UNIVERSITI PUTRA MALAYSIA

FACTORS ASSOCIATED WITH TRAINING NEEDS AMONG AGRICULTURE EXTENSION OFFICERS IN CENTRAL IRAQ

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By

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

FACTORS ASSOCIATED WITH TRAINING NEEDS AMONG AGRICULTURE EXTENSION OFFICERS IN CENTRAL IRAQ

By

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October 2017

Chairman : Associate Professor Norsida Man, PhD
Faculty : Agriculture

The analysis of training needs is not a task for specialists alone. Managers today are often responsible for many forms of employees management, including the training and development of their team, and should therefore have an understanding of training needs analysis and be able to implement it successfully. There are poor skills, dismal performance, working conditions, business, job skills, communication skills and lack of courses are among the issues that confront administrators in the agriculture sector. If they currently did not have access to a microcomputer and their budgetary restraints would not allow them to purchase one in the near future, their opportunity to use in-service would be low, whereas agriculture is more dynamic nowadays. Due to the flux state of ICT, the need for training becomes necessary.

The study in hand addressed training requirements for extension agents in Iraq. The objectives of this study were: 1) To describe the socio-demographic characteristics of the respondents; 2) To identify the level of training needs of the respondents in the areas of agricultural extension; 3) To compare the relationship among training course, scientific specialization, and socio-demographic factors; 4) To determine the relationship between training needs of the respondents in agricultural extension work areas and socio-demographic factors, and 5) To explore the existence of significant differences in the training needs of the respondents according to the variables.

This study had been conducted in three (3) selected Iraqi provinces, namely Baghdad, Wasit, and Babylon. For data collection, 300 agricultural extension officers were interviewed using survey questionnaire stratified sampling. Borich Needs Assessment Model was used in determining the structure of the training needs. The statistical

analysis techniques used in the study include descriptive analysis, T-Test, Chi-Square, one-way analysis of variance ANOVA and correlation analysis.

More than one-third (36.95%) of the respondents aged between 31 to 40 years old, the majority were male (63.77%) and married (73.19%). For academic qualification, (71.74%) of the respondents possess a baccalaureate degree, (40.94%) have been working between 1-5 years and the majority of the respondents had attended training (81.16%). The study shows that the highest benefit of training courses attended is the crop planting course. For the training needs, the highest training need was the extension methods (M = 3.74), while the middle skills is the use of computer and ICT (M = 3.26) and the least skills is management (M = 3.15), indicating that they are a strongly needed training in these areas.

Furthermore, the results show that there is a significant relationship between training needs and the province, marital status, location of work, training, number of training courses attended (r = 0.14), job satisfaction (r = 0.33), information (r = 0.43), age and the organizational characteristics (r = 0.52). In addition, the findings also show that there is a non-significant relationship with gender, education level, background of family, origin, specialization, and experiences in agricultural extension and farming.

This study indicates that there was a need for training in multiple areas of the agricultural sector. In order to have a training program that meets all the aspirations to promote the agricultural sector, more studies in training are needed so that employees can demonstrate a high level of competency and it also can help them to be accustomed to different surroundings and environments. Should be focus on staff organizational characteristics, job satisfaction, information and follow the weakness in any area and create a subjective rating of these skills by specialists. Based on the findings of the study, it is recommended that good quality training programs be launched that could target the weaknesses, make improvements, enhance the competence and upgrade the skills of extension workers. This will enable extension professionals to be more confident, knowledgeable, and sufficiently productive to serve the diverse needs of the farmers while realizing sustainable agriculture.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

FAKTOR YANG BERKAITAN DENGAN KEPERLUAN LATIHAN DI KALANGAN PEGAWAI PENGEMBANGAN PERTANIAN DI SENTRAL IRAQ

Oleh

JASIM MOHAMMED SALEH

Oktober 2017

Pengerusi : Profesor Madya Norsida Man, PhD
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Analisis keperluan latihan bukanlah tugas untuk para pakar semata-mata. Pengurus hari ini bertanggungjawab terhadap pelbagai bentuk pengurusan pekerja, termasuklah latihan dan pembangunan pasukan, dan oleh itu mereka harus memahami keperluan analisis latihan serta dapat melaksanakannya dengan jayanya. Kemahiran yang lemah, prestasi yang kurang, keadaan kerja, perniagaan, kemahiran kerja, kemahiran komunikasi dan kekurangan kursus adalah antara isu yang dihadapi oleh pentadbir dalam sektor pertanian. Jika mereka tidak mempunyai akses kepada mikrokomputer dan kekangan belanjawan tidak membenarkan mereka membelinya dalam masa terdekat, peluang mereka untuk menggunakan perkhidmatan ini adalah rendah, sedangkan pertanian adalah lebih dinamik pada masa kini. Disebabkan oleh keadaan ICT yang sering berubah, latihan menjadi satu keperluan.

Kajian ini menumpukan keperluan latihan untuk pegawai pengembangan di Iraq. Objektif kajian ini adalah: 1) Menerangkan ciri sosio-demografik responden; 2) Mengenalpasti tahap keperluan latihan responden dalam bidang pengembangan pertanian; 3) Membandingkan hubungan antara kursus latihan, pengkhususan saintifik dan faktor demografik sosio-ekonomi; 4) Menentukan hubungan antara keperluan latihan responden di kawasan kerja pengembangan pertanian dan faktor demografik sosio-ekonomi: dan 5) Meneroka kewujudan perbezaan yang signifikan dalam keperluan latihan responden mengikut pembolehubah.

Kajian ini telah dijalankan di tiga (3) wilayah terpilih di Iraq, iaitu Baghdad, Wasit dan Babylon. Bagi pengumpulan data, 300 pegawai pengembangan pertanian telah ditemuramah menggunakan soal selidik berstrata. Model Penilaian Keperluan Borich

digunakan bagi menentukan struktur keperluan latihan. Teknik analisis statistik yang digunakan dalam kajian ini termasuklah analisis deskriptif, T-Test, Chi-Square, analisis ANOVA satu arah dan analisis korelasi.

Lebih daripada satu pertiga (36.95%) daripada responden berusia 31 hingga 40 tahun, majoriti responden adalah lelaki (63.77%) dan berkahwin (73.19%). Bagi kelayakan akademik, (71.74%) responden mempunyai ijazah sarjana muda, (40.94%) telah bekerja antara 1-5 tahun dan majoriti responden pernah mengikuti latihan (81.16%). Kajian menunjukkan bahawa faedah tertinggi kursus latihan yang dihadiri ialah kursus penanaman tanaman. Bagi keperluan latihan, keperluan latihan yang paling tinggi ialah kaedah lanjutan (M = 3.74), manakala kemahiran pertengahan adalah penggunaan komputer dan ICT (M = 3.26) dan kemahiran yang paling rendah adalah pengurusan (M = 3.15), menunjukkan bahawa latihan-latihan ini sangat diperlukan dalam bidang ini.

Selain itu, keputusan kajian menunjukkan bahawa terdapat hubungan yang signifikan antara keperluan latihan dan wilayah, status perkahwinan, lokasi kerja, latihan, bilangan kursus latihan yang dihadiri (r = 0.14), kepuasan kerja (r = 0.33), maklumat (r = 0.43), umur dan ciri-ciri organisasi (r = 0.52). Di samping itu, penemuan juga menunjukkan bahawa terdapat hubungan yang tidak penting dengan jantina, tahap pendidikan, latar belakang keluarga, asal, pengkhususan dan pengalaman dalam bidang pertanian dan perladangan.

Kajian ini menunjukkan bahawa terdapat keperluan untuk latihan di beberapa bidang sektor pertanian. Bagi pelaksanaan program latihan yang memenuhi semua aspirasi untuk mempromosi sektor pertanian, lebih banyak kajian terhadap latihan diperlukan agar para pekerja dapat menunjukkan tahap kompetensi yang tinggi dan dapat membantu mereka untuk membiasakan diri dengan persekitaran yang berbeza. Tumpuan perlu diberikan kepada ciri-ciri organisasi kakitangan, kepuasan kerja, maklumat dan mengikut kelemahan di mana-mana bidang serta membentuk penilaian subjektif bagi kemahiran-kemahiran ini oleh pakar. Berdasarkan penemuan kajian ini, disarankan agar program latihan berkualiti yang dilancarkan dapat menyasarkan kelemahan, menambahbaik, meningkatkan kecekapan dan meningkatkan kemahiran pekerja pengembangan. Hal ini akan membantu profesional lanjutan untuk menjadi lebih yakin, berpengetahuan, dan lebih produktif untuk memenuhi keperluan pelbagai petani sambil merealisasikan pertanian mampan.

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I certify that a Thesis Examination Committee has met on 17 October 2017 to conduct the final examination of Jasim Mohammed Saleh on his thesis entitled "Factors Associated with Training Needs among Agriculture Extension Officers in Central Iraq" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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GDP	Gross Domestic Product
MoA	Ministry of Agriculture
AOs	Agriculture Officers
USDA	United States Department of Agriculture
DV	Dependent Variable
TN	Training Need
IPM	Integrated Pest Management
NGOs	Non-Governmental Organization
FFS	Farmer Field Schools
PTD	Participatory Technology Development
PBTE	Performance-Based Teacher Education
ADDIE	Analysis, Design, Development, Implementation and Evaluation
KSA	Knowledge, Skills, and Attitudes
ILT	Information Literacy Instruction
TNA	Training Needs Analysis
RoI	Return on Investment
MFIs	Microfinance Institutions
TIS	Training Importance Score
FGD	Focus Group Discussion
FFA	Future Farmers of America
MWDS	Mean Weighted Discrepancy Scores
S.D.	Standard Deviation

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter examines the agricultural sector in Iraq. It sheds light on some of the productive tasks besides; the role of agricultural extension in Iraq, together with the extension services and agricultural extension officers in the development of rural communities. It then discusses the extension services, training structure, and training needs. Following this chapter clarifies the research problem and formulates the research questions that seek to achieve the research objectives. It then outlines the scope of the study and defines the key terms used in this study. The significance of the study is also clarified.

1.2 Agricultural Sector in Iraq

Iraq has emerged as an independent Islamic country on the 3rd of October, 1932. The regulations in the League of Nations transformed Iraq into a Republic on the 14th of July 1958. It is characterized by great geographical differences in the South. There are also coastal beaches of the Arabian Gulf, lakes and the marshes "Al- Ahwar". A sandy desert is found in the Southwest. In the middle and Northern parts, the land is highly fertile. The North also contains many mountains with beautiful valleys and snow-covered peaks and rivers. The settlements became cities in the fourth millennium and the oldest human settlements were Arredo, Waorok and Werkaa in the South, where the mud-brick temples were decorated with metal ornaments, stones, and the cuneiform system of writing was invented. The Sumerians introduced the first official culture and it spread northward to the upper Euphrates. The principal Sumerian cities that arose at the time were Kish, Ur, Larsa and Etiquette (Ahmed, 2010).

In addition, Iraq is basically an agricultural country. It has spacious land, adequate sources of water, highly-skilled human resource and the climate that allows for the cultivation of a large number of horticultural crops and domestic animals. The source of income results from the oil sector was invested in agriculture to rehabilitate the irrigation and the drainage canals, to move toward the rehabilitation of the countryside in general. At the same time, an increase of local production must be actively supported and protected against output importer of agricultural items that could be locally produced (Zina, 2011).

However, according to Iraqi Ministry of Agriculture in 2011, the impact of salinity is affecting 40% of the agricultural land, especially in the central and the southern Iraq. This suggests that desertification was between 40 to 50 percent of the agricultural land in the 1970s. In this regards, the agricultural sector in the north of Iraq, particularly in Kurdistan, was great suffered in the past decades. It has been subjected to a number

of distortions of unequal input supply, preferential subsidies and import irregularities that overlooked the supply and demand rule (Mohammed et al, 2011).

The agricultural production was further reduced through the provision of food to foreign prices artificially. For example, the grain production in 2003 is 22% lower than in 2002, due to the military actions and unfavorable weather conditions. Despite continued growth in 2004, experts predicted that Iraq would be a biggest importer of the agricultural products in the anticipatable future, as there was a long-term plan call for investment in farm machinery and materials. Thus, there were prolific crop varieties-improvements in agricultural production. In 2004, the main agricultural crops were wheat, barley, corn, rice, vegetables, dates, cotton, and livestock as the main outputs as well as sheep (Al-Alak et al, 2010).

Increased livestock production reduced unemployment, reduced poverty and improved the standard of living, and rising level of per capita consumption of animal protein sources (red meat; sheep, cattle, goats, buffalo, camels), white meat (chicken and fish), (raw milk, milk collection and converted to dairy products and eggs), and provide animals that contribute to Gross Domestic Product (GDP). But Iraq is still exporting large quantities of animal skins (1.682.231), production of meat/chicken (34.084) tons of government sector, producing tons (36.794), which is concentrated in the private sector. In addition, the contribution of the agriculture sector in the GDP is only second to oil; and this strategic sector could further be improved by increasing agricultural production (Al-Alak et al, 2012).

Agribusinesses and markets are just beginning to modernize their operations in order to compete with imports and meet local needs. The agricultural sector has been the third largest employer and contributor to the economy in the sense that the oil sector is the first sector in Iraq. Agricultural self-sufficiency of the national food security and economic imperatives. Iraq, like so many other regions of the developing world, is selected for a Green Revolution-style policy of industrializing the food system. Basically, self-sufficiency can be signified as using greenhouses and chemical fertilizers, pesticides and seeds, foreign hybrids upgrade mechanism and using modern facilities which, lead to higher productivity and increase of farm size (Elshafie, 2010).

Furthermore, the Ministry of Agriculture has provided grants for agricultural agencies in Iraq to purchase agricultural equipment and machineries, as well as, permits to import agricultural materials that help in the agricultural production of fertilizers, seeds and pesticides. However, the United States Department of Agriculture (USDA) likewise known as the Agriculture Department obstructed other agencies and cancels them in the cases of any violation of their own rules and regulations.

1.3 Agricultural Extension in Iraq

Many public officials, developmental planners, extension administrators, and educators have expressed their needs for the demands of trained agricultural workers in Iraq. The extent of the desired level of training and the rate at which they can be available are crucial at this point in time when the country is undergoing rapid national development as this will determine the ultimate degree of success. Agricultural extension in Iraq began in 1928 after the founding of the agricultural offices of ten years. The agricultural extension division, which was founded in 1946, has developed the Department of Agricultural Extension, and agricultural workers were confined to the distribution of seeds and farmers until 1952. They formed the first independent agricultural advisory service in its work in 1958 (Mohammed et al, 2011).

However, extension faces a serious challenge after the American occupation in 2003. After the restructuring of the Ministry of Agriculture (MoA). As well as many offices in Iraqi institutions, and some other services, they changed and conducted the transfer of staffs to the extension offices. Also, it has devoted a large share of the Government budget to increase agricultural production by building a large number of outreach centers and farms throughout Iraq provinces (Al-Hamdani, 2013).

According to Nord (1966), based on the report from the technical bulletins found in 1950. The general application of the agricultural extension in Iraq has started (3700) three thousand and seven hundred years ago. The bulletins reported about the process of watching the cereal and seeds until the harvest (Sanders, 1966). General Directorate of Agriculture introduced extension section in (1968) with the aims to develop the knowledge and skills of all family members. Also, encourage them to adopt scientific methods in agriculture, to increase agricultural production and improve the quality in accordance with scientific methods, through agricultural extension and empowerment of farmers and workers in the private sector (Mohammed et al, 2011).

Agricultural extension plays a crucial role in identifying the problems faced by farmers, and in finding appropriate solutions and recommendations to the problems. It is also involved in the extension service which includes all aspects of agricultural production, as well as all matters related to rural life, targeting rural women farmers and young people (Al-Dulaimi, 2011). The agricultural extension plan in Iraq and its target area for the development of the agricultural productions is shown in Figure 1.1.

The Ministry of Agriculture plans to develop the agricultural extension stages from 2005 until 2008 particularly in Central and Northern Iraq, being fertile agricultural areas to provide the wheat and barley crop function. In addition, the Ministry of Agriculture developed a plan stages from 2008 to 2012 to increase the number of the outreach centers in all provinces and building new offices of “extension farm” in the villages, or outside the city centers so that it can be close to the farmers' location. The last plan stages from 2012 to 2016. It also includes the expansion of farming area in addition to the enhancement of extension programming process, outreach activities,

and training courses in the use of modern technology to increase productivity (Al-Dulaimi, 2011).

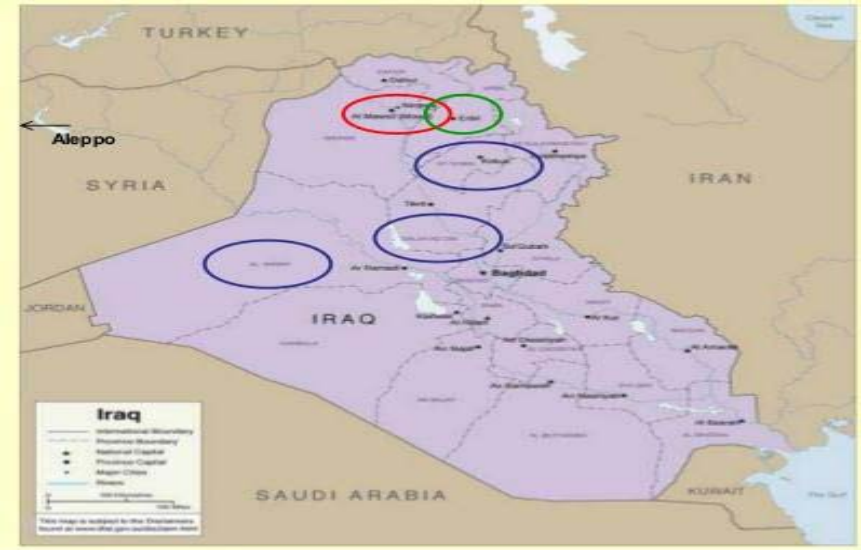

Figure 1.1 : Agriculture Extension in Iraq and its Target Area (Phase 1 2 and 3 in years 2005-2008, 2008-2012 and 2012-2016 respectively
(Source: The Ministry of Agriculture MoA 2005)

Furthermore, agricultural extension or agricultural advisory services comprise the entire set of organizations, that support people's engagement in the agricultural production, and facilitate their efforts to solve problems; link with the markets and other players in the agricultural value chain in addition to acquiring the essential information, skills and technologies to improve their livelihoods (Birner and Anderson, 2007). Agricultural extension organizations worldwide face the challenges of professional competence among their employees. Therefore, the planning, training, and management of human resources within the extension organizations are essential in order to increase the capabilities and overall effectiveness of the extension personnel.

Moreover, the extension services have proven their ability in raising agricultural production, improving the availability of food and fiber and helping improve the family system. In this case, the expansion process must have a high level of flexibility (Omar, 1992). Improving food security is a challenge which is not simply about creating more food, as many of the causes of food insecurity is related to inadequate oncoming to available food. The inadequate economic improvement outside cultivation, bad authority, harmful trade families, debt crisis, inadequate functioning of agricultural institutions, etc. (Koning et al., 2002).

1.4 Agricultural Extension Organization and Agricultural Extension Offices

The agricultural extension in Iraq has reached stability in its eighth decades. Extension was functioning in each agricultural state with programs, functions and activities all held actively. The Agriculture Offices (AOs) are the development professionals in the field of agriculture in Iraq on the advantage to improve agricultural sector. Through decentralized extension, the role of AOs changed from being the supervisor of the officer to extension staffs. Following the establishment of the modern Iraqi State in 1921, the awareness level has increased in the promotion of a sustainable economy and the country's progress (Mohammed et al, 2011).

The propagation of agricultural activities and development programs aimed at reaching marginalized farmers or those who have little access to information and extension services. In collaboration with the farming communities, the program's plan has helped them to help themselves, become more self-reliant and independent (Birner et al, 2007; Dona, 2010). They are supported by the management through the establishment of extension organization. These AOs are involved in agricultural extension service and training to train the staff in all areas and to establish the technology research centers for farmers (Tnobi, 1998). The summary of the organization structure of the (MoA) is shown in Figure1.2.

The agricultural extension service in all agricultural research departments and colleges of agriculture is also responsible for developing and conducting agricultural research for the process of sharing knowledge and transferring it to the farmers in terms of the coordination and cooperation with all parties concerned to implement all means aforementioned.

The challenges that face today's agriculture have been with us for a long time, while others have arisen more recently. The agricultural extension needs as one of the most important pillars of the primary program planning, outreach activities are the fundamental principle of indicative planning, to remove obstacles and face these challenges by designing and implementing strategies and future plans (Al-Hamdani, 2013).

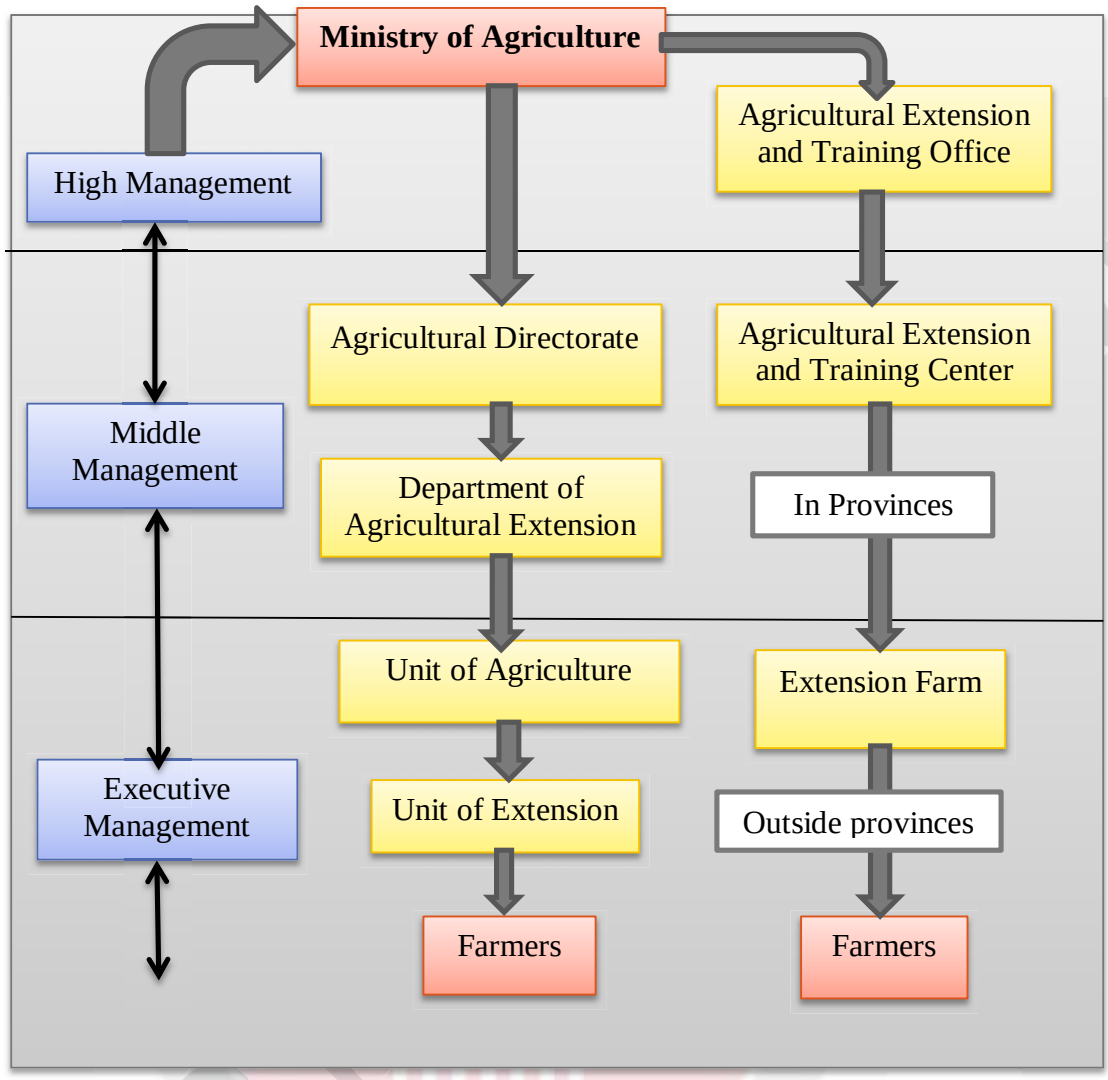

Figure 1.2 : Organizational Structure of the Ministry of Agriculture and Agricultural Extension
(Source: Agricultural Extension and Training Office, Government of Baghdad)

There are fifteen (15) "Agricultural Training Extension Center" in all Iraqi provinces and (57) extension farms, providing extension services to the farmers regarding to their problems, constraints and their training needs as well as, sharing important agricultural techniques and supply machinery needed by farmers in order to improve their agricultural production, increase their income and support rural development in general (Department of Management, 2015).

During the last ten years, many extension farms have been established in villages and close to the farmers, to help them to promote their agricultural production and income (Interview with the Director of Agricultural Extension) (Saleh Sep, 2014). The agricultural extension agents and offices have been contributing to improving food security and income by developing rural and agricultural production in Iraq. It has

been done mainly through their oversight and coordination of national and regional indicative programs, as well as through cooperation with brokers and rural leaders to adopt and disseminate agricultural innovations. It is noteworthy to acknowledge that, the implementation of comprehensive and integrated extension services through community outreach have also been contributing in the process (Samira, 2012).

Moreover, the Ministry of Agriculture (MoA) in cooperation with the Department of Agricultural Extension held an annual conference to discuss training needs for all staff across the country and which consists of three phases: The first stage is the introduction to the organization and function of the extension, followed by the second stage which is the development of a particular field of agriculture, while the third stage deals with training on the importance and priority of agricultural problems. It also includes the discussion on providing training abroad to obtain new technique and new information (Al-Hamdani, 2013).

Besides, the Ministry of Agriculture supports the agricultural sector in Iraq by training the employees and the farmers on the new technology, knowledge and skills. They also, provide fertilizers and pesticides, agricultural equipment and seeds at competitive prices. They are responsible for the agricultural sector in Iraq, collaborated with several international organizations to keep abreast of scientific developments in agriculture, making use of international experience in agriculture. Development of knowledge in the agricultural sector will lead to self-sufficiency among the Iraqi people (Al-Hamdani, 2013).

1.5 Training for Enhancing the Competency of Agricultural Extension Officers

Training is directly related to the skills, knowledge and strategies essential to do a particular job. It may include offices staff members' new skills, revealing them to common ideas, giving them the chance to the preparation and get feedback on particular techniques or styles of working with people or just induce them to discuss their work with one another. It is important to distribute information about new technologies so that the farmers are able to make use of the latest agricultural developments. There also exists a gap between research findings and the needs of farmers. For technology to be successful, it is important that it should serve a useful purpose to the end user. The institution that bridges the gap between farmers and agricultural research scientists is the Agricultural Extension Service. This service works through an Agricultural Research System in the States (Saleh et al, 2016).

Training-related changes should also lead to improving job performance and other positive changes (e.g., acquisition of new skills) (Hill and Lent 2006; Satterfield and Hughes, 2007) which serve as backgrounds of job performance (Kraiger, 2002). However, despite the fact that differences in terms of size and impact that the remarkable effectiveness of training vary according to the style of training and skill or task being trained for it. For instance, the most effective training programs that include

cognitive skills and personal alike, followed by motor skills to perform the tasks required (Khan, 2012).

Therefore, training effects on performance may be skilled (though measurable). In a qualitative study involving mechanics, that on-the-job training led to greater innovation and tacit skills. Tacit skills and knowledge are behaviors acquired through informal learning regarded as useful for effective performance. Besides this, the AEo also focuses on enhancing farmers' knowledge about crop techniques and helping them to increase productivity. This is done through training courses, farm visits, on-farm trials, Kisan Melas, kisan clubs, advisory bulletins and the like Barber (2004)

Agricultural extension depends largely on the adequacy of agricultural workers, working face to face with the peasants and the physical, social and technical problems. Effective extension work requires specific qualities such as the availability of educational qualification, belief in extension work, long experience and high professional efficiency and characteristics of a specific character. These qualities can be developed and refined through training programs for agricultural workers, the training process is divided into primary, secondary education and training and rehabilitation training for new graduates. Refresher training courses are needed for agricultural workers during their service and specialized training programs. The agricultural advisor must have the communication skills for the effective performance of his tasks (Kishta, 2011).

In addition, training alone may be unable to pay dividends if detached from other human resources management occupations, or if the dysfunctional organization in other areas (such as interpersonal relations) training unit. The training will be the greatest impact it is bundled along with other human resource management practices. These practices have also followed sound principles and practices based on empirical research.

In a nutshell, simplification and organization are keys to the enhancement of learning in cognitive training to keep pace with developments to be applied to all rural aspects. The knowledge and innovation are receiving increasing attention from policymakers as a way to develop an economy to be able to solve the effects of the changing climate. In this case, there is an increasing demand on saving the security of food and energy costs and addressing the difficulty of resource scarcity (Chrysa et al, 2014).

1.6 Training Need (TN)

The process of identifying training needs affects the other training phases. Training needs contain input and output factors of the training process. The input factors contain available information and statistical analysis about the experience and qualifications of the agricultural extension workers as well as their knowledge, skills and attitudes. The organization, analysis operations include businesses and job interviews and notes,

etc. The output factors comprise the insufficiencies and weaknesses of extension officers' performance, problems facing the required training of personnel and the type of training required. The objective of evaluating training needs is to provide data on the position, skills and knowledge and limitations of individuals.

They identify training needs, dependent variable (DV) of the employees, it's important to develop the performance, competency, and capacity of the agents, as well as improve and increase the income to the farmer and production. The identification of training needs entails the collation of data on the current situation of the organization and the actual requirements for future development (Govil and Usha, 2014). Training requirements are based on primarily on the scientific measurement of the goals of an organization. The measurement of training needs is the best way to determine the requirements needed to improve knowledge, skills and experiences of workers in order to produce positive change in an organization. The lack of interest in scientifically measuring training needs will lead to poor results and negatively impact on organizational performance and training process in particular (Mohamed, 2010). The identification of the assessment of training needs should be given an important consideration (Erbaugh et al, 2007).

Therefore, this study focuses on the planning, implementation and evaluation of training programs, irrigation and drainage, fertilization, plant technical, management, animal husbandry, machines and equipment, plant protection, horticultural crops, insects and diseases, integrated pest management (IPM), extension philosophy and computers and ICT, extension method and extension marketing. These fields are considered dependent variables (DV) in the study. Analyzing these areas is of vital interest to the development of agricultural production and job performance. Training-related changes should result in improved job performance and other positive changes. Training not only may affect declarative knowledge or technical knowledge but also may enhance strategic knowledge, defined as knowing when to apply a specific knowledge or skill. The purpose of disseminating these experiences, new skills, and knowledge to farmers is also related to the kind of extension method that will be used (Rai and Shrestha, 2006; Schmidt; 2016).

This is a study of training needs of Iraqi extension personnel as perceived by a group of selected Iraqi agricultural extension workers, based on their evaluation of selected items or subject-matter areas from the study on employment characteristics of trained manpower in Iraqi agriculture of the sixteen (16) areas. These items or areas are considered to be necessary tools for the agents to know and able to apply to field situations when they are working with farmers. So that a relatively permanent change in behavior of these farmers can result as a product of their learning experiences.

1.7 Problem Statement

There are thousands of agricultural employees in Iraq working as agricultural extension workers, but not all of them have the essential skills, knowledge and experience. Thus, there is a dire need to identify the job areas in which AOs are less competent and require training. In recent years, agricultural extension workers have shown poor performance because they are mainly new employees and newcomers specialized in agricultural extension. Improving the knowledge and skills of agricultural extension workers can play a vital role in the success of the agricultural sector in Iraq. According to Seyyed and Seyed (2008), agricultural organizations need more skillful and experienced extension leaders and officers to ensure that it remains competitive and relevant.

Extension agents have been known to have inadequate information, knowledge, skill and experiences in agricultural extension methods (Elhamolya et al, 2014). The extension workers are also challenged by inefficiency and incompetence in planning, communication skills, controlling, dairy marketing and evaluation of agriculture program and activities (Khan et al, 2012). In addition, there are lacks of skilled Information and Communication Technology (ICT) personnel can also bring challenges (Rabogadi, 2017). Evidently, there is a little confidence between the leader and the agricultural farms while the agricultural counselors are not sufficiently able to deal with the farmers' problems (Bekele and Pillai, 2011).

Furthermore, few studies are available in the literature for the identification of training needs despite the increase in financial allocations for staff training (Salman et al, 2012). There are also a shortage of specialized training courses on skill and knowledge in IPM, plant diseases, animal skills and horticulture crop (Erbaugh et al, 2007). However, these studies have not related to the core competencies of extension workers to their job performance. The evaluation of the workers' competencies shows the constant interaction between group training, organizational and process technology. Because of the rapid changes in farmer experiences, agricultural information and knowledge, agricultural technologies and agricultural extension methods (Umar et al, 2017).

Thus, identifying training needs of structural and component in the training industry is an important process that needs to be given a high consideration. However, the difficulties in identifying training requirements can be attributed to the differences in the levels of the trainers' experience, skills and efficiency (Salman et al, 2012). Thus, targeting will be helpful in improving the effectiveness and efficiency of training. Identifying the difficulties and performance problems experienced by workers in the enterprise and determining the level of capacity required to perform the functions. Also, necessary to determine the training content and assessment criteria (Muhammad et al, 2007).

The less information, and experiences related to their contribution to the development of skills, technical and professional abilities required for the performance of their role (Vasudevan, 2014). The studies conducted in Iraq and other countries have shown the need for training extension workers in several areas Seyyed and Seyed (2008), Alibaygi and Zarafshaini, (2008), Madkour (2009), Dona (2010), Ovwigho (2011), Khan et al. (2011), Siti (2011), Khan et al (2012), (Elhamolya et al, 2014), Department of Forest Economics (2014), Saleh and Man (2017), Umar et al, (2017).

Some of these studies have examined the influence of human development skills and technical competencies on extension workers' job performance (Khan et al, 2011). In addition, poor skills, dismal performance, working conditions, business, job skills, communication skills and lack of courses are among the issues that confront administrators in the agriculture sector (Abbasi et al, 2011; Ovwigho, 2011). Meaning that the gap between "what is" performance now, inadequate information, skills, and knowledge and "what should be the goals of the training program" job performance (Randol and Larry, 1989) to consequence competence would be for using additional information if it were offered to them. In the previous example regarding the microcomputers, agents might think the topic is extremely important and their existing knowledge might be extremely low. However , if they currently did not have access to a microcomputer and their budgetary restraints would not allow them to purchase one in the near future, their opportunity to use in-service would be low. As a result, the need for in-service related to the topic would also be low (Randol and Larry, 1989).

This study intends to provide information that can be used to clarify the strengths and weaknesses of training programs, according to where, when and how the program is planned, evaluated and implemented. Furthermore, an increase in financial allocations is required for staff training especially among staff with weakness, lack of skills and poor performance (Al-Dulaimi, 2011).

1.8 Research Questions

This study will suggest some solutions to most problems related to training needs with knowledge gaps before and after training to minimize errors or arising issues and to avoid future training programs that are problematic. Consequently, this study was guided by the following research questions:

Q1. What are the Socio-Demographic characteristics of the respondents?
Q2. What is the level of training needs of the respondents in the areas of agricultural extension?
Q3. What are the differences between training needs and the following variables (provinces, the location of work, age, scientific specialization, marital status, a background of the family, experience in farming, gender, origin, and training?
Q4. What is the relationship between the training needs of respondents in agricultural extension work areas and socio-demographics factors and others variables (province, work location, age, gender, marital status, origin, education level,

background of family, experience in agricultural extension, training courses attended, experience in farming and the number of training courses)?

Q5. What are the significant differences in the training needs of the respondents as a reflection of the differences in the Organizational performance as specialization, information, job satisfaction, organizational characteristics, and experience?

1.9 Objective of the Study

1.9.1 General Objective

The general objective of this study is to examine the training needs of agricultural extension workers in various provinces in Iraq.

1.9.2 Specific Objectives

Specifically, the study objectives are:

1) To describe the socio-demographic characteristics of the respondents.
2) To identify the level of training needs of the respondents in the areas of agricultural extension.
3) To compare the differences between training needs and other variables (provinces, the location of work, scientific specialization, marital status, a background of the family, experience in farming, gender, origin, and training.
4) To determine the relationship between training needs of the respondents in agricultural extension work areas and socio-demographic factors and other variables (province, age, gender, marital status, origin, education level, experience in agricultural extension, background of family, location of work, training, experience in farming and the number of training courses attended).
5) To explore the existence of significant differences in the training needs of the respondents, according to the variables. (Organizational characteristics, sources of agricultural information, number of training courses, job satisfaction, experiences and scientific specialization).

1.10 Significance of the Study

One of the most important advantages of training needs is the development of performance, and factors that drive employee for continuity and stability in employment. This work focuses on the scope of training needs methods that could assist trainers and researchers to quantify and analyze the use of resources in farms and households to develop the method. Such methods could also enable users to consider the likely resource-use implication of the trainee in implementing the possible requirement of agricultural extension for the training. The results of the study could help extension policymakers to successfully execute their plans and ensure

effective design of future programs that are focused on the real needs of the trainees and learners.

Therefore, this study is important for the following considerations; it will be led by precise training objectives which play a significant role in avoiding some of the common mistakes, in order to provide information for the Ministry of Agriculture in Iraq for the in-service program, planning, implementation and workshops based on the actual agent's needs of training in agriculture extension present and future developments. In addition, the estimation of the training requirements will sufficiently help the trainers to design their programs that meet the needs of the trainee efficiently and accurately.

Also, the outcome of this study may contribute to the development of society by developing the agricultural extension services to become drivers of critical functions of the Gross Domestic Product (GDP). Accordingly, this will increase the involvement of the employees in discussing work-related matters and provide essential information in the development of the scheme. Considering the day after day of continuous development in the agricultural sector, as well as climate change, it is imperative to determine the required training requirement.

Moreover, the present study follows on the theory of cognitive domain that awarded a central role in the influential theory of career development. It would also fit with the notion of the interrelation of career choice and social background (Jones et al, 1993). In addition, the Borich Needs Assessment instrument is determined to be the best instrument to achieve the purposes of this study. The training needs (DV) with the theory of cognitive domain will give important results to develop and improve job performance that leads to the development of income and production. In summary, the purpose of this study is to answer the research question and research issues and thus contribute to the extant theory, model, and literature in this regard.

1.11 Definitions of Terms

This part describes some of the important terms (variables), concepts and issues as used in this study.

1) In-service Training

In-service training is a process of staff development for the purpose of improving the performance of an incumbent holding a position with assigned job responsibilities. The periodic training is given to the extension workers to improve and develop their knowledge and practical skills. The purpose is to keep the work update in the agricultural technology development. This can be administered in the form of on the spot training, conferences, workshops, seminars, etc. These kinds of training should

be held as regularly as possible so that new ideas and new technologies, skills, and knowledge can mainstream into the service.

2) Agricultural Office

That means all offices follow Ministry of Agriculture and a department in agricultural extension. Also, all offices that follow the Agricultural extension and training office in the capital city of Baghdad.

3) Extension Farm

That means each Office located outside the province, it is located in the village to be near the farmers, follow agricultural extension center. To train farmers to adopt new technology and modern techniques to increase production and also shows them the most modern technologies. These offices follow Agricultural Training Extension Center.

4) Knowledge

Knowledge means understanding and perception and learning of the things around us, and the knowledge associated with the event or factor aspect or specific problem based on data and information available to them. Therefore, that knowledge is directly connected with all of the data and information that provide access to knowledge.

5) Agriculture Officers (AOs)

That refers to the employees working in the Department of Agricultural Extension in Iraq who are posted as agricultural officers to conduct extension work, supervise field assistants at the center level.

6) Training

Training is one of the best management tools available when problem situation is people-centered; and when individuals have to change, learn new skills, replace incorrect habits and practices with new ones, modify attitudes and acquire additional knowledge. Training is the organizational effort and development plan aimed at facilitating the acquisition of skills related to employment and access to knowledge that helps to improve performance and achieving the organizational goals.

7) Training Needs

Those include all areas related to training needs, skills and knowledge, ability as well as efficiency. Moreover, they include performance-related, career development and human development of agricultural extension workers. In addition, include (16) sixteen areas in agricultural extension in this study, means output in the study.

8) Skills

Is the ability to act in a concrete, this as predefined objectives, reflect the total concepts acquired through (uses, activities, procedures). Refers to a crucial ability necessary for effective delivery based on openness and trust between two individuals, namely guide and the guided.

9) Organizational Performance

Comprises the actual input of the study of an organization as measured against its intended inputs (to achieve goals, and objectives). Which include all variables in independent variables in this study (organizational characteristics, job satisfaction, information, number of training courses, scientific specialization and experiences).

10) Organizational Characteristics

They mean that are aspects of organizations that can be identified, usually in relation to performance. This area includes four dimensions such as; work skills, communication skills, organization relation skills and leadership skills.

11) Job Satisfaction

Is defined as "an individual's reaction to the job experience". As long as the job gets done in the end. As well as, include three dimensions in this study that is; relationship with colleagues, financial and attitude.

1.12 Scope of the Study

This study is limited to (3) three provinces in Iraq. The major limitation of this study is the lack of previous studies and research related to the identification of training needs, particular studies on efficiency, organization skills and knowledge of agricultural extension. Moreover, the poor security situation in Iraq has prevented expansion of the study sample, thus limiting the study to only three provinces in central Iraq (Baghdad, Babylon and Wasit), while the fourth province is used for the pre-test questionnaire analysis. In addition, the scope of this study is limited to the outreach activities of agricultural extension workers. Extension services are

determined based on information recorded in the databases of the Directorates of Agriculture in each province and Agricultural Extension and Training Office responsible for orientation training.

Extension service employees who have no role in the programs and outreach activities of the agricultural extension will be excluded. Time limits of this study is the period of time that the study tools are applied, which is from (2014 to 2017). In addition, the scope of the study will include the areas important for the acquiring the skills and knowledge that will be in model Borich' so this model suitable to inform the employees need training in any area. Therefore, should incorporate model Borich in this study. Furthermore, this study will be found if any socio-demographic factors effect on needed training, so this study gives a clear picture on identifying training needs to the employees and organization for good planning in the future. It's an interesting and innovative study which contributes to the existing knowledge.

1.13 Thesis Organization

This study consists of five chapters covering the different areas of the study. The introduction in Chapter 1 gives a knowledge of Iraqi agricultural extension and extension systems, as well as a clear picture of the issues involved in the study. The section contains the introduction, training needs, problem statement, objectives of the study, research questions, definition of terms and scope of the study and significance of the study. Chapter 2 summarizes the previous literature on agricultural extension and the competency of agricultural extension agents, training needs and theory on training, competency and training needs, as well as previous studies on attitude and value chain, training needs analysis and types of analyses.

The methodology adopted in this study is presented in detail in Chapter 3, and it discusses the research design, including questionnaire as the instrument of the study, details about the location of study, population and sample method, the data collection technique, the validity and reliability of the instrument, Borich needs assessment model; and the analysis conducted for the study. Chapter 4 summarizes the results and analysis with a discussion of the results of this study, while Chapter 5 includes the summary, discusses the conclusion and provides recommendations for future research.

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