

# The Reorganization of Agricultural Extension Toward Sustainable Agricultural Development in Eastern Libya

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**Abstract** — The specific objectives of Sustainable agricultural development are to enhance food security; to increase productivity and competitiveness of the sector; to deepen linkages with other sectors; to create new sources of growth for the sector; and to conserve and utilize natural resources in a sustainable basis. The agricultural extension services can play a crucial role in providing this network of information on sustainable agricultural education. Thus, the role of agricultural extension is very important to support Sustainable agricultural development which is moving from production to a wider set of sustainability and environmental objectives may need to change their extension approach. To fulfill this objective, a sample of 46 Managers, Deputy Directors, respondents was selected through simple of sampling technique. A survey study was applied as a methodology of research. A questionnaire was used to collect the data and Analysis of descriptive statistics. Results: According to factor analysis, the implications for sustainable agricultural development were categorized into two groups consisting: (a) The Decentralization (b) The Pluralism. That decentralization is high with Delegate the local committees (local leaders, farmers' organizations and agricultural credit organizations) for the dissemination of sustainable agricultural development programs and for the collection of taxes and financial charges from the farmers due to the extension services and loans of 67.4%. While 69.6 % of Managers and Deputy Directors mentioned that high performance of Pluralism is Providing training for farmers organizations' staff. To achieve this participation, extension organizations would need to formally of decentralization and Pluralism or transfer the control of specific program planning and management functions to the system levels of local Agricultural extension, Private sector organizations, Farmers organizations and Education organizations where extension programs are actually implemented for supporting Sustainable agricultural development in Eastern Libya.

**Keywords** — Sustainable agricultural development, Agricultural Extension, Eastern Libya

## I. INTRODUCTION

The agricultural development projects aims at improving the living condition of farmers in rural areas. This is attained by increasing the agricultural areas available to them, land development and by improving the productivity of crops through introduction of improved dry land farming practices, planting of fruit trees, providing support to the agricultural extension service, development of the rural water resources, providing support to the animal husbandry program, improvement of utilization of feed and support to the rural development program in the

project area. Thus, there is the need for a well articulated and comprehensive Agricultural Extension Policy, Which depends on decentralization and pluralism to development of Agricultural extension system [13]. Agricultural extension systems in world are struggling to prove their importance and relevance to sustainable agricultural development. Achievement of a well organized extension system for efficient and effective extension delivery in all aspects of sustainable agriculture and rural development to attain food security, poverty reduction, rural empowerment and environment management. In addition, the farmers also need to be convinced that achieving such production systems for future generations is as crucial as, it is necessary to find a way to prioritize different programs and goals and then allocate resources towards those goals [14]. Therefore the proposed plan recognizes the importance of improving the role of extension in sustainable agricultural development to meet higher production targets and achieve higher farmer incomes [7]. The agricultural development projects aims at improving the living condition of farmers in rural areas. This is attained by increasing the agricultural areas available to them, land development and by improving the productivity of crops through introduction of improved dry land farming practices, planting of fruit trees, providing support to the agricultural extension service, development of the rural water resources, providing support to the animal husbandry program, improvement of utilization of feed and support to the rural development program in the project area. The study focused on the eastern part of Libya that relies on rain-fed and irrigated crops, and livestock; there were all together 2938 farms which are grouped into six major agricultural regions: Tubruq, Derna, Al Bayda, Al Marj, Benghazi and Ajdabiya. Most of the arable land and pastureland of Libya is in the eastern parts of the coastal belt. Grains are grown and some livestock is grazed to a lesser extent in the southeast area. Cultivation is sporadic and dependent on rainfall [9]. Several stone fruit tree plantations of small and medium size are present; and Principal crops produced include vegetables, fruits, wheat, barley and dates while principal livestock include Sheep and goat flocks which are relatively large. Many camels, cows and poultry farms are also observed. Agriculture infrastructure, machinery and agricultural extension service centers are present across the eastern area [6].

## II. METHODS

A questionnaire was developed on the basis of our initial extensive review of literature. A cross-sectional survey was undertaken in divided into six areas at the Eastern Libya, namely of Tubruq, Derna, Al Bayda, Al Marj, Benghazi and Ajdabiya. Data collected through the use of questionnaires on a sample of population involved in agriculture in the study area. A total of 46 managers and deputy directors (Agricultural Extension Management) are involved. The questionnaire consisted of several categories of questions. Part I: - Demographic information such as age, gender, level of education, present position in the organization, work experience. Part II: -The performance of agricultural extension management of decentralization (Deconcentration, Devolution and Delegation) and Pluralism (Participation of farmers' organizations, Participation of educational organizations and Partnership of public agricultural extension and private sector). Both non-parametric statistical tests and the appropriate descriptive statistics were performed using the statistical package for social sciences SPSS® for Windows, version 16 from June to September 2010. To assess the content validity of the questionnaire, the preliminary version, consisting of 2 items for managers and deputy directors , was reviewed by a senior lecturer, and a lecturer in the School of Housing, Building & Planning, Universiti Sains Malaysia. These professionals were asked to provide their overall opinion of the questionnaire and to list the questions in the order of their relevance and importance. The more relevant and important questions were thus highlighted. To assess the face validity of the questionnaire, thirty participants were solicited, who were asked for their views on the significance, worth, and simplicity of each question; they were also asked to identify any questions which, in their view, should be removed so as to make the questionnaire simpler. In addition to this, the participants were also invited to make further comments on whether the questions were easily comprehensible or not. Most of them suggested simplifying the questions. The reliability test was applied to all the variables comprising all domains. The reliability of the tool was estimated on the basis of Cronbach's Alpha ( = 0.73). Each section of the questionnaire included a set of statements for which responses were requested. These were questions which required a "yes" or "no" response. To indicate the level of agreement a 5-point Likert scale was used, where 1 = *strongly agreed*, 2 = *agreed*, 3 = *neutral*, 4 = *disagreed*, 5 = *strongly disagreed*. There was a section inviting comments at the end of the questionnaire.

## III. RESULTS

### A. Decentralization of agricultural extension

Active participation of the different organizations is an essential factor for Sustainable Agricultural Development. Table (1) presents the differences of specialists opinions in

the performance of extension activities after Rely on decentralization. While considered of 60.9 % (n=28), that performance is high with delegating of authority to district managers and teams (director, director assistant and supervisors), autonomy in routine decision making and a separate budget for operational expenditure. While the thought of 65.2 % (n=30), that performance is high with Transfer responsibilities and program planning, management and co-financing to agriculture sector managements in the region. Also believed 67.4 % (n=31), that performance is high with Delegate the local committees (local leaders, farmers' organizations and agricultural credit organizations) for the dissemination of sustainable agricultural development programs and for the collection of taxes and financial charges from the farmers due to the extension services and loans. In addition Preferred 67.4 % (n=31), meeting farmers and field staff for consultation and collaboration through advisory groups and farms consulting committees under the supervision of farmers' organizations for high performance. As can be seen from this Table, the highest mean refers to Delegation of authority to district managers and teams (director, director assistant and supervisors), autonomy in routine decision making and a separate budget for operational expenditure (Mean = 4.09, SD =0.725) and the lowest mean refers to Meeting farmers and field staff for consultation and collaboration through advisory groups and farms consulting committees under the supervision of farmers' organizations (Mean = 3.98, SD =0.680).

Table1: Decentralization of agricultural extension

Item in question	Responses					mean	SD
	LS n(%)	L n(%)	Mn (%)	H n(%)	HS n(%)		
1	00(00%)	2(4.3%)	4(8.7%)	28(60.9%)	12(26.1%)	4.09	0.725
2	00(00%)	2(4.3%)	4(8.7%)	30(65.2%)	10(21.7%)	4.07	0.698
3	00(00%)	2(4.3%)	5(10.9%)	31(67.4%)	8(17.4%)	4.04	0.683
4	00(00%)	2(4.3%)	3(6.5%)	31(67.4%)	10(21.7%)	3.98	0.680

Note: L S Lowest, L Low, M Medium, H High, HS Highest

Question 1: How can we achieve decentralization of performance of agricultural extension management for Sustainable Agricultural Development Programs?

- 1- Delegation of authority to district managers and teams (director, director assistant and supervisors), autonomy in routine decision making and a separate budget for operational expenditure.
- 2- Transfer responsibilities and program planning, management and co-financing to agriculture sector managements in the region.
- 3- Delegate the local committees (local leaders,

farmers' organizations and agricultural credit organizations) for the dissemination of sustainable agricultural development programs and for the collection of taxes and financial charges from the farmers due to the extension services and loans.

- 4- Meeting farmers and field staff for consultation and collaboration through advisory groups and farms consulting committees under the supervision of farmers' organizations.

### B. Pluralism of agricultural extension

The dwindling government funding of agricultural extension, has made the practice of pluralistic extension a realistic option for ensuring efficient and effective use of available resources for agricultural extension and sustainable agricultural development. The data presented below describes trends observed in this Table (2). According to results, there were four major styles Pluralism for achieve sustainable agricultural development. 69.6 % (n=32) of Managers and Deputy Directors mentioned that high performance of Pluralism is Providing training for farmers organizations' staff. also reported 60.9 % (n=28), that high performance of Pluralism is Support the cooperative by providing staff and resources such as cars and libraries to provide field assistance to the farmers' organizations. Also believed 63% (n=29), that performance is high with Provide training courses for employees and farmers focusing on sustainable agricultural development through field schools (classroom training and on-farm and field visits), by coordination with education organizations (universities and research centres). While the thought of 65.2 % (n=30), that performance is high with Contracting the private sector to provide agricultural equipment in the provision of extension services, as well as in re-employment of retrenched field staff and deployment of more better-trained and adequately remunerated. As can be seen from this Table, the highest mean refers to Support the cooperative by providing staff and resources such as cars and libraries to provide field assistance to the farmers' organizations (Mean = 4.14, SD =0.725) and the lowest mean refers to Providing training for farmers organizations' staff (Mean = 4.00, SD =0.667).

Table 2: Pluralism of agricultural extension

Item in question	Responses					mean	SD
	LS n(%)	L n (%)	Mn (%)	H n (%)	HS n (%)		
1	00(00%)	2(4.3%)	4(8.7%)	32(69.6%)	8(17.4%)	4.00	0.667
2	00(00%)	2(4.3%)	8(17.4%)	28(60.9%)	8(17.4%)	4.14	0.725
3	00(00%)	2(4.3%)	4(8.7%)	29(63%)	11(23.9%)	4.07	0.712
4	00(00%)	2(4.3%)	5 (10.9 %)	30(65.2%)	9(19.6%)	4.00	0.699

Note: L S Lowest, L Low, M Medium, H High, HS Highest

Question 1: How can we achieve Pluralism in performance of agricultural extension management for Sustainable Agricultural Development Programs?

- 1- Providing training for farmers organizations' staff.
- 2- Support the cooperative by providing staff and resources such as cars and libraries to provide field assistance to the farmers' organizations.
- 3- Provide training courses for employees and farmers focusing on sustainable agricultural development through fieldschools (classroom training and on-farm and field visits), by coordination with education organizations (universities and research centres).
- 4- Contracting the private sector to provide agricultural equipment in the provision of extension services, as well as in re-employment of retrenched field staff and deployment of more better-trained and adequately remunerated.

## IV. DISCUSSION

### C. Decentralization of agricultural extension

Decentralization is the transfer of decision making power and assignment of accountability and responsibility for the provision of an extension service to local management levels, which are as follows: Deconcentration is the first and necessary step in any process of decentralization. The placement of staff from central administration in closer contact with local people is called Deconcentration; which is the first and necessary step of decentralization. It provides a channel for interaction of the locals with the management of the Central Agricultural Extension [8]. Decentralization of responsibility and delegation of authority to district managers and teams is one of the reforms needed to make them autonomous in routine decision making; and provision of a separate budget for operational expenditure facilitates the whole process [18]. All field staff are involved in the development of the case organization's annual extension plan and each staff member is responsible, in consultation with his supervisor, for the development of his own annual work plan and training program. Field staff representatives are also included in a management team comprising the director and assistant, the supervisors and a support staff representative [10]. Under this arrangement, program planning, management and co-financing responsibilities are transferred to agriculture sector managements in the region. Before devolution, each provincial department of agriculture had a directorate of agricultural extension, administrating a large extension network down to the union council level [11]. Under the new setup of agricultural extension, each district manages its agricultural extension activities where the functions of all sister organizations such as water management, fisheries, livestock, soil conservation, forestry, etc., are placed under one manager called the Executive District Officer of Agriculture [17]. The transfer of managerial responsibility

for specified functions to other organizations, which coordinate extension services on behalf of the central management, is called delegation [16]. Firstly, it involves delegation of agricultural extension responsibilities to farmers' organizations and this also involves responsibility for commodity extension to a commodity group. Priority setting and fund allocation functions are delegated to regional or district level extension systems [16]. Secondly, delegation of responsibilities to the local agricultural development committees to draw up local development plans, submit funding requests and contract for extension workers [16]. Eventual delegation is the micro credit of agricultural Credit Cooperatives (farmers organizations); so far the micro-credit of agricultural Credit Cooperatives (farmers organizations) has many features, such as wide coverage of Agricultural areas [5]. The making of decisions on different issues affecting the farmers that require an integrated approach, is one of the prominent roles played by the local leaders. They are acting as liaison between governmental organizations, the private sector and the farmers for financial and technical assistance, monitoring and evaluation of projects for proper implementation, and raising funds through levies, donations, launchings, etc. to finance agricultural development projects in the area [12]. Participation in local extension activities is controlled by a board which composed of stakeholders (support organizations), agricultural extension management that received direct input and feedback from the Farmer Advisory Committees established in each extension block. It undertakes meetings with farmers where extension field staff consults farmers to obtain a wide cross-sectional views at the farmers' level [10]. The primary aim of this approach is to encourage active participation in planning, implementing, managing and monitoring extension programs [15]. Field staffs are invited to the annual planning workshop so that the views from each sub-district are represented. Once the field staffs has consulted farmers at the sub-district level, the case organization conducts an annual planning workshop where it invites farmer representatives who are chosen on the basis of enterprise type and location to provide a broad cross-section of views at the district level.

#### *D. Pluralism of agricultural extension*

Effective coordination among various organizations is the main challenge in installing a proper pluralistic agricultural extension mechanism. Good linkages with the programs of other development organizations (e.g. micro-credit programs and input supply), determines the quality of the extension programs in a particular local system. Agricultural Extension Management has undertaken a twofold collaboration. It collaborates to support the efforts of farmers' organizations in the system, and to gain support for their efforts in the extension management. The Agricultural Extension Management supports farmers' organizations in the district in two key ways [11]. Firstly, it provides training for staff of farmers' organizations. Where it has capabilities in these areas, it assists these organizations through staff training. The second way is by providing collaborative support in making its own staff

and resources available, such as vehicles, libraries, and contract funds to assist the field efforts of farmers' organizations [11]. Agricultural Extension Management required the support of universities and agricultural research centres, proposing the formation of an integrated college between researchers, field staff and farmers trained in the field schools approach [3]. Proper and local researchers worked together to characterize and understand production nuisance, as well as identify research topics and decide on how to execute them [3]. Field schools educate farmers on skills include classroom and on-farm instruction by farm advisory. Field visits by farm advisory continue to observe product quality and united decision making with support organizations are useful in forging good working relationships for successful extension work, to achieve sustainable agricultural development [2]. Both public agricultural extension and personal sectors have the provision of more exhaustive extensional and advisory services at the request of needy growers, special agreements with farmers' organizations, extension staff working on their day off in exchange for direct payment from farmers. Also the provision of extensional equipments to advisers by agricultural associations and direct payment to the farmers for participating in training activities is very useful [2]. In addition, retrenched field staff are re-employed, retrained and satisfactorily remunerated [1]. Some of the private sector organizations already use the Ministry of Agriculture staff, which are experienced in extension and have access to technology, yet have no funds for travel and operational expenses. The private sector organizations staffs are often better encouraged due to timely provision of salaries by the organizations. Funds may be accessible and easier to obtain for transport and other operational costs. Bureaucracy is limited, and the services are usually managed efficiently and inexpensively [4].

## V. CONCLUSION

Agricultural extension systems in world are struggling to prove their importance and relevance to sustainable agricultural development. In order to solve of Problems of rural development, Agricultural extension systems need to encourage the active participation of Farmers in planning, implementing, and monitoring Agricultural extension programs. To achieve this participation, extension organizations would need to formally of decentralization and Pluralism or transfer the control of specific program planning and management functions to the systemlevels of local Agricultural extension, Private sector organizations, Farmers organizations and Education organizations where extension programs are actually implemented. This paper are be reviewed the recently studies of Decentralization of agricultural Extension and Pluralism of agricultural Extension.

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