CHAPTER 3
METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the research procedure and, more specifically, the methodological approach employed in data gathering and analysis. It begins with the choice and description of the study area, followed by the sampling procedure, the design of the questionnaire and its administration, including the definition of variables. Finally, the statistical techniques used in the analysis of the data are described.

3.2 THE STUDY AREA

The study was conducted in Oromia Regional State, Ethiopia. The Oromia region was selected mainly for reasons of cost saving (proximity to Haramaya University) and because it is representative of most of the country's agro-ecological climate zones (such as high, middle and low altitudes) and all main types of agricultural enterprises.

Ethiopia is administratively sub-divided into nine regional states and two autonomous city administrations, Addis Ababa and Dire-Dawa (Figure 3.1). Oromia is the largest state in terms of both land area (353,006.81 km² which accounts for almost 32% of the country) and population size (with a total population of 27,158,471, which is 36.7 percent of the country) (CSA, 2007). Over 90 percent of the people of Oromia live in the rural area, and agriculture has remained the source of livelihood for the overwhelming majority of the people.

Oromia contributes significantly to the agricultural production of the country. Specifically, Oromia accounts for 51.2% of the crop production, 45.1% of the area under temporary crops and 45% of the total livestock population of Ethiopia. In general,

Oromia reflects many general features of Ethiopia, in terms of the agro-ecological conditions, cropping systems, vegetation types and climatic conditions.

The climatic types prevailing in the region are grouped into 3 major categories: the dry climate, tropical rainy climate and temperate rainy climate. The dry climate is characterized by poor, sparse vegetation, with a mean annual temperature of 27°C to 39°C, and a mean annual rainfall of less than 450 mm. The hot semi-arid climate mean annual temperature varies between 18°C and 27°C. It has a mean annual rainfall of 410-820 mm with noticeable variability from year to year. The highlands of Oromia experience a temperate climate of moderate temperature, (mean temperature of the coolest month is less than 18^{o}c) and ample precipitation (1200-2000mm).

At the time of survey, the region consists of 14 administrative zones. Addis Ababa is the capital city of Oromia, as well as of Ethiopia. Five of the 14 zones (Namely: Jimma, Arsi, Borena, South West Shewa and East Shewa zones, Fig. 3.1) were selected for this study, representing various categories of agro-climatic zones and types of agricultural enterprises of the region.

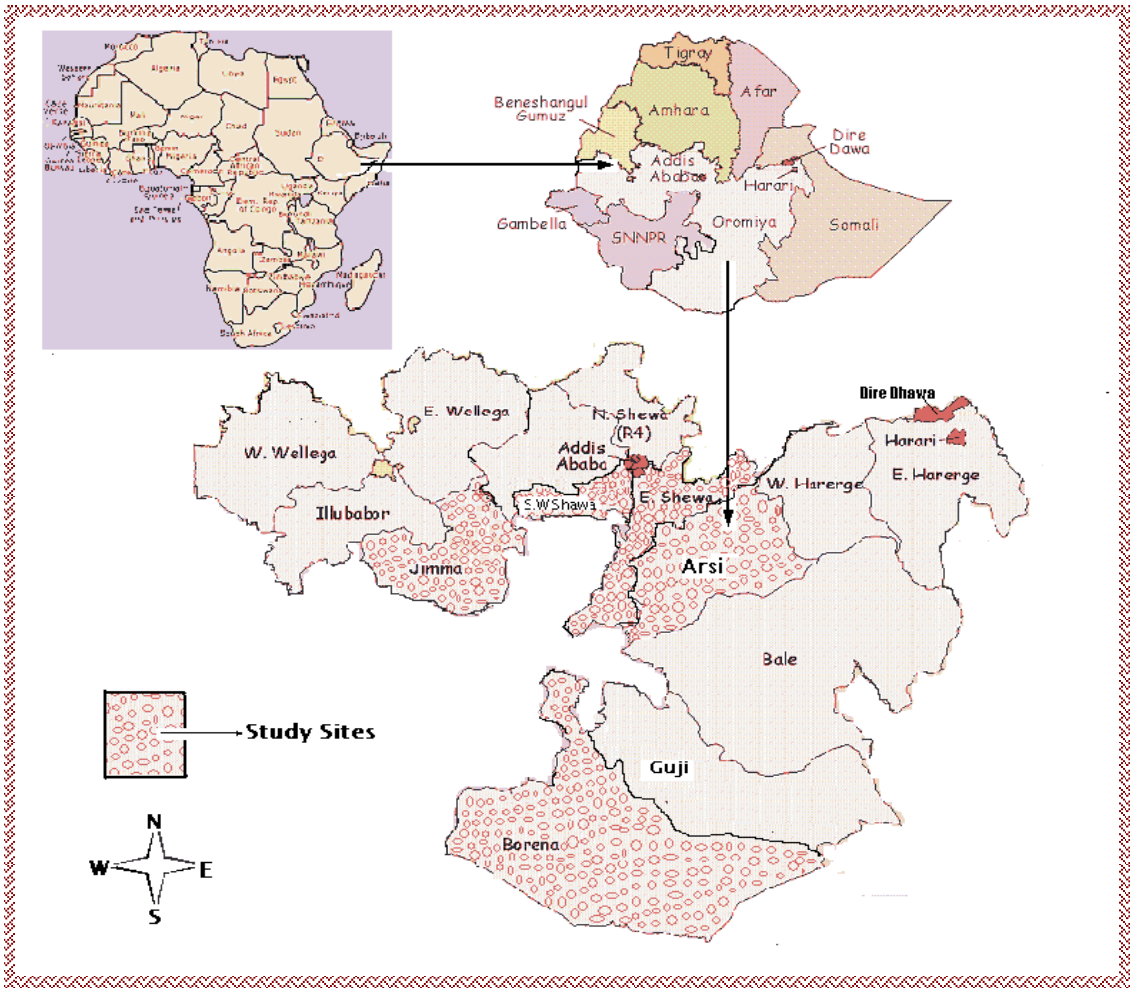

Figure 3.1 Location of the study areas

3.2.1 Jimma zone

Jimma zone is one of the four (East and West Wallega, Ilu Ababor and Hararghe zones) major coffee producing zones in the region and selected randomly to represent the coffee enterprise and reliable moisture agro-ecological zone. The zone's capital town, also known as Jimma, is located about 347 Km to the southwest of Addis Ababa. The zone has a total population of 2 495 795, of which 94.3 percent is living in the rural area. Jimma is a highland and a moisture reliable zone, known as the coffee producing area of the region. The area receives an annual rainfall in the range of 1,200-2,800 mm per

annum, and in normal years the rainy season extends from February to November. The area is suitable for growing coffee, cereals, pulses, root and fruit crops. Despite considerable deforestation in recent years, 27% of the total area of Jimma Zone remains forested (natural, artificial, shrubs and bushes).

It is reported (CSA, 2005) that 26,743 tons of coffee were produced in this zone in the year ending in 2005. This represents 23.2% of the region's output and 11.8% of Ethiopia's total output, and makes Jimma the top producer of coffee in the region.

3.2.2 Arsi Zone

Arsi zone was randomly selected from mainly cereal producing zones. It has a total population of 2 635 515, and an estimated area of 23,724.44 square kilometres. The zone has an estimated population density of 132.17 people per square kilometer (CSA, 2007). About 88 percent of the zone's population are rural dwellers. Its capital town is called Asela, 175 kilometres from Addis Ababa.

The zone has good agricultural land and a long rainy season. Arsi is mainly known for the production of wheat and barley. The beautiful landscape of lakes and mountains has attracted the introduction of agricultural technologies in the area since the 1960s. The zone is one of the first two areas in Ethiopia where, for the first time, agricultural extension projects began, as a pilot project with financial and skilled manpower support from the Swedish Government through the Swedish International Development Agency (SIDA) in 1967. The project was known as Chilalo Agricultural Development Unit (CADU). At that time Arsi province was administratively divided into three sub-provinces (Chilalo, Arbagugu and Ticho) called Awraja. Awraja was an administrative structure found between the district and the province.

Later, the CADU project was expanded to the whole province of Arsi by changing its name to Arsi Rural Development Unit (ARDU). The Arsi Bale project is still active in the area, supporting agricultural and rural development activities.

As a result of the prevalence of various agricultural and rural development projects over long periods of time in Arsi zone, various agricultural development-supporting institutions came into being. The names of some of these institutions and their focus of activities are as follows: Kulumsa Agricultural Research Centre, National Coordinating Centre for Wheat Commodity Research; Asella Rural Technology Centre (focused on the development, modification and multiplication of small scale farm implements); Gonde Seed Improvement and Multiplication Centre; and Gobe Improved Dairy Farm Centre.

3.2.3 Borena Zone

Borena is located in the far south of Ethiopia, bordering Kenya, about 800 km from Addis Ababa. The zone is selected to represent the pastoral and agro-pastoral extension area of the region. It has an estimated rural population of 966 467 with 91.2% living in rural areas. Borena is one of the less densely populated zones in Oromia with an estimated population density of 21.09 people per square kilometre (CSA, 2005). This zone was selected by the Ministry of Agriculture and Rural Development in 2004 as one of several areas for voluntary resettlement of farmers from overpopulated areas, and, since then became the new home for a total of 9145 heads of households and 45,725 total family members.

Borena zone is predominantly a pastoral and agro-pastoral area characterized by extensive traditional mobile livestock management systems on semi-arid rangelands with unreliable cropping activity to supplement livestock husbandry. The mobility is the strategy through which the pastoralists mitigate the adverse effects of climate, feed and water shortage and disease prevalence.

Recently, however, herd diversification, to include more goats and camels, is being pursued as an insurance measure to mitigate vulnerability to drought. Livestock exports from the zone normally contribute substantially to national foreign exchange earnings.

The area provides high quality animals to the highland areas for traction power and as a genetic base for inter-breeding.

Borena is also well known for having some of the finest grazing land in Africa and for their cattle breeds that are hardy and possess good productivity characteristics. Until a few decades ago, the southern Borena rangelands, in fact, had the reputation for being a model of traditional African pastoralism.

The Southern Rangelands Development Unit (SORDU) is the most widely known and one of the more effective development projects in the area. Under the auspices of SORDU, infrastructural works such as roads and ponds were constructed, and improvement in veterinary health achieved.

3.2.4 East and South West Shewa Zones

These zones take their name from the kingdom and former province of Shewa and they are located in the middle of Oromia, connecting the western regions to the eastern ones. They represent the central part of the region, around the capital city of the country, Addis Ababa.

East Shewa zone is a moisture unreliable agro-climatic area and is found to the east of Addis Ababa. It has a total population of 1 357 522, of which only 75 percent are rural dwellers, representing the lowest percentage of rural dwellers in the Oromia Regional state. The South West Shewa zone is reasonably moisture reliable and is located about 114 km south west of Addis Ababa (Figure 3.1).

Both of the zones are mainly known for the production of teff. Teff is one of the smallest grains in the world (associated with common grass in other parts of the world), measuring only about 1/32 of an inch in diameter, from which an Injera is made. Injera is unique to Ethiopia, and is used as staple food.

These zones were also supported by different projects such as T&V extension projects, supported by the World Bank, later by the European Economic Commission (EEC).

East Shewa is the centre for many institutions, due to its location advantage, namely its proximity to the capital city of the country. These institutions include, amongst others, Debra-zait Research Centre (national coordinator of teff commodity research), Malkasa Research Centre (national coordinator of sorghum research) and Kality Artificial Insemination Centre.

3.3 SAMPLING PROCEDURES

The samples were drawn from all levels of managerial positions and administrative structures, throughout the hierarchies of the public extension organization in Ethiopia. As it is not realistic to deal with the whole population, multistage sampling procedures were employed.

At the first stage, using purposive sampling, the Oromia region was selected mainly for reasons of cost saving (proximity to Haramaya University) and because it is representative of most of the country's agro-ecological climate zones (such as high, middle and low altitudes) and all main types of agricultural enterprises (MOIPAD, 2001; MOFED, 2005).

At the second stage, in order to select the five zones out of 14 zones of the Oromia region, a stratified sample design was implemented.

According to Cooper & Schindler (2003), if the population can be segregated into subpopulations, or strata, stratification is usually more efficient statistically than simple random sampling, and, at worse, it is equal to it. Two things are necessary to draw a stratified random sample: firstly, the various strata should be identified according to one or more variables; secondly, a random sample should be drawn from each separate stratum (Welman & Kruger, 1999; Finn et al., 2000). In this way a representative sample

can be obtained from a population with clearly distinguishable strata with a greater degree of certainly than is possible with simple random sampling.

In Oromia, the extension delivery systems are strategically divided into five broad categories in order to align the contents of extension packages with the features of dominant agro-ecological zones and agricultural enterprises in the country (MoA, 1996; MoA, 2006). The major agricultural enterprises include: perennial cash crops (such as coffee) and annual crops (such as wheat, barley, maize, sorghum, and teff). The enterprises or commodities strongly influence the extension focus as well as the focus of the research centres and the establishment and locality of commodity coordination head quarters. Accordingly, the 14 administrative zones in the region were stratified under five categories. Using random sampling, one zone was picked from each stratum.

All extension personnel from each zone as well as extension specialists working at region and national headquarters were invited to participate and received questionnaires. Of the total of 566 who were invited 353 (162 managers and 191 non-managers) correctly completed and returned their questionnaires, which represents a response rate of 62.4 percent (Table 3.1).

Table 3.1 The distribution of respondents according to their work location area

Respondents categories	Dominant Agro –climatic zone	Dominant Enterprise represented	Total numbers of respondents
Jimma	Moisture reliable	Coffee	106
Arsi	Moisture reliable	Wheat & barely	113
South West Shewa	Moisture reliable	Teff	39
Borena	Pastoralist	Livestock	43
East Shewa	Moisture unreliable	Teff, Maize & sorghum	33
Region level	Not applicable	Not applicable	7
National level	Not applicable	Not applicable	12
Total	-	-	353

The smallest response rates were from East and South West Shewa zones. These zones had previously participated in several surveys and had received payments in return for the

completed questionnaires. As there was no budget for respondents in this study, some of them were disappointed, and refused to return the questionnaires unless they were paid. In addition, at the time of the survey, these zones' extension workers were terribly busy and everybody was forced to leave the office for field work to visit farmers.

However, in the case of the Arsi and Jimma zones, a large number of extension staff participated, and their response rates are also high. The reason for this high response rate was that Arsi is the birth place of the researcher, and he also worked for the agricultural office of the zone for more than five years. In the case of the Jimma zone, the time of data collection coincided with the slack season so that many of the extension workers were available in office and able to attend the group interview meetings.

3.4 INSTRUMENTATION AND ITS ADMINISTRATION

3.4.1 Instrumentation

The process of data collection passed through various stages. The research began with a reconnaissance survey aimed at identifying the biggest or most urgent problem, the sources of relevant secondary data, and consultation of knowledgeable senior extension experts and managers.

Following the reconnaissance survey and subsequent problem conceptualization, a semi-structured interview schedule was drafted, using mainly 10-point semantic scales for assessment purposes. Some open-ended questions were also included to tap unexplored individual views of the respondents on some topic areas.

Questionnaire validation was accomplished by thorough discussion with researchers and subject matter specialists working in extension. This was followed by the pre-testing of the interview schedules.

The pre-test was conducted in the Sidama zone of an adjacent region the State of the Southern Nations, Nationalities and Peoples (SNNP) with features similar to Oromia regional state. It was found that some concepts were not clear to respondents and the questionnaire was somewhat long and took more than two hours to complete. All the necessary adjustments and corrections were made, and the corrected final version of the interview schedule appears in Appendix A.

3.4.2 Administration

Using the pre-tested and validated semi-structured interview schedule, the interviews were conducted in group sessions at various venues (such as at each district, zone, region and national offices level).

Use was made of one coordinator within each zone, who was assigned by the head of the zone agricultural and rural development office, and was selected on the basis of his/her knowledge of the zone, the localities of the districts and the personnel in the districts. The zone coordinators served a useful purpose in introducing the researcher to district officials and in organising the group interview sessions.

All group interviews were conducted by the researcher in such a way that every participant was given a questionnaire for completion. Using an overhead projector, the researcher facilitated the interview by providing the necessary background reasoning and explanation and pointing out the pros and cons and also the implications of many of the alternatives within the principles. During interviews, group interaction was only allowed when it contributed to the general understanding of the questions and interpretation of the scales, but care was taken that everyone ultimately gave his/her own view.

Although the necessary care was taken during the group interview sessions to ensure that respondents understood the issues and knew how to fill in the information, some missing values and misunderstandings were observed in the completed questionnaires. As a

result, a lot of time was spent in controlling and cleansing the data during and after capturing on computer (spread sheets).

3.5 VARIABLES AND THEIR MEASUREMENT

An overview of the variables included in the study is presented in Table 3.2 and 3.3.
Since this study is very comprehensive in terms of the coverage of various aspects of management of extension organizations, a large number of variables were identified, based on an extensive literature review. As a result, only a brief description is given here, but more detailed information is provided when the results pertaining to the respective variables are discussed (Chapters 4-11).

Table 3.2 An overview of the selected independent variables, description of their measures and their mean distributions

Variable name	Description	Measurement
1. Personal characteristics		
Job position	The respondent's work position at the time of data collection	Values 1-4 (1=non-manager; 2=first level manager; 3=middle level manager; 4=top level manager)
Age	The respondent's age at the time of data collection	Measured on a continuous scale
Gender	Refers to the sex of respondent	Dummy: Female=1,Male=2
Marital status	The respondent's marital status at the time of data collection	Values 1-3 (1=Never ;2=married; 3=separated)
Formal education	The level of formal schooling the respondent has completed at the time of data collection	Values 1-8 (1=high school; 2=certificate; 3=diploma; 4=BSC degree; 5=MSC; 6=PhD)
In-service training in extension	Whether or not the respondent has attended in-service training in extension	Dummy: yes=1, No=2
In-service training in management	Whether or not the respondent has attended in-service training in management	Dummy: yes=1, No=2
Total service	Number of years served in the extension organization at the time of data collection	Number of years served
Service in management position	Number of years the respondent served in managerial positions at the time of data collection	Number of years served
Service in current job position	Number of years the respondent served in current work position	Number of years served
Salary	Amount of money earned per month in local currency at the time of data collection	Amount in local currency (Birr)
2. Organizational (internal) factors		
(a) Organization's resources		
Extension teaching aids	Availability of extension teaching materials and equipment	Scale 1-15 (1=altogether insufficient; 10=sufficient; 15=much more than sufficient)
Offices and accommodations facilities	Availability of housing facilities and equipment for offices and accommodation	Scale 1-15 (1=altogether insufficient; 10=sufficient; 15=much more than sufficient)
Transportation	Availability of vehicles, cycles, draft animals etc	Scale 1-15 (1=altogether insufficient; 10=sufficient; 15=much more than sufficient)
Finance	Availability of money for fuel, per diem and other allowances	Scale 1-15 (1=altogether insufficient; 10=sufficient; 15=much more than sufficient)
Manpower	Availability of well trained and experienced manpower in their respective fields	Scale 1-15 (1=altogether insufficient; 10=sufficient; 15=much more than sufficient)
3.Environmental factors		
3.1Task environment		
Coordination between institutions	Coordination between stakeholder organizations in confronting common problems & finding synergistic solutions	Scale 0-10 points (0=very poor; 10=very good)
New agricultural technologies	Availability of improved agricultural production,/cultural practices and new ideas to be communicated to farmers	Scale 1-15 (1=altogether insufficient; 10=sufficient; 15=much more than sufficient)
Agricultural credit and inputs for smallholder farmers	Availability and affordability of agricultural credit and inputs for smallholder farmers	Scale 0-10 points (0=very poor; 10=very good)
Farmers' willingness	Farmers' willingness to participate in training, meetings and try improved agricultural innovations	Scale 1-15 (1=altogether unfavourable; 10=favourable; 15=much more than favourable)
3.2 General environment		
Government policies and regulations	Favourableness of Government policies and regulations	Scale 1-15 (1=altogether unfavourable; 10=favourable; 15=much more than favourable)
Land tenure policy	Favourableness of land tenure policy	Scale 0-10 points (0=very poor; 10=very good)
Agro-ecological factors	Favourableness of agro-ecological factors	Scale 1-15 (1=altogether unfavourable; 10=favourable; 15=much more than favourable)
Political factors	Favorableness of political forces or factors	Scale 1-15 (1=altogether unfavourable; 10=favourable; 15=much more than favourable)

Table 3.3 An overview of dependent variables: definition and description of their measures

Variable name	Measurement and description	Measurement	Cron-bach's Alpha
1. Organizational efficiency measures			
(a) Operating measures	Refers to tasks & activities related to organizational operative goals		.579
Extension effectiveness	Effectiveness of extension delivery in terms of both quantity (target farmers reached by services) and quality (impact of extension messages on target farmers) of services	Scale 0-10 points (0=very poor; 10=very good)	
Functional efficiency	Functional efficiency in current work position or post	Scale 0-10 points	
Return on investment in extension*	Input-output ratio of investment in extension expressed as a return per 100 Birr invested in extension in Oromia Bureau of Agriculture and Rural Development	Percent return per 100 Birr invested	
Underefficiency	The percentage of their current work time the respondent would require to achieve what they are currently doing, assuming that they were highly competent, productive and efficient	Percent (0-100)	
Total operating efficiency measures	Total weighted average (adding variables and then dividing by the number of items) of all operating efficiency measures	Scale 0-10 points	
(b) Process measures	Refers to level of consensus on goals/ procedures, cooperation and smooth flow of work, ideas and information	Scale 0-10 points	
Resource use	effective utilization of resources - manpower, time, finance and materials - to achieve organizational goals	Scale 0-10 points	
Coordination	Coordination among departments and between stakeholder organizations in confronting common problems and finding synergistic solutions	Scale 0-10 points	
Communication	Communication and openness between workers/ managers and between organization's managerial hierarchies	Scale 0-10 points	
Participation	involvement of subordinates or workers in decisions that affect them	Scale 0-10 points	
Total process efficiency measures	Total weighted average (adding variables and then dividing by the number of items) all process efficiency measures	Scale 0-10 points	
(b) Organizational health	Refers to human outcomes and interpersonal relations		0.88
Job satisfaction	Satisfaction with: the job itself (the extent to which it provides interesting tasks, opportunities for learning and the chances to accept responsibilities), the pay (the amount & equitability vis-à-vis other organizations), and the supervision (the ability of the supervisor to provide technical assistance and behavioural support)	Scale 0-10 points (0=very poor; 10=very good)	
Work climate	trust and support among workers and between subordinates and managers	Scale 0-10 points	
Motivation	Achievement recognition, workers' involvement in decision making that affects them and justice in workers' placement, transfer and promotion	Scale 0-10 points (0=very poor; 10=very good)	
Total, health	Total weighted average (adding the three variables of organizational health and then dividing by 3) organizational health efficiency	Scale 0-10 points	
Grand total	Total weighted average (adding all variables of organizational output variables and then dividing by the numbers of items) of all aspects of organizational efficiency	Scale 0-10 points (0=very poor; 10=very good)	
(c) Input-output ratio in different situations	Average efficiency expressed as a return per 100 Birr invested:		.775
Own section efficiency	in respondent's specific work area (department or section) within district/zone	Percent return per 100 Birr invested	
Respondent's own work location	in respondent's specific location in the organizational hierarchy (PA, District or zone or Region)	Percent return per 100 Birr invested	
Smallholder farming	in the smallholders farming situation in Ethiopia	Percent return per 100 Birr invested	
Commercial farming	in the commercial farming situation in Ethiopia	Percent return per 100 Birr invested	

3.6 METHODS OF DATA ANALYSIS

After capturing of the data, using the SPSS spreadsheet, frequency distributions were used to identify errors made during the completion of the questionnaire or in the subsequent capturing onto spreadsheets. Some of the modifications regarding the collapse or creation of new variables were also done at this stage.

The statistical package for the social science (SPSS) programme was used for the analysis of the data in the study. The principal procedures employed and the statistical techniques used for data analysis were the following:

(a) Factor analysis: this was the first analysis conducted to test or check the role of each item in a group of variables, to measure certain concept(s) in terms of their level of reliability, consistency and loadings. This is useful for data reduction. The principal component analysis, factor extraction and factor rotation of factor analysis techniques were used.

(b) Frequency distribution together with the use of graphic displays, tables and charts to illustrate data and facilitate analysis

(c) Comparing groups: Chi square (χ^2) test, t-test and one way analysis of variance (ANOVA) were used to test significance of the differences between two or more independent groups or categories.

(d) Exploring relationships: This was achieved by using correlation analyses, while multiple regressions were used to assess the contributions of independent variables on the dependent variables.

CHAPTER 4
SOCIO-ECONOMIC PROFILE

4.1 INTRODUCTION

The socio-economic characteristics of employees are important in order to understand who they are, and the effect of their individual differences on organizational performance as a whole (Cummings & Worley, 2001). According to Gibson, *et al.,* (2000), the level of individual and/or organizational performance of an institution can be determined by the nature of its people (e.g. their perception, motivation, desire for involvement and value of the person). To be successful in matching a person's abilities and skills to the job, a manager must examine required and possessed behaviours. This chapter tries to describe the socio-economic characteristics of employees of some selected zones of the Oromia Bureau of Agriculture and Rural Development (OBARD). The respondents' socio-economic characteristics considered are: job position, gender, age, marital status, location of work area, formal education, qualification in extension, qualification in management, work experience and salary.

4.2 MANAGERIAL POSITIONS

There are three distinct but overlapping levels of management positions in extension, each having a different emphasis (Buford, et al., 1995:7). They are first, middle and top levels. *First-level managers* – are described as those people who are responsible for managing agents, specialists, program assistances clerical personnel, and other non-managing staff**;** *middle level managers* – those people are primarily charged with integrating the activities of different work groups, enabling them to operate harmoniously and cope with the demands made upon them; *top level managers* – the people responsible for determining the form of an extension service and define its over-all approach, such as mission and goals of extension services (Buford, et al., 1995:7).

In this study, the respondents are categorized into four job positions (the three managerial levels and non-manager extension workers). *(1) Top level managers, which* include federal, regional or deputy heads of service departments, namely planning, administration, finance); *(2) Middle level managers.* These include federal or regional level department heads, district office heads or coordinators etc); *(3) First level managers* represent a team of section or project leaders at all levels); and *(4) Non-managers or operational level* workers (all non-managers at all levels). Distribution of the respondents according to their job position is presented in Table 4.1

Table 4.1 Distribution of respondents according to their job position (N=353)

JOB POSITION CATEGORY	N	%
Non- managers	191	54.1
First level managers	94	26.6
Middle level managers	60	17.0
Top level managers	8	2.3
Total	353	100.0

Respondents are from all levels of management in the organizational hierarchy. According to Table 4.1, the majority (54.1 percent) are operational level extension workers. Top level managers are only 2.3 percent of total respondents. The reason for such distribution could be partially due to decentralization in 2002 when the majority of extension workers were deployed from regional and zone level to district level.

4.3 GENDER

Although there have been debates about male and female differences in terms of job performance, there are no compelling data suggesting that men or women are better job performers (Gibson, *et al*., 2000). However, currently issues regarding gender are shifting towards the extent of involvement and empowerment of women in terms of education, employment opportunities and holding key management positions. The focus in this study is on gender ratio, which is summarized in Table 4.2.

Table 4.2 Distributions of respondents by gender (353)

Gender	N	%
Female	54	15.3
Male	299	84.7
Total	353	100.0

The results in Table 4.2 reveal that the majority (84.7 percent) of respondents are male. The ratio of male to female is wider than that of total public employees of the Oromia region (73.22%: 26.78%). These results could imply that the extension profession is more attractive to males than females in the Ethiopian situation. There are various reasons for smaller numbers of females in extension (15.3%), such as gender imbalance in higher level education. For example, according to the CSA 2007 report, the total number of students enrolled for the year 2005/06 in high school grades 11-12 were male 69 397 female 25 771 and in universities/ colleges male 70 388 and female 21 267. Another contributing factor may be the challenging physical nature of fieldwork (frequent travelling to rural areas to meet farmers). The relationship between respondents' job position and gender is presented in Table 4.3.

Table 4.3 Percentage distribution of respondents according to gender and job position

	Gender categories			Level of association
Job position categories	Female (n=54)	Male (n=299)	Total (N=353)	
Non-managers (n=191)	23.0	77.0	100.0	χ^2=20.24;df=3; p=.000
First level managers (n=94)	8.5	91.5	100.0	
Middle level managers (n=60)	3.3	96.7	100	r=-.230; p=.000
Top level managers (n=8)	.0	100	100	
Total (N=353)	15.3	84.7	100.0	

Results in Table 4.3 show that gender is significantly associated with the job position of the respondents (χ^2 =20.244; df = 3; p=0.000). The proportion of females in various positions shows a linear decrease with higher management position. For example 23 percent of non-managers are females, while this percentage falls to 3.3 % in the case of middle level managers and nil in the case of senior managers.

4.4 AGE

According to the Federal Civil Servants Proclamation No.262/2002 of the Federal Democratic Republic of Ethiopia, the eligibility age to become a civil servant is between 18 – 55 years. The retirement age is 55 years. However, the service of a permanent civil servant may be extended beyond his/her retirement age for a period up to five years at a time and for a period not exceeding ten years in total. The age distribution of the respondents is shown in Table 4.4.

Table 4.4 Distribution of respondents by age (N=353)

Age categories	N	%
≤ 30	74	21.0
31 – 40	131	37.1
41 – 50	116	32.9
51 – 55	30	8.4
>55	2	0.6
Total	353	100.0

Mean = 39. Standard Deviation = 8.31. Min = 20. Max = 57.

The respondents range in age from 20 years to 57 years (Table 4.4). More than half (58.1%) of the respondents are below the age of 40 years. Only 2 respondents are above 55 years old, which could be due to the extension of service years after retirement. These findings indicate that the majority of respondents are in age categories frequently described as active and energetic.

A further analysis examines whether there is a relationship between job positions, gender and age of respondents. The results are summarized in Table 4.5.

Table 4.5 Percentage distribution of respondents according to age and according to managerial position and gender (N=353)

Categories	Percentage distribution per age category				Level of association
	≤30	31-40	≥41	Total	
Managerial Positions					
Non-managers	24.1	30.4	45.5	100	r=.09; p=.09
First level managers	9.6	36.2	54.3	100	
Middle level managers	8.3	43.3	48.3	100	
Top level managers	12.5	25.0	62.5	100	
Gender					
Female	22.2	33.3	44.4	100	r=.055;p=.302
Male	16.4	34.1	49.5	100	
Total	17.3	34.0	48.7	100	

Results in Table 4.5 show the relationship between age and managerial position. This relationship is only significant at a probability of 9 percent (r=0.09; p=.09) and can be attributed to the fact that the different levels of managers have similar age distributions, but differ very clearly from the non-managers. Conspicuous is the relative old age of first level managers. This could be an indication that experience is not the primary criterion in the selection or promotion of managers and should be welcomed if the criterion is competence and not political affiliation or nepotism. As far as gender is concerned, no significant association with age is found (r=.06; p=. 30).

4.5 MARITAL STATUS

The results of an analysis of the marital status of respondents are presented in Table 4.6.

Table 4.6 Distribution of respondents by marital status (n=353)

Marital status	N	%
Never married	62	17.6
Married	279	79.0
Separated/divorced	7	2.0
Widowed	5	1.4
Total	353	100.0

Table 4.6 reveals that the largest proportion of the respondents (79%) is married. In Ethiopia, religious as well as cultural influences on the promotion, establishment and support or maintenance of marriage are very strong, so that divorce or separation rarely happens (2%). These social institutions support and maintain marriage in terms of request for legalization of marriage in terms of weddings and related processes; teaching both partners about the importance of patience, commitment, and compromise in marriage during and after legalization processes; and availability of systems regarding conflict resolutions. Divorce is the last option and very stressful for both parties, especially when they have children.

Table 4.7 Percentage distribution of respondents according to their marital status and categories of managerial position, gender and age (N=353)

Categories	Marital status categories				Level of association
	Never married	Married	Separated/ divorced/ widowed	Total (N=353)	
Managerial position					
Non-managers	19.9	77.0	3.1	100.0	χ^2=4.609; df=8; p=.867
First level managers	14.9	79.8	5.3	100.0	
Middle level managers	13.3	85.0	1.7	100.0	
Top level managers	25.0	75.0	.0	100.0	
Total	17.6	79.0	3.4	100.0	
Gender					
Female (n=54)	22.2	70.4	7.4	100	χ^2=4.406; df=2; p=.110
Male (n=299)	16.7	80.6	2.7	100	r=-.01; p=.79
Total (n=353)	17.6	79.0	3.4	100	
Age					
≤30 (n=61)	63.9	36.1	.0	100	χ^2=12.237; df=4; p=.00
31-40 (n=120)	15.0	82.5	2.5	100	r=.47; p=.00
≥ 40 (n=172)	2.9	91.9	5.2	100	
Total (353)	17.6	79.0	3.4	100	

Of all the variables tested, only age shows a significant relationship with marital status. The number of unmarried respondents decreases significantly after 40 years, while the number of married respondents clearly increases with increasing age (χ^2=12.237; df=4; p=.00), which is in accordance with expectations.

4.6 LOCATION

The physical or geographical location of respondents can vary in many aspects, for example in terms of suitability of climate, and level of basic infrastructure development, etc. These variations may influence the type of employees attracted. In this study, location of respondents is defined as the place of work, expressed in terms of the country's current government administrative or political structure. According to the constitution of the Federal Democratic Republic of Ethiopia Proclamation No. 1/1995 article 47, Ethiopia consists of nine member states, which were delimitated on the basis of the settlement patterns, language, identity and consent of the people concerned. Ethiopia is administratively structured into five levels. These levels include (in descending order): national or federal, region, zone, district, and peasant association levels. Peasant associations (PAs) are the lowest grass root level government structure.

Respondents' distribution according to overall vertical structure is presented in Table 4.8.

Table 4.8 Distribution of respondents according to organizational level of employment (N=353)

Level of employment	N	%
Peasant association level workers	26	7.4
District level workers	292	82.7
Zone level workers	16	4.5
Region level workers	7	2.0
National level workers	12	3.4
Total	353	100.0

Respondents are from all levels of organizational structure; from grass root level to top nation level headquarter (Table 4.8). Most (82.7%) of the respondents are from district level. The two extremes, the lowest and top structures, comprise only 7.4 and 5.4 percent respectively of the total respondents.

A further analysis regarding horizontal structural differences between respondents from different zones in terms of their gender, age, and marital status is presented in Table 4.9.

Table 4.9 Percentage distribution of respondents in different zones according to gender, age, and marital status (N=334)

Categories	Percentage distribution per zone categories						χ^2 Value	P
	Jimma (N=106)	Arsi (N=113)	South West Shewa (N=39)	Borena (N=43)	East Shewa (N=33)	Total (N=334)		
Gender								
Female	11.3	15.9	15.4	16.3	27.3	15.6	4.923	.295
Male	88.7	84.1	84.6	83.7	72.7	84.4		
Total	100.0	100.0	100.0	100.0	100.0	100.0		
Age								
≤30	12.3	17.7	17.9	37.2	12.1	18.0	35.688	.000
31-39	43.4	23.9	41.0	48.8	27.3	35.6		
≥ 40	44.3	58.4	41.0	14.0	60.6	46.4		
Total	100.0	100.0	100.0	100.0	100.0	100.0		
Marital Status								
Not married	13.2	14.2	17.9	39.5	15.2	17.7	29.244	.004
Married	83.0	83.2	82.1	55.8	75.8	78.7		
Single/Divorced/ widowed	3.8	2.6	0.0	4.7	9.1	3.6		
Total	100.0	100.0	100.0	100.0	100.0	100.0		

The findings in Table 4.9 show that zones are different in terms of the identified respondents' socio-economic variables (gender, age, and marital status).

For example, the Borena zone is composed of younger workers with 37.2 percent of total respondents below the age of 31 years; while, for East Shewa, 60.6 percent of its respondents are in the age category of 40 and above. Such age distribution differences could be due to the manpower placement or transfer policy of the Bureau of Agriculture before decentralization with regard to distances from the centre of the country or the town. For example, East Shewa zone is found around Addis Ababa city, while Borena is about 800 km to the south of the Addis Ababa bordering with Kenya. According to previous organizational policies, the transfer of employees to the centre of the country is based on the number of years served or as a reward for outstanding performance, provided that there is an application for transfer.

On the other hand, Jima and South West Shewa were dominated by middle- aged groups (31-40). In the Arsi zone, workers are relatively equally distributed over all age categories. There is no statistically significant difference between the zones regarding gender (χ^2 =5.347; d.f=5; p=0.375).

4.7 FORMAL EDUCATION

Human resource development through tertiary level education is important for a successful social and economic development process to take place. There are few institutions training manpower in the field of agriculture. For the last five decades, Alemaya University was the only higher educational institution training at BSc degree and above in the field of agriculture or related fields in Ethiopia. Other junior agricultural colleges training general agriculturalists at diploma level are Jima agricultural college, Ambo agricultural college, Awasa agricultural college, Wondogenet institute of forestry and Debre-zeit veterinary college. Currently, Alemaya University and other former colleges are being upgraded to fully-fledged universities. The respondents' highest level of formal education is summarized in Table 4.10.

Table 4.10 Distribution of respondents by highest level of formal education

Education level	N	%
High school level	19	5.4
Certificate	60	17.0
Diploma	223	63.2
Bachelor's degree	29	8.2
MSc degree	20	5.7
PhD degree	2	.6
Total	353	100.0

The general level of education of respondents is very low, with the majority (63.2) of them being diploma holders, and only 8.2 percent BSc degree holders. These findings are similar to those reported by Tesfaye (1995). He found that 77% were diploma and 6% BSc degree holders. This implies that training of agricultural professionals has not changed much over the years.

For an organization whose core business is the provision of extension services to its clients, the knowledge of extension principles by its personnel is paramount for its success. The distribution of the respondents in terms of highest level of formal qualification in extension is given in Table 4.11.

Table 4.11 Distribution of respondents by highest formal qualification in extension

Extension qualification	N	%
None	96	27.2
Extension courses in in-service training	99	28.0
Extension courses in diploma program	121	34.3
Extension courses in BSc degree program	8	2.3
Diploma in extension	19	5.4
BSc degree in extension	9	2.5
MSc degree in extension	1	.3
Total	353	100.0

The findings in Table 4.11 indicate that the overall qualification in extension is low. About one-third (27.2%) of the respondents have no training of extension at all, while only 2.8 percent of respondents are in possession of a BSc and higher degree in extension. The majority (62.3%) are managing or practicing extension with only some introductory extension courses which they attended during their in-service training or as part of their diploma program.

A similar trend is observed with respect to respondents' qualification in management as indicated in Table 4.12.

Table 4.12 Distribution of respondents according to their level of qualification in management

Training in management	N	%
None	180	51.0
Management courses in in-service training	98	27.8
Management courses in diploma program	61	17.3
Diploma in management	11	3.1
BSc degree in management	1	.3
Management courses in BSc program	1	.3
Management courses in MSc program	1	.3
Total	353	100.

According to the findings in Table 4.12, more than 50 percent of the respondents had no training in the general principles of management. The only significant training was in-service training or as part for the diploma program to which respectively about 28 and 17 percent of the respondents were exposed.

The relationships between formal education and other background variables such as gender, age, marital status and job position are shown in Table 4.13.

Table 4.13 The percentage distribution of respondents according to their formal education and gender, age, marital status and job position category

Categories	Percentage distribution per formal education category				Spearman Correlation	
	HS/ certificate (N=78)	Diploma (N=224)	BSc and above (N=51)	Total (N=353)	r	p
Managerial positions						
Top level managers	.0	12.5	87.5	100	.369	.000
Middle level managers	1.7	76.7	21.7	100		
First level managers	11.7	72.3	16.0	100		
Non-managers	34.6	57.1	8.4	100		
Gender						
Female	48.1	40.7	11.1	100	.214	.000
Male	17.4	67.6	15.1	100		
Age						
≤30	14.8	77.0	8.2	100	-.083	.119
31-40	14.2	71.7	14.2	100		
≥ 40	30.2	52.9	16.9	100		
Marital Status						
never married	16.1	71.0	12.9	100		
Married	22.9	62.0	15.1	100		
separated/ divorced/ widowed	33.3	58.3	8.3	100		
Zone Location						
Jimma	13.2	77.4	9.4	100	.009	.870
Arsi	38.1	56.6	5.3	100		
South West Shewa	20.5	66.7	12.8	100		
Borena	16.3	67.4	16.3	100		
East Shewa	18.2	66.7	15.2	100		
General location						
PAs	23.1	76.9		100	.368	.000
District	24.7	66.8	8.6	100		
Zone		50.0	50.0	100		
Region			100.0	100		
National		8.3	91.7	100		

The general expectation in terms of the relationship between the educational level of respondents and job position is that the higher the level of management the higher the education level of respondents. Table 4.13 reveals that the results found are in accordance with this expectation (r = .369; P=000). For example, 87.5% of the top-level managers are holders of B.Sc. or higher degrees, while the proportion of those with B.Sc. degrees in the other lower levels of management positions decrease in linear fashion from 21.7 to 15.9 to 8.4 percent for middle, first level and operational positions, respectively (Table 4.13).

4.8 WORK EXPERIENCE

Extension workers help farmers increase the productivity of their farms and improve their living standard (Adams, 1990). These roles of extension workers require the understanding of the principles of extension and also the hands-on experience of how to deal with farmers and how to run the organization effectively and efficiently. Respondents' years of service in extension as well as in the position of management in the Oromia Bureau of Agriculture and Rural Development are presented in Table 4.14 through Table 4.17

Table 4.14 Distribution of respondents according to their total years of service in extension in the Oromia Bureau of Agriculture and Rural Development

Years of service in extension	N	%
≤ 9 years	72	20.4
10 – 15	72	20.4
16 – 20	84	23.8
21 – 25	74	21.0
≥26	51	14.4
Total	353	100.0

Minimum=1; Maximum=36; Mean=17; Standards of Deviation=8.31

The results in Table 4.14 indicate that the extension workers have no lack of working experience. About 80 percent of the respondents have been working for OBARD for about 10 years, while the average for all respondents is 17 years. These findings suggest a low level of recruitment in recent years. However, there are significant variations (F=7.5; p=0.000) between different zones as indicated in Table 4.15

Table 4.15 Mean years of experience in extension of respondents in different zones

Zones	N	Mean	Minimum	Maximum	Analysis of variance
Jimma	106	16.44	1	30	df = 4
Arsi	113	18.50	1	36	F = 7.449
South West Shewa	39	15.97	1	31	Sig = .000
Borena	43	11.21	1	26	
East Shewa	33	18.85	4	32	
Total	334	16.65	1	36	

The pattern of experience resembles that of age. East Shewa and Arsi zones have the most experienced extension workers with means of 18.85 and 18.50 years respectively. In Borena, which is the most remote from the centre of the country, the extension experience of personnel, expressed as mean number of years service, is significantly less, namely 11.21 years.

A similar trend is also observed with regard to experience of managers in terms of years of service in management positions (Table 4.16-17).

Table 4.16 Distribution of respondents according to service years in management position

Service years in management position categories	**N**	**%**
≤ 5 years	76	46.9
6 – 10	61	37.7
11 – 15	13	8.0
16 – 20	8	4.9
≥21 years	4	2.5
Total	162	100.0

Min=1; max=22; Mean=6.45; Std. Deviation=5.25

The mean average of service years of the respondents in the management position is 6.45 years, while about 85 percent of the managers have less than 10 years experience in management.

Table 4.17 Distribution of respondents according to experience in management (years of service in management position) and zones

Name of zones	N	Mean	Minimum	Maximum	Analysis of variance
Jimma	106	4.50	0	22	df = 4
Arsi	113	3.42	0	22	F = 2.589
South West Shewa	39	4.36	0	16	Sig = .037
Borena	43	1.88	0	13	
East Shewa	33	3.58	0	22	
Total	334	3.69	0	22	

According to the findings in Table 4.17, the Borena zone, as expected in terms of its distance from the centre, appeared to have the managers with the least experience (a mean of 1.88 years) while the Jimma zone is the top of the list with 4.5 years. This means that there is a significantly higher turnover of workers and managers (in terms of transfer from the zone to other places) and is something that management should pay attention to.

4.9 SALARY

Whatever there is in a rewards package, the salary is still the central and basic pillar of it (Stone, 1991). A good salary system will be: fair compared with outside bodies; consistent internally; flexible enough to handle unusual or unique jobs; and consistent with the economic environment so that it allows for inflation or changing economic circumstances (Stone, 1991).

The extent of fairness in promotion and job appointment is dealt with in Chapter 9. This section presents the description of respondents' salary in terms of the amount paid per month and comparison of their salaries between various zones (Table 18 and 19).

Table 4.18 Distribution of respondents according to the categories of monthly salary

Monthly salary Categories	N	%
≤ 500 Birr*	21	5.9
501 – 1000	189	53.5
1001 – 1500	103	29.2
1501 – 2000	38	10.8
> 2000 birr	2	.6
Total	353	100.0

Min=195; Maxi=2325; Mean=1023.66; Standard Deviation=400.074; *Birr (1US dollar = 9 Birr)

According to the results in Table 4.18, the majority (53.5 percent) of the respondents are in the monthly salary bracket of 501 to 1000 Ethiopian Birr; the average salary being 1024 Birr. But there are significant variations, based on average monthly salary, between the zones (Table 4.19)

Table 4.19 Respondents' mean monthly salary expressed in Birr by various zones

Name of zones	N	Mean	Minimum	Maximum	Analysis of variance
Jimma	106	1024.85	420	1865	df = 4
Arsi	113	899.93	300	1780	F = 3.373
South West Shewa	39	1042.12	381	1780	Sig = .010
Borena	43	915.09	502	1450	
East Shewa	33	1067.97	502	1565	
Total	334	975.20	300	1865	

Consistent with the previous findings relating to work experience, East Shewa appears at the top of the list in terms of mean monthly salary (1067.97), while Borena is the second from the bottom (915.09). Somewhat unexpected is the finding that the average salary of personnel in Arsi zone is the lowest average salary per month, namely 899.93 Birr. This could be attributed to the fact that it represents the biggest sample size and consequently included a larger percentage of lower income personnel (Table 3.1).