

## Original Research Article

# Impact of National Innovations on Climate Resilient Agriculture (NICRA) Project on Its Beneficiaries

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## ABSTRACT

National Innovations on Climate Resilient Agriculture (NICRA) launched in February, 2011. The project aims to enhance resilience of Indian agriculture to climate change and climate vulnerability through strategic research and technology demonstration. The project is implemented in 100 districts. For the study, Aurangabad district was selected purposively. One taluka i.e. Gangapur was selected and NICRA implemented village i.e. Shekta were selected for study. From NICRA implemented village 80 beneficiaries were selected purposively. Ex-post Facto research design was used for the study. The finding of this study revealed that, 56.25 per cent of the beneficiaries were found in medium farming experience, majority 38.75 per cent the beneficiaries possessed illiterate of education, having 37.50 per cent of marginal size of land holding with medium (65.00 %) annual income, about 47.50 per cent the beneficiaries rarely used the source of information, most of the beneficiaries had medium (62.50 %) extension contacts with more than half (51.25 %) of the beneficiaries had low social participation, more than half (76.25 %) of the beneficiaries had medium level of economic motivation, 68.75 per cent beneficiaries had medium risk orientation and nearly half (46.25 %) of the beneficiaries had medium knowledge about NICRA project, more than half (63.75 %) of the beneficiaries had medium level of innovativeness.

### Keywords

NICRA project, Impact on beneficiaries, Climate resilient

## Introduction

Agriculture is the dominated sector of Indian economy the progress of the nation is therefore, directly linked with advancement in agriculture. The scientific research in agriculture is getting momentum. The technical know-how of different crops is being evolved by the agricultural scientists very fast. Under such conditions, it is essential that the farmers be kept abreast of this dynamic agricultural through an equally dynamic system of extension education. Hence national innovations on climate resilient agriculture (NICRA) is a noble concept developed by ICAR which was

main objective is to enhance the resilience of Indian agriculture covering crops, livestock and fisheries to climatic variability and climate change through development and application of improved production and risk management technologies. NICRA were established in 100 district of the country. The project in terms of new and improved varieties of crops, livestock breeds, management practices that help in adaptation and mitigation and inputs for policy making to mainstream climate resilient agriculture in the developmental planning. There for the present study

entitled, impact of national innovations on climate resilient agriculture (NICRA) project on beneficiaries was undertaken by following specific objectives.

To study the profile of beneficiaries of NICRA project

To study the impact of NICRA project on beneficiaries

### **Materials and Methods**

For the study, Aurangabad district was selected purposively. One taluka i.e. Gangapur was selected and NICRA implemented village i.e. Shekta were selected for the study. From NICRA implemented village 80 beneficiaries were selected purposively. Ex-post Facto research design was used for the study. For the purpose of statistical analysis of the coded data, various statistical tools were also used viz., Frequency, Percentage, Mean, Standard Deviation ( $\sigma$ ), Coefficient of correlation ( $r$ ) and 'Z' test.

### **Results and Discussion**

#### **To study the profile of beneficiaries of NICRA project**

It was observed from the Table 1 that, 56.25 per cent of the Beneficiaries were found in medium farming experience category followed by 11.25 per cent and 32.50 per cent in low and high farming experience category, respectively. Regarding education, majority of the Beneficiaries i.e. 38.75 per cent of them Illiterate, whereas 25.00 percent of them had Literate, 16.25 per cent had primary level of education, 12.50 per cent of them educated up to secondary level of education, whereas 05.00 percent of them had higher level of education, 02.50 per cent had college and above level of education.

In case of land holding, 37.50 per cent of the beneficiaries were marginal farmers, 31.25 per cent of the farmers were having semi medium land holding farmers, 28.75 per cent of them from small farmers 02.50 per cent of them from medium farmers and there is no big farmer present in this category. Regarding annual income, 65.00 per cent (Rs 46410 to Rs 191004) beneficiaries were found in medium annual income category followed by 18.75 per cent (up to Rs 46409) beneficiaries having low annual income category and remaining 16.25 per cent (191005 and above) of them having high annual income category. In case of sources of information, the majority i.e. 47.50 per cent beneficiaries rarely used the sources of information, followed by 30.00 per cent of them were regularly and 22.50 per cent were frequently used the sources of information. Regarding extension contacts, it is observed that, majority i.e. 62.50 per cent of the Beneficiaries had medium extension contacts, followed by 23.75 per cent of had low extension contact and 13.75 per cent having high extension contact.

In case of social participation, 51.25 per cent of the beneficiaries had Medium social participation, followed by 36.25 per cent of the beneficiaries had Low social participation, while 12.50 per cent had high social participation. Regarding economic motivation, majority i.e. 76.25 per cent of the beneficiaries had medium level of economic motivation, followed by 20.00 per cent had low and 03.75 per cent had high level of economic motivation. In case of risk orientation, majority i.e. 68.75 per cent of the beneficiaries had medium risk orientation, followed by 16.25 percent of them were having high risk orientation and 15.00 per cent had low risk orientation. In case of knowledge about NICRA, the majority i.e. 46.25 per cent of the beneficiaries had medium knowledge about

NICRA, followed by 30.00 percent had low knowledge, 23.75 per cent of the beneficiaries had high knowledge about NICRA. Regarding innovativeness, 63.75 per cent of the beneficiaries had medium innovative, followed by 21.25 per cent had high innovative, 15.00 per cent of the beneficiaries had low innovative.

### **Impact of NICRA project on its beneficiaries**

It was observed from Table 2 that, 53.75 per cent of beneficiaries of NICRA had in medium educational changes category followed by (26.25%) low and (20.00%) had in high educational changes category before implementation of NICRA. After implementation of NICRA, 63.75 per cent of beneficiaries of NICRA had in medium educational changes category followed by (13.75%) low and (22.50%) in high educational changes category.

It was concluded from Table 2 that, 51.25 per cent of beneficiaries of NICRA had in medium Change in social Participation. Category followed by (28.75%) low and (20.00%) had in high social participation changes category before implementation of NICRA.

After implementation of NICRA, 53.75 per cent of beneficiaries of NICRA had in medium social Participation changes category followed by (21.25%) low and (25.00%) in high social Participation changes category.

It was observed from Table 2 that, 55.00 per cent of beneficiaries of NICRA had in medium change in expenditure category followed by (23.75%) high and (21.25%) of beneficiaries of NICRA had in low change in expenditure pattern category before implementation of NICRA. After

implementation of NICRA, 57.50 per cent of beneficiaries of NICRA had in medium change in expenditure category followed by (28.75%) high and (13.75%) of beneficiaries of NICRA had in low change in expenditure pattern category.

It was concluded from Table 2 that, 68.75 per cent of beneficiaries of NICRA had kaccha housing pattern category followed by (31.25%) of beneficiaries of NICRA had pakka housing pattern category before implementation of NICRA. After implementation of NICRA, 26.25 per cent of beneficiaries of NICRA had kaccha housing pattern followed (73.75%) of beneficiaries of NICRA had pakka housing pattern category.

It was observed from the Table 2 that, 53.75 per cent of beneficiaries of NICRA had in medium employment generation categories followed by (28.75%) low and (17.50%) were in high employment generation category before implementation of NICRA. After the implementation of NICRA, 65 per cent of beneficiaries of NICRA had in medium employment generation category followed by (22.50%) high employment generation and (12.50%) were in low employment generation category. It was concluded from the Table 2 that, before implementation of NICRA 40 per cent of beneficiaries of NICRA had agriculture occupation, followed by (22.50%) had agriculture + agriculture allied occupation, (20%) had agriculture + labour occupation, (17.50%) had agriculture + service occupation categories. After implementation of NICRA 33.75 per cent of beneficiaries of NICRA had agriculture + agriculture allied occupation, followed by (27.50%) had agriculture occupation, (20.00%) had agriculture + service occupation (17.50%) had agriculture + service occupation categories.

**Table.1** Distribution of the beneficiaries of NICRA according to their profile

Sl. No.	Category	Beneciaries (N=80)	
		Frequency (F)	Per cent (%)
<b>A.</b>	<b>Farming experience</b>		
1.	Low	9	11.25
2.	Medium	45	56.25
3.	High (25 years and above)	26	32.50
<b>B.</b>	<b>Education</b>		
1.	Illiterate	31	38.75
2.	Primary	20	25.00
3.	Secondary	13	16.25
4.	Higher Secondary	10	12.50
5.	College Education	04	05.00
<b>C.</b>	<b>Land holding</b>		
1.	Marginal farmer	30	37.50
2.	Small farmers	23	28.75
3.	Semi-medium farmers	25	31.25
4.	Medium farmers	02	2.50
<b>D.</b>	<b>Annual Income</b>		
1.	Low (Up to Rs.46409)	15	18.75
2.	Medium (Rs.46410 toRs.191004)	52	65.00
3.	High (Rs.191005 and above)	13	16.25
<b>E.</b>	<b>Sources of information</b>		
1.	Rarely	38	47.50
2.	Frequently	18	22.50
3.	Regularly	24	30.00
<b>F.</b>	<b>Extension contact</b>		
1.	Low	19	23.75
2.	Medium	50	62.50
3.	High	11	13.75
<b>G.</b>	<b>Social participation</b>		
1.	Low	29	36.25
2.	Medium	41	51.25
3.	High	10	12.50
<b>H.</b>	<b>Economic motivation</b>		
1.	Low	16	20.00
2.	Medium	61	76.25
3.	High	03	3.75
<b>I.</b>	<b>Risk Orientation</b>		
1.	Low	12	15.00
2.	Medium	55	68.75
3.	High	13	16.25
<b>J.</b>	<b>Knowledge about NICRA</b>		
1.	Low	24	30.00
2.	Medium	37	46.25
3.	High	19	23.75
<b>K.</b>	<b>Innovativeness</b>		
1.	Low	12	15.00
2.	Medium	51	63.75
3.	High	17	21.25

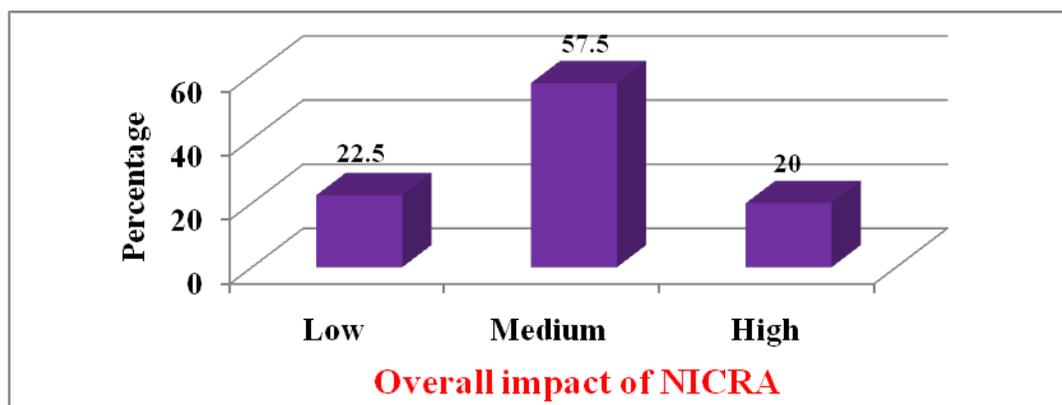
**Table.2** Comparative distribution of the beneficiaries of NICRA according to their socio-economic changes occurred before and after NICRA

Sr. No.	Impact	Category	Beneficiaries				'Z' value
			Before		After		
			No.	%	No.	%	
<b>Changes occurred</b>							
1.	<b>Educational</b>	Low	21	26.25	11	13.75	<b>4.20*</b> *
		Medium	43	53.75	51	63.75	
		High	16	20.00	18	22.50	
2.	<b>Social Participation</b>	Low	23	28.75	17	21.25	<b>3.26*</b> *
		Medium	41	51.25	43	53.75	
		High	16	20.00	20	25.00	
3.	<b>Expenditure Pattern</b>	Low	17	21.25	11	13.75	<b>4.33*</b> *
		Medium	44	55.00	46	57.50	
		High	19	23.75	23	28.75	
4.	<b>Housing Pattern</b>	Kaccha	55	68.75	21	26.25	<b>6.65*</b> *
		Pakka	25	31.25	59	73.75	
5.	<b>Employment Generation</b>	Low	23	28.75	10	12.50	<b>4.29*</b> *
		Medium	43	53.75	52	65.00	
		High	14	17.50	18	22.50	
6.	<b>Occupation</b>	Agriculture	32	40.00	22	27.50	<b>5.10*</b> *
		Agriculture+ Labour	16	20.00	15	18.75	
		Agriculture + Allied Agriculture	18	22.50	27	33.75	
7.	<b>Material Possession</b>	Low	28	35.00	15	18.75	<b>1.95*</b> *
		Medium	42	52.50	40	50.00	
		High	10	12.50	25	31.25	
8.	<b>Annual saving</b>	Low	17	21.25	15	18.75	<b>1.86*</b> *
		Medium	04	5.00	12	20.00	
		High	00	00	00	00	
9.	<b>Land possession</b>	Low	07	8.75	13	16.25	<b>3.51*</b> *
		Medium	06	7.50	10	12.50	
		High	00	00	00	00	
10.	<b>Cropping Pattern</b>	Low	22	27.50	10	12.50	<b>3.30*</b> *
		Medium	41	51.25	49	61.25	
		High	17	21.25	21	26.25	
11.	<b>Change in Income</b>	Low	26	32.50	15	18.75	<b>1.86*</b> *
		Medium	39	48.75	47	58.75	
		High	15	18.75	18	22.50	
12.	<b>Change in Productivity</b>	Low	28	35.00	18	22.50	<b>6.25*</b> *
		Medium	36	45.00	42	52.50	
		High	16	20.00	20	25.00	

**Table.3** Distribution of the beneficiaries of NICRA according to their overall impact

Sr. No	Overall impact	Beneficiaries	
		F	%
1	Low	18	22.50
2	Medium	46	57.50
3	High	16	20.00
	<b>Total</b>	<b>80</b>	<b>100</b>

**Fig.1** Distribution of the beneficiaries according to their overall impact of NICRA



It was revealed from Table 2 that, 52.50 per cent of beneficiaries of NICRA had in medium material possession category followed by (35%) low and (12.50%) high material possession before implementation of NICRA. After implementation of NICRA, 50.00 per cent of beneficiaries of NICRA had medium material possession category followed by (31.25%) high and (18.75%) were in low material possession category.

It was concluded from Table 2 that, 21.75 per cent of beneficiaries of NICRA had in low annual saving category followed by (5%) medium and none of the beneficiaries in high annual saving before implementation of NICRA. After implementation of NICRA, 20.00 per cent of beneficiaries of NICRA had medium annual saving category followed by (18.75%) low and none of the beneficiaries in high annual saving category. It was observed from Table 2 that, 8.75 per

cent of beneficiaries of NICRA had in low land possession category followed by (7.50%) medium and (00.00%) high land possession before implementation of NICRA. After implementation of NICRA, 16.25 per cent of beneficiaries of NICRA had low land possession category followed by (12.50%) medium and none of the beneficiaries in high land possession category.

It was revealed from the Table 2 that, 51.25 per cent of beneficiaries of NICRA had in medium cropping pattern categories followed by (27.50%) low and (21.25%) were in high cropping pattern category before implementation of NICRA. After the implementation of NICRA, 61.25 per cent of beneficiaries of NICRA had in medium cropping pattern category followed by (26.25%) high cropping pattern and (12.50%) were in low cropping pattern category.

It was observed from the Table 2 that, before implementation of NICRA, majority (48.75%) of beneficiaries of NICRA in medium income change category followed by (32.50%) low and (18.75%) were in high income change category. After implementation of NICRA, majority (58.75%) of beneficiaries of NICRA in medium income change category followed by (22.50%) high and (18.75%) of the beneficiaries of NICRA belongs to low income change category. It was concluded from the Table 2 that, before implementation of NICRA, majority (45%) of beneficiaries of NICRA in medium productivity change category followed by (35%) low and (20%) were in high productivity change category. After implementation of NICRA, majority (52.50%) of beneficiaries of NICRA in medium productivity change category followed by (25%) high and (22.50%) of the beneficiaries of NICRA belongs to low productivity change category.

### **Overall impact of NICRA project**

It was observed from the Table 3 that, 57.50 per cent of beneficiaries of NICRA had medium level of overall impact of NICRA followed by (22.50%) low and (20.00%) high level of overall impact of NICRA on the beneficiaries of NICRA. Thus, it is concluded that a majority of the beneficiaries of NICRA had medium level of impact of NICRA (Fig. 1).

Majority of the beneficiaries had medium farming experience, majority of the beneficiaries possessed illiterate of education, having marginal size of land holding with medium annual income, about half of the beneficiaries rarely used the source of information, most of the beneficiaries had medium extension contacts with more than half of the beneficiaries had

low social participation, more than half of the beneficiaries had medium level of economic motivation, most of the beneficiaries had medium risk orientation and about half of the beneficiaries had medium knowledge about NICRA project, more than half of the beneficiaries had medium level of innovativeness.

The changes occurred due to the implementation of NICRA were change in educational facility, social participation, expenditure pattern, housing pattern, increased employment, occupation, material possession, increased annual saving, increased land possession, changes in cropping pattern, increased income, increase in productivity of beneficiaries.

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