5.3 Profile of Respondents:

Personal Information

5.3.1 Religion of Respondents

Table No. 5.1

Religion of Respondents

Sr. No.	Religion	No. of Respondents	Percentage
1.	Hindu	85	85%
2.	Muslim	10	10%
3.	Jain	--	--
4.	Budha	5	5%
5.	Other	-	-
	Total	100	100%

Source : Field work, May 2014.

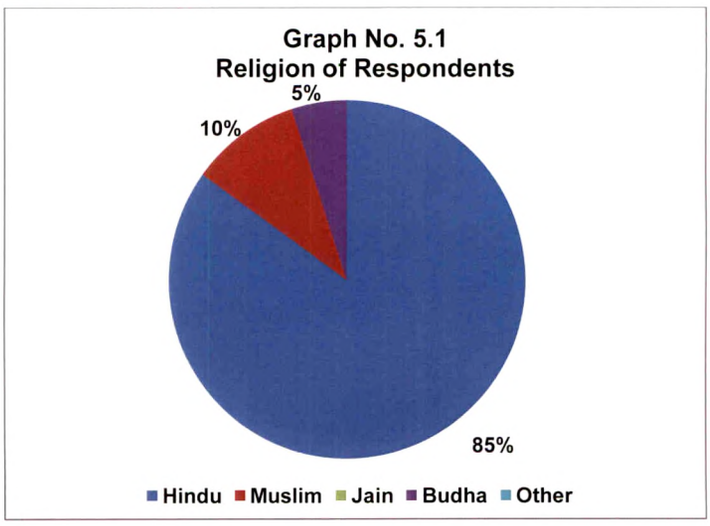


Table No. 5.1 and Graph No. 5.1 shows that out of 100 respondents 85% are Hindu, 10% respondents are Muslim and only 5% are Buddhist. There is no respondent from any other religion. All they are selected from dam catchment area of the 10 villages.

5.3.2 Social Group of Respondents

Table No. 5.2

Social Group of Respondents

Sr. No.	Social Group	No. of Respondents	Percentage
1.	Open	46	46%
2.	SC	15	15%
3.	ST	--	--
4.	OBC	29	29%
5.	Minority	10	10%
	Total	100	100%

Source : Field work, May 2014.

Graph No 5.2

Social Groups

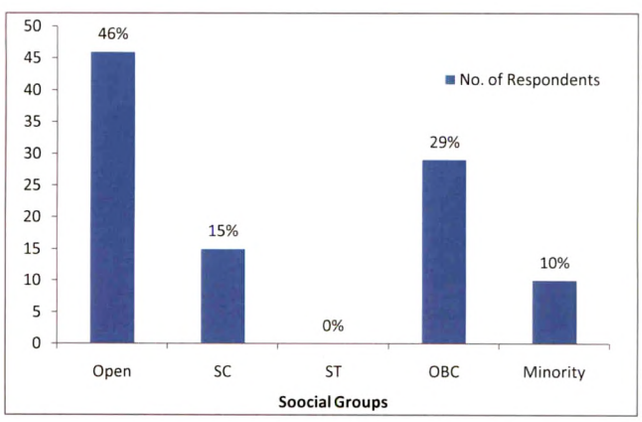


Table No. 5.2 shows that the majority of respondents are open category respondents that is 46%, whereas others are respectively SC-15%, ST-0%, OBC-29% and minority categories are 10%.

5.3.3 Age of Respondents

Table No. 5.3

Age of Respondents

Sr. No.	Age groups	No. of Respondents	Percentage
1.	0 to 20 age	--	--
2.	21 to 40 age	21	21%
3.	41 to 60 age	56	56%
4.	61 to above age	23	23%
	Total	100	100%

Source : Field work, May 2014.

For collection of primary data respondents are selected from different age groups for survey. There are no farmers in the age group from 0 to 20 years age. From 21 to 40 years age group there are 21% farmers. Between 41 to 60 years age group there are 56% farmers. And it is the highest percentage of the respondents, In 61 to above years age group they are 23% respondents.

5.3.4 Education Level of Respondents

Table No. 5.4

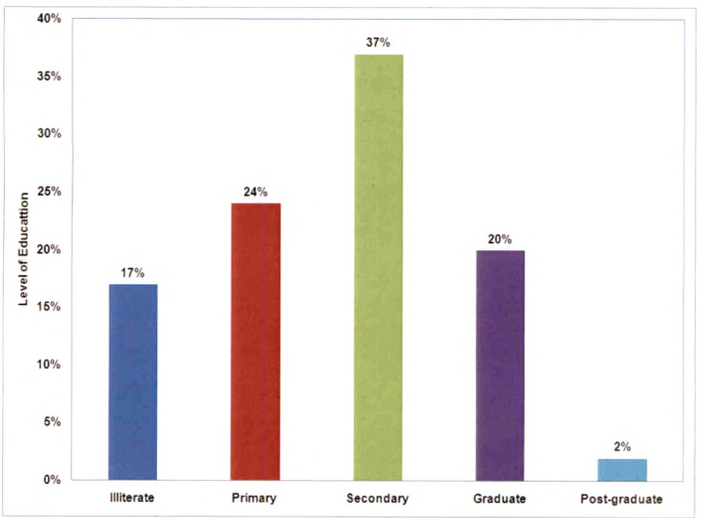
Education Level of Respondents

Sr. No.	Education	No. of Respondents	Percentage
1.	Illiterate	17	17%
2.	Primary	24	24%
3.	Secondary	37	37%
4.	Graduate	20	20%
5.	Post-graduate	2	2%
	Total	100	100%

Source : Field work, May 2014.

Graph No. 5.3

Education Level of Respondents



The table shows that 37% respondents have taken secondary education. The 24% respondents completed primary education and 20% respondents have completed their graduation. Only 2% farmers are having post-graduation, 17% farmers are illiterate it means 83% respondents are literate.

5.3.5 Family Types of Respondents

Table No. 5.5

Family Types of Respondents

Sr. No.	Types of Family	No. of Respondents	Percentage
1.	Joint	50	50%
2.	Divided	50	50%
	Total	100	100%

Source : Field work, May 2014.

The table indicates that out of 100 respondent equal proportions of respondents 50-50 are representing joint and divided families.

5.3.6 Farming Land of Respondents

Table No. 5.6

Farming Land of Respondents

Sr. No.	Farming Land	No. of Respondents	Percentage
1.	0 to 2 acres	36	36%
2.	2 to 4 acres	29	29%
3.	4 to 6 acres	14	14%
4.	6 to above acres	21	21%
	Total	100	100%

Source : Field work, May 2014.

In the catchment area of Phatakwadi Dam out of 100 respondents 36% respondents possess below than 2 acres of land, 29% farmers hold the 2 to 4 acres of land, 14% respondents have 4 to 6 acres of land and only 21% respondents hold more than 6 acres of land.

5.4 Positive Environmental Impact of Phatakwadi Dam:

An estimated 40,000 large dams and 800,000 small dams have been built and some 272 million hectares of land is currently under irrigation worldwide. In India over 4,500 large dams is the world's third most prolific dam builder country. (After China and United States)

Maharashtra government established 'Krishna Khore Vikas Mahamandal' in 1996 and under this Mahamandal all over the Maharashtra, developed 37 Major irrigation projects, 76 Medium and 818 Small irrigation projects. Out of these in Kolhapur district, two are major irrigation projects namely 'Dudhganga and Warana'. The medium projects are 12 including Phatakwadi dam also and 32 are minor irrigation projects. All projects were completed, implemented and provided water for irrigation purpose.

Water is the most important input required for agricultural development. Because of increase in irrigation facility, rapid progress in agricultural sector is found. More over this service sector, industries and others have also flourished.

This all over progress has improved living standards of farmers and their economic status and there development tuppanted in Indian society. It has also caused to increase large share in national income.

Following statistical data results explain positive consequence of Phatakwadi dam.

5.4.1 Crop Pattern

Irrigation is most important factor affecting agricultural production and also decides the cropping pattern, production and productivity. After development of Phatakwadi dam it increased their irrigation facility in Chandgad and Gadhinglaj tehsil. Farmers are taking 2-3 crops in every year. Cropping pattern is also changing in Phatakwadi dam catchment area. Following table shows the crops taken by the farmer.

Table No. 5.7

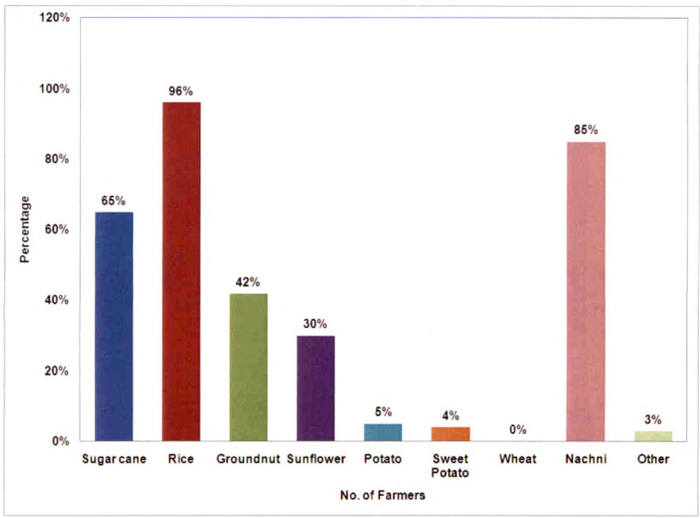
Crop Pattern

Sr. No.	Name of Crops	No. of Farmers	Percentage
1.	Sugar cane	65	65%
2.	Rice	96	96%
3.	Groundnut	42	42%
4.	Sunflower	30	30%
5.	Potato	05	05%
6.	Sweet Potato	04	04%
7.	Wheat	--	--
8.	Nachni	85	85%
9.	Other	03	03
	Total	100	100%

Source: Field work, May 2014.

Graph No. 5.4

Crop Production



The present table informs about the crops production of different farmers. The 65% farmers take sugarcane, 96% they take rice, 42% farmers produce groundnuts, sunflower are produced by 30% farmers. The production of potato is only 5% and sweet potato 4%. None of the farmer is taking wheat crop. But 85% farmers are taking Nachni production and very few other crops are taken by 3% farmers. All farmers getting every year all above 2 or 3 multiple crops in this area.

5.4.2 Use of Dam Water

Irrigation project has provided security of life. It has increased the yields and the value of land and production of crops. Now more and more farmers are using dam water for more crops production. (Shinde, M. S. 2006, pp 24)

Table No. 5.8

Dam Water

Sr. No.	Dam Water	No. of Farmers	Percentage
1.	Yes	72	72%
2.	No	28	28%
	Total	100	100%

Source : Field Work, May 2014.

The chart shows that out of 100 respondents 72% farmers use the water of Phatakwadi dam. Whereas only 28% farmers have their own irrigation source like well, borewell, etc.

5.4.3 Other Sources of Irrigation

Table No. 5.9

Other Sources of Irrigation

Sr. No.	Irrigation other sources	No. of User	Percentage
1.	Well	78	78%
2.	Borewell	08	08%
3.	Canal	--	--
4.	Others	14	14%
	Total	100	100%

Source: Field Work, May 2014.

The table shows that apart from Phatakwadi Dam water, 78% respondents have their own well, 08% have borewells and remaining 14% are using other water resources, but there are no canals in catchment area.

5.4.4 Water Supply Equipments

Table No. 5.10

Water Supply Equipments

Sr. No.	Name of Equipment	No. of User	Percentage
1.	Electric Pump	36	36%
2.	Diesel Engine	27	27%
3.	Other	04	04%
4.	No. Equipment	33	33%
	Total	100	100%

Source: Field Work, May 2014.

Out of 100 respondents, 36% are using electric pump, 27% are using diesel engine and only 4% they are using other sources. Rest of 33% respondents do not have any equipment but get water supply from others and on the basis of traditional negotiation by giving ¼ share of production to water suppliers.

5.4.5 Area under Irrigation

Indian agriculture mostly depends upon monsoon, but every year monsoon is not regular and sufficient in agriculture sector. That's why it increases the problem of drought and famine but irrigation facilities assure to the farmers, and can decrease dependence upon nature, now in 21st century many farmers irrigated land has increased.

Table No. 5.11

Area under Irrigation

Sr. No.	Irrigation Area in Acres	No. of Respondents	Percentage
1.	0 to 2 acres	46	46%
2.	2 to 4 acres	22	22%
3.	4 to 6 acres	26	26%
4.	Above 6 acres	06	06%
	Total	100	100%

Source: Field Work, May 2014.

The table shows the area under irrigation. Where 0 to 2 acres irrigated land owners are 46%, from 2 to 4 acres irrigated land owners are 22% and 4 to 6 acres irrigated land owners are 26% and only 6% respondents hold irrigated land above 6 acres.

5.4.6 Crop Production

Table No. 5.12

Crop Production

Sr. No.	Yes – 64			No – 36
	Increase in Production	**No. of Respondents**	**Percentage**	
1.	25,000 to 50,000	18	48	
2.	50,000 to 1 lakh	26	62	
3.	1 lakh to 2 lakh	15	23	
4.	2 lakh to 5 lakh	05	0.07	
	Total	**64**	**100**	**36**

Source: Field Work, May 2014.

In Kolhapur district after development of irrigation facility increase in production of all crops is found. Mostly increase in production of sugar cane, groundnuts, sunflower, vegetables, cashew nuts and other cash crops. The above table shows the change in income of farmers. (Kamble, Sachin (2010), p. 68)

The table describes that 64% farmers agree about increased crop production and 36% are negative about the increase in the production out of 64% farmers 18% say that increase in income between 25,000 to 50,000. Then 40.62% say that their income growth is between 50,000 to 1 lakh, 23% say that the growth in income in between 1 to 2 lakh and only 0.07% say growth is more between 2 to 5 lakh in rupees.

5.4.7 Is Water Supply of Dam is Sufficient

Table No. 5.13

Water Supply of Dam

Sr. No.	Water of Dam	No. of Respondents	Percentage
1.	Yes	78	78%
2.	No	22	22%
	Total	100	100%

Source: Field Work, May 2014.

The table represents that out of 100% respondents 78% says that the water supply is sufficient for whole year, whereas 22% says that it is insufficient.

5.4.8 About Electric Supply

Table No. 5.14

Electric Supply

Sr. No.	Electric Supply	No. of Respondents	Percentage
1.	Yes	61	61%
2.	No	29	29%
	Total	100	100%

Source : Field Work, May 2014.

Dams generating 19% of the world's electricity. Phatakwadi dam has also generated 8 M. W. powers which has increased power supply in catchment area.

The table shows that because of dam the electricity supply is increased this is view of 61% farmers and 29% are saying that the supply is inadequate.

5.4.9 Economic Status Improved due to Phatakwadi Dam

Table No. 5.15

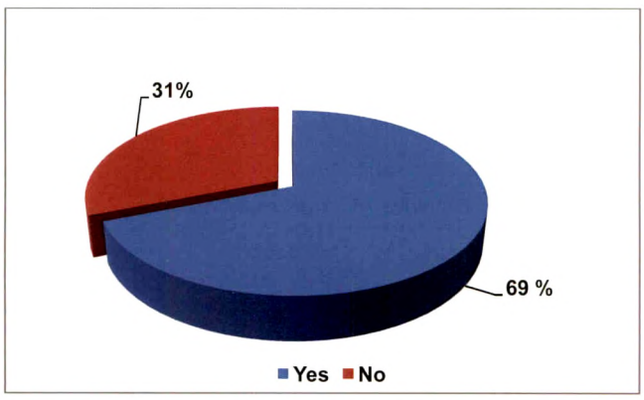
Economic Status

Sr. No.	Economics Status	No. of Respondents	Percentage
1.	Yes	69	69%
2.	No	31	31%
	Total	100	100%

Source: Field Work, May 2014

Graph No. 5.5

Economic Status



Every dam has significantly increased the irrigation and due to more irrigation increase in economic status in the dam area takes place. The table shows that in the catchment area of Ghatprabha Dam out of 100 respondents 69% admit that there is luxuriant growth and 31% deny the growth of economic status due to dam.

5.4.10 Economic Development Due to Dam

Table No. 5.16

Economic Development

Sr. No.	Economic Development	No. of Respondents	Percentage
1.	Yes	58	58%
2.	No	42	42%
	Total	100	100%

Source: Field Work, May 2014.

This table shows the allover economic development of the dam area 58% respondents say that the economic growth is achieved. But 42 respondents say that there has not been any growth in economic status of the area.

5.4.10 Expansion of Farm Land Area

Table No. 5.17

Expansion of Farm Land Area

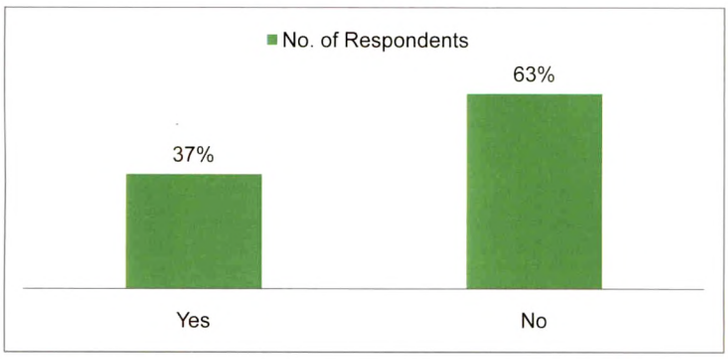
Sr. No.	Expansion of Farm Area	No. of Respondents	Percentage
1.	Yes	37	37%
2.	No	63	63%
	Total	100	100%

Source: Field Work, May 2014

37% respondents say that they developed their own land, that is 230 acres, but that is not enough to get all crops. But 63% respondents say that they have not expanded cultivable land after development of Phatakwadi dam, because they do not have more land to develop and use for agricultural purpose.

Graph No. 5.6

Expansion of Farm



5.4.11 Agro-based Industry

Table No. 5.18

Agro-based Industry

Sr. No.	Agro-based Industry	No. of Respondents	Percentage
1.	Yes	25	25%
2.	No	75	75%
	Total	100	100%

Source: Field Work, May 2014.

Out of 100 respondents 25% respondents say that after development of Phatakwadi dam increase in agro-based industry has taken place, such as sugar factory, cash factory etc. whereas 75% deny this development with majority percentage.

5.4.12 Employment Opportunities

Table No. 5.19

Employment Opportunities

Sr. No.	Employment Opportunities	No. of Respondents	Percentage
1.	Yes	46	46%
2.	No	64	64%
	Total	100	100%

Source : Field Work, May 2014.

The table shows that after Dam project 46% people admit that there is increase in employment opportunities on the other hand 64% people reject the proposition.

5.4.13 Progress in Living Standards

Table No. 5.20

Progress in Living Standards

Sr. No.	Progress of Living Standards	No. of Respondents	Percentage
1.	Yes	52	52%
2.	No	48	48%
	Total	100	100%

Source: Field Work, May 2014.

Every dam created for purposes like irrigation, electric generation, water supply etc. due to increase in water supply increase economic condition of people takes place. Mostly in Gujarat, Uttar Pradesh, Maharashtra states increases in the living standard of people has taken place. Out of 100 respondents, 52% say that there has been progress in living standards of people due to dam project. But 48% people do not accept that there is progress in living standard.

5.4.14 Change in Income of Respondents

Table No. 5.21

Change in Income

Sr. No.	Change in Income	No. of Respondents	Percentage
1.	Yes	62	62%
2.	No	38	38%
	Total	100	100%

Source: Field Work, May 2014.

The table shows that's dams are benefited for irrigation, hydroelectric projects and water supply to the population. Increase in job opportunities and income sources as well as because of large dam irrigation facilities. The income of agriculture sector increased according to 62% farmers and 38% farmers rejected this proposition.

5.5 Negative Impact of Phatakwadi Dam

Irrigation dam is known to be a significant resource in agriculture. It creates numerous benefits and helps to increase productivity with other livelihood opportunity in concerned area.

On the contrary they come with some major negative impact. They have caused very adverse problems of social health and environmental imbalance. Throughout the world, growing awareness about negative impact of dam made many countries to present their construction of such irrigation dams.

The problems which have been aroused are excessive of water use, water logging, salinity, deforestation, displacement of villages increase in water borne diseases, decrease of fertility of land etc. are increasing and destroying ecological balance.

Phatakwadi dam is located in the heart of 'Western Ghat' which is created by deforest, flora and fauna as well as unrushed with all types of natural resources. But the projection of dam brought a tremendous deforestation and devastation of land. Though it has been provided as

boon for agricultural development. But it has invited many Sevier problems. All these issues consuming Phatakwadi dam have been explained in the present topic.

Phatakwadi Dam

5.5.1 Excessive use of Dam Water

Table No. 5.22

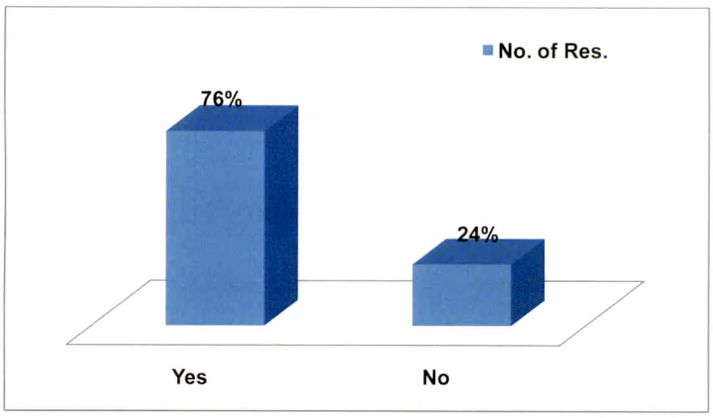
Excessive use of Dam Water

Sr. No.	Excessive use of water	No. of Respondents	Percentage
1.	Yes	76	76%
2.	No	24	24%
	Total	100	100%

Source: Field Work, May 2014.

Graph No. 5.7

Excessive Use of Water



Though the production increased due to Dam. For more and more production farm are excessively using Dam water. It is observed by 76% farmers after the dam project. There has been an excessive use of water in their farm and this claim is rejected by 24% farmers.

Excissive Use of Water

5.5.2 Water Logging Problem

Table No. 5.23

Water Logging Problem

Sr. No.	Water Logging Problem	No. of Respondents	Percentage
1.	Yes	61	61%
2.	No	39	39%
	Total	100	100%

Source: Field Work, May 2014.

Water logging and salinity both are twine global environmental problems facing by every country. It is very serious in developed country because every year 200000 to 300000 hector of fertile land world over are added to the agricultural land affected by water logging. In India about 10 million hectors of cultivated land is affected by water logging.

The table shows that in last few years regular increase in water logging problem in catchment area of Phatakwadi dam is observed. This is accepted by 61% farmers and the problem is becoming serious, but 39% farmers do not accept this fact. (Jauhari, V. P. (2002), p. 113 to 117.)

Water Logging Land in Catchment Area

5.5.3 Salinity of Land

The Central Soil Salinity Research Institute, under the Indian Council of Agricultural Research was established in 1969 undertook research on Salt-affected and water logging soils related information collection by department.

According to this department every year in India 25 million hectors land is affected by salinity. Farmers are continuously producing cash crops like sugarcane, wheat, rice, sunflower etc. for that they using excessive water which caused showing salinity in their lands. Near Ghatprabha river this is accepted by 69% farmers and declared by 31% farmers.

5.5.4 Fertility of Land

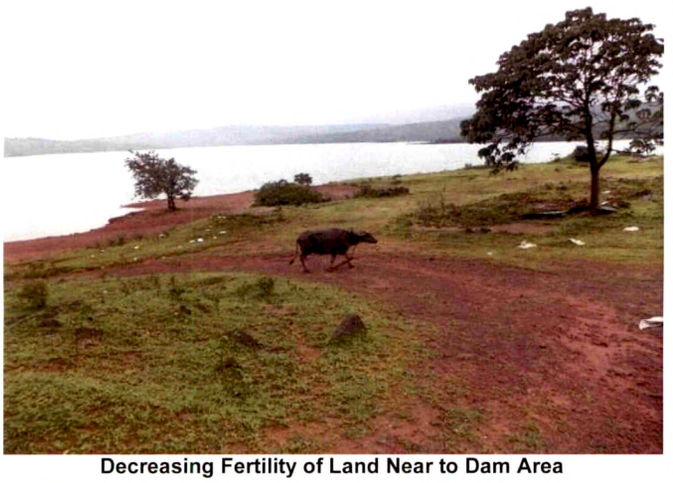
Table No. 5.24

Fertility of Land

Sr. No.	Decreasing Fertility	No. of Respondents	Percentage
1.	Yes	87	87%
2.	No	13	13%
	Total	100	100%

Source: Field Work, May 2014.

The table shows that 87% farmers say that fertility of land has been decreasing and 13% farmers do not find that fertility is decreased.



Decreasing Fertility of Land Near to Dam Area

Land Sliding of Ghatprabha River

5.5.5 Water Pollution

Table No. 5.25

Water Pollution

Sr. No.	Water Pollution	No. of Respondents	Percentage
1.	Yes	53	53%
2.	No	47	47%
	Total	100	100%

Source : Field Work, May 2014.

Dam played one of the most important roles in storage of water resources. Phatakwadi dam is storing 43.75 Mecum water. Storing also is in river. That is affected well and bore wells. And caused a serious problem of water pollution.

This is said by 53% respondents and 47% reject this change. It was observed that in the month of May 2014, large number of fish was found dead in Ghatprabha River. 20 wells are polluted near the Ghatprabha River.

5.5.6 Crops Diseases

Table No. 5.26

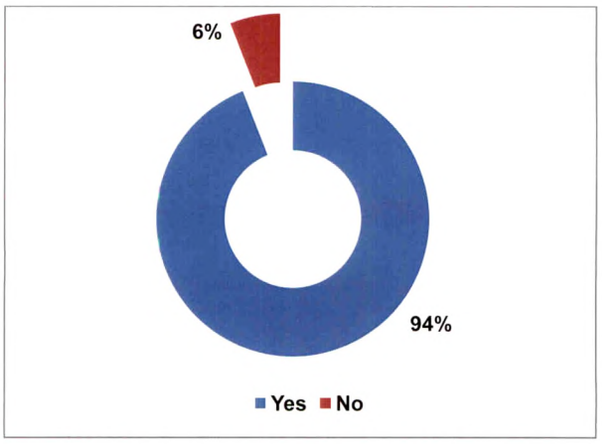
Crops Diseases

Sr. No.	Crops Diseases	No. of Respondents	Percentage
1.	Yes	94	94%
2.	No	6	6%
	Total	100	100%

Source: Field Work, May 2014.

Graph No. 5.8

Corp Diseases



The table clearly shows that 94% farmers have accepted the fact that crop diseases are increased but 6% farmers disagree with the above observation.

In Chandgad and Gadhinglaj tehsil area increase in number of crops diseases. That's why decrease in crops production like sugarcane, cashew nut, sunflower, groundnut vegetables, Nachani etc. is observed.

5.5.7 Deforestation in Dam Area

Table No. 5.27

Deforestation in Dam Area

Sr. No.	Deforestation	No. of Respondents	Percentage
1.	Yes	78	78%
2.	No	22	22%
	Total	100	100%

Source: Field Work, May 2014.

The catchment area of Phatakwadi dam has made farmers towards deforestation. For the purpose of farm land expansion. And it is accepted by 78% farmers on the other hand deforestation is not accepted by 22% farmers.

Newly Constructed Land

5.5.8 Crops Loss due to Wild Animals

Table No. 5.28

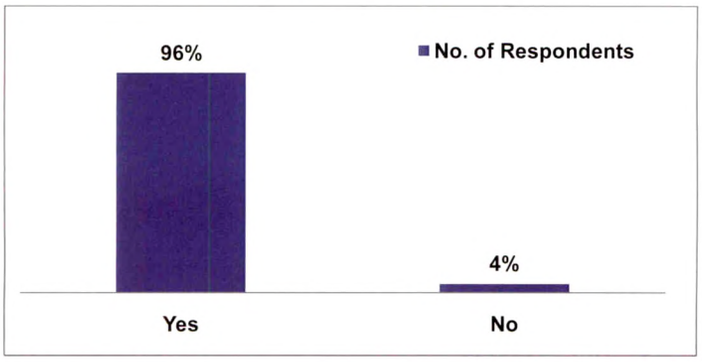
Crops Loss due to Wild Animals

Sr. No.	Answer of Respondent	No. of Respondents	Percentage
1.	Yes	96	96%
2.	No	4	4%
	Total	100	100%

Source : Field Work, May 2014.

Graph No. 5.9

Crop Loss due to Wild Animals



Crop Damages by Bison in Pundra Villege

Crop Damaged by Elephents

The project of Phatakwadi dam destroyed mainly 200 hectors dense forest. And this deforestation caused displacement of several wild animals from their habitats. Hence these animals started encroaching in fields and making severe damage to crops, 96% farmers admit this animal's invasion and only 4% reject this encouragement.

The huge damage of crops by wild Bison in Chandgad Tehsil and especially from the year of 2004-05 to 2012-13 has been shown by the forest department. There are 2147 farming sector has damaged by Bison. During this period and government has paid the amount of 24,21,619 rupees to the concerned farmers. Wild animals like Bison's, Tigre, Jaguar have killed many pet animals like cows, buffalos, dogs etc. and so many farmers were killed and injured. Government has paid 5,05,448 rupees to their family members.

Furthermore, the huge damages of farming sector by the wild elephants in the same period. 2041 total number of issues has been recorded and 4984242 amounts have compassion paid by Government. Wild Elephants have killed and injured many peoples and Government paid compassion 505700 rupees was paid. **(**Report, Forest Department, Chandgad, 2013-14.)

5.5.9 Damage to Human Lives

Table No. 5.29

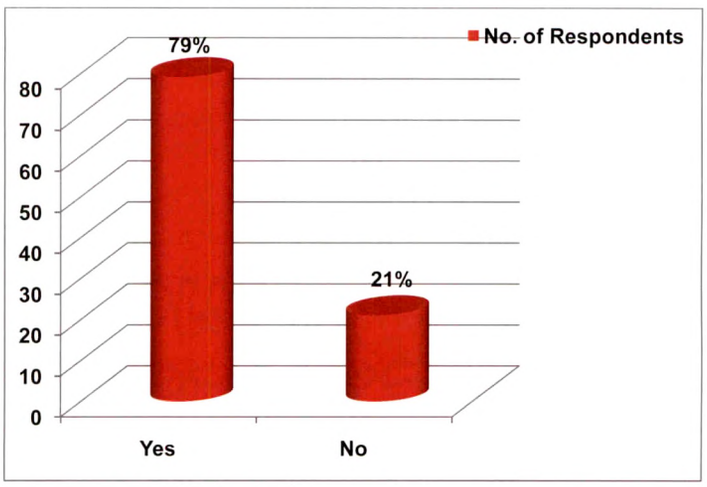
Damage to Human Lives

Sr. No.	Damage to Human	No. of Respondents	Percentage
1.	Yes	79	79%
2.	No	21	21%
	Total	100	100%

Source: Field Work, May 2014.

Graph No. 5.10

Damage to Human Lives



The table presents the fact that 79% people agree in the survey made on wild animal's invasion. But 21% people deny this issue concerned with damage to human lives according to Forest Department from the year 2004-05 to 2012-13. Between this period 20 people are dead because of wild animals. As well as government paid 12,18,448 rupees to direct family members of the peoples. (Forest Department Report of Chandgad Tehsil, March-April 2013, p. 12)

5.5.10 Underground Water Level

Underground water is one of the natural sources of pure and clean water for drinking and irrigation use. But during past several decades ground water quality has polluted and decreased level. This problem is found in catchment area of Phatakwadi dam also.

Table No. 5.30

Underground Water Level

Sr. No.	Water Level	No. of Respondents	Percentage
1.	Yes	72	72%
2.	No	28	28%
	Total	100	100%

Source: Field Work, May 2014.

Out of 100 respondents 72% people says that the underground water level is decreased and 28% says that there is no change in underground water level in catchment area. (Priya P. Loni, Prakash D. Raut, p. 2)

5.5.11 Water Borne Diseases

One of report of the WHO that is, more than two billion people live in areas where they are at risk of constructing malaria and the estimated annual incidence of clinical malaria is greater than 300 million cases. And more than one million people die every year from the direct causes of malaria. (Keiser Jenifer, Utzinger Jurg, Tanner Marcel, pp. 392 to 406.)

Table No. 5.31

Water Borne Diseases

Sr. No.	Water Borne Disease	No. of Respondents	Percentage
1.	Yes	68	68%
2.	No	32	32%
	Total	100	100%

Source : Field Work, May 2014.

The data presents that in the catchment area of Phatakwadi dam 68% people says that there is an increase in water borne disease and 32% respondents reject this problems.

5.5.12 Flood Problem

Table No. 5.32

Flood Problem

Sr. No.	Flood Problem	No. of Respondents	Percentage
1.	Yes	76	76%
2.	No	24	24%
	Total	100	100%

Source: Field Work, May 2014.

The table shows that out of 100 respondents 76% people say that flood problem has increased because of Phatakwadi dam and Kolhapur types of worriers and 24% deny with above circumstance.

5.5.13 Displacement of Villages

Table No. 5.33

Displacement of Villages

Sr. No.	Displacement	No. of Respondents	Percentage
1.	Yes	94	94%
2.	No	6	6%
	Total	100	100%

Source: Field Work, May 2014.

For construction of Phatakwadi Dam two villages were displaced from proper place that is Phatakwadi, Tal. Chandgad, Kolhapur and Masure, Tal. Sawantwadi, Dist. Sindhudurg. And both are situated in different places. This is agreed by 94% and disagreed by 6% respondents.

5.5.14 Impact on Natural Resources

Table No. 5.34

Impact on Natural Resources

Sr. No.	Impact on Natural Resources	No. of Respondents	Percentage
1.	Yes	83	83%
2.	No	17	17%
	Total	100	100%

Source: Field Work, May 2014.

Dam has destroyed the environmental balance, which affected on the natural resources. The 83% people says that it is the impact of Dam and 17% people do not agree with this.

5.5.15 Effect of Deforestation

Table No. 5.35

Effect of Deforestation

Sr. No.	Effect of Deforestation	No. of Respondents	Percentage
1.	Yes	88	88%
2.	No	12	12%
	Total	100	100%

Source: Field Work, May 2014.

Wild Animal Encouragement

Rapid deforestation in the catchment areas leading to soil erosion, landsliders and flash floods has imperiled river valley projects. The catchment areas are denuded to vegetation thereby leading to heavy erosion. Heavy situation and sedimentation deposits are likely to diminish the life of many reservoirs and irrigation tanks, impacts in many project situation found to be much higher than actually rates of siltation in selected reservoirs. Large scale and medium scale deforestation for dams can lead to subtle imbalance in the ecosystem. (Ghosh, G. K., pp. 53-60)

The above table shows that 88% people think that the problem of deforestation is severe and they are suffering from it. The 12% people reject the above problem.

5.6 Conclusion Remarks:

Phatakwadi dam is constructed in 'Western Ghat', which is known for its natural richness. The construction of dam has brought many benefits. e.g. Water supply for irrigation. Because of irrigation system farmers are taking cash-crops. Therefore it is found that there is a gradual development in socio-economic conditions. Along with economic progress dam has caused many environmental crises, such as water logging, salinisation, land degradation, deforestation, encroachment of wild animals, crop diseases and land sliding and so on. The construction of the dam has imbalanced ecology of the catchment area. This analysis has been made on the basis of survey and interviews of the farmers in concerned area. Thus, people have realized the environmental problems, but necessary steps to prevent them are not being taken yet. In Chandgad tehsil there are major and minor project, but proper precaution before and after their construction to maintain environmental balance is not taken. That's why Kolhapur District has been facing so many environmental problems related to dam.

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Chapter – VI

CONCLUSIONS AND SUGGESTIONS

6.1 Introduction

Phatakwadi dam was constructed in 2001 on the Ghatprabha River, it is surrounded by dense forest of 'Western Ghat', which is a part of world heritage. Since then a big water storage has been available for multiple reasons like drinking water, agriculture, industry etc. Moreover, 32 villages of Chandgad and Gadhinglaj tehsil have been benefitted by this dam water. In catchment area, farmers are now taking various crops and using this water to increase agro based production. For more production, farmers are expanding farm level by levelling them and making deforestation in large extent. They are using this dam water excessively with chemical fertilizers to obtain desired production. All these have invited many crises and environmental problems. Having discussed the various issues connected with the Environmental impact of Phatakwadi dam, we propose to enlist the main findings of this study in final chapter. The conclusions and suggestions based on the data collected and results, which will be helpful for policy formulation.

6.2 Major Conclusions

The major conclusions of the present study are as follows :

1. Phatakwadi dam has changed land utilisation pattern in its catchment area. It is a positive environmental impact because land is a very important environmental resource. More importantly, land is being used for majority for farming, especially sugarcane (65%), Rice (96%), Nachna (85%).

2. Human resource is a part and parcel of the environment. Hence, well being of the human is very much important. Phatakwadi dam has provided water to majority of farms (72%) and contributed to their well being and welfare, is a positive impact.

3. In the catchment area of the dam the use of well as a water source for irrigation purpose has increased. About 78% respondents are using well as irrigation source because Phatakwadi dam has increased the level of well water, is a positive impact of dam.

4. Modernisation of agriculture has become positive because of Phatakwadi dam and the irrigation facility provided by it. Agricultural modernisation through modern farm implements like electric pumps and diesel pumps is helpful in increasing production and productivity of land, is a positive impact of dam.

5. Phatakwadi dam has increased irrigation facilities in its catchment area and has helped in increasing agricultural production and productivity. It is therefore increasing production and productivity of land, as an environmental resource is a positive impact of the dam.

6. This dam has helped in enhancing production and productivity of crops in its catchment area, and contributed to increase in level of income of the people in this area. Increasing production and productivity of agricultural land as an environmental resource is a positive impact. The same land is giving increased production, productivity and income to the beneficiaries.

7. The need for sufficient water supply for agriculture as well as drinking purpose is a impact of dam only, because this dam is providing adequate water to the people in its catchment area.

8. Phatakwadi dam has availed electricity to the people for a variety of purposes, is its positive impact. It is because this dam using environmental resource water has enhanced electricity availability.

9. It is natural that the people should be happy and satisfactory. People as a human resource is an important part of the environment. Phatakwadi dam has increased economic status of the people in catchment area and helped in their welfare improvement.

10. Phatakwadi dam has increased the area under agricultural cultivation to some extent, is a positive impact. But there is scope for increasing agricultural land under cultivation.

11. Phatakwadi dam has helped in the development of agro based industries in its catchment area is a positive impact. But it has been achieved partially not fully.

12. This dam has increased employment opportunity in its catchment area, and has helped in welfare of the human resource, which is a very important sphere of the environment. But there is further scope for increasing employment.

13. Standard of living is an indicator of welfare and well-being of the people. As people are a part of the environment, improvement in their well being is necessary to take place, is a positive impact. Fortunately, Phatakwadi dam has improved standard of living of the people in its catchment area.

14. Income is an indicator of standard of living of the people. People as human resource in particular, and environmental resource in general should achieve higher standard of living. Phatakwadi dam has helped in raising the level of income of the people in its catchment area is its positive impact.

15. Phatakwadi dam has availed water, but it is being excessively used by the users. But considering availability a very economical and rational use of water as an environmental resource is expected.

16. It is the Phatakwadi dam, which is contributing to the environmental problem like water logging. A majority of the respondents agree with this fact. It is land degradation, which is a negative impact of this dam.

17. Phatakwadi dam has enabled the concentration of the cash crops by making excessive use of water, which has created the problem of salinity of land. It is a negative impact of this dam, which has been observed by about 70% respondents.

18. The excessive use of water with repetitions of the same crops, especially cash crops has resulted in the fall in the productivity of agricultural land. This is a negative impact of the Phatakwadi dam because it has availed water in plenty of quantity.

19. A plenty of water availed by the Phatakwadi dam caused to use excessive water in agriculture which has resulted in water pollution through the agricultural runoff in river, wells and bore wells also form poisonous materials like chemical fertilizers, insecticides and pesticides.

20. The excessive availability and use of water in agriculture caused the number of crop diseases in the catchment area of the Phatakwadi, which has contributed to fall in agricultural production.

21. Due to availability of water from Phatakwadi dam the farmers in its catchment area are increasing area under cultivation of crops through deforestation, which can have the number of evil consequences.

22. In an effort to increase area under agricultural cultivation forest destruction and deforestation has taken place in the catchment area, which is a loss to agricultural crops as well as others also by the wild animals like elephants, bison.

23. Wild animals in the catchment area of Phatakwadi dam are causing injuries and deaths of human being, because of a significant deforestation.

24. The excessive use of water for agricultural purposes in the catchment area of Phatakwadi dam is also causing fall in the level of well, bore well water very significantly.

25. The excessive availability of water and its misuse has contributed to the number of water borne diseases like malaria, which is causing heavy economic burden on the society.

26. Phatakwadi dam is causing flood problem in its catchment area, and further it is resulting in loss of property, animals and agricultural production also.

27. The construction of Phatakwadi dam has resulted in the displacement of two villages in the Kolhapur district. This further resulted in the loss of resources, property, animal and other resources also, is a negative impact of this dam.

28. Phatakwadi dam has contributed to the loss and destruction of natural resources like land, minerals, water resources, forest and others significantly. It is no doubt a negative impact of the Phatakwadi dam.

29. Phatakwadi dam has led to the deforestation in significant extent, which is causing for the number of evil consequences to be suffered by the people, animals, birds and other living things of the deforestation that has taken place.

6.3 Important Suggestions

The important suggestions of the present study are as follows :

1. The government should carry out a frequent and continuous Environmental Impact Assessment of such project for the decision about its continuation or discontinuation.

2. Phatakwadi dam has both the positive as well as negative environmental impacts. The government should compensate the sufferers from its negative impact.

3. The local governments in the catchment area of the Phatakwadi dam should control mono cropping pattern.

4. The government of Maharashtra should regulate the use of water especially for agriculture.

5. Phatakwadi dam resulted in significant deforestation hence the government of Maharashtra along with other stakeholders undertake forestation programme.

6. The forest department of the government of Maharashtra should control all type damage causing due to wild animals elephants, tigers and all others.

7. The government of Maharashtra should undertake rehabilitation of the villages displaced due to Phatakwadi dam by all means.

6.4 Testing of Hypothesis

The present study has formed two hypotheses.

1. Hypothesis No. 1 : Phatakwadi dam has negative impact on the environment.

2. Hypothesis No. 2 : Negative impact of Phatakwadi dam is imposing heavy economic burden on the society.

Hypothesis No. 1 : Phatakwadi dam has negative impact on the environment.

The present study has tested the hypothesis No. 1 with the help of secondary as well as primary data analysis. The present study found number of positive as well as negative impact of the Phatakwadi dam on the environment. The negative impact of the Phatakwadi dam is found greater than the positive impact on the environment. Negative impact of Phatakwadi dam on the environment are excess use of water, water logging, salinity of land, deforestation, crop loss, damage to human lives, following water level, water borne diseases etc. The empirical analysis is given in Chapter V of this study. Therefore, hypothesis No. 1 of the present study is proved as tested above in Chapter V and it is accepted.

Hypothesis No. 2 : Negative impact of Phatakwadi dam is imposing heavy economic burden on the society.

The negative impact of the Phatakwadi dam discussed above are putting heavy economic burden on the society and members of the society associated with the Phatakwadi dam. Economic burden of all negative impact have not been calculated by the researcher. But government of Maharashtra has extended financial assistance to the victim and sufferers from the negative impact of the dam worth of Rs.

24.21 lakh during 2004-05 to 2012-13 against the crop loss. Besides this the government of Maharashtra has also given the compensation of Rs. 10.80 lakh for death of humans. This adequately tests the hypothesis No. 2 of the study and it is also proved hence it is accepted.

6.5 Concluding Remarks

Economic development and the environment are negatively correlated due to rapid economic development causes adverse rapid and massive destruction of the environment. Dams are part of infrastructural development but every dam have created positive as well as negative impact on the environment. Environmental impact assessment is very much important to government, researchers, people, decision makers, contractors, engineers and environment department. In this present research it is tried to study positive as well as negative environmental impact of Phatakwadi dam in Kolhapur district.