maize/ Ground nut/ Vegetables/ Other
39. Soil type in Agricultural land : Black/ Red/ Alluvium/ Mud/ Conglomerated or Weathered/ Other
40. Besides Agriculture any other occupation :
41. Are you having domestic Animals :
42. From Where you are getting fodder for animals ? From Agriculture/ From Forest Hilly Area/ By Purchasing
EDUCATION/MARKET /MEDICAL 43. Are Educational facilities good ? (A) Yes (B) No
44. Are Medical facilities good ? (A) Yes (B) No
45. Up to Which standard Schools are there in your village ? Std 1st to 4th / 5th to 10th / 11th to 12th Up to Graduation
46. How many schools are there in your village ?
47. Facilities of Market in your village (A) Yes (B) No
48. Where, Local Market is available ?
49. Hospital is available in your village? (A) Yes (B) No
50. Total number of Hospital in your village?
51. Total number of doctors in your village?
52. Type of Roads in village : (A) Unmetalled Road (B) Metalled Road
53. Availability of Daily Bus services? (A)Yes (B) No
54. Any Recreation Facility Available : (A)Yes (B) No
55. Sewage Facilities in Village ?

(A)Yes (B) No

56. Name of river near your village ?

57.From where, drinking water is provided to you ?
River/ Well/ Tube Well /Canal/Reservoir / Dam

58. For what purpose you are using river's water?
For Drinking/ For Agriculture/ For other Purpose

59. Are you getting chandoli dam's water (Are dam's water reached in your village) ?

60. As per your perception, Is there any benefit from this dam or Loss ?
What type of Benefit :
What type of Loss :

61. After dam Construction, is there any change in your annual income?

62. Any Loss of Agricultural land under dam construction ?
How much agri. area occupied by the project? : Hectare: Acre : Guntha(R) :

63. Area of the New Agricultural land given: Hectare: Acre : Guntha(R) :

64. Is agricultural Land is totally under cultivation ?

65. At present, (prior to some years) opportunities in employment have increased ?
(A)Yes (B) No

66. Life style of people have improved ?
(A)Yes (B) No

67. Are the villagers have facing problem of unemployment ? (A)Yes (B) No

68. Perception of villagers / people towards Chandoli dam

Perceptions regarding	Highly Satisfied	Moderately satisfied	Highly Unsatisfied
Economical Benefits			
Cultural Status			
Security services near forest area			
Quality of Agricultural Land			
Educational Facilities			
Health Facilities			
Transportation facilities			
Employment Opportunities			
Drinking Water facility			

69. Is there any impact on Environment due to construction of dam ?

70. Is there any change /shift in river bed due to construction of dam?
(A) Yes (B) No

71. Is there any change in river water due to dam construction? If yes, what type of change?

72. Due to dam construction, Is river water poured out from both Banks ?

73. Due to dam, Is there any problem of flood in village ?

74. Are the number of trees have increased near or around the agriculture lands of villages?

75. As per your view, what you feel about the displaced people, whose agricultural land & houses were submerged under the reservoir ?
(or those who have lost their ancestral properties due to dam).

76. Is, Common Lavatory is available in your village ?

77. Lavatory is available in house ?

78.From where drinking water is supplied in your village ? Is impure water processed for its purification ?

79. Is there any epidemic disease occurs continuously in your village ? Which one :

80. By construction of dam; drinking water & water for irrigation have provided to villages, that's why it is resulting for the development of villages & changes the life style of villagers, Is it true ? Please give your personal comment.:

Note : *To avoid plagiarism, Please give the complete References/Citations in proper citation formats for the above Questionnaire, published work/material, sources of this research work.*

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