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Application of Management by Objectives in Agricultural Extension Centers / Sulaymani Governorate - Kurdistan Region of Iraq

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Abstract:

The purpose of this research is to identifying the level of application of management by objective in agricultural extension services in Sulaimani Governorate, as well as to arrangement of the main fields of application of management by objective, and determine the correlation between of the application of management by objective and a group of independent variables. The research population comprised all agricultural extension personnel employed at the extension centers within Sulaymani Governorate, totaling 94 workers in agricultural extension. The research results showed that the application of management by objectives is medium level, additionally, the results of the research revealed that Sustainable Development field was the highest-ranked discipline when compared to other fields. It also findings indicated a significant correlation between the application of management by objectives and certain research variables, specifically (organizational culture, motivation to work, and leadership style), However, no correlation was identified concerning other variables, such as (Age, Academic attainment, Academic specialization, Work position, Duration of agricultural extension service, training program and Desire and openness to change) Therefore, researchers recommend to Developing the capabilities of extension leaders in management by objectives by organizing training programs specifically for extension center managers on the concepts of planning by objectives, interim evaluation, and results-based motivation.

Keywords: *Extension service, Management by Objective, organizational culture, leadership style.*

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تطبيق الإدارة بالأهداف في تحسين خدمات الإرشاد في محافظة السليمانية – إقليم كردستان-العراق

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الخلاصة

يهدف هذا البحث التعرف على مستوى تطبيق الإدارة بالأهداف في خدمات الإرشاد الزراعي بمحافظة السليمانية، وترتيب المجالات الرئيسية لتطبيق الإدارة بالأهداف، وتحديد العلاقة بين تطبيق الإدارة بالأهداف ومجموعة من

المتغيرات المستقلة. وقد شمل مجتمع البحث جميع المرشدين الزراعيين في مراكز الإرشاد الزراعي في محافظة السليمانية والبالغ عددهم (95) مرشداً زراعياً. أظهرت نتائج البحث أن مستوى تطبيق الإدارة بالأهداف كان متوسطاً، وأن مجال التنمية المستدامة كان جاء في المرتبة الأولى مقارنةً بالمجالات الأخرى. كما أشارت النتائج إلى وجود علاقة ارتباط معنوية بين تطبيق الإدارة بالأهداف وبعض متغيرات البحث وتحديداً (الثقافة التنظيمية، الدافعية للعمل، وأسلوب القيادة)، في حين لم يتم تحديد أي علاقة ارتباط مع متغيرات أخرى مثل (العمر، التحصيل الدراسي، التخصص الأكاديمي، الوظيفة، مدة الخدمة الإرشادية الزراعية، برنامج التدريب والرغبة والانفتاح على التغيير). لذا يوصي الباحثون بتطوير قدرات القيادات الإرشادية في الإدارة بالأهداف من خلال تنظيم برامج تدريبية خاصة لمديري مراكز الإرشاد حول مفاهيم التخطيط بالأهداف والتقييم المرحلي والدافعية المبنية على النتائج.

الكلمات المفتاحية: خدمة الإرشاد، الإدارة بالأهداف، الثقافة التنظيمية، أسلوب القيادة.

Introduction

Among the most important economic sectors that influence the majority of countries' economic structures worldwide is the agriculture sector [1,2] This sector plays a vital strategic role by contributing to food security, supplying essential inputs to other economic sectors, and fulfilling local food demand [3]. Therefore, the modernization and expansion of agricultural production methods have become imperative for enhancing the prospects of comprehensive economic development, positioning it as a global priority rather than a concern limited to developing countries [4]. Governments, including in developing countries, have recognized the pivotal role of government agencies, particularly agricultural extension services, in promoting agricultural and rural development through their diverse mandates, particularly human resource development through sound management programs [5]. The progress of any nation is contingent upon effective management, as it is responsible for overseeing various aspects, the administration plays a crucial role in ensuring the success of organizations within society by efficiently utilizing human and material resources [6], "Management is the process of collaborating with people and enlisting their assistance to accomplish organizational objectives in a dynamic environment with limited resources, effectively and efficiently". [7] The contemporary approach that focuses on maximizing efficiency in achieving objectives is commonly referred to as management by objectives. [8] Furthermore, to effectively manage the day-to-day operations of organizations, management requires a variety of tools, one of which is management by objectives. [9] by Objectives is a strategic and systematic approach that allows supervisors and employees to focus on realistic goals and achieve optimal results by leveraging the resources provided by] By implementing management by objectives, the organization aims 0the organization. [1 to improve overall performance by setting clear organizational and guiding goals for]1employees. [1 Management by Objectives, known as participatory management, [12] According the [13,14] Participation it provides subordinates with a clear understanding of their supervisor's expectations, thereby enhancing motivation and fostering better performance and working relationships, additionally, the Management by Objectives approach can contribute to the improvement of the compensation and incentive system by aligning goals and providing clarity, thus enhancing employee capabilities and facilitating efficiency, as a result, it promotes acceptance and motivation among subordinates, leading to increased progress and achievement without conflicting with their evident desires and abilities.

There are many organizational problems in agricultural organizations in Iraq, including the Kurdistan Region and especially Sulaymaniyah Governorate, including limited objectives and specific written tasks for the agricultural extension organization, employment, weak communication and extension coordination with external organizations, and weak implementation of many of the basic activities of the extension organization. [15, 16, 17]

In addition, involving agricultural extension workers in formulating objectives instills a sense of accountability in them, and ensures clear communication and effective implementation of these objectives. Failure to involve agricultural extension workers in this process and the lack of alignment between their personal objectives and the objectives of the organization can negatively affect their performance. [18].

Underutilization of human resources, ambiguity of roles and objectives, and weak administrative communication can lead to difficulties in evaluating performance and achieving objectives. Therefore, management researchers seek to develop frameworks that enhance the effectiveness of agricultural extension through the strategic application of management by objectives. In light of environmental changes, the adoption of modern methods, such as management by objectives, by extension centers is essential. Based on the vital role of these practices, this study aims to demonstrate the impact of their implementation on achieving the objectives of agricultural extension organizations in Sulaymaniyah Governorate, especially in light of the scarcity of previous studies in this field. Hence, the idea of this study stems from highlighting the following research questions:

1. What is the level of application of management by objectives in improving agricultural extension services in Sulaymani Governorate?
2. Is there a correlation between each of the independent variables and the application of management by objectives in improving agricultural extension services in Sulaymani Governorate?

RESEARCH OBJECTIVES

1. Identifying the level of application of management by objective in improving agricultural extension services in Sulaimani Governorate.
2. Arranging the main fields in descending order in the level of application of management by objective in agricultural extension services in Sulaimani Governorate.
3. Determining the correlation between the application of management by objective and each of the variables (Age, Academic attainment, Academic specialization, Duration of agricultural extension service, Work position, training program, organization culture, leadership style, Desire and openness to change, and Motivation to work).

Research Hypotheses

There is a significant correlation between management by objectives application and each of the variables (Age, Academic attainment, Academic specialization, Duration of agricultural extension service, Work position, training program, organization culture, leadership style, Desire and openness to change, and Motivation to work).

Materials and Methods

Research Methodology: This research used a descriptive survey methodology design through the use of a questionnaire. A more useful generalization that can be added to this

the official definition of qualitative research is that it usually uses verbal data instead of numerical data. [19]

Research Area: The research focuses on Sulaymani Governorate because this region serves as a key agricultural center for the Kurdistan Region which depends on agriculture for most of its livelihoods. The region shows a wide range of farming operations that include growing crops alongside animal farming as they work together to support food security across the area.

Research Population: The research population consists of all workers in agricultural extension in agricultural extension centers in Sulaymani Governorate, distributed among the districts and sub-districts, numbering (114) agricultural extension workers distributed among (12) extension centers. After excluding the pre-test sample of (20) respondents, the research population became (94) respondents, as shown in Table 1.

Table 1 Distribution of respondents in the population of the research

Governorate	Agricultural Extension Centers in the Governorate	Number of Respondents in Agricultural Extension Centers	Number of Respondents in the Pre-test Sample	Population
Sulaimani	Bakrajo	56	20	36
	Dukan	4	—	4
	Chawarqurna	3	—	3
	Chamchamal	8	—	8
	Karahanjir	13	—	13
	Sharazur	5	—	5
	Tanjaro	5	—	5
	Darbandikhan	4	—	4
	Kufri	4	—	4
	Kalar	4	—	4
	Bazian	4	—	4
	Chwarta	4	—	4
	Total	114	20	94

Data collection tool: The questionnaire is one of the most widely used tools for collecting data [20]. To accomplish these objectives, a specialized questionnaire consisting of two sections was developed. The first section focused on personal and professional information from respondents, while the second section evaluated the application of management by objectives, which consisted of seven fields: the first fields defining planning, which consisted of (10) items, the second field is setting objective, which consisted of (10) items, the third field is participation and cooperation's, which consisted of (10) items, the fourth field is commitment to work, which consisted of (10) items, the fifth fields is confidence, which consisted of (8) items, the sixth field is evaluation, which consisted of (11) items, and the seventh field is sustainable development which consisted of (7) items, As a quadrilateral scale was used (largely agree, agree, neutral, disagree, don't agree at all), weights were given to them (5,4,3, 2, 1), respectively. The scores within this scale spanned a range of 66 to 330

degrees. For validity face and content validity, the questionnaire was submitted to a group of specialists in the field of agricultural management and guidance at Iraqi universities (Sulaymani, Kirkuk, Dohuk, Tikrit, Baghdad, and Wasit). Their feedback led to modifications, including the removal or addition of specific items within the questionnaire. To ensure the reliability of the questionnaire items, a pre-test was conducted in November 2024 on a sample of 20 agricultural employees assigned to extension work in the Directorate of Agriculture in Sulaymani Governorate, outside the research population, alpha coefficient was applied, serving as a recognized benchmark for assessing the reliability of measurement tools [21]. A reliability coefficient of 0.85 was established for the application of management by objectives scale, reflecting a substantial level of consistency among its items. [22] respondents' information was gathered between December 15, 2024, and February 15, 2025.

Result and Discussion

1. Identifying the level of application of Management by Objective in improving agricultural extension services in Sulaimani Governorate.

The results of this research demonstrated that the highest value of the application of Management by Objectives in agricultural extension services was (246) degrees, while the lowest value was (106) degrees, on the scale with a theoretical range (66-330) degree, with an arithmetic mean (178.10) and a standard deviation (24.29). Respondents were classified into three distinct categories based on their scores in application of Management by Objectives: Low, Medium, and High, as can be observed in Table 2.

Table (2) Distribution of respondents according to their level of application of MBO

Categories	Frequency	%	Average of application of MBO	— X	Std. Deviation
Low (106 -152)	13	13.80	138.80	178.10	24.29
Medium (153-199)	67	71.30	178.99		
High (200-246)	14	14.90	212.86		
Total	94	100			

MBO = by Objectives

Table 2 Shows that the highest percentage of respondents falls within the category Medium (153-199) Application of MBO with a percentage of respondents (71.30%) with an average score of (178.99) degrees, while the lowest (13.80%) belongs to the category of Low (106 - 152) Application of MBO, with an average score of (138.8) degrees, This makes it evident that the level of application the Management by Objectives moderate, this may be due to for this is the concept is new or unclear to agricultural extension managers and extension workers, the principles of MBO are applied partially or incompletely. This could be because there aren't enough administrative or resource resources to accomplish the goals, which impacts the efficacy and effectiveness of the application of Management by Objectives in the Sulaimani Governorate.

2. Arranging the main fields in descending order in the level of application of management by objective in agricultural extension services in Sulaimani Governorate:

The main fields of application of Management by Objective of agricultural extension services consist (7) fields like (planning, setting objectives, participation and cooperation, commitment to work, confidence, evaluation, and sustainable development).

These fields exhibited weighted means ranging from 2.21 to 2.96 degrees, with corresponding percentage weights falling within the range of 44.20% to 59.31%. These fields are presented in descending order based on their prevalence among respondents, as detailed in Table 3.

Table (3) shows that the field of Sustainable Development ranked first compared to other fields, according to a weighted average score of (2.96) and a percentage weight of (59.31), Perhaps due to environmental challenges such as desertification, climate change, and water scarcity, a focus on sustainable development has become an urgent necessity to ensure food security and environmental stability, while the field Confidence ranked last compared to other fields, according to a weighted average score of (2.21) and a percentage weight of (44.20), This is due to the lack of participation of agricultural extension workers in decision-making or the disregard for their opinions, which may undermine confidence in extension leadership and make them less committed to achieving goals.

Table 3 Ranking the fields of application of MBO

Fields	maximum degree of the fields	Average weight	Average of weighted average	Weight %	Std. Deviation	Ranking
Sustainable Development	35	20.76	2.96	59.31	4.51	1
Sitting objectives	50	29.39	2.93	58.78	6.25	2
Participation and Cooperation	50	29.29	2.92	58.58	6.21	3
Planning	50	27.89	2.78	55.78	5.68	4
Evaluation	55	29.97	2.72	54.49	6.27	5
Commitment to work	50	23.12	2.31	46.24	3.89	6
Confidence	40	17.68	2.21	44.20	3.45	7

3. Determining the correlation between the application of management by objective and set of independent variables

- **Age:** The results indicated that the oldest respondent was 63 years old, while the youngest was 31 years old, with a mean age of 46.42 years. The respondents were classified into four age groups, as shown in Table 4.

Table 4 indicates that the highest percentage of respondents falls within the age group (38-46) with a rate of 43.60% with an average score of 172.78, and the lowest percentage of respondents falls within the age group (29-37) with a rate of 10.60% with an average of (175.90) degrees. Pearson's correlation coefficient was calculated to assess the relationship

between management by objectives and age, and its value was 0.103. This result indicates that there is no relationship between the two variables. Therefore, the research hypothesis is rejected.

- **Academic attainment:** According to the research results, the Academic attainment of the respondents ranged from (High school and PHD). The respondents were classified into four distinct categories based on their educational qualifications, as shown in Table 4.

According to Table 4, the largest proportion of respondents, accounting for 48.9%, belonged to the bachelor's degree category, with an average score of 177.17 degrees. Conversely, the smallest percentage of respondents, at 2.10%, was found in the PHD category, which had an average score of 175.50 degrees, the Spearman-Rank was calculated to assess the relationship between management by objectives and Academic attainment, and its value was -0.023. This result indicates that there is no relationship between the two variables. Therefore, the research hypothesis is rejected; this result is consistent with what was found in the study [23].

- **Academic Specialization:** According to the research outcomes that 9.60% of the total respondents belonged to the agricultural extension specialty, whereas the remaining respondents were categorized into various non-extension specializations, as illustrated in table 4. Pearson's correlation coefficient was calculated to assess the relationship between management by objectives and Academic Specialization, and its value was 0.013. This result indicates that there is no relationship between the two variables. Therefore, the research hypothesis is rejected; result is consistent with what was found in the study [24]

- **Duration of agricultural extension service:** The results revealed that the longest duration of agricultural extension services observed was 36 years, whereas the shortest was 1 year. The average duration was determined to be 15.02 years, with a standard deviation of 24.29. Respondents were categorized into three separate groups according to the length and duration of their service, as demonstrated in Table 4. The majority of respondents, representing 63.90%, were categorized in the 13–24-year range, achieving an average score of 178.32 degrees. In contrast, the least represented group, at 4.30%, was the 25 -36-year category, which recorded an average score of 181.50 degrees, Spearman-Rank coefficient was calculated to assess the relationship between management by objectives and Duration of agricultural extension service, and its value was 0.127. This result indicates that there is no relationship between the two variables. Therefore, the research hypothesis is rejected; this result is consistent with what was found in the study [25].

- **Work Position:** The results of this research demonstrated that the work position ranged between (managers, supervisors and employees). The respondents were classified into three groups, as shown in Table 4.

According to Table 4, the largest proportion of respondents, accounting for 74.50%, belonged to the Employees category, with an average score of 178.13 degrees. Conversely, the smallest percentage of respondents, at 7.40%, was found in the Manager category, which had an average score of 175.50 degrees, Spearman-Rank coefficient was calculated to assess the relationship between management by objectives and Work position, and its value was -0.037. This result indicates that there is no relationship between the two variables. Therefore, the research hypothesis is rejected; this result is consistent with what was found in the study [25].

- **Training Program:** The results of this research demonstrated that the training program divided in two categories (Participated, not participated). The respondents were classified into two groups, as shown in Table 4.

According to Table 4, the largest proportion of respondents, accounting for 80.90%, belonged to the Participated category, with an average score of 177.12 degrees. Conversely, the smallest percentage of respondents, at 19.10%, was found in the not participated category, which had an average score of 182.17 degrees. Spearman-Rank coefficient was calculated to assess the relationship between management by objectives and Training program, and its value was 0.036. This result indicates that there is no relationship between the two variables. Therefore, the research hypothesis is rejected; this result is consistent with what was found in the study [26].

- **Leadership Style:** The results of this research demonstrated that the leadership style divided in three categories (Autocratic, Democracy and Both) as shown in Table 4.

Table 4 indicates that the highest percentage of respondents falls within the group (Democracy) with a rate of 45.70% with an average score of 184.56, and the lowest percentage of respondents falls within the group (Autocratic) with a rate of 12.80% with an average of (152.23) degrees. Pearson's correlation coefficient was calculated to assess the relationship between management by objectives and Leadership style, and its value was 0.221. This result indicates that there is a relationship between the two variables. Therefore, the research hypothesis is accepted, result is consistent with what was found in the study [27].

- **Organization Culture:** The results showed that the highest numerical score obtained by the respondents in the field of organizational culture was 20 degrees and the lowest numerical was 6 degrees a scale whose degrees ranged between (5-20). The respondents were distributed according to their degrees of Culture to three categories (Low, Medium, and High) as shown in Table 4.

Table 4 indicates that the highest percentage of respondents falls within the High category (16-20) with a rate of 57.40% with an average score of 185.40, and the lowest percentage of respondents falls within the category (6-10) with a rate of 4.30% with an average of (175.90) degrees. Pearson's correlation coefficient was calculated to assess the relationship between management by objectives and Organization Culture, and its value was 0.516. This result indicates that there is a relationship between the two variables. Therefore, the research hypothesis is accepted, this result is consistent with what was found in the study [28].

- **Desire and openness to change:** The results showed that the highest numerical score obtained by the respondents in the field of organizational culture was 24 degrees and the lowest numerical was 12 degrees on a scale whose degrees ranged between (6-24), the respondents were distributed according to their Desire and openness to change in to three categories (Low, Medium, and High) as shown in Table 4.

Table 4 indicates that the highest percentage of respondents falls within the medium category (17-21) with a rate of 63.80% with an average score of 178.43, and the lowest percentage of respondents falls within the Low category (12-16) with a rate of 4.30% with an average of (181.00) degrees. Pearson's correlation coefficient was calculated to assess the relationship between management by objectives and Desire and openness to change, and its value was -0.048. This result indicates that there is no relationship between the two variables. Therefore, the research hypothesis is rejected; this result is consistent with what was found in the study [29].

Table (4) Distribution of Respondents According to independent and its Relationship to application MBO

Variable	Frequency	Percentage %	Average level of application MBO	correlation coefficient	Sig.
Age					
29-37	10	10.60	175.90	0.103	N. S

38-46	41	43.60	172.78		
47-55	28	29.80	187.24		
More than 55	15	16.00	176.27		
Academic attainment					
High School	13	13.80	182.31	-0.023	N. S
Diploma	20	21.40	177.80		
Bachelor	46	48.90	177.17		
Higher Diploma	5	5.30	177.60		
Master	8	8.50	178.25		
PHD	2	2.10	175.50		
Academic specialization					
Agricultural extension	9	9.60	177.89	0.013	N. S
Non-Agricultural extension	85	90.40	178.12		
Duration of agricultural extension service					
1-12	30	31.80	177.20	0.127	N. S
13-24	60	63.90	178.32		
25-36	4	4.20	181.50		
work position					
Employees	70	74.50	178.13	-0.037	N. S
Supervisors	17	18.10	179.00		
manager	7	7.40	175.57		
training program					
Participated	76	80.90	177.13	0.036	N. S
Not participated	18	19.10	182.17		
organization culture					
(6-10) Low	4	4.30	134.75	0.516	**
(11-15) Medium	36	38.30	171.81		
(16-20) High	54	57.40	185.50		
leadership style					
Autocratic	12	12.80	152.23	0.221	*
Democracy	43	45.70	184.56		
Both	39	41.50	178.90		
Desire and openness to change					
(12-16) Low	4	4.30	181.00	-0.048	N. S
(17-21) Medium	60	63.80	178.43		
(More than 21) High	30	31.90	177.03		
Motivation to work					
(10-17) Low	3	3.20	136.67	0.269	**
(18-25) Medium	36	38.30	177.61		
(More than 25) High	55	58.50	180.67		

*Significant at the level of 0.05 **significant at the level of 0.01

- **Motivation to Work:** The results showed that the highest numerical score obtained by the respondents in the field of organizational culture was 32 degrees and the lowest numerical was 10 degrees on a scale whose degrees ranged between (8-32), the respondents were distributed according to their degrees of Motivation to Work in to three categories (Low, Medium, and High) as shown in Table 4.

Table 4 indicates that the highest percentage of respondents falls within the High category (More than 25) with a rate of 58.50% with an average score of 180.67, and the lowest percentage of respondents falls within the Low category (10-17) with a rate of 3.20% with an average of (136.67) degrees. Pearson's correlation coefficient was calculated to assess the relationship between management by objectives and Motivation to Work, and its value was 0.269. This result indicates that there is a relationship between the two variables. Therefore, the research hypothesis is accepted; this result is consistent with what was found in the study [30], while it is not consistent with the study [31]

Conclusion

In light of the research results, the following is concluded

1. The level of application of Management by Objective in improving agricultural extension services in Sulaimani Governorate is considered medium. This indicates that the specific goals of these services may not be clearly defined or measurable; , the lack of effective administration among leaders might be a reason for the unsuccessful application of management by objectives in agricultural extension center.
2. The field of Sustainable Development ranked first compared to other fields, this indicates that agricultural extension workers in the governorate are becoming more aware of the need to protect natural resources, which in turn makes them more dedicated to reaching sustainability goals.
3. Independent variables, including Organizational Culture, Leadership style, and Motivation, significantly contribute to the application of management by objectives in improving agricultural extension services. This leads us to the following conclusion:
 - An organizational culture that values teamwork and collaboration among departments plays a crucial role in shaping shared goals and executing them in harmony. This collaborative spirit is essential for rolling out agricultural extension programs and ensuring they work effectively.
 - Leadership style promotes active participation and collaborative decision-making. It boosts motivation and provides continuous support to reach goals, all within a friendly environment that helps navigate the challenges of implementing management by objectives in advisory work.
 - Motivated employees are usually more equipped to set goals, work diligently towards them, and face any difficulties that may pop up along the way.
4. The absence of a statistically significant relationship between the application of management by objectives and variables such as Age, Academic specialization, Academic attainment, Duration of extension service, Work position, Training program, and Desire and openness to change indicates that these variables do not play a role in the application of management by objectives in improving agricultural extension services.

Recommendation and Suggestion

1. It is necessary to set clear and measurable guiding objectives and announce them to all employees to serve as a reference for planning and implementation.
2. Developing the capabilities of extension leaders in management by objectives by organizing training programs specifically for extension center managers on the concepts of planning by objectives, interim evaluation, and results-based motivation.
3. The need to strengthen awareness programs and continuous training in the field of sustainable development.
4. Establishing material and moral incentive systems linked to achieving goals, such as bonuses, promotion opportunities, and certificates of appreciation; so that the agricultural extension worker feels that his fruitful efforts are met with tangible appreciation.
5. Proposing an applied model for management by objectives in agricultural extension centers that integrate significant variables of influence as basic pillars, with the development of a phased implementation plan.
6. Conducting comparative studies to examine the application of management by objectives in other governorates in Iraq or in the Kurdistan Region, to draw on successful experiences that can be benefited from.

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