

# SOCIO-ECONOMIC IMPACT ASSESSMENT OF VICTIMS DUE TO PERMANENT RESETTLEMENT OF BISALPUR WATER SUPPLY PROJECT

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**Abstract**—The objective of the study is to assess the socio-economic impact of the different groups of victims as a consequence of resettlement plan. These impacts include damages exerted on accessibility to sites, provision of infrastructural facilities and the overall success / failure of the resettlement programme. The study employed descriptive survey method including both quantitative and qualitative data collecting technique. The checklist method of impact assessment was employed in this study. Study proposed a new methodology to relocate the victims due to disaster or any other infrastructure project. Case study of Bisalpur water supply project is studied to state new methodology for the permanent resettlement of such victims. Both analytical and field survey methods are used to calculate the socio-economic impact of the project on the affected people. Survey of the affected people due to Bisalpur Dam Water Supply Project has been carried out and the result set based on the questionnaire is formulated. The statistical characteristics of the result set are calculated for the analysis of the project impact on the affected people. Large numbers of affected people are in against with the issue like the overall satisfaction of families, facilities regarding potable water supply, employment, income, housing and living arrangement and choice over new location. Objective of the study is to study the socio-economic impact of Bisalpur water supply project on affected people. It also aims to find a suitable permanent resettlement site for the victims due to disaster or any infrastructure project.

**Index Terms**—Resettlement, Socio-Economic Impact Assessment, Bisalpur Water Supply Project

## I. INTRODUCTION

Resettlement is the movement of a large group of people from one region to another, and it is happen because of to two reasons due to disaster and development venture.

The primary driver of resettlement is because of natural disasters (earthquakes, hurricanes, floods and storms), social interruption (famine, land appropriation, labour migration, and war) and development venture (natural resource extraction, dams, urban renewal and development. Organizations (private sector entities, governments, non-governmental organizations (NGOs) etc.) that are associated with involuntary resettlement decisions, and frequently play a major role to reduce the negative socio-economic and environmental impacts of resettlement through disaster planning and management.

On account of natural disasters and social variance, decisions related to resettlement must be taken moderately rapidly. The disaster situation generally requires immediate decision-making and there is not adequate time for proactive planning and stakeholder discussion. Because of this, these urgent situation resettlements are typically characterized by unfavorable long-haul financial changes that have an outcome on the displaced population, for example neediness and unhealthiness. In the event that the involuntary resettlement projects are well planned then these venture present new opportunities to connect the community in the decision making process and lessen the negative economic and social impacts on the displaced population. In the most recent 30 years, the majority involuntary resettlement literature (World Bank, 1994; WBED, 1996; McCully, 2001; WCD, 2000) has been concerned with large development projects. Because of these projects large numbers of people are often exaggerated mainly in developing countries, supporter agencies and governments normally make concerted efforts to make sure that affected communities can turn out to be development beneficiaries rather than sufferers.

Sometimes resettlements have a major bad impact on the resettled population because houses in the newly resettled site are not adequate, mainly for those people, who affianced in livestock production and other agricultural activities. Besides this, former living standards are not met with the resettlement procedure and the resettlement process may wipe out the presented socioeconomic system and also reduction in income levels. On the other hand, a well-planned and managed resettlement process may result in positive development, such as a new encouraging socio-economic atmosphere with better employment, and better access to education and health services.

Resettlement to be measured a feasible conservation tool, solutions must be developed with active involvement of local people, and involve substantial long-term investments. Over the past several decades, most resettlement plans and policy efforts seek to achieve such positive development changes from countries around the globe. While a number of factors contribute to the unsuccessful of resettlement policies, poor planning and management often play a major role.

It is clear that grass root methods to reconstruction should distinguish the duality of difficulty and efficiency at the same time; it shows difficult because they need change to conservative practices and attitudes, and the need for interactive and better relationships with the community beneath study; it is efficient because they reply to views and aspirations of people taking into concern the complexity and variety of the issues involved.

### **Techniques used in Permanent Resettlement**

There are various techniques used in resettlement process that are described below.

A Mixed Method Approach is used for resettlement process, and method consist of field observations, focus group discussions with people in resettlement site, semi-structured face-to-face interviews, analysis of government documents, media and conference papers. To find out the

impact of resettlement project on the life of people, those are affected by this project and determine the success and failure of the project by the analysis of data.

Theoretical Method for resettlement, this model explains the socio-economic context of both post displaced and reestablish population and show that these resettlement is feasible or not. Various risk and conditions considered by this model such as landlessness, joblessness, homelessness, marginalization, food insecurity, loss of access to common resource, and mobility. This model suggests reconstructing and improvement in livelihood is triggered by adequate financing, means success of resettlement project depends on financing. And this model determine this resettlement have positive or negative effect on the life of people that are affected by the resettlement process.

Qualitative approach for resettlement and this approach allow dynamic discussions with the community under study and permits better understanding of the local conditions. In this, there are two approach top-down approach and bottom-up approach used.

Top-down approach concentrates largely on speed, standardization and technologically oriented solutions. In such approaches to reconstruction, socio-economic, cultural and developmental issues have largely been neglected because of the urgency to re-house the victims rapidly. Top-down approaches to reconstruction too often ignore the complexity of the built environment, the local conditions, and users' needs and potentials.

Bottom-up approach call for involving the user, adopting appropriate technology, and integrating rebuilding and development, as essential principles in dealing with reconstruction after disaster. This would increase the chances of mobilizing the community, resolving basic problems, capitalizing on existing processes, maximizing the use of available resources, and enhancing partnership among states, professionals and local communities. Undeniably, these approaches offer significant advantages if and when they are properly planned and implemented.

## II. STUDY AREA AND DATA AVAILABILITY

The villages and families affected due to the Bisalpur Water Supply Project fall into:

Todaraisingh and Malpura blocks of Tonk district in the semi-arid eastern plains of Rajasthan. The river Banas and its tributaries flow into part of this district. Water table levels vary from 1525 m below the surface, and scarce surface water resources have led to accelerated harnessing of ground water resources.

As per the Rajasthan Gazette notification of February 5, 2003, related to acquiring land for public use for laying pipeline from Bisalpur to Jaipur and related works regarding dam, agricultural land from a total of 706 project affected families will be acquired under the Bisalpur Water Supply Project, and the total affected population is 4,663. The total 4,663 Project affected persons, and the representative sample of 735 Project affected person who were selected for the socio-economic survey, were unevenly distributed into 5 villages of varied population size namely Thadoli, Surajpura, Ladpura, Pradhan colony, Sambhu Nagar (in Todaraisingh block) in Tonk District, Rajasthan. This Project affected persons are living in different villages and the distribution of the total 4,663 PAPs and the sample of 735 Project affected persons in surveyed villages are summarized in the following table.

**Table 1 Village Name and affected person**

S. No.	Village Name	Project Affected Persons
1	Ladpura	320
2	Surajpura	180
3	Pradhan Nagar	120
4	Shhambhu Nagar	50
5	Thadoli	65

Some of the subject PAFs were displaced from their original villages (Bhateda, Baschhatra, Bisalpur, Mansinghpura, Thagariya, and Baneriya ) and have been resettled at Thadoli, Ladpura, Pradhan Nagarr, Shambhu Nagar and Surajpura villages.

### *Socio-economic Profile of the Affected Villages*

#### *Family displaced/affected:*

Government of Rajasthan R&R policy (draft) and ADB guidelines for socio-economic studies and preparation of RP were adopted in obtaining detailed information. A total of 735 Project affected persons, representing 15.76% of the total 4,663 PAPs, were interviewed for the detailed socio-economic survey.

A detailed socio-economic survey of 165 Project affected families, covering 735 persons, was conducted to develop social profiles of the people impacted by the project and the following sample survey include the villages namely Thadoli, Surajpura, Ladpura, Pradhan colony, Sambhu Nagar (in Todaraisingh block).

### *Demographic Profile of Sampled Survey*

#### *Family Type*

In the surveyed villages most of the families are nuclear and some of that are joint.

#### *Age Category*

Out of the total population of 735 persons in the surveyed households, 105 are children below 6 years of age, 192 are young people in the age group of 6 to 18years, 352 persons belong to the age group of 19 to 62 and the remaining 86 persons are 63 and above years of age.

#### *Caste Composition*

396 person of the total population of the surveyed villages belongs to Other Backward Cast. In this regard further analysis depicts that there are 81 person belongs to general, 186 person Scheduled Caste and 72 person Scheduled tribe households in the surveyed village. Besides, it is also revealed that almost all the villagers are Hindus in the surveyed village

#### *Educational Level*

As regards the educational attainment of the villagers, out of the total population of 735 persons in the villages, 306 persons are illiterate. From among the 120 persons just literates, and the remaining 309 persons have attained Elementary level of education, matriculate, higher secondary level, and the number of person who are Graduates very less.

**Basic Amenities****Safe Drinking Water**

In the survey of villages the problem regarding the safe drinking water is wide, most of the family affected by this because there are no proper arrangement regarding to water supply and most of the family depends on Hand pumps, Tube well, Pond and other sources. There is no proper arrangement of Piped line water in the surveyed villages. In ladpura village, Piped line water available but there is no proper arrangement regarding water supply and people of all surveyed villages have problem regarding this.

**Electricity**

Electricity of the surveyed villages is not the big issue, most of people satisfied with the facilities regarding to the electricity are satisfied. The issue regarding to the electricity is that sometimes electricity is not available in case of fault in line and other problem (related to bad weather) and it takes much time for repairing the fault line.

Also their lack of some amenities in surveyed villages like Hospital, regarding transportation, road connectivity in some villages.

**Economic Profile****Occupation of Displaced Families**

The major source of occupation of the persons in the surveyed villages is agriculture and labored secondary source of occupation of the persons of the affected families. Out of 165 families, most of the persons are self employed in agriculture and in non-agricultural activities as primary occupation.

A significant proportion (about half) of those who reported their main occupation as being in agriculture or agricultural related activities reported unemployment or no occupation as their secondary occupation. Some of the employed persons were involved in one or more earning activities as their secondary occupation. It was concluded that this reflects the seasonal nature of work available in the agricultural sector in Tonk district, and the need for agricultural workers to find supplementary sources of income.

**III. INVESTIGATION METHODOLOGY**

After surveying various papers, the methodology adopted in the study is the Mixed Approach Method. In this approach, both the sampling survey and analytical method is used to find the solution for the permanent resettlement of the victims after disaster or any construction project. In the present study field survey is completed for the study area. The survey consist well diversified questionnaire of different aspects of the life. Data are collected from different sources and field survey consists interview of the victims, research scholar and project related people.

The study area of the project is Bisalpur Water Supply Project. The aim study is to access the social impact of this project on the affected people and to suggest a method to provide a proper resettlement plan. The resettlement plan consists of the selection of the permanent resettlement location due to disaster and any other infrastructure project, so that the well being of the affected people would not be marginalized.

After surveying the affected people due to Bisalpur Dam Water Supply Project, a result set based on the questionnaire is formulated. The statistical characteristics of the result set are calculated for the analysis of the project impact on the affected people.

Total of 706 project affected families will be acquired under the Bisalpur Water Supply Project, and the total affected population is 4,663. The total 4,663 Project affected persons, and the representative sample of 735 Project affected person who were selected for the socio-economic survey, were unevenly distributed into 5 villages of varied population size namely Thadoli, Surajpura, Ladpura, Pradhan colony, Sambhu Nagar (in Todaraisingh block) in Tonk District, Rajasthan.

The below flow chart explain the different steps of the methodology for the aforesaid problem-

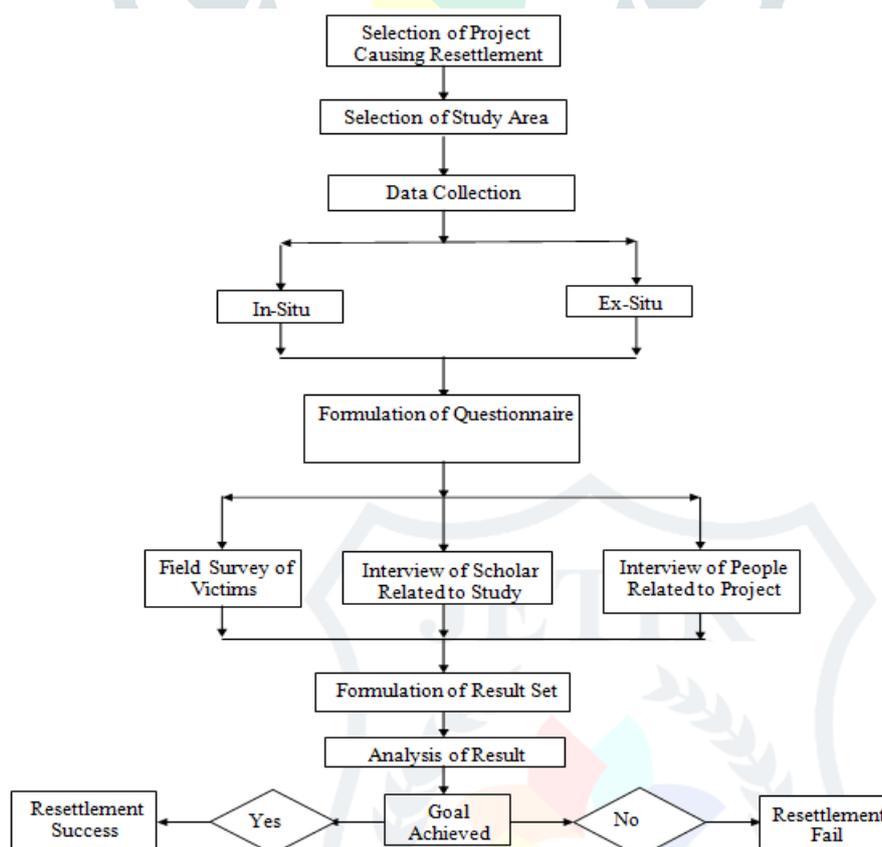


Figure 1 Flow chart of Methodology

After collecting data based on questionnaire result sets has been formulated. People in favor of question has been marked as Positive (P), the other one is referred as Negative (N), the rest of people which have no effect of such resettlement has been marked as Not Affected (NA). After the formulation of result set Percent of people of each category has been calculated, the calculated result for each survey question shows the impact of resettlement on various people due to this project. After calculating all the result for all questionnaires, the overall success and failure of resettlement plan is stated.

#### **Site Selection Criteria for Resettlement**

For selection of resettlement site criteria are the resettlement site near the existing location if possible, type of shelter to be constructed, ecologically, sensitivity of the area, proximity of the site, topographical characteristics of site, availability of water, availability of hospital and education facility, accessibility to road, and ownership.

#### **New methodology for such Type of Project**

These are the some main steps that need to be consider in such type of project-

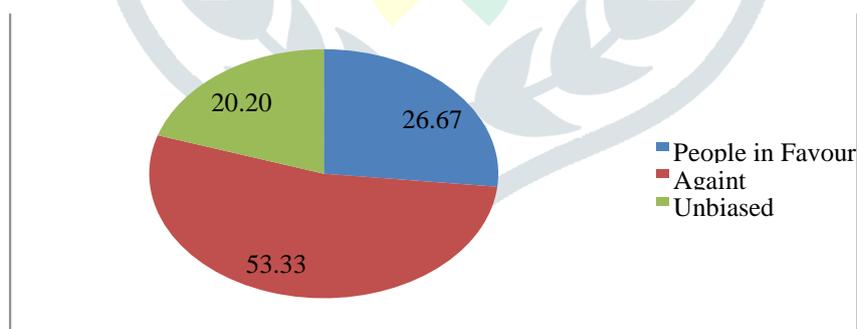
- a) Collect data about those areas that have favorable condition related to resettlement.
- b) Then study of these areas is required, to know which area has better condition comparison to other areas.
- c) Also study of the community is required, this step is necessary for a better resettlement because in the areas of resettlement things are present or not that the community wanted and those facilities that the community already have in their prior location.
- d) Development of questionnaire according to the area and facilities that community required.
- e) And survey of the community before the resettlement to know about their condition in the existing location.
- f) And then analysis of this survey shows the requirement of the community that they wanted in the resettled area and by this it is easy to know the services that are need to be in the resettled area.
- g) After doing this, discussion with the professional and civil society for the proposed area that is finalized for the resettlement of victims.
- h) After all these conditions are in positive way means the resettled site have facilities that fulfill the need of people of those place, and then finalized the resettled site.
- i) And to know about this resettlement have positive effect or not in the life of people then for this, a survey of resettled place is required and find out the people opinion about the new location and the facilities that new area have. And the result of this survey give that people are satisfied with this project or not and they have improve their life or not after this resettlement.

#### **IV. RESULT AND DISCUSSION**

Analysis of the survey, based on the questionnaire is shown in the form of tables below. Different table shows the majority of the result in favor and against in form of percentage. Result of survey regarding to the selection of locations for the resettlement of the victims shows, out of 163 families, 53.33% families are in against of this and they think that the location is not better than prior one, and 26.67% families are in favor of the location and think that this location is better than prior. Still 20% families are unable to state their condition before and after the resettlement and think that this resettlement has neither positive nor negative effect. Such categories of people are termed as unbiased victims. So majority of families feel that the prior location is better to the new one.

**Table 2 About the New location**

S. No. of Questionnaire	People in Favour	Against	Unbiased
1	26.67	53.33	20

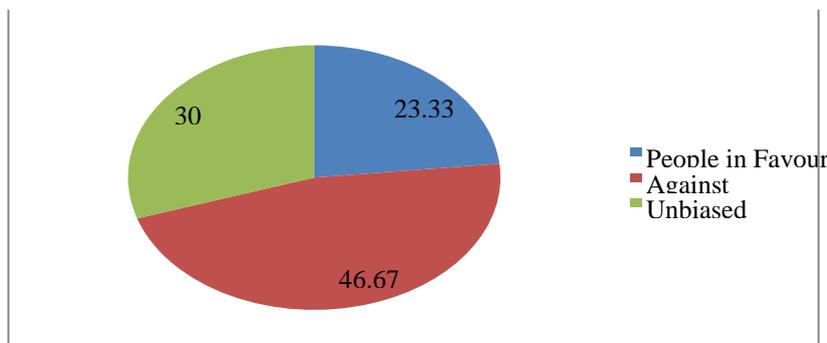


**Figure 2 Percentage Distribution about New Location**

Result of survey regarding to their housing and living arrangement in the resettlement location, out of 163 families, 46.67% families are in against of their housing and living arrangement and fell that because of this resettlement, there are downgrade of their housing and living arrangement, and 23.33% families are in favor of the location and think that in this location, the facilities regarding housing and living arrangement is better than prior location. 30% families are thinks, that there are no changes regarding to their housing and living arrangement and feel that they are in same position like before.

**Table 3 About Housing and Living arrangement**

S. No. of Questionnaire	People in Favour	Against	Unbiased
2	23.33	46.67	30

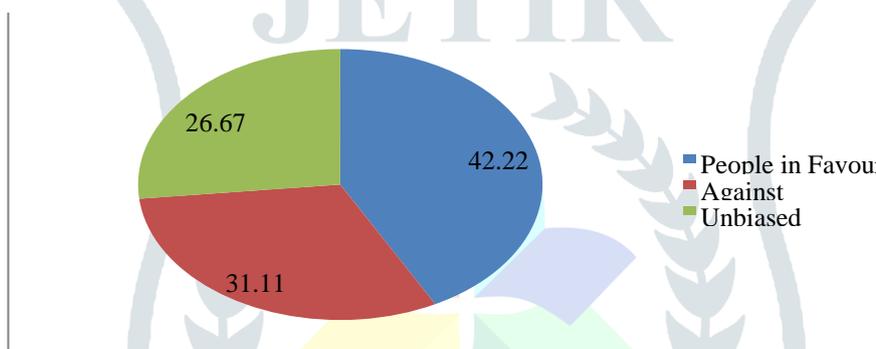


**Table 3 About Housing and Living arrangement**

Result of survey regarding to the Education of the surveyed villages that is provided after the resettlement and result regarding to the education has positive outcomes, and Out of 163 families, 31.11% families are against of this and they feel that there are not appropriate arrangement of education related facilities that have to be, and 42.22% families are in favor, and feel that this location has a great importance regarding to their children education and say that in prior location they don't have better facilities regarding education that this place have, and suggest that it can be better if the management of the schools is better. Still 26.67% families are feel that there is no change in education life of children, and they think that it is similar to previous one and feel no changes in education of children.

**Table 4 About Education**

S. No. of Questionnaire	People in Favour	Against	Unbiased
3	42.22	31.11	26.67

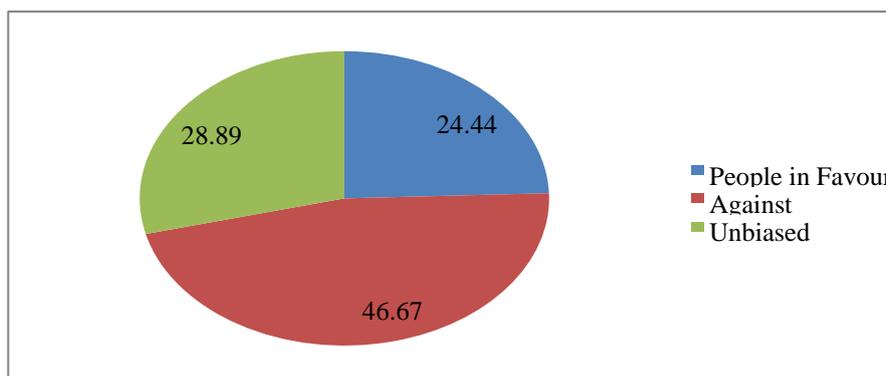


**Figure 4 Percentage Distribution about Education**

Result of survey regarding to the Employment and Income of affected families are shown in the following table, and the results shows that after resettlement major families have negative impact regarding to their source of income, and 46.67% families feel that after resettlement problem related to employment and income arose in relocated site. This because of in the new area the land that allocated for the people have problem related to irrigation and also problem related to employment is major because most of the families depends on agriculture and there is no alternative sources of income in resettled area. 24.44% families are in think that in this area they have better opportunity related to employment and income that they have in prior location. Also 28.89% families are unable to state their condition, and feel that they have no change in their condition related to income and employment in this resettled.

**Table 5 About Employment and Income**

S. No. of Questionnaire	People in Favour	Against	Unbiased
4	24.44	46.67	28.89

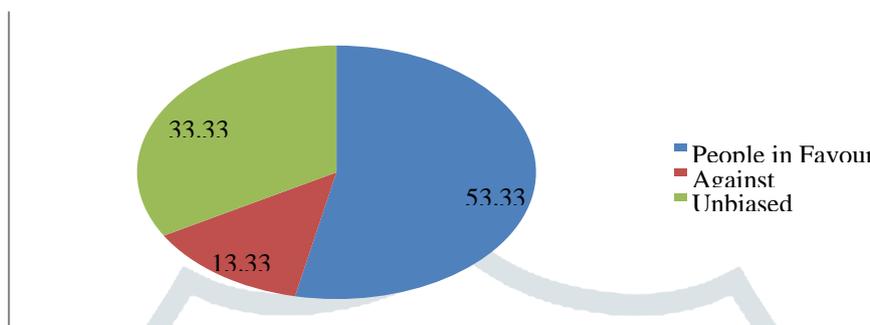


**Figure 5 Percentage Distribution about Employment and Income**

Result of survey regarding to the Health in the resettled area is shown in table, and the result regarding to the health has positive impact and 53.33% people feel that in the new area health facilities are better than prior location and they think that in the resettled area the rate of deceases related to Health goes down, it shows that in the new area there is positive impact regarding to health. 33.333% families feel that, they have no changes in facilities regarding to health and say that it is same as prior. And also 13.33% people feel that resettled area has facilities regarding health but there is no proper management, because of this sometimes it is not possible to use these service and people have to go in other near places. But we can say that when it comes to impact, there is positive impact related to health in the resettled site.

**Table 6 About Health Facilities**

S. No. of Questionnaire	People in Favour	Against	Unbiased
5	53.33	13.33	33.33

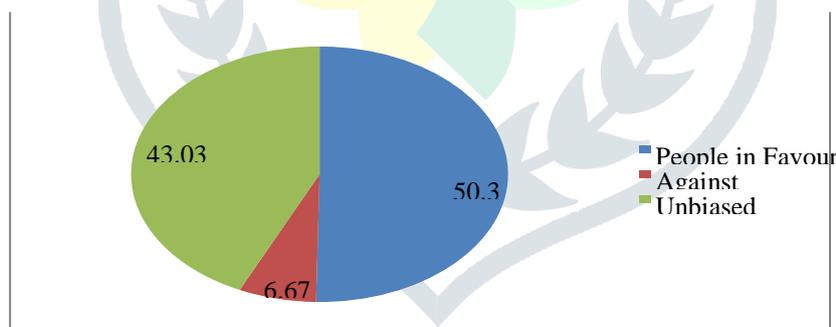


**Figure 6 Percentage Distribution about Health Facilities**

Result of survey regarding to the safety in the resettlement area shown in table below. The result show that regarding to the safety the resettlement area is fine and there are no big issue regarding to the safety of people and 50.3% families says that when it comes to safety the resettled places is better than the prior location and there is no issue regarding to their safety. Also some families only 6.67% says that they prefer the prior location when it comes about their safety and don't think that the new location has better safety than prior. And also 43.03% families say that there is no major change regarding to their safety because they have not any big issue regarding their safety in prior location and also this new location have no issue regarding their safety.

**Table 7 About Safety**

S. No. of Questionnaire	People in Favour	Against	Unbiased
6	50.3	6.67	43.03



**Figure 7 Percentage Distribution about Safety**

Result of survey regarding to their cultural and religion show that in the resettled area there is no problem regarding to their cultural and religion, and this is because of in resettled area most of the people that have resettled from prior location have same religion and culture, because of this the problem related to religion and culture have been not arose in the resettlement site.

Result of survey regarding to the Social Contact in the resettled area is shown in table, and the result regarding to the Social Contact shows a positive impact and 53.33% families say that in the resettled area the social contact with the people that are living in prior location is same because in the resettled areas most of the people of one village are resettled in one place in the resettlement place so it's not difficult to contact people that are living in prior location. 20% families say that because of this resettlement they have loss of social contact with people of prior location this is because of some of the people of our village resettlement in other villages, so it is difficult to contact with them regularly. And also 26.67% people say that they are unaffected regarding to their social contact because in prior location they don't have much social contact with people so this is not affecting them.

**Table 8 About Social Contact**

S. No. of Questionnaire	People In favor	Against	Unbiased
8	53.33	20	26.67

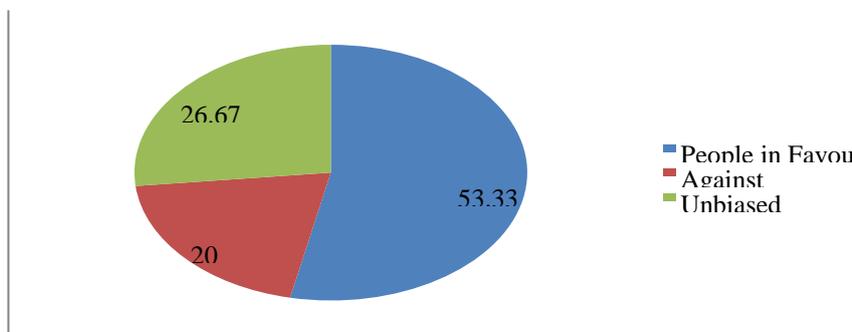


Figure 8 Percentage Distribution about Social Contact

Result of survey regarding to the Facility (mainly water and road) in the resettled villages-

Result regarding to the water supply show negative impact on families in the resettled villages, 57.58% families say that in resettled areas there are no proper facilities of water supply provided by authority that is the most common and necessary requirement of people’s life. People say that the authority that involved in the resettlement assured them that there is no issue regarding their water supply but now the main problem is related to water and also government do nothing regarding to this problem, also some resettled places have pipe lined water supply but due to improper management the supply of water is not timely done, and most of the families depends on the hand pump and tube well that are outside of village and take too time to get water in those places. 29.09% families say that there is no change in the supply of water, the availability of water is same as the prior location. And also 13.33% people say that there is positive impact regarding to their water supply because they have more problem regarding to their water supply in their prior location.

So the overall impact of water supply in the resettled villages is negative.

Table 9 Overall Facilities Regarding Water Supply

S. No. of Questionnaire	People In favor	Against	Unbiased
9	13.33	57.58	29.09

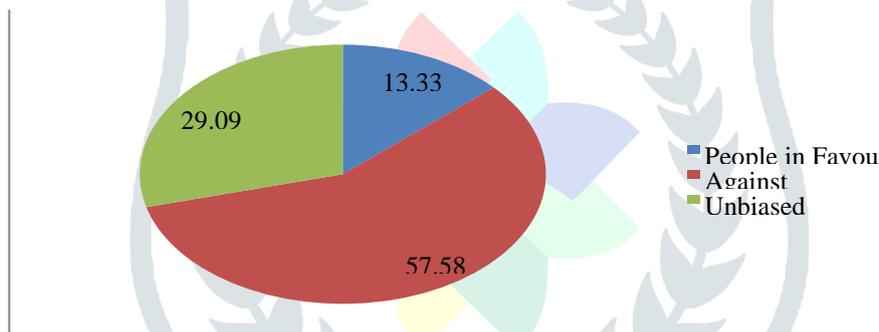


Figure 9 Percentage Distribution about Overall Facilities Regarding Water Supply

Now the result related to the road connectivity and transportation in the resettled villages, and the result related to road connectivity and transportation show a positive impact in the resettled location. 51.52% families say that facilities related to the road and transportation is better to their prior location. And 26.67% families say that in the resettled location they don’t have those type of road connectivity that they have to, and also the road connectivity between near villages is not so good. And also 21.82% families are not able to comment on road connectivity because they don’t feel the road connectivity is bad than prior.

So road connectivity in the resettled areas have show a positive impact.

Table 10 Overall Facilities Regarding Road connectivity

S. No. of Questionnaire	People in Favour	Against	Unbiased
9	51.52	26.67	21.82

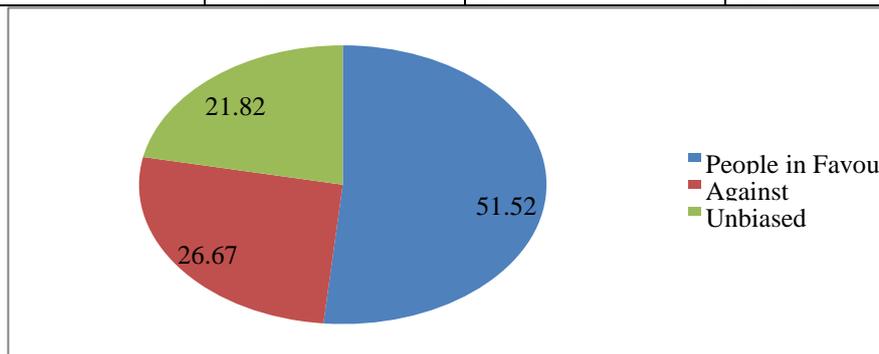
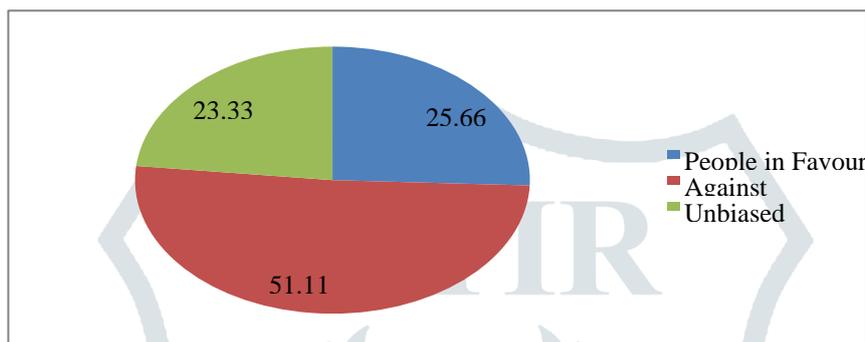


Figure 10 Percentage Distribution about Overall Facilities Regarding Water Supply

Result of questionnaire regarding to the satisfaction of this project and include the improvement of life with this resettlement, and also include the compensation that given to the families. The result regarding to this shown in table below, and show that a large number of families not satisfied with this resettlement. 51.11% families are not satisfied with this project and say that due to of this project, there is no improvement in their life since the resettlement and also there are many problems regarding to the employment and income sources since they came to this place, and because of this, it is difficult to fulfil the need of the families. People say that the compensation that is given at the time of resettlement is not adequate, and the amounts that given are not sufficient to settle in other location in these condition, it is not easy at all. And 23.33% families say that because of this resettlement they don't have any effect on their life, they said that they are living same as prior and because of this, what we can say about this resettlement because it has neither positive nor negative impact on our lives. And also not more families but 25.66% families say that this resettlement have positive impact on their life and they are satisfied with this resettlement and say that because of this resettlement they got a chance to improve their life, and line better that we are living in prior and feel that it is big opportunity for them.

**Table 11 Satisfaction of Families related to this Project**

S. No. of Questionnaire	People in Favour	Against	Unbiased
11	25.66	51.11	23.33



**Figure 11 Satisfaction of Families related to this Project**

After the analysis of the above result, it is clear that the resettlement plan of Bisalpur Water Supply Project is failed in respect of the proper resettlement of the victims. The result is not about the failure of the Bisalpur Water Supply Project, but the selection of site for the resettlement of the victims and the facilities that are given to those people. It fails in terms of the livelihood loss, marginalized compensation for the land, unemployment, basic utilities like health facilities, educational institutional, loss of land, shelter, potable drinking water, etc. And more than 50% families are not satisfied with this resettlement that show that this resettlement have a negative impact on peoples life, and that create a negative regarding their facilities that are not provided in the resettlement area and main services that the project affected persons have, are employment, road connectivity of resettlement area, problem of water supply in the resettlement area and These things are necessary to live life in a proper way, if the project not able to provide such basic amenities then these project can't create a positive impact on affected person or can't improve their lives.

## V. RESULT AND DISCUSSION

After the analysis of the result of survey questionnaires, the following observation has been noticed. The observed result from the survey suggests the lack of basic need of the victims due the Bisalpur Water Supply Project.

Large numbers of affected people are in against with the issue like the overall satisfaction of families, facilities regarding potable water supply, employment, income, housing and living arrangement and choice over new location.

Study find that most of the affected people are against over the basic facilities. It has been also observed from the survey that the whole resettled location does not have proper drinking water facilities. The victims are also deprived from their main occupation agriculture, due to the lack of agricultural land provided as compensation.

Some of the facilities like safety of location, health facility in the resettlement site, community participation and road connectivity are upto the choice of the affected people, but the sarcasm is that the affected people do not have proper drinking water facilities, as they are affected by water supply project which is satisfy the demands of cities like Jaipur, Tonk, Ajmer.

Survey also suggest that the resettled people of Surajpura and Ladpura are facing more problems in agricultural, employment, drinking water and sanitation then the people of Thadoli.

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