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Factors responsible for socio-techno economic changes in Sardar Sarovar Project affected farmers

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ABSTRACT

The present study was conducted in 121 vasahat of five talukas of Baroda district and planned to measure the socio-techno economic changes of PAFs at rehabilitated place and factors influencing on it. For the measurement of socio-techno-economic changes, the scale developed by Prajapati (1993) was used. The results of the study depicts that the majority of the PAFs had medium socio-techno economic changes. It is also found that socio-techno economic changes of PAFs was significantly influenced by six variables namely social participation, type of house, material possession, socio-economic status, annual income, and innovativeness. Further the major contributing factors like risk orientation, scientific orientation, attitude towards modern agriculture, material possession, extension contact, education, socio-economic status, annual income, sources of information, land holding, innovativeness, size of family, type of house and type of family were having maximum total indirect and positive effect on the socio-techno economic changes. Hence, these factors are showing greater importance towards the socio-techno economic changes of PAFs at rehabilitated place.

INTRODUCTION

The rehabilitation and resettlement of the affected people's under the Sardar Sarovar Project (SSP) has become a sensitive issue and have been given the highest priority in its implementation. The project was first proposed in 1947, when it was called the Bharuch project and was one of the seven projects identified during the initial survey of the Narmada Valley. In 1957, Navagam village of Nandod taluka of Bharuch district was selected as the site for construction of the dam, with the then Prime Minister, Jawaharlal Nehru laying the foundation stone on April 5, 1961.

A generous and most liberal rehabilitation policy in the world has been formulated by the government of Gujarat for the affected peoples. The primary objective of the policy is to significantly improve the economic condition of the PAFs after resettlement.

It is true that government of Gujarat has contributed a lot to resettle these PAFs. It is equally true, that uprooted families may have their right of expression against or in favour of RR policy and package. This needs to be empirically examined. Hence, an attempt is made to what are grass root realities of PAFs and to understand their socio-personal, economic, communication and psychological profile. An attempt is also made to assess the role of government in successful implementation of RR policy on the basis of assessment of socio-techno economic changes

occurred at rehabilitated place in the PAFs.

MATERIAL AND METHODS

The present study was carried out in five talukas of Baroda district, where large number of PAFs were resettled. All vasahats falling under selected talukas were included in the study. Thus, total 121 vasahats from five talukas were selected for the study. From the availability of PAFs in each vasahats of five talukas, five per cent of PAFs were selected through proportionate random sampling technique. Thus, total 250 PAFs were randomly selected as a respondents for the present study. Data were collected with the help of pretested structured interview schedule.

For this study the resultant changes occurred after resettlement and rehabilitation and adoption of modern technology in form of socio-techno economic changes have been taken into account as changes. The socio-techno economic change was measured with the help of procedure adopted by Prajapati (1993) with some modification in terms of nine aspects namely change in modern technology based farm machinery or farm implements, change in house hold items, change in saving and investment, change in food habits, change in clothing patterns, change in housing conditions, change in social status, change in social relationship and change in self sufficiency. The scores of each aspects were added to measure the socio-techno economic change in the PAFs. The respondents were classified into three groups *viz.*, low (Below Mean - 0.5 SD), medium (Mean $\pm$ 0.5 SD) and high (Above Mean + 0.5 SD).

OBSERVATIONS AND ANALYSIS

The findings of the present study as well as relevant discussion have been presented under following heads :

Socio-techno economic changes :

The data presented in Table 1 reported that nearly half of the respondents (46.80 %) had medium level of socio-techno economic changes followed by 28.40 per cent and 24.80 per cent of the respondents had low and high level of socio-techno economic changes.

Thus, it can be concluded that majority (71.60 %) of the respondents had medium to high level of socio-techno economic changes. The probable reason might be that medium annual income, animal possession, risk orientation, scientific and favourable attitude towards rehabilitated place and extent of adoption of recommended agricultural technology which had led to higher socio-techno economic changes in farming and also in style of living.

Relationship between independent variables and Socio-techno economic changes :

The discussion about the relationship of socio-personal, economic, communication and psychological characteristics of PAFs with socio-techno economic changes are given below.

Socio- personal characteristics :

The data in Table 2 revealed that age of the respondents had significant but negative correlation with their socio-techno economic changes. The negative trend indicated that as age decreases, the socio-techno economic changes increases. It means younger farmers seemed to be better in socio-techno economic changes than aged. This might be because of the lacuna that the aged farmers would be less capable and enthusiastic than the younger ones. The present findings are in line with the findings reported by Shinde *et al.* (1995-96). Whereas the educational level of the PAFs was positively and significantly correlated with their socio-techno economic changes. The reason attributed may be that the educated individuals would generally have the broader outlooks and capabilities to comprehend and interpret new ideas which resulted in change in behaviour. The present findings are in agreement with the findings of Chauhan (1994); Patel and Sangle (1994) and Patel (2000).

Table 1 : Distribution of the respondents according to their socio-techno economic changes **(n=250)**

Sr. No.	Category	Number	Per cent
1.	Low (upto 49 score)	71	28.40
2.	Medium (50 to 58 score)	117	46.80
3.	High (above 58 score)	62	24.80
	Total	250	100.00
	Mean = 53.27	0.5	S.D. = 4.53

This finding is in line with those of Patel *et al*. (1995) and Patel (2000).

Table 2 indicated that size and type of family was positively and significantly related with socio-techno economic changes. It means that PAFs with joint families' level of adoption was higher than the PAFs with nuclear families. The present findings are in line with the findings of Shinde *et al*. (1995-96). It is also evidence from Table 2 that the social participation of the respondents was positively and significantly related with their socio-techno economic changes. This indicates that higher social participation develops wider outlook, higher contacts with the outsiders, high degree of knowledge and finally necessary socio-techno economic changes in an individual. This findings are supported by the findings of Prajapati (1993); Chauhan (1994) and Vanker (2000).

Economic characteristics :

It was observed from Table 2 that the type of house of the PAFs was positively and significantly association with their socio-techno economic changes. Whereas the occupation of the PAFs was non-significantly associated with their socio-techno economic changes. It might be due to the fact that occupation is the main source of earning income, favourable annual income or financial position of an individual are highly responsible for expected socio-techno economic changes. Similar results were also reported by Chauhan (1994) and Patel (2000).

Animal possession and material possession of the PAFs had positively and significantly related with their socio-techno economic consequences, indicating that these variables had played a significant role in increasing socio-techno economic changes. It means that level of socio-techno economic changes of PAFs increased with increase in their possession of number of animals and number of materials in the house. It is natural that person with more number of milking animals will have more possibility to earn money through the selling of more milk and finally more scope of socio-techno economic changes. This might be the possible reason for above finding. Similar results are reported by Prajapati (1993); Patel (2000) and Sharma (1990).

Land holding of the PAFs was positively and significantly correlated with their socio-techno economic changes. Farmers with large size of land holdings tend to go for more intensive cultivation of crops. Large farm

Table 2: Relationship of independent variables with socio-techno economic changes **(n=250)**

Sr. No.		Independent variable	Correlation co-efficient
Socio- personal characteristics			
1.	X_1	Age	-0.436**
2.	X_2	Education	0.280**
3.	X_3	Type of family	0.151*
4.	X_4	Size of family	0.147*
5.	X_5	Social participation	0.289**
Economic characteristics			
1.	X_6	Type of house	0.250**
2.	X_7	Occupation	0.0722NS
3.	X_8	Animal possession	0.163*
4.	X_9	Material possession	0.648**
5.	X_{10}	Land holding	0.147*
6.	X_{11}	Socio-economic status	0.481**
7.	X_{12}	Annual income	0.492**
Communication characteristics			
1.	X_{13}	Extension contact	0.363**
2.	X_{14}	Sources of information	0.289**
Psychological characteristics			
1.	X_{15}	Innovativeness	0.576**
2.	X_{16}	Risk orientation	0.501**
3.	X_{17}	Scientific orientation	0.399**
4.	X_{18}	Attitude towards modern agriculture	0.555**

* and ** indicate significance of values at P=0.05 and 0.01, respectively, NS=Non-significant

sized land holder comparatively have resource base and can afford to take risk leading to accept new innovations. This findings are in conformity with the findings of Tawade and Nalband (1993); Chauhan (1994); Patel (2000) and Vanker (2000).

It is evidence from the Table 2 that socio-economic status and annual income of the PAFs was found to be positively and significantly related with their socio-techno economic changes. It means higher the socio-economic status, higher would be the socio-techno economic changes. It proves that the objective of rehabilitation policy *i.e.*, to increase the standard of living. This might be due to the fact that education upto primary level, mixed housing pattern, more participation in social organization, medium animal and material possession, minimum two hectare of land and more annual income tends to high socio-economic status. The present findings are in accordance with the findings of Thakur and Sinha (1989); Shinde *et al*. (1995-96) and Patel *et al.* (1995).

Communication characteristics :

It is evidence from the Table 2 that extension contact and sources of information utilized by the PAFs were positively and significantly associated with their socio-techno economic changes. This means that higher extension contact and utilization information sources, higher would be socio-techno economic changes. Higher extension contact and utilization of various formal, informal and mass media sources help to get knowledge regarding new innovations and also develop a wider outlook in the PAFs lead towards higher contacts with the outside world, which makes them knowledgeable and change their behaviour and this changed behaviour brings socio-techno economic changes among them. These findings are in accordance with the findings of Patel and Sangle (1994) and Patel (2000).

Psychological characteristics :

Regarding the psychological characteristics of PAFs *i.e.*, innovativeness and risk orientation were positively and significantly related with their socio-techno economic changes. It implies that as the innovativeness of the respondents increases, the level of socio-techno economic changes also increases. Significant relationship of the risk orientation indicates that a person who is higher risk oriented, higher would be his level of adoption, income and level of socio-techno economic changes.

In case of scientific orientation and attitude towards of modern agriculture were positively and significantly related with their socio-techno economic changes. It might be due to the true fact that scientifically oriented farmers are likely to have more inclination to use scientific

Table 3 : Direct, total indirect and substantial indirect effect of independent variables on socio-techno economic changes (n=250)

	Variables	Direct effects	Indirect effects	Substantial indirect effect	
				First order	Second order
X_1	Age	0.0414	-0.4774	0.1223 X_{16}	0.0238 X_{17}
X_2	Education	-0.0587	0.3387	0.0909 X_{15}	0.087 X_9
X_3	Type of family	0.0436	0.1074	0.0979 X_{11}	0.0386 X_9
X_4	Size of family	-0.0225	0.1723	0.0969 X_{11}	0.0318 X_9
X_5	Type of house	0.1039	0.1461	0.0676 X_9	0.0415 X_{11}
X_6	Social participation	0.154	0.135	0.0573 X_{11}	0.0422 X_9
X_7	Occupation	-0.052	-0.152	0.0200 X_5	0.0160 X_2
X_8	Animal possession	0.0407	0.1223	0.0711 X_{11}	0.0171 X_9
X_9	Material possession	0.2618	0.3862	0.2022 X_{15}	0.0875 X_{11}
X_{10}	Land holding	-0.0576	0.2046	0.1049 X_{11}	0.0581 X_{12}
X_{11}	Socio-economic status	0.1712	0.3098	0.1338 X_9	0.0764 X_{12}
X_{12}	Annual income	0.1882	0.3038	0.1238 X_{15}	0.1085 X_9
X_{13}	Extension contact	-0.0202	0.3832	0.1657 X_{15}	0.0972 X_9
X_{14}	Sources of information	-0.0014	0.2904	0.1221 X_{15}	0.0998 X_9
X_{15}	Innovativeness	0.3943	0.1817	0.1577 X_{18}	0.1342 X_9
X_{16}	Risk orientation	-0.1533	0.6543	0.3571 X_{15}	0.1289 X_9
X_{17}	Scientific orientation	-0.0361	0.4351	0.3013 X_{15}	0.1282 X_{18}
X_{18}	Attitude towards modern agriculture	0.1687	0.3863	0.3686 X_{15}	0.1325 X_9

methods in farming, having adopted modern ideas like hybrid varieties, plant protection chemicals etc. requiring high knowledge, skill and technical completeness on the part of the adopters. This might have necessitated them to go for a scientific thinking and knowledge on modern innovations. Therefore, it is logical to assume that farmers having scientific orientation will have more advancement level and favourable perception towards new innovations which lead to adopt more improved farm technologies resulting in higher socio-techno economic changes. Significant relationship of attitude towards modern agriculture indicates that more favourable attitude towards modern agriculture played significant role in improving level of adoption and finally socio-techno economic changes. These findings are in line with the findings of Chauhan (1994); Patel and Sangle (1994); Patel *et al*. (1995) and Patel (2000).

Direct and indirect effects of selected independent variables on socio-techno economic changes :

Path analysis on eighteen those independent variables which had significant correlation with socio-techno economic changes as dependent variable was carried out. The direct effect, total indirect effect of each of the independent variables, first , second indirect effects channeled through other variables are presented in Table 3.

Direct effect :

A look at the Table 3 indicates that the ten variables, out of eighteen selected independent variables found to have positive direct effect, whereas remaining eight variables had negative but direct effect on the socio-techno economic changes of PAFs. The innovativeness had maximum positive direct effect (0.3943) followed by, material possession (0.2618), annual income (0.1882), socio-economic status (0.1712), attitude towards modern agriculture (0.1687), social participation (0.1540), type of house (0.1039), type of family (0.0436), age (0.0414) and animal possession (0.0407), respectively. The variable, risk orientation had maximum negative direct effect (-0.1533), followed by education (-0.0587), land holding (-0.0576), occupation (-0.0520), scientific orientation (-0.0361), size of family (-0.0253), extension contact (-0.0202) and sources of information (-0.0014), respectively on socio-techno economic change of PAFs.

Total indirect effect :

Among the eighteen selected independent variables, sixteen variables found to have positive total indirect effect on socio-techno economic changes, whereas two variables had negative indirect effect on socio-techno economic changes. The risk orientation had maximum positive total indirect effect (0.6543), followed by scientific orientation (0.4351), attitude towards modern agriculture (0.3863), material possession (0.3862), extension contact (0.3832), education (0.3387), socio-economic status (0.3098), annual income (0.3038), sources of information (0.2904), land holding (0.2046), innovativeness (0.1817), size of family (0.1723), type of house (0.1461), social participation (0.135), animal possession (0.1223) and type of family (0.1074), respectively. The variable, age had maximum negative total indirect effect (-0.4774) followed by occupation (-0.152), respectively on the socio-techno economic changes.

It could be concluded that the major variables contributing the maximum total indirect and positive effect on the socio-techno economic changes were the risk orientation, scientific orientation, attitude towards modern agriculture, material possession, extension contact, education, socio-economic status, annual income, sources of information, land holding, innovativeness, size of family, type of house, and type of family.

Substantial indirect effect :

The data in Table 3 reported that the first maximum positive substantial indirect effect was exerted by attitude towards modern agriculture (0.3686), followed by risk orientation (0.3571), scientific orientation (0.3013), material possession (0.2022), extension contact (0.1659), annual income (0.1238), sources of information (0.1221) and education (0.0909) channeled through the variable, innovativeness. Whereas, land holding (0.1049) followed by type of family (0.0979), size of family (0.0969), animal possession (0.0711) and social participation (0.0573) was observed to have exercised positive substantial indirect effect through socio-economic status. While socio-economic status (0.1336) followed by type of house (0.0676) was observed to have exercised positive substantial indirect effect through material possession. It can be observed that innovativeness (0.1577), age (0.1223) and occupation (0.200) was observed to have exercised positive substantial indirect effect through attitude towards modern agriculture, risk orientation and

social participation. The second positive largest substantial indirect effect was exerted by innovativeness (0.1342) through material possession.

It can be concluded that eight out of eighteen independent variables had their first largest substantial indirect effects through innovativeness, five variable had its indirect effect through socio-economic status, two variables had its indirect effect through material possession and three variables *viz.*, innovativeness, age and occupation had its indirect effect through attitude towards modern agriculture, risk orientation and social participation, respectively.

In case of second largest substantial indirect effect eleven variables had their indirect effect through material possession, two variables had its indirect effect through socio-economic status, two variables had its indirect effect through annual income and three variables *viz.*, scientific orientation, age and occupation had its indirect effect through attitude towards modern agriculture, scientific orientation and education, respectively.

Conclusion :

It can be concluded that the majority of the respondents had medium socio-techno economic changes at rehabilitated place. It is also found that socio-techno economic changes of PAFs was significantly influenced by six variables namely social participation, type of house, material possession, socio-economic status, annual income, and innovativeness. Hence, these factors are showing greater importance towards the socio-techno economic changes of PAFs at rehabilitated place. The major contributing factors like risk orientation, scientific orientation, attitude towards modern agriculture, material possession, extension contact, education, socio-economic status, annual income, sources of information, land holding, innovativeness, size of family, type of house and type of family were having maximum total indirect and positive effect on the socio-techno economic changes. Further it is also concluded that eight out of eighteen independent variables had their first largest substantial indirect effects through innovativeness, five variable had its indirect effect through socio-economic status, two variables had its indirect effect through material possession and three variables *viz.*, innovativeness, age and occupation had its indirect effect through attitude towards modern agriculture, risk orientation and social participation, respectively.

It is, therefore, suggested that; some subsidiary occupations like animal husbandry, poultry, bee keeping, sericulture, mushroom cultivation etc. should be created by implementing agency and government of Gujarat. This may help in contributing for better attitude towards rehabilitated place and increase their social and economical condition.

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