



PERFORMANCE EVALUATION OF NABARD'S MINOR AND MAJOR IRRIGATION SCHEME IN THE STATE OF GOA.

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Abstract :

It is said that India lives in villages and if India has to flourish, rural India must come on the path of development with focus on agriculture and infrastructural facilities. Agriculture has remained the main occupation of the Indian villages since ages. India has a very long history in agriculture since the Vedic period. Agriculture without irrigation is mere impossible. Hence to bring the primary sector to its highest level of potential areas must be irrigated at the larger scale. NABARD has one of its function dedicated to bring areas under irrigation under its minor and major irrigation scheme through Rural Infrastructure Development Fund under its financial function. This study is confined to evaluate the performance of minor and major irrigation scheme and the satisfaction of the farmers towards it.

Key words : *NABARD, Major irrigation, Rural Infrastructure Development Fund, Minor irrigation.*

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Introduction :

To bring self-sustainability to Indian villages agriculture has the huge potential. Indian agriculture needs intervention in terms of irrigation, technological development. Mahatma Gandhi once said, "If the village perishes India will perish too". If India as country wants to remove the tag of 'Developing country' and should become 'Developed country' major focus of the Government, its policies, implementing agencies must be on the overall growth of the rural India. Rural population of India still depends largely on the agriculture and allied activities. Another area of concern is that the young generation is reluctant to enter into agriculture and therefore it's a need of the hour to make it attractive for younger population.

Need of the study :

NABARD occupied an important place in promoting agriculture as well as rural development. The Govt. of India in meeting its national objectives, crores of rupees are invested in different economic activities through NABARD. It is very essential that these invested funds should be used for productive purpose and benefits of the same must be passed on to the beneficiaries. Therefore, this study is really relevant and justifiable one.



Objective of the study :

To study the performance of NABARD with regard to the select Rural Infrastructure Development Fund Schemes.

Hypothesis :

H0: There is no significant contribution of NABARD in the development of rural roads and bridges in Goa.

Study Design and Methodology:

The proposed study is based on primary and secondary data. In order to achieve the set objectives, the required data is collected from the published year-wise annual reports of NABARD from 2008-09 to 2018-19, from NABARD regional office, Panaji Goa, Economic Survey reports, office of Directorate of Planning Statistics and Evaluation, Porvorim Bardez Goa, State reports of NABARD, The Economic Times, Indian Express, Journals, Periodicals and reference books of economics.

The necessary primary data is obtained from the beneficiaries of rural roads and bridges. A five point Likert scale questionnaire is employed to collect necessary primary information from the respondents. A separate questionnaire containing relevant parameters is employed for each scheme. Personal interview contact method is employed to collect necessary information from the beneficiaries.

Limitations of the study :

The study of socio-economic contribution of NABARD to the state of Goa certainly assumes greater importance and output of this research will be of immense use to different sections of the society. Scope of the study extends to whole of the state.

Data Analysis :

Major Irrigation :

NABARD has funded Tillari Irrigation project that has been its major contribution for Major Irrigation in the state. Tillari Irrigation Project (TIP) is a joint venture of the Goa Government and the Government of Maharashtra, across Tillari River. The total irrigation potential of the TIP in Goa is 14521 Ha. The water from the project is also used as raw water source for many drinking water projects in the state. Under this this scheme there are several other projects like Salaulim LIS augmentation, construction of water tanks etc. are funded by NABARD. Table no. 1 depicts the total amount sanctioned and disbursed under RIDF for major irrigation in the state from 2008-09 to 2018-19.

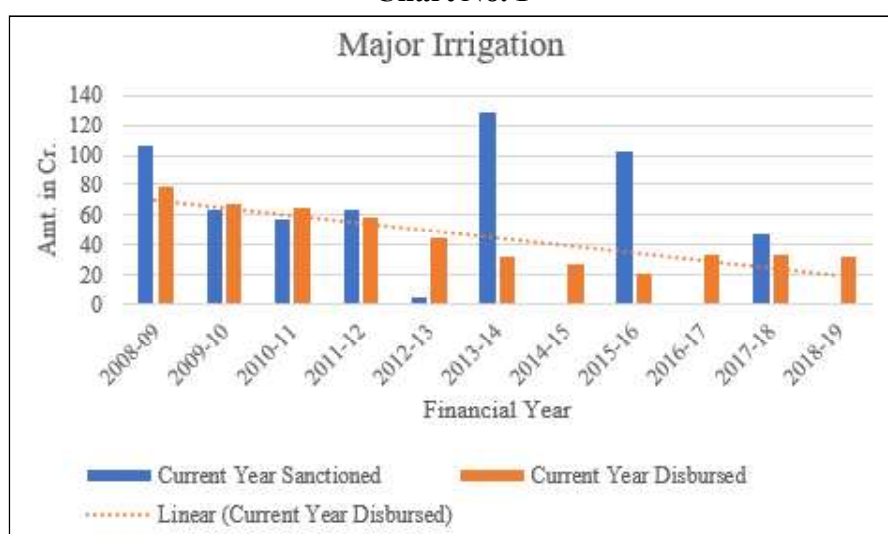


Table No 1
Loan Sanctioned and Disbursed under RIDF for Major Irrigation

Year	Current Year		Cumulative	
	Sanctioned (₹ in Cr.)	Disbursed (₹ in Cr.)	Sanctioned (₹ in Cr.)	Disbursed (₹ in Cr.)
2008-09	106.53	78.12	106.53	78.12
2009-10	64.13	67.26	170.66	145.38
2010-11	57	65.44	227.66	210.82
2011-12	64.12	58.43	291.78	269.25
2012-13	4.57	44.94	296.35	314.19
2013-14	129.13	31.94	425.48	346.13
2014-15	0	27.02	425.48	373.15
2015-16	102.94	20.46	528.42	393.61
2016-17	0	33.42	528.42	427.03
2017-18	47.45	33.57	575.87	460.6
2018-19	0	32.13	575.87	492.73

Source: NABARD Reports

Chart No. 1



The chart no 1 depicts the year wise sanctioned and disbursed loan by NABARD under RIDF for major irrigation. This fund has been used for the Tillari canal project which is jointly executed by Government of Goa and Government



of Maharashtra. From the above chart it can be observed that the overall trend of the funds sanctioned and disbursed is downward. This is because the project started reaching to completion stage. Regarding the sanctioned fund it is noted that there is no fund sanctioned by NABARD for the year 2014-15, 2016-17 and 2018-19. Further in the year 2013-14 and 2015-16 out of total sanctioned fund not even 50% is utilised in the same year, but in subsequent years the fund is utilised. The utilisation of fund has seen continuous declining trend. Discussion with the official revealed that in recent years the funds under major irrigation is used for augmentation and maintenance of the canal in the state. Overall till the year 2018-19 NABARD has sanctioned ¹ 575.87 crores out of which the ¹ 492.73 crores are utilised so far, that comprises of almost 86% of total sanctioned funds.

Minor Irrigation :

NABARD under its refinance initiative funds for the minor irrigation projects. It includes Lift Irrigation Systems (LIS), Construction of water tanks, Bandara etc. The table no 2 depicts the year wise loan sanctioned and disbursed by NABARD under refinance for minor irrigation in the state.

Table No 2

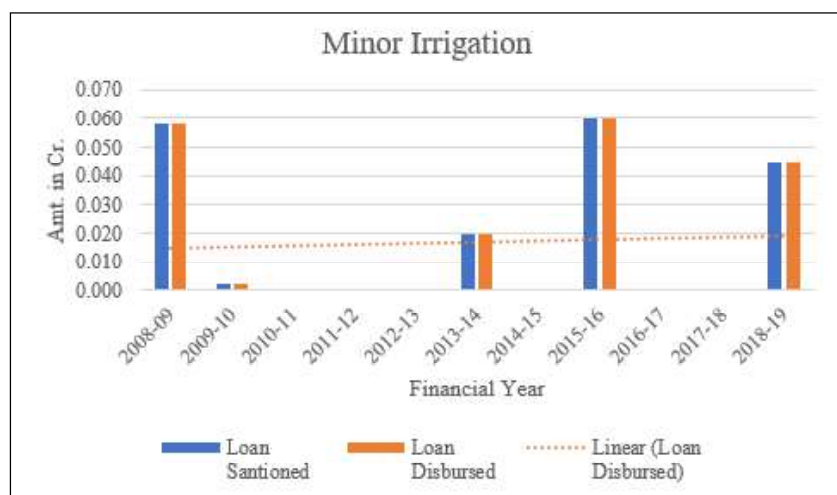
Loans Sanctioned and Disbursed by NABARD under Refinance for Minor Irrigation

Sr. No.	Year	Loan Sanctioned (L in Cr.)	Loan Disbursed (¹ in Cr.)
1	2008-09	0.058	0.058
2	2009-10	0.003	0.003
3	2010-11	0.000	0.000
4	2011-12	0.000	0.000
5	2012-13	0.000	0.000
6	2013-14	0.020	0.020
7	2014-15	0.000	0.000
8	2015-16	0.060	0.060
9	2016-17	0.000	0.000
10	2017-18	0.000	0.000
11	2018-19	0.045	0.045
	Total	0.186	0.186

Source: Economic Survey, Govt. of Goa



Chart No. 2



The chart no 2 explains the flow of fund by NABARD under refinance for minor irrigation. It is observed that the flow of fund has not been consistent under this scheme. From the year 2008-09 to 2018-19 only for five years the funds have been sanctioned and disbursed. Overall NABARD has sanctioned ¹ 0.186 crores and the same have been disbursed fully.

Minor and Major Irrigation :

Table No. 3 (Demographic Profile)

Variable	ResponseOption	Frequency	Percentage
Gender	Female	09	16.1
	Male	41	73.2
	Transgender	-	-
	Prefer not to say	-	-
Age	less than 30	06	10.7
	31 and less than 40	22	39.3
	41 and above	22	39.3
Educational Qualification	Less than SSC	09	16.1
	SSC	19	33.9
	HSSC	05	8.9
	Diploma	07	12.5
	Graduation	10	17.9
	Post-Graduation	-	-



Experience	Less than 5 years	22	39.3
	6 to 10 years	08	14.3
	11 to 15 years	03	5.4
	16 years and more	17	30.4

Source: Primary Data

Table no 3 shows the demographic profile of the sample. With regard to the gender, it shows inclination towards male category (female 16.1% and male 73.2%). Looking at the age group of the respondents, it can be observed that majority of them are having age more than 31 years i.e. 39.3% in the of '31 to 40 years' and 'more than 40 years' category, only 10.7% are having age less than 30 years. Highest number of respondents have completed their matriculation (33.9%), 16.1% of the sample have their educational qualification less than SSC, 8.9%, 12.5% & 17.9% of the respondents have completed their HSSC, diploma and graduation respectively. There are 39.3% of the respondents having experience less than 5 years and 30.4% having experience more than 16 years in their occupation. There are only 14.3% and 5.4% are having experience in 6 to 10 years and 11 to 15 years category respectively.

Table No. 4. (Minor and Major Irrigation)

Variables	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
There was a shortage of water for the agriculture in your area	36	72.0	09	18.0	05	10.0	-	-	-	-
Irrigation project has helped to remove scarcity of water for agriculture	37	74.0	13	26.0	-	-	-	-	-	-
There is a stress on other sources of water for agriculture	25	50.0	14	28.0	11	22.0	-	-	-	-
The irrigation project supplies water in sufficient quantity	32	64.0	15	30.0	03	6.0	-	-	-	-
Now the water easily available for agriculture.	16	32.0	34	68.0	-	-	-	-	-	-
The cost of supply of water is economical.	33	66.0	17	34.0	-	-	-	-	-	-



It has brought positive change in the agriculture in your area.	12	24.0	33	66.0	05	10.0	-	-	-	-
It has facilitated the improvement in the productivity of agricultural production.	25	50.0	21	42.0	04	8.0	-	-	-	-
It has enabled the farmers to cultivate more variety of agricultural produce like grains, vegetables, fruits etc.	11	22.0	39	78.0	-	-	-	-	-	-

Source: Primary Data

Table no 4 depicts the responses collected from the respondents about minor and major irrigation. It is observed that 90% of the respondents are of the strong opinion that before the irrigation project there was a shortage of water for agriculture in the area. Construction of canals through minor and major irrigation scheme has helped to remove the scarcity of water for agriculture as 100% of the respondents strongly agree upon this point. Nearly 78% of the respondents says that before this project there was a stress on the other natural resources as the water from well, river, springs was used for agriculture as well as for consumption purpose. Almost 94% of the respondents believes that the irrigation project easily supplies sufficient quantity of water for agriculture. The cost of water supply is very economical to the farmers and has brought positive change in the field of agriculture. Almost 92% are of the opinion that it has improved overall productivity of agricultural production and has enable them to cultivate more variety of farm produce like, grains, pulses, vegetables, fruits etc.

Table No. 5 (Minor and Major Irrigation)

Variables	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
It has helped to improve the quality of farm product.	22	44.0	28	56.0	-	-	-	-	-	-
It has increased the economic activity of the farmers.	15	30.0	30	60.0	5.0	10.0	-	-	-	-
It has enabled to supply sufficient quantity of fertilizers and minerals to the field.	18	36.0	16	32.0	09	18.0	07	14.0	-	-



It has increased the overall ground water level in the area.	29	58.0	10	20.0	04	8.0	07	14.0	-	-
Wells and other natural sources having sufficient water even in summer.	38	76.0	08	16.0	-	-	04	8.0	-	-
Irrigation has helped to increase farm production and earn more income.	17	34.0	33	66.0	-	-	-	-	-	-
The cost of production has reduced due to the irrigation.	25	50.0	22	44.0	02	4.0	01	2.0	-	-
The change in the field of agriculture is encouraging due to irrigation project.	35	70.0	15	30.0	-	-	-	-	-	-
There is a positive change in the quality of life of the farmers.	35	70.0	15	30.0	-	-	-	-	-	-

Source: Primary Data

From table no 5 it is observed that almost all the respondents agree that it has helped to improve the quality of farm products cultivated in their fields as sufficient amount of water is available. As a result they further believe that it has helped to increase the economic activity of the farmers. Nealy 68% of the respondents feels that this project has enabled them to supply sufficient quantity of fertilizers and minerals to the field, however 14% disagree on this matter. It has not only supplied sufficient water to the agriculture but also it has improved the overall ground water level in the area, as it can be seen that nearly 78% of the respondents agree upon this point however 14% disagree to it. When asked about the effect of irrigation project on farm production, 100% respondents believes that it has increased the production and has helped the farmers to get more income. It has also brought down the cost of production, resulted in more margin to farmer. Finally 100% of the respondents believes that the change is encouraging and has helped to improve the quality of life of the farmers.

H0(b): NABARD has insignificant contribution in the development of agriculture through Minor and Major Irrigation scheme in Goa.

H0: Population median $d \leq 3$

H1: Population median > 3

Level of significance: $\alpha = 0.05$


Table No. 6 (Minor and Major Irrigation)

Null Hypothesis	Observed Median	Sig P Value	Result/Decision
It has not facilitated the improvement in the productivity of agricultural production.	4.50	.000	Reject the null hypothesis
It has not enabled the farmers to cultivate more variety of agricultural produce like grains, vegetables, fruits etc.	4.00	.000	Reject the null hypothesis
It has not helped to improve the quality of farm product.	4.00	.000	Reject the null hypothesis
It has not increased the economic activity of the farmers.	4.00	.000	Reject the null hypothesis
It has not enabled to supply sufficient quantity of fertilizers and minerals to the field.	4.00	.000	Reject the null hypothesis
It has not increased the overall ground water level in the area.	5.00	.000	Reject the null hypothesis
Wells and other natural sources not having sufficient water even in summer.	5.00	.000	Reject the null hypothesis
Irrigation has not helped to increase farm production and earn more income.	4.00	.000	Reject the null hypothesis
The cost of production has not reduced due to the irrigation.	4.50	.000	Reject the null hypothesis
The change in the field of agriculture is not encouraging due to irrigation project.	5.00	.000	Reject the null hypothesis
There is no positive change in the quality of life of the farmers.	5.00	.000	Reject the null hypothesis

Interpretation :

“It has not facilitated the improvement in the productivity of agricultural production.”, test value = 3, observed value = 4.50, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that, the Minor and Major Irrigation has improved the agricultural productivity. “It has not enabled the farmers to cultivate more variety of agricultural produce like grains, vegetables, fruits etc.”,



test value = 3, observed value = 4.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has enabled the farmers to bring more variety in cultivation.

“It has not helped to improve the quality of farm product.”, test value = 3, observed value = 4.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has helped to improve the quality of farm product.

“It has not increased the economic activity of the farmers.”, test value = 3, observed value = 4.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has increased the economic activity of the farmers.

“It has not enabled to supply sufficient quantity of fertilizers and minerals to the field.”, test value = 3, observed value = 4.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has enabled to supply sufficient quantity of fertilizers and minerals to the field.

“It has not increased the overall ground water level in the area.”, test value = 3, observed value = 5.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has increased the overall ground water level in the area.

“Wells and other natural sources not having sufficient water even in summer.”, test value = 3, observed value = 5.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has facilitated availability of sufficient water in wells and other natural sources even in summer.

“Irrigation has not helped to increase farm production and earn more income.”, test value = 3, observed value = 4.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has helped to increase farm production and earn more income to farmers.

“The cost of production has not reduced due to the irrigation.”, test value = 3, observed value = 4.50, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has reduced the cost of agricultural production.

“The change in the field of agriculture is not encouraging due to irrigation project.”, test value = 3, observed value = 5.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that respondents agree that the Minor and Major Irrigation has brought positive change in agriculture.

“There is no positive change in the quality of life of the farmers.”, test value = 3, observed value = 5.00, p value (0.00) < 0.05, hence the null hypothesis is rejected and the alternate hypothesis is accepted. Hence, it is concluded that, respondents agree that the Minor and Major Irrigation has improved the quality of life of the farmers.

From the above analysis it can be seen that all variables have observed median more than the test median indicating the favourable response and a significant test hence the hypothesis is proved.



Finding:

1. It can be clearly observed that the fund for major irrigation is only sanctioned and disbursed for Tillari Canal project. There is no any project sanctioned under RIDF major irrigation scheme.
2. There exist the inconsistency in sanctioning and disbursement of the funds for major irrigation project.
3. The percentage of disbursement of fund against the total sanctioned looks satisfactory as NABARD has disbursed almost 86% of sanctioned amount.
4. The overall trend in sanctioning and disbursement has been downward.
5. Interaction with the respondents revealed that the major and minor irrigation scheme has removed the scarcity of water for agriculture and also reduced the stress on other water resources in the village. They further opined that now the water is available easily and in sufficient quantity for agricultural use.
6. It can be noted from the study that the water is supplied in sufficient quantity and with economical price, due to which it has facilitated the improvement in productivity of the agricultural production. Further, it is seen that farmers are enabled to cultivate more variety of farm produce.
7. It is further learned from the respondents that due to the availability of water the quality of production has also improved as it has enabled the farmers to use a sufficient quantity of fertilizers and minerals to the farm.
8. The majority of the respondents have stated that irrigation has increased the economic activity of the farmers with reduced costs of production thereby helping them to earn more income from agriculture.
9. Further, the study notices that the overall groundwater level has increased and that has ensured sufficient water in other natural resources even during the summer season.
10. All the sub hypothesis under hypothesis H0(b) has significance level less than 0.05 and hence the null hypothesis has been rejected. This clearly suggests that, NABARD has significant contribution in the development of agriculture through Minor and Major Irrigation scheme in Goa.

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Cite This Article:

Arun Ramakant Marathe And Dr. Madhavi S. Patgaonkar, (2022). Performance Evaluation of NABARD's Minor and Major Irrigation Scheme in the State of Goa. Aarhat Multidisciplinary International Education Research Journal, XI (I), 139-150