International Journal of Agricultural Science Research Vol. 2(5), pp. 163-176, May 2013
Available online at http://academeresearchjournals.org/journal/ijasr
ISSN 2327-3321 ©2013 Academe Research Journals

Full Length Research Paper

Performance of development organizations in agriculture sector of Dadeldhura District: An economic analysis

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Accepted 17 May, 2013

Transformation of traditional and subsistence agriculture into commercial and market oriented production system needs efficient transfer of technology to the farmers. Efforts to bridge the gap between research and farmer's field have been lacking in Nepal and performance of the organizations providing extension services to the farmers is below par, the reason behind this state of affairs is still to be studied. In order to assess the performance of development organizations, this study selected 105 farmers from Dadeldhura district using stratified random sampling technique and both primary and secondary data regarding the activities of those organizations were collected. The development organizations were found to be concentrated in urban areas with technician to population ratio and extension coverage of 1:2353 and 22.7%, respectively. Agriculture sector occupied only 4.01% of the district budget. Most of the organizations had similar type of activities mainly related to technology, extension and support. Regression analysis showed that organizations had significant contribution in annual income of farmers, hence it played a significant role in development of agriculture in the district and respondents were satisfied by their works in general with few disappointments at some instants. Among the negative factors, poor technical staff, low level of support, over reporting of the situation and programs without need assessment were found to be the major ones. Thus provision to encourage the positive works and punish the negative ones by implementing proper monitoring and evaluation mechanism should be made. Similarly, coordination and cooperation between organizations should be ensured to avoid competition and duplication.

Key words: Development organizations, non-government organizations, international non-government organizations, extension, technology transfer.

INTRODUCTION

Agriculture has been the main occupation of the majority of Nepalese which directly contributes to the household income and consequently to the gross domestic product of the country. Agriculture development received top priority for the first time during the fifth five year plan and is still one of the major priority areas of the Government of Nepal (Ministry of Agriculture and Cooperatives, 2009). The first formal organization for agriculture development in Nepal came into existence in 1922 by the establishment of *Krishi Adda* at Singhadurbar, Kathmandu during the period of Chandra Shamsher (Dongol, 2004) and since then many Government and Non-government (NGO) organizations have worked in this country. Private extension services are provided through contracting out of NGOs in certain foreign aided project. There is however no separate organized extension system except that some private firm and organizations have involved in input supply (Dahal, 2010). The organizations have mainly focused in

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technology dissemination, mobilization and support in commercialization and marketing. The activities of such organizations are targeted to increase farm income and thereby uplift the economic status of farmers. However, the efforts of both Government and Non-government organizations are still not adequate and agriculture production and productivity indicators of the nation are below par. The impact of development organizations in farm income is determined by many factors, both internal and external. The sum of these activities catalyzes the production process thus creating the chain of events that finally contributes to the farm income. Similarly, analysis of relationship between the farm income and the activities conducted by the organizations is of prime importance as the transformation of traditional agriculture is a complex process and the indirect extension approach if not correctly directed in the right way finally dies out with the passing time.

Both the Government and Non-government organizations working in the agriculture development, according to the local conditions, national policies and methodology of implementation have many aspects to deal with, which determine their strengths, weakness, opportunities and threats. The analysis of these conditions provides a basis for current program implementation, future planning and the policy changes so as to achieve the common goal of agriculture development. Globalization and development can be sustainable and beneficial to the people only if it is growing below as a process from inside to outside, based on principles of cooperation and complementarity, rather than imposed from outside and based on the relationship of dominance and competition (Ghimire, 2000).

Thus, the purpose of this study is to identify the variables related to the development organizations and analyze their contribution in the farm income. Similarly, it will deal with the analysis of past experiences, current scenario and future predictions to find out the strength, weakness, opportunities and threats of the development organizations hence suggesting the changes in policy for a efficient, productive and developed extension system.

MATERIALS AND METHODS

Dadeldhura District of Nepal was selected for this study and field survey was conducted during July, 2011 to gather information from farm households using Stratified Random Sampling technique. All the farmers of Dadeldhura District were divided into three clusters as Inner Terai (Sirsha, Jogbudha, Aalitaal, and Gankhet Village development Committees), Eastern Hill (Manilek, Navdurga, Belapur, Koteli, Mastamandau, Kailpalmandu, Ganeshpur, Ashigram VDCs and Amargadhi municipality) and Western Hills (Chipur, Bhadrapur, Dewal Divyapur, Bhageshwor, Rupal, Ajaimeru, Samaijee, and Bagarkot VDCs) based on the geography. A total of 105 respondents were interviewed taking 35 respondents from each stratum to collect primary information. The secondary information were obtained from various Government and Non-government organizations like Social Welfare Council, District Development Council Dadeldhura, District Agriculture Development Office Dadeldhura, and Government and Non-government organizations working in the locality.

The interview schedule and checklist were prepared for the purpose of data collection. Semi-structured interview was prepared containing both closed and open ended questions. Questions were designed to obtain data on demography, socio-economic characteristics and farm income of the respondents. It also included questions regarding the information about working area of the organizations, type of work done, yearly investment, institutional structure, strengths, weakness, opportunity and threats. Five point ranking scale was used to assess the perception of farmers towards development organizations (Miah, 1993).

The data obtained from primary and secondary sources were analyzed using descriptive statistics and regression analysis. Descriptive statistics like mean, standard deviation and percentage frequency were used to describe socio-economic and farm characteristics. Regression analysis was employed to examine the impact of development organization on farmers' income. Farm income was influenced by various factors like land holding, annual investment, number of development organizations, market accessibility, involvement in groups, and number of trainings, visits and demonstrations. As judged by the scattered diagram between the dependent and independent variable, income function was specified in linear form. Also the explanatory variables identified do not directly contribute to the farm income but they initiate the chain of events that in long term shows effect on the farm income, for example, number of training and visits, demonstrations, etc. Similarly for land holding size, under a normal situation, it is a variable that directly contributes to the farm income but given the local conditions of migration, unavailability of production resources and poor mechanization, the results are expected to be different. Hence to keep it simple, the multiple regression method using OLS technique was used to find out the effect of the independent variable to gross income of a farmer to minimize the residual effect (Maddalla, 2001). The regression model is expressed as:

$$Y = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 + a_6X_6 + a_7X_7 + e \ldots\ldots\ldots\ldots\ldots \text{(i)}$$

Where,
X_1 = Land holding size (hactare).
X_2 = Demonstrations (Numbers).
X_3 = Trainings and visits (Numbers).
X_4 = Yearly investment (Nepali Rupees).
X_5 = Organizations working in the locality (Numbers).

Table 1. Frequency distribution of respondents by gender across geographical regions (2011).

Geographical region	Gender		Total
	Male	Female	
Inner Terai	17 (48.57)	18 (51.42)	35 (100)
Eastern Hills	18 (51.42)	17 (48.57)	35 (100)
Western Hills	12 (34.28)	23 (65.71)	35 (100)
Total	47 (44.8)	58 (55.2)	105 (100)

Figures in parentheses indicate percent.

X_6 = Involvement in the Groups (Dummy); If yes = 1, Otherwise = 0.
X_7 = Market accessibility (Dummy); If assessable = 1, Otherwise = 0.
a_0 = Intercept.
a_j = Partial slopes of the independent variables; j = 1,2.....7.
e = Errors of the regression equation.

RESULTS AND DISCUSSION

General information

General information of the research site

Dadeldhura District situated in Mahakali zone of the Far-Western development region is a hilly district covering an area of approximately 1538 km^2. It lies between 28° 59'' to 29° 36'' North latitude and 80° 12'' to 80° 40'' East longitude. Its elevation ranges from 462 to 2639 masl., and it receives average annual precipitation of 1346.6 mm. It is surrounded by Doti in the East, India in the West, Baitadi in the North and Kanchanpur and Kailali in the South. Dadeldhura district has tropical, subtropical and temperate climate with moist and hot summers and cool winters (DDC, 2010). About 74.88% of total area of the district is covered by forests and 12.7% of the area is cultivable out of which 36.47% is irrigated. This district consists of 20 VDCs and 1 Municipality with a total population of 128,070 out of which 60,579 are females and 67,491 are males. The average family size is 6.23 persons per household whereas the average size of the land is 1.3 ha (DADO, 2010).

Gender composition and population characteristics of the respondents

Among the sampled respondents, 44.8% of the respondents were found to be male and the rest were female. Across the clusters, female respondents were more in Western hills (65.71%) followed by inner Terai (31.03%) and Eastern hills (29.31%) (Table 1).

Similarly, the total population of the sampled household was 829 with the family size of 7.89 consisting 3.68 males and 4.21 females which was higher than the national average of 5.45 (CBS, 2009) and district average of 6.23 (DDC, 2010). In Table 2, average family size of Eastern Hills was highest (8.17) followed by Western Hills (7.88) and Inner Terai (7.62). Overall, the population of female was higher (53.31%) compared to male (46.61%).

Educational status of sampled respondents

Out of a total of 105 respondents, majority of the respondents had obtained school level education (51.42%) and 20% had an education level that is under Bachelor level education. All together, 28.57% of the respondents were illiterate (Table 3).

Land holding pattern of the sampled household

Average land holding of the sampled household was 1.074 ha with standard deviation of 0.38 ha. The average land holding of respondents was lower than that of district average (1.3 ha) but higher than that of national average (0.8 ha). Out of the total land holding, only 40.26% was irrigated (Table 4).

Property of respondents in Terai

There has been a trend of outmigration from this district to Terai since a long time. People in search of modern facilities migrate towards the places with those facilities. So now people tend to have property in both Dadeldhura and districts of Terai, mainly Kanchanpur and Kailali. Out

Table 2. Population characteristics of sampled households (2011).

Geographical region	Household composition		Total
	Male	Female	
Inner Terai	120 (44.94)	147 (51.42)	267 (100)
Eastern Hills	133 (46.61)	153 (53.49)	286 (100)
Western Hills	134 (48.66)	142 (51.44)	276 (100)
Total	387 (46.61)	442 (53.31)	829 (100)

Figures in parentheses indicate percentage.

Table 3. Educational level of respondents by sex across geographical location in the district (2011).

Geographical area	Sex	Illiterate	Under SLC	Above SLC	Total
Inner Terai	Male	3 (8.57)	8 (22.85)	6 (17.14)	17 (48.57)
	Female	10 (28.57)	6 (17.14)	2 (5.71)	18 (51.43)
	Total	13 (37.15)	14 (40.00)	8 (22.85)	35 (100.00)
Eastern Hills	Male	4 (11.42)	11 (31.42)	3 (8.57)	18 (51.43)
	Female	2 (5.71)	9 (25.71)	6 (17.14)	17 (48.57)
	Total	6 (17.14)	20 (57.14)	9 (25.71)	35 (100.00)
Western Hills	Male	1 (2.86)	8 (22.85)	3 (8.57)	12 (34.28)
	Female	10 (28.57)	12 (34.28)	1 (2.86)	23 (65.72)
	Total	11 (31.42)	20 (57.14)	4 (11.42)	35 (100.00)
Total	Male	8 (7.61)	27 (25.72)	12 (11.42)	47 (44.76)
	Female	22 (20.96)	27 (25.72)	9 (8.57)	58 (55.24)
	Total	30 (28.57)	54 (51.43)	21 (20.00)	105 (100.00)

Figures in parentheses indicate percentage.

Table 4. Land holding pattern of respondents across the geographical areas in the districts (2011).

Particulars	Land holding (ha)	
	Total ± SE	Irrigated ± SE
Inner Terai (n=35)	1.15 ± 0.45	0.60 ± 0.54
Eastern Hills (n=35)	1.04 ± 0.41	0.60 ± 0.54
Western Hills (n=35)	1.02 ± 0.25	0.28 ± 0.20
Total	1.07 ± 0.38	0.43 ± 0.39

SE = Standard Error.

Table 5. Frequency of respondents with property in Terai (2011).

Particulars	Respondents with or without property in Terai		Total
	With property	Without property	
Inner Terai	11 (31.42)	24 (68.58)	35 (100.00)
Eastern Hills	12 (34.28)	23 (75.72)	35 (100.00)
Western Hills	19 (54.28)	16 (45.72)	35 (100.00)
Total	42 (40.00)	63 (60.00)	105 (100.00)

Figures in parentheses indicate percentage.

of the sampled households, 40.00% were found to have property in Terai (Table 5).

Level of commercialization of respondents

Majority (56.19%) of farmers were found to produce for market purpose based on the demand and price of the product, while 27.61% of farmers were semi-commercial, that is, they produce to sell in the market and home consumption, but were unaware of the market and market prices. They were found to suffer losses due to the problem of market clearance and volatile prices quite often. Fewer numbers of respondents (16.2%) were found to produce only for home consumption and were unaware about the marketing of products. Eastern Hills had the highest number of commercial farmers followed by inner Terai and Western Hills (Table 6).

General information of development organizations in Dadeldhura

Dadeldhura district has both Government and Non-government organizations working in various sectors of development. For example there were 319 Non-governmental organizations out of which 32 organizations have been working in the sector of agriculture. Among the 32 organizations, only 22 are functional now. This number of Non-governmental organizations is 339% more than the number 10 years ago (DDC, 2001). Similarly, the number of Donor organizations including International Non-governmental organizations (INGOs) has increased from 19 to almost 35 from 2001 to 2011. Among governmental organizations, there are almost 28 organizations of which 2 out of them perform task related to agriculture. The number of organizations related to

Table 6. Number of commercial farmers in different locations (2011).

Particulars	Level of commercialization			Total
	Commercial	Semi-commercial	Non-commercial	
Inner Terai	18 (51.43)	12 (34.29)	5 (14.28)	35 (100.00)
Eastern Hills	32 (91.43)	2 (5.71)	1 (2.86)	35 (100)
Western Hills	9 (25.71)	15 (42.86)	11 (31.43)	35 (100)
Total	59 (56.19)	29 (27.61)	17 (16.2)	105 (100)

Figures in parentheses indicate percentage.

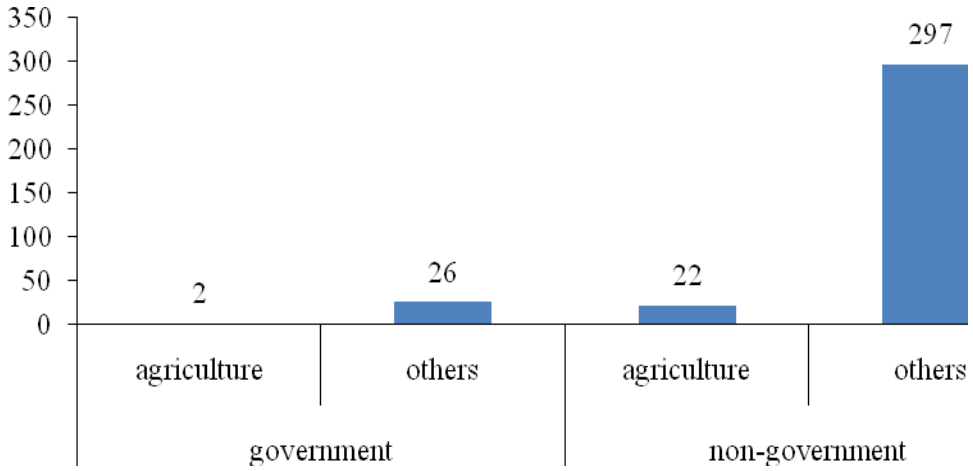

Figure 1. Development organizations related to Agriculture in Dadeldhura District (DAO, 2011).

agriculture is shown in Figure 1.

The number of Non-government Organization in Dadeldhura is however lowest among other districts of Far Western Development Region. Out of 319 Non-government organizations, only 109 were registered in Social Welfare Council. The distribution of NGOs in different districts of Far Western Region is shown in Figure 2.

Category of NGOs in Dadeldhura

The local Non-government organizations have a significant effect on the development as they have advantage of local conditions; also the number of such organizations has been observed to be very high in Dadeldhura compared to other organizations. The total number of local Non-governmental organizations was found to be 319. The categorical distribution of those NGOs is shown in Figure 3.

Coverage of development organizations in Dadeldhura

The number of various Government and Non-government organizations working was found to be highest in Amargadhi Municipality (11 organizations) and least in Rupal VDC (2 organizations). The number of different organizations according to VDCs is shown in Figure 4.

Determinant factors of farm income of the study area

The estimates of the multiple regression coefficients and other statistics have been presented in Table 6 for income function of the farmers. The coefficient of multiple

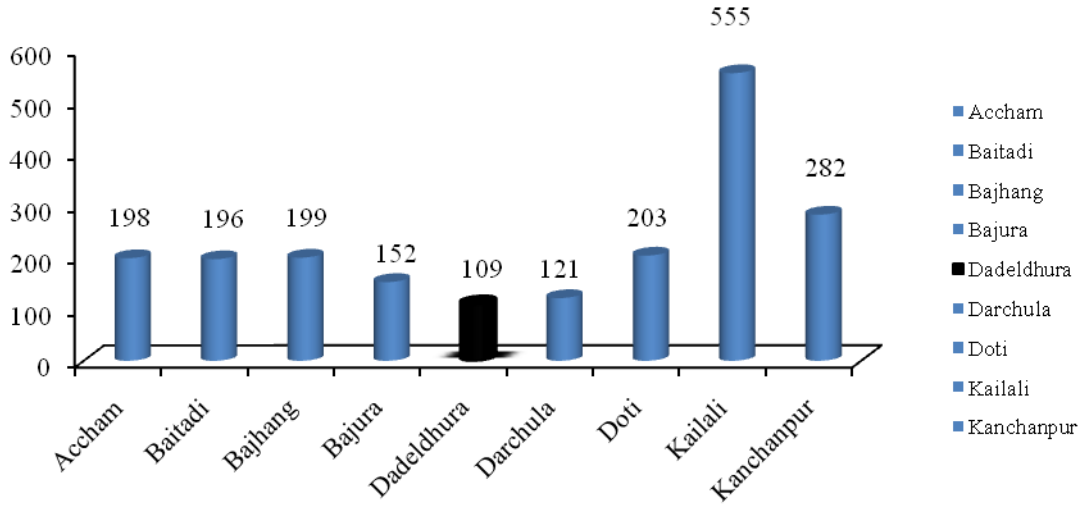

Figure 2. Number of NGOs in different districts of Far Western Development Region (SWC, 2010).

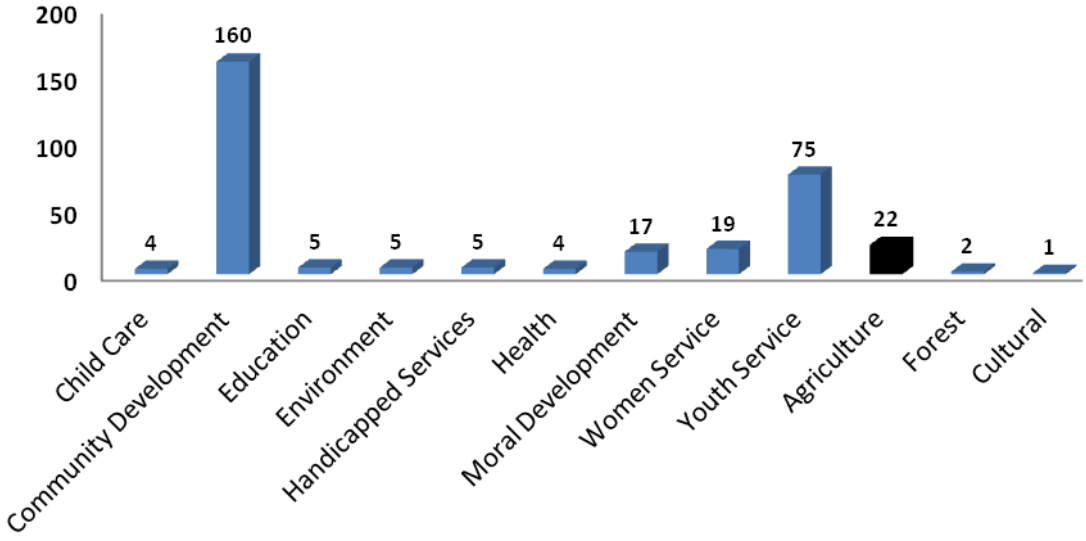

Figure 3. Categorical distribution of local NGOs in Dadeldhura (DAO, 2011).

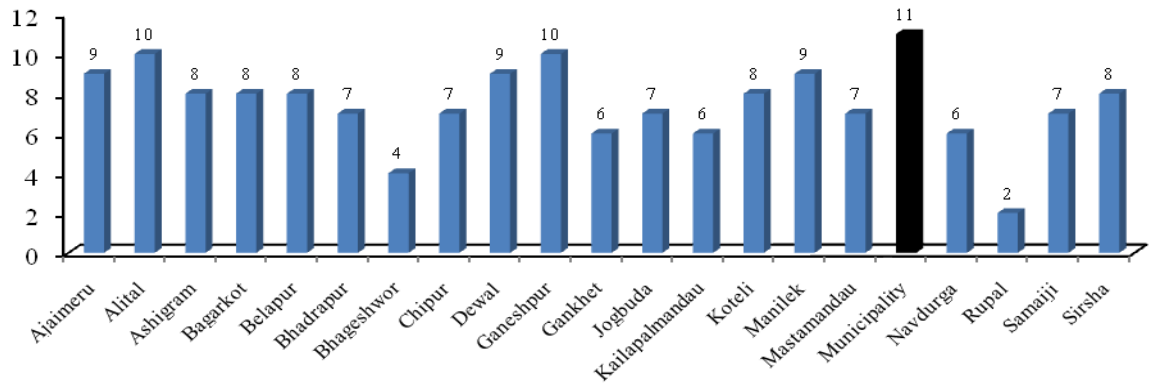

Figure 4. Number of organizations in different VDCs/Municipality (2011).

Table 7. Factors contribution to household income in Dadeldhura District (2011).

Particulars		Unstandardized Coefficient		Standardized Coefficient	t-value	p-value
		B	Std. Error	Beta		
	(Constant)	-216215.045	37644.798		-5.744	0.000
X_1	Land Holding	58984.951	17946.149	0.191	3.287***	0.001
X_2	Property In Terai	19023.451	13286.869	0.079	1.432	0.155
X_3	Demonstrations	8111.676	4820.814	0.101	1.683*	0.096
X_4	Trainings and Visits	22572.873	7192.388	0.184	3.138***	0.002
X_5	Yearly Investment	5.858	.702	0.530	8.348***	0.000
X_6	No. of Development Organizations	12948.058	4288.039	0.173	3.020***	0.003
X_7	Involvement in groups	9731.151	17898.294	0.037	0.544	0.588
X_8	Market accessibility	29085.532	15134.765	0.118	1.922**	0.058

R^2 = 0.724, Adjusted R^2 = 0.701, Standard error of estimate = 64943.977, F-ratio = 31.446***. ***Significant at 1%, **Significant at 5%, and *Significant at 10% p - value.

determination, R^2, was found to be 0.724, which indicated that 72.4% of variation in income of farm households could be explained by the variable included in the equation. The F ratio was found to be highly significant. This indicated a 'good fit' of the estimated equation.

It could be seen from Table 7 that all the variables had positive coefficient. Coefficient for property in Terai shows that involvement in the groups was found to be positive but non-significant. This revealed that there was no significant contribution by involvement in the groups and property in Terai. The coefficient of land size was found to be positive and highly significant. The coefficient explained that increment in single hectare of land leads to increase in farm income by NRs. 58,984.951.

Demonstrations, trainings and visits significantly contributed to farm income. This clearly indicates that farmers acquired new knowledge and technology through Training and Visit. This has increased a view which was supported by other studies (Khanna, 1999).

Yearly investment was found to be positive and highly significant. Analysis revealed that farmers got an average return of NRs. 5.85 for single rupee investment. The coefficient of number of development organizations working in the locality was found to be positive and highly significant. Increase in number of development organizations increased the farm income, each unit increase was found to contribute to farm income by NRs. 12,948.05. This shows that development organizations have helped farmers in the various aspects of technology transfer, market and production process which supports the study of Yabi and Sefa (2009).

The standardized beta coefficient was worked out to compare the contribution of the independent variable to dependent variable. The standardized beta coefficient presented in Table 7 showed the relative weight of contribution by independent variable to dependent variable. The amount of yearly investment contributes the highest proportion (0.530) followed by average land holding (0.191). The number of training and visits stood at third position (0.184) which was followed by number of development organizations (0.173) at fourth place. Market accessibility was at fifth place (0.118). Thus from the value of standardized coefficients, we conclude that number of development organizations significantly contribute to the net farm income of the farm households in Dadeldhura district.

Technician to population ratio

After the Green Revolution, agriculture has been transformed to a capital intensive, scientific and technology requiring business. Performance of farmers is thus influenced by the level of technology transfer whose effect can be directly observed on farm income, thus technician to population ratio was calculated to assess the level of technology transfer in the district. There were altogether 65 technicians (53 below Intermediate in Agriculture and 13 Graduates) in the district. Thus, technician to farmer ratio was estimated to be 1:2353.

Agriculture extension coverage

The extent to which agricultural services have covered the target population was calculated in this study. The presence of agencies, technical manpower and technology is an essential requirement for development, until and unless these things reach to the farmers they have no significance at all. Thus the estimation of

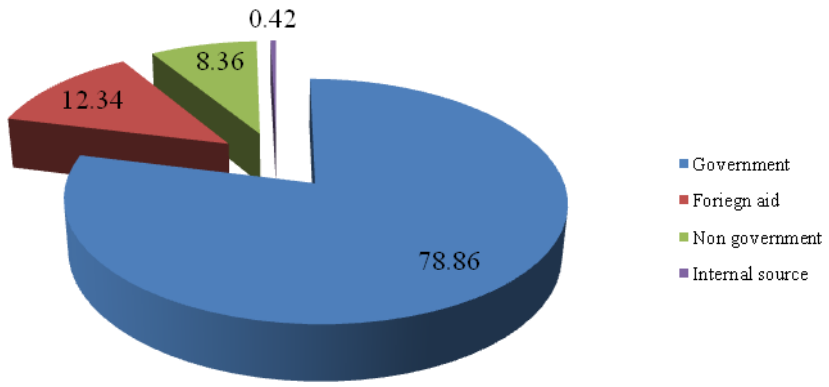

Figure 5. Contribution of different sectors in budget of Dadeldhura District (2011).

proportion of the population covered by different agencies is of great importance. Out of the total population of the district (15300), only 30235 (22.7) was covered.

Financial aspects of development organizations in Dadeldhura

The development organizations working in Nepal includes GOs, INGOs, NGOs and COs. These organizations have different modality of working based on their source of funds. The source of fund directly affects the activities of the development organizations, target group and their intensity of work. The Government of Nepal has followed one door policy for the implementation of programs in the district to ensure efficiency and reduce duplication under which all the stakeholders need to approve their programs through District Development Committee (DDC, 2009). Thus, it ensures the proper mobilization of resources imported in the district checking its misuse and inefficient use. Dadeldhura district had a total budget of Rs. 1,28,65,12,000 in fiscal year 2011 out of which Rs. 1,01,46,23,000 (78.86%) was from Government source, Rs. 15,87,86,000 (12.34%) was through foreign aid, 10,76,03,000 (8.36%) was from Non-government sector and Rs. 55,00,000 (0.42%) was from internal source of the district. This budget is 34% more than that of the fiscal year 2010. Rs. 5,17,08,000 (4.01%) was allocated to Agriculture, Forest and Environment sector out of which Rs. 4,78,80,000 (92.59%) was from Government and Rs. 38,28,000 (7.41%) was from Non-government sector. The financial aspect of development organizations are depicted in Figure 5.

Interventions of agriculture development organizations in Dadeldhura district

Type of activities carried out by development organizations directly indicates the situation of technology transfer and pace of transformation of traditional agriculture into commercial agriculture. This not only shows the competency, relevancy and efficiency of the development organizations, but also indicates the trend of change in farm practices leading to the change in farm income. The major activities of the development organizations in Dadeldhura district were sub-divided into three categories (Tables 8 to 10) as suggested by Sen (2008):

The major focused category of the district was vegetable crops followed by cereals, fruits and spices. Thus majority of works were done to encourage the production of vegetable crops. Major technology related interventions included cultivation of vegetables in green house, biological insecticides and pesticides, seed production technologies and composting; whereas demonstrations, trainings, visits, radio broadcasting, posters and pamphlets were major extension interventions. The development organization's major area of support was small irrigation schemes which include water harvesting (plastic/cement) ponds and plastic pipes, poly houses, shed improvement programs and support in seed.

Perception of respondents towards development organizations

Response of respondents on service delivery mechanism of development organizations

Five point rating scale was used to determine the level of respondents satisfaction about the service delivery of the development organizations. Table 11 shows that about 47.00% of the respondents were satisfied with the service delivery approach of development organizations, 17.00% were indifferent and 36% were dissatisfied.

Positive aspects of development organizations

Respondents were asked to rank the positive aspects of development organizations identified during preliminary

Table 8. Technological interventions (2011).

S/N	Category	Individual component
1.	Technological interventions	Poly house cultivation of vegetables
		Bio pesticides and urine collection
		Composting
		Seed production and distribution
		Pasture management
		System of wheat intensification
		SRI, SWI
		Drip irrigation
		Seed banks
		Popularization of vegetable crops
		New variety introduction and their cultivation practices
		Maize-soybean intercropping
		Orchard management
		Nursery establishment techniques
		TPS and PBS seed in potato
		Fish cultivation

Table 9. Extension interventions (2011).

S/N	Category	Individual component
1.	Extension interventions	Farmers trainings about cultivation practices, marketing and post harvest
		Field visits
		Workshops
		Result/method/production demonstrations
		Forage resource centers
		FFS
		Tours
		Home visits
		Office calls
		Radio programs
		Community seed banks
		Booklets/leaflets/folders

survey and from secondary data. Table 12 shows that transfer of technology (0.89) was ranked first followed by institutional development (0.68), financial and material aid (0.53), employment generation (0.51) and value addition (0.46).

Negative aspects of development organizations

Development organizations working in the agriculture sector of Dadeldhura district have brought a wave of development throughout the district and at the same time created some problems too. Farmers have started to realize those problems and negative aspects of development organizations. Five point ranking scale was used to know the opinions of the respondents on the negative aspects of those organizations to get the information about the worst effect among already identified points. The index values for the options provided to respondents are shown in Table 13.

Strength, weakness, opportunity and threats of development organizations

The information collected from both primary and secondary sources (quantitative and qualitative) were analyzed and a scenario of current strength, weakness, opportunity and threats was identified. It shows that development organizations in Nepal are facing various external and internal problems. External problems are due to unstable politics, geographical condition, poor

Table 10. Institutional/ support interventions (2011).

S/N	Category	Individual component
1.	Institutional/support interventions	Group formation and registration
		Group strengthening
		Cooperative formation
		Resource center establishment
		Community seed bank committee
		Federation of forest and agriculture co-operatives
		Animal shed improvement and urine collection equipments
		Plastic houses/tunnels
		Irrigation pipes/canal repairs
		Plastic/cement water harvesting ponds
		Sprayers/Insecticides/pesticides
		Seed
		Sprinkler
		Drip irrigation equipments
		Cellar stores
		Rustic stores
		Collection centers
		Seed bank buildings
		Livestock support
		Bee hive/equipments
		Metal bins
		Post harvest equipments
		Leasehold farming for landless people
		Fish ponds

Table 11. Satisfaction of respondents towards service delivery system of development organizations (2011).

Level of satisfaction	Frequency	Percent
Satisfied	49	46.67
Indifferent	18	17.14
Dissatisfied	24	22.86
Highly dissatisfied	14	13.33
Total	105	100

Table 12. Effectiveness of works of development organizations in the district (2011).

Particulars	Index value	Rank
Technology transfer	0.89	I
Institutional development	0.68	II
Financial and material aid	0.53	III
Employment generation	0.51	IV
Value addition	0.46	V

Note: Scale value range from 1 to 0.2, where 1 = most effective, 0.8 = effective, 0.6 = moderate, 0.4 = little bit and 0.2 = least effective.

Table 13. Problems faced by farmers due to development organizations in the district (2011).

Problem	Index value	Rank
Distortion in social norms	0.35	I
Less work, over reporting	0.55	II
Lack of experienced technical staff	0.59	III
Cheating	0.65	IV
Activities motivated to complete project only	0.68	V

Note: Scale value range from 1 to 0.2, where 0.2 = most serious, 0.4 = serious, 0.6 = moderate, 0.8 = little bit and 1 = least serious.

Table 14. SWOT analysis of Non-government based organizations in Dadeldhura District (2011).

Strength	Weakness
Technical staff	Lack of unique expertise in technical field
Capital resources	Quick turnover of technical staffs
Local resource persons	Programs not demand based
Large groups	Poor information base
Increased production and productivity	Lack of infrastructures
Bottom up planning	Donor driven
International exposure of technical staffs	Poor village level extension work
Sound organizational structure	
Linkage and coordination	
Opportunity	**Threat**
Supportive DADO	Short life span of program
Suitable climate for diverse crops	Decrease faith on development organizations
Options for commercialization	Government policies
Poverty and inclusive issues	Open Indian markets
Attraction of young generation towards commercial farming	Lack of consistent priority by donor
Government policy	Natural disasters
	Volatile prices

physical infrastructure, unavailability of inputs, etc., whereas internal problems are due to lack of fund, donor oriented programs, lack of technical staff and so on. On the other hand, these organizations have made some remarkable efforts in the past to uplift the agriculture sector with their strengths and have various opportunities in this sector. The analysis is divided into two parts for Government based and Non-government based organizations (Tables 14 and 15).

CONCLUSION AND RECOMMENDATIONS

The present study showed that development organizations have so far been successful in Dadeldhura district and farmers have been benefitted by their activities. The technician to population ratio of 1:2353, extension coverage of 22.7 and 56.19% of commercialization among respondents shows it. The interventions of those organizations mainly consisted of extension, technology transfer, support and institutional development and they were found to contribute in farm income along with annual investment and land holding size. Respondents were generally satisfied with the work of the development organizations but they experienced some negative aspects too. The organizations were found to be highly concentrated in accessible areas and also non specific in their field of work. The information about the amount of money invested in the district was found to be distorted from the actual one and the mechanism of monitoring and evaluation was found to be weak.

Thus, based on the findings of the study, there is an urgent need of a clear policy to guide Non-governmental organizations with a regular monitoring and evaluation mechanism so that the efficiency of such organizations could be increased. Similarly, such organizations need to

Table 15. SWOT analysis of Government based organization in Dadeldhura District (2011).

Strength	Weakness
Technical staff's unique expertise in technical field	Poor motivation for technical staffs
Local resource persons	Insufficient number of technicians
Large groups	Political interference
Increased production and productivity	Inadequate budget to support commercialization
Bottom up planning	Lengthy process for service delivery
Sound organizational structure	Poor information base
Linkage and coordination with non-government organizations	Lack of infrastructures
Opportunity	**Threat**
Government's priority in agriculture	Huge and unproductive supply of foreign aid through non-government sector
Suitable climate for diverse crops	Decrease faith of farmers towards organizations
Options for commercialization	Political stability
Poverty and inclusive issues	Open Indian markets
Attraction of young generation towards commercial farming	Volatile prices

be encouraged to introduce new technology and practices in the rural areas of the district. The Government based organizations seem devoid of specificity as they need to follow the national policy as well as local specific needs in one hand while in other they have nominal budget for program implementation. Hence, the Government should focus on objective oriented program planning and provision of adequate budget according to the need of the district which should be insured. Lastly, policies to empower Government staff and provision to make them feel secure in the field from the unstable political scenario should be immediately formulated.

ACKNOWLEDGEMENTS

The authors are highly thankful to the Dean, Assistant Deans, and Directorate of Research, Institute of Agriculture and Animal Sciences, Rampur Chitwan and various Government and Non-government organizations of Dadeldhura district for creating the enabling environment to undertake this research activity.

REFERENCES

CBS (2009). Nepal in Figures 2008/09. Central Bureau of Statistics. CBS Publication. Kathmandu, Nepal.

DADO (2010). District Profile. DADO publications. District Agriculture Development Office, Dadeldhura. p. 93.

Dahal H (2010). National Agricultural Extension System. A Country Report Presented in the Workshop on Rural Development for High-Level Officers of AFACI Member Countries. Suwon, Korea. p. 10.

DAO (2010). Dadeldhura District. DAO publications. District Administration Office, Dadeldhura. 78p.

DDC (2001). District Profile of Dadeldhura. Information and Publication Center, Dadeldhura.

DDC (2009). District Development Plan. Information and Publication Center, Dadeldhura. DDC Publication. p. 133.

DDC (2010). District Profile of Dadeldhura, Information and Publication Center, Dadeldhura. DDC Publication. p. 138.

Dongol BBS (2004). Agriculture Extension. Dongol Printers. Kathmandu, Nepal.

Ghimire H (2000). NGO/INGO centered approach: An alternative approach to development. Available: http://www.dspace.cam.ac.uk/retrieve/533628/OPSA_08 _12.pdf -Rertived on 11th September 20011. pp. 204-217.

Khanna S (1999). Impact study of agriculture programme in Surendranagar area of AKRSP (1). Available: http://sulbhaskhanna.com/Agricultural%20Extension. pdf- Retrived on September 10th 2011. p. 13.

Maddala GS (2001). Introduction to Econometrics. 3rd ed. John Wiley and Sons Ltd. West Sussex, England. p. 128.

Miah AQ (1993). Applied Statistics : A Course Handbook for Human Settlements Planning. Asian Institute of Technology, Division of Human Settlements Development, Bangkok, Thailand. pp. 316-318.

MoAC (2009). Statistical Information on Nepalese Agriculture 2008/2009. Agri-business Promotion and Statistics division. MoAC, Government of Nepal, Kathmandu, Nepal.

Sen D (2008). Agricultural development projects of

Syngenta foundation India: An evaluation study. Syngenta Foundation India. p. 76.
SWC (2010). SWC information bulletin. Available: http://www.swc.org.np/swc_bulletin. php - Retrived on September 8th 2011. p. 8.
Yabi JAA (2009). Impact of rural development projects on agricultural productivity in selected regions of Benin. Afr. J. Agric. Res., 4(11): 1120-1128.