Addis Ababa University School of Graduate Studies

College of Education and Behavioral Studies

STATUS OF USE OF SCIENTIFIC PROCEDURES IN CURRICULUM DEVELOPMENT FOR AGRICULTURAL COLLEGES UNDERGRADUATE PROGRAM OF PUBLIC UNIVERSITIES IN OROMIA, ETHIOPIA

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Status of Use of Scientific Procedures in Curriculum Development in Agricultural Colleges Undergraduate Program of Public Universities in Oromia, Ethiopia

By

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This is to certify that the thesis prepared by Temesgen Mitiku entitled:

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and submitted in partial fulfillment of the requirements for the degree of **Doctor of Philosophy in Curriculum Design and Development** complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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ACRONYMS AND ABBREVIATIONS

ACARA	Australian Curriculum Assessment and Reporting Authority
ADDIE	Analysis, Design, Develop, Implement, Evaluate
ADLI	Agricultural Development-Led Industrialization
AET	Agricultural Education and Training
AmbU	Ambo University
ANP	Alignment with National Policy
BC	Before Christ
BSc	Bachelor of Science
BPR	Business Process Reengineering
CBC	Competence-Based Curriculum
CD	Curriculum Development
CDD	Curriculum Design and Development
CER	Consideration of Environmental Realities
CoA	College of Agriculture
CR	Curriculum Research
CSA	Central Statistical Authority
CW	Curriculum Writing
DCD	Desirable Curriculum Design
DDD	Data Driven Decision
DFA	Discussion Forum for Adaptation
DF	Developing Frame
DLO	Desired Learning Outcome
DPR	Decisive Prerequisite
DS	Discussion with Stakeholders
EMIS	Education Management Information System
ESA	Ethiopian Statistical Authority
ESDP	Education Sector Development Program
ETP	Ethiopian Education and Training Policy

FAO	Food and Agricultural Organization
FDRE	Federal Democratic Republic of Ethiopia
FR	Feedback and Revision
FTC	Farmer Training Centers
GAINP	Goal Alignment Identification to National Plan
GC	Gregorian Calendar
GCC	Graduating Class candidates
GDP	Gross Domestic Product
GEQIP	General Education Quality Improvement Program
GTP	Growth and Transformation Plan
HE	Higher Education
HEI	Higher Education Institutions
HERQA	Higher Education Relevance and Quality Assurance
HESC	Higher Education Strategic Centre
HU	Haramaya University
ISH	Inputs from Stakeholders9as used contextually in this study)
JU	Jimma University
LDC	Less Desirable Curriculum
MA	Masters of Arts
MAP	Management and Administration Program
MOE	Ministry of Education
MOARD	Ministry of Agriculture and Rural Development
MSC	Masters of Science
MWU	Madda Walabu University
NCCI	National Curriculum Change and Implementation
NDG	National Development Goals
ORBARD	Oromia Regional Bureau of Agriculture and Rural Development
OSSREA	Organization for Social Science Research in Eastern and Southern Africa
PCD	Participatory Curriculum Development

PTB	Proportionality of Time Budget (as used contextually in this study)
RCD	Relevant Curriculum Development
RDAE	Rural Development and Agricultural Extension
RFTA	Rate of fitness of techniques of assessment
SAT	Systems Approach to Training
SBCD	School-Based Curriculum Development
SETK	State of Emphasis on Transfer of Knowledge (as used contextually in this study)
SIP	School Improvement Program
SIS	Suitability of Instructional Strategies (as used contextually in this study).
TAET	Tertiary Agricultural Education and Training
TE	Tryout Evaluation
TDP	Teacher Development Program
TI	Tryout Implementation
TGE	Transitional Government of Ethiopia
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Education Fund

ABSTRACT

The study was aimed at assessing and analyzing the process of the development of curriculum in operation in Colleges of Agriculture in four public Universities in Oromia, Ethiopia. To this effect, the following research questions were raised: - (1) To what extent were the scientific phases of curriculum development used in the process of developing curriculum for CoA in public Universities? (2) To what extent was the involvement of direct and indirect stakeholders in the development of curriculum for CoA? (3) To what degree are the components of the curriculum in operation relevant in terms of addressing local and global conditions, enabling candidates to develop capabilities in agricultural problem solving activities? (4) What shortcomings are there and which direction to go? Four experts at Ministerial and Regional Bureau levels, four Directors of Colleges of Agriculture, eight Team leaders, and 232 teachers (248 together), and 164 graduating class candidates were included in the population in seeking answers to the research questions. Questionnaires, document analysis, and in-depth interviews were instruments used for the data collection; where mixed methods approach was employed and used in this study. Frequencies, percentiles, mean, chi-square, and p-values were used for statistical treatment of the data. The responses collected through questionnaires were tabulated and calculated using SPSS. Discussions, findings, conclusions, and recommendations were made in light of analysis of data; supported by evidences from document analysis and interviews. In this study, it was found out that curriculum research including needs assessment, application of scientific curriculum development procedures were overlooked; consultation with policy makers, experts, teachers, students, and other stakeholders to develop responsive curriculum were deemphasized.

Key words: *Curriculum, Curriculum development, Curriculum management, Agriculture, Public Universities, Scientific phases of curriculum*

CHAPTER 1: EXPLANATION OF THE RESEARCH PROBLEM

INTRODUCTION

1.1. Background

Social and economic development of a country depends on its human resource development in gaining appropriate knowledge and skill relevant to daily lives in the changing society and to be ready to face challenges of this changing world. Both formal and non-formal education, are therefore regarded by most countries' governments as one most significant factor for human resource development. Education is important for the transformation of society, as well as, for the development of the individual. It is an instrument of change (Prasad, 2006:120).

Education plays a remarkable role in national development; it reflects and influences the values of a society and the kind of the society human beings want to be. Education as a route to equality of opportunity for all, a healthy and just democracy, a productive economy and sustainable development must enable us to respond positively to the opportunities and challenges of the rapidly changing world in which we live and work (Department of Education &Employment, 1999:10). It is the practice of reaffirming our commitment to the virtues of truth, justice, honesty, trust, and a sense of duty (ibid).

The progress of national development depends, in part, on the expansion and improvement or quality of education guided by national development policy. Education is the most powerful tool in the process of national renaissance and modernization based on moral and spiritual values on one hand and on science and technology on the other .Hence, it can be said that

in a world based on science and technology, it is education that determines the level of prosperity, welfare, and security of people (Aggarwal,1997:8).

Ethiopia, having a total area of 1.1 million square kilometers, accommodates huge population estimated to be over 78 million (Tesfaye Ayele, et al., 2009) growing rapidly at an estimated

minimum rate of 2.7% per annum. The country is predominantly rural and multiethnic. Agriculture is the main pillar of Ethiopia's economy. It makes up the backbone of Ethiopia's economy constituting half of the gross domestic product (EPA, 2012; Atsbaha & Tesema; 2010).It contributes the largest share to the export items and foreign currency earning (about 86%). On top of this it is the largest economic sector and source of livelihood for about 85% of Ethiopian population (Rahel, 2003). Agriculture is, up to now, the potential source to generate primary surplus for the growth of other economic sectors in Ethiopia. It is a sector which is a generating source of export items and raw materials for industry, and it is a sector of steady supply of food for Ethiopian population (Eshetu, 2004; FDRE, 2010).

Eshetu (2004) continued: "as in most underdeveloped countries, the agricultural sector in Ethiopia looms large in the structure of output and the structure of employment. The share of agriculture in GDP is over 40 percent." To him agriculture has a lion's share in the Ethiopian food production, economy and employment, and priorities should be given to the policies that promote agricultural development.

Despite its greatest share in Ethiopian economy and people's livelihood, agriculture is by-and-large rain-fed which has remained subsistence characterized by low production and productivity (Atsbaha & Tesema,2010). Drought and desertification are at the core of serious challenges and threats facing sustainable development in Africa. Increasing population pressure and low levels of agricultural productivity have been critical problems of Sub Saharan Africa and that of Ethiopia in particular (Endrias, et al.,2012).Agriculture sector is facing significant local, national and global challenges. It is predicted that agricultural food production must be more than double by 2050 to meet the World's increasing demand for food(Tyler and Dodds,2012). These problems have adverse impacts on human health, food security, economic activity, natural resources, and the environment (ECA,

2007). The above mentioned problems are causes for poor food production which, in turn, is the main cause for the problem of malnutrition affecting the majority of the world's population especially in developing countries. Regarding this, FAO (1995:9) suggested that "Humanity is faced with the stark reality of chronic under-nutrition affecting some 800 million people, 20% of the population of the developing countries, as many as 37% in Sub Saharan Africa and still more in some individual countries." Satisfying this appetite will require the agricultural sector to be more productive (Tyler and Dodds,2012).

In Ethiopia agriculture is dominated by peasant subsistence production (85%); it is only 15% of agricultural production that comes from commercial farming. The technology being used is essentially traditional and obsolete, and modern technological inputs are extremely limited in application. Consequently, production and productivity is extremely low with obvious adverse consequences on the rest of the Ethiopian economy (Eshetu, 2004). These severe problems that make agricultural production backward should be the crucial focus areas that need priority in agricultural education and training framework.

The curriculum management experiences of Ethiopia since the beginning of the launching of higher education (since 1950's) to the present has passed through ups and downs of social and political changes. During the Imperial period (1950-1974),the Emperor had exclusive authority of controlling the education system and curriculum decision making with slight technical support of defining the nature of curriculum for schools by the then Ministers of Education and Fine Arts (Ma'aza,1966). Curriculum was copied and imported from Western developed countries; especially from Great Britain and United States of America up to 1974.

Since 1975, national curriculum changed following the change in political system with the military government coming to power. The whole education matter was grounded on Marxism-Leninism

philosophy shifting the direction from Western world to the Eastern bloc of the world. Curriculum was highly centralized and higher education institutions had no clearly outlined autonomy. At that time the political-bureau agents in institutions commanded the whole things and steps of education up to 1991.

Since 1990's, the education system has been decentralized and higher education institutions have got the autonomy and academic freedom. Curriculum conception was departmental up to 2007/08.From this time onwards, effort was made to nationally standardize and harmonize the higher education curriculum (Teshome, 2007).

1.2. STATEMENT OF THE PROBLEM

The scholarly study on the topic of status of use of scientific procedures in the process of curriculum development for undergraduate regular program of agricultural education and training in the context of Ethiopia is not available. This shows lack of curriculum research implying that the curriculum program development of TAET in school /college of agriculture of Universities in Oromia Regional state, Ethiopia, were not based on well outlined and scientifically defined curriculum framework except those guidelines that have been prepared as a result of some occasional meetings and seldom workshops.

Lack of research studies can cause lack of data based curriculum decision making in higher education curriculum issues and this, in turn, is problematic to make authentic curriculum decision , unless scientifically studied and possible ways to alleviate the problems forwarded (Hamilton, et al.,2006).

Concerning the program design of TAET in school /college of agriculture in public Universities in Oromia regional state, Ethiopia, there was rumor of teachers and students that the curricula for colleges of agriculture were developed overlooking scientific and some social prerequisites. This is to say that the preconditions to design curriculum, i.e., conducting curriculum research and needs

assessment, carrying out participatory discussion and decision on the type of curriculum content, strategies of teaching learning, instructional media and materials, and assessment techniques ,phases of course and curriculum materials development, tryout implementation and evaluation seem to have limitations. This shows lack of scientific evidences to make informed decision. Scholars give due weight to the necessity of informed decision making. Concerning this, Aklilu,et al,(2007) forward that the decision of any type of educational practice should not be left for the opportunistic goals but should be unequivocally based on research and informed decision. Therefore, it is needful to investigate ways of TAET curriculum design in line with scientific curriculum research technique and procedures, and also in terms of participatory approach; explain, and develop clear guide for designing curriculum in the international and national-regional context. These issues need attention and thorough analysis (Posner,1998).

Curriculum designing is decision making about the curriculum goals, content, resources, teaching-learning and assessment strategies and it requires informed decision based on scientific evidences. Scarcity of curriculum research studies to make decision on curriculum development has negative consequence on the quality of components of curriculum which in turn affects quality of education (Deragon,2008;Sekiya,2009). Studies reveal that, culture of educational research in Ethiopian context is at its early stage and much is left to do (Ayalew, 2000; Temechegn,2002; Seyoum,1998 ; Amare, 2000) even though the government encouraged the nexus between research and development in national policies (TGE,1994).

It is the lack of curriculum research as a precondition to define and outline scientific framework for the development of curriculum which has initiated me to carry out investigation on the scientific process of tertiary agricultural education and training curriculum development in public universities in Oromia Regional state, Ethiopia.

In addition, it is essential to study, understand, and reveal the appropriate process of curriculum development in light of the scientific curriculum research and procedures, stakeholders' participation, consideration of environmental and global realities, consideration of proper competences, and alignment to national developmental goals (ACARA, 2012).

As far as the scope of this investigation is concerned, there has been no significant and thorough investigation made to assess the process of tertiary agricultural education and training (TAET) curriculum program design, to evaluate its appropriateness and relevance. In addition, despite the fact that program evaluation is a necessary instrument to get feedback, to improve or change the program, the effort to plan the overall curriculum evaluation especially at the end of each academic year is not common in our higher education institutions.

On top of this, the issue of link between national policy goals (goals of Ethiopian agricultural and rural development policy) and goals of the designed TAET curriculum, assessing the limitation of TAET curriculum design, and the incorporation of environmental and global realities, the issue of time allocation between classroom teaching ,laboratory, and field practices, status of participation of curriculum experts, teachers, students, and other stakeholders at rendezvous were emphasized in this study. This study was aimed at contributing to the participatory approach to the development of curriculum for power sharing, negotiation, and joint responsibility (Beauchamp, et al., 2012; McNeil, 2009; Morrish, 1997).

Studying and analyzing the practical designing process of TAET curriculum of schools/colleges of agriculture of public Universities in Oromia Regional State, Ethiopia, with the intention to crosscheck against the scientific procedures of curriculum development was essentially emphasized in this study.

The relevant curriculum design is the type which is developed following scientific procedures(Graves,2000; Posner,1998) participatory in approach, aligned with national goals (Aggarwal,1997;UNESCO,1995), competences-based (Frank,et al.,2010), consisting environmental realities (Kouwenhoven,2003), and has schemes of necessary elements for implementation and evaluation. Likewise, deciding educational strategies and identification of needs and barriers for implementation requires analysis as well. Did the schools/colleges of agriculture of Universities in Ethiopian context pass through these scientific curricular phases? I doubt. This is one of the issues that initiated me to investigate the process of curriculum design in our case of tertiary agricultural education and training.

My argument is that the process of developing tertiary agricultural education and training curriculum seems to lack most of the decisive prerequisite requirements; however, the certainty of such assertion is assessed and assured in this study. If the process of tertiary agricultural education and training curriculum development runs short of the afore-mentioned necessary components, such problems can multiply other problems. For instance, the decision making without the research evidences and without participation may bring about the problem of duplication of programs that, in turn, can lead to the increased number of graduates without available accommodation.

This might lead to the problem of unemployment of the greater number of graduates. Such national issues require due focus. Therefore, it is essential to assess, analyze, and understand the actual designing process of TAET curriculum of schools/colleges of agriculture of Universities in Oromia Regional State, Ethiopia, with the intention to determine the appropriateness of the designing process and the relevance of the curriculum and to develop well defined scientific framework to design relevant curriculum.

The success in employing and applying the scientific or systematic procedures in designing a curriculum has something to do with formulating relevant goals, selecting appropriate courses, identifying better instructional resources, and strategies, and selection of varieties and effective assessment techniques. That is why this study was needed. Thus, in the process of this study, attempt was made to investigate the abovementioned issues in seeking answers to the basic questions stated in the following:

1.3. BASIC RESEARCH QUESTIONS AND OBJECTIVES OF THE STUDY

1.3.1. Basic Research Questions

This study was guided by the following research questions in which answers were sought based on the gathered and analyzed evidences.

(1) To what extent were the scientific phases of curriculum development used in the process of developing curriculum for CoA in public Universities?

(2) To what extent do the stakeholders participate directly and indirectly in the development of curriculum for CoA?

(3) To what degree are the components of the curriculum in operation relevant in terms of addressing local and global conditions, enabling candidates to develop capabilities in agricultural problem solving activities?

(4) What limitations are there in developing curriculum for CoA and which direction to go?

1.3.2. Objectives of the Study

In broad terms this study was aimed at investigating the process of curriculum design for CoA in public Universities in Oromia in an attempt to assess the extent of the application of scientific and social preconditions for curriculum development. Specifically, the objectives of the study were to : (1) assess the degree to which the scientific phases of curriculum development were applied; (2) identify participants in the development of curriculum for CoA; (3) weigh the extent of the involvement of direct and indirect stakeholders in the development of curriculum for CoA; (4) examine the appropriateness of the components of curriculum proposed in the curriculum document; (5) identify drawbacks of the process of developing curriculum for CoA ;and (6) pinpoint the direction to go forward.

1.4. OPERATIONAL DEFINITIONS

Terms and concepts read different in different contexts. It is wise to specifically define terms and concepts to indicate their contextual connotation concerning their message pertaining to the study.

Anatomy of curriculum: refers to the different elements or stages in curriculum and how these stages relate to one another.

College of Agriculture: In some Universities college of agriculture is named as School of agriculture referring to one sub educational institution in Public Universities offering education and training at BSc level as distinguished from Colleges of Agriculture which offer training at diploma level.

Competence-based curriculum: refers to the type of area specific curriculum in which education and training is pertinent to what the candidates/trainees will engage in the world of work.

Competence-based curriculum focuses on balancing the proportionality between knowledge, skills, and attitude development.

Decisive prerequisite requirements for curriculum development: as per the operational definition in this study, the preconditions for curriculum development are curriculum research, participation of stakeholders, and application of scientific phases of curriculum plan, tryout implementation, tryout evaluation, review and evaluation.

Models : here refer to approaches to curriculum design and development that determine how a curriculum should be built and what to encompass in the curriculum as its components for planning, implementing ,and evaluating practices as different from representation of objects.

Process: simply refers to the steps from the beginning of something to its end.

Public Universities: are state owned Universities which are subsidized , supported, and controlled by the government as distinct from private Universities.

Relevant curriculum: is the curriculum which is designed, and developed following scientific procedures, participatory in approach, research-based, aligned with national goals, considered local environmental problems, and has schemes of necessary elements for curriculum implementation and evaluation all bringing about desirable learning outcomes.

Relevant curriculum development: refers to the type of curriculum design and development strategy that fulfilled both the scientific and social processes of curriculum shaping.

Scientific phases in curriculum design: In this study scientific phases encompass investigation of current curriculum, needs assessment (analysis); development of curriculum framework (design), preparation of curriculum materials (development),pilot curriculum ,tryout evaluation, review and revision.

Systems Approach to training Model (SAT)l: the SAT in this study refers to the Systems Approach to Training--a scientific approach to design and develop curriculum different from SAT that stands for Standard Aptitude Test.

1.5. SIGNIFICANCE OF THE STUDY

It is essential to assess the application of scientific phases in the process of TAET curriculum design and development and suggest possible ways of alleviation of the confronted shortcomings. Examining the curriculum development procedure helps one to identify frequent structural elements that are useful in the process of construction of a curriculum for any subject area. Reviewing, identifying and explaining the structural elements are important for improving practices in the process of curriculum development. Furthermore, fostering debate on issues of decision making about curriculum design and development to contribute to the improvement and curriculum excellence is important as well. In addition, this study has role in paving ways for further domestic curriculum investigations, that is, the research procedure and its findings can show ways for other researchers to continue their studies.

On top of all the above, showing ways toward the success in employing and applying the scientific or systematic procedures in designing a curriculum has something to do with formulating relevant goals, selecting appropriate courses, identifying better instructional resources, and strategies, and selection of varieties and effective assessment techniques.

In broad terms, research study has several roles to play in contributing to personal, institutional and national progress towards development in the realm of life time. Likewise , this study has worthy of contribution to the investigator for it creates the opportunity to learn more from the process of conducting the investigation, it will also have share in improving institutional curriculum practices

thereby contributing to enhancement of quality and relevant education that can serve as propelling instrument for national development through development of human capital (McNeil,1996,2009).

Accordingly, this study has the following main significances:

a) Contributes to the development of better theoretical underpinnings concerning relevant tertiary agricultural education and training curriculum design and development process

b) Puts in some idea inputs in making the TAET curriculum programs more relevant to the national-regional developmental needs and goals.

c) Plays part in making the pattern of Ethiopian TAET curriculum design and development clear and more scientific.

d) Promotes more participatory curriculum design and development approach in Ethiopian higher education curriculum development.

e) Serves as 'information product' for education policy-makers, public education sector officials, teachers, civil society and other stakeholders**.**

1.6. DELIMITATION OF THE STUDY

Concerning the scope (breadth and depth of the study) this study was confined to the investigation and analysis of the extent of emphasis made on scientific phases in the designing of the tertiary agricultural education and training curriculum programs of colleges of agriculture and application of principles of curriculum design from the view point of SAT model. The study also encompasses the role of policy makers, curriculum experts, teachers, and students of pertinent agricultural departments, and other stakeholders; appropriateness of TAET curriculum goals, courses, instructional and assessment strategies inline with national development goals, local realities, and

global climatic change issues. Moreover, the study tries to differentiate fulcrum of emphasis between conceptual learning and skill-oriented professional practices; and identification of crucial problems in the process of TAET curriculum design, and pinpointing which directions to go.

Although the ambition to include many of the HEIs in the country was high at the initial stage of the study, the researcher had to be selective based on the resources available to conduct the study. Therefore, the study considered or incorporated four of the eight public universities (Haramaya, Jimma, Ambo and Madda Walabu Universities) in Oromia Regional State, Ethiopia.

The research setting was also confined to higher learning institutions in one regional state. However, the researcher believes that result of the study can imply the issues of curriculum design in other regional states of the country. This is because there was an effort to standardize HE curriculum since 2007/08.The HEIs in Ethiopia especially those harmonized according to geographical location, research and teaching experiences are carrying out education and training based on similar curriculum courses components even though there are variations in program diversification. Therefore, the assumption is that the data obtained from the groups in one regional state is most likely to be similar if the samples were taken from all regional states as all public Universities design and develop curriculum by reading each other under the coordination of the Ministry of Education.

1.7. LIMITATION OF THE STUDY

The shortcoming in the process of the investigation was not severe. One of the shortcoming issues was that the up-to-date related literature materials especially those of domestic sources were not sufficiently available in the Universities' library stack. This shortcoming was counteracted through the use of Internet. The Internet was used from which electronic resources such as eBooks, electronic journals and articles related to this study were browsed and incorporated.

The sample population, when seen from national view point, might be considered by readers as below the expected to make national judgment. However, the procedures followed to design and

develop curriculum to be practiced in public Universities in our context especially since 2007/08 (after curriculum standardization or harmonization) is common for all universities in all Regional States of Ethiopia so that the sample of one regional state can reflect common issues of the rest.

1.8. THEORETICAL FOUNDATION AND CONCEPTUAL FRAMEWORK OF THE STUDY

1.8.1. Theoretical Ground of the Study

The tenet of this study rests on the fact that curriculum design and development, which is both technical and social process, is the issue of decision making on knowledge areas and their scope or magnitude, i.e. on the expected outcomes, the depth and breadth of contents, balances between branches of knowledge, ways of organization of contents and learning experiences, and setting ahead the means to achieve the educational goals.

Curriculum decision making should be based on the analysis of current curriculum, needs assessment of the society and the learner, seminars/dialogue or discussion in the presence of policy makers, planners ,and stakeholders, develop framework and prepare curriculum materials (Taba,1962;UNESCO,1995;Posner,1998).

Next to the shaping of curriculum (creation of framework) follow the development of curriculum materials (curriculum writing), tryout implementation and evaluation, feedback and revision for action aligned to national development plans. It is after passing all these phases that the desired curriculum is developed, implemented, and evaluated for the purpose of attaining the desired learning outcomes. These suggested phase or steps are consecutive stages for curriculum development in which missing of one might distort sequence of curriculum development because the succeeding phases are built on the earlier (Fink, 2013).

1.8.2. Conceptual Framework of the Study

Curriculum design and development depends on models as packages of principles, procedures and strategies that play decisive role in determining the type of curriculum design, implementation, and evaluation. The type of design, ways of curriculum development, implementation, and mechanisms of evaluation have link with the achievement of learning outcomes that imply the quality of education. Models, therefore, are guidelines for curriculum practices from planning through evaluation and revision.

If Ethiopian context is considered, the objective model is the most used approach to curriculum development almost at all educational levels up to the present time in Ethiopia (Solomon,2008:6).The basic theme of the objective model of curriculum design is that education is concerned with producing changes in students' performance and or behavior (Derebssa,2006;Solomon,2008).

Some scholars criticize the objective model for it is linear and deductive in which the flow of ideas and activities is from top to bottom without reciprocal feedback, rigid, technical and procedural that deemphasizes social aspect of curriculum design and development. It does not give more value to the curriculum content but to the product (Stenhouse, 1975; Skilbeck, 1976; Wenger,1998).

Appropriate model or approach to curriculum design and development takes into consideration curriculum foundation, i.e., it clarifies about balances between knowledge, skills, and attitudes development, individual and social needs, learning theories, relevant contents, and effective strategies of instruction and evaluation (Zais,1976; Hadley an d Ritz,1991). Consideration of these components of curriculum helps to design and develop desirable curriculum. Relevant curriculum development emphasizes on research and application of scientific phases of design, participation of stakeholders, alignment with national development plans, and environmental and global realities.

Curriculum relevance is a relative term that connotes different among different scholars. Relevance is seen from different viewpoints. Some relate it to the fact that if the education enables the graduates to take part in civil services, then the curriculum is relevant. For others, if the curriculum contributes to capacitate the graduates to solve problems, then it is relevant (TGE,1994). There are still others. For instance, Lawton (1975) considers curriculum relevance in terms of its coincidence with the culture of the community it serves, its relation with social and actual life. Furthermore, institutions or individuals can associate curriculum relevance with the nature or type of the curriculum to enable the graduate to create job than being job seeker. Based on the brief description above, it is possible to suggest that curriculum relevance is not directly measurable but interpreted in several ways. Curriculum relevance is curriculum response to the culture and economy, to students and demands of the industry, and to the planned and market economies (Lattuca, 2010).

Theoretically the assumption is that relevant curriculum development has to begin from researching situations. It should also be , participatory, and the type that incorporates philosophical, and environmental issues, society, individual, and learning theories. It has to follow basic procedures of curriculum material development, tryout implementation, tryout evaluation, and feedback for review(McNeil,2009).

Curriculum design is the starting point for putting basis for quality of education because it has power to change what and how students learn. The issue of quality of education has to be stressed in this present century to prepare those graduates who can run and use the modern technology and contribute to national development. Concerning this many scholars pinpoint that helping our schools evolve into positive institutions of learning, where every student graduates and receives a quality education, is probably the world's biggest challenge for the twenty first century (McNeil, 2009).

The sketch of conceptual framework of this study is presented next to this page.

Sketch of Conceptual framework of the anatomy of the process of curriculum design and development

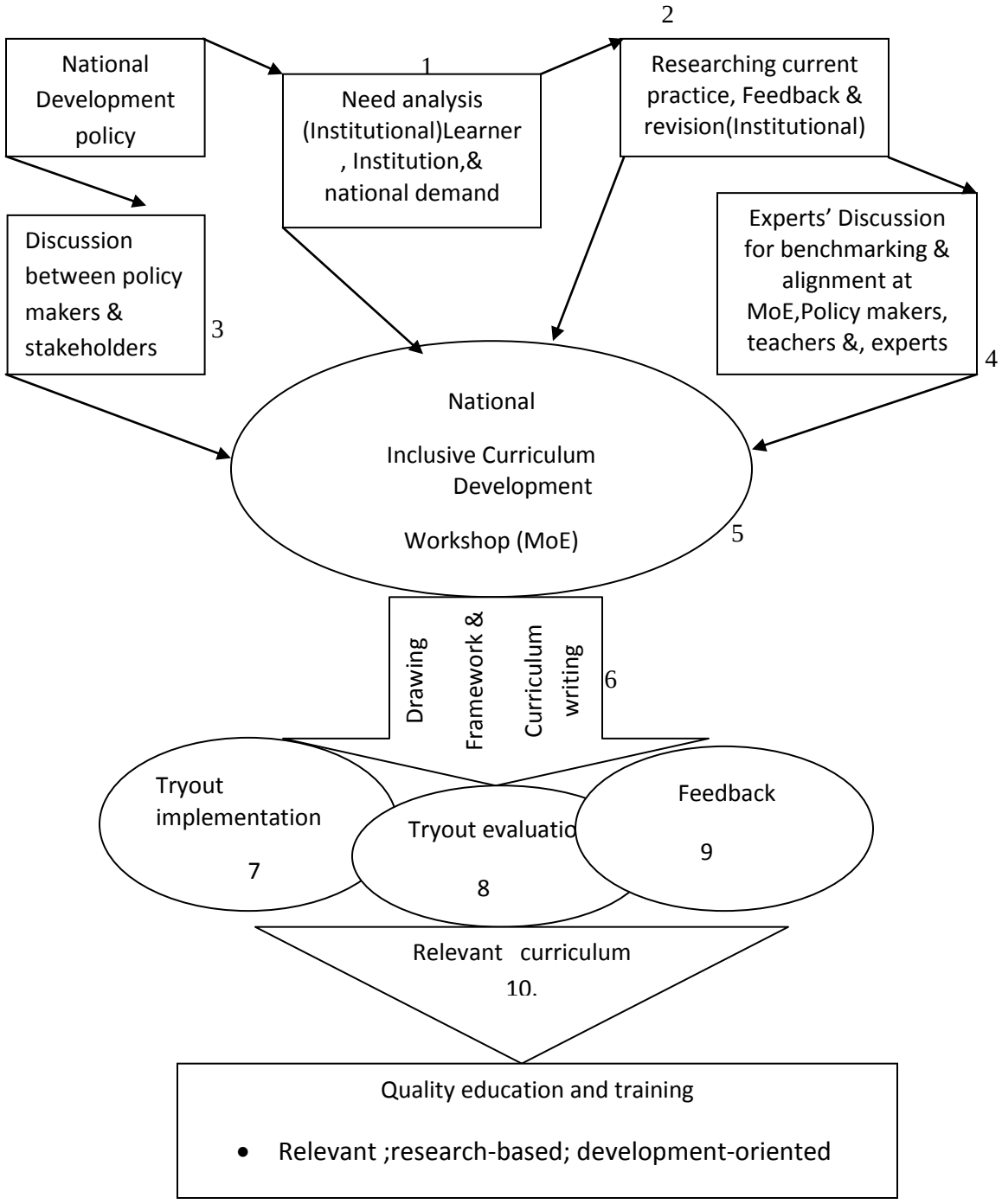


Fig. 1: Conceptual framework Adapted from Saiful (2012:36); www.cobleskill.edu/strategicplan/02.html accessed 2012; and developed grounded on SAT Model based on ADDIE principles (Dick &Carey, 2005:14-15).

The conceptual frame work is characterized as spider's web approach; reminding us the Ethiopian saying of "If spider's web unites, it ties up a lion." In the same analogy, if different entities, i.e., policy makers, managers, curriculum experts, teachers, candidates, and other stakeholders team up, they can develop relevant curriculum for quality education and training. Collaboration or participation makes synergy. Synergy is the potential that individuals cannot possess in isolation. This shows collaboration that underpins Ethiopian culture. It also tells us that Ethiopian curriculum has to be prepared integrating both technical and social processes to develop all serving curriculum at one specific educational level for influencing whole population. The sketch shows the anatomy of curriculum design revealing the ways and phases to pass through in curriculum developing process. It shows that the process of curriculum development is both scientific and social. It is the integration of situational and technical models that can result in the development of eclectically outlined optional framework for the development of curriculum.

The reference point for curriculum development is the national development policy. The discussion between policy makers and stakeholders that is necessary to gather evidences from stakeholders that are used as input in making policy decisions at national level about the current demand for the type of skilled professionals for education, agriculture, health, and industry.

Needs analysis of the learners, the institution, and the national demand; and researching current practice are included in curriculum research. Here data are gathered and analyzed concerning the curriculum in practice as well as the demand for the new curriculum. This is useful for informed decision making. This is the phase of scientific curriculum analysis.

It will be after this step that external experts, teachers, representatives of policy makers conduct consultation in which they gather together and exchange ideas on different models of curriculum development. Here feedback from different experts are gathered, combined, and changed into one

useful statement applying an approach of Delphi technique (Jenkins, 2008) to benchmark the curriculum framework. The curriculum will be aligned with the national development policies, and with local environmental realities.

Delphi technique is an approach in which experts in different models gather together, justify the assumptions of their models, forward comments up on each of the models, identify the common elements eclectically, combine and change into useful suggestion. Delphi technique is useful to make national consensus (ibid).

At the phase of national inclusive curriculum development Workshop at the Ministry of Education, conditions will be facilitated, ad-hoc discussion programs will be drafted so that all stakeholders come together at rendezvous, discuss, exchange ideas on the would be designed curriculum, and reach at national consensus to draw curriculum framework.

It will be next to the inclusive national curriculum development workshop that the practice of curriculum writing, tryout implementation, and tryout evaluation for feedback and revision will be undertaken to either modify or confirm the drafted curriculum. These entire routes lead to quality of education and training. Integrating approaches (combining similar elements) may result in a better well defined approach to follow in planning, implementing, and evaluating practice. Hence, course designers who carefully consider the various approaches to syllabus design may arrive at the conclusion that a number of common elements of different approaches are needed and are best combined in an eclectic manner in order to bring about positive result" (Dubin and Olshtain, 1997).

From the above components of conceptual framework, it is possible to estimate that the correlation between national policy, curriculum research, discussions and consultations among several

stakeholders and experts, creation of consensus, designing and writing the curriculum, conducting pilot implementation and evaluation all contribute to creation of relevant curriculum(Taylor,2001).

Consequently, it is possible as well to estimate that a relevant curriculum development is a function of alignment with national policy, curriculum research, and discussion among experts, teachers, and other stakeholders, drawing framework, curriculum writing, tryout implementation and evaluation for further revision or change. This can be expressed as : RCD= f(ANP,CR ,DS, DF,CW,TI,TE, FR.). If one of these entities or components of curriculum design and development is missed out in the process of curriculum design and development, then the appropriateness and relevance of the curriculum decreases and become questionable.

CHAPTER 2: REVIEW OF THE RELATED LITERATURE

INTRODUCTION

In this chapter attempt is made to relate the significance of some of curriculum models and theories to the context of designing and developing higher education curriculum which have been written and contributed to the educational literature by different scholars at different times. Some of the approaches, different views and concepts of curriculum are dealt with emphasizing on review of how a curriculum has to be designed and developed in connection with the process of learning, and learning outcomes.

2.1. The Concept of Curriculum and Curriculum Development

Some people define curriculum as contents in the textbooks or in teacher's guide. Others broaden the definition of the term curriculum to mean everything that takes place with the support of the school. As to Barrow (1982) in UNICEF (2000), curriculum is derived from the Latin word *'Currerre'*, meaning the course or circuit that a race is to follow ,and it implies the path or track to be followed or the course of study to be undertaken. Curriculum is also interpreted as a planned, composite effort of school to guide the organization of teaching and learning toward achieving predetermined learning outcomes (Moyles, Hargreaves, and Inlow, 1998; in UNICEF, 2000).

Curriculum, therefore, is more than the contents in textbooks and teacher's guide; and it is a process encompassing other emphasis areas of intended, taught, learned, hidden, and null curriculum. The intended curriculum is the formally approved guideline for teaching contents; the taught curriculum being the enacted curriculum by the teacher; whereas the learned curriculum refers to what the students actually take and make sense of from the intended and the taught curriculum. The hidden curriculum, on the other hand, is the result of the psycho-social-school-environmental interaction in

which especially students communicate messages that are not officially included in the formal curriculum. The null curriculum is the one that represents the fact that some contents and skills are intentionally or unintentionally ignored in the curriculum. For instance, nations which do not have severe problems of cross-border conflicts may omit peace education for a time being (UNICEF, 2000).

In anyway, and from different angles defined, the term curriculum is a multifaceted term which was and/ or is connoted to different meanings by different scholars of different backgrounds. However, the term curriculum has been commonly associated with academic study and training in education. In sum, curriculum is concerned with the planning, implementation, evaluation management, and administration of educational programs (McNeil,2009).

There has been, and continues to be, a wide range of variations of what is to be included in the definition of the word curriculum. The definitions of curriculum vary depending on the value base and educational philosophy of scholars or thinkers concerning the purpose and focus of curriculum for the needs of the individual, current society and for the ideal future society. Regarding the reasons for variations in defining curriculum, Derebssa (2004:4) suggests that such scholarly conceptual variations might emerge from the views of these scholars toward the functioning of schooling.

At one end of the continuum; curriculum is defined as "the total effort of the school to bring about desired outcomes in school and out of school situations"(Derebssa, 2004). At the other end, it is sometimes contracted so as to limit the curriculum concern specifically to the syllabus. The first suggestion does not distinguish between what is curriculum and what is not. The second one is too narrow to reveal what curriculum is. It is the feeling here that the corresponding operational definition might lie somewhere in between these two extremes. The claims made by the first

definition are so broad that it appears almost impossible to make it functional. The other draws too sharp a distinction between the method and the curriculum.

Accordingly, different scholars come up with different definitions of curriculum. For instance, Saylor and Alexander (1958) defined that curriculum is any effort to influence learning in the classroom, on the playground or out of school campus. This definition does not distinguish the actual educational practices from what are not. It seems a fuzzy definition. Others like Tanner and Tanner (1980) as cited by Mekonen (2007), defined curriculum as "the reconstruction of knowledge and experiences developed systematically under the aid of the educational institution so as to enable the learners to enhance their accessibility and control of such knowledge and experience." This definition seems relatively clearer than the first one. However, the terms knowledge and experience are qualitative and may not directly be measurable. Therefore, this definition lacks a bit specificity.

Hirst (1974) in Mekonen (2007) considers curriculum as intended activities and consciously organized experiences that are planned in advance so as to enable students to obtain certain educational ends. Such a definition exempts the unplanned curriculum and it is based on pre-specified notion of the rational model. It ignores the idea of learning from process.

Others see curriculum as it is more than mere list of contents. In line with this suggestion, is Derebssa's (2004:269) explanation of curriculum shows "what students should know, be able to do and committed to (content), how it is taught (instruction), how it is measured (assessment), and how the educational system is organized (context)."As to him, curriculum is a multifarious term connoting the content, the instructional organization and process, its strategies, and assessment.

Curriculum is, therefore, a comprehensive term implying the educational enterprise which is concerned with working on the why, what, how of producing educational opportunities and assessing their achievement (Tyler, 1949).

The phrase ‘curriculum development’ was alternatively used with curriculum construction, curriculum design, curriculum reform/ change, and curriculum improvement. Such usage may confuse readers. Such confusing attachments to the concept of curriculum development can bring about confusion in the practice of curriculum development. Clarifying the differences and similarities between them is needful. However, the similarities between the terms outweigh their differences (Orstein and Hunkins,2004).

Curriculum construction is producing and creating curriculum structure while curriculum design refers to the initial planning phase which is concerned with the arrangement of the basic curricular parts such as (1) aims, goals and objectives,(2)selection of content and learning experiences,(3)organization of contents and learning experiences,(4)implementation of curriculum, and (5) evaluation (H.Giles as cited in Derebssa,2006).Curriculum design is shaping of curriculum structure. This assertion is as per the objective model of curriculum development. Some may confine curriculum development only to study course writing or outlining of contents to be delivered. Regarding this, Pandey (2008:1) suggests that many teachers identify curriculum planning with the writing of courses of study, in particular with the outlining of content to be covered in the various school subjects. This course -of-study writing programs often go by the name ‘curriculum construction ’ and suggest the operations of putting up a building or installing a piece of machinery (ibid).

Curriculum design and development process involves the interlinking phases of curriculum shaping, curriculum writing, preparation for implementation, curriculum evaluation and review (ACARA,2012:6).Curriculum shaping phase produces a broad outline of the foundation of the curriculum for a learning area which provides general direction of the purpose, structure and organization of the learning area. This phase includes key periods of consultation in the form of open public consultation as well as targeted consultation with key stakeholders including teachers,

institutions, state authorities, education experts, students, professional associations and community groups. Curriculum writing phase produces curriculum for a particular learning area is concerned with specifications of contents, and achievement standards to be used by educational institutions. This phase involves teams of writers supported by expert advisory groups and consultation with key stakeholder's .The preparation for curriculum implementation phase encompasses delivery of curriculum to educational institutions. The curriculum monitoring, evaluation and review is an ongoing process analyzing recommended actions based on the data about areas of support in implementation (ACARA,2012: 6-7).

Curriculum reform/change is synonymously used as curriculum restructuring, renovation, revision, reorganizing, transformation, etc. Curriculum reform and curriculum improvement are closely related as curriculum design, construction and curriculum development do. Curriculum design, construction, and curriculum development are commonly used interchangeably in educational literature. According to Taba (1962) , as expounded in Derebssa (2006:22), curriculum improvement means changing only certain aspects of the curriculum without changing the fundamental conceptions of it or its organization.

Curriculum design is the conception stage of curriculum development. It matures to curriculum development after being incorporated with curriculum materials development. Curriculum design is, hence, the first part of curriculum development. It is a matter of deciding how knowledge is structured and presented within departments (Gilbert & Sheppard, 1991:229). It is the issue of structuring knowledge, skills and values. Curriculum development, therefore, has two main segments of course development phase and phase of curriculum materials development (curriculum writing).

Developing curriculum at higher education level is about deciding what the system of education at that level might produce. It is like planning a route that a person must travel from infancy to the goals of his /her growth, culture, and special abilities (Ornstein & Hunkins, 2004:196). This is not an easy decision. This decision has to be evidence–based, institutional, participatory, based on curriculum foundations, and aligned with national development goals. The six step method of curriculum design and development includes: general needs assessment, individual learner assessment, development of goals and objectives, educational strategies for different objectives, identification of needs and barriers to course implementation, evaluation and feedback (McNeil, 1996). This assertion shows that the idea of curriculum development incorporates the practices of implementation and the assessment of outcomes including feedback as concerned with comments based on review of implementation plans.

Likewise, some other scholars explain curriculum design and development as following some general phases beginning from needs assessment focusing on the needs of the learners through review of constraints, to justifying the rationale for curriculum building (Derebssa, 2006:26).It is meaningless to talk of curriculum design and development exempting mechanisms of implementation and evaluation because curriculum development remains a blue print without implementation and evaluation. So both are parts and parcel one for the other. These phases are inseparable and they have to form interlocking parts. Curriculum design, development, implementation, and assessment are central to teaching and learning in the classroom (Chikumbu 2000). There are some synonyms to the term process such as procedure, progression, practice, development, course of action, etc. However, in this study, the process understandably or simply refers to the steps from the beginning of something to its end. Curriculum development begins from curriculum design. Curriculum design is a process in which the objectives are defined, the application (learning transfer) environment is determined, the appropriate subject matter for the

course is selected, contextualized to the audience and situation, sequenced appropriately and congruence between objectives, learning content and interactions and assessment are ensured. Curriculum design impacts on the efficacy of the final instructional project from every perspective; structural, cognitive, contextual, motivational, and from an overall quality perspective (Derbssa,2006).

2.2. The Need for Sound Curriculum Development

Curriculum design and development provides an opportunity for institutionalizing a systemic approach to learning. It aims at integrating the recognition of the needs for learning, the ways in which learning is organized and delivered, and the way in which learning is monitored and evaluated within a particular context of location, values and beliefs. Researches show that a good curriculum is crucial for a successful university education and it is the most important asset of higher education which is essential for effective learning (Sekiya, et.al, 2009:1). If curriculum development is carried out efficiently and effectively, the learning needs of learners will be met, teachers will teach more effectively using suitable, relevant methods and materials, a good service will be delivered, satisfying the needs of the learners as well as the demands of different stakeholders, and the goals and aims of the education and training program will be achieved (ibid).

The quality and accessibility of education is determined in part by the kind of knowledge decided and the methods of generating and designing appropriate curriculum.

There is a growing perception world-wide that curriculum developments so far have not led to effective education and training, especially in the natural resources sector, as the following quotes suggest:

> Over the years, the world has changed and, in many of the developing countries, agricultural education and training have failed to adapt and respond to the realities of rural societies. Curricula and teaching methods and tools often have been

> developed that are not relevant to the development objectives of individual countries, to the needs of farmers and to the labor market in general. (FAO, 1995)

The above suggestion connotes that if the curriculum design and development is irrelevant to the national development objectives and to the existing market demand, education will fail to respond to individual and national development. Therefore, it is wise to pay attention to the curriculum design and development that matches with the national objectives and individual needs satisfaction.

On top of this, in the process of curriculum design what is key is to forge educationally sound and logical links between learner needs, learning outcomes, resources, teaching and learning strategies, and assessment(Fitzmaurice & Donnelly,2005:107). Constructive alignment is the matter of coherence. It is an approach to curriculum design that maximizes the conditions for quality learning by ensuring alignment throughout the process of forming learning outcomes to the choice of teaching methods and assessment. The fundamental principle of constructive alignment is that a good teaching system aligns teaching method and assessment to the learning activities stated in the objectives so that all of them in the system are in accord to support appropriate student learning (Biggs 1995:25 in Fitzmaurice & Donnelly 2005;102). Curriculum is the basic and primary element of education, even though it is not easy to bring, develop and change it overnight for the very reason that the economy and capacity of institutions to do this is a challenge .On top of this, there are many people who are comfortable with the existing system and they resist changes in curriculum.

The description takes into account several important issues that curriculum design and development is a flexible, dynamic process leading to products such as new or revised curriculum frameworks or detailed curricula which include objectives or learning outcomes, content and means of assessment and evaluation of learning. It can also involve identification and use of appropriate teaching and learning methods and materials - it is not a list of content. In addition, curriculum development is

about planning and guiding - it is not a blueprint or a formula or mere set of procedures. Furthermore, curriculum development is inclusive or based on participation. Therefore, curriculum development should not be simply seen as the compilation of a list of contents meant to be taught by teachers but curriculum development is usually a complex practice which incorporates or integrates different approaches, concepts, methods and activities. It is vital that attention be paid not only to the quantity of outputs, but also to the quality of both, process and product.

Therefore, issues of the kind of changes that can make curriculum development more effective and lead, in the end, to a better quality of education which is relevant to the needs of learners and appropriate in the local context need more attention. Curriculum design and development is recognized as a critical element in the success of education, although it is often carried out inadequately due to some internal and external factors. Curriculum development and educational organizational development are strongly interlinked; they both need to be addressed at the same time.

2.2.1. Some Characteristics of Sound Curriculum Development

Curriculum development is more likely to be effective if it is undertaken using a participatory approach. It has been proven by studies in successful experiences that participatory approaches are increasingly used in different countries for different practices including education, productive services, and service giving sectors, among others to ensure development.

Participatory curriculum development by its nature relies on dialogue, on processes, and on building capacity of institutions and individuals to identify strategies and solutions through collaboration, especially in keeping with the trend towards decentralization of education. It is an approach is based on the principles of involving stakeholders, providing access to discussion, sharing of tasks and responsibilities, a shifting from hierarchical, top-down approach, and

adaptation to each local context-–this is possible because the approach is process-oriented, flexible and dynamic, requiring involvement of stakeholder in all steps and aspects of education process, and calls for partnership principles.

Curriculum design and development as social phenomenon requires participation of specialists, teachers ,students ,and stake holders particularly at the stage of decision making regarding either to revise ,improve, or change the existing curriculum or to develop the new one. Curriculum as a project demands interdependence and social consensus. Especially in less developed countries curriculum project requires pooling of the limited resources (Mc Neil, 2009:28). Therefore, curriculum development needs a concerted effort. That is why educational experts recommend participatory curriculum development approach to be employed in the process of curriculum development and implementation (Galloway, et al., 2009).

A variety of players need to intervene in the processes of curriculum development and if their interests are not carefully assessed and taken care of, then the policy or the plan will have every chance of failing(UNESCO,1995). Accordingly it is possible to build relevant curriculum with the good of a country if there is consideration of interests of those who benefit from curriculum and if there is cooperation in its development and implementation. This being the case, Curriculum development needs research as one of the pre-requisites.

2.3. The Need for Curriculum Research

The practice of assessment and analysis to develop curriculum began several years back beginning from the work of Bobbitt(1918) when he conducted activity analysis to derive educational objectives (Ornstein &Hunkins,2004:196).

Many scholars argue that any practice of planning has to start from thorough investigation of the present status. To design such an original curricula education researchers advise that the faculty has

to analyze the current curricula (Deragon,2008;Sekiya et.al.2009). Educational decision-makings need thorough investigation in the existing programs. This tells us that educational decision-making (curriculum improvement, reform, development or change) has to be research-based. Concerning this issue there are scholars who underline the necessity of research in educational /curriculum decision-making. The need for collecting data, evaluating the efficiency of existing programs, undertaking a wide range of studies, exploring the future and fostering broad debate on these bases to guide educational policy and decision making has become even more acute than before (UNESCO, 1995).

Analysis in curriculum can begin with the investigation of the needs of the learners and the learning outcomes (Laurillard,2010:5). The importance of needs assessment is mentioned by Hutchinson and Waters (1996), Jordan (1997) Robinson (1990) when saying that any approach to course design should start with some kind of analysis of: target needs, present situation, language issues , to mention some among others.. It will be possible to formulate 'general aims' with the data obtained from needs assessment and define more 'specific objectives' as intended outcomes. The learners' needs should be realized, the basis for decision making in the program must be provided by the specific objectives. Collecting relevant information for syllabus design purposes and conducting studies (needs analysis*)* concerns the learner, the learning purpose, the contexts of use as well as learner or learning preferences. Needs analysis is, therefore, a vital part of curriculum design which helps to inform decisions concerning the formulation of both process and product objectives, and these in turn, assist with the specification of syllabus content and procedures.

Similarly Taba (1962) as discussed by Posner (1998) forwarded: "Scientific curriculum development needs to draw upon analysis of society and culture, studies of the learner and the learning process, and analysis of the nature of the knowledge in order to determine the purposes of the school and the nature of its curriculum." As to Taba, curriculum development requires

objectivity (scientific criterion).Taba argues for a systematic, objective, scientific and research-oriented approach to curriculum development. Assessing needs, formulating goals and objectives, developing materials, designing an assessment plan, organizing the course and conceptualizing content is described as a framework of course development process(Graves,2000).

All curriculum design and development has to be informed by research and must be anchored in research. Educators must consider a wide range of important research and concepts when making curriculum decision. The idea of evidence-based decision making aids educational professionals in which research enhances teaching and learning, improve learning, and supports to formulate policy to guide strategies for desired changes in education (Beauchamp, et al, 2012). Curriculum design and development basically requires questions of ‘‘what is ?’’ and “ what can be done ?” in which the former basic question focuses on researching each of the curriculum concepts by examining literature ,trends, and practices in a nation as well as around the world; the second question stresses on what research and practice informs future needs, directions, and considerations for curriculum design and development (ibid).Curriculum research in general plays key role to identify the shortcomings of the existing curriculum, to assess the needs of the learners and the society, to select appropriate professional competences, to target instructions, and evaluate competence attainments.

The research-based approach entails the processes through which issues are analyzed and policies are generated, implemented, assessed and redesigned. Such an approach is change-oriented (dynamic aspect). Curriculum development, implementation, and evaluation as a process is continuous without fixed terminal at a point. It should be self –correcting as science does.

After situations and environments are researched what comes next will be the practice of designing the curriculum. The process of curriculum design should pass through the necessary steps (the systematic process) because curriculum is science in part that requires scientific procedures to plan, implement, and evaluate. Curriculum design and development includes about six categories

(categories of activities or practices (general needs assessment, individual learner assessment, development of educational goals and objectives, selecting educational strategies, identification of needs and barriers for implementation, evaluation and feedback concerning comment on curriculum implementation and future direction or action (McNeil, 1996).Each of these phases requires its own time budget or duration of practices. If one of the phases is missed or ignored, it can negatively affect other phases thereby creating gaps. This might distort the curriculum design and development sequences causing problem of lack of quality in designing and developing curriculum which means ill quality of education.

Concerning the steps of curriculum design, it is not advisable to jump a stair because one preceding stair is a pre-requisite for the next like a baby has to first crawl before trying to walk erect and then run. These steps are progressive stages for curriculum design. To design and develop a curriculum is to decide on the fate of generation. It is not an easy decision. The body which is engaged in curriculum design and development must pass through many stairs. The first two phases, i.e., general needs assessment and the individual learner assessment require thorough investigation.

2.4. Issue of Alignment

Another pre-condition for curriculum design and development is that there needs to be alignment between national development plans, higher education proclamation, education and training policy, and curriculum design and development. Training objectives spring from education and training policy where educational and training policy is formulated based on the national constitutional declarations of education by government. Training objectives determine the curriculum design and development including the selection and organization of contents,(education and training program), instructional resources, instructional strategies of teaching and assessment. Obviously, educational policy making and educational planning have always been linked (UNESCO, 1995).

Educational policy is the cornerstone for educational planning. The policy process is a crucial element in educational Planning (ibid). Consolidating this notion, Derebssa (2006:28) writes:"The aims of higher educational institutions are embodied in their mission statements enacted by parliament of the time the institution was founded." He continues, "goals and objectives are also formulated in line with the general policy framework." In a similar manner, Mc Neil(2009:53) says : ''Policies, curricular frameworks that describe what should take place in the classroom .particular to instructional programs ,staff development, test and other measures of student achievement should be consistent or coherent." Curriculum development in higher education is concerned with designing for appropriate knowledge and skills in line with the institutional-national goals .Education cannot be considered in isolation but it has to be used as a tool of social, economic, and political transformation and will, therefore, have to be related to the long-term national aspirations and the programs of national development (Aggarwal, 1997:3).

Thus, there need to be relative congruence between the national educational declaration (proclamation), policy statements, and curriculum design and development; one influencing the other directly or indirectly. Constructive alignment is the matter of coherence. Constructive alignment is an approach to curriculum design that maximizes the conditions for quality learning by ensuring congruence throughout the process from the forming of learning outcomes to the choice of teaching methods and assessment. A good teaching system aligns teaching –learning methods and assessment to the learning activities stated in the objectives so that all aspects of the system are in accord with supporting appropriate students learning (Fitzmaurice & Donnelly 2005:102).

2.5. Curriculum Development and the Process of Teaching and Learning

Curriculum design and development is about planning and guiding learning seen in conjunction with the applying of training or teaching. It is a continuous process which aims to guide all learning

with a given program of education and training. Curriculum is the biggest powerful tool to change what and how students learn (McNeil, 2009).

As suggested by many educationalists in different literatures, curriculum materials development has to take into account the following six characteristics of students such as student needs and benefits, student experiences, self-directed learning, students' readiness for learning, students' motivation, and problem-centered learning.

Regarding student needs and benefits it is usual for learners to question the usefulness of any new material - a new course, for example - that is introduced to them to study. They will only make the effort to go through the material once they are convinced that it will help them in their profession, hobby, and/or life. It is essential, therefore, for curriculum designers to determine student needs and the perceived benefits that learners derive from new information, in making the benefits of learning materials.

As to students' experiences, every student possesses a degree of social experience. Since life, society, and culture are inextricably interrelated, the personal experiences that the student brings to the learning experience are socially relevant, and should be taken into consideration while designing learning materials. Learning should build upon existing experiences in order to be more interesting, acceptable, and beneficial. Indeed teachers and designers must be careful in this regard, since the past experiences of students can either be facilitating or inhibiting to learning.

In addition, considering student motivation is crucial issue in developing materials for them. After deciding to take up a course of study, students are often assumed to have a superior readiness and motivation for learning. Students will be motivated both by the intrinsic (internal) and extrinsic (external) factors. In general, however, they continue to be motivated by their own evolving personal needs rather than by external interventions as scholars reveal this fact in many of their psychological investigations in post behavioral approach.

Finally, taking into account the issue of problem-centered learning is important to create opportunity for the learners to deal with relevant problems or issues in their life and help them develop the skills for solving the problems by themselves. Students have to be goal-oriented, and their goals are different and usually based on the obstacles that they face in their way of life. Students learn the most if their learning materials are problem-centered and are related to problems that are both individual-centered and socially relevant. In the 1990's the concept of life skills expanded to an approach that is skills-based oriented toward behavior change, and integrated into all areas of curriculum (UNICEF,2000).

These common characteristics of student learning need to be carefully taken into account while designing courses and learning materials. It is essential to appreciate how learning takes place, and the variables associated with context-based student learning. This will facilitate the design of curricula and instruction (ibid).

2.6. Theories of Learning

When one discusses about curriculum implementation, what immediately comes to his/her mind is most probably the issue of learning because instruction is the interaction between teaching and learning. Teaching and learning are the core practices of curriculum implementation.

Theories of learning are considered as one of the main forces influencing the type and process of curriculum development. Understanding theories of learning in designing curriculum is important because a theory makes explicit the underlying psychological dynamics of events related to learning. Each theory, as well known, is based on different assumptions about the way and nature of learning. Theories of learning and instructional design have evolved from an early 'behaviorist' approach of the 1960s and 70s to 'cognitivist' and 'constructivist' models common today (ibid).

Scholars such as Ornstein and Hunkins (2004:100),agree to the above mentioned theories of learning and they forward that the major theories of learning historically have been classified into three groups as mentioned above ,i.e., behaviorist, or association theories ,the oldest one that deal with various aspects of stimulus –response and reinforcers; cognitive- information processing theories ,which view the learner in relationship to the total environment and consider the way the learner applies the information; and finally the phenomenological humanistic theories, (constructivism which is based on Lev Vygotsky's theory of social development published in 1962) ,which considers the whole child including his/her social ,psychological and cognitive development.

Behaviorism assumes that learning occurs when there is an observable change in the learner's behavior. Learning must be organized and reinforced being broken apart and should be sequenced with prior and subsequent learning as in a chain where as cognitivist model of learning is based on the belief that learning is a cognitive/ mental activity, less expressed in terms of human behavior than of what happens inside the mind(Freeman,2005). Cognitivism stresses on the importance of perception in the process of learning. Learning as to cognitivists involves conceptual understanding, problem solving, mastery of procedures, and rules(ibid).

As introduced into the contemporary world, Constructivism is more recently than the earlier two views. Constructivists assert that learners construct their own knowledge and understanding based on their perceptions and personal interpretations. Learning is therefore only meaningful when the materials it uses are based on the learner's cognitive and socio-cultural context (Panda & Juwah, (2006) in Freeman (2005). Explaining the characteristics of constructivism as it lets students to hold learning opportunities by themselves so that the students interpret, accept, and give their own meanings or reject them, McNeil (2009:142), writes:

> Increasingly, students are offered opportunities to explore phenomena and ideas ,make conjectures, share hypothesis with others, and revise their original thinking .The assumption underlying this trend to constructivism is that you can tell students all sorts of things ,but you cannot make them believe it unless they accept the evidence and arguments on which the new knowledge rests.

This explanation reminds us that it is wise to let the students the opportunity to discover phenomena and ideas, compare them with others' views and make connections or reject than telling them to accept evidences and arguments. According to Ornstein and Hunkins (2004:116), constructivism as an educational concept has key relevance to educational thinking in this century. As opposed to the previous views of behaviorism and congnitivism, the contemporary dynamic world is calling for constructivism as important approach in constructing or producing knowledge than gaining or accumulating.

Learning theories have different characteristics..The oldest one (behaviorism focused on repetition of learning material and rote learning; whereas the cognitivist approach /theory focuses on perception through observation of the contextualized environment. Both behaviorism and cognitivism are based on pre-specified educational objectives and prescribed learning. These two characteristics basically make distinction between these classical theories and constructivism as the recent and latest approach to learning mostly tested and being used in the developed world (Freeman, 2005).

2.6.1. Principles of Learning and Curriculum Design

The implications of student learning principles may be applied in the design of courses and learning materials in various ways. One way is a comprehensive understanding, through needs analysis and analysis of student characteristics, of who the learners are, how they learn, what are their needs and constraints, and who are their facilitators. The second way is the analysis of educational needs,

environment, and preparedness for a particular teaching-learning determines the level of the course, the degrees and requirements of the discipline.

Other condition to be taken into consideration is the fact that the instructional events and experiences should be developed around the context of the learner and/or the professional community of practice to which the learner belongs. Here, philosophy/policy plays an important part in determining what and how learning takes place. Further, attempts must be made, within and around the learning resources, to empower and facilitate learners so that they can reflect on what they are doing and learning, on the wider applicability of their learning, and on how they may move to a deeper kind of learning capable of transforming them(Mezirow, (1991) in Freeman,(2005).

In addition to content/text, the learning materials should include appropriate learning objectives, self-evaluation and activities, examples and case studies, study guides and study skills, opportunities for reflection and conclusions, and logical sequencing and linkages between study modules.

2.7. Desired Learning as Outcome of Proper Curriculum Development and Implementation

Curriculum implementation as commonly known is the phase at which the designed educational practices are carried out at classroom threshold floor. The purpose of such practice is to help learners achieve the intended learning outcomes. The learners should not be in tension to see the relevance of the curriculum materials to what they do or might be doing. Contextualized content is directly relevant to the learner and is practically situated- the application environment for the materials should be obvious at all times.

A curriculum material has to help the learner to understand and apply what he/she worked on or learned. Understanding (retention) and transfer of learning (application) are supported in a case when a close association is made with prior learning; learning materials are presented according to

a learner centric approach (for example focusing on the elaboration of job goals or problems, rather than an elaboration simply based on the structure of the content); opportunities for consolidation and reflection ; assessments are performed, and practical strategies are encompassed in the curriculum and encouraged by the teachers (Gilbert& Sheppard, 1991).

The issue of curriculum implementation is directly related to the matter of teaching and learning process. Different theories of teaching decide different shape and type of curriculum design and development. Gilbert& Sheppard (1991:230) citing Fox(1983) discuss four basic theories of teaching as 'transfer' theory, which considers knowledge as commodity to be transferred from one vessel to the other; the 'shaping ' theory, which treats teaching as a process of shaping or molding to a predetermined pattern; the 'travelling ' theory, which treats a discipline as a terrain to be explored ,climbing hills for better view points with the teacher as a travelling companion or expert guide ;and the 'growing ' theory ,which puts more emphasis up on the intellectual and emotional development of the learner. These theories of teaching demand the shape and type of curriculum which is different from each other.

2.8. The Issue of Competence-based Curriculum

Competence, i.e., the knowledge, skills, abilities, and personal attributes that a person brings to the job are what drive performance. The concept of competence-based education is understood in different ways in education system. Some associate it to specific checklist of skills whereas others to a set of generic capabilities or academic competences in academic competence-based curriculum. Competences are constructs and are inferred from or expressed in behavior in a certain context (Beauchamp, et.al, 2012).

Competences are skills needed in order to live, learn, and work. Beauchamp, et.al (2012) in the "Framework for Student Learning" , identified competence groupings as critical thinking; problem-

solving and decision making; digital and technology fluency; life-long learning; personal management and well-being; creativity and innovation; social, cultural, global and environmental responsibility; and collaboration and leadership including literacy and numeracy being competences of primary importance to all learning. These competences might be embedded into a curriculum possibly across and within subject areas.

Competence-based education is an approach to prepare professionals for practice that is fundamentally oriented to graduate outcome abilities and organized around competences derived from an analysis of societal and learner needs. It promises greater accountability, and learner centeredness (Frank, et.al 2010:3). The goal of competence –based education is to develop competence to the standard of a professional ready to begin practice. Professional competence is the array of abilities across multiple domains or aspects of professional performance in a certain context (ibid). Competence–based curriculum (CBC) is the competence-oriented curriculum that is distinct from the concept-based curriculum. The competence contextually means the professional skills required in the world of work. The concept-based curriculum is that type of curriculum the target of which is to offer the conceptual learning under the disciplinary approach to curriculum design.

Citing Knubben,et.al.(1993) Kouwenhoven (2003) asserts that education ,particularly professional, technical and vocational education is always facing the problem that knowledge acquisition does not necessarily mean the successful application of the same knowledge.

As distinct from theoretical/conceptual emphasis of the disciplinary approach, vocational education and training, like that of agricultural education, has to own both conceptual and skill competence-oriented aspects of education and training with the competence (professional skill required in the world of work) outweighing any general theoretical knowledge. Competence-oriented curriculum,

that targets domain specific professional framework that is bounded in the framework of capabilities pertinent to the expected professional and graduate skills, is one of the mechanisms to ease the transfer of knowledge because pertinence of issues for particular professional training and education is a short way to lessen the gap between what graduates are to know and handle, and what they are to apply in the world of work. In this context competence is conceptualized as the capability to choose and use (apply) an integrated combination of knowledge, skills, and attitudes with the intention to realize a task. Competence, here, is then understood as the capacity to realize 'up to standard' the key occupational tasks that characterize a profession (Kouwenhoven,2003).

Competences predict effective performance and the transferability of skills. Competences are not only about the knowledge and skills required but also the personal; attributes that underlie characteristics which are one's personal effectiveness such as feelings, attitudes, habits, and traits. Competence, therefore, is the interlinking effect of knowledge, skills, and values. Skills are observable that are acquired through practice and experiences. Knowledge as commonly known is the baseline of information which consists of theories, facts, and principles. Both knowledge and personal attributes support the skill to perform in which a person performing a skill effectively on the job is at the same time using the relevant knowledge and personal attributes.

These days knowledge is seen as integrative capability; and the acquisition of knowledge in itself is not the major aim of education and training; but what is important is what can be done with the knowledge (Kouwenhoven, 2003). In line with this notion, competence –based education and training is securing its place in technical and vocational education as well as in higher education.

So competence–based curriculum is a steel bridge for knowledge transfer between what the candidates have mastered and that of what they have to apply in the world of work. In other way round, it is the road to bring the graduate profile (what the institution requires from the candidates

at the end of education and training), and the professional profile (what the world of work expects from the graduates) very closer to each other.

Beyond understanding and remembering, learners have to be able to apply the knowledge. If so there is transfer of knowledge. If there is a gap between knowledge acquisition and application, there is a problem of lack of transfer of knowledge. To minimize such a gap, competence–based-curriculum is one alternative approach that can create strong bond between acquisition and application because the learners focus on professional abilities and skills needed to be applied in the work sphere. The competence based curriculum has to pay attention to learning–centered approach than to content-centered approach through active learning strategies to ensure significant learning that helps the candidates/students develop critical, creative, and practical thinking that enables them act wisely in the world of work. From the practical viewpoint, the candidates acquire foundational knowledge at educational and training institutions. The proof for acquisition of this foundational knowledge, as commonly practiced, through paper-pencil theoretical examinations. The big question is can the candidates practically apply what they have replied theoretically to the examination paper?

There need to be practical testing of the professional skills, and abilities to manage projects (Fink, 2013).

2.9. The Focus on Skill

Education is meant basically to enrich and enhance human capabilities in terms of knowledge, skills, and attitude. These educational domains are inseparable. All are necessary for one to live well and act wisely in the life span. What is debatable about these domains is their respective proportion or balance to be considered in education and training program. If the purpose is for conducting conceptual learning, un-doubtfully, the knowledge aspect or theoretical domain gets

more attention. In practice demanding education and training like that of agriculture, skill-oriented activities have to be prevalent. In such a case, the curriculum has to weigh more on the skills side supported by theoretical understanding.

The curriculum should not be prepared merely for making the learner accumulate encyclopedic knowledge. It has to incorporate skill aspects that enable the graduates live well and act wisely in the wider range of circumstances (McNeil, 2009).In the vocational institutions; much time has to be spent on practice in the field than the classroom teaching–learning.

Aggarwal (2006) stating the educational practice of Mhatama Gandhi of 1914 says:

> Gahandhi's educational philosophy took shape through his educational experience at the Tolstoy farm at Transval in South Africa where he undertook the responsibility of educating children who have to devote eight hours a day for vocational training and only two hours to book learning.

From this one can learn that the candidates have to be in the field on practicing professional activities for much time than to sit and attend book learning in the classroom.

Curriculum should centre on far reaching outcomes that all students would meet and demonstrate their mastery, not merely putting in 'seatwork' (Mc Neil, 2009). This reminds us that seatwork time should not dominate the practical fieldwork time.

2.10. Theory of Curriculum

A theory of curriculum involves philosophy and value systems, the main components of the curriculum: purposes, content, methodology, and evaluation; and the process whereby curricula are developed, implemented, and evaluated (White, 1993).

Conceptually, there are at least four different sources of ideas for a curriculum theory. First is the social situation. This includes the historical and cultural issues which have formed and are forming a people or nation (Ornstein, & Hunkins, 2004). Second is the contemporary political situation

(Apple, 1988). Here is included the constitution of the nation or state, a state or national department of education, and policy makers in legislative bodies. Third is the experience of, and experiments concerning, the learners and the learning process. This is partly captured by the psychology of learning and from subject-matter specialists, but includes all experimental data and teacher-student experience (Shulman, 1987). Fourth is philosophy of education. The focus here is on the values about the nature of humanity, the purpose of life, and personal relations which form the core issues of any particular philosophy, The results of these four components need to be directed at a particular national context.

All four of the components will vary depending on which culture and which parts of the educational process one wishes to address. This contextualizing is necessary because curriculum theory is the means by which the inputs can be mixed and a coherent model for a specific educational plan in an actual situation may be derived. Without specifying the context it is difficult to derive relevant inputs and build a specific curriculum theory (Dressel, 1984).

First (1) the values are chosen, (2) the context is analyzed, and (3) the curriculum theory is derived. Then, (4) the curriculum content, (5) a teaching strategy, (6) the learning environment and activities, (7) the teaching resources, (8) the institutional plans, and (9) evaluation and feedback plans can be developed. This total package of nine elements constitutes, broadly speaking, an educational theory (Clinton ,1997).

The four components of curriculum theory, listed on the previous page, match four of the five elements given by Tyler (1949) in his classic outline of a curriculum rationale . Tyler began with objectives, rather than values, and was more behaviorally oriented than some writers today. The major difference between Tyler and present curriculum theorists is that he was talking about these as elements of a specific curriculum plan rather than a general curriculum theory which takes into account philosophical values, cultural issues, and the level of educational design. Rather than

deriving one theory to apply to one educational problem, the interest is in examining the nature of any functional curricular theory and its possible role in educational affairs (Barrow, 1990; Garrison, 1987). There are many explorative investigations from a post-modernist perspective but no single positive curriculum theory has been developed on such a philosophical basis.

Values and curriculum theory do have their sources. Shubert (1985) in Clinton (1997) identifies four areas of life which contribute foundationally to human values: political, social, economic and religious. Some current theorists derive values from one of these areas, some derive values from two of them (No one uses all four areas to describe the process of value choices. Noel (1993) summarizes and suggests that beliefs and values arise from life experience in general. Political values include the values from the founding government documents, the laws of the federal or state government regarding education, and the values of the political parties in power.

Curriculum theory can be justified by engaging in conversation. Some of the theorists (e.g., Giroux, 1987) have rejected the concept of any absolutes to govern life and education and instead choose the pragmatists' metaphor of engaging in a conversation. In this case, the theorist is one among many members of a community of scholars who study the area of educational curriculum and together, through dialog, come to general agreement as to what curricular model to follow.

The second approach is that of a market-led. Here the various theorists are seen as collaborators and competitors at different times, with the assumption that through this process some best curricular theory eventually will be found (Tanner & Tanner, 1980). This theory will always be open to development and change to meet the ever changing needs of the educational market. Thus, truth in educational choice is relative to the needs of the people and the market will be dramatically involved through their expression of changing needs and changing choices of education (Wildavsky, 1987). Theorists design and teachers teach what the market wants to buy.

The third way of developing curriculum theory is that of an agent. Here the focus is on the teacher and the teacher's role in actually using some particular curriculum. The experts are at the service of the parents and teachers to help design the best curricular model possible to meet the felt needs. Collaboration and conversation take place through people, and the system is responsive to the needs of the market through the actions of people. The focus of a system is on the teacher, the primary contact agent. This is the assumption of traditional curriculum approach. The traditional curriculum focused on the teacher than the learner. However, in recent years there has been a paradigm shift taking place moving the emphasis from teaching to learning and more student-centered curriculum. This change has impact on the curriculum design process with a greater emphasis on learning in terms of knowledge, skills, and competences. The focus is on how learners learn and the design of effective learning environments (Fitzmaurice & Donnelly 2005; 101-102)

2.11. An Overview of Foundation of Curriculum Development

Curriculum development as commonly known is based on the philosophies of education and theories of psychology and sociology. A conscious attention to the contributions of philosophy, psychology, and sociology can help curriculum developers to make decision concerning the curriculum design and development. Philosophy as source of policy is necessary to decide the appropriate model for curriculum development. Philosophy in education is a root for educational policy. For example, philosophy provides insight into the nature of knowledge, the nature of mental qualities, the nature of aims and objectives, and the clarity of terms, the priority among objectives, the interrelatedness of objectives, the curriculum activities, the curriculum structure, strategies, and the function of school among others. Psychological theory raises questions about the nature of students, the process of thought, the selection of learning experiences, learning theory, etc. Because of this, psychology has due attention and remarkable place in curriculum development issue;

whereas,. Sociology as a theory attends to future trends, social background, the role of teacher and school, etc. It is concerned about the share of society in curriculum development.

The differences in outlook between scholars led to the differences in views and beliefs concerning the way about how curriculum should look like. Based on the variations in views among different thinkers, there are major schools of philosophical thought with regard to education some of which are liberal educational thought, progressive school of thought, behavioral theory, and humanistic approach.

The liberal education is the oldest of all other educational thoughts and it had its roots in classical Greek philosophy. The founders of liberal education were Socrates (469-399 BC), Plato (427-347 BC), and Aristotle (384-322 BC), suggested by Elias and Merriam, 1980 as cited in Mekonnen (2007;14). These philosophers were of the opinion that education has to be offered to prepare the whole man who is free man. Plato and Aristotle considered that education is from within an individual not from outside. They suggested that education is the enrichment of the intrinsic potential of individuals. This fact can be understood from the quotes taken from these philosophers' notions as addressed by McNeil (2009:19) as follow: "A learner is not an empty vessel to be filled but a flame to be ignited" as suggested by Plato. Aristotle on his part forwarded:'' education is an internal process assisted by external agencies in which individuals actualize their potential."

It is possible to suggest that these Greek philosophers put foundation for modern education particularly for the present time education. In similar manner, contemporary universities derive their structure and function from western models particularly from the English and Scottish, the German University model(which introduced concepts of specialization, and academic freedom), the grandes ecoles of France(which contributed to the ideals of meritocracy and professional autonomy stressing on intellectual training for professions(Lattuca,2010).

2.11.1. Variations in Approaches to Curriculum Development

Different schools of thought suggest different functions of schooling. For instance, the behavioral school emphasizes that the schools has to work on control, behavioral modification, learning through reinforcement, and management by objectives; while the humanistic school of thought, on contrary, pays attention to individual freedom and autonomy (individualism for self actualization), self-directed learning, and self trust.

Conception of curriculum contextually refers to the notion of curriculum as seen from the view points of different approaches. According to McNeil (2009:1) curriculum conception is linked with four views of humanistic, social reconstruction, systemic, and academic views. A humanistic curriculum is seen by students as important in helping them be what they want to be; it is a curriculum where learning is high in personal relevance, feeling, and probable success. The purpose of humanistic curriculum is helping individual students develop creativity, problem-solving skills, and innovation and thereby to provide each learner with intrinsically experiences that contribute to personal liberation and development. The activities in humanistic curriculum can be exploratory, puzzling, playful, and spontaneous activities. Humanistic curriculum conception is highly recognized and practiced in U.S.A for helping self actualization or individualism. The curriculum that emphasizes on shaping a whole population to a high level of rigorous discipline and the same basic academic subjects for all is relatively less emphasized in America and Europe (ibid).

It seems that the American type of humanistic curriculum for self relevance and personal development is not yet closer to Ethiopian cultural foundation, i.e., socialization that is a bit far from individualism for the time being. Therefore, adopting the humanistic curriculum as it is for our case might have its own shortcomings for it may be inconsistent with our domestic culture. The

curriculum for Americans focuses on innovation and creativity in which they place a premium on innovation and creativity (McNeil, 2009:3).

As to McNeil, humanistic curriculum solves fundamental problems of academic programs that packaging academic programs may bring about good learning. He continues:"---much of what is taught is not learned and much of what is presented and tested is not assimilated. Critics who think that greater learning is achieved by pouring more facts into children's minds are mistaken."According to this scholar those curricula with academic programs met failure of realizing learning. They are not successful seen from the practical experiences of education systems offered. Humanistic curriculum experts deny the scripted lesson (McNeil,2009).

The social Reconstructionist curriculum, on the other hand, is an instrument for effecting social reform, including exposing how institutions, such as schools, maintain existing hierarchies of privilege. As to social reconstructionists curriculum has to be related with the social, political, and economic development of a society as opposed to curriculum development in response to social needs which is adaptive than constructive. The primary purpose of social reconstructionist curriculum is to confront the learner with the many severe problems that humankind faces. Globally most curriculum reforms support the status-quo. But social Reconstructionists are concerned with the relation of the curriculum to society as it should be as opposed to society as it is. Therefore, social Reconstructionist curriculum is developed for transformation (Orsntein and Hunkins,2004).

A systemic curriculum is a standard–based curriculum. A systemic curriculum aligns goals, standards, programs, and instructional materials with tests for assessing the outcomes. A measured curriculum reveals whether the school and its teachers are advancing the learning of all and whether

diverse groups are acquiring pre-specified knowledge and skills. The overarching theme of systemic curriculum is control. This type of curriculum is usually used in training programs for military, industry, and religion to ensure uniformity in what is to be learned. Prescribed goals are given along with standards to be attained. Instructional objectives, benchmarks and other indicators are used to evaluate progress toward goals and to signal the need for modification (McNeil, 2009:52). According to the systemic curriculum experts, the school, its curriculum, and teaching should present pre-specified knowledge and skills and see that learners acquire them.

The academic curriculum is knowledge centered curriculum. The academic curriculum is concerned with organization of knowledge in ways that are best for learning a particular subject matter and for introducing students to the big questions that drive inquiry in the academic disciplines. In the academic type of curriculum, familiarity with subject matter concepts and matching pedagogy is a central focus. Academic curriculum emphasizes commoditization of education which puts economic gains at the fore with knowledge as a commodity to be exchanged. Parents and individual students often see the school curriculum to serve their instrumental needs especially their economic needs. Academic curriculum focuses on knowledge for use- instrumentalist view. Knowledge is considered as tool in concrete situations. Academic curriculum aims at higher thinking whereby students engage in the disciplines' ways of knowing and using academic concepts as frameworks in thinking and organizing their experiential world. The academic curriculum works on subject area specialization introduced by Aristotle for the first time in the 4th century BC. As suggested by Mc Neil (2009:94), Aristotle classified and compartmentalized (stratified) human knowledge and his classification works to date. It is possible, therefore, to say that academic curriculum got roots in the times of ancient great Greek philosophers of the 4th century. The academic curriculum is meant

to equip learners to enter to the world of knowledge with the basic methods and concepts of observing, noting relationships, analyzing and drawing conclusions (McNeil,2009).

Every country has its own national curriculum development purposes; because of this a country like United States of America may give priority to the humanistic curriculum that favors individualism than say the systemic curriculum. It seems that most of the less developed countries consider education as tool for development and means for livelihood than those of the developed world. Some countries might give priority to the systemic curriculum than the humanist or the social Reconstructionist type. Some other countries may prefer the integration of the approaches to adopting the single type. What matters the choice can be the level of development of a country, its social, economic, and political demand. Accordingly, the Ethiopian higher education seems that it has been founded on the systemic and the academic type of curriculum, i.e., the hybrid curriculum approach because education and training is planned purposefully, implemented, evaluated and controlled(systemic curriculum) assuming that it contributes to the national development ,viz., instrumental academic curriculum aspect(Ornstein and Hunkins,2004).

Even though the curriculum decisions vary from country to country, source of curriculum as educational enterprise was the ancient Greek classical educational philosophy. The American began to adapt the classical Greek academy in their higher institutions in the 17th century. The curriculum in the United States designated the form and content of baccalaureate experience in early American colleges beginning with Harvard College in 1636. As institutions of higher education expanded rapidly, the essential curricula forming the core of their instruction continued to follow the academic inheritance of the classical Greek schools and medieval European universities. The quadrivium - the "higher" arts of arithmetic, geometry, astronomy, and music - strengthened more basic instruction in the trivium: grammar, rhetoric, and logic. Academic course offerings in higher

education typically reflected both federally recognized and funded curricula along with more localized learning needs. In this respect, curricula continue to serve functions recognizable in higher education today (McNeil,2009 ; Ornstein and Hunkins,2004).

While most modern academic departments can trace their roots back to the historic plans of study described in the quadrivium and trivium, more recent developments reflect the increasing specialization of academic and administrative systems within institutions of higher education in the United States. In the twentieth century, most societal institutions invoked rational principles and a scientific method of development. Just as the Industrial Revolution fueled technological advances in the nineteenth century, technological revolutions have propelled the form and function of educational institutions. In the latter half of the twentieth century, increasing percentages of the adult population in the United States enrolled in increasingly diverse types of colleges, universities, and vocational programs. The national demographic of education has shifted, and the curriculum in higher education has responded to and reflected changing political, socioeconomic, and cultural dynamics. Growing recognition of professional fields and the attendant expansion of professional education have also fostered curricular adaptation and evolution. As these developments have changed expectations for higher education, they have also transformed perspectives on the meaning and development of curricula (Stenhouse,1975; McNeil,2009).

Like any other aspect of an educational institution, the curriculum responds to external and internal forces and reflects the identity, assumptions, and perspectives of decision makers affecting it. Curricular development and practice are neither political processes nor static. Investigations in the early 1980s testified to the importance of curricula in higher education; not only was the curriculum seen as an academic construct, it was also understood to be the repository of cultures, both national and multinational, and the historic medium for the transmission of cultural themes. Some

educational leaders and programs balked at more inclusive measures to redesign the curriculum, but the resurgent interest in control of curricula clearly signaled that what students read, and who decides what they will be reading, still shapes the national conversation about higher education and its purpose. Unlike any other single feature of an educational institution, the curriculum represents the core values and shared beliefs of communities. Developing shared learning experiences, then, requires that educational leaders invite and engage the values and beliefs of not one, but many communities (McNeil,2009).

The way how the higher education institutions emerged, by-and- large, matters the nature and practices of the curriculum to be carried out afterward in these institutions. For instance, Schuster (2001) in his retrospective journey of higher education in America showed that the differences (especially diversification of programs) put first during the 17th century still works.

The history of American higher education spans more than three and a half centuries, dating to the founding of Harvard by Puritan Congregationalists in 1636. The next college established in the English colonies of North America was College of William and Mary in the colony of Virginia by Anglicans. As Puritan Congregationalists religion was different from the Anglicans the colleges established by the two distinct religious institutions had the opportunity of advancing their particularistic interests (Ornstein and Hunkins,2004).

As can be understood from the above brief historical perspective, American higher education system had religious origin even different religions (the Puritan Congregationalists and the Anglicans) that brought about difference (diversity) among higher education institutions having their own unruly system and program diversification. Even though its origin is intimately linked to the religious groups of English settlers, nowadays American higher education system is characterized by increasing opportunities of access for students and by a decentralized system

which allows institutional diversity (Schuster, J. 2001).And that variety which was designed to accommodate students of very different academic ability levels constitutes not only the most salient characteristics, but also the greatest strength of this unruly system of higher education in America (McNeil,2009).

2.12. Teachers' Participation in Curriculum Development

Participation of teachers is vital in designing, developing, implementing and evaluating curriculum. Teachers know more about curriculum not less than the expertise in the field because they are the main implementers of the curriculum at the grassroots (classroom level). According to Taba (1962) as contended by several curricular specialists, teachers who are teaching or implementing the curriculum should participate in developing it. She introduced the grass root approach arguing the importance of participation in curriculum development.

Likewise, Derebssa (in his note entitled "Issues in curriculum implementation; limiting and facilitating factors", 2010) reflecting Stenhouse's image of the role of teachers in curriculum development explained that Stenhouse (1975) argued against the practice of "teacher proof curricula" and further pointed out that to by-pass collaboration of teachers means to by-pass their rationality and ingenuity, and this would not solve the implementation problem, but, on the contrary, makes it worse. Furthermore, citing Stenhouse,(1975:4) he notes: "A curriculum is a hypothesis, a starting point for reflection and development done by responsible professionals."

As justified by different scholars, the role of teachers in curriculum development and implementation is inevitable; otherwise curriculum does not serve its desirable purposes. Other investigators such as Bezzina (1991) in Bolstad (2004) suggests that teachers' participation in School Based Curriculum Development should comprise five groups of behaviors: (1) gathering background information; (2) planning, (3) implementing; (4) evaluating; and (5) working with others. According to Bezzina, the role of the teacher is important particularly in carrying out

situational analysis that helps support the school based curriculum development approach. Teachers as to her are curriculum researchers as well.

Similarly, Ornstein and Hunkins (2004:24) in the issue of "The teacher and the Curriculum" forward that the participation of teachers in every phase of curriculum is necessary and mandatory. Stating suggestion of Doll they write: ''…the teacher should be involved in every phase of curriculum making, including the planning of specific goals,--materials, contents, and methods." Further, these scholars pointed out quoting Oliva that teachers are seen as the primary group in the curriculum development. Teachers' role in curriculum issues is therefore, a never circumvented issue in curriculum development (Stenhouse,1975).

Teachers' role in making decision about curriculum can be affected by many factors some which are the national system frame (policy decisions), institutional frame, faculty frame, learners' frame, and teacher's self-frame (Brady, 1992 in Bolstad,2004).As to Brady, the system frame includes the decisions which already have been made by policy statements, curriculum documents, or other system directives. This scholar claims the factors in this frame restrict teachers' decisions about content selection, sequencing of content, and the methods to impart content.

The school/institution frame refers to the restrictions the teacher perceives to have been placed on them within the school, including timetabling, access to resources, and class organization. If the work load according to the institutional frame is high, the degree/extent of teachers' participation in curriculum research, design and development will be limited or restricted to low (Punia,1992).

The Faculty frame encompasses decisions teachers accept to have been made by faculty heads (e.g. teachers' allocation to classes, coordination of topics to be taught from one year to another to avoid repetition and ensure development, and faculty policies about student assessment, and resource allocation).

Learners' frame goes with teachers' expectations regarding students, e.g. about students' abilities, interests, likely behavior and teacher-student relationships, the products of experience with particular classes/students, information about students from other teachers, etc. Teachers are expected to be aware of these students' affairs and be able to consider them in curriculum development. Finally, teacher's self-frame relates to teacher's professional self-concept, the ideals that teachers possess, his/her abilities and experiences. A teacher's self-concept is likely to be stronger if he /she believes his/her classroom practice is consistent with his /her educational ideals. To take part in curriculum development issues expertise qualities are required from teachers (Punia, 1992; Stenhouse, 1975).

Teachers have to have the large share in curriculum development processes including stating objectives, selection of content and learning experiences, selection of methods and materials for teaching and learning, and selection of student evaluation procedures. To do so teachers need to consider and know their school and community context through situational analysis, and they should know about the contribution of philosophy, psychology and sociology to the school curriculum. Designing your own program and better trying to involve more teachers when designing it, might be time consuming, but in the long run it might be rewarding knowing that we are catering for what the students really need and want(Graves,2000).

2.13. Participation of Other Stakeholders

A participatory curriculum development approach aims at developing a curriculum from the exchanges of experience and information between the various stakeholders in an education and training program. It is the congregation of stakeholders, who may include educationalists, researchers, policy makers, teachers and other stakeholders. Rather than belonging to a small selected group of experts, participatory curriculum development involves a wide range of

stakeholders in a meaningful way, drawing upon their experience and insights in a structured approach to curriculum planning, implementation and evaluation (Taylor,2001).

They may help identify needs for training, set aims and learning objectives, contribute to the development of the subject matter to be taught, and participate in delivery and evaluation of the curriculum. As explained by Morrish (1997), the approach of participatory curriculum development was used by Elsa Auerbach and other facilitators of adult literacy programs in the United States. Elsa Auerbach and her colleagues realized that if there is no voice, there is no power, if you are oppressed (losing participation) you do not have a voice. People feel powerful when they are able to be partners in the process and are able to see change. This is a participatory process (Morrish, 1997).

Participatory approach is important to search for solutions together .It can be useful for project planning, implementation, monitoring and evaluation. In the working areas, it is the tool for interconnected social, economic, political and cultural interaction.

In addition, cohesive and collaborative process for curriculum design and development will ensure, in part, the responsiveness of the curriculum to the life of the students and the community (Beauchamp, et.al; 2012).

In substantive aspect of curriculum design, decision –making about what should be built in and what should be left out of a curriculum in order to avoid overload, and about the extent to which the goals and contents of education should be regulated, often can be characterized as a battle of field on which various stakeholders bombard and try to persuade each other with all kinds of substantive and socio-political arguments (Kuiper and Berkvens, 2013).

Policy-makers, curriculum designers and developers, schools and institutions should work together and take responsibility for achieving an optimum in providing conditions (ibid).In addition,

Stakeholders should be able to participate meaningfully in decision making and should play their part in delivering sustainable curriculum development (Saiful,2012).

The coming together of the different sections of a community at rendezvous and discussing about education issues has its role to play in brainstorming ideas and wishes and creating consensus among different bodies of a community in making genuine decision about curriculum. Education is social activity and instrumental property of all . It requires participation of all. Participation of people has contribution to listen to the social problems and pay attention to the social demands. Concerning, participation, relevance and integration, McNeil (2009:7) contends that curriculum issues include elements such as participation in the form of power sharing, negotiation, and joint responsibility by co-participants; integration (interaction of thinking, feeling and action; relevance(subject matter closely related to the basic needs and lives of the participants and its significance to them) , and to self and social goals (ibid).

People need to have a say in curriculum because curriculum is the life business and concern of all humans. Some people of the developed region need that their language, culture, religion, local environment, etc be included in the public institutional curriculum on one hand; and others prefer the curriculum focusing on pure scientific teaching. For instance, in the developed countries like U.S.A ,there are people (usually religious people) who seek that the biblical origin of man to be incorporated in public institution curriculum than the Darwinian theory (preferring biblical theology to Darwinian theory).Contrary to this, others wish, think and decide that the origin of man should be confined to the Darwinian theory and be included exclusively in the curriculum(McNeil,2009).The political decision making, in democratic culture, is here needed to reconcile the contrary notions and wishes of people in which the decision making about curriculum content in debatable context through discussion, adoption, and consensus among different

communities. In Ethiopian context, education is secular (worldly) ,i.e., free from religious issue as stated in the national education and training policy of Ethiopia (TGE,1994).

The issue of people's wishes, rights and participation reminds us of the issue of democracy. As commonly understood, people have the right to take part in what concerns them. Education, people's participation and democracy are inseparable. Democracy without education; and education without participation is a contradiction (Aggarwal, 2004).

Participation is a precondition to free intercourse and communication of experiences. Concerning this, Dewey in Aggarwal (2004) suggests that a society which makes a provision for participation in its good of all its members on equal terms and which secures flexible readjustment of its institutions through interaction of the different forms of associated life is so far a democratic.

Participation creates synergy. Synergy is the potential that an individual cannot possess in isolation. Participation creates strength that may remind us a common Ethiopian proverb which reads "If a spider's web unite, it can tie up a lion" which is synonymous to the notion "Together, we can ----." Beyond the above assertion, inclusiveness, i.e., involving the direct and indirect stakeholders, experts, policy makers, candidates and the community at large contributes much to enhance social cohesiveness. Generally, curriculum development process has to be based on scientific procedures, aligned, interactive, collaborative, iterative and flexible /dynamic enough following the change of national and global socio-economic environment (Galloway,et al.,2009).

2.14. Brief Overview of Ethiopian Tertiary Education Experiences

Beginning from the time it was initiated ((in 1908GC), modern education in Ethiopia underwent several changes. It played role in producing skilled manpower for different social and economic sectors. Primary and secondary education had remarkable role in preparing lower to middle level skilled manpower those who did their best in governmental offices, education, military, health,

agriculture, and other social sectors (Teshome,2004). Today, the rapid expansion of primary, secondary, and tertiary institutions and provision of education is needed to support the Ethiopian transition from a low-income to a middle-income country through improved agricultural, industrial and service sectors (Teshome,2007).

Tertiary education in the Ethiopian case includes post secondary education and training. From the historical perspective, higher education began in Ethiopia first for the purpose of training teachers for primary levels. Teacher education was the first program to be opened as modern higher education program in Ethiopia in 1944 (Ma'aza ,1966:78). Ma'aza's assertion is consolidated by (Tesfaye ,2008:6) who writes:

> A teacher training school for the preparation of teachers for primary level was opened in Addis Ababa in 1944.It offered a three year courses. The school consisting of two classes was housed in MenelikII School. Later, certificate programs were opened in Harar, Debreberhan, Addis Ababa and Jimma, and diploma level training also started in Kotebe College of Teacher Education, Bahirdar Academy of Pedagogy, Alemaya College of Agriculture.(Tesfaye,2008).

In1962, the Haileselasse I University opened the education faculty mainly to train qualified teachers for Ethiopian secondary schools in which the would be teachers join first the "Beide-Mariam" Laboratory School (1962-1978) for an intensive study for university preparation (ibid).This shows that modern Ethiopian higher education is relatively young, which is not more than sixty years, compared with that of the Medieval European Universities of the 17th century. Higher education in Ethiopia has been a significant force in development through production of high level human resource and research. It had been the institution of leadership especially before 1974 in addressing societal concerns, development and democratization, though not expanded sufficiently to open opportunities for the youth, long-life learners, and to satisfy the demand of the economy and the country (Teshome, 2007:42).

During the Imperial regime, in particular, law was enacted that gave the authority to the Emperor to decide on the whole matters of education. In regard to this, Ma'aza Bekele (1966:81) wrote the following in her PhD dissertation entitled "A Study of Modern Education in Ethiopia'': '' In 1947, as per order No.3 of 1947 the Central Board of Education was established and the Ministry of Education and Fine Arts was brought under the ''exclusive control of the then " His Majesty Emperor Haileselassie I."

This shows that the curricular decision-making was being made by the Emperor of that day, however, the Minister of Education and Fine Arts had the function of defining the nature of curriculum for schools and technical schools as enacted by law. As stated in the literature the Ethiopian Ministry of Education was officially established in 1943 GC for the first time. (Ma'aza Bekele,1966).

The education policy, especially, of the higher education during the Imperial period was stated as follows:

> The education policy of 1950's was to prepare young men and women who could man a modern administrative system, providing training for technicians for new industries, for the professions, for such services as transport and communication, as well as officers for the armed forces and police, and providing education for elite (ibid).

From this it is possible to suggest that the objective of education at that time, by-and-large, did not go beyond producing official clerks and middle level professionals. The policy statement of the time shows that education at that time was more of function-based type or instrumental in nature to serve governmental purposes.

The educational objectives during the Dergue (military regime between 1974 up to 1991) were in general political-based and the purposes of education connoted mere principles of production, research, and political consciousness which were the three broad slogan-oriented educational objectives of the time. Education, by and large, was most used as instrument for political discourses focusing on the philosophy of Marxism-Leninism under the umbrella of socialism at the time. It is

possible to say that education at the time served most the political interest of the ruling military class. The theoretical objectives of education which were propagated as 'education for production' and 'education for research' were left mere motto and slogans, and the higher educational effort of that time did not go more than mainly preparing teachers, officers, health care personnel, middle level social service givers in different sectors almost in a similar way as in the Imperial regime (Alemayehu, et al.,2012).

The curriculum design and development process in Ethiopian education system especially prior to 1990's was highly centralized-linear in aspect. Curriculum for schools was prepared by 'experts' in the ministerial offices under the strict follow up and control of the rulers with little or no field observation and investigation and it was sent down to the schools. The process of curriculum design and development for schools including institutions was, thus, less participatory. Participation of stakeholders including teachers was not considerable in curriculum development issues at that time (Ma'aza,1966). Curriculum was transplanted ready-made from the then Eastern bloc (especially from Western World and the then USSR), prescribed and imposed through the MoE to the schools and institutions (Teshome,2004;Messay,2006).

It is possible to suggest that once curriculum was adopted from abroad (Messay,2006).

At present, the horizon of higher education has been widened and more focus is given than ever before by the government considering higher education as center for teaching, research, and community service giving, and higher education is assumed to be the propelling engine for development through contribution to the development of science and technology (FDRE,2010). The mission of education is ensured through the development of relevant curriculum and its proper implementation among others. The current higher education objectives as stated in the proclamation no.650/2009, article 4, are stated as follows:

> The objectives of higher education are to: prepare knowledgeable, skilled, and attitudinally mature graduates in numbers with demand-based proportional balance of fields and disciplines so that the country shall become internationally competitive; promote and enhance research focusing on technology transfer consistent with the country's priority needs; ensure that education and research promote freedom of expression based on reason and rational discourse; design and provide community consultancy services that shall cater to the developmental needs of the country; ensure institutional autonomy with accountability; ensure the participation of key stakeholders in the governance of institutions; promote and uphold justice, fairness, and rule of law in institutional life; promote democratic culture and uphold multicultural community life; ensure fairness in the distribution of public institutions and expand access on the basis of need and equity(Ethiopian Higher education Proclamation,2009:4).

The current higher educational objectives are relatively more relevant and have ingredients of developing knowledge, skill and attitudes, enhancing research, focusing on technology, ensuring autonomy and accountability, academic freedom including freedom of expression, issues of justice and democratic culture. This being the case, the development of higher education curriculum has to have alignment with the education policy to take it down to the ground and put into practice the educational objectives (Mordica, et al., 2013).

2.15. A Glance at Curriculum Management Experiences of Some Foreign Countries vis-à-vis Ethiopian case

The modern Ethiopian higher education is relatively young, i.e., it began at the mid of 20th century which is not more than sixty years, compared with that of the Medieval European Universities of the 17th century. Different countries pursue different educational management approaches of either centralized, decentralized or both as complementing each other. Higher education in Ethiopia was under close control of the Emperor (1950-1974), institution-based. It became under strict control of the state from 1975-1990, and decentralized since 1991.In consequence, the curriculum in Ethiopian Universities has been standardized and harmonized since 2007/08 so that transfer of credit hours and qualification of the graduates all over the country was made to have equivalence for this purpose (MoE, 2010).

2.15.1. Issue of Educational Centralization VS Decentralization

Decentralization and autonomy are aspects of curriculum freedom in which the power from the center to institutions and schools is devolved which could make education system more flexible and efficient. However, there are varieties between countries to apply either centralized or decentralized or the mixture of both; viz., some countries have strong input regulation through curricula (for example France ,Portugal, and Germany); others emphasize deregulation allowing space for schools ,institutions ,and teachers to make local decision-making(like Estonia, and Slovenia); still some others have sort of a mixture of curriculum regulation and deregulation aspects (like Finland, Netherlands, and Hungary) in deciding about education and curriculum design and development (Kuiper and Berkvens,2013).

Globally, there is the direction of swinging between curriculum regulation (substantive) and deregulation (free choices) pendulum (Kuiper and Berkvens, 2013).This suggestion shows that the type of subject-matter to be dealt with and the curriculum to be shaped is decided uniquely in which some countries make the curriculum freely chosen and dealt with without strict time limit of training and education in which the pace of the learners matters. Others pursue the substantive approach in which the whole curriculum matter is strictly confined to limited time of training and education; still others apply the mixed approach.

Ethiopia's experience of curriculum management is the substantive one, which focuses on classical curriculum question about what knowledge is of most worth teaching and learning within limited amount of time available for schooling or training. The education system at almost all levels is directed to shape the learners through the prepared and predetermined curriculum.

The aspect of curriculum management, nowadays, seems that of the mixture of regulation and deregulation in which the MoE is responsible for the country's education system while the institutions design and develop curriculum under cooperation of Regional Bureaus and MoE . In Ethiopian context, the national MoE and regional level educational bureaus cooperate based on dialogue and trust like that of Finland. In Ethiopia the core curriculum, for instance, for higher harmonized learning institutions is established under the National Curriculum Change and Implementation (NCCI) under the management of MoE in which the training institutions have their own curriculum content draft for discussion between members of NCCI at ministerial level to make curriculum decisions. The framework of curricula prepared at this level is meant to support the building of national identity including sense of nations, nationalities and peoples of the regional states. This has implication of the importance of national regulation complemented by regional-local choices similar to the curriculum system of Netherlands in which both curriculum regulation and deregulation are needed to be considered in order to come to successful educational change (Kuiper and Berkvens,2013).

Another concern in the process of curriculum planning and development is the questions of who determines priorities, who devises the curriculum design and development process, who decides on the materials and activities, on human power requirement, and finally who determines if the curriculum is meeting its expectations (Ornstein and Hunkins, 2004:17). Today the production, development, and dissemination of knowledge is taking different forms than ever before. From the previous periods up to recent time, higher institutions (Universities) were the popular centers for curriculum development, knowledge production, and dissemination. These issues are taking place in different aspect from the previous in which some civil service and military institutions shape or

prepare curriculum and handover to Universities for education and training. The former direction of university-knowledge-society has shifted to society-knowledge–university (Gibbons, 1998).

Gibbons (1998) dichotomized aspects of knowledge production and development into two modes of knowledge production (mode 1 and mode 2), in which the former means the knowledge of discipline-based type typically produced in the classical universities; whereas the latter one (mode 2) refers to the production of knowledge in the context of application ,i.e., it arises in the process of solving particular complex problems in collaborative trans-disciplinary teams and partnerships situated both in and out of the higher education institutions (Kouwenhoven, 2003).

When one takes a bit historical journey back to the Ethiopian context, the higher education curriculum design and development, especially since 1970's up to 2007/08, was a faculty-led departmental effort in which the curriculum was prepared at departmental level and submitted to the university Curriculum Standard & Revision Committee, through the Faculty to the University Senate for comments or amendments and finally for approval. Such a process of curriculum design and development showed the decentralized approach to curriculum development and that the conception of higher education curriculum design and development was within the institutions and more participatory because all teachers in a department take part through departmental meetings and they had the opportunity to play their role and make scholarly decisions. The department members had greater role in contributing their professional &experiential skills in making authentic final curricular decision at departmental level (Punia, 1992).

But since 2007/08 onwards, following the shift in modality of secondary school teachers preparation program from the integrated mode of training to the end-on or add-on modality of teacher education and the establishment of new curriculum change and implementation task force by the MoE around 2007/08, seem to deviate from decentralized system of curriculum decision making. This may take one to assume the mixture of centralization and decentralization.

The curriculum committee structure ranging from department through faculty and University level taskforce to the ministerial level has been founded to work on curriculum issues of universities (MoE,2010).

Scholars are of the opinion and confidence that some of the successful models of curriculum development in higher education are found when the development is originated from within the institution, although, the education and training policy documents by the Ministry of Education have been found to be effective in promoting curriculum revision and development in higher education (Pedagogy module, 2009).

This institutional autonomy is consolidated by the institutional academic freedom declared under article 16 of the Higher Education Proclamation 650/2009. Scholars also ascertain that the academic staff has the right and opportunities to take part in any kind of institutional issues for betterment.

For instance, Amare (2007:3-4) citing UNESCO (1997) in his study of "Academic Freedom and Development of Higher Education in Ethiopia" writes:

> Higher education personnel should have the rights and opportunities, without discrimination of any kind, to take part in the governing bodies and to criticize the functioning of higher education institutions. Self governance and collegial decision-making should encompass decisions regarding the administration and determination of policies of higher education curricula, research, extension work, the allocation of resources and other related activities.

He furthermore explains that determining curriculum, assessment, standards and other academic matters are the roles to be predominantly played by the academic staff than the administration from the top. Higher education systems basically resist strict state control even though state control is inevitable.

Concerning this, Clark, B(1983:177) contended:

> The primary characteristics of higher education system amount to a veritable catalog of reasons why they stubbornly resist state control. It is not simply a matter of individual scholars believing in freedom of research and teaching. If the scholarly beliefs were the only source of resistance, they could readily be overcome by those who would seek to command from the top. The expansion in the scope of the university in the nineteenth and twentieth centuries has brought with an increased complexity of curricula that in itself has served to limit the intervention. To take a look at physicist at work, one had better send some physicists.

As to this scholar, academic freedom is sought not only from the wishes and beliefs of scholars but because the complexity of academic systems by themselves require expertise or scholarship. As expressed above the academic staff has the right and responsibilities of participating in academic and administrational spheres of higher institutions because the academic issues in particular require professional expertise.

But from the practical experiential viewpoint, the process of Ethiopian HE curriculum development since 2007/08 onwards seems as if it is semi-centralized. The process of HE curriculum development seems to become under the close supervision and control of the MoE as opposed to decentralization. There are some evidences that show this reality.

Some scholars, for instance, Teshome (2007) argues that the MoE leads the whole matter of education. The role of the Ministry of Education in the decentralized education system in general and in the process of HE curriculum development in particular has to be clearly identified. From the actual experiential point of view, it is possible to see some hints which show that the Ministry of education has the upper hand role of deciding the why, what, how, etc of higher education curriculum.

Concerning the responsibility of developing higher education curriculum, the Ethiopian Higher Education proclamation 650/2009 under article 8, sub article no. 1-3, ascertains that without prejudice to other provisions of this Proclamation, every institution shall:

1/ *uphold the objectives of higher education and the guiding values of the institution; and ensure that it is an institution of scholarship;*

2/ *develop programs of study and provide higher education; prepare and supply qualified graduates in knowledge, skills, and attitudes on the basis of needs of the country; and award academic qualifications in accordance with its programs;*

3/ *undertake and encourage relevant study, research, and community services in national and local priority areas and disseminate the findings as may be appropriate; undertake, as may be necessary, joint academic and research projects with national and foreign institutions or research centers; (FDRE,2009).*

In principle, the question "who should control the formal curriculum?" is debatable because the emphasis of curriculum on what should be learned strongly impacts not only the lives of the students but also the society as a whole (McNeil, 2009: xi). Since all stakeholders need to have hands in curriculum issues, it is not easy to determine who should control the formal curriculum. However, as has been tried to clarify, for instance, the issue of alignment between policy(HE proclamation) and practice of curriculum design and development, it is expected to see in practice that it is our higher education institutions' right to develop the institutional-national educational programs / curriculum. Is it not the duty of HEIs to conduct research on curriculum situations and decide on curriculum revision, improvement or change and development? This seems one of the deficiency areas which require further thorough investigation and analysis.

2.16. Current Effort of Ethiopian Government toward Higher Education Reform

Since the adoption of current Education and Training Policy in 1994, especially beginning from 1997 up to the present, remarkable effort was made to design Education Sector Development Programs which have details of national-regional educational practices specified to five years duration of accomplishments that are used as the governing guide in running education in the country particularly identifying specifically what to do through what strategy, and by what means are packaged. These education sector development plans have contributed a lot in showing direction of the national educational practices and targeting to the goals ought to be achieved.

Another exemplary effort in Ethiopian education system is the focus on gender equity (in which the number of males and females in a classroom is becoming equivalent), rural-urban equity concerning access to education and free primary education to achieve the goals of universal primary education by 2015. The effort kept right on increasing up to increasing the numbers of higher education institutions remarkably that has never been seen prior to 1990's in Ethiopia in which the number of Universities quadrupled between 1995/96 to 2003/04 from two Universities(Addis Ababa University ,and Haramaya University) to eight when the three Universities in the northern part ,i.e., Bahir Dar,Mekele,and Gonder Universities were established); and the three in the southern part of the country ,i.e., ArbaMinch, Jimma, and Hawasa Universities) .These eight Universities are considered in the category of "the established institutions."

Beginning from 203/04 up to 2007/o8 thirteen more Universities (Adama, Aksum, DebreBerhan, Debremarkos, Dilla, Diredawa, Samara, Jigjiga, Madawalabu,MizanTepi, Wallaga, WalaytaSodo, and Wallo Universities) got their foundation and are running education and training in different fields of study. These are grouped under the category of "establishing Universities". The establishment of these institutions increased the number of Ethiopian Universities to twenty one up to 2007/08. More ten Universities are undergoing establishment (Adigrat ,Addis Ababa Science and Technology University, Ambo, Assosa, Bulehora, Debretabor, Mettu, Wachemo, Waldia ,and Walqite Universities) and these are considered in the category of " Under-establishment. The establishment of the Universities in Ethiopia has something to do with improving the expansion of and accessibility of higher education in taking down to the rural areas the higher education opportunity that was only confined to "urban Ethiopia" prior to 1990's and this effort ensures the genuine distribution of higher institutions in the country (MoE,2010).

The increased number of the higher institutions brought about wider opportunity for those students who completed their secondary education successfully and this opportunity increased the annual higher education intake capacity of the Universities in the country even though much is left to work on education and training quality. Government budget has tremendously increased in education as compared with the budget share of the Ethiopian governments before 1990's (MoE, 2010).

Indeed the economy has extremely low industrial base and undeveloped service sector. Much effort is then needed to transform the economy from its lower equilibrium to higher and sustainable levels of development. To face and counteract challenges of backwardness and poverty, the Ethiopian government adopted the short to long term plans policies, and strategies (GTP, 2010).

The country is one of the poorest in the World, and the government of Ethiopia has recognized that education is the way out of this perilous situation. Therefore, the government is committed to expand education at all levels than ever before. Since 1997 up to 2014/15, Ethiopia has embarked on education Sector Development Programs (conducting four consecutive ESDP's) with the major objective of improving quality, relevance, equity, and efficiency of education ,and expanding access especially toward achieving the goal of Universal Primary Education by 2015.

The relatively growing economy demands highly qualified and competent professionals especially in the field of science and technology, and due to this the government has placed priority emphasis on this field assuming it as a base for economic growth of the country. In order to address the problems, the Ethiopian education system is going through reforms as Business process Re-engineering (BPR) initiative that all sectors in the country are going through especially since 2009.At the same time there is education reforms initiative ,viz., General Education Quality Improvement Program(GEQIP) supported by the World Bank focusing on curriculum, textbooks, assessment, and inspection; Teacher Development Program(TDP), School Improvement

Program(SIP),Management and Administration Program (MAP) including Education Management Information system (EMIS),and program coordination including monitoring and evaluation activities(Tesfaye Ayele,etal;2009).

The current national economic vision of Ethiopia is "building an economy which has a modern and productive agricultural sector with enhanced technology and an industrial sector that plays a leading role in the economy, sustaining economic development and securing social justice and increasing per capita income of citizens so as to reach the level of those in middle income countries." This national vision guides different sectors' developmental plans of the education, health, agriculture, industry, military, and other service sectors in Ethiopia, in which agriculture is the priority sector of the government as the major source of economic growth through adaptation of the strategy of Agricultural-Development-Led-Industrialization (ADLI) as mother (basic) strategy (CSA, 2012).

One of the main focuses of GTP is enhancing productivity of small-holders farming and pastoralists (ESA, 2012) through expansion of better technologies and farming practices, strengthening the agricultural extension system, development of irrigation, and better use of natural resources.

Accordingly the Ethiopian government is paying attention to the education and training of the man power in agriculture. In regard to this, Belay Kassa (2004) sates:

> The Federal Democratic Republic of Ethiopia (FDRE) has realized the challenges of agricultural transformation and rural development needs to alleviate poverty which among other things rests on providing extensive technical, vocational education and training in agriculture. For this the Government is currently investing heavily on training extension workers through the Agricultural Technical Vocational Training (ATVET) colleges as well as farmers through the Farmer Training Centers (FTCs).

In Ethiopia, as in some other developing countries, attention to the process of agricultural development is considered to be an effective approach to promote the economic growth.

Nonetheless, the development of agricultural sector is mainly constrained due to lack of scientific knowledge among the main practitioners of agriculture, i.e., the majority of Ethiopian farmers.

In order to enhance the use of technology in agriculture thereby increase production and productivity of agriculture, vocational education and training institutions play sound role in producing, providing, disseminating locally apt technologies. That is why due attention is given to the education and training and their upgrading and expansion to increase the country's human capital(TGE,1994).

Because of this, there is a widespread recognition of the importance of developing the country's human resources to help Ethiopia stand in line with the middle income countries by 2025(MoE,2010,FDRE,2010,CSA,2012). Post 1990's, especially since 1996/7up to 2013 attention, by –in- large, has been given by the Ethiopian government to the expansion and access of higher education and this led to the increase in students' enrolment and annual intake of the Universities in the country. In line with this idea, Mekasha (2005) argues that the Federal Democratic Republic of Ethiopia, being cognizant of the decisive role of higher education in speeding up the country's socio-economic progress, the government has given higher priority to education in national strategies for capacity building and economic development.

As can be understood from the above connotation, more attention is paid to the higher education sector as means for development , and much is expected from tertiary agricultural education and training institutions as centers for creation and diffusion of agricultural technologies, and to fill the gap of technological application as well.

Tertiary agricultural education and training is based on the need to provide reliable delivery of agricultural education programs focused on rigorous and clear goals, relevant curriculum content

and instruction, continuous evaluation and improvement, and the development of essential skills that the candidates apply in their life career and in the world of work (Frank,et al,2010).

The tertiary agricultural education and training institutions in developing countries will need to address not only immediate production needs, but also long-term food security, sustainable agricultural, environmental, and rural development needs. Sustainable development is the management and conservation of the natural resources base and the orientation of technological and institutional change in such a manner as to ensure the attainment and continuous satisfaction of human needs for present and future generation (Mishra,2010;Mafunzwaini et al.,2003).

The sustainable development in agriculture, forestry, and fishery sectors conserves land, water, plant, and animal genetic resources. Food security and its relationship to sustainable agricultural and rural development have increasingly becoming matters of concern for developing countries in particular, and for the international community as a whole. Sustainable food production is the key issue facing the world today; therefore, education and training to production sectors should be given the priority it deserves (Gopal, 2011).

While there are many different complex factors that have impacted on sustainable development and food security, it is clear that education in agriculture plays an important role in preparing farmers, researchers, educators, extension staff, and members of agribusiness and others to make productive contributions. The critical issue in this 21st century is about the changes and adaptations required in agricultural education in order to more effectively contribute to improved food security, sustainable agricultural production and rural development (Mishra, 2010, FDRE, 2010,)

Research on agricultural development in developing countries has clearly shown that the fundamental problem of agricultural growth is lack of proper agricultural education and training; as

education plays vital role in providing qualified human power for agricultural requirement and conducting agricultural research, thus providing farmers with new techniques production and new inputs to increase productivity (Touch, 2001).

Whatsoever important is the role of agriculture in human life, education and training of human resources in agriculture is often not as such a high priority in the development plans of many countries (Mishra, 2010; FAO, 1995). As a result, curricula and teaching programs are not particularly relevant to the production needs of smallholder agricultural communities and employment demands of the agricultural sector (Mishra, 2010; FAO, 1995)**.**

It is clear that primary education is a cornerstone for the higher level secondary and tertiary levels of education on which the two latter education strata lay. The emphasis of the Ethiopian government in post 1991 GC to scale up the relevance and integration of the curriculum of primary education (ETP, 1994) to local Ethiopian actual conditions is one step forward and it is substantially appreciable. This measure has to go up to secondary and tertiary levels education because higher education, through agricultural professional and provision of farmers' trainings on modern agricultural techniques of increasing production and productivity, has to support the local community so that they benefit in their life. Specifically the Ethiopian TAET curriculum is expected to incorporate issues of smallholder agriculture toward focusing on environmental conservation while farming, emphasis on selected seeds for food and cash crops cultivation, animal breeding, etc to boost up output and increasing production and productivity (GTP,2010/11-2014/15,MoARD,2010).

In this contemporary world, Ethiopia as one of many countries, has been trying to improve its education system and find efficient solutions so that learners and candidates will be able to achieve the required skills for living and working in the 21st century.

2.17. Some Points on What Ethiopia can Learn from Abroad

Agricultural education and training requires the practical skills get attention. As asserted by scholars, in India, within the education and training period, there are semesters to complete practical training which would then be followed by theoretical lessons. This will improve the farmers' interaction with the agriculture universities and also force the students to stay in villages for long enough periods to learn agriculture, identify farmers' problems to decide the direction of research in agriculture and be there from sowing to harvesting to actually experience the nuances of the process. In the last semester, students can take up experience learning in a subject of their choice. This would be called as Rural Agriculture Work Experience (Mayee, 2012).

The current vision of agricultural education, according to the American experience, is environmental conservation in addition to materials production for life. Agricultural education and training has to go beyond thinking the production of necessity materials for survival. It is thinking of making the environment permissive for human life and for sustaining the earth as well. In regard to this idea, Jenkins (2008) asserts," Agricultural Education envisions a world where all people value and understand the vital role of agriculture, food, fiber, and natural resources systems in advancing personal and global well-being."

All humans have to know and work on to encounter environmental crisis. There is no progress by destroying nature. The curriculum has to pay attention and play its part to this end. To keep nature normal and sustain it, mankind has to contribute to minimize ecological crisis. It is wise and advisable to give due attention to the form of knowledge that will sustain this earth (McNeil, 2009).

Incorporation of agricultural courses into the curricula of general education (even starting from primary education level) is thought to be very important since great majority of students in rural areas of Cambodia are engaged in farming after their completion of general education in which the

agricultural education will provide students with basic knowledge and skills in basic sciences to enable them become proficient and literate farmers (Touch, 2001).

As stated above including agricultural subjects even beginning from primary level helps students be literate with scientific techniques of production that can enable them to be productive in their life career if they do not continue their further education. Incorporating agricultural subjects into the curriculum also helps students recognize the role of agriculture for human life and this contribute to the development of positive attitude toward practical work beginning from the childhood.

South African experience reveal that an agricultural education and training strategic plan builds on the process involving participatory research and consultation with stakeholders of agricultural education and training and role players at provincial and national levels(Mafunzwaini, et.al,2003).

This whole process is facilitated by South African national and provincial departments of agriculture in collaboration with FAO with the goals of developing and maintaining an effective and well-coordinated agricultural education and training that is integrated at all levels and responds appropriately to South African agriculture, enhance equitable access and meaningful participation in agricultural education and training of all South Africans; and ensure the application of effective quality assurance of agricultural education and training at all levels. All this is intended to improve competitiveness through enhanced skills, knowledge, and technology, improve quality of life and social cohesiveness, and to generate wealth (Mafunzwaini, et.al,2003).

From this brief literature discussion of the experience, one can understand that the departments of Agriculture at national and provincial levels in collaboration with FAO launch a program to develop a comprehensive national strategy for agricultural education and training. The importance of knowledge of farming techniques to improve agricultural production was recognized even before political independence (Mafunzwaini, et.al,2003). These writers continued to describe stating that during the colonial era agriculture was taught as a subject in schools to enable graduates to secure

gainful employment in farming; and after independence, agricultural education was aggressively expanded at all levels in the national education and training systems.

What one can conceive from the aforementioned description of the writers is that incorporating agriculture as a subject in schools at all levels is essential to disseminate and expand modern knowledge of farming techniques to improve agricultural production which means improving the life standard of great majority of population engaged in agricultural practices. This being the case, in Kenya and Tanzania, there is a paradigm shift from focusing on educating and training few candidates at higher institutions to more focus on direct training and educating farmers (ibid).

2.18. Models for Curriculum Development

The process of curriculum design and development is, by-in- large, determined by curriculum models (theories) proposed by scholars in this field. The type of the model selected to be adhered to design, develop ,implement, and evaluate curriculum determines the type of the curriculum content, strategies of teaching, instructional materials and evaluation of the program.

Models especially in education are approaches having principles, procedures, and strategies representing some idea or something. They are conceptual representations. Similar terms to models can be reproduction or representation. They are useful in building theory (Sharma 2003). There are various curriculum design and development models .The pioneer model which broke into new grounds of curriculum design and development is the Ralph Tyler's (1949) Rational model which based itself on the work of Bobbitt (1918).

Understandably R.Tyler (1949) proposed four principles of curriculum development through his basic questions, i.e., what the school seeks to attain (purposes)? What are the means to attain the purposes? How the means to attain the purposes are organized? How it is possible to know whether the school purposes are attained? R.Tyler (1949) put the concrete foundation for the present day curriculum development and his contribution to curriculum design and development is remarkable.

Other curriculum development models such as Taba's model (1962) and Wheeler's model(1976) were based on Tyler's work (model) as foundation for their curriculum development models (Sharma,2003). Nowadays, these are considered as deductive linear models. In order to improve Tyler's model, Taba incorporated some steps to it such as diagnosis of needs, selection and organization of contents and learning experiences. Lawton(1978) also developed model for curriculum development. The underlying assumption of Lawton's model (1978) of curriculum development is that the main source for curriculum selection is culture. According to Lawton's model (1978) as explained in Sharma(2003), curriculum design and development has to start from cultural analysis. The problem, according to some criticisms of Lawton's model, is whose culture will be selected and who will select that culture for curriculum. This is debatable to date.

2.18.1. Technical (Objective-Rational) Model of Curriculum Development

Generally curriculum development models are categorized in to two: Normative models, and Descriptive (dynamic) models. The normative models stress on set standards and the models included here are the objective /rational/ cyclical models of Tyler (1949), Taba(1962), and Wheeler(1976) respectively. Tyler's model focuses on objectives, learning experiences, and evaluation. The objectives /rational model is product-oriented. This technical /rational model considers philosophy**,** aims, and goals, objectives as ends whereas it assumes curriculum, content and activities as means to realize ends.

The three models (Tyler's model, Taba's model , and Wheeler's model), which are normative, follow strict rules of control and pre-specification. Tyler's model focuses on objectives and rationality; Taba's model and Wheeler's model also stress on rationality; where Taba's model is linear rational, whereas Wheeler's model is cyclical rational.

The 'Objectives approach' is so named because the very first step in this approach is the defining of objectives of the course/program/lesson (Tyler 1949) .The more specific the formulation of objectives, the easier it would be to determine the sorts of activities that students could be engaged in. Tyler's approach is seen as the linear end-means model. It is prescriptive model; whereas Walker's model (1971) is descriptive.

The ends include philosophy, aims, goals and objectives, where as the means encompass curriculum, content and activities. The main elements of the objectives model are stating objectives, selecting learning experiences, organizing learning experiences, and Evaluation (R.Tyler's, 1949).

The field of curriculum already can possess an outstandingly successful model of curriculum development based on the work of a generation of curriculum theorists from Franklin Bobbitt to Ralph W.Tyler.. The logical operations in objective model are determining objectives, stating them in a proper form, devising learning experiences, selecting and organizing learning experiences to attain given outcomes, and evaluating the outcomes of those experiences. This model has undergone several years of continuous development and use. It has facilitated the systematic study of education, and it has served as a basis for a respectable and growing educational technology (Walker, 1971).

The assertion reminds us to think of the basic contribution and use of the classical objective model in previous times; however, the objective model did not serve the traditional/social practices except the technical aspects. The scholars (Walker, 1971; Stenhouse, 1975; Skilbeck, 1976) and some others criticized this model several years back from the present time. Even though more than sixty years have passed since the introduction of the objective model of curriculum development, its principles are still working.

In the rational approach, the process begins with the specification of objectives. and curriculum development is seen as a rational and orderly process. Wheeler shares Taba's idea of rationality

(coherence) of curriculum development but he did not agree to the linear approach of the process and so he introduced the cyclic approach of curriculum development that there is no terminal between the main operations of curriculum development. For instance, as to Wheeler evaluation can be made at every operation of the process of curriculum development; so it is not only confined to the last stage of Taba's order. Wheeler's Model of curriculum development is, therefore, cyclical rational in type (Sharma,2003).

2.18.2. Dynamic /Interaction Models of Curriculum Development

The dynamic /interactive models include, for instance, Walker's Model (1972), (1975),Skilbeck's Model(1976), Oliva's Model (1976),and Nicholls' Model (1981) as explained by Sharma (2003).For the sake of convenience let us see some points of the two approaches of the dynamic/interaction models. In the case of dynamic model of curriculum development, the curriculum designer commences from any element of curriculum and can go ahead without fixed sequences. Skilbeck's model (1976) ,for instance, is one of the dynamic/interactive models with its components such as analysis of a situation, goal formulation, program building, interpretation, and implementation, monitoring, feed-back, assessment and reconstruction. This model incorporates dynamic and interactive participatory curriculum development (PCD) approach which is applied in decentralized educational system.

The underlying assumption of Skilbeck's Model (1976) of curriculum development emphasizes on context and needs. This model allows environmental(local) conditions be paid attention thereby calling for curriculum diversification to meet the educational needs .The main components of Skilbeck's Situational Analysis Model are analysis of a situation(like needs assessment),goal formulation, program building, interpretation and implementation, monitoring, feed-back, assessment and reconstruction. From these components, it is possible to read that Skilbeck's

model(1976) of curriculum development is dynamic (change-oriented and self correcting).It is categorized as dynamic/interactive model (Walker,D,1971).

However, it is needful to think of how the content can be disseminated hand-in-hand to the details of contents of a program. This contributes to the improvement of a program and makes it successful. Several curricular scholars, be it from the normative or dynamic /interactive approaches, made effort to make curriculum development scientific and interactive that results in relevant programs development.

Nicholls' (1981) approach to curriculum development, implementation, and evaluation suggests three important principles, i.e., what is to be achieved (curriculum design & development), how it is to be achieved (strategies for implementation), and how far it is achieved /extent of achievement/ which indicates evaluation including assessment and feed-back. This cyclic approach emphasizes that the approach to content, not just the content itself, should be a key aspect of the curriculum design and development process. A standard curriculum development process should address: what is to be achieved; how it is to be achieved; and the expected extent of this achievement. A popular cyclic approach to such a process, prescribed by Nicholls and Nicholls (1981,) involves revisiting the steps: selecting objectives; selecting and organizing content; selecting and organizing methods; and evaluation. (Jakie ,2004)

Even though some scholars(Skilbeck,1976;Stenhouse,1975; and Walker,1971) to adopt, amend and use the dynamic interactive models of curriculum development Tyler's Objective model is being used most nationally and globally.

As explained above, different curricular theorists came up with their different approaches to curriculum development. This created good opportunity to choose, adopt, amend and use from these different models based on their suitability to the different education systems through curriculum decision making by different governments/countries.

In Ethiopian case and worldwide, the most used model in curriculum development and implementation is the classical objective model introduced by R.W. Tyler (1949), before more than half a century. The objective model is in fact the pioneer model which put the landmark and strong base of scientific curriculum development of the present day world. Therefore, the contribution of the founders of this model is a never forgettable lively issue ,however, the descriptive or dynamic models, for instance, those proposed by ,Skilbeck (1976),Hadley and John Ritz(1991),McNeil (1996),etc serve the purpose of dynamism and participation.

It is well known that founders and modifiers of the objective model of curriculum development done their best at their time putting corner stone (strong foundation) by introducing the ' model for curriculum development, implementation, and evaluation. It is obvious that many scholars have special recognition and respect for these pioneer founders of curriculum development theories.

Based on the review of the literature, purposefulness of the model, its role to achieve national education objectives, and the demand for outcome-based education, use of the Objective model keeps right on increasing to plan, implement, and evaluate education issues in Ethiopia.

One of the key factors related to meaningful and successful program improvement is curriculum development. Examining the curriculum development procedure helps one to identify frequent structural elements that are useful in the construction of a curriculum for any subject area. Reviewing, identifying and explaining the structural elements are important for improving practices in the process of curriculum development. Besides this, if educators are familiar with the rationale and logic accompanying the curriculum development process, they will be better equipped to defend and implement any program in their subject or training area.

Sound curriculum development has to consider three major components of curriculum development. These are curriculum foundations, curriculum content and curriculum evaluation with

detailed explanation of necessary elements or sub-components. Curriculum foundations are the components that influence and control the content and organization of the curriculum (Zais, 1976.) They are based upon values one has developed pertaining to knowledge, society, learning, and the individual. Foundations tend to influence the philosophies of those who are developing the curriculum, and these philosophies are, in turn, reflected in the curriculum. Components of foundation can include: definition of the program area, rationale for the study of the program area, content source, content structure, program aim, and program goals. As implied in the above discussion, curriculum foundations are used to establish a basis for further undertakings in curriculum development. At this point, each of the elements found within the curriculum foundations will be explained. The definition of the program area shall be the first element to be discussed here (Zais, 1976).

A precise definition of the program area under analysis can be useful to those involved in curriculum development. By establishing a definition of the program area, one is laying out the boundaries for the curriculum development process. In this way, both the developers and users of the curriculum will know exactly what knowledge or content is to be analyzed and conveyed. (Hadley & Ritz, 1991).

With knowledge of the definition of the program area, the reader is ready to pursue the second element of the foundations. This is a rationale for the study of the program area. Information interrelating the areas of knowledge, society, learning, and the individual can be used in this element to emphasize the need to study the program in schools or the work environment. With a definition of the program area and a rationale for its study, one should know the "what and why" of the content being shaped into a curriculum. With this information, the next step is to examine the source of the curricular content or knowledge base (ibid).

The content source is the third element that assists in establishing a foundation for the curriculum development process. It is the knowledge base where the curriculum content is derived for use in program development. In simpler terms, a content base is a bank or reservoir of knowledge where information (knowledge) is obtained for structuring a program. Depending upon whom is developing the program, and for what purpose it is being designed, i.e., work, leisure, general information, various content sources can be used. The source one selects to design a curriculum shapes its intent, or aim, and is often dictated by ones philosophy, understanding of the knowledge base, knowing the needs of society, and realizing how and why learners learn(Hadley & Ritz, 1991)..

With an understanding of the content source, the next step in the curriculum foundations is to establish a content structure. It is the fourth element used in establishing a foundation for the curricular program. The content structure is employed to display graphically how the information being derived from the content source might be arranged for program and curricular unit development purposes. The content structure illustrates how the content for a program might be structured for program development purpose. The program aim is the fifth element of the foundations portion of a curriculum development structure. This element describes the expected outcome the students/learners will have by studying the content prescribed in the curriculum (Hadley and Ritz, 1991).

The final curriculum development element useful in establishing the foundations for a program or curriculum is the program goals. Goals are long range program outcomes that reflect the directions in which the curriculum should work. Goals are more specific than aims, but they still do not provide any means for direct student attainment of knowledge.

The above discussion has provided some insight into the development and utilization of foundations for curriculum development. Incorporation of these structural elements into the curriculum development process provides a means for expressing a philosophical view based on knowledge, society, learning, and the individual. Thus a strong foundation can be established for further undertakings in the curriculum development arena, for instance, content selection and organization (Zais, 1976).

Curriculum content is the second major category of curricular elements, which includes the knowledge, skills, and attitudes (values) which educators are interested in conveying to learners. As the foundations of the curriculum determine what and why to teach, the content focuses upon the specific information to be disseminated and the means of dissemination. This category encompasses the scope, sequence and unit specifications (Beauchamp, 1981).

Scope and sequence are vital elements in structuring any curriculum in the education/training program. These elements establish content guidelines for the curriculum development and implementation processes. The use of a scope and sequence provides an effective format for organizing learning experiences for both curriculum developers and implementers.

The term scope encompasses the magnitude of content and objectives within a curriculum (Beauchamp, 1981). More specifically, it is the breadth of knowledge to be covered within the curriculum or a particular subject area. One can see that the scope includes the breadth or magnitude of content that the program wishes to convert into learning experiences.

Sequence is usually associated with scope. However, it connotes different meaning. Sequence is the ordinal structuring of the content found within a curriculum (Beauchamp, 1981). More simply stated, it is the order in which scope or content and objectives will be arranged for instructional

purposes. In curriculum development, the scope would list all the content areas to be taught, while the sequence would provide the ordering of this content in a coherent fashion.(Hadley and Ritz,1991,Derebssa,2006).

To further assist in the development of curriculum and instructional plans, unit specifications are needed. Unit specifications are those rudiments which are helpful in the actual developing and structuring of a unit of study. The unit specifications may be further divided into goals, rationales, objectives, activities, and references. The sub-components of unit specifications are unit goal(s), unit rationale, unit objectives or competencies, unit activities, and references. These curricular components will be briefly explained next (ibid).

Unit goals are the overall outcomes which instruction within the unit should be directed. Unit goals are broad in nature, but they attempt to show what the purpose and instructional focus of the units are. The next unit specification component to be discussed is the unit rationale. It is an element which supports the unit goal(s) and explains the "what and why" of the unit. The unit rationale should provide the reasons for providing such a unit of instruction for learners. These descriptions should be short but meaningful narratives and provide specific reasons why studies in such units are vital to the learner's total education. In whole, the content elements provide direction for organizing curriculum content and for delivering it to learners (Hadle and Ritz, 1991).

A third curricular component under the heading of unit specifications is unit objectives or competencies. While aims and goals are broad and somewhat far from the learning situation, objectives or competencies are measures of specific learning outcomes. They are essential targets and can be measured through classroom activities and evaluations. Objectives or competencies are specific targets for instruction within the education or training program. They prescribe perimeters

within which instruction should evolve, and they can be used to evaluate whether learners can achieve these targets (ibid).

Unit activities are the fourth set of components found under the element of unit specifications. These elements, as stated by Zais (1976), "represent the heart of the curriculum because they are so influential in shaping the learner's experiences and thus his/her education.'' Unit or learning activities are those parts of the curriculum where learners become involved. They are the reading, listening, manipulating, writing, experimenting, and other learning processes that provide learners with experiences in the content of the curriculum. It is through these various learning activities that the content of the curriculum is delivered to the learners. Activities are what involve the learners in the curriculum. Through these various experiences, the process of learning actually takes place.

The final component of unit specifications is references. These are the books, videos, periodicals, and other resource materials that are helpful in developing instructional plans to implement the educational program. Many of those who have proposed models for curriculum development have not included this element, but it is felt by some authors that references are a vital component for those who are faced with implementing the curriculum. For this reason, it has been listed under the unit specifications element (Zais, 1976; Hadley and Ritz, 1991).

In this literature review, three major elements have been included in the curriculum content section of this model. These have been labeled the scope, sequence and unit specifications. After one attempts to transmit the content of the curriculum to the learner using these elements, a final category of curriculum development comes into use, i.e., the evaluation elements useful to curriculum development (ibid).

The final broad category of curriculum elements is evaluation. It exists for two primary purposes. First, it attempts to measure whether the learners are achieving the content objectives set forth in

the curriculum, and second, whether the curriculum is doing what it is supposed to do, content validity. Therefore, the evaluation category of a curriculum should be divided into student evaluation and document validation elements. The student evaluation element is concerned with unit objectives and unit activities (Ornstein and Hunkins,2004).

Through student performances and assessment through testing, learners are measured to determine if they can competently achieve those standards prescribed in the unit objectives. In addition to this means of evaluation, there exists an area known as document validation. This type of evaluation determines whether there is a correspondence between the ideas set forth in the foundations section and the information delivered through the content section of the curriculum. Often, if curriculum documents describe one set of intentions and offer a different set of content (not matching with the intensions) and outcomes, then, the curriculum document is not fulfilling its intended purpose. The document validation is intended to insure the curriculum foundations and content are directed toward the same outcomes. There need to be coincidence between the intention, contents and outcomes (McNeil, 2009).

In the above discussions, a number of useful curriculum development elements have been cited and illustrated. These elements have been organized into three major categories of curriculum foundations, content, and evaluation. If these elements are used in the development of a curriculum or program, a more meaningful and understandable curriculum should result. This occurs because those who are developing the curriculum must identify and structure their ideas following a logical sequence. This allows for more directed dialogue and research by those undertaking the curriculum development. When these steps are used in the curriculum development process, a number of effective instructional programs and units of instruction will result (Hadley and Ritz, 1991).

CHAPTER 3: METHODOLOGY AND DESIGN OF THE STUDY

3.1. Methodology

The methodology chosen to be adhered to in this study is the mixed-methods methodology that was used to investigate the process of agricultural education and training curriculum design and development especially to assess the consideration given to the scientific and social processes of curriculum design and development in Colleges/Schools of Agriculture in Public Universities in Oromia Regional State, Ethiopia. The assessment also included examining the way the curriculum framework was designed and developed, appropriateness of curriculum components(how much the curriculum components are to the standard), and their drawbacks and the direction to go in designing and developing curriculum.

3.1.1. Justification for Employing Mixed Method in this Study

Understandably, the quantitative researchers have positivistic perspective on educational research arguing that human behavior is governed by general universal laws and these researchers stress on the generalizability of the research result. On the other side, the qualitative researchers have an interpretive perspective in which human behavior is seen as socially based, varies and context related than governed by general universal laws. These assumptions created a 'false dualism' between positivists and interpretivists (Pring 2000 in Petrou, 2007).

Differences in epistemological assumptions should not keep an interpretivist from using quantitative methods and a positivist from using qualitative methods. The qualitative and quantitative debate had a catalytic role in moving beyond the dichotomy of qualitative and quantitative research and in developing a new approach called mixed-methods research. This more productive stance of mixed methods is the one being used in various studies (ibid).

As can be understood from the argument of the scholars it is the epistemological assumption of each of the paradigms that led to the dichotomy of research into quantitative and qualitative methodology and the scholarly fueled debate and differences in assumption between these two paradigms created a gap led to the development of a new approach –the mixed-methods methodology. However there is difference in assumptions between the positivist and interpretivist paradigms, both quantitative and qualitative research methodologies are complementary to each other rather than contrary.

Incorporating the quantitative with qualitative approach can increase the potential of the research to study and magnify about both the value-laden and value-free issues. Human life seems to be the integration of both of these values. The human or social aspect needs the objective world to exist and this objective world on the other hand has to serve and be for the betterment of the social environment; unless it will be meaningless for itself by itself. The good of nature (object) is as far as it benefits and supports the subject, i.e., life, the social (human) environment. In a similar analogy, the good of quantitative methods or qualitative methods is as far as these methodologies serve the purpose for contributing to knowledge, technology, improved life, and wisdom.

In a quantitative approach that can be used in the studies, tests and cases can be administrated to a large number of participants and the researchers can manage to produce a large amount of data in short time and with low cost. This kind of data can be persuasive to policy makers. Second, the researchers can manage to get data based on a representative sample. This, in turn, means it is more likely to generalize statements made on the sample for the target population.

However, the main disadvantage of this approach is that the data that can be produced in studies are likely to lack depth on the topic being investigated. Also, the emphasis on producing data that can be generalized, limits the researchers' ability to check the accuracy of the responses. Here, the use of mixed-methods methodology can fill out what is learned from the quantitative data. The use

of interviews, hand-in-hand with survey, for instance, can help to better understand the statistical data. The qualitative approach can be criticized of the subjectivity of the researcher. It is assumed that the researcher can be biased in collecting and analyzing data. This point shows the side effect of qualitative research. The qualitative gap can be minimized by quantitative cross-checking. The above explanation reminds us that both quantitative and qualitative approaches have their own limitations. Scholars, for instance, Johnson (2004), Onwuegbuzie & Leech, (2004a) in Johnson (2004), Plano, Clark and Creswell (2009), argue for the appropriateness of using mixed-methods methodology in studying human affairs. Likewise the writer of this proposal shares the notion of these scholars and is interested to employ the mixed-methods approach (Creswell,2009:204).

Mixed-methods research methodology is theoretically defined by Creswell,(2009) that it is a research that involves collecting, analyzing, and integrating both quantitative and qualitative data in a single study or in multiple studies in a sustained program of inquiry(ibid).The use of only a quantitative or only a qualitative approach may be one sided –in which measuring social values is difficult in the quantitative approach as it is not easy to analyze quantifiable issues in qualitative approach. Therefore, the contribution of both approaches to research study in isolation can be less satisfactory unless both are employed to fill the gap of one another in an amalgamated way. The integration of quantitative and qualitative methods will increase the potential of the study to investigate and reveal the reality (Creswell, 2009: 2003).

These days, many changes have been undergone as we are in the continuously changing society. There were/and are many who argue against qualitative approach siding to quantitative and the vise-versa. However, time brought through process that both quantitative and qualitative approaches to research are necessary and even are complementary to each other than seen as completely opposite; than one degrading the other. At present it seems that there is scientific consensus among some scholars that both approaches are useful in dealing with both the natural

(objective) and the social (subjective) environments. Using the approaches optionally or incorporated can fill the gap that a single approach cannot fill. Human behavior is, in part, the collection of activities performed by human beings and influenced by culture, attitudes, emotions, values, ethics and authority which are not measurable directly.

On the other hand we can have observable (overt measurable) behavior those may be counted and rated or recorded quantitatively. Since human nature is the mixture of both the overt and covert behaviors, in similar analogy the study of human issue, education for instance, requires the incorporation of both the directly measurable and the non-measurable aspects that need the employment and use of the mixed methods methodology to help consider the two dimensions and make proper decision. It may be due to such ties and coexistence between the countable and uncountable dimensions of life that certain scholars are coming up with the new notion of using the two methods optionally or in mixed manner.

The use of the two approaches in isolation might even fail to reveal the two dimensions of reality. For instance, the use of direct observation, interviews and questionnaires to measure the countable phenomena concerning the study of students' performance is more authentic than mere questionnaires or mere interviews .The use of the combination increases the clarity of the issue under study or it increases the validity of the study to provide integrated and deep understanding.

Integrating qualitative and quantitative data can provide strong evidence for conclusions, and provide better inferences on the issue investigated (Creswell, 2002). The results from the qualitative data can help to better understand the statistical findings. The statistical computations can be tangible evidences for the qualitative data analysis. Here both methods are complementing each other. Similarly Johnson, (2004) explain: "Mixed methods research is formally defined here as the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study."

Combining the research techniques can fill the gap between the quantitative and qualitative approaches in dealing with social concerns. These scholars furthermore justify pragmatism as the philosophical ground for the mixed method. They assert: "Philosophically, it is the "third wave" or third research movement, a movement that moves post the paradigm wars by offering a logical and practical alternative. Philosophically, mixed research makes use of the pragmatic method and system of philosophy."

As justified above, pragmatism (founded and introduced, for e.g. by Peirce, William James, mead and John Dewey) serves as a method and philosophy that attempts to fit together the insights provided by qualitative and quantitative research into a workable solution. Pragmatism facilitates the middle ground in between the two 'lines'. Pragmatism prefers eclectic (pluralist) position. Here it is used as a philosophy to justify the epistemological ground of the mixed methods research, i.e., serving as the logic of justification for mixed methods research (Creswell 2009:10).

Moreover, triangulating the data from different methods increases the validity of the results and the conclusions. Finally, the strength of one method can be used to compensate the deficits of another method (ibid).Triangulation is the use of multiple methods, data collecting strategies, and/or data sources, in order to get a more complete picture and to cross-check information(Gay,& Airasian.,2000:630).

Based on the justification provided above and the conviction I have, the mixed methods methodology was employed and used to gather data , study, analyze, and conclude about the process of higher education curriculum development, and its practices in public Universities of Ethiopia considering both the technical(scientific) and human aspect of curriculum as a process. Therefore this study was concerned with what humans actively construct from situations; meanings, social situations, and these will be handled through interpretive processes; as well as the technical (scientific) aspects of curriculum developments practices that are directly measurable using tool of

quantifiable data. Therefore, data were collected as socially situated, and context-rich (Cohen, Manion and Morrison , 2004:137) for values that are directly immeasurable on one hand and quantifiable data will be gathered and analyzed using quantitative data collecting instrument.

In conducting any social science research, I share the belief that human behavior must be treated as a collection of activities performed by human beings in a particular social context and influenced by beliefs, values and attitudes. Here, we have collection of activities that can be measurable, for instance, the extent of teachers' participation in designing and developing curriculum on one hand and, say, the role of (authority) of director of a school/institute in designing curriculum- the data that may not be accurately gathered directly through single instrument without triangulation because most probably human beings can be influenced by subjectivity. The gap of subjectivity will be filled with techniques of objectivity. Mixed methods research as the third research paradigm can also help bridge the gulf between quantitative and qualitative research (Onwuegbuzie & Leech, 2004a in Johnson, 2004) in solving social problems. Sharing the notion of scholars, this is the rationale for why I think that mixing methods will help me to answer my research questions.

3.2. Research Design

Research design is the matter of selection of sampling procedures, selection of methods of data collection and analysis, and arrangement of the research administrative procedures (Sarantakos, 1997:100). It is brief justification of research procedures, instruments of data collection and analysis, and explanations of how the research study will be conducted. Research designs can take three broad forms of the quantitative, qualitative, and mixed methods design. The mixed methods design more focuses on the fact that even though both quantitative and qualitative research methodologies are important in different contexts they are complementary to each other (Creswell, 2009:3).

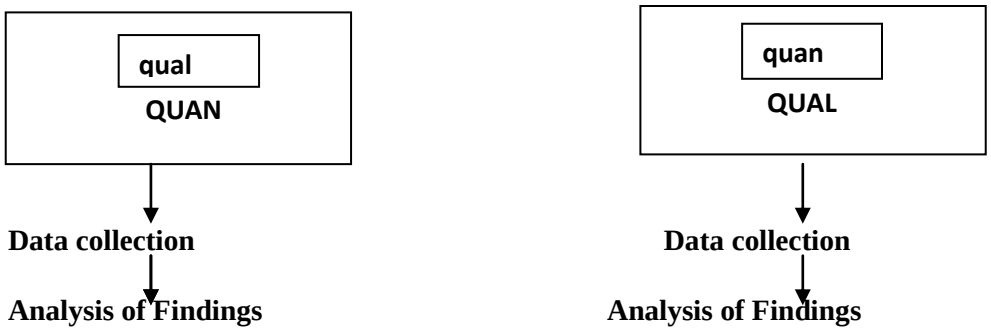
Concerning the importance and correctness of quantitative and qualitative researches, Sarantakos (1997:580) suggests:"The answer to the question which methodology is the best is that there is no 'better' or 'right' methodology. Both methodologies are good and right depending on circumstances. "The one complements the other and both together offer a stereoscopic picture."

According to Creswell (2009:209-210) ,there are two general types mixed methods ,i.e., the Sequential mixed methods design and the Concurrent mixed methods design each of them encompassing three strategies for researchers to choose in designing mixed methods research proposal. The sequential design incorporates (1) sequential exploratory design (2) sequential explanatory design (3) sequential transformative design. Similarly, the Concurrent mixed methods design include (1) Concurrent triangulation design (2) Concurrent embedded design, and (3) Concurrent transformative design. Out of these strategies, the Concurrent embedded design in which the quantitative dominates was stressed in this study as strategy to collect and analyze data.

The concurrent embedded takes two forms; the qualitative entrenched into the quantitative (qual + QUAN), and the vice versa (quan +QUAL) in which one is dominant.

Sharing the notion of scholars above particularly concerning the integration of the quantitative and qualitative research approaches, the Concurrent Embedded Design of mixed methods methodology has been employed in this study that helped me to examine, understand and provide insight concerning the process of curriculum design and development and its practices in public universities pertaining to some past experiences, the present status, recurring problems, procedures, and future direction. The concurrent embedded design looks like the following:

Figure 2: Concurrent Embedded Design



The first aspect of concurrent embedded approach in which the qualitative is embedded in quantitative approach has been employed and used in this study.

The researcher collected both quantitative and qualitative data concurrently in which the discussion section first provides quantitative statistical results analysis accompanied by qualitative analysis. Quantitative analysis dominates the qualitative one in which the qualitative approach is submerged in the quantitative one. The results of both quantitative and qualitative are considered complementary to each other (Creswell,2009).

The mixed methods research has optional choices of either to follow the concurrent approach or the sequential approach. The concurrent approach is using the combination of qualitative and quantitative methods equally hand-in-hand or one dominating the other. It is possible to employ equally quantitative and qualitative methods in combination of equal status (QUAN+QUAL) or the qualitative dominating quantitative (QUAL+quan), or the quantitative dominating qualitative (QUAN+qual) approach. In this study the QUAN+qual approach has been employed .Capitalization indicates that an approach is more emphasized (Johnson, 2004).

3.3. Sources of Data

The sources of data were literature, official educational documents including sample of agricultural education program course breakdown, state policy (taken from MoARD ,and GTP, and higher education proclamation), directors (faculty Deans) and lecturers (teacher educators with teaching

experiences of five and above years in the universities) in the selected Institutes, and experts from MoARD, ORBARD,HERQA, and HESC. The minimum qualification of teachers and experts as respondents is MA/Msc. They have also official work experiences of minimum of five years. Selected graduating class candidates with better achievement from colleges of agriculture undergraduate program in public universities under consideration were also respondents.

3.4. Sampling and its Procedure

Sampling, as commonly understood is expressed as the selection of some part of an aggregate or totality on the basis of which a judgment or inference about the aggregate or totality is made (Kothari, 2007:152). Sampling is the process of obtaining information about an entire population by examining only a part of it.

Concerning the selection of the research settings, cases of four universities were dealt with taking two pioneer Universities in operating agricultural education and training ,i.e., Haramaya and Jimma Universities ;and two (Ambo and Madda Walabu) from the 'new' (those universities established between 2005/06 to 2009/10).The four Universities were selected from eight Universities found in Oromia Regional State, Ethiopia, using purposeful sampling considering the former two as the first institutions to open and run agricultural education and training so far in Ethiopia; and the latter two Universities were taken from the new ones.

This was done because of the fact that the data from the old and the new can give an average conclusion. For the selection of graduating class candidates from their pertinent departments, stratified sampling was applied to keep balance of the number of candidates to be included in the study between different departments using sampling frame (a list containing sampling units).The total of two hundred fifty six teachers working on six programs namely :plant sciences, animal sciences, rural development and agricultural extension, post harvest management, agricultural

economics and horticulture in the Colleges under consideration, (thirty nine from three Course Teams of MWU, forty-two from four Course Teams of Ambo University, eighty-five from five Course teams (Programs Offices) of Jimma University ,and ninety teachers from six agricultural undergraduate programs of Haramaya University were selected purposively from each of the departments of the four Universities considering their qualification(minimum of MSc) and minimum of five years of teaching and the questionnaires were dispatched to them. The reason to select the teachers based on their qualification and experiences of teaching is for the fact that the more they teach, the more they know the secrete of curriculum issues. The number of teachers included in the study was not equal for the four Universities because there was difference in number of academic staff in the universities under consideration. The college deans and, team leaders were considered as group members of teachers. Out of two hundred fifty six teacher respondents two hundred forty-eight filled and returned the questionnaire. The return rate is 96.87%.

Concerning the selection of graduating class candidates, the total number of the graduating class candidates at the time was five hundred twenty six. Out of this group, the graduating class candidates were selected randomly from their pertinent departments. Accordingly fifty candidates each from Haramaya and Jimma Universities, forty from Ambo and thirty candidates from Madawalabu Universities, the total of one hundred seventy were enlisted. This is thirty two percent of the total five hundred twenty six. These were taken to fill the questionnaire. Out of one hundred seventy graduating class candidates, one hundred sixty four filled and returned the questionnaires. The return rate is, therefore, 96%. The total return rate(for both teachers and candidates) is 96.7%.The experts from the, MoARD, ORBARD, HERQA, and HESC ,school directors and team leaders were included in the study using purposive sampling for the purpose of interviewing and filling checklists.

3.5. Tools of Data Collection and Analysis

3.5.1. Instruments of Data Gathering

3.5.1.1. Document Analysis

According to the methodological justification given above, the instruments of data collection that were used in this study included document analysis, checklist and structured questionnaires. Specifically considered, the document analysis concentrated on the analysis of curriculum goals against the policy goals of MoARD, higher education policy goals, to examine and understand about the alignment with the higher education proclamations, and national development goals; and to identify steps taken in the process of tertiary agricultural education and training program development in Ethiopian context. To this effect, the checklists were developed for and dispatched to experts at ministerial, regional level, to experienced curriculum experts/teachers in some universities. Checklist was prepared and dispatched to six curriculum specialists (with PhD qualification) at AAU; and experts from each of MoARD, ,ORBARD, HESC, and HERQA especially for checking curriculum goal alignment with that of key issues in the policy statements of the Ministry of Agriculture and Rural Development (MoARD,2010).

3.5.1.2. Questionnaires

Structured questionnaires were developed and used to collect data from six of the eight programs of Colleges of Agriculture from (Haramaya, and Jimma), four programs of Ambo, and three programs of Madawalabu, out of eight Universities in Oromia Regional State , Ethiopia. The six programs are BSc in Horticulture, Plant Sciences, Agricultural Economics, Animal Sciences, Post Harvest Management, and Rural Development and Agricultural Extension. These programs were purposefully selected because most of them are common for the four Universities under consideration. The questionnaires, therefore, were prepared for 248 respondents composed of teacher educators, college deans, and department heads having minimum of MSc and minimum of

five years of work experiences and 164 candidates from the graduating class students in the Colleges of Agriculture in the above mentioned respective Universities under study.

The structured questionnaires contained 58 questions, each of the questions embedding minimum of two and maximum of five options. The Likert scale is used in making some questions and their responses measurable in developing the questionnaires. The data collection instrument was pilot tested before used in the actual study. If instrument development is necessary, it should be tried out and revised where necessary before it is used in the actual study (Gay and Airasian, 2000:277). Based on this, the sample data gathering instruments were dispatched to small number of the respondents and revision or corrections of the instruments was made. The researcher personally travelled to the target areas and data were collected through direct contacts.

3.5.1.3. Interviews

In-depth interviews containing sixteen basic questions were developed by the researcher and interviews were conducted with school directors, and team leaders of Colleges of agriculture in four public Universities. Five questions in-depth interviews were also developed and interviews were held with the experts from HESC, HERQA, MoARD, and ORBARD.

3.5. 2.Pilot test of the Instrument for Reliability

After the data gathering instruments were developed, they were pilot tested before the actual use in the actual investigation dispatching/applying the instruments to small number of sample population. The pilot test of the instruments of data gathering was conducted at Maddawalabu University Doing so, the items of the instruments were revisited and be improved according to the comments obtained from the tryout phase. In addition concerned professionals and colleagues scholarly assessed the content of the data collection.

Reliability estimates were used to evaluate (1) the stability of measures administered at different times to the same individuals (test-retest reliability),or (2) equivalence of sets of items from the same test (internal consistency) or (3) a type that different observers scoring a behavior or event using the same instrument ,i.e., inter-rater reliability; the coefficients ranging between 0.00 to 1.00 in which higher coefficients indicate higher levels of reliability(Winterstein,et.al,2008).

This study made use of measuring stability of the same instrument at different times with the assumption that items measuring the same construct at two different times should correlate to show the stability of the research instrument in this study. Using Karl Pearson's coefficient of correlation formula, i.e., the most used (Kothari, 2007) and the computed result is 0.80.This correlation result shows that there is stability of the research instrument used in this study. Comments by my research advisor and other experienced staff before dispatching the instrument contributed much to the strength of the instrument. Based on the evidences from pilot test respondents, the researcher has omitted some items which were redundant and ambiguous. The checklist was developed and used as supplementary tool in this study after the comment during the pilot test of the instruments.

3.5.3. Validity of the Instrument and Study

The reliability of the instrument used in this study is a precondition for the validity of the instrument. The validity of the study can be seen from the use of triangulation technique (using different sources of data, i.e., curriculum specialists, experts from, MoARD, ORBARD, HERQA, and HESC, faculty deans, and experienced teacher educators from selected Universities, and graduating class candidates). The way the samples were selected, instruments were developed, and data were collected, organized, analyzed and findings derived can show the validity of this study.

3.5. 4. Instruments of Data Analysis

The data have been analyzed using both quantitative and qualitative approaches concomitantly. Accordingly, the qualitative data were analyzed in depth based on the evidences gathered through

document analysis, and checklist being complementary to the quantitative data analysis. Therefore, narration is used to this effect. Concerning the quantitative analysis, some techniques of descriptive analysis, i.e., frequency, percentile, and weighted mean values for measuring and explaining the quantitative data were used after applying SPSS version 21.

The process followed in developing the current curriculum of agricultural education and training was examined against the proposed stages of the relevant curriculum development such as following the scientific processes and necessary steps in developing, i.e., research-based curriculum development,(for data driven decision), passing through basic procedures , alignment with national goals(ANG),considerations of environmental realities(CER),participation of stakeholders for discussion for adaptation (DFA) against ADDIE principles of curriculum design. Examining the process of higher education curriculum development in this study was devised taking into consideration the SAT model of curriculum design that is based on the objective model of curriculum development. Both the qualitative and quantitative data are integrated for final interpretation of the research findings.

3.6. Ethical Considerations in this Study

A researcher has to be aware of and attend to the ethical considerations related to his/her study (Gay,et.al.,2000:93). Accordingly, I have taken into consideration and attended to the following research ethical considerations. I: (1) clearly stated the title and purpose of the study (I did not hide the true nature of the study ,i.e., this study is deception free)

2/ honestly told the participants how this study will benefit education institutions and the nation as a whole

3/ kept the anonymity of participants and confidentiality of their responses

4/ respected the participants' right to refuse to be involved in the study or to stop being involved at any time (they participate if they freely agree to do so)

5/ respected the dignity and human interest and safety of those people who participated in this study (Participants did not placed at risk).

3.7. The Self in this Research

I have served as secondary school teacher for nine years, as TTI instructor for eight years,(two years as Principal).I have also taught in College of Teacher Education for four years and I have experience as a lecturer at Madda Walabu University in the faculty of education with three years of service as Education Faculty dean. My role in this mixed methods study is mainly a facilitator, collector, analyzer and interpreter of the gathered data.

CHAPTER 4: DISCUSSION AND ANALYSIS OF RESULTS

4.1. INTRODUCTION

The major purpose of the study was to analyze the curriculum design and development process and to assess whether the process of curriculum shaping for CoA in public Universities applied the scientific and social preconditions in producing the curriculum in operation in CoA(College of Agriculture) and thereby develop eclectic approach (integrating similar parts of different approaches) that would be better than the present experience for designing and developing relevant curriculum for CoA in public Universities.

Research design and methodology were explained in chapter three. In this section of the study, the discussion of results was made through tabulation, analysis, and interpretation of data. To this end the data collected through questionnaire were tallied and organized using tables. The results are synchronized with the data gathered through document analysis.

This section of the study deals with the explanation of findings pertaining to the extent to which the practice of designing and developing curriculum for CoA (College of Agriculture) in public Universities found in Oromia, Ethiopia, followed scientific and social processes of curriculum design and development. On top of this the implication of the enacted curriculum design practice on the quality (desirability) of the components of curriculum in function was also dealt with.

The analysis of consideration of scientific phases in designing the curriculum for CoA was carried out taking the ADDIE (Analyze, Design, Develop, Implement, and Evaluate) model of SAT(Systems Approach to Training) design of curriculum as a reference point for scientific curriculum design procedure.

In detail this chapter incorporates the perception of lecturers and graduating class candidates toward the state of emphasis given to curriculum design and development phases beginning from curriculum research including needs assessment, participation of stakeholders in curriculum decision making, the use of data driven decision, the appropriateness of goals of curriculum of CoA, the curriculum contents, the proposed strategies of implementation, and techniques of assessment.

For analyzing the survey data collected by means of the questionnaire, first the answers were quantified. Each option of the items was ranked (totally ignored 1, not emphasized but effort made 2, insufficiently emphasized 3, moderately emphasized 4, and emphasized 5). In order to provide a clear picture of the responses given to the 58 items of the questionnaire, the items were grouped together and analyzed. The extent of rating scales range from 1-3, 1-4, and 1-5 based on the nature and weight given to the items in the study.

Mean was selected as the representative of central tendency among the three measures of central tendency because of the fact that it is less affected by the extreme data at either end of the scale (1 and 5). The individual items of the questionnaire were in fact grouped together and analyzed based on the mean of the answers given to them using tables.

In the process of curriculum design and development, decisions related to the analysis, design, development, implementation, and evaluation of curriculum are of great importance. To assess whether or not ADDIE principles were used, checklists were prepared and filled by experts from HESC, HERQA, MoARD, ORBARD, and some curriculum experts. The researcher of this study crosschecked the evidences against the questionnaire responses, and also assessed scope and alignment of components of curriculum on duty in CoA under concern and so evidences from checklists were incorporated in this analysis section.

4.2. Demographic Analysis

Those took part in responding to the questions in this study was lecturers/professors, and graduating class candidates of Colleges of Agriculture of the four Universities under consideration. The proportion of this population from pertinent programs presented as using the following table.

Table 1: Population of the study

Teachers

Programs	**Number of teachers who filled out the questionnaires**									
	HU		JU		AmbU		MWU		**Total**	**%**
	M	F	M	F	M	F	M	F		
Plant science	30	-	34	-	12	-	15	-	*91*	36.63
Animal Science	18	-	16	-	10	-	11	-	*55*	22
RDAE	10	-	8	-	12	-	13	-	*43*	17.33
Agricultural Economics	16	-	13	-		-			*29*	11.69
PHM	12	-	10	-					*22*	8.87
Horticulture					8	-			*8*	3.22
Total	86	-	81	-	42	-	39	-	*248*	100

NB: HU- Haramaya University, JU-Jimma University, AmbU-Ambo University, MWU-Madda Walabu University; PHM Post Harvest Management; RDAE stands for Rural Development & Agricultural Extension.

The work experiences of lecturers involved in the study was tabulated and analyzed as follows.

Table 2. Experiences of Lectures Involved in University Teaching

	Service year					
	5	6-10	11-15	16-20	Above 20	Total
Responses	46	60	64	56	22	248
Percentage	18.54	24.19	25.80	22.5	8.87	100

The above table indicates that more than half of the lecturers who took part in providing data (57%) were found to be involved in University teaching for more than eleven years .Less than a quarter of the teacher participants in the study (19%) had an experience of teaching up to five years. A bit near to a quarter (24.19%) of the respondent lecturers had experience of teaching in the University up to ten years. In sum, two hundred two (81%) who took part in responding to the questionnaire had a minimum of six years of teaching service in the Universities. All of the respondent teachers were males. However, this did not have impact on the results of the study. The absence of female respondent teachers (in the case of this study) out of 248 teachers shows that the number of female teachers in CoA is, by far, lesser than the number of male teachers.

Table 3: Graduating Class candidates

Programs	**Number of GC candidates filled out the questionnaires**									
	HU		JU		AmbU		MWU		**Total**	%
	M	F	M	F	M	F	M	F		
Plant science	7	4	9	5	5	3	6	3	*42*	25.60
Animal Science	10	3	6	4	7	4	8	2	*44*	26.82
RDAE	5	2	7	2	7	5	4	3	*35*	21.34
Agricultural Economics	6	4	8	3					*21*	12.8
PHM	5	2	4	2					*13*	7.90
Horticulture					6	3			*9*	5.48
Total	33	15	34	16	25	15	18	8	*164*	100

The candidates involved in the study as respondents were regular students of the senior class (the third year graduating class in the Colleges of Agriculture in the public Universities (Haramaya, Jimma, Ambo, and Maddawalabu Universities) .As it is indicated in the table above,164 graduating candidates were involved as respondents. The number of female participant students was 54(32.92%) and that of male students was 110(67.08) of the participant candidates. This indicates that the number of female participants was less than that of male, however, the difference in the proportion of males and females had no influence on the results of the study.

Overall perception of respondents concerning curriculum analysis, development, implementation and evaluation processes and the state of appropriateness of curriculum components were tabulated

and analyzed and presented as under. The weight given to options is 1 for 'totally ignored",2 for "not emphasized",3 for "insufficiently emphasized",4 for "moderately emphasized",& 5 for "emphasized" for table 4 up to table 7.

4.3. Discussion and Analysis of Responses of Lecturers and Graduating class Candidates

Table 4: Emphasis A- Curriculum research on the previous curriculum was conducted

	Lecturers		Gc Candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Totally ignored	65	26.2	41	25.0	106	25.7	4			
Not emphasized but effort made	113	45.6	90	54.9	203	49.3				
Insufficiently emphasized	39	15.7	19	11.58	58	14.1				
Moderately emphasized	27	10.9	10	6.1	37	9.0		2.12	5.865	0.209
Emphasized	4	1.6	4	2.4	8	1.9				
Total	248	100.0%	164	100.0%	412	100.0%				

NB: With the degree of freedom (n-1)= 4,the critical value of Chi-square ($X^{2)}$ at 0.05 =9.49(Cohen and Lea,2004:241).

The data gathered through questionnaires, observation, interview and document analysis on the existing curriculum status are vital to the evaluation and decision of the latter part of education and training(Jean,2006;Moi,2004).As can be seen from table 4, the calculated chi-square value was found to be 5.865 which is lesser than the table value at 0.05 level. This value implies that the suggested hypothesis is rejected. The number of negative responses to the presumption" curriculum research was conducted" ,i.e., responses to "totally ignored" and "not emphasized but effort made" is greater than the number of positive responses (responses to the 'emphasized' options) regarding

the presumption" Curriculum research on the previous curriculum was conducted". Thus, the research proposition " Curriculum research was conducted on the previous curriculum of CoA in public Universities in Oromia, " does not hold true indirectly indicating that curriculum research was not emphasized ,however, efforts were made. The mean value (2.12) also shows this fact. There is also no significant difference between the responses of the two groups at $p<0.05$ ($p=0.20$). It is also ascertained in the document analysis that there are no evidences of documents such as curriculum research report and a minute indicating that research on current curriculum was conducted at departmental, faculty and University levels. Contrary to this, carrying out curriculum analysis is one of the decisive steps in designing and developing curriculum (Taba, 1962; Kremsdorf ,1999; Deragon,2008;Sekiya et.al.2009).

The interviews made and transcribed are in line with this finding. One of the interviewed team leader explained the issue as follows:

> I have been offering agricultural course for the last ten years and I am a team leader at this moment. Before the establishment of this course team, need assessment was carried out to identify the learning needs and the department was established. But when curriculum of CoA was restructured and designed in 2004 EC, the effort to standardize the curriculum was through the Curriculum Change and Implementation taskforce without consideration of investigation of the drawbacks of the curriculum that preceded it (TL1:25/05/2013).

The responses of other team leaders and College Deans to the interviews were similar to that of the above interviewee in which most of them explained that curriculum research culture was not a common practice in their institutions.

Table 5: Emphasis B-Learning need assessment conducted

	Gc									
	Lecturers		Candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Totally ignored	136	54.8	125	76.2	261	63.3	4			
Not emphasized but effort made	61	24.6	26	15.9	87	21.1				
Insufficiently emphasized	29	11.7	8	4.9	37	9.0				
Moderately emphasized	17	6.9	3	1.8	20	4.9		1.60	21.306	0.000
Emphasized	5	2.0	2	1.2	7	1.7				
Total	248	100.0%	164	100.0%	412	100.0%				

The above table depicts that the calculated value of chi-square is 21.306, which is greater than the table value at 0.05 level. The chi-square value shows that the proposed hypothesis "Learning need assessment conducted" is accepted. However, the number of responses to the option "totally ignored" is greater than the number of responses to the option " emphasized" indicating that the research presupposition forwarded " Learning need assessment was conducted as precondition to develop the curriculum of CoA " was rejected. The mean value (1.60) points to the option "totally ignored". This shows that learning need assessment was deemphasized. Concerning this assertion, however, there is some difference in opinion between the two groups in the study at $P<0.05(p=0.000)$. According to the assessment made using the study checklist, it was confirmed that needs assessment was not carried out for undergraduate at institutional level to develop

curriculum for CoA under consideration. Lack of needs assessment can negatively impact the identification and determination of training needs (JICA, 2007;Jean, 2006;Moi,2004). Focusing on the necessity of needs assessment Watkins, et al ,(2012) are of the opinion that need assessment is often done before any action has been taken that provide strategic direction to activities of planning.

Regarding whether or not needs assessment was conducted prior to the development of the current curriculum of CoA for undergraduate program; a director of college of agriculture expressed his opinion as follows:

> I have been teaching in the CoA for several years .But I did not see the practice of needs assessment before the design and development of curriculum in the case of our college for undergraduate program except for the graduate program. I know Conducting needs assessment concerning the learning needs and national demands is necessary; but doing so is not as such a common practice (Sd1,30/05/2013).

Responses of other school directors of CoA and team leaders were similar toward the fact that needs assessment is not a common culture for the undergraduate program but efforts were made to carryout needs assessment for the post graduate.

Many scholars are of the opinion that it is wise to conduct needs analysis to identify the learning needs and national demands in the effort to design and develop a curriculum (Robinson, 1990; UNESCO, 1995; Hutchinson and Waters 1996; Jordan, 1997; Graves, 2000; Derebssa, 2006; Laurillard, 2010).

Formulation of ‘general aims’ is possible with the data obtained from needs assessment and it is after this needs analysis that more ‘specific objectives’ are defined as intended outcomes. The learners’ needs should be identified and the basis for decision making in the program must be

provided by the specific objectives. Collecting relevant information for curriculum design purposes and conducting studies (needs analysis*)* concerns the learner, the learning purpose, and learning preferences. Needs analysis is, therefore, a vital part of curriculum design which helps to inform decisions concerning the formulation of both process and product objectives, and these in turn, assist the specification of syllabus content and procedures (Posner, 1998; Graves, 2000).

Table 6: Emphasis-C: Studies were conducted on investigating the strategies of agricultural education and training

	Gc									
	Lecturers		**Candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Totally ignored	28	11.3	21	12.8	49	11.9	4			
Not emphasized but effort made	45	18.1	29	17.7	74	18.0				
Insufficiently emphasized	48	19.4	35	21.3	83	20.1				
Moderately emphasized	113	45.6	71	43.3	184	44.7		3.15	0.618	0.961
Emphasized	14	5.6	8	4.9	22	5.3				
Total	248	100%	164	100.0%	412	100.0%				

It is indicated in the above table that the computed chi-square value is 0.618 which is lesser than the value at 0.05 levels showing that the supposition "Studies were conducted on investigating strategies of agricultural education and training" was rejected. As shown in the table, the number of positive response to the option "moderately emphasized" is greater than the responses to "totally ignored' and "not emphasized but effort made." The mean value (3.5) shows that the practice of carrying out studies on teaching-learning strategies on agricultural education and training in the

colleges of agriculture under consideration was emphasized to the average. This was assured by the groups with no significant difference between them at $p<0.05$($p=0.961$). This is promising because scholars suggest that it is wise to use evidence-based decision on curriculum concepts (Beauchamp, et.al, 2012, UNESCO ,1995).Contrary to this judgment is that there is no evidence with regard to the studies on strategies of agricultural education and training at the level of College of Agriculture except some copies of agricultural researches in the two pioneer agricultural colleges of Haramaya and Jimma.

Table 7: Emphasis-D: Curriculum issue dissemination workshop held on curriculum standardization and about how to harmonize HEIs

	Lecturers		**Gc Candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Totally ignored	19	7.70	7.0	4.3	26	6.3	4			
Not emphasized but effort made	28	11.3	8.0	4.9	36	8.7				
Insufficiently emphasized	57	23.0	29	17.7	86	20.9				
Moderately emphasized	132	53.2	109	66.5	241	58.5		3.48	11.350	0.23
Emphasized	12	4.8	11	6.7	23	5.6				
Total	248	100.0%	164	100.0%	412	100.0%				

As can be seen from the above table, the calculated value of the x^2 is found to be 11.350 which is greater than the table value at 0.05 level. Hence, the assertion “Curriculum issue dissemination workshop was held during developing the curriculum in operation for agricultural education and training “ supported right indicating that this issue was moderately stressed .The mean value(3.48) also affirms this information In curriculum development national capacity needs to be developed

by creating forums where those involved in the curriculum issue meet to discuss problems of common interests(UNESCO,1993). / There is no significant difference in opinion between the groups in the study at $p<0.05$ ($p=0.23$)./ The annual curriculum change and implementation consultation has especially began since 2000 EC that remarked the establishment of taskforce of national Curriculum Change and Implementation (NCCI) encompassing members from university departmental level through faculty or school to those members from the MoE. There were timely consultations at least once a year on issues of curriculum change and implementation at departmental/course team level through faculty to the Ministry of Education at national level(MoE2010). This was proved through document analysis. It was affirmed that the dissemination workshop on curriculum standardization and institutional harmonization issues were the main points of focus of the workshop at the Ministry of education that provided opportunity for curriculum alignment with national policy, combination of enthusiastic bottom-up and top-down dissemination about the standardized curriculum development. In order to encourage greater stakeholder involvement, a series of awareness raising workshops play role (Taylor, et al.,2001) After continuous discussion and consultation, the frameworks for the standardized University curricula were drawn or designed to be the same among the harmonized public Universities in Ethiopia especially since 2004EC(MoE,2010).

Table 8: Participation A: Ministry experts participated frequently in curriculum issues

NB: The weight given to options : 1for "not participant",2 for "infrequent participant",3 for "participant as avail",4 for "participant",& 5 for "top participant" for tables from 8 up to table 14.

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not participant	29	11.7	20	12.2	49	11.9	4			
Infrequent participant	53	21.4	44	26.8	97	23.5				
Participant as avail	133	53.6	87	53.0	220	53.4				
Participant	25	10.1	10	6.1	35	8.5		2.65	3.841	0.428
Top participant	8	3.2	3	1.8	11	2.7				
Total	248	100.0%	164	100.0%	412	100.0%				

Participation of the stakeholders contributes to produce relevant curriculum document. According to Beeby (1997) senior administrators in a ministry or state department of education has to come closer to the people and be responsible for economic and social planning. In the case of this study, it is indicated in the above table that the chi-square value (3.841) is lesser than the table value of 9.49 at 0.05 levels. This implies that the presupposition "Ministry experts participated frequently in curriculum issues" is rejected. The mean value(2.65) also shows that the fact lies at the mid in the scale stretching from "not participant " to the "top participant" indicating that the experts at the ministry level were participating in the issues of curriculum development consultation as far as they are available. The groups in the study confirmed this with no significant difference at $p<0.05$ ($p=0.428$). The "top participant" here contextually indicates the one who participates in curriculum issues frequently. It is also assured through the checklist that the experts at ministerial level such as experts from HERQA,HESC, and some from MoARD and Oromia Regional Bureau take part in the

consultation workshop or educational symposium as far as they were invited. Regarding this, each of the experts was interviewed and their responses are interpreted.

One of the interviewees expressed his opinion as follows:

> During the time of conventional curriculum design and development, especially prior to 2007/07 GC, curriculum design and development was carried out in individual University at departmental level. But since the effort to standardize or harmonize curricula of Universities, I have got the opportunity to take part in the workshop held at the ministerial level to discuss curriculum design and development issues (Mo2: 15/06/2013).

Similar to the above expression the other interviewee explained, " I began to rarely participate in the curriculum development issues since the standardization of curriculum recently. Before the effort of standardization or harmonization of University curriculum, I did not take part" (Hes3).

The rest interviewees had similar responses in the interviews held while investigating participation of experts at ministerial level in the issues of curriculum design and development. The involvement of experts at ministerial level has contribution adding to the idea inputs in developing relevant curriculum for CoA especially toward making alignment between the curriculum and national state policy.

Table 9: Participation B: Curriculum Experts took part in curriculum development for CoA

	Lecturers		Gc candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Not participant	30	12.1	33	20.1	63	15.3	4			
Infrequent participant	71	28.6	39	23.8	110	26.7				
Participant as avail	96	38.7	86	52.4	182	44.2				
Participant	36	14.5	4	2.4	40	9.7		2.60	29.649	0.000
Top participant	15	6.0	2	1.2	17	4.1				
Total	248	100%	164	100%	412	100%				

As it is depicted in the table the calculated chi-square value is 29.649 which is greater than the critical value at 0.05 level. This value implies that the presumption" Curriculum Experts took part in curriculum development for CoA" was accepted. The participation of curriculum experts in the development of curriculum of agricultural education and training is evident, though the participation was not very common and regular. The number of responses to the option "participant as avail" and" participant" is greater than that to "not participant" and "infrequent participant." The mean value(2.60) supports the fact that the curriculum experts took part in curriculum issues even though they were not regularly invited as 'permanent' participants. This finding is with some difference between the groups at $p<0.05$($p=0.000$). Anyway some official documents indicate that there is some level of participation of curriculum experts, if not as satisfactory as expected, at regional and ministerial level curriculum issues symposia. The participation of curriculum experts in the curriculum development issues of CoA needs to be normal because if experts participate they will get opportunity to share their experience and expertise as ingredients for producing relevant curriculum.

Table 10: Participation C: College Dean/Director regularly participates in curriculum development issues

	Lecturers		Gc Candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Not participant	18	7.30	9	5.5	27	6.6	4			
Infrequent participant	49	19.8	17	10.4	66	16.0				
Participant as avail	52	21.0	29	17.7	81	19.7				
Participant	111	44.8	86	52.4	197	47.8		3.38	12.21	0.16
Top participant	18	7.3	23	14.0	41	10.0				
Total	248	100%	164	100%	412	100%				

Table10 shows that the calculated chi-square is 12.21 which is greater than the critical table value at 0.05 level which is 9.49. This value indicates that the presupposition "College Dean/Director regularly participates in curriculum development issues " is supported. The mean value (3.38) strengthens this statement and shows that College Deans of the Universities understudy were regular participants. Both groups in this study affirmed this idea without significant difference at $p<0.05$ ($p=0.16$).Strong leadership is a necessary condition for institutional improvement and curriculum development(CIE,2012). There are also documented evidences of official institutional minutes at departmental and faculty levels depicting that College Deans were the main coordinators of curriculum development affairs beyond 'simple' participation. The faculty or college dean offices, through their role of coordination, bridge the departmental level curriculum change and implementation task force with that at the ministerial level working on curriculum decision making. The frequent participation of college deans has led to the provision continuous support for the

curriculum change and implementation taskforce. This can create conducive environment to work on curriculum issues at faculty through the ministerial levels.

Table 11: Participation D: Team Leaders/Department heads frequently take part in curriculum development

	Lecturers		Gc Candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Not participant	9.0	3.6	3.0	1.8	12	2.9	4			
Infrequent participant	12	4.8	10.0	6.1	22	5.3				
Participant as avail	43	17.3	26	15.9	69	16.7				
Participant	62	25.0	43	26.2	105	25.5		4.12	15.91	0.810
Top participant	122	49.2	82	50.0	204	49.5				
Total	248	100%	164	100%	412	100%				

Department heads have role to play in planning and implementing education. As to Newmayer's (2013) academic planning and development, among others ,is the principal area of responsibility of department heads, As shown in the above table, the chi-square value is 15.91 which is greater than the table value at 0.05 that is 9.49 .This points out that the presumption "Team leaders or Department heads are participants during the development of curriculum for Colleges of agriculture, undergraduate program" is accepted. The computed mean weight (4.12) consolidating this assertion, shows that the team leaders are permanent participants. There is no significant difference between the groups concerning this statement at $p<0.05(p=0.81)$. There are documented evidences like official institutional minutes at departmental level indicating that team leaders were the main coordinators of curriculum designing and development affairs beyond 'simple'

participation. The departmental level curriculum change and implementation task force is led by the team leaders in making decision concerning curriculum 'conception.' In the effort to shape new curriculum programs, however, the departmental decision is handed-over to the faculty level for approval.

Table 12: Participation E: Representatives of Candidates/students from pertinent department participate in curriculum development

Options							df	M	X^2	P
Not participant	111	44.8	81	49.4	192	46.6	4			
Infrequent participant	67	27.0	49	29.9	116	28.2				
Participant as avail	42	16.9	20	12.2	62	15.0				
Participant	22	8.9	11	6.7	33	8.0		1.90	2.95	0.566
Top participant	6	2.4	3	1.8	9	2.2				
Total	248	100%	164	100%	412	100%				

The calculated chi-square value, as indicated in table 12, is 2.95 which is lesser than the critical value at 0.05 which is 9.49. This implies that the proposition," Representatives of Candidates/students from pertinent department participate in curriculum development ", was rejected/.Similarly the number of responses to the options:"not participant" and "infrequent participant" is greater than the total of that of "participant as avail, participants and top participants." The results show that the representatives of candidates/students were not participants in the practice of the development of curriculum for the agricultural education and training of the Colleges in public Universities under consideration. The mean value (1.90) as it is less than 2 indicates to the option "not participant" and supports the above claim. There is no

significant difference between the groups at $p<0.05(p=0.55)$. There is no written or recorded evidence like minutes showing that the candidates/representatives of students were participants in the process of curriculum design and development. However, all those benefit from curriculum need to take part in curriculum issues (UNESCO, 1995).Furthermore, Storen (2002)

suggests that if one of the educational goal is to create wise citizens, then the students are expected to make judgments in educational planning. Furthermore, it is suggested that close involvement of staff and learners in the design process ensures discussing and sharing experiences, team ownership, learner-centered curriculum design, and growing confidence in teams (Masson, 2012).

Table 13: Participation F: Employers/ stake holders participated in curriculum development of CoA

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not participant	145	58.5	92	56.1	237	57.5	4			
Infrequent participant	51	20.6	50	30.5	101	24.5				
Participant as avail	23	9.3	15	9.1	38	9.2				
Participant	16	6.5	3	1.8	19	4.6		1.64	10.517	0.033
Top participant	13	5.2	4	2.4	17	4.1				
Total	248	100%	164	100%	412	100%				

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Contemporary curriculum development process more frequently involves public discussions and consultations with a range of stakeholders and the curriculum has to progressively evolve into a topic of debate engaging policy-makers, curriculum experts, practitioners and society at large(UNESCO,2009).

The computed chi-square value, as indicated in table 13, is 10.517 with very small difference with the table value of 9.49 at significance level of 0.05.This value makes one to assume that the participation of stakeholders in curriculum development issues is not common. Having a look into the above table, it is possible to say that the indirect stake holders were not the participants in the practice of developing curriculum for undergraduate program of Colleges of Agriculture ,however, there were respondents claiming that the employing sectors as stakeholders were infrequent participants. The mean value (1.64) indicates that the employers as stake holders were not participants. Regarding this, there is a bit of difference between the two groups in opinion at $p<0.05$ ($p=0.033$). In a similar manner as the case of lack of candidates' participation in curriculum decision making issues, there is no written or recorded evidence showing that the stakeholders such as , employers, community representatives, offices of other ministries, some among others, were participants in the process of curriculum development. This might be due to lack of invitation and coordination of the stakeholders by institutions even though this needs further investigation. On the other hand, scholars stress on the necessity of the participation of stakeholders and consultation of citizens is nowadays a key element in decision making (Demeulemeester,2011).

Involving stakeholders, providing access to discussion, sharing of tasks and responsibilities and creating social consensus contributes much to sound design and development of responsive

curriculum especially in less developed countries curriculum where project requires pooling of the limited human and material resources (Mc Neil, 2009 UNESCO, 1995; Taylor, 2000).

Inversely, deficiency of stakeholders' participation affects the quality and relevance of the curriculum components. With regard to the participation of stakeholders especially the employing sectors, one of the interviewees expressed his views as follows:

"I have been taking part in curriculum design and development issues for the college of agriculture from departmental/course team up to the national workshop at MoE but the employing sector stakeholders were not participating even in a single meeting or workshop with us (Sd3,10/05/2013)."

Lack of participation of stakeholders may be the result of lack of invitation of them by institutions and from the view point of the interviews made and experience, it was not common to invite the employing stakeholders at ministerial level for active participation in the issues of curriculum development. This issue needs further study and attention to enhance participation of stakeholders in the curriculum affairs. Scholars are of the opinion that participation is necessary (Taylor,2001).

Participatory approach is important to search for solutions together .It can be useful for project planning, implementation, monitoring and evaluation. In the working areas, it is the tool for interconnected social, economic, political and cultural interaction. In addition, cohesive and collaborative process for curriculum design and development will ensure, in part, the responsiveness of the curriculum to the life of the students and the community (Beauchamp, et.al; 2012).

Table 14: Participant G: Teachers took part in curriculum development of CoA

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
No participant	12	4.8	2.0	1.20	14	3.4	4			
Infrequent participant	26	10.5	35	21.3	61	14.8				
Participant as avail	117	47.2	85	51.8	202	49.0				
Participant	74	29.8	27	16.5	101	24.5		3.19	19.569	0.001
Top participant	19	7.7	15	9.1	34	8.3				
Total	248	100%	164	100%	412	100%				

Table 14 shows that the calculated chi-square value is 19.569 which is greater than the table value at 0.05 level. This implies that the supposition ” Teachers took part in curriculum development of CoA” is accepted. The number of responses to the options “participants as avail, participants, and top participants” is greater than the number of responses to the options “not participant, and infrequent participant.” This assures that teachers were participants in the process of the development of curriculum of agricultural education and training undergraduate program. The mean value is in support of this idea. There is a bit difference between the groups at $p<0.05$ ($p=0.001$) though; not exaggerated. Beyond the computed data above, there are evidences such as departmental meetings and minutes at departmental level showing that teachers were active participants at departments in curriculum issues discussion and consultation specially if there is a need for shaping new curriculum. Their participation, however, did not go beyond faculty level.

However, educational literature and reform trends have long promoted putting teachers in a central role in curricular design (Handler, 2010).

College deans and team leaders were interviewed about the participation of teachers in the process of curriculum design and development and forwarded their ideas as follows:

> Teachers are the main actors in the curriculum issues more than the experts and they know the secrete of the curriculum more and more. Their participation in curriculum design and development is mandatory. I know the teachers take part in the discussion and consultation of curriculum issues at departmental level in our case; but their participation indecision making above their departments is rare. Their discussions and decisions play role in designing and developing effective curriculum (TL3,15/05/2013).

Teachers who are putting into practice the curriculum should take part in developing it. To avoid collaboration of teachers means to exempt their scholarly ideas input and this would make curriculum implementation worse (.Taba, 1962; Derebssa,2010; Ornstein and Hunkins, 2004). Emphasizing on scientific and social process of curriculum development is essential because learners' needs will be met, teachers will manage teaching learning effectively using relevant methods and materials, educational goals will be achieved ,and demands of stakeholders will be satisfied(Pike,et.al,2006).

Beginning from the next page (table 15 through table 21), the discussion and analysis deals with the issues of identifying whether the phases of curriculum development were taken into account while preparing curriculum for CoA of the Universities in the focus of this study. The options were given weights. Accordingly for the option " Strongly disagree " the weight given is 1, for "Disagree" 2, for "not decided" 3, for "agree" 4, & for "strongly agree" the weight given is 5 with regard to proposed hypotheses for each table.

Table 15: Phase A: Necessary Conditions to design curriculum were facilitated

	Lecturers		Gc candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	126	50.8	57	34.8	183	44.4	4			
Disagree	76	30.6	76	46.3	152	36.9				
Not decided	5	2.0	3	1.8	8	1.9				
Agree	32	12.9	26	15.9	58	14.1		1.88	15.093	0.005
Strongly agree	9	3.6	2	1.2	11	2.7				
Total	248	100%	164	100%	412	100%				

As one can see from the above table the calculated chi-square value is 15.093 which is greater than the table value at 0.05 level. This value indicates that there is effort of facilitating conditions for curriculum development to some extent. .However, the number of responses to the alternative "strongly disagree and disagree" is greater than the number of responses to the alternatives ranging from "Not decided to strongly agree." This fact points out that the necessary conditions to design curriculum of undergraduate program of Colleges of Agriculture were not well facilitated. The mean weight (1.88) also shows the value that points to the option "disagree" to the presumption "Necessary conditions to design curriculum were facilitated." The two groups confirmed, with slight difference, at 0.005 significance level that necessary conditions were not arranged ahead of time to design and develop the curriculum document for the concerned program of agricultural education and training. There were no efforts like pre-requisite orientation, no budget allocation, and no plan for regular discussion at the end of each year for the purpose of redefining and redesigning the curriculum in operation. This might be due to lack of awareness of the responsible

persons about the necessity of facilitating environments for such as allocating budget, making pre-hand orientation on curriculum development issues so that the concerned stakeholders take part in and be aware of designing and developing relevant curriculum.

Table 16: Phase B: Appropriate agricultural education and training objectives were formulated as prerequisite in designing AET (Agricultural Education and Training) curriculum.

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	19	7.70	19	11.6	38	9.2	4			
Disagree	27	10.9	35	21.3	62	15.0				
Not decided	11	4.4	5	3.0	16	3.9				
Agree	151	60.9	96	58.5	247	60.0		3.50	18.797	0.001
Strongly agree	40	16.1	9	5.5	49	11.9				
Total	248	100%	164	100%	412	100%				

As depicted in table 16, the calculated chi-square value is found to be 18.797 which is greater than the table value at 0.05 level implying that the supposition "Appropriate agricultural education and training objectives were formulated" was accepted. The number of responses to the options 'Agree' and "Strongly agree" is twice greater than the number of responses to the options "Disagree ' and "strongly disagree" to the presumption " Appropriate agricultural education and training objectives were formulated as prerequisite in designing the curriculum." This shows the fact that appropriate educational objectives for agricultural education and training programs were explained. Educational research Studies reveal that objectives or learning outcomes are key component of any curriculum (Akhtar,et al.2012). So the formulation of appropriate objectives is essential in curriculum development. The mean value (3.50) consolidates this fact. The groups accepted this assertion

with some difference at $p<0.05(p=0.001)$. From the document analysis made regarding the curriculum for agricultural education and training, undergraduate program prepared in 2004 EC, it is ascertained that the program objectives were formulated ,even though, the explained general objectives did not incorporate the necessary levels of cognitive, affective ,and psychomotor domains of education in balanced manner. Clear and meaningful educational standards are essential to ensure accurate measurement of progress and achievement and allow for international benchmarking and comparability(CIE,2012).

Table 17: Phase C: Scheme of learning activities created through selection & organization of contents and learning experiences

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	8.0	3.20	10.0	6.10	18	4.40	4			
Disagree	36	14.5	34	20.7	70	17.0				
Not decided	8.0	3.2	2.0	1.2	10	2.4				
Agree	152	61.3	95	57.9	247	60.0		3.67	6.771	0.149
Strongly agree	44	17.7	23	14.0	67	16.3				
Total	248	100%	164	100%	412	100%				

Table 17 shows that the calculated chi-square value is found to be 6.771 which is lesser than the table value at 0.05 level indicating that the hypothesis “Scheme of learning activities created through selection & organization of contents and learning experiences “ was not accepted.. however, the number of responses to options “Strongly disagree” and “Disagree’ to the proposition is less than the number of responses to the options “Agree” and “Strongly agree.” This indicates that the presupposition” scheme of learning activities were created through selection and organization of contents and learning experiences was accepted, however, there is

variation between the groups in responding to issue under consideration. The mean value (3.67) points more than the weighted value fixed to the option "agree" indicating positive response to the forwarded statement.

In addition to the above data results, the planned laboratory activities, supervised worksite or plot practices, field reports and presentations as outlined in the document show that the activities for the training and education for the undergraduate program are identified and shaped to be carried out by the candidates.

Table 18: Phase D: Effective teaching and learning strategies were determined

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	11.0	4.40	10.0	6.10	21.0	5.10	4			
Disagree	13	5.2	29	17.7	42	10.2				
Not decided	4	1.6	7	4.3	11	2.7				
Agree	173	69.8	110	67.1	283	68.7		3.74	32.88	0.000
Strongly agree	47	19.0	8	4.9	55	13.3				
Total	248	100%	164	100%	412	100%				

The nature of pedagogy and the whole architecture of learning is essential part of the curriculum which becomes a vehicle to support student learning .Thinking of teaching and learning thereby developing them leads to educational success (Ginnis,2002).

As indicated in table 18 the computed chi-square value is found to be 32.881 which is greater than the critical value at 0.05 level. This shows that the supposition "Effective teaching and learning strategies were determined" is accepted. The number of positive responses (responses to agree and

strongly agree) is greater than the number of negative responses to the issue posed. The mean value (3.74) also confirms this fact. However, there is a bit difference between the groups in opinion regarding their responses at $p<0.05$ ($p=0.000$) concerning this assertion. As detected from the document "Curriculum for Undergraduate Program of School of Agriculture" teaching –learning strategies for the classroom activities, laboratory practices, fieldwork practices and the required resources are outlined in the document. According to Hite and Grauwe (2008) there may be some strategies with positive and sustainable outcomes on one hand, but some strategies may be ineffective. The pedagogy required to enable learners to achieve their maximum performance is based on active learning(CIE,2012).

Table 19: Phase E: Appropriate assessment techniques were formulated

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	39.0	15.7	6.0	3.70	45.0	10.9	4			
Disagree	158	63.7	93	56.7	251	60.9				
Not decided	5.0	2.0	3.0	1.8	8.0	1.9				
Agree	39	15.7	47	28.7	86	20.9		2.48	2.927	0.000
Strongly agree	7.0	2.8	15	9.1	22	5.3				
Total	248	100%	164	100%	412	100%				

As can be seen from the table above the calculated chi-square is 2.927 which is lesser than the table value at 0.05 level. This value shows that the proposition" Appropriate assessment techniques were formulated "was not accepted. In a similar manner, the numbers of responses to the options "Strongly disagree" and "Disagree" is greater than that to the options "Agree" and "Strongly

disagree." This indicates that appropriate assessment techniques were not formulated. The mean value (2.48) assures this assertion. There is minor difference in opinion between the groups regarding this idea at $p<0.05$($p<000$). Studies reveal that the failure or success of learners is influenced in part by the grading policy. To increase retention and reduce the failure rate, effective assessment and grading systems have their role to play (Miller,2013).

According to the document analysis done on the written document of agricultural education and training programs for School of Agriculture(2004EC) some assessment mechanisms in addition to the written examinations were included such as laboratory practice reports, presentations, field project work assessment results to be considered in grading the candidates' performance achievement. However, the written examinations play a dominating role. Regarding this an interview was held with one of the respondents and he forwarded his ideas as follows:

> Assessment determines the focus area of student learning. The selection and determination of assessment mechanisms or strategies is directly related to what the learner practices and what he/she is going to be capable of after graduation. If the assessment strategy is paper examination oriented (exam dominated) the focus of the trainee will be on theory or conceptual understanding. Mostly in our case, the written examination takes greater share in the evaluation and grading of candidates' performance and this obliges the candidates to pass huge amount of time on reading than taking part in practical aspects of learning which might negatively influence the candidates' practical skill performances (TL3, 05/05/2013).

As opposed to sticking only to the paper-pencil examination for deciding students' performance, scholars suggest that different assessment serve successful purpose if they are used in combination. Using them alternatively based on the nature of students and content standards is essential. With regard to this idea, Valencia (2005) citing Blair,et al (2001) suggests that no one test or assessment

techniques should be required to serve all the assessment purposes. Integration of the techniques is recommendable to make authentic decision on students' performances.

Table 20: Phase F: Evaluation of courses is planned

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	58	23.4	16	9.8	74	18.0	4			
Disagree	148	59.7	83	50.6	231	56.1				
Not decided	7.0	2.8	2.0	1.2	9.0	2.2				
Agree	17	6.9	35	21.3	52	12.6		2.42	3.753	0.000
Strongly agree	18	7.3	28	17.1	46	11.2				
Total	248	100%	164	100%	412	100%				

The above table indicates that the computed weight of chi-square is found to be 3.753 which is lesser than the table value at 0.05 level. This implies that the proposition ": Evaluation of courses is planned" is rejected. Similarly, the number of positive responses (responses to agreement) is lesser than the number of negative responses (responses to disagreement) indicating that the course evaluation scheme for redesigning purpose was not considered in the curriculum for the program of agricultural education and training for the Colleges of Agriculture in public universities under consideration. Curriculum development involves an ongoing process of evidence gathering and evaluation .Therefore, regular reviews of the curriculum and the effectiveness of its implementation and delivery should be a priority(CIE,2012). The mean value (2.42) strengthens this statement, even though; there is a bit difference between the groups toward this idea at $p<0.05(p=0.000)$.

No evidence was found through document analysis showing that the Colleges of agriculture implementing the current curriculum in practice have regular programs or plans for evaluating a course especially at the end of the year for curriculum review, revision, modification, redefining, redesigning or change. The reason behind this may be lack of awareness of the necessity of course or program evaluation that might brought about exemption of annual courses/programs evaluation in the institutional plan. An important lesson is that evaluation of the effect of educational interventions should be carried out continuously and over a long period of time in the form of action research, and with the active involvement of stakeholders (Taylor,et al.,2001).

Table 21: Phase G: Effective grading system was developed

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	63	25.4	39	23.8	102	24.8	4			
Disagree	125	50.4	72	43.9	197	47.8				
Not decided	6	2.4	2	1.2	8	1.9				
Agree	39	15.7	41	25.0	80	19.4		2.33	6.083	0.193
Strongly agree	15	6.0	10	6.1	25	6.1				
Total	248	100%	164	100%	412	100%				

Table 21on the previous page reveals that the calculated value of the chi-square is found to be 6.083 which is lesser than the table value at 0.05 level. This value shows that the proposition “Effective grading system was developed” was rejected. The number of negative responses (responses to the options of strongly disagree and disagree) is greater than the number of positive responses (responses to agree and strongly agree). This shows that the development of effective grading

system during the development of curriculum for the program of agricultural education and training for the undergraduate program was not substantial. The mean value (2.33) is in support of this assertion. There is no significant difference between the groups regarding this fact at $p<0.05$ ($p=0.193$). According to Adams (1998) effective grading is a powerful tool which is essential to make assessment of learning outcomes and make decisions concerning the progress of the learners. The weight to be given to the examination, laboratory practices report, and agricultural plot activities in marking to grade have to be balanced.

As investigated from documents, the grading system of the college needs attention for the reason that the share of laboratory and fieldwork practices in grading courses is less than the share of written examinations. Since agriculture is more of vocational it is better if the inverse is true.

NB: From table 22 up to table 26 the presumptions are based on issues of curriculum development .The weights given to options : 1 for strongly disagree,2 for disagree,3 for not decided,4 for agree,7 5 for strongly agree.

Table 22: Develop A: Thematic structure of courses created

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	15	6.0	11	6.7	26	6.3	4			
Disagree	18	7.3	19	11.6	37	9.0				
Not decided	7	2.8	4	2.4	11	2.7				
Agree	159	64.1	114	69.5	273	66.3		3.75	8.875	0.064
Strongly agree	49	19.8	16	9.8	65	15.8				
Total	248	100%	164	100%	412	100%				

As shown in table 22, the computed value of chi-square is 8.875 which is, a bit, lesser than the table value of 9.49 at 0.05 level. Statistically this value enables one to conclude that the presumption "Thematic structure of courses created" is rejected .However, the number of positive response to the presumption" Thematic structure of courses created" during the development of the curriculum for the agricultural education and training undergraduate program is greater than the number of negative responses. This shows that the supposition holds true. The mean value (3.75) also points to the option "agree" assuring this fact. There is no significant difference between the two groups in opinion regarding the assertion at $p<0.05$ ($p=0.064$).A course profile has to be created to address the standard of a level through well explained aims, outcomes, graduate profiles, learning resources, teaching and learning activities, and assessment plan(APS,2015).

In addition to the above quantitative data, the preparation of course outlines, course description, explanations of course objectives and the course catalogue for College of Agriculture Undergraduate program are evidences for the learning schemes shaping for the programs. All these are evidences for the creation of thematic structure of courses.

Table 23: Develop B: The course breakdown and description was written to the standard

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	12	4.8	7.0	4.3	19	4.6	4			
Disagree	11	4.4	13	7.9	24	5.8				
Not decided	3.0	1.2	7.0	4.3	10	2.4				
Agree	167	67.3	118	72.0	285	69.2		3.89	12.41	0.015
Strongly agree	55	22.2	19	11.6	74	18.0				
Total	248	100%	164	100%	412	100%				

Table 23 shows that the chi-square value is found to be 12.41 which is, greater than the table value at 0.05 level. This indicates that the presupposition "The course breakdown and description was written to the standard "is accepted. Preparing effective course outline including description makes teaching and assessment rigorous. As to Woolcock (2006) the quality of course outline and its description is one of the indicators of the quality of teaching and learning that will take place over the course. The number of responses to the options "Agree " and "strongly agree" is about five times greater than the responses to the options " disagree" and "strongly disagree." This adds to the fact that the course breakdown and description was prepared to the standard. The mean value (3.89) confirms this judgment. There is slight difference in opinion between the two groups at $p<0.05$ ($p=0.015$), However, the document analysis, complementary to the percentile and the mean, revealed that the course descriptions for different programs of agricultural education and training are presented to the standard of the University, reflecting the undergraduate program of agricultural profession.

Table 24: Develop C: Curriculum materials were developed on time

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	19	7.7	13	7.9	32	7.8	4			
Disagree	18	7.3	21	12.8	39	9.5				
Not decided	3	1.2	5	3.0	8	1.9				
Agree	172	69.4	112	68.3	284	68.9		3.67	8.557	0.073
Strongly agree	36	14.5	13	7.9	49	11.9				
Total	248	100%	164	100%	412	100%				

As illustrated in the above table the number of negative responses is negligible compared with the number of positive responses concerning the supposition “Curriculum materials were developed on time” in the process of developing curriculum for the agricultural education and training of regular undergraduate program. The computed chi-square value is found to be 8.557 which is, a bit, lesser than the table value which is 9.49 at 0.05 level. This value is weak to conclude that the aforementioned supposition is rejected. The mean values (3.67) near to show the option “agree” to the suggestion “curriculum materials were developed on time.”

There is no significant difference between the two groups in opinion about the suggestion at $p<0.05$ ($p=0.073$). As to Koskealui (2015) instructional materials have to be prepared, stored in an orderly and safe manner and should be within reach so that they should be used effectively.

Based on the percentiles and the mean value supported with the document analysis that showed the preparation of course breakdown, course description, course outline, and modules it is possible to say that curriculum materials were developed on time for the program under consideration.

Table 25: Develop D: Tryout implementation of the planned curriculum was carried out

	Gc									
	Lecturers		**candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	78	31.45	50	30.48	128	31.0	4			
Disagree	155	62.5	103	62.2	258	62.60				
Not decided	3	1.2	2	3.0	5	1.21				
Agree	6	4.4	4	2.4	10	2.42		1.77	3.616	0.460
Strongly agree	6	2.41	5	3.0	11	2.66				
Total	248	100%	164	100%	412	100%				

Table 25 shows that the calculated chi-square value is found to be 3.616 which is lesser than the critical table value at 0.05 level. This value implies that the presumption ” Tryout implementation of the planned curriculum was carried out” is rejected. In a similar manner, the number of negative responses (to disagree and strongly disagree) regarding the supposition “ Tryout implementation was carried out in the process of developing the curriculum program for regular undergraduate level of education and training in the agricultural colleges of public Universities “ is greater than the number of positive responses (agree and strongly agree). This implies that the try out implementation practice was not undertaken before the actual implementation of the curriculum. The mean value (3.616) indicates that the majority of respondents disagree to the assertion which

says “tryout implementation was carried out.” Contrary to this, scholars suggest that new curricula which are likely to have wide institutional implementation are pre-tested in different contexts before they are more widely adopted (Taylor, et al.,2001).

In addition to the above data results it was checked through document analysis that there is no evidence showing the plan or practice of tryout curriculum implementation of agricultural education, undergraduate program before the actual implementation of the curriculum program. There is no significant difference in opinion between the two groups at $p<0.05$ ($p=0.46$) concerning this assertion.

Table 26: Develop E: Tryout evaluation was conducted

	Lecturers		Gc candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Strongly disagree	66	26.6	55	33.50	121	29.36	4			
Disagree	164	66	83	50.6	247	59.95				
Not decided	3.0	1.2	1.0.	0.60	4.0	0.97				
Agree	10	4.0	20	12.2	30	7.28		1.92	3..988	0.07
Strongly agree	5.0	2.0	5.0	3.00	10	2.4				
Total	248	100%	164	100%	412	100%				

Table 26 shows that the calculated chi-square value is found to be 3.988 which is lesser than the critical table value at 0.05 level. This shows that the supposition "Tryout evaluation was conducted" is rejected. The number of negative responses (to disagree and strongly disagree) regarding the supposition " Tryout evaluation was carried out in the process of developing the curriculum program for regular undergraduate level of education and training in the agricultural colleges of public Universities " is greater than the number of positive responses (agree and strongly agree). This implies that the try out evaluation practice was not undertaken regarding designed curriculum for CoA under study. The mean value (1.92) indicates that the majority of respondents disagree to the assertion which says "try out evaluation was carried out." It was confirmed that no evidence shows that tryout curriculum evaluation of agricultural education, undergraduate program was undergone before the actual implementation of the curriculum program. Before the actual use of the curriculum, tryout evaluation in the pilot test of the curriculum is necessary (Taylor, et al.,2001).

There is no significant difference in opinion between the two groups at $p<0.05(p=0.07)$.

Table 27: Alignment A: Relevance of TAET goals to that of MoARD

Beginning from table 27 up to table 30 issues of alignment are included.(1 for not at all,2 for to some extent,3 for by-in-large, & 4 for definite concerning the suggested hypotheses.

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not at all	5.0	2.0	4.0	2.4	9.0	2.2	3			
To some extent	60	24.2	43	26.2	103	25.0				
By-in-large	160	64.5	89	54.3	249	60.4				
Definite	23	9.3	28	17.1	51	12.4		2.82	6.809	0.078
Total	248	100%	164	100%	412	100%				

NB: With the degree of freedom (n-1)= 3,the critical value of Chi-square ($X^{2)}$ at 0.05 =7.81(Cohen and Lea,2004:241)

As shown in the table above the computed value of chi-square is 6.809 which is nearer to but a bit lesser than the table value at 0.05 level. This value does not support to strongly reject the presumption "TAET goals are relevant to MoARD goals". The number of responses to the options "by-in-large' and "definite' concerning the relevance of tertiary agricultural education and training (TAET) goals to that of Ministry of Agriculture and Rural Development (MoARD) is greater than the number of responses to the options "not at all" and "to some extent." The mean value (2.82) also pinpoints that the degree of relevance of TAET goals to the goals of MoARD is by-in-large acceptable. There is no significant difference in opinion between the groups concerning this assertion at $p<0.05(p=0.078)$.

Using the Goals Alignment Identification to National Plans (GAINP) checklist as rubrics for assessing the match-mismatch between the curriculum goals and the major themes of the policy of MoARD was analyzed and the document analysis through checklist reveals that there is a match by-in-large between AET curriculum goals and the national goals of Ministry of Agriculture and Rural development.

Table 28: Alignment B: There is match between TAET goals and GTP key issues

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not at all	7.0	2.8	8.0	4.90	15.0	3.60	3			
To some extent	194	78.2	88	53.7	282	68.4				
By-in-large	30	12.1	52	31.7	82	19.9				
Definite	17	6.90	16	9.8	33	8.0		2.31	29.963	0.905
Total	248	100%	164	100%	412	100%				

Table 28 depicts that the calculated chi-square value is found to be 29.963 which is greater than the table value at 0.05 level. This value supports the acceptance of the presumption" There is match between TAET goals and GTP key issues" .however, the number of responses to the options "not at all' and "to some extent' concerning the match between tertiary agricultural education and training (TAET) goals to that of national development goals is greater than the number of responses to the options "by-in-large" and "definite." This shows that the match between the TAET goals and national goals is not as such jigsaw fit and the degree of fitness is to some extent. This might lead one to say that the curriculum goals were formulated a bit overlooking the national development goals. Scholars suggest that one of the most important activities of universities is the development of curriculum or course outlines in consonance with the national and international demands and

realities (Akhtar,et al,2012). The mean value (2.31) also pinpoints that the degree of match between TAET goals and the goals of national development is to some extent. There is no significance difference in opinion between the groups concerning this assertion at $p<0.05$($p=0.905$).

The Goals Alignment Identification to National Plans (GAINP) checklist as a rubrics developed to analyze the match between the curriculum goals and the national development plan (Appendix-D) reveals that there is a match between the curriculum goals and national development goals especially of GTP (2010) indicating that many of the curriculum goals were formulated almost referring to the GTP goals. Scholars reveal in their studies that modern educational planning is interested in integrating economic growth, human resource development and simultaneous consideration of all a country's inter-locking development plans (Beeby,1997).

Table 29: Alignment C: Connection between TAET curriculum goals and local environmental realities is strong

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not at all	50	20.2	21	12.8	71	17.2	3			
To some extent	139	56.0	89	54.3	228	55.3				
By-in-large	54	21.8	51	31.1	105	25.5		2.09	6.54	0.088
Definite	5.0	2.00	3.0	1.80	8.0	1.90				
Total	248	100.0%	164	100.0%	412	100.0%				

Table 29 portrays that the calculated chi-square value is found to be 6.541 which is lesser than the table value at 0.05 level. This result implies that the proposition "Connection between TAET curriculum goals and local environmental realities is strong" is rejected. The number of responses to the options "not at all' and "to some extent' concerning the link between tertiary agricultural education and training (TAET) goals to that of local environmental realities is greater than the number of responses to the options "by-in-large" and "definite." This shows that the extent to which the TAET goals in representing local environmental realities is weak and below expectation. The mean value (2.09) also pinpoints that the extent of match between TAET goals and the goals of national development is to some extent. There is no significance difference in opinion between the groups concerning the above notion at $p<0.05$ ($p=0.088$). Agricultural education is a program of systematic instruction planned to support students to learn about the science, business, and

technology of plant and animal production, and about the environmental realities and natural resources systems (Lewis ,et al., 2008). There is a bit loose link between the proposed curriculum goals and the local environmental realities in which some of the formulated curriculum goals do not fit to represent actual local problems especially in addressing management of smallholder farming in modern ways. This finding is in line with the assertion of FAO(1997) which suggests that in many of the developing countries, agricultural education and training have failed to adapt and respond to the realities of rural societies.

As far as the document analysis was made, it was found out that the courses related to the issues of smallholder agricultural management and rural commercialization were not adequately included in the document of curriculum for college of agriculture under this study.

Table 30: Alignment D: There is link between graduate profiles and professional expectation

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not at all	24	9.7	26	15.9	50	12.1	3			
To some extent	80	32.3	58	35.4	138	33.5				
By-in-large	107	43.1	65	39.6	172	41.7		2.53	6.286	0.099
Definite	37	14.9	15	9.1	52	12.6				
Total	248	100%	164	100%	412	100%				

As indicated in the above table, the calculated chi-square value(6.286) is, slightly lesser than the table value at 0.05 level. This chi-square value does not strongly support one to suggest that the presumption" There is link between graduate profiles and professional expectation" is rejected. The total number of responses to the option "by-in-large" is more than the number of responses to the

rest options. The mean value (2.53) is above two indicating that the extent of the link between graduate profiles and professional expectation is near to the average, i.e., at 'good' level, even though, it is less than the expected. There is no significant difference in opinion between the groups regarding this judgment at $p<0.05$ ($p=0.099$).Professional profiles of practitioners are valuable to students, faculty, and the employers. There need to be consonance between graduate profiles and professional profiles (Devis, et al.,2006).

By crosschecking the graduate profiles against the professional expectation (Appendix-G) it is possible to suggest that most of the graduate profiles justified in the curriculum are based on the professional expectations. There is connection between the two but with a bit gap in which the curriculum goals are expected to bridge.

From table 31 up to table 34 appropriateness of the curriculum is dealt with(1 for not fitting,2 for slightly fitting,3 for moderately fitting ,4 for definitely fitting).

Table 31: Appropriateness A: The expected role of courses of TAET to address environmental issues is high

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not fitting	65	26.2	53	32.31	118	28.6	3			
Slightly fitting	130	52.4	76	46.30	206	50.0				
Moderately fitting	28	11.3	25	15.24	53	12.9				
Definitely fitting	25	10.1	10	6.09	35	8.5		2.00	5.058	0.168
Total	248	100%	164	100%	412	100%				

Table 31 shows that the computed value of chi-square is found to be 5.058 which is lesser than the table value at 0.05 level. This value implies that the presupposition "The expected role of courses of

TAET to address environmental issues is high" is rejected. The number of responses to the options" not fitting" and "slightly fitting" is greater than the number of responses to the options "moderately fitting" and "definitely fitting" indicating that the fitness of courses of tertiary agricultural education and training to address local environmental issues is very weak. The mean value (2.0) indicates that the fitness of the courses to represent local environmental issues is slightly fitting, i.e., below average/less than what is expected. There is no significant difference in opinion between the groups concerning the statement at $p<0.05$ ($p=0.168$). In addition to the data results the courses related to the local environmental realities proposed in the curriculum document for college of agriculture undergraduate program (2004EC) are very fewer in number than courses for general knowledge and understanding. Regarding this one of the interviewees suggested his opinion as follows:

"So far I know, most of the agricultural courses are that of general natural sciences field and we have a few courses addressing the local environmental realities" (TL4,20/04/2013).

Opinions of other interviewees were similar to the above suggestion in which they replied that most courses being offered in CoA are natural sciences.

Table 32: Appropriateness B: The share of TAET courses to contribute to the investigative capability of candidates is promising

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not fitting	32	12.9	40	24.4	72	17.5	3			
Slightly fitting	79	31.9	57	34.8	136	33.0				
Moderately fitting	128	51.6	53	32.3	181	43.9				
Definitely fitting	9.0	3.6	14	8.50	23	5.60		2.37	20.331	0.000
Total	248	100%	164	100%	412	100%				

Table 32 shows that the calculated value of chi-square is found to be 20.331 which is greater than the table value at 0.05 level. This implies that the presumption "The share of TAET courses to contribute to the investigative capability of candidates is promising" holds true. The total number of responses to the option "not fitting " and "slightly fitting" with regard to this supposition is lesser than the total of the number of responses to the options "moderately fitting" and "definitely fitting." This indicates that the role of TAET courses to contribute to the investigative capacity of the candidates is to the standard. The mean value (2.37) ascertains this statement pinpointing to the fact that the courses are slightly fitting in contributing to the investigative capabilities of the candidates. The 'P' value P=0.000 at $p<0.05$ shows that there is a bit difference in opinion between the groups in responding to the issue under consideration. Most of the courses proposed in the curriculum of undergraduate program as seen from the document "Curriculum of School of Agriculture undergraduate program prepared (2004EC) are those meant for both conceptual learning and those courses contributing to the operational or functioning knowledge. However, research courses were few in number. Therefore, the role of most of the courses incorporated in the document to

contribute to the investigative abilities of the candidates is suggested to be low. In contrast, scholars suggest that the content should comprise and reflect a selection of knowledge, skills, values and attitudes relevant and valued by the profession, subject discipline, and by the wider society (Mckimm,2007).

Table 33: Appropriateness C: The TAET courses are appropriate to contribute to the development of candidates' scientific reasoning and problem solving capacity

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not fitting	47	19.0	46	28.0	93	22.6	3			
Slightly fitting	134	54.0	70	42.7	204	49.5				
Moderately fitting	51	20.6	30	18.3	81	19.7				
Definitely fitting	16	6.5	18	11.0	34	8.3		2.13	8.895	0.31
Total	248	100%	164	100%	412	100%				

It is indicated in the above table that the computed chi-square value is found to be 8.895 which is, by little, greater than the table value at 0.05 level. This value does not allow to strongly accept the preposition which says "The TAET courses are appropriateness to contribute to the development of candidates' scientific reasoning and problem solving capacity". The number of negative responses (not fitting and slightly fitting) is greater than the positive responses (moderately fitting and definitely fitting) concerning the appropriateness of TAET course toward contributing to the candidates' scientific reasoning power and problem solving capacity. This implies that the appropriateness of the courses to enable the candidates develop abilities of scientific reasoning and

problem solving capacity is below the expected. The mean value (2.13) also shows that this assertion holds true. There is no significant difference between the groups concerning this judgment at $p<0.05$ ($p=0.31$). As assessed through the document analysis, most courses were meant most for the mastery of content knowledge than capacitating the candidates toward investigation and problem solving The research projects which are included in the curriculum programs of CoA are those meant for essay writing purposes.

Table 34: Appropriateness D: The TAET courses are fit to address issues of actual life

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not fitting	37	14.9	29	17.7	66	16.0	3			
Slightly fitting	137	55.2	69	42.1	206	50.0				
Moderately fitting	67	27.0	53	32.3	120	29.1				
Definitely fitting	7	2.8	13	7.9	20	4.9		2.22	10.145	0.17
Total	248	100%	164	100%	412	100%				

Table 34 indicates that the computed chi-square value is found to be 10.145 which is greater than the table value at 0.05 level. This indicates that the proposition "The TAET courses are fit to address issues of actual life". However, the number of negative responses (not fitting and slightly fitting) is greater than the positive responses (moderately fitting and definitely fitting) concerning the link between TAET course and issues actual life. This implies that the relevance of the courses to actual life is below the expected. The mean value (2.22) also shows that the incorporated courses are slightly fitting to address the farmers' actual life. There is no significant difference between the groups concerning this judgment at $p<0.05$ ($p=0.17$).

What is expected is that the TAET curriculum must fit to address life of rural dwellers. However, in many of the developing countries, agricultural education and training have failed to adapt and respond to the realities of rural societies (FAO, 1995).

NB: Tables 35 up to 40 indicate issues of curriculum ingredients(1for not included,2 for rarely considered,3 for included).

Table 35: Ingredient A: TAET courses incorporate issue of new technology to be produced in agricultural research

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not included	145	58.5	92	56.1	237	57.5	2			
Rarely considered	89	35.9	64	39.0	153	37.1				
Included	14	5.6	8	4.9	22	5.3		1.47	0.467	0.792
Total	248	100%	164	100%	412	100%				

NB: With the degree of freedom (n-1)= 2,the critical value of Chi-square ($X^{2)}$ at 0.05 =5.99 (Cohen and Lea.2004:241)

Table 35 indicates that the computed chi-square value is found to be 0.467 which is lesser than the table value at 0.05 levels. This result implies that the supposition" TAET courses incorporate issue of new technology to be produced in agricultural research" is rejected The number of negative responses (not included and rarely considered) is greater than the positive response (response to included) concerning the whether or not new technology to be produced in agricultural research are included in the TAET curriculum courses. This implies that the courses of producing new technology are not sufficiently included in the curriculum courses in the curriculum of CoA as expected.. The mean value (1.47) also shows that this assertion holds true. There is no significant difference between the groups concerning this judgment at $p<0.05$ ($p=0.792$). In the document

analysis of the curriculum for School of Agriculture (2004Ec), the courses about how to produce technology in agricultural research are few and below the expected. According to Abera,et al (2004),even though several agricultural research centers evolved in Ethiopia since 1960's many of the centers were more engaged in providing development services than carrying out research experiments and generating technologies. These scholars further pointed out that higher learning institutions were primarily responsible for teaching with research standing as a secondary duty (ibid). The cause to overlook courses of producing new technology in the field of agricultural research can be many some of which might be institutional culture of importing technology than producing, and may be lack of crosscutting curriculum research in the efforts to develop the curriculum.

Table 36: Ingredient B: Issues of importing technology from global research and the ways to adapt to local conditions is incorporated in the courses component.

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X2	P
Not included	153	61.7	95	57.9	248	60.2	2			
Rarely considered	79	31.9	52	31.7	131	31.8				
Included	16	6.5	17	10.4	33	8.0		1.11	2.122	0.346
Total	248	100%	164	100%	412	100%				

Table 36 indicates that the computed chi-square value is found to be 2.122 which is lesser than the table value at 0.05 level. This value reveals that the presumption which reads "Issues of importing

technology from global research and the ways to adapt to local conditions is incorporated in the courses component" is rejected.

The number of negative responses (not included and rarely considered) is greater than the positive response (responses to included) concerning the issues of importing technology from global research and the ways to adapt to local conditions to be included in the courses components of the TAET curriculum courses. This implies that the incorporation capacity of the curriculum courses is below the expected or the above mentioned issues are rarely considered. The mean value (1.11) also shows that this assertion holds true. There is no significant difference between the groups concerning this judgment at $p<0.05$ ($p=0.346$). Issues of importing foreign technology are not well considered as course component in the document prepared for School of Agriculture undergraduate program (2004 EC). In the effort to import technology from global research and adapt to local conditions is a national issue and matter of policy so that MoARD , research institutes, and HEIs collaborate and work on it .

Table 37: Ingredient C: Genetic and husbandry improvements of livestock, crops and forests (growth of biological capital) are included in the courses of TAET

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not included	50	20.10	41	25.0	91	21.8	2			
Rarely considered	173	69.8	89	54.3	262	63.6				
Included	25	10.0	34	20.7	59	14.3		1.43	13.448	0.044
Total	248	100%	164	100%	412	100%				

It is portrayed in table 37 that the computed chi-square value is found to be 13.448 which is greater than the table value at 0.05 level. This implies that the supposition "Genetic and husbandry improvements of livestock, crops and forests (growth of biological capital) are included in the courses of TAET" is accepted.

The number of responses (rarely considered and included) is greater than the response (not included) concerning whether or genetic and husbandry improvements of livestock, crops and forests (growth of biological capital) are incorporated in the courses components of the TAET curriculum courses. This implies that the modern approaches of genetic and husbandry improvements are included but with rare consideration. This indicates that the incorporation capacity of the curriculum courses is below the expected. The mean value (1.43) also shows that this assertion holds true. There is slight difference between the groups in opinion concerning this judgment at $p<0.05$ ($p=0.044$). As explored from the curriculum document for Agricultural education and training for School of Agriculture 2004EC for undergraduate program courses about genetic husbandry, crops, and forests are very small in number indicating indirectly that the learning activities and work time allotted to these issues is minimal.

Table38: Ingredient D: Programs relevant to farmers' actual problems in managing small holder agriculture are component parts of TAET curriculum of CoA under consideration

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not included	120	48.4	74	45.1	194	47.1	2			
Rarely considered	108	43.5	66	40.2	174	42.2				
Included	20	8.1	24	14.6	44	10.7		1.22	4.467	0.107
Total	248	100%	164	100%	412	100%				

It is shown in table 38 that the computed chi-square value is found to be 4.467 which is near to the table value at 0.05 level but a bit lesser. This result is weak to reject the supposition which says "Programs relevant to farmers' actual problems in managing small holder agriculture are component parts of TAET curriculum of CoA under consideration". The number of negative responses (not included and rarely considered) is greater than the positive response (responses to included) concerning the inclusion of Programs relevant to farmers' actual problems in managing small holder agriculture are component parts of TAET curriculum of CoA under consideration as part of courses components of the TAET curriculum . This implies that the local farmers' issues especially course components to capacitate the farmers' know-how to manage small holder farming in modern ways are not emphasized and are rarely considered, even though, there are efforts to work on the issues through agricultural extension programs. This shows again that the scope of the curriculum is below the expected. The mean value (1.22) also shows that this assertion holds true. There is no significant difference between the groups concerning this judgment at $p<0.05$ ($p=0.107$). The search made regarding the course contents of the document prepared for school of agriculture for undergraduate program disclosed that courses about managing smallholder farming in modern approaches are rarely found in the curriculum under consideration..

Curricula and teaching methods and tools often have been developed that are not relevant to the needs of farmers and to the labor market in general (FAO, 1997).However, there are efforts in the community through agricultural extension programs in which agricultural development agents supervise and support farmers owing smallholder farms that led to growth in agricultural production.

Table 39: Ingredient E: Projects management to practically support farmers' small holder farming system are considered in TAET courses of CoA

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not included	138	55.6	87	53.0	225	54.6	2			
Rarely considered	94	37.9	56	34.1	150	36.4				
Included	16	6.5	21	12.8	37	9.0		1.15	4.942	0.085
Total	248	100%	164	100%	412	100%				

It is shown in table 39 that the computed chi-square value is found to be 4.942 which is near to the table value at 0.05 level. This result implies that the proposition of "Projects management to practically support farmers' small holder farming system are considered in TAET courses of CoA" is rejected. The number of negative responses (not included and rarely considered) is greater than the positive response (responses to included) concerning the inclusion of Projects to practically support farmers' small holder farming system in TAET courses of CoA as component parts of the curriculum under consideration. This implies that projects to practically train the farmers as components of the curriculum to capacitate the farmers' know-how to manage small holder farming in modern ways are not emphasized and are rarely considered, even though, there are efforts to work on the issues through agricultural extension programs. This shows again that the curriculum lacks courses that are directly tied to projects to share problems of holders of small agriculture. The mean value (1.15) also shows that this assertion holds true. There is no significant difference between the groups in opinion concerning this judgment at $p<0.05$ (0.085). In the document of curriculum for school of agriculture undergraduate program Projects to practically support farmers' small holder farming system are not considered in TAET courses of CoA.

One of the main concerns of Ministry of Agriculture and Rural Development of Ethiopia as explained in the policy statement of MoARD (2010), is increasing agricultural productivity with emphasis on smallholder agriculture hand in hand to rural commercialization, natural resources management ,disaster risk management & food security(MoARD,2010).This policy statement shows the necessity of emphasizing on smallholder agriculture.

Table 40: Ingredient F: Global climate change issues and ways of mitigation and adaptation are included parts of TAET undergraduate program of CoA

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not included	155	62.5	93	56.7	248	60.2	2			
Rarely considered	76	30.6	58	35.4	134	32.5				
Included	17	6.9	13	7.9	30	7.3		1.10	1.38	0.501
Total	248	100%	164	100%	412	100%				

As shown in table 40 that the computed chi-square value is found to be 1.38 which is lesser than the table value at 0.05 level. This result implies that the presumption “Global climate change issues and ways of mitigation and adaptation are included parts of TAET undergraduate program of CoA” is rejected. The number of negative responses (not included and rarely considered) is greater than the positive response (responses to included) concerning the inclusion of Global climate change issues and ways of mitigation and adaptation as parts of TAET undergraduate program of CoA the curriculum under consideration. This implies that ways of mitigation and adaptation are not emphasized and are not considered in the courses components of agricultural education and

training, however, these issues are locally and globally essential to combat impacts of global climate change. This shows again that the incorporation capacity of the curriculum courses is below the expected. The mean value (1.10) also shows that this assertion holds true. There is no significant difference between the groups in view concerning this assertion at $p<0.05$ ($p=0.501$). According to the search concerning the course components of the curriculum document for school of agriculture , undergraduate program (2004EC) in the document analysis, issues of global climate change, its impacts, ways of mitigation, and adaptation towards minimizing the negative effects of the change are not incorporated in the document. The issue of agriculture is undoubtedly directly tied to the issue of climate change. This being the case, it is surprising enough that there is no single course coined to the curriculum of CoA regarding local and global matter about survival of human, animal, and plant life. If human decisions and activities will continue, as it is of today without combating the impacts of climate change, woe to life; woe to the world.

NB; From table 41 to 45 deal with the issues of suitability of instructional strategies (1 for not suitable,2 for slightly suitable, 3 for moderately suitable, 4 for definitely suitable).

Table 41:SIS A:The suggested instructional strategies in curriculum of CoA are open to candidates' engagement

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not suitable	19	7.70	20	12.2	39	9.50	3			
Slightly suitable	71	28.6	32	19.5	103	25.0				
Moderately suitable	143	57.7	103	62.8	246	59.7		2.58	5.916	0.116
Definitely suitable	15	6.0	9.0	5.5	24	5.8				
Total	248	100%	164	100%	412	100%				

Table 41 shows that the calculated chi-square value is 5.916 which is lesser than the table value at 0.05 level. This value reveals that the presupposition" The suggested instructional strategies in curriculum of CoA are open to candidates' engagement "is rejected. However, the number of responses to the options "Moderately suitable" and "Definitely suitable" is greater than the responses to the options "not suitable" and "slightly suitable " to the presumption. The frequency count (246) and mean value (2.58) indicate that the instructional strategies proposed in the CoA curriculum are moderately suitable in allowing candidates' engagement in the process of teaching learning. There is no significant difference view between the groups regarding this idea at $p<0.05$ ($p=0.116$). The strategies for offering agricultural education and training undergraduate program proposed in the document such as classroom teaching-learning methods, laboratory practices report, field practical work or plot farm practice; field trips and environmental surveys indicate that there are open ways for the candidates to take part in the process of learning.

The activities proposed as strategies to achieve educational objectives have to serve verities of styles and purposes of learning. They have to be deliberately designed to accommodate a mixture of students' learning capabilities and styles so that the students engage in the strategies of learning in the process of instruction (Ginnis, 2002).

Table 42:SIS B: The proposed instructional strategies contribute to enable candidates absorb course contents

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not suitable	22	8.9	30	18.3	52	12.6	3			
Slightly suitable	34	13.7	23	14.0	57	13.8				
Moderately suitable	134	54.0	67	40.9	201	48.8		2.85	10.937	0.012
Definitely suitable	58	23.4	44	26.8	102	24.8				
Total	248	100%	164	100%	412	100%				

The above table indicates that the computed chi-square value is found to be 10.957 which is greater than the table value at 0.05 level. The presumption "The proposed instructional strategies contribute to enable candidates absorb course contents" is accepted .The number of positive responses (responses to moderately suitable and definitely suitable) is greater than the negative responses (responses to not suitable and slightly suitable).The number of positive responses and the mean value (2.85) indicate that the proposed instructional strategies are moderately suitable to enable candidates absorb content knowledge. But there is difference in view to some extent between the groups concerning this assertion at $p<0.05$ ($p=0.012$).

Looking into the curriculum document for school of agriculture undergraduate program, it is possible to suggest that the proposed strategies moderately suit the fact that the candidates absorb content knowledge because many of them are not activity-based.

Table 43:SIS C: The suggested instructional strategies can help candidates apply the required declarative knowledge.

	Lecturers		Gc candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Not suitable	34	13.7	38	23.2	72	17.5	3			
Slightly suitable	123	49.6	70	42.7	193	46.8				
Moderately suitable	77	31.0	47	28.7	124	30.1				
Definitely suitable	14	5.6	9	5.5	23	5.6		2.23	6.255	0.100
Total	248	100%	164	100%	412	100%				

Table 43 indicates that the computed chi-square value is found to be 6.255 which is, a bit, lesser than the table value at 0.05 level. This implies that the supposition" The suggested instructional strategies can help candidates apply the required declarative knowledge" is rejected. The number of positive responses (responses to moderately suitable and definitely suitable) is less than the negative responses (responses to not suitable and slightly suitable). The greater number of negative responses and the mean value (2.23) indicate that the proposed instructional strategies are slightly suitable to enable candidates apply the acquired declarative knowledge because most of the proposed strategies seem to be those which are related to classroom activities, and the strategies are confined to areas with available laboratories. There is no significant difference in judgment between the groups concerning this assertion at $p<0.05$ ($p=0.100$). The suggested instructional strategies in the curriculum document for school of agriculture especially those such as laboratory practices, fieldwork, and fieldtrip reports can help the candidates to apply what they have dealt with in the classroom teaching learning process.

Table 44:SIS D: The proposed instructional strategies provide ways for candidates to complete activities toward achieving the program goals

	Lecturers		Gc candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Not suitable	17	6.9	38	23.2	55	13.3	3			
Slightly suitable	59	23.8	67	40.9	126	30.6				
Moderately suitable	116	46.8	56	34.1	172	41.7		2.57	62.52	0.000
Definitely suitable	56	22.6	3.0	1.8	59	14.3				
Total	248	100%	164	100%	412	100%				

Table 44 indicates that the computed chi-square value is found to be 62.52 which is, by far, greater than the table value at 0.05 level. This value indicates that the presumption "The proposed instructional strategies provide ways for candidates to complete activities toward achieving the program goals " is accepted. The number of positive responses (responses to moderately suitable and definitely suitable) is greater than the negative responses (responses to not suitable and slightly suitable). The greater number of positive responses and the mean value (2.57) indicate that the proposed instructional strategies are slightly suitable to enable candidates apply the acquired declarative knowledge. There is little difference between the groups in view concerning this assertion at $p<0.05$ ($p=0.000$). As detected from the curriculum document mentioned above, the proposed instructional strategies are suitable to provide ways for candidates to complete activities toward achieving the program goals.

As found from the document analysis, the proposed strategies such as classroom teaching-learning, laboratory practices, plot management and worksite activities, entrepreneurships are incorporated and these strategies can contribute to the achievement of the stated goals in the document.

Table 45:SIS E: The included instructional strategies in Curriculum of CoA under consideration can initiate candidates to work more and know more

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not suitable	95	38.3	54	32.9	149	36.2	3			
Slightly suitable	121	48.8	69	42.1	190	46.1				
Moderately suitable	24	9.70	36	22.0	60	14.6		1.84	11.977	0.007
Definitely suitable	08	3.20	5.0	3.0	13	3.20				
Total	248	100%	164	100%	412	100%				

The above table shows that the chi-square computed is found to be 11.977 which is greater than the table value at 0.05 level. This implies that the presumption “The included instructional strategies in Curriculum of CoA under consideration can initiate candidates to work more and know more “ is accepted. The number of negative responses (responses to not suitable and slightly suitable) to the supposition is greater than the positive responses (responses to moderately suitable and definitely suitable). The greater number of negative responses and the mean value indicate that the proposed instructional strategies are below the expected to initiate candidates to work more and know more. The mean value (1.84) is near to two showing that the included instructional strategies in Curriculum of CoA under consideration are slightly suitable to initiate candidates to work more and

know more. Regarding this opinion, there is slight difference between the groups concerning at $p<0.05$ ($p=0.007$).Instructional strategies have to contribute to the development of students' thinking and doing capacity. In line with this Shinn(1997) suggests that the learners' power to think and solve problems should be a component of a well designed instructional strategy and its effectiveness.

NB: tables from 46 to 51 reveal issues of rate of fitness of techniques of assessment (1for worthless,2 for worthy to some extent,3 for moderately worthy,4 for worthy).

Table 46: RFTA:A The proposed assessment techniques can provide authentic measure of learning outcomes

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Worthless	18.0	7.30	29	17.7	47	11.4	3			
Worthy to some extent	129	52.0	74	45.1	203	49.3				
Moderately worthy	76	30.6	51	31.1	127	30.8				
Worthy	25	10.1	10	6.1	35	8.5		2.35	12.207	0.008
Total	248	100%	164	100%	412	100%				

NB: With the degree of freedom (n-1)= 3,the critical value of Chi-square (X^2) at 0.05 =7.81 (Cohen and Lea.2004:241)

As shown in table 46 the computed chi-square value is found to be 12.207 which is greater than the table value at 0.05 level. This implies that the presumption "The proposed assessment techniques can provide authentic measure of learning outcomes" is accepted.

The number of the responses to the options "worthy to some extent,", moderately worthy" and "worthy" concerning the presumption" The proposed assessment techniques can provide authentic

measure of learning outcomes" is greater than the number of responses to the option "worthless' .This indicates that the included assessment techniques are worthy to some extent in measuring the learning outcomes authentically. The mean value brings in this judgment as well. There is a difference in responses between the groups, even though it is not as such exaggerated at $p<0.05$ ($p=0.008$).

The assessment techniques proposed in the curriculum document of CoA(2011) were written examinations, assigning candidates providing group works, individual work, evaluation of laboratory practices, and worksite activities reports which can show whether or not the program goals are achieved. But what needs focus is the proportion or weight given to each of the assessment techniques.

Table 47:RFTA B: The marking criteria are relevant

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Worthless	65	26.0	55	33.5	120	29.0	3			
Worthy to some extent	112	45.2	71	43.3	183	44.4				
Moderately worthy	60	24.0	32	19.5	92	22.33				
Worthy	11	4.4	6	3.7	17	4.1		2.01	0.414	0.937
Total	248	100%	164	100%	412	100%				

Table 47 illustrates that the computed value of chi-square is 0.414 which is, by far, lesser than the table value at 0.05 levels. This implies that the presumption "The marking criteria are relevant " is rejected. The number of the responses to the options "worthless" and "worthy to some extent" concerning the presumption "The marking criteria are relevant" is greater than the number of

responses to the options “moderately worthy ‘and “worthy” which indicates that the included assessment techniques are worthy to some extent in measuring the learning outcomes authentically. The mean value (2.01) also indicates that the marking criteria are worthy to some extent.. The difference in opinion is not significant between the groups at $p<0.05$ ($p=0.937$). As seen from document the criterion-referenced marking criterion is proposed to be used in applying the modular approach. This marking criterion takes into account the achievement of candidates in terms of predetermined performances than comparing achievement of candidates against other candidates’ achievement, which is the case of norm-referenced marking. The aim of criterion-referenced assessment is to focus on individual performance where assessment is carried out based on descriptions of levels of performance. Similarly Hambleton (2009) suggests that criterion-referenced test provide a basis for determining the student’s level of knowledge and skills in relation to a well defined domain of contents and so they are preferable to norm-referenced type..

It is a system which describes what students know, understand and can do which is used to provide feedback and to inform future teaching and learning .It is better to move from norm-referencing to criterion-referenced assessment (Green,2002).

Table48:RFTA C:The proposed marking criteria reflect the standard of the agricultural program

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Worthless	63	25.4	60	36.6	123	29.9				
Worthy to some extent	113	45.6	83	50.6	196	47.6				
Moderately worthy	57	23.0	16	9.8	73	17.7	3	2.02	16.241	0.001
Worthy	15	6.0	5	3.0	20	4.9				
Total	248	100%	164	100%	412	100%				

Table 48 illustrates that the computed value of chi-square is 16.41 which is greater than the table value at 0.05 level. This value shows that the presumption "The proposed marking criteria reflect the standard of the agricultural program " is accepted. The number of the responses to the options "worthy to some extent", moderately worthy and "worthy" concerning the presumption is greater than the number of responses to the option "worthless" which indicates that the included assessment techniques are moderately worthy in reflecting the standard of agricultural program. The mean value (2.02) brings in this judgment as well. The difference in responses between the groups is slight at $p<0.05$ ($p=0.001$). .

Regarding the suitability of the marking criteria, one interviewee expressed his idea as follows:

> The inclusion of some mechanisms of assessment in addition to the examinations these days in the marking purposes of students achievement is a bit better than ever before .The decision to apply the criterion–referenced assessment is wise because candidates work to fulfill what is individually expected from him/her and this initiates the candidates do their best in the education and training time. But what is to get attention is the problem of giving greater weight to the

written examination rather than to consider more the practical performances in markings and course grading(Sd3,22/04/2013).

Scholars are of the opinion that criterion- referenced is preferable to effectively measure student individual performance checking the achievement of educational objectives. It is seen to hold promise for meeting educational objectives and it is less Biased (CSE,1979).

A criterion–reverenced test measures achievement against a standard based on content and embodied in the framework of the assessment. So it provides a measure of achievement that compares a student's performance against the content standards reflected in performance standards (Bourque,2006).

Table 49:RFTA D:The proposed marking criteria reflect the standard of the courses

	Lecturers		Gc candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Worthless	29	11.7	26	15.9	55	13.3	3			
Worthy to some extent	114	46.0	66	40.2	180	43.7				
Moderately worthy	85	34.3	49	29.9	134	32.5				
Worthy	20	8.1	23	14.0	43	10.4		2.40	5.966	0.113
Total	248	100%	164	100%	412	100%				

It is shown in table 49 that the calculated value of chi-square is found to be 5.966 which is lesser than the table value at 0.05 level. This result does not support one to strongly reject the presumption because it is near to the critical value of 7.81 at 0.05 level. However, it implies that the presumption "The proposed marking criteria reflect the standard of the courses" is rejected . The number of the responses to the options "worthless" and "worthy to some extent" concerning the presumption" proposed marking criteria reflect the standard of the courses" is greater than the number of responses to the options "moderately worthy 'and "worthy" which indicates that the included marking criteria are below the expected in reflecting the standard of agricultural program courses. The mean value (2.40) indicates the option of worthy to some extent in support of the judgment which reads 'the included marking criteria are slightly worthy.' The difference in responses is not significant between the groups at $p<0.05$ ($p=0.113$).

Table50:RFTA E:The proposed marking criteria reflect the standard of the University

	Lecturers		Gc candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Worthless	89	35.9	60	36.6	149	36.2	3			
Worthy to some extent	124	50.0	70	42.7	194	47.1				
Moderately worthy	23	9.3	28	17.1	51	12.4				
Worthy	12	4.8	6	3.7	18	4.4		1.84	6.301	0.098
Total	248	100%	164	100%	412	100%				

It is shown in table 50 that the calculated value of chi-square is found to be 6.301 which is, a little, lesser than the table value at 0.05 level. This value indicates that the supposition "The proposed marking criteria reflect the standard of the University" is rejected.

The number of the responses to the options "worthless" and "worthy to some extent" concerning the presumption" proposed marking criteria reflect the standard of the University" is greater than the number of responses to the options "moderately worthy 'and "worthy" which indicates that the included marking criteria are below the expected in reflecting the standard of the University. The mean value (1.84) is near to indicate that the proposed marking criteria are worthy to some extent to reflect the standard of the University bringing in the judgment as well. The difference in view between the groups is not significant at $p<0.05$ ($p=0.098$).

Concerning the adequacy of marking criteria, one of the interviewees expressed his opinion as follows:

> Marking criteria are essential components of program implementation and evaluation that determine the decision making regarding the achievement of students. Authentic marking criteria should be determined so that the candidates work hard and achieve better . I support the criterion-referenced marking criteria that makes students make maximum effort to achieve the predetermined performances and their pertinent fixed weight. This initiates the students work ore to get more that helps them know more (TL4, 22/04/2013).

Table51:RFTA F:The proposed marking criteria reflect the standard of the agricultural profession

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Worthless	126	50.8	69	42.1	195	47.3	3			
Worthy to some extent	74	29.8	67	40.9	141	34.2				
Moderately worthy	44	17.7	24	14.6	68	16.5				
Worthy	4.0	1.6	4.0	2.4	8.0	1.9		1.72	6.015	0.111
Total	248	100%	164	100%	412	100%				

Table 51 indicates that the calculated value of chi-square is found to be 6.015 which is, a bit, lesser than the table value at 0.05 level.This result implies that the presumption "The proposed marking criteria reflect the standard of the agricultural profession" is rejected. The number of the responses to the options "worthless" and "worthy to some extent" concerning the presumption" proposed marking criteria reflect the standard of agricultural profession" is greater than the number of responses to the options "moderately worthy 'and "worthy" which indicates that the included marking criteria are below the expected in reflecting the standard of the University. The mean value

(1.72) is near to indicate the option "worthy to some extent" supporting the judgment as well. The difference in opinion is not significant between the two groups at $p<0.05$($p=0.111$)..

From tables 52 to 54 beginning from next page you will get issues of proportionality of time budget(1for agree,2 for agree, 2 for disagree).

Table52:PTB A: The time budget for the classroom teaching, laboratory practice, and practical field work is not proportional

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Agree	229	92.3%	151	92.1%	380	92.2%	1			
Disagree	19	7.7%	13	7.9%	32	7.8%		1.075	10.00	0.921
Total	248	100%	164	100%	412	100%				

NB: With the degree of freedom (n-1)= 1,the critical value of Chi-square ($X^{2)}$ at 0.05 =3.84 (Cohen and Lea.2004:241)

As can be seen from the above table, the computed chi-square weight is found to be 10.00 which is, greater than the table value at 0.05 level. This value implies that the presumption which says "The time budget for the classroom teaching, laboratory practice, and practical field work is not proportional" is accepted. The number of positive response (to agree) to the aforementioned supposition is more than ten times greater than the negative responses. The mean value (1.075) also indicates the value weighted to the option "agree" all of which ascertain the fact that the time breakdown and contact hours allotted for classroom teaching, laboratory practice and practical fieldwork is not the balanced one. There is no significant difference between the groups concerning this judgment at $p<0.05$ ($p=0.921$). In contrast research studies show that courses are designed and

delivered in the ways that best serves the students to achieve knowledge and skills. Subjects with an emphasis on developing practical skills tend to involve high amount of contact time(QAA,2011).

Concerning the time allotment share between classroom teaching-learning, laboratory practice, and practical fieldwork the document assessment showed that much time was allocated for classroom teaching-learning, followed by laboratory practice where the third, i.e., the practical fieldwork had the least share. For instance, out of 73 credit hours allocated for major area (as the case in the field of Animal and Range Sciences the share of Practical Attachment is 3 Crhrs, Senior research project is 3Crhrs ,Practical in Animal and range Sciences is Pass/Fail, showing that the time budget for practical aspect is negligible compared with that of classroom teaching(Curriculum document for CoA,2011).

Table53:PTB B: More time is allotted to classroom teaching than the laboratory practice

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Agree	207	83.5	4.0	2.40	211	51.2	1			
Disagree	41.0	16.5	160	97.6	201	48.8		1.01	25.941	0.000
Total	248	100%	164	100%	412	100%				

It is indicated in the above table that the computed chi-square weight is found to be 25.941 which exceeds many folds the table value at 0.05 level. This implies that the presumption" More time is allotted to classroom teaching than the laboratory practice" is accepted. The number of positive response (agree) to the aforementioned supposition is ten times greater than the negative response (response to disagree). The mean value (1.01) also indicates the value weighted to the option "agree" to the option "More time is allotted to classroom teaching than the laboratory practice"

which ascertains the fact that the time breakdown and contact hours allotted for classroom teaching, laboratory practice and practical fieldwork is not the balanced one in which the classroom teaching has greater share. Regarding this opinion, there is slight difference between the groups concerning this judgment at $p<0.05$ ($p=0.000$).

Concerning the time allocation for different strategies of education and training, an interviewee suggested:

> I see more time is allotted to classroom teaching than laboratory in our institution. This might be because of the fact that much weight is given to the course work coverage at classroom teaching learning. However, since we work in college of agriculture as one of TVET institutions, I think it is better to focus on candidates' skills area development by emphasizing on laboratory practice ,and field activities as equivalent as that of the classroom(Sd4,27/05/2013).

Table 54:PTB C: More time is allotted to laboratory practice than practical field work

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Agree	229	92.3	157	95.7	386	93.7	1			
Disagree	19	7.7	7	4.3	26	6.3		1.05	12.99	0.166
Total	248	100%	164	100%	412	100%				

The quality of teaching and learning improves most readily when practice and theory inform each other (Ginnis,2002).Table 54 shows that the calculated chi-square value is found to be 12.99 which is greater than the table value atv0.05 level. This value indicates that the supposition" More time is allotted to laboratory practice than practical field work" is accepted. As can be seen from the above

table, the number of responses to the option “agree” is about eighteen times greater than the number of responses to the option “disagree” with regard to the assertion “more time is allotted to laboratory practice than practical field work. This implies that more time is meant for laboratory practice than the practical field work. The mean value (1.05) indicates the weight attached to the option “agree”. The above judgment is accepted by the groups with no significant difference at $p<0.05$ ($p=0.166$)..

Based on the responses to the options in tables 52 through 54, it is possible to infer that there is no balanced time budget between classroom teaching, laboratory practice, and practical fieldwork in which the classroom teaching has lion’s time share of all the two practices; and the time allotted to the laboratory practice is lesser than that of the classroom but a bit more than the time meant for the practical fieldwork. Therefore, the time arranged for the practical fieldwork is least of all paradoxically in the realm of vocational education and training (agricultural education and training) and this needs more attention. Anyway, it is wise if there will be proportional time allocation between classroom teaching, laboratory, and field practices for effective agricultural education and training.

NB: tables 55 to57 indicate about input from stakeholders(1 for agree,2 for disagree).

Table55:ISH:A: Inputs from candidates were used to redefine and redesign the curriculum

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Agree	45	18.0	151	92.0%	196	47.6				
Disagree	203	81.9	13	7.90	216	52.4	1	1.91	21.632	0.000
Total	248	100.0%	164	100.0%	196	47.6%				

Table 55 reveals that the calculated chi-square value is found to be 21.632 which is, by far, greater than the table value at 0.05 level. This value implies that the presumption" Inputs from candidates were used to redefine and redesign the curriculum" is accepted. However, the number of negative responses (responses to disagree) to the proposition "Inputs from candidates were used to redefine and redesign the curriculum" is insignificantly greater than the number of positive responses (responses to agree) implying that the inputs from candidates were not utilized in redefining and redesigning the existing curriculum. The mean value (1.91) which is near to two (the weighted value for disagree) also points to the disagreement of the respondents against the same proposition abovementioned. There is a bit difference in opinion between the groups with regard to their responses at $p<0.05$ ($p=0.000$).

Regarding the use of inputs from stakeholders particularly from students to design or redesign curriculum one of the interviewee suggested saying;

> The chance of students to express their opinion on institutional or national workshops is rare in our case except through their representatives especially at university level. Therefore the chance of using the ideas of students in curriculum redefinition or revision issues is negligible (TL 4,22/04/2013).

Other interviewees expressed their suggestion in similar way.

Based on the frequency, the mean and document analysis it is possible to suggest that the inputs from candidates (graduating class students) did not get due attention in developing curriculum.

Table 56:ISH B: Inputs from other stakeholders were used to redefine and redesign the curriculum

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Agree	59	23.8	11	6.70	70	16.99				
Disagree	189	76.2	153	93.3	342	83.00	1	1.83	1.809	0.000
Total	248	100%	164	100%	412	100%				

It is depicted in the above table that the computed chi-square value is found to be 1.809 which is lesser than the table value at 0.05 level. This implies that the supposition "Inputs from other stakeholders were used to redefine and redesign the curriculum" is rejected. The number of negative responses (responses to disagree) to the proposition "Inputs from other stakeholders were used to redefine and redesign the curriculum" is greater than the number of positive responses (responses to agree) indirectly implying that the inputs from other stakeholder from different offices and communities were not considered duly in redefining and redesigning the existing curriculum. The mean value(1.83) which is near to two (the weighted value for disagree) also points to the disagreement of the respondents against the same proposition abovementioned. There is slight difference in view between the groups with regard to their responses at $p<0.05$ ($p=0.000$). In responding to the question put to him, one of the interviewee expressed his opinion as under:

> Where there is no opportunity to invite parents ,employing offices or sectors to take part in the discussion and dissemination of new curriculum issues during the design and development of curriculum, there will not be a chance to get and use inputs from these stakeholders (TL3,28/05/2013).

In contrast, it is wise if different stakeholders take part in curriculum issues to prepare responsive curriculum..According to Primrose and Alexander (2013) stakeholders such as parents and

employers are regarded as an important component of education system and have an input in curriculum development. Especially employers have great role in curriculum development because they know the curriculum that is marketable in the world of work (ibid).

Table 57: ISH C : Inputs from academic staff members were used to redefine and redesign the curriculum

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Agree	169	68.1	41	25.0	210	51.0				
Disagree	79	31.9	123	75.0	202	49.0	1	1.24	73.534	0.000
Total	248	100.0%	164	100.0%	412	100.0%				

The above table shows that the calculated chi-square value is 73.534 which is, by far, greater than the table value at 0.05 level. This implies that the hypothesis "Inputs from academic staff members were used to redefine and redesign the curriculum "is accepted. This matches with the fact that recent reform proposals have recommended greater participation of scholars and the use of their idea inputs (Bennett, 2002).The number of positive responses (responses to agree) to this proposition about six folds greater than the number of negative responses (responses to disagree) indirectly implying that the inputs from the academic staff members were utilized in defining and designing the existing curriculum. The mean value (1.24) which is near to one (the weighted value for agree) also points to the agreement of the respondents taking into account the same proposition abovementioned..However, there is slight difference between the groups with regard to their responses at $p<0.05$ ($p=0.000$). Explaining his notion one interviewee suggested:

> Teachers have ample opportunities to take part in curriculum decision issues as compared with for instance, the students, employing sectors or parents because teachers discuss on curriculum at their departments/course teams, at

college level or at workshops held at university level. As to me teachers have greater say in curriculum issues than the rest stakeholders (Sd4,23/04/2013).

Ideas of other interviewees consolidate the abovementioned impression.

The following three tables :table 58 to 61 deal with state of emphasis of transfer of knowledge(1for not included,2 for deemphasized, 3 for moderately emphasized ,4 for emphasized considering the options given).

Table 58:SETK A: Consideration of Entrepreneurship as part of CoA curriculum design for transfer of knowledge

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not intended	40	16.0	2	1.20	42	10.2				
Deemphasized	54	21.8	61	37.2	115	27.9				
Moderately emphasized	136	54.8	78	47.6	214	51.9	3	2.75	35.485	0.000
Emphasized	18	7.30	23	14.0	41	10.0				
Total	248	100%	164	100%	412	100%				

Transfer of knowledge is a case in which a graduating candidate can utilize his/her learnt skills to benefit an institution or organization which is a necessary phase of professional career (Heslop,2008).As can be noticed from the above table, the calculated chi-square value is found to be 35.485 which is greater than the table value at 0.05 level. This value implies that the proposition" Consideration of Entrepreneurship as part of CoA curriculum design for transfer of knowledge" is accepted. The number of responses to the options" moderately emphasized" and emphasized " to the supposition" consideration of Entrepreneurship as part of CoA curriculum design for transfer of knowledge" is greater than the number of responses to the options "not

intended " and "deemphasized" implying that entrepreneurship is moderately emphasized. The mean value (2.75) points to the option "moderately emphasized" and this result is in line with the suggestion forwarded above. However, there is a slight difference in opinion between the two groups at $p<0.05$ ($p=0.000$).Entrepreneurship makes up a very important element of academic environment activities as to Tacka (2012).It enriches professional skills. Curriculum has to incorporate skill aspects that enable the graduates live well and act wisely in the wider range of circumstances .So the acquisition of knowledge in itself is not the major aim of education and training; but what is important is what can be done with the knowledge (McNeil, 2009; Kouwenhoven (2003).

Table 59:SETK B: Supervised worksite practices were incorporated in the curriculum with emphasis

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not intended	4	1.6	2	1.20	6	1.5				
Deemphasized	58	23.4	45	27.4	103	25.0				
Moderately emphasized	131	52.8	76	46.3	207	50.2	3	2.89	19.16	0.590
Emphasized	55	22.2	41	25.0	96	23.3				
Total	248	100%	164	100%	412	100.0%				

As can be noticed from the above table, the calculated chi-square value is found to be 19.16 which is lesser than the table value at 0.05 level. This value implies that the proposition" Supervised worksite practices were incorporated in the curriculum with emphasis " is accepted. The number of responses to the options" moderately emphasized" and emphasized " to this supposition is greater

than the number of responses to the options “not intended “ and “deemphasized” implying that supervised worksite practice is moderately emphasized. The mean value (2.89) indicates the option “moderately emphasized’’ affirming the above suggestion. There is no significant difference in view between the groups in the study concerning this assertion at $p<0.05$ ($p=0.590$).

Concerning the incorporation of supervised worksite activities as part of curriculum of CoA one interviewee said :

> The role of worksite activities to help the graduates apply what they have learned in the classroom is crucial. But the time afforded and emphasis given to this practice is not as suffice as the importance of the practice of worksite activities. This needs further consideration. I wish if proportional time is allotted between worksite activities, laboratory practices, and classroom teaching and learning in such a vocational institution like college of agriculture (TL2, 24/05/2013).

Scholars are also are of the opinion that the agricultural demonstration plots or worksites are practical in nature and make the agricultural activities easy to understand (Nigar, et al, 2009).Therefore, it is advisable if the role of worksites in contributing to the candidates’ skill is well understood and ample time be allocated as important part of agricultural education and training.

Table 60:SETK C: Laboratory practices stressed as components of AET

	Lecturers		**Gc candidates**		**Total**					
Options	N	%	N	%	N	%	df	M	X^2	P
Not intended	4.0	1.60	5.0	3.00	9.0	2.20				
Deemphasized	46	18.5	38	23.2	84	20.4				
Moderately emphasized	138	55.6	73	44.5	211	51.2	3	2.92	5.325	0.149
Emphasized	60	24.2	48	29.3	108	26.2				
Total	248	100%	164	100%	412	100%				

Scientific studies showed that laboratory has been given a central role in science and rich benefits in learning accrue from using laboratory activities (Luneta, 2003).As detected from 60 above table, the calculated chi-square value is found to be 53.25 which is greater than the table value at 0.05 level. This values implies that the supposition "Laboratory practices stressed as components of AET" is accepted. The number of responses to the options" moderately emphasized" and "emphasized ", to this supposition is greater than the number of responses to the options "not intended " and "deemphasized" implying that laboratory practice is moderately emphasized. The mean value (2.92) points to the option "moderately emphasized" affirming the above suggestion. There is no significant difference in view between the groups in the study concerning this assertion at $p<0.05$ ($p=0.149$).

As to the role of laboratory practice and the emphasis given to it, one of the interviewee explained his ideas as under:

> It is commonly understood that laboratory practice is a backbone for having evidences and making decisions on agricultural issues as the case in natural sciences especially pertaining to plants, crops, soil, water, animal diseases, to mention some among others. The laboratory activities are included for most of the courses offered in this CoA. However, the emphasis is relatively less compared with theoretical education ((TL4,10/05/2013).

Even though laboratories are less emphasized in the curriculum development and implementation, scholars are of the opinion that facilities and materials are linking points in the process of instructional communication (Broyles,2004).

Table 61:SETK D: Agricultural co-curricular activities considered as part of curriculum of CoA

	Lecturers		Gc candidates		Total					
Options	N	%	N	%	N	%	df	M	X^2	P
Not intended	94	37.9	70	42.7	164	39.8				
Deemphasized	123	49.6	65	39.6	188	45.6	3	1.69		
Moderately emphasized	23	9.3	22	13.4	45	10.9			4.558	0.207
Emphasized	8	3.2	7	4.3	15	3.6				
Total	248	100%	164	100%	412	100.0%				

As can be distinguished from table 61, the calculated chi-square value is found to be 4.558 which is lesser than the table value at 0.05 level.This value implies that the supposition" Agricultural co-curricular activities considered as part of curriculum of CoA" is rejected. The number of responses to the options" not intended" and "deemphasized " to the supposition "Agricultural co-curricular activities considered in the curriculum design of AET programs of CoA for transfer of knowledge" is greater than the number of responses to the options "moderately emphasized " and "emphasized" implying that co-curricular activities were deemphasized. Co-curricular activities may not be graded, but they educate and benefit students in ways that classroom activities might not(D'Onofrio and Klesse,2000). The mean value (1.69) is near to indicate the option "deemphasized" and the mean result is in line with the suggestion that the agricultural co-curricular activities beyond plot practices are overlooked. There is no significant difference in view between the groups in the study concerning this assertion at $p<0.05$ ($p=0.207$).In contrast, if co-curricular activities are planned and practiced they have role to play in enriching students' experiences and desired behaviors. Studies reveal the fact that the involvement of students in the co-curricular activities produces its positive effect on their behavior and academic performance (Mubeen, et al,2012).Furthermore, Marsh and Kleitman (2002) in Mubeen, et al (2012) are of the idea that most

of the co-curricular activities have good roles in constructing and enhancing academic performance of students.

With reference to the issue of agricultural co-curricular activates, one of the interview respondent expressed his suggestion saying:

> Co-curricular activities play great role in helping candidates rehearse practically the conceptual learning during the time outside of the regular program activities. I hope the co-curricular activities provide the candidates with the opportunity to practice some parts of the education and training program that can enable them to apply what they had learned in the classroom and in the open fields which, in turn, helps the candidates to enrich their skills development(Sd2, 16/05/2013).

In a similar manner, Storey (2010) suggests that out-side-classroom activities like co-curricular activities can also help to reinforce the achievement of learning objectives in addition to the classroom activities.

In sum the evidences drawn from the study revealed that the scientific phases of curriculum design and development were overlooked, the role of stakeholders in the curriculum issue is not as satisfactory as expected, and the curriculum components of CoA lack some more necessary course ingredients. Apart from these conclusions, the participation of faculty deans, team leaders, and teachers in curriculum design and development was found to be promising.

CHAPTER 5: FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS OF THE STUDY

Curriculum is the backbone of educational program. The development of curriculum requires the analysis of the existing curriculum; learning needs assessment, and studies on strategies of instruction and evaluation, and consideration of stakeholders' participation. On the basis of the analyzed data results, the following findings were identified.

5.1. Findings of the Study

(1) Curriculum development for the college of agriculture for undergraduate program (included in this study) was carried out based on discussions and consensus made beginning from course-team level through school/college level to national workshops conducted at MoE. Based on the evidences in this study, issues about initial survey and practices of tryout implementation, evaluation and experimentation of the newly developed curriculum did not get due concern. However, conducting situational analysis concerning needs assessment, goal formulation, program building, interpretation and implementation, monitoring, feed-back, assessment and reconstruction is important (Skilbeck,1976;Walker,1971).

(2) The culture of employing and applying (after adapting) scientific procedures in designing the curriculum such as needs assessment, formulation of goals, selection and organization of contents and learning experiences ,determination of strategies for instruction and assessment based on curriculum research results, were deemphasized. Undermining such curriculum development procedures minimizes the opportunity to solve problems related to quality more intelligently through drawing on existing research findings and using rigorous methods (Wilson,2009).

If there is no curriculum research, there will be no curriculum review and revision; if there is no review and revision of the curriculum, there will not be enhancement in quality of education

(Taylor, 2001). Deemphasizing curriculum research (undermining assessment of the curriculum in practice, learning needs assessment, assessment of institutional and national demand) implies that the first scientific phase in curriculum design .i.e., the phase of analysis was underestimated in the process of designing curriculum programs for college of Agriculture ,undergraduate level; however, efforts were made in investigating strategies of agricultural education and training, and curriculum dissemination workshop conducted.

(3) In principle, participation of stakeholders in the affairs of curriculum development contributes to create an environment in which there is exchange of ideas and experiences (necessary values as inputs for curriculum) that can lead to the production of relevant curriculum program (ACARA,2012;Beauchamp et al.,2012;Pree,1987). In contrast, what has been ascertained in this study was the fact that experts at ministry level, curriculum experts, candidates, and other stakeholders (employers) are proved to be not regular/permanent participants in the development process of curriculum. Particularly candidates' and external stakeholders' participation and opinion were not given due weight during the preparation of curriculum in the college of agriculture. However, participation of college deans, team leaders, and teachers is regarded as promising in the curriculum development process. Lack of expertise and external stakeholders' participation means lack of necessary inputs which can negatively affect the relevance of curriculum of college of agriculture, undergraduate program (McNeil,2009;Shinn,1997;UNESCO,1995).

(4) Selection of inadequate assessment, and grading system, lack of plan for course program evaluation for redefinition and redesign of curriculum programs show pitfalls on the practice of developing curriculum for college of agriculture, undergraduate program**.** This matches with the assertion forwarded by FAO which reads **"**Curricula and teaching methods and tools often have

been developed that are not relevant to the development objectives of individual countries, to the needs of farmers and to the labor market in general" (FAO, 1995).

(5). Loose link between curriculum goals and local environmental realities, profiles and professional expectation (Watermeyer,2010), constraints of proposed courses especially in contributing to the development of investigative capabilities and scientific reasoning power of candidates reveal limitation of the process and practice of curriculum development of CoA in public Universities in Oromia ,Ethiopia. Scholars suggest that education as a tool for social, economic, and political transformation has to be related to national aspirations and national development plans (McNeil, 2009; Derebssa, 2006; Aggarwal, 1997).

(6). Absence of curriculum course inputs such as inventing new technology in agricultural research, ways of importing technology from abroad and mechanism of adapting the technology to local conditions, the problem of overlooking genetic improvements of husbandry, crops, and forests indicate limitation of the curriculum under study. Furthermore, lack of programs and projects related to actual problems of local farmers in managing smallholder agriculture (FAO,1995), as well as exclusion of issues of global climate change, ways of adaption, and mitigation in the curriculum of undergraduate program of college of Agriculture were evidences for shortcomings of curriculum design for colleges of agriculture in public Universities included in this investigation.

(7). Though agricultural education and training is more of vocational and skill oriented, much more time is apportioned to classroom teaching than practical laboratory and field agricultural works. There is imbalance of time breakdowns between classroom teaching, laboratory practice, and practical fieldwork, in which classroom teaching has the lion's share of time. This can negatively affect the candidates' capability of transfer of practical knowledge. Much time has to be invested in the skill side in TVET than book learning (McNeil,2009;Aggarwal 2006).

In sum, based on the evidences in this study, the problem of deemphasizing practices of curriculum assessment, learning needs assessment, overlooking studies on strategies of agricultural education and training, limited participation of stakeholders (especially students and external stakeholders) in curriculum affairs; undermining practices of facilitating conditions for course development ,problem of formulating curriculum goals overlooking local environmental realities, lack of practice of tryout implementation and tryout evaluation, the imbalance of time budget between classroom teaching, laboratory practice, and practical fieldwork show drawbacks on CoA TAET in relation to the curriculum development processes that were identified in this study.

5.2. Conclusions

The crucial issue in education and training is the creation of constructive learning environment. This is possible through effective curriculum development. So, curriculum development is a matter of working on education and training affairs to create conducive learning conditions which is a prerequisite for the achievement of effective learning outcomes. In curriculum development, which is both scientific and social, it is wise to consider the scientific stages and shape curriculum following the phases.

The research findings in this study revealed that the necessary scientific phases of curriculum development, and crucial social processes which are preconditions, were under estimated /deemphasized when the current curriculum in practice for the Colleges of agriculture in public Universities in Oromia, Ethiopia was developed.

The process of curriculum design of TAET also lacked close collaboration of curriculum experts, teachers, students, and other stakeholders at rendezvous. The result of undermining the necessary social processes in developing the curriculum negatively affects curriculum design which can result in inappropriate curriculum components.

All the above findings imply that the state of emphasis of scientific phases in the developing curriculum as seen against ADDIE principles of SAT design is at a minimal level and the necessary social processes in developing curriculum were under estimated.

Based on the evidences in this study, it is possible to infer that TAET curriculum of colleges of agriculture under study is questionable in terms of appropriateness in that the curriculum program goals have limitations in terms of deficiency for not emphasizing on local environmental realities and issues of global climate change; and the proposed strategies of instruction and assessment lack variety and suitability in terms of students' engagement. Inappropriateness and lack of alignment of curriculum components reduces the quality of training and education.

Skill-oriented professional practices such as laboratory practices, SEP(Supervised Enterprise Projects),candidates' plot practices and worksite activities, internship have less time allotment than classroom teaching in the programs of TAET curriculum and this condition has impact of deskilling the candidates resulting in poor transfer of knowledge.

The above mentioned issues are symptoms of low quality of the development of the curriculum that can negatively affect the quality or relevance of the curriculum of undergraduate program of colleges of agriculture under concern. There is one Ethiopian traditional proverb which reads " A bird that faced a problem when taking off the land(beginning to fly) will most probably face a problem when to land on the ground." Curriculum development is a precondition or milestone for putting foundation for education and training. This is possible through knowing and applying the scientific phases including social processes of curriculum development because curriculum is a science that demands scientific know-how and a social process that requires collaboration as well. The above proverb reminds us that if we have deficiencies or gaps in developing our curriculum, by-in-large we will have a problem to shape the appropriate curriculum,(initial practice of

education and training) which ,on its part, will bring about working on a null curriculum(a curriculum with almost no effect on the behavioral changes of the candidates) and this might be a big burden on the country.

Poor curriculum design can result in poor training and education. Poor training and education produces incompetent graduates (those graduates with descriptive knowledge than functional or operational knowledge-who are expertise in theoretical knowledge with very less or no capability of application). This situation negatively influences personal and national development.

Finally, from the view points of the investigation and the evidences assessed, it is possible to infer that the status of use of scientific procedures and the state of participation of external stakeholders (especially from sectors which hire the graduates and experts at the level of the ministries) in the practice of developing curriculum for CoA in public Universities was below the expected as a standard.

5.3. Recommendations

a/ The process of curriculum development should be harmonized with curriculum research especially with the investigation of national demand, institutional needs, assessment of curriculum in practice, learning needs assessment, and studies on instructional and assessment strategies, media and resources. The Ministry of Education has to allocate sufficient research fund and universities have to recognize and include curriculum research in their strategic plans to this effect. Curriculum development has to be based on revision, review, and redefinition of educational goals, contents and strategies. Higher education institutions should incorporate these curriculum practices in their legislations and act to their practicality.

b/ Continuous curriculum research should be carried out to remove the drawbacks in the current curriculum, to identify national and institutional demands, learning needs and strategies of instruction and assessment including necessary resources. Scholars in the field are requested to be exemplary in conducting research, steering up others and promote curriculum research. This calls for the recognition, weight and approval of the necessity of curriculum research by the MoE and strong cooperation between the MoE and the higher education institutions.

c/ There needs to be the culture of employing and applying the scientific or systematic procedures in developing a curriculum. Employing and applying scientific curriculum development phases or ADDIE principles has something to do with formulating relevant goals, selecting appropriate courses, identifying better instructional resources, and strategies, and selection of variety and effective assessment techniques. Frequent national workshops have to be annually planned by the MoE to initiate scholars focus on how to materialize quality curriculum development; and the scholars in the field are expected to feel responsible and accountable.

d/ There should be collaboration and coordination with policy makers, curriculum experts, teachers, candidates, and other stakeholders throughout the process of curriculum development. Cooperation between these parties creates synergy which is essential potential to produce responsive curriculum. To this end there need to be regional and national curriculum issue forum that will plan different educational forums, call together the aforementioned parties at least twice a year, and manage collaboration and coordination among them towards creating regional/national curriculum consensus.

e/ Participation and opinion of direct and indirect stakeholders should be given prime importance in the development of curriculum at the time of curriculum preparation. There need to be institutional and national endeavor to promote the role of stakeholders' input in educational planning .

f/ Educational objectives of CoA should be comprehensive and well aligned in a sense that they encompass balanced proportions of knowledge, skills, and attitudes and these objectives could be related to the national development goals, to the real life applications through selection and organization of contents and learning experiences that build up the detailed courses .In formulating educational objectives ,it is wise to develop mechanisms of involving competitive educational experts. Competitive situations have to be created from institutional-regional to national levels.

g/ Curriculum objectives and contents for school of agriculture should meet the challenges of this contemporary era. Especially the curriculum needs to incorporate basic issues of producing new technologies in agricultural research, increasing biological capital(through genetic improvements of animals, crops, and forests), issues of global climate change, mechanisms of adaptation, strategies of mitigation of climate change impacts, and other courses that help develop the candidates' experimental behavior, to mention some among others. The basic curriculum courses as 'Producing New Technology Through Agricultural Research", "Ways of Importing and Adapting Technology from abroad", "Global Climate Change and Its Effects", " Mechanisms of Adaptation and Mitigation of the Impacts of Climate Change" , must be incorporated in curriculum of CoA to cite some among others.

h/ In agricultural education and training , the time to be spent on skills development needs to be at least equivalent to the time spent on conceptual/descriptive learning. To this end, curriculum developers have to allocate proportional time budget between classroom teaching, laboratory practices, and field agricultural worksite activities in preparing curriculum for CoA.

i/ Areas that contribute to the transfer of knowledge as entrepreneurship, supervised field worksite practices, and additional agricultural co-curricular activities need more attention and more time

budgeting than ever before in the development of curriculum for School of agriculture of public universities.

j/ In its totality, the symptoms of curriculum deficiencies pertaining to curriculum development identified in this study remind all the concerned stakeholders to come together, review, revise, redefine, and redesign the curriculum in focus. To this end, there should be continuous national rendezvous consultation among all stakeholders and, there need to be institutionally, locally and nationally oriented contextualized approach that shows a way to develop responsive national curriculum.

The following is the framework that is alternative approach to develop curriculum which is adapted based on works of different scholars in education in which effort was made by the investigator of this study to integrate the scientific phases with the social processes in developing curriculum.

NB: See the sketch in the next page.

Framework in the process of Developing Curriculum

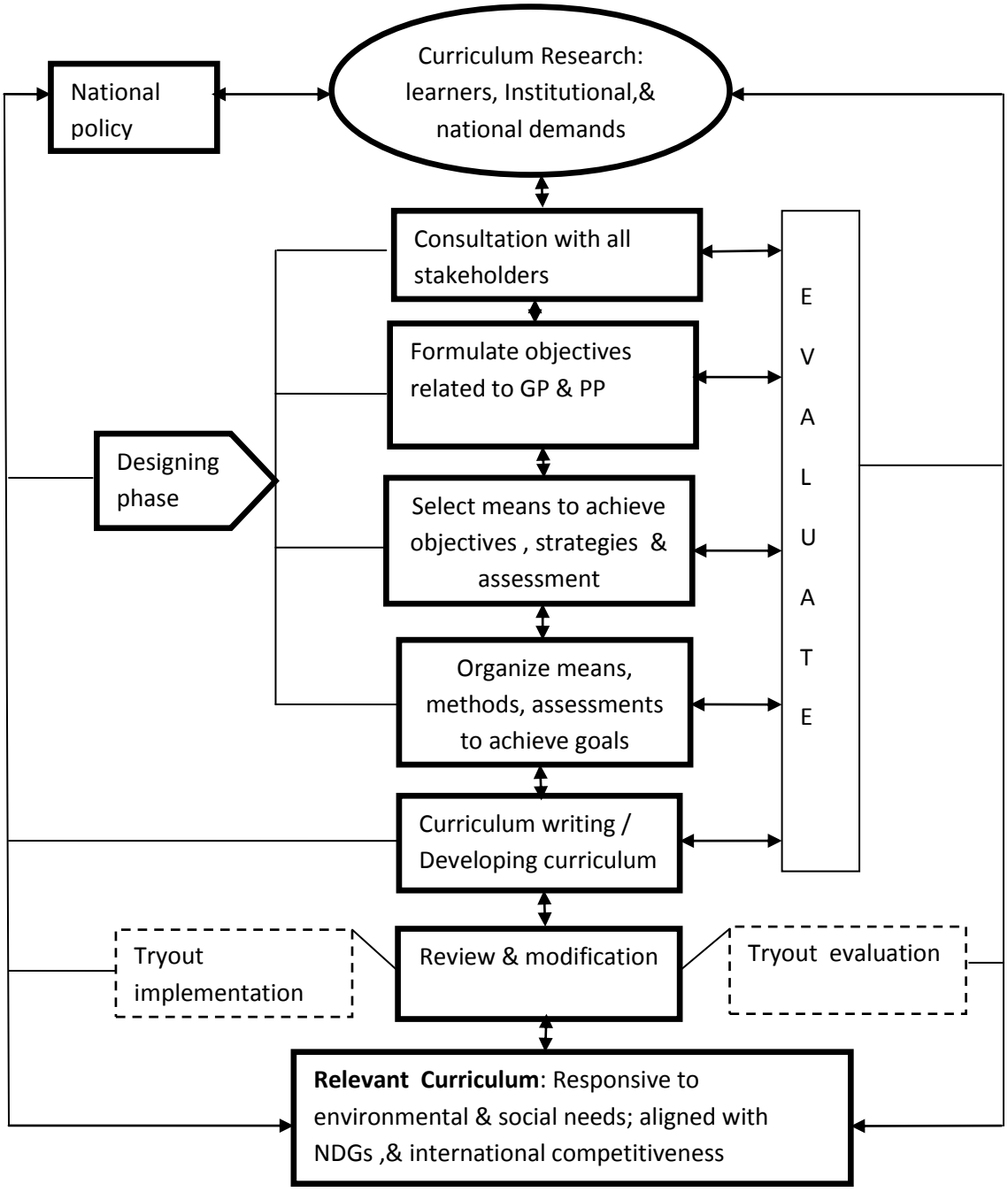

Figure 3: Framework of Curriculum Development process built based on principles of ADDIE model (Seels and Glasgow, 1990:44) of SAT design and Skillbeck's situational model (1975). It shows the path ways to develop a curriculum NB: GP= Graduate Profile; PP= professional profile; NDG=National Development Goals

Brief Justification about the Framework

Integrating approaches (that have similar elements to combine) may result in a better well defined approach to follow in planning, implementing, and evaluating practice."Course designers who carefully consider the various approaches to syllabus design may arrive at the conclusion that a number of different models are needed and the similar elements are best combined in an eclectic manner in order to bring about positive result" (Dubin and Olshtain, 1997). The above framework is better because it is built on combined parts similar elements of different approaches.

This framework for curriculum design and development establishes a clear procedure that guide the entire design and development process of curriculum that emanates from national policy, and based on curriculum research of the demands of the learners, institutions, and the country. It builds sequences between phases of curriculum design and development and shows coherent progression from national policy issues to curriculum research through curriculum review, and modification. It outlines basic phases for curriculum design and development, reminds discussion among stakeholders and data driven decision making, and indicates ongoing revision and improvement. The framework considers the necessity of discussion and consultation among all stakeholders (social aspect) as essential as scientific processes of curriculum design and development. Therefore, the framework amalgamates science with social aspects. It is built on integrated parts of some approaches to curriculum design and development. This makes the approach to be eclectically established. It is optional framework for the process of curriculum design and development that is distinct from 'pure technical' or objective model in a sense that it incorporates social process to scientific procedures of curriculum design and development. The tenets of the proposed framework are (1) giving equivalent emphasis for both scientific procedures and social processes in designing and developing curriculum; (2) research and evaluations congruent to national policies are

capitalized issues to review, and revise the existing curriculum or shape new (3) curriculum design and development practice must make use of data driven evidences ,discussion and consultations with stakeholders for regional and national consensus as decisive components in decision making about the plan, implementation, and evaluation of curriculum (4)epistemologically the weight given to knowledge (value of curriculum to be included) is as far as it is supported by research evidences and approved by all the stakeholders of curriculum (5) ontologically truth in curriculum issues is what is supported by evidences (measurable) and what is seen against contextual social norms (value-laden either accepted or rejected by the stakeholders). So truth lies both in humans (within) and outside there in the external world.

Suggestion on Some of the Issues that Need Further Studies

1. Investigation into how to develop curriculum that contributes more to national demands and international competitiveness

2. Studies on how to enhance training directly the farming community as equivalent as training agricultural professional candidates.

3. Studies on how to enable our candidates be internationally competitive.

4. Studies on mechanisms of adding to the candidates' transfer of knowledge.

Bibliography

Abera Deresa,Amare Molla, and Tsedeke Abate(2004).Retreat on Reform of Agricultural Research and Technology Dissemination Systems in eastern Africa. http://www. earo. org.et

Adams, David (1998).**Effective Grading**: A Tool for Learning and Assessment. San Francisco: Jossy Bass

Aggarwal, JC(2006).**Teacher and Education in a Developing Society** (4th ed).New Delhi: Vikas Publishing House Pvt Ltd

_____(2006). **Theory and Principle of Education**: Philosophical and Sociological Bases of Education. New Delhi: Vikas Publishing House Pvt Ltd

_____(1997).**Development and Planning of Modern Education**.(6th ed) New Delhi: Vikas publishing House Pvt Ltd

Ahuja, R.(2001).**Research Methods**. New Delhi :Rawat Publications.

Akhtar,S. and Mirza,A.(2012).**Curriculum Development ,Assessment, and Evaluation**. Islamabad: University of Quetta

Aklilu Dalelo,Zenebe Baraki,Ambissa Kenea,Alemayehu T/Mariam,Solomon Areaya,and Mekasha Kasaye (2007).**Teacher Education System in Ethiopia:** A Need for an Informed Decision.AAU,CoE

Akridge, J. (2013).**College of Agriculture Faculty Resources Guide**. Purdue: http://www.ag.purdue.edu/dean/facultyinfo.html

Allen, R.l (2003).Path to Language Learning**: Proceedings of the 27th Annual Boston University Conference on Language Development (Vol. 1, pp. 63-72). Somerville, MA: Cascadilla Press,** Internet 2011

Alemayehu Bishaw and Lasser Jon (2012).Education in Ethiopia: Past,Present and Future Prospects.http://www.nobleworld.biz.org

Amare Asgedom(2009).Quality of Higher Education in Ethiopian Public Institutions. Amharic version ”yekeftegna timhirt siriate timhirt agbabnetina yememaria gebiatoch yizota”,contributed to fss.

_____ (2007).**Academic freedom and the Development of Higher education in Ethiopia**: Case of Addis Ababa University, PhD thesis University of East Anglia.

_____(2000).Educational Research in Ethiopia: State of the Art and Art of the State. **Proceedings of national Conference on Current issues of Educational Research in Ethiopia** .A.A.

Academic Programs Services: APS (2015).Course Profile Requirements http://www.profiles.griffith.edu.au.org

Apple, M. (1985). Politics and Policy Making in Education .http://www.books.google.com.et/org

Atsbaha Gebreselassie and Tesema Bekele (2010).A Review of Ethiopian Agriculture: Roles, Policy and Small Scale farm. http://www.global-growing.org

Australian Curriculum Assessment and Reporting Authority: ACARA (2012). Health and Physical Education. http//www.consultation.australiancurriculum.edu.au

Ayalew Shibeshi(2000). Educational Policy and Management of Change.MED Distance Education Course Material. A.A.U Unpublished

Beauchamp, L. and Parsons, J.(2012).From Knowledge to Action: Shaping Future of Curriculum Development in Alberta. http://www.edu.alberta.ca/department/ipr/curriculum.aspx

Beauchamp, G.(1981).Managerial Model of Curriculum Development. http://www.nationalforum.com.org

Beeby, C.E (1997).Planning and the Educational Administrator. Paris: iiep-UNESCO

Belay kassa (2004). Proceedings on The Role of Agricultural Universities in Transforming Animal Agriculture in Education, Research, and Development in Ethiopia: Challenges and Opportunities. A.A.

Bennett,R(2002).Teacher Participation in Curriculum Development. Georgia State University.

Bidyadhar, Sa (2007).Higher Education Expansion and the Issue of quality assurance. Proceedings of the Second National educational Conference. A.A. ,A.A.U

Board of Studies(BoS) NSW (2006).**Syllabus Development Handbook**. Sydney: Board of Studies.

Bolstad, R. (2004). School-based curriculum development: principles, processes, and practices. Wellington: New Zealand Council for Educational Research. www.nzcer.org.nz)

Boueque,L.M.(2006).Reflections on Norm-Referenced vs Criterion-Referenced. Boston

Bradley,L.H.(1985).**Curriculum Leadership and Development Handbook**. Englewood Cliffs, NJ: Prentice Hall

Broyles, Thomas92004).Curriculum and Facilities for Agriculture.: An Agri-science Approach. http://www.scholar.lib.vit.edu.org

Chao,Y. (2004). Review of the field. http:/www.viceroy.eb.unconn.edu.org

Chikumbu,O.(2000).Curriculum Development, and Teaching and Learning ,http://www.graduates.com.vg

Cambridge International Examinations :CIE(2012).Implementing the Curriculum.http://www.cie.org.uk

Clark,B.R (1983).**The Higher Education System: Academic organization in Cross-National Perspective**. London: University of California press, Ltd.

Clinton,Steve (1997). Developing Matrix for Assessing Values in Curriculum Theory. http://www.toi.edu/Resources/values htm.

Cohen, Barry and Lea, Brooke(2004).Essentials of Statistics for the Social and behavioral Sciences. New Jersey: Wiley & Sons, Inc.

Cohen, Manion and Morrison,W. (2004). **A Hand Book of Qualitative Research**. London: Routledge.

Creswell, J.,(2002). Mixed methods Methodlogy.http:www.nebrasca.edu

Creswell, Jhon .(2009).**Research Design :Qualitative, Quantitative, and Mixed Methods Approaches**(3rd ed).London: SAGE Publications, Inc.

Creswell, J .,and Clarkk, Plano (2009). Approaches to Mixed Methods Methodology. http://www.wiki/org

Center for the Study of Evaluation: CSE(1979).Criterion-Referenced test Handbook. Los Angeles: University of California.

Central Statistical Authority CSA (2012).; Ethiopia Annual Statistical Report. A.A

Demeulemeester, Ann (2011).participation and Stakeholder Involvement in Education Policy making.brussels.http://www.eunec,eu

Department for Education and Employment (1999).Report on Research. http://www.nc..uk.net.org.

Deragon, Jay (2008).Social Networking., http://www.tkk.fi.-mmontola/publication.html

Derebssa Dufera(2006).**Issues in the Implementation of Ethiopian School Curriculum.** A.A.U Printing Press

_____(2004).**Fundamentals of Curriculum Development**. Addis Ababa. IER, A.A.U.

Devis,D.,Beyerlein,S.,and Devis,Isadore(2006).Deriving Design Course Learning Outcomes from professional Profiles. London: TEMPUS Publications. **International Journal of Engineering Education** Vol.22,No. 3

Dick, W., and Carey, L.(2005).**The Systematic Design of Instruction**: ADDIE Model. New York: Longman

D'Onofrio, Jan and Klesse Edward (2000).The value of Co-Curricular Activities.http://www.windsor-csd.org

Dressel, W.(1984) Developing a Matrix for assessing Values in Curriculum theory. http://www.toi.edu.resources/html

Dubin,Fraida and Olshtain ,Elite (1997).Fundamentals of curriculum Design For Courses in Social Sciences. http;//www.acikarsiv.atilin.edu/tr.org

Economic Commission for Africa: ECA (2007).Africa review report on Drought and Desertification. http://www.unccd.int/publicinfo.org

Endrias Geta,Ayalneh Bogale,Belay Kassa, and Eyasu Elias(2012).Productivity and Efficiency Analysis of Smallholder Maize Producers in Southern Ethiopia.http://www.ifpri.info/org.

Environmental Protection Authority: EPA (2012).national Report of Ethiopia, the United Nations Conference on Sustainable Development .Federal Democratic Republic of Ethiopia, A.A

Ethiopian Higher Education Proclamation (2009).Higher Education Proclamation July/2009.Fedral Democratic Republic of Ethiopia: A.A

Ethiopian Statistical Authority: ESA (2012)..Annual Statistical Report. Addis Ababa

Eshetu Chole (2004).Underdevelopment in Ethiopia: Organized and Compiled by OSSREA, Addis Ababa.

Federal Democratic Republic of Ethiopia: FDRE (2010). Growth and Transformation Plan of Ethiopia (2010-2014/15). Addis Ababa

_____FDRE (2009). Higher Education Proclamation of Ethiopia: Proclamation 650/2009.Addis Ababa.

_____FDRE(2009). Educational Statistics : Annual Abstract. A.A. MoE.

_____FDRE (2002) **National Framework for Teacher Education System Overhaul**. MoE, A.A.

Food and Agricultural Organization : FAO(1995).**World Agriculture: Towards 2010**.New York: FAO and JOHNWILEY&SONS.

Fink, L.D.(2013).**A Self-Directed Guide to designing Courses for Significant Learning**. University of Oklahoma.

Fitzmaurice M. and Donnelly R.(2005).Designing Modules for Learning. Dublin, Institute of Technology. Http://www.alshe.org/readings/2005

Frank, JR, Mungroo R., Ahamad Y. and Wang M.(2010).Toward a definition of Competence based education. Toronto: Canadian family medicine curriculum.

Freeman,W.H. (2005).Learning Theories and corresponding Methods. (PANdora Distance Education Guidebook (1st edition, 2008): www.pandora-asia.org.

Galloway,C.,and Weaver,D.(2009).Collaborative Curriculum Development in Public relations.http://www.praxis.massey.cc.nz.html

Gay,L.R. and Airasian,P.(2000).**Educational Research**: Competencies for Analysis and Application(6th ed). Newjersy: MERRILL of Prentice Hall.

Gibbons,Michael (1998).Higher Education Relevance In The 21st century. http://www.worldbank.org

Gilbert J. and Sheppard C. (1991).*Course Design, Teaching Method and Student Epistemology*. **International Journal of Higher Education.** Amsterdam: Kluwer academic Publication.22 (3).

Ginnis,Paul (2002).**The Teacher's Toolkit**: Raise classroom Achievement with Strategies for Every Learner. London: Crown House Publishing limited.

Giroux ,J.(1987).Curriculum Development process. http;//www.usindh.edu.pk.org

Gopal Brian(2011)An enquiry into Agricultural Education and Training in Victoria. Australian College of Agriculture. http://www.training.gov.au.html,2013.

Graves K. (2000).From Curriculum Design to Syllabus Design. The different Stages to Design a program. http://www.fonael.org

Graves K.(2001).Teachers As Course Developers .USA, Cambridge University Press

Green Sylvia (2002).**Criterion-Referenced Assessment As a Guide to Learning**. London: Department of Education and Science

Habtamu Wondimu(2007). The Ethiopian Higher Education: Creating Space for reform. **The Ethiopian Journal of Higher Education.vol.4(1)** pp 69-83. IER,A.A.

Hadley, B.J. and Ritz(1991) Curriculum Models. http://www.Scholar .lib.vt.edu/ejournals/JTE/pdf

Hambleton, Ronald (2009).Criterion-referenced Tests and Norm-referenced Tests. http://www.wikidoc.org/html

Hamilton,L.S,pane,J.,and Marsh,Julie(2006).Making sense of Data Driven Decision Making in Education.http//www.rand.org

Handler,Beth(2010).Teacher as Curriculum leader. **International Journal of Teacher Leadership** .Vol 3,No. 3 .http://www.csupomona.edu/ejtl

Heslop, Benjamin (2008).Entrepreneurial Knowledge Transfer. Australian National University.

Hite, Steven and Grsauwe Anton (2008).Capacity Development in Educational Planning and Management.Paris:iiep-UNESCO.

Hutchinson,T. and Waters,A. (1996).From Curriculum to Syllabus Design. http://www.fel.uqroo.mx/adminfiles/html

Huggett,G.(2002).Higher Education Curriculum: Traditional and Contemporary perspectives. http://www.answers.com/topic/highe.

Jakie ,Reid(2004).Consideration of Variations: A Model for Curriculum Development. http://www.iase-web.org

Japan International Cooperation Agency(JICA,2007).Manual on Training Needs Assessment. http://www.statpac.com/htm

Jean, Barbazette (2006). Training Needs Assessment: Methods ,Tools and Techniques. http://www.jica.go.jp/project/cambo.org

Jenkins, C.C (2008).A Quality Agricultural Education Program: A National Delphi-Study. University of Kentucky. http://www.agriculturaleducation.org/ifga/sample.htm,n.d

Johnson R. B. (2004) Mixed Methods Research: A Research Paradigm Whose Time Has Come. **Educational Researcher**, Vol. 33, No. 7, pp. 14–26 http://www.aera.net

Jordan,W. (1997). Approaches to Curriculum Design. http://www.fel.uqroo.mx/adminfiles/html

Journal of the International Association of Universities, JIAU (1993). Academic Freedom. Vol. 6 No. 4

Kate, Ashcroft (2005). The 13 Higher education Institutions for Ethiopia: In the proceedings of the National Conference held in the School of Graduate Studies. A.A.U, A.A

Koskei,Kirui K (2015).Assessment of Stakeholders' Influence on Curriculum Development process. Journal of Humanities and social Sciences.Vol.20,No.3 http://www.iosrjournals.org

Kothari .C.R.(2007).**Research Methodology**: **Methods and Techniques**. New Delhi: New Age International (P) Limited.

Kouwenhoven, Wim(2003).Competence-based Curriculum Development in Higher Education. http://www.wikipedia.org

Kuiper ,W. and Berkvens, J.(ed), (2013).**Balancing Curriculum Regulation and Freedom across Europe.** E-book accessed Jan.2013;http://www.slo.nl/balancing-curricilim-regulation html.

Lattuca,S. (2010).**Tightening Curricular Connections**: Effective Curriculum Planning. http://www.soe.umich.edu/profile html

Laurillard, Diana (2010). **An Approach to Curriculum Design**. London: Institute of Education.

Lawton,S. (1975). **Models of Curriculum Development**. New York: PEARSON publication.

Lewis,W.,Barnett, R.,Seiver,L.,and Gass,S.(2008).Proposed Curriculum Standards of Agricultural Education.Tennessee:Tennessee Department of Education.

Luneta,Vincent (2003).The laboratory in Science Education: Foundations for the Twenty-First Century. http://www.vnl-psg.edu.org

Ma'aza Bekele (1966). "**The Study of Modern Education in Ethiopia: Its Foundations, Its development, Its future with emphasis on primary education."** PhD dissertation, Colombia University.

Mafunzwaini Alu, Thahne Lerato, and Worth Steve (2003). **Agricultural Education and Training Strategy for Agriculture in Rural Development in South Africa. Johannesburg.**

Maher, A.(2004).**Journal of Hospitality, Leisure, Sport and Tourism Education.** http://www.hlst.heacademy.ac.uk/jolste

Maitra,P.(2007).**Higher Education and Global Challenges**. New Delhi: Saurabh Publishing House.

Masson,Alan(2012).Institutional Approaches to Curriculum Design. http://www.viewpoints.ulster.ac.uk

Mayee,C.D (2012).**Agricultural Education, India**. Accessed 2013. http://www.timesofindia.indiatimes.com

Mckimm, Judy(2007). Curriculum Design and Development. http://www.academicmedicine..org

McNeil, J.D. (2009).**Contemporary Curriculum In Thought and Action**. New York: JOHN WILEY & SONS, INC

_____(1996). **Curriculum**: A Comprehensive Introduction (Fifth Ed.)Los Angeles: University of California. http://www.essentialconditinswiki.

Mekasha Kassaye (2005).Ensuring the Quality of Ethiopian Higher Education in the face of the Challenges of the 21st century. THE ETHIOPIAN JOURNAL OF HIGHER EDUCATION 2 (2).

Mekonen Baweke (2007).The practice of Curriculum Planning in A.A.U: Case of Department of Business Education. Unpublished MA Thesis, A.A.U.

Messay ,Kebede(2006).An Overview of Ethiopian Education. http;//www.unesco.org

Miller,Jeanetta(2013).A Better Grading System :Standard-based Student-centered Assessment. **Journal of English**,Vol.103,No.1

Mishira,R.(2010).Agricultural Education for Sustainable Rural Development in Developing Countries: Challenges and policy Options. JOURNAL OF EDUCATION and LEARNING. http://www.fao.org/sd/exdirect/exanoo25/2013html

Ministry of Agriculture and Rural Development: MoARD (2010).: Policy Statement. Addis Ababa

Ministry of Education: Moe (2010). Ethiopian Education Annual Abstract. Addis Ababa.

Moi,Dola(2004).Training Needs Assessment. http://www.jica.go.jp/camboorg

Mordica,J. and Nicholson ,K.(2013).Curriculum Alignment Module. University of Illinois. http://www.illinois.edu/wp.org

Morrish (1997). • Photogravure Work, Slide Lecture, West Viking College Visual Arts Program, : **The World Journal of Post-Factory Issues**. West Viking College : M. MacCallum, D. Curated. Internet retrieved 2011.

Moyles,J., Hargreaves,L. and Inlow,Palaiologou (1998). Concept of Curriculum. http;//www.anthomata.blog.com

Mubeen,A.,Hasan,A.,Nawazi,T.and Daniyal,M.(2012).The Effect of Co-Curricular Activities on the Academic Performance of Students. **Bulgarian Journal of Science and Education Policy**. (BJSEP) Vol 6,No. 2

Newmayer, Eric(2013).Heads of Department Handbook.http://www.lse.ac.uk.org

Noel,G.(1993).Narrative Theory and Educational Inquiry. http://www.aare.edu.au.org

Orstein ,A. and Hunkins F.(2004).**Curriculum: Foundations, Principles, and Issues**. New York: PEARSON publication.

Pandey,M.(2008).**Concept of Curriculum Planning**. New Delhi: BAJAT PUBLICATIONS.

___ Pedagogy module, (2009). Note on the Concept of Pedagogical Science for Post Graduate Level. A.A.U

Pertrou.M. (2007).Using Mixed methods to Investigate. http:www.emeweb.free.fr/CERME

Posner,R.(1998).Models of Curriculum Planning. http://www.academic.udayton.edu.org

Prasad Janardan (2006).**Education and Society**: Concepts, Perspectives, and suppositions. New Delhi : Kanishka publishers.

Pree,M.D.(1987).Curriculum Development Process. http://www.education.alberta.ca.org

Primrose and Alexander(2013).Curriculum Development and Implementation. **European Social Sciences research Journal** vol..1.No.1

Punia,S.(1992).Research on Teacher's Planning and Its Use in Curriculum. University of Bath Lancaster

Quality Assurance Agency for Higher Education: QAA(2011). Explaining Contact hours. http://www.qaa.ac.uk

Rahel Kassahun(2003).**Ethiopia's Recent Growth performance**. http://www.sisterresource.worldbank.org

Robinson,M. (1990) .Curriculum Theory. http://www.nas.publishers.com/practice.org

Rogers,A. and Taylor ,P. (1998). Curriculum Development and Teaching Learning. http://www.portal unesco.org/education/en/files.

Saiful,A.(2012) .**Planning Curriculum on medical Education**. www.cobleskill.edu/strategicplan/02.html accessed 2012

Saratakos, S.(1997).**Social Research**. Melbourne: Harper Educational publishers.

Saylor ,J. and Alexander (1958).**Curriculum Planning** :For Better Teaching and Learning, New York: Rinehart and Company ,Inc.

Schuster J (2001). **Higher education in the United States: Historical excursions .** School of Educational Studies Claremont Graduate University.http://www.redie.uabc.mx/vol3no2/contents-schuster.html.

SekiyaT.,Matsuda Y,and Yamaguchi K.(2009).Analysis of Curriculum Structure Based on LDA.Proceeding on the World Congress on Engineering and Computer Science, I PP20-22.Sanfrancisco

Seels,W. and Glasgow,T.(1990). Product-Oriented Model of Instructional Systems Design. http;//www.wikipedia.org

Seyoum Tefera (1998).The Current Status of Research Among Senior High School Teachers. **The Ethiopian Journal of Education**. vol.xviii, No 1;pp1-18.

Sharma,U.(2003).**Higher.Education**. http://www.education.monash.edu.au/research/profiles html

Shinn Yun (1997).Teaching Strategies ,their Use and Effectiveness as perceived by Teachers of Agriculture.http://www.lib.dr.iostate.edu.org

Shulman,J.(1987). Pedagogy and Models of Teacher Knowledge. http://www.juliecogill.uni.edu.org

Skilbeck,Malcolm(1975).Curriculum Development. http://www.unescodoc.unesco.org

Solomon Areaya (2008).**Policy Formulation Curriculum Development and Implementation in Ethiopia.** Addis Ababa: A.A.U

Stenhouse,L.(1975). Curriculum Development ,Change and Control. http://www.sagepub.com/upm-data

Storen,Helen(2002).The Role of Laymen in Curriculum Planning. New York: Queens College

Storey,Katie L. (2010).Bridging the Gap:Linking Co-Curricular Activities to Student Learning Outcomes. National Louis University. Dissertation, e-source.

Taba H.(1962).**Curriculum Development:** Theory and Practice. New York: Harcourt Brace and World.

Tacka ,Irena (2012).The role of Academic Entrepreneurship. **Journal of Entrepreneurship, Management and Innovation** Vol. 8 No.2

Tanner,Daniel and Tanner,Laurel (1980).An Orientation to Curriculum. http://www.pdx.edu.org

Taylor ,P.Rrudebjer ,G., and Castillo,R.(2001). A Framework for Developing Agro-forestry Curricula in South East Asia.http://www.icraf.cgia.org

Temechegn Engida (2002).Globalization and Educational Research in Africa .**Newsletter of International Institute for Capacity Building in Africa.** Vol. 4,No 2.pp 6-9.

Tesfaye Ayele,Eshetu Asfaw,Dilamo Otore, & Zinabu G/mariam (2009).Science and Mathematics Education in Ethiopia. Paper presented at Technical Workshop on Science & Mathematics Sec. Education in Africa: Tunis.

Tesfaye Semela (2008).**Journal of Education for Development:** Teacher Education at Crossroads .A.A.U, Vol.3 (1).PP 1-38.

Teshome Yizengaw (2007).**The Ethiopian Higher Education: Creating Space for Reform.** Addis Ababa :St. Mary's UC Printing press.

_____(2004).The Status and Challenges of Ethiopian Higher Education System and its contribution to Development. **The Ethiopian Journal of Higher Education** Vol.1.No.1,1-19. IER, A.A.U

Transitional Government of Ethiopia: TGE (1994). **Education and Training Policy of Ethiopia**.

Addis Ababa.

Touch,J.(2001).**Agricultural Education in Cambodia**. http://www.ae.cambodiaeductaion.html

Tyler, Natalie and Dodds,Stephanie (2012).Inquiry into Agricultural Education and Training in Victoria.http://www.parliament.vic.gov.au/etc

Tyler,Ralph W.(1949).**Principles of Curriculum and Instruction**. Chicago: University of Chicago Press.

United Nations Educational Scientific and Cultural Organization: UNESCO (2009).**EFA Global Monitoring Report**: Overcoming Inequality: Paris

_____(1995). **Education Policy Planning Process: an applied framework.** Paris

http://www.unesco.org/education/nfsunesco

_____(1993).International Workshop on Curriculum Development in TVET.http://www.unesco.org

United Nations Children's Education Fund: UNICEF (2000). **Defining Quality In Education**. New York :Education Section program Division. http://www.unicef.org/education/files

Valencia, Sheila (2005).Understanding Assessment. http://www.edweek.org/ew/ewstory

Vashist,R.P.(2005).**Curriculum Development**. New Delhi: Commonwealth Publishers.

Walker, D. (1971). The Classical Models of Curriculum Development. http://www.jstor.org/stable html retrieved 2011.

Watermeyer, Richard (2010).Curriculum Alignment, Articulation and Formative Development of the learner.http://www.ibo/globalassets/pub.org

Watkins,R.,Meiers,M.W,and Visser,Y.L(2012). A Guide to Assessing Needs: Essential tools for Collecting Information, Making Decisions, and Achieving Development Results. Washington DC: IDA

Wenger T. (1996), In Internet http://www.unex.edu retrieved 2011).

White D.(1993).From Curriculum to Syllabus Design. http://www.fel.uqroo.mx/adminfiles/html

Wildavsky,J.(1987). **Choosing Preferences by Constructing Institutions**. http://www.allacademic.meta/p_mla_apa_research

Wilson Elaine (2009).School-based Research: A Guide for education students. London: SAGE

Winterstein, Almut and Kimberlin, Carole (2008). **Validity and Reliability of Measurement Instruments Used in Research.** University of Florida.

Woolcock,M.(2006).Constructing Syllabus: A Handbook for Faculty, Teaching Assistants, and Teaching Fellows.http://www.brown.edu/sheridam.org

Zais,W. (1976).**Curriculum Planning Teaching and Learning.** http;//www.georgeyonge.net/sites.georgeyonge.net/file html

Appendix ‘A’ Questionnaire

Addis Ababa University

College of Education and Behavioral Sciences

Department of Teachers Professional Development and Curriculum Studies

This questionnaire is to be addressed to the Agricultural School/college Director, Department heads/Team leaders and Academic Staff and candidates of the graduating class in the College/School for the purpose of data collection.

The development of this questionnaire is aimed at testing the appropriateness of the practice of designing tertiary agricultural education and training curriculum for college of agriculture thereby conducting analysis of TAET curriculum of the undergraduate program. It is designed to collect data in undertaking PhD thesis on ‘Designing Tertiary Agricultural Education and Training Curriculum of the Undergraduate Regular program: Case of Schools of Agriculture of Universities in Oromia Regional State.

Dear Respondents

It is clear that distributing the draft questionnaire to respondent for comments and getting evidence will contribute to obtain valuable data thereby increasing the quality and effectiveness of the study. To this effect, you are kindly requested to make respond appropriately considering the provided items of the questionnaire. Your voluntarily fast responding action and return of the questionnaire paper after having completed it is highly appreciated.

This questionnaire is developed to obtain information on practices of curriculum designing of school/college of agriculture pertaining to the undergraduate program. With this respect, your information is highly valued as an essential input in worth of this study. The information is purely intended for academic research purpose and will be kept confidential. Writing your name is not required; personal information will never be corresponded with your responses. Finally your participation in giving genuine and true information is being glad about.

The following are measures of appropriateness of the practice of TAET curriculum design as seen against scientific curriculum design and desirability of TAET curriculum of Colleges of agriculture of universities in Oromia Regional State, Ethiopia.

Dear respondents, you will read the statements about the proper ways of designing a curriculum in this questionnaire. For each of the statements there are alternatives. Please identify and indicate your response as it relates to the actual practice of curriculum design process in your college of agriculture. Indicate the number on the points of Likert scale that best describes how the statement goes with the practice of curriculum design in your college of agriculture.

NB: Use the following scale:

5=Emphasized;4= Moderately emphasized;3= Insufficiently emphasized;2=Not emphasized but effort was made;1= Totally ignored

	Which one of the following got emphasis in designing the present curriculum of your school of agriculture?	Coding category 1 2 3 4 5
1	Assessing the then existing curriculum at team course/departmental level before changing it	
2	Assessing needs for learning	
3	Conducting studies on strategies of agricultural education curriculum organization, delivery, and evaluation mechanisms	
4	Conducting workshop that invited policy makers, curriculum experts, teachers, team leaders, and other stakeholders	

Identify the extent of participation of different stakeholders(5=top participant,

4=participant,3=occasional participant/participant when available,2=infrequent participant,1=not participant).

No	Participants in designing curriculum of college of agriculture	Coding category 1 2 3 4 5
1	Experts from the Ministry of Agriculture and Rural Development	
2	Curriculum Experts	
3	College Dean/school Director	
4	Team Leader/Department head	
5	Candidates (students of particular school)	
6	Stakeholders(employers, agricultural officers, forestry, farmers, officers of agro-industry)	
7	Teachers	

Indicate your response whether the following practices were undertaken considering scientific procedures/phases of curriculum design(5=strongly agree,4=agree,3neutral,2=disagree,1=strongly disagree).

No	Items on phases of curriculum design	Coding category 1 2 3 4 5
1	Important situational factors to design curriculum for college of agriculture were assessed & recognized	
2	Important learning goals are identified	
3	Scheme of learning activities are created through selection and organization of contents and learning experiences	
4	Effective teaching-learning strategies & resources were determined	
5	Appropriate assessment procedures /techniques were formulated	
6	Evaluation of the course is planned	
7	The grading system is well developed	

Differentiate whether the following practices were done during the curriculum development for college/schools of agriculture in public Universities (5=strongly agree,4=agree,3neutral,2=disagree,1=strongly disagree).

No	Items for curriculum development	Coding category 1 2 3 4 5
1	Thematic structure of courses was created	
2	Writing course breakdown and description	
3	Educational materials were prepared	
4	Tryout implementation of the designed & developed curriculum was conducted	
5	Tryout evaluation was carried out	

Indicate whether the TAET curriculum goals of colleges of agriculture suit national purposes

(Definite=4,by and large=3,to some extent=2,not at all=1)

No	Items	Coding category 1 2 3 4
1	There is equivalence between TAET objectives and objectives of the policy of Agriculture and rural development?	
2	The program goals of TAET of Colleges of agriculture suit to the national development framework goals	
3	There is mesh/interconnection / between TAET program goals and local environmental realities	
4	Graduate profiles match with professional expectations	

Indicate the appropriateness of TAET Curriculum courses in contributing to the development of the conceptual knowledge and operating knowledge of candidates (Definitely fitting=4, mostly fitting =3,slitly fitting=2, not fitting=1)

No	Items	Coding category 1 2 3 4
1	The courses address local environmental issues	
2	The courses enable the candidates to investigate their environment	
3	The courses and expected activities contribute to the development of candidates' scientific reasoning and problem solving skills	
4	The TAET curriculum contents (courses) incorporate issues of relating learning to actual life	

Indicate if the following issues/ingredients are incorporated in the TAET curriculum courses of your school of agriculture (3 for included,2 for rarely considered,1 for not included)

1	New technology to be produced by public and private investments in agricultural research	Coding category 1 2 3
2	Importing technology from global research system and the way how to adapt it to local conditions	
3	Growth of biological capital (genetic and husbandry improvements of livestock, crops ,forests)	
4	Program content relevant to farmers' actual problems in managing small holder agriculture	
5	Projects to practically support farmers' smallholder farming system	
6	Global climatic change issues including ways of adaptation and mitigation strategies	

Specify the suitability of the suggested instructional strategies in TAET curriculum of college of agriculture in engaging the candidates (definitely suitable=4, moderately suitable=3, slightly suitable=2,not suitable=1)

No	Items	Coding category 1 2 3 4
1	The instructional strategies are open to candidates' engagement	
2	The proposed instructional strategies enable the candidates absorb course contents	
3	The suggested instructional strategies can help candidates apply the required declarative knowledge	
4	The instructional strategies enable the candidates complete activities that demonstrate their functioning knowledge toward achieving the program outcomes	
5	The proposed instructional strategies initiate the candidates to work more and know more	

Differentiate the fitness of the suggested techniques of assessment in TAET curriculum of college of agriculture against testing capacity of the assessment techniques considering the declarative capability and skill performance of the candidates (praise worthy=4, moderately worthy=3, slightly worthy=2, worthless =1)

No	Items	Coding category 1 2 3 4
1	The proposed assessment techniques provide authentic measure of how well candidates will achieve the learning outcomes	
2	The marking criteria are relevant	
3	The proposed marking criteria reflect the standard of the agricultural programs	
4	The proposed marking criteria reflect the standard of the courses	
5	The proposed marking criteria reflect the standard of the university	
6	The proposed marking criteria reflect the standard of the agricultural profession	

Indicate your response considering the proportionality of time budget between classroom teaching, laboratory practice, and actual field agricultural practices of school/college of agriculture (Agree=2,Disagree=1)

No	Items	Coding category 1 2
1	The time budget for classroom teaching ,laboratory practice,& practical field work is proportional	
2	More time is allotted to classroom teaching	
3	More time is allotted to laboratory practice	
4	More time is allotted to practical field agricultural work	
5	Time allocated to laboratory practice is less than that of classroom teaching	
6	Time allocated to practical field work is less than that of laboratory practice	
7	Time allocated to practical field agricultural work is least of all	

Indicate whether inputs from staff members, candidates, and stakeholders are considered in designing the curriculum of school of agriculture (Agree=2,Disagree=1)

No	Items	Coding category 1 2
1	Inputs from candidates (students) are used to redefine and design curriculum in the school of agriculture	
2	Inputs from stakeholders are used to redefine and design curriculum in the school of agriculture	
3	Inputs from academic staff members are used to redefine and design curriculum in the school of agriculture	

Indicate your reply about the emphasis on the experiences for transfer of knowledge such as entrepreneurship, supervised plot practices (worksite samples), laboratory practices, and agricultural co-curricular activities (ACCA) compared with classroom teaching (Emphasized=4,slightly emphasized=3,deemphasized=2,not intended=1)

No	Items	Coding category 1 2 3 4
1	Entrepreneurship or apprenticeship /attachment	
2	Supervised plot practices(samples of worksites) for candidates	
3	Laboratory practices	
4	Agricultural co-curricular activities in addition to worksite practices	

Thank you for filling the questionnaire

Appendix-B: Interview protocol for College Deans and Team Leaders

1. Before the design and development of the current curriculum for CoA, was investigation carried out taking into account the strengths and limitations of the curriculum that preceded the present?
2. Was the study conducted on what is worth of learning and assessments on individual needs for learning?
3. How about the study pertaining to identify national demands?
4. At the level of CoA, were the studies conducted on concerning strategies to implement agricultural education and training?
5. When the curriculum for CoA restructured in 2004EC did you take part in the discussion and consultation conducted at the MoE ?
6. If you are participant of the national workshop at MoE did the experts at ministerial level take part in the curriculum discussion and dissemination workshop?
7. How about curriculum or education experts were they participants?
8. How do you see the participation of teachers in curriculum decision issues?
9. What do you say about the participation of candidates of your college in the curriculum issues of their departments?
10. Did stakeholders from MoRD and other employing sectors take part in the curriculum design and development of CoA so far?
11. Do you think the inputs of ideas from students and other stakeholders used in preparing the curriculum for CoA?
12. Does your college possess courses evaluation plan for curriculum issues for the purpose of redefinition and redesign?
13. Do you think that the curriculum goals match with that of MoARD and GTP?
14. How do you suggest on the appropriateness of the assessment techniques and grading system being used in AET in your college?
15. Was there tryout (pilot) implementation before the application of the current curriculum?
16. Was there tryout evaluation of the current curriculum before putting it into practice?

Thank you

Appendix-C:Interview protocol for Experts at Ministry level

1. Were you invited so far to participate When designing and developing Universality curriculum ?
2. What do suggest on the role of investigating what is worth of learning and assessment on individual needs and national demands?
3. Do you think that participation of experts at ministerial and regional levels decisive to produce responsive curriculum?
4. Do you think that the inputs of ideas from students and other stakeholders important to design and develop curriculum for educational institutions?
5. Do you have overall suggestion?

Thank you

Appendix-D

Addis Ababa University

College of Education and Behavioral Sciences

Department of Teachers Professional Development and Curriculum Studies

This checklist is to be addressed to the experts in MoARD, HESC, HERQA and Oromia Regional Agricultural and Rural Development Bureau, and teachers qualified in curriculum for the purpose of data collection.

The development of this checklist is aimed at testing the appropriateness of the curriculum program goals to the national policy key issues. It is designed to collect data in undertaking PhD thesis on 'Analysis of the Practice of Designing Curriculum for Undergraduate Regular program: Case of Schools of Agriculture of Universities in Oromia , Ethiopia.

Dear Respondents

It is clear that distributing the checklist to respondent for comments and getting evidence will contribute to obtain valuable data thereby increasing the quality and effectiveness of the study. To this effect, you are kindly requested to make respond appropriately considering the provided items of the checklist. Your voluntarily fast responding action and return of the checklist after having completed it is highly appreciated.

Your information is highly valued as an essential input in worth of this study. The information is purely intended for academic research purpose and will be kept confidential. Writing your name is not required; personal information will never be corresponded with your responses. Finally your participation in giving genuine and true information is being glad about.

Thank you in advance

Goal Alignment Identification to National Policy key issues (GAIN) Rubrics

This checklist is designed to identify the alignment between the stated objectives of the programs of agricultural education and training of colleges of agriculture of Universities and that of national policy of Agriculture and Rural Development, of Ethiopia.

Do experts from your organization/institution take part as invited experts in designing curriculum programs for higher education ? Yes ☐ No ☐

Indicate whether the following stated agricultural education and training program goals suit key issues in the policy of Ministry of Agriculture and Rural Development (MoARD) of Ethiopia. Note: Use '√' for suits ,'TE' for to some extent and 'x' for does not suit.

Curriculum goals B.Sc. program in Agriculture Do → / Suit? ↓	**Key issues in the policy of MoARD (2010)**			
	Agricultural productivity with emphasis on smallholder agriculture	**Rural commercialization**	**Natural Resources management**	**Disaster Risk management and Food security**
To produce qualified graduates with strong theoretical knowledge &practical skills in the areas of domestic animals &pigs production, beekeeping &fishery, and aquaculture, feed resource production techniques &conservation strategies ,range management ,monitoring &evaluation, holistic analysis of livestock production systems &constraints for different production purposes & the ideal methods of their production				
To undertake disciplinary &interdisciplinary researches that could contribute to the improvement in food security, household income,& environmental resilience through generation of appropriate technologies				
To provide technical assistance through outreach &consultancy services in the areas of farm animal production apiculture, aquaculture, livestock feed production & range management				

Curriculum goals B.Sc. program in Agriculture Do → Suit? ↓	**Key issues in the policy of MoARD (2010)**			
	Agricultural productivity with emphasis on smallholder agriculture	**Rural commercialization**	**Natural Resources management**	**Disaster Risk management and Food security**
To produce competent professionals in Agricultural economics to enhance rural and agricultural development				
To produce socially accountable personnel who would give alternative solutions to socio-economic problems				
To enhance researches in socio-economic areas				
To promote the concept of comprehensive and multi-disciplinary approach in tackling agricultural and rural problems				
To give consultancy and advisory service trainings and community development services				
To train professionals in the field of post harvest mgt				
To conduct demand driven and problem solving research in post harvest magt and thereby contribute to the improvement of the national food security and commercialization of agricultural products				
To provide extension services in post harvest mgt				
To organize and provide demand driven in-service and other tailored training for various stakeholders				
To render professional and technical consultancy/advice on matters pertaining to post harvest mgt				
To produce qualified graduates in plant sciences capable of working in private sectors, governmental and non-governmental organizations towards improving agricultural productivity and food self-sufficiency.				
To produce qualified graduates capable of conducting research in plant sciences that can solve the problems affecting the sector.				
To provide professional services to the community at large.				
To produce graduate farmers that can own farms with a focus on job creation and poverty reduction.				
To identify community based priority areas of research to respond in the best way to the challenges of global warming on agricultural practices.				
To identify community based priority areas of research to respond in the best way to the challenges of global warming on agricultural practices.				
Disseminate appropriate technologies and research outputs to stakeholders.				

Do the goals of curriculum imply key issues of policy of Ministry of Agriculture and Rural Development?

A. Yes ☐ **B. Yes, to some extent** ☐ **C. No, they do not** ☐

Your comment (if any)

Thank you

Appendix-E: Rubrics filled by Ministry experts and teachers qualified in Curriculum and Instruction)

Indicate whether the courses address the four key focus areas of MoARD (2010) provided as under. Use √ mark for having role; and 'x' for not having role.

Undergraduate program Major area Courses of TAET (College of Agriculture, Animal & Range sciences) Do → address? ↓	**Key issues in the policy of MoARD (2010)**			
	Agricultural productivity with emphasis on smallholder agriculture	**Rural commercialization**	**Natural Resources management**	**Disaster Risk management and Food**
Anatomy & Physiology of farm animals				
Agriculture				
Agricultural Microbiology				
Fisheries & Aquaculture				
Reproductive physiology &Artificial Insemination				
Principles of Animal Nutrition				
Applied Animal Nutrition				
Animal Health &Disease Control				
Principles of Genetics				
Biostatistics				
Forage & Pasture Crop production				
Animal Breeding				
Veterinary Parasitology				
Research Methods in Animal &Range Sciences				
Range Ecology				
Draft & Pack Animals Husbandry & Technology				
Dairy Cattle production				
Practical Attachment				
Range Management				

Undergraduate program Major area Courses of TAET (College of Agriculture, Animal & Range sciences) Do address? → ↓	**Key issues in the policy of MoARD (2010)**			
	Agricultural productivity with emphasis on smallholder agriculture	**Rural commerciali zation**	**Natural Resources management**	**Disaster Risk management and Food security**
Poultry Production &Hatchery Management				
Sheep & Goat production				
Hides & Skins processing & Marketing				
Practical in Animal and Range Sciences				
Beef Cattle production				
Range Monitoring & Evaluation				
Processing & Marketing of Animal products				
Senior Research Project				
Seminar in Animal and Range sciences				

Your comment (if any____
____
____
____

Undergraduate program Major area Courses of TAET (College of Agriculture, Plant science) address? Do → ↓	**Key issues in the policy of MoARD (2010)**			
	Agricultural productivity with emphasis on smallholder	**Rural commercialization**	**Natural Resources management**	**Disaster Risk management and Food security**
Introduction to Statistics				
Plant Morphology and Anatomy				
Introductory Soils				
Agricultural Microbiology				
Principles of Genetics				
Principles of Plant Physiology				
Soil fertility and Plant nutrition				
Plant Ecology				
Principles, Designs and Analysis of Agricultural Experiments				
Horticultural Entomology Hort 361 3 (2+1)				
Principles and Practices of Irrigation				
Weed and Weed Management in Horticultural crops				
Breeding of Horticultural Crops				
Horticultural Pathology				
Tea Production and Processing				
Farm Machinery and Implements				
Vegetable crops Production				
Principles of Floriculture				

Your comment (if any_____

_____

_____

_____

Undergraduate program Major area Courses of TAET (College of Agriculture, Horticulture) address? Do	**Key issues in the policy of MoARD (2010)**			
	Agricultural productivity with emphasis on smallholder agriculture	**Rural commercialization**	**Natural Resources management**	**Disaster Risk management and Food security**
Research Methods in Horticulture				
Principles and Practices of plant Propagation				
Tropical Fruit crops Production				
Introduction to Plant Biotechnology				
Greenhouse Horticultural crops Production & management				
Spice, Herb and Medicinal crops Production and Processing				
Post-harvest Physiology and Handling of Horticultural Crops				
Horticultural crop Protection				
Agricultural Project Planning and Management				
Sub-tropical and Temperate Fruit crops Production				
Landscape Designing and Ornamental Horticulture				
Root and Tuber Crops Production				
Senior Seminar in Horticulture				
Senior Research Project-I				
Practical Attachment				

Your comment (if any_____

_____

_____

_____

Undergraduate program Major area Courses of TAET (College of Agriculture, Horticulture) address? Do →	**Key issues in the policy of MoARD (2010)**			
	Agricultural productivity with emphasis on smallholder	**Rural commercialization**	**Natural Resources management**	**Disaster Risk management and Food security**
Rural Sociology and Agricultural Extension				
Commercial Floriculture				
Horticultural Seed Science and Technology				
Coffee Production, Processing and Quality Control				
Entrepreneurship and Small Business Management				
Senior Research Project-II				
Processing of Fruit and Vegetable crops				
Horticultural Marketing				

Your comment (if any)_____

_____

_____

_____

Undergraduate program major area Courses of TAET (College of Agriculture, in Rural Development & agricultural extension) Address? / Do	**Key issues in the policy of MoARD (2010)**			
	Agricultural productivity with emphasis on smallholder	**Rural commercialization**	**Natural Resources management**	**Disaster Risk management and Food**
Rural Development				
Rural Development policy Analysis				
Developmental Economics				
Tourism and Globalization				
Disaster and Risk Management				
Rural Infrastructure				
Agricultural project planning and Analysis				
Land use planning and watershed management				
Extension methods and approach				
Extension program planning ,monitoring and evaluation				
Farming system and sustainable livelihoods				
Agricultural journalism and media				
Rural organization and management				
Extension teaching methods and theories of adult learning				
Training for development				
Psychology for Rural extension				

Your comment (if any)

Appendix –F: Indicate whether the following stated agricultural education and training program goals suit key issues in the Growth and transformation Plan (GTP,2010)of Ethiopia. Note: Use '√' for suits ,'TE' for to some extent and 'x' for does not suit

Curriculum goals B.Sc. program in Agriculture Do → / Suit? ↓	**Key issues in GTP (2010)**			
	To build modern &productive agricultural sector	**Build economy with leading industrial sector**	**Increase per capita income**	**Sutain eco.devt & Secure social justice**
To produce qualified graduates with strong theoretical knowledge &practical skills in the areas of domestic animals &pigs production, beekeeping &fishery, and aquaculture, feed resource production techniques &conservation strategies ,range management ,monitoring &evaluation, holistic analysis of livestock production systems &constraints for different production purposes & the ideal methods of their production				
To undertake disciplinary &interdisciplinary researches that could contribute to the improvement in food security, household income,& environmental resilience through generation of appropriate technologies				
To provide technical assistance through outreach &consultancy services in the areas of farm animal production apiculture, aquaculture, livestock feed production & range management				
To produce competent professionals in Agricultural economics to enhance rural and agricultural development				
To produce socially accountable personnel who would give alternative solutions to socio-economic problems				
To enhance researches in socio-economic areas				
To promote the concept of comprehensive and multi-disciplinary approach in tackling agricultural and rural problems				
To give consultancy and advisory service trainings and community development services				
To train professionals in the field of post harvest mgt				
To conduct demand driven and problem solving research in post harvest magt and thereby contribute to the				

improvement of the national food security and commercialization of agricultural products				
To provide extension services in post harvest mgt				
To organize and provide demand driven in-service and other tailored training for various stakeholders				
To render professional and technical consultancy/advice on matters pertaining to post harvest mgt				
To produce qualified graduates in plant sciences capable of working in private sectors, governmental and non-governmental organizations towards improving agricultural productivity and food self-sufficiency.				
To produce qualified graduates capable of conducting research in plant sciences that can solve the problems affecting the sector.				
To provide professional services to the community at large.				
To produce graduate farmers that can own farms with a focus on job creation and poverty reduction.				
To identify community based priority areas of research to respond in the best way to the challenges of global warming on agricultural practices.				
To identify community based priority areas of research to respond in the best way to the challenges of global warming on agricultural practices.				
Disseminate appropriate technologies and research outputs to stakeholders.				
Gives technical advice to the farm management section of the University regarding crop production and protection.				

Do the goals of curriculum imply key issues of policy of Ministry of Agriculture and Rural Development?

A. Yes ☐ **B. Yes, to some extent** ☐ **C. No, they do not** ☐

Your comment (if any)

Thank you

Appendix-G: Summary Checklist to assess of Curriculum course catalogue of CoA. TE for to some extent

Indicator	Description	Yes	TE	No
Phases of scientific Curriculum Design & development	Assessment and Analysis on preceded curriculum			
	Needs assessment carried out			
	Investigation on strategies conducted			
	Thematic structure of courses created			
	Scheme of learning activities created			
	Proportional time breakdown for strategies of AET curriculum implementation			
	Evaluation of courses planned			
	Appropriate instructional & assessment techniques incorporated			
	Curriculum materials developed to the standard			
	Tryout implementation conducted			
	Tryout evaluation conducted			
Alignment	National mission, graduate profiles, curriculum program objectives ,and learning tasks are dependable			
	There is coherence between objectives, course contents ,activities ,and strategies of instruction and evaluation			
	Curriculum program goals are linked with focus areas of GTP			
	Graduate profiles match with professional profiles			
	Courses breakdown and description prepared			
Appropriateness of current curriculum components	Program objectives are defined to the standard			
	The three domains included with their details of stages			
	Curriculum courses address environmental realities			
	Courses of importing technology included			
	Courses for biological capital involved			
	Incorporation of issues of stallholder farming			
	Incorporation of agricultural co-curricular activities			
	Issues of global climate change involved			
	Instructional strategies engage students			
	Assessment techniques can provide authentic measure			
	Relevance of marking criteria to vocational education like agriculture			

No of Yes_____TE_____No_____

Adapted from Bradley (1985).

Declaration

I, the undersigned, declare that this dissertation is my original work and has not been presented for a degree in any other university and that all sources of materials used for dissertation has been dully acknowledged.

Name Gemechu Misso

Signature _____

Date 25/03/16

Place and date of submission: Addis Ababa University March, 2016

This dissertation has been submitted for examination by my approval as a university advisor.

Name Derebssa Dufera (Prof)

Signature _____

Date 25/03/2016