



Economic Contribution of Agricultural Extension Services to the Beneficiaries of Karnataka Watershed Development Project

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ABSTRACT

The present study was conducted to measure the Economic contribution of Agricultural Extension Services provided by Karnataka Watershed Development Project to the beneficiaries of Bijapur district during the year 2014-15. An ex-post facto research design, specifically before and after method was adopted to know the changes in the important indicators such as annual income, crop yields, employment generation and materials status among beneficiaries due to Karnataka Watershed Development (KAWAD) Project and also developed a scale on economic contribution of AESs to capture the contribution of each services to the economic status of the beneficiaries. Hence, 90 beneficiary farmers and 90 non-beneficiary farmers were selected, thus 180 respondents constitute the sample for the research study. A structured interview schedule was used to collect data. The findings of the study revealed that majority (42.22 %) of the beneficiary belonged to medium and high (37.78 %) category with respect to overall access to the services of KAWAD project. Over a half (55.56 %) of the beneficiary farmers had better accessed to the credit services followed by training services (54.45 %) and advisory services (51.11 %), about 67.78 and 46.67 per cent of them had best accessed to input services and land based & crop management services, respectively. About 40.0 per cent of them poorly accessed to the market services. Overall contribution of AESs towards economic status of beneficiary farmers was found to be 24.37 per cent, among major contribution from credit services (5.06%), land based and crop management services (4.45%) and least contribution was from advisory services (3.09 %). Cent per cent of them adopted the services like land leveling, land shaping and bunding followed by construction of check dams and bunds (86.66 %), new tanks and farm ponds (83.33 %), contour bunding (76.66 %) etc.,. The KAWAD project has significantly contributed towards socio-political, economical and overall development of KAWAD beneficiaries.

Key Words: Agricultural extension services, Economic contribution and Watershed.

INTRODUCTION

Agricultural extension service (AES) plays an important and prominent role in agricultural development. Agricultural productivity and sustainability depends upon the quality and effectiveness of agricultural extension service. Most of the agriculture extension services are given importance to ensure the food security, improving farmers' productivity and livelihood of the landless labourers, small and marginal farmers. Therefore, many initiatives are being implemented by the Ministries of Agriculture to provide the

agriculture extension services to all the farmers and other stakeholders. Among them, one of the important initiatives implemented during the year 1998-99 is Karnataka Watershed development (KAWAD) project in India. Development of rain-fed areas in India is one of the prime concerns of the Government. Rain-fed areas are the hot-spots of poverty, water scarcity, malnutrition and are prone to severe land degradation. Watershed development program is considered and adopted as an effective tool to address above issues, particularly in Karnataka state.

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Table 1. Adoption of selected watershed activities by the beneficiary farmers. n=90.

Sr. No.	Activity	Adoption (percent)
1.	Land leveling, land shaping and bunding	100.0
2.	Construction of Check dams, nala bunds	86.7
3.	Construction of new tanks and farm ponds	83.3
4.	Contour bunding	76.7
5.	Fertilizer dosage and method of application	62.2
6.	Proper seed rate and seed treatment	57.8
7.	New varieties/ hybrids	54.4
8.	Intercropping, alley cropping in watershed area	47.8
9.	Plant protection measures and use of growth regulators.	40.0
10.	Agricultural implements to reduce dependency on labourers	24.4
11.	Grading, sorting, packing techniques and storage of products/commodities	20.0
12.	Budgeting and book keeping	06.7
13.	Value addition	01.1

Karnataka State is one of the priority states of the Department for International Development (DFID). The DFID in 1994 decided to launch a project on rain-fed agriculture in collaboration with the Government of Karnataka in semi-arid and drought prone regions of the State. The new initiative was known as the Karnataka Watershed Development project (KAWAD). This project started in the selected villages of Indi talukain Bijapur district by the Department of watershed, government of Karnataka, which is popularly known as Doddahalla watershed project covering an area of about 17000 ha. Hence, this research study was taken up to assess the contribution of KAWAD watershed development project on the beneficiaries and compare them with the non-beneficiary farmers and to identify the constraints faced by the beneficiaries in availing the benefits of extension service

MATERIALS AND METHODS

An attempt has been made to study the economic impact (contribution) of AES on yield/ha (productivity), annual income and on material & livestock possession of respondents in the watershed and non-watershed area during pre- and post project periods. The crops which account

significantly large percentage of the cropped area were selected to assess the impact of KAWAD watershed project. The crops *viz.*, Sorghum, Red gram, pearl millet, Maize, Ground nut and wheat were selected. Income from agriculture and non-agriculture was considered for assessing the economic contribution of the KAWAD project on beneficiaries and compared with non-beneficiaries. The difference in per hectare yield, changes in annual income and livestock & material possession during pre-and-post project period enabled to conclude the findings.

An ex-post facto research design was adopted for the conduct of the study. KAWAD project was implemented in five micro watersheds of Bijapur district, which are located in Indi taluka and selected purposively as locale of research. A random sampling procedure was followed, in selecting the fifteen beneficiary farmers from six villages of watershed area and fifteen non-beneficiary farmers from six villages of non-watershed area. Thus, there are twelve villages selected for conduct of the study, Overall 180 respondents constitute the sample of this research study. The data were collected with the help of the structured interview schedule. The data obtained are expressed in frequencies and percentage.

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Table 2. Impact of KAWAD watershed development project on crop yields. n=180

Sr.No.	Crop	Pre- project Yield (q/ha)	Post – project change in yield levels (q/ha)			
			Beneficiary farmers	Change (%)	Non- Beneficiary farmers	Change (%)
1	Sorghum	4.78	7.98	67.0	5.8	25.1
2	Red gram	3.48	6.50	86.8	4.0	15.0
3	Maize	8.00	11.20	40.0	8.4	13.0
4	Wheat	2.35	4.98	111.9	4.0	70.2
5	Ground nut	6.97	14.81	112.5	9.0	30.0
6	Bajra (Pearl millet)	2.58	3.40	25.8	3.0	16.27

RESULTS AND DISCUSSION

The data (Table 1) revealed that respondents had received the benefits of project services and adopted the land leveling, land shaping and bunding in the beneficiary farms (100.0 %), construction of check dams, nala bunds (86.7%) in the watershed area, construction of new tanks and farm ponds (83.3%), contour bunding (76.7%), fertilizer dosage and method of application (62.2%), new varieties/hybrids (54.4%). Nearly cent percent (98.9%) of the respondents did not adopt the value addition, budgeting and book keeping (93.3%), grading, sorting, packing techniques and storage of products/commodities (80.0%), plant protection measures and use of growth regulators (60.0%). Reasons to adopt the major services like land leveling and bunding were due to the fact that project provided the credit facility to each beneficiary with meager amount of farmer share in it.

The data (Table 2) show better idea about the difference in crop yields (q/ha) in the pre-and-post project period by the virtue of implementation of KAWAD project. It could be inferred that percentage increase in crop yields obtained by the beneficiary farmers was considerably higher that compared to the pre-project period yield of the same farmers while in case of non-beneficiary farmers change was not so conspicuous or noticeable. The main reason that could be attributed for change in yield is because of increased availability of soil moisture

or irrigation water. This was possible due to land based and crop management services, which aided in the storage of moisture in the soil profile due to the in-situ conservation and ground water recharge. Due to this factor, crop yields have increased considerably in case of beneficiary farmers and comparatively less increase in the crop yields of the non-beneficiary farmers.

The higher increase in crop yield was observed in ground nut, wheat and red gram. This was probably due to the extension service like use of improved varieties/hybrids, seed treatment, effective use of resources provided in his project area. KAWAD has provided much needed technical know-how, facilitation work on inputs with timely supply of inputs, plant protection measures, fertilizer application, and adoption of soil and water conservation practices, etc., which in turn contributed to higher yields. The non-beneficiary farmers also got slightly increased crop yields over base year but significantly less when compared to beneficiary farmers.

There was increase in the annual income of the beneficiary farmers by 463.0 per cent over the base year, as against 90.40 per cent in case of the non-beneficiary farmers (Table 3). The average annual income of the beneficiary and non-beneficiary farmers from agriculture enhanced by 492.0 and 95.0 per cent, respectively over the base year. From non-agriculture, income of the beneficiary

Table 3. Impact of KAWAD project on annual income of the beneficiary farmers and non-beneficiary farmers. n=180

Sr. No	Source of Income	Beneficiary farmers			Non- Beneficiary farmers		
		Pre- project	Post- project	Change (%)	Pre-project	Post-project	Change (%)
1	Agriculture	9550	56550	492.0	9204	18006	95.0
2	Non-Agriculture	2015	8601	327.0	2695	4650	72.5
Total		11565	65151	463.3	11899	22656	90.4

farmers increased by 327.0 per cent, while it was 72.5 per cent in case of the non-beneficiary farmers. Thus, it can be stated that an additional income obtained by the beneficiary farmers was higher than the non-beneficiary farmers. Nearly fivefold (492.0%) increase in agriculture income and threefold (327.0%) increase in non-agriculture income were observed among beneficiary farmers. This was due to shift from local to high yielding varieties of commercial crops among the farmers of projected area, who were having progressive attitude due to educational efforts and facilitation work on different services/activities of KAWAD project. Further increase in the income was due to the cropping intensity and changed cropping pattern from low income crops to high income commercial crops, *viz.*, pomegranate, tomato, grapes, sugarcane and vegetables. Findings of the result were in conformity with Ingle (1994).

Livestock and farm implement possession

There was considerable increase in the livestock possession among the beneficiary farmers and non-beneficiary farmers over the base year but increase was found to be higher in watershed area than in the non-watershed area. Livestock possession of the beneficiary farmers has increased by 47.61, 47.36, 36.36, 26.66, and 71.42 per cent in respect of buffaloes, cows, bullocks, sheep/goats and poultry birds and on the contrary increase was 37.50 per cent in buffaloes, cows (22.5%), bullocks (42.85%), sheep/goats (18.75%) and poultry birds (55.55%). It was revealed that increased possession of seed cum

fertilizer drill was 300 per cent, sprayers/dusters was 245.45 per cent, and tractors was 275.00 per cent but decreased possession of wooden plough (-19.64), which is replaced by the iron plough and tractors in the project area. The findings were in conformity with Mahnot (1992).

CONCLUSION

Extension services provided by the project enabled majority of the farmers to adopt services/activities *viz.*, land leveling, shaping and bunding, construction of new farm ponds/tanks, construction of the check dams, nalabunds and construction of contour bunding. These extension services could able to bring changes both in productivity and income among the farmers of the project area. The study revealed that the extension service has contributed to the enhancement of the economic status of the farmers. This brought good and positive changes in the cropping pattern, increased cropping intensity, increased yield, employment generations and income of the watershed beneficiaries.

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