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CURRICULUM UPGRADING TO MEET THE NEEDS OF THE PROFESSIONAL  
ENVIRONMENT IN MOZAMBIQUE

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The case of commercial agriculture curriculum at higher school of business and  
entrepreneurship of Chibuto



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fulfilment of the requirements for the degree in Master of Agricultural Production Chain  
Management, specialization Horticulture Chains

By

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## **Dedication**

To God

When I arrived here in the Netherlands a year ago, God arrived with me, His light illuminated all the paths I have been choosing to follow. And despite several barriers, he made me believe that the strength that comes from him is stronger and much bigger than everything. It was hard, several times I was tempted to give up, without God it would be impossible to continue.

I dedicate this research to him, to my divine God Almighty.

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## Abbreviations

ADRA	Adventist development and Relief association
AJAS	January Practical activities
AJUS	July practical activities
CA	Commercial Agriculture
CEPAGRI	Agriculture Promotion Centre
CIP	International Potato Institute
ESNEC	Higher school of Business and entrepreneurship of Chibuto
FDA	Agrarian Development Found
IIAM	Mozambique Institute of Agriculture research
INCAJU	Cashew Institute
KIT	Tropical Royal <i>institute</i>
MIA	Mocfer food Industries
MINAG	Agriculture ministry Mozambique
NICHE	Netherlands Initiative for Capacity Building in Institutes of Higher Learning
PAC	Professional advisor committee
PE	Professional environment
TASTE	Technical Assistance for Sustainable Trade and Environment

UEM Eduardo Mondlane University  
VHL Van Hall Larenstein University  
WUR Wageningen University

## **Abstract**

This thesis evaluates how the professional environment needs differ from the Commercial agriculture curriculum in terms of competences (skills, knowledge and attitudes) required in an employee. These differences were evaluated based on the results of the survey carried in the professional environment, in Maputo, Manhiça, and Chókwe districts in south of Mozambique, as well as the desk study and case study carried at ESNEC, in Chibuto District also in south of Mozambique from 16 July to 20 August. The findings of this paper were evaluated using the Microsoft excel spread sheet as well as qualitatively, and they shows that there is a Gap between the competencies Commercial Agriculture students are equipped in the learning trajectory and those demanded by the professional environment. On one hand students are being trained for managerial role while in the professional environment they are mainly assigned to the Assistant supervisor, supervisor, coordinator and lastly manager role. The competences the professional environment demands are: ability to manage time and stress, ability to build and organize a team, ability to work productively, ability to communicate effectively, ability to manage projects and teams as well as ability to give technical advice in agriculture. This study conclude with recommendation on how can this competences be introduced as well as with a framework for continuously improving the curriculum.

## **CHAPTER 1. INTRODUCTION**

Economic development relies on strong policies, sound institutions, adept entrepreneurs, and a capable workforce. However, providing job seekers and employees with economically relevant skills that support competitive industries and healthy economies is a challenge worldwide (RTI, 2010).

Education is one of the most influential and powerful tools a society has for contributing to advancing knowledge and transforming lives. It is seen by Van Der Stouwe and Oh, 2008 both cited by Nederstigt, 2011, as a system which knowledge, skills, social norms and cultural values are promoted, obtained and passed on to new generations.

The agricultural education system, as a subset of higher education, plays a critical role in promoting broad-based economic growth and structural transformation by raising labour productivity across the government, private and NGO sectors focused on agricultural development (Laredo, 2007 cited in Mainardes, Alves and Raposo, 2010). An education system that is innovative and responsive to the multifaceted and speedily changing work environment is critical to ensure the effectiveness of all the institutions that contribute to agricultural development agenda. To make the education system responsive requires developing and implementing curriculum and teaching programs that are relevant to the production needs and employment demands of the agricultural sector (Maredia, 2007).

The same author states that, in this broader context, the need for curriculum upgrading is often viewed as one of the answers to these challenges and to making the agricultural education system more responsive to the needs of agricultural development. Curriculum based in professional needs is an innovation in education in Mozambique. It is expected to better prepare students for the current and for labour market and for society as a whole and to make education more attractive to the students (Wesselink, 2010).

### **1.1. Background Information**

There is a clear need for capacity Mozambican experts, managers operating in interface between commercialization initiatives by the government, the private sector and facilitating NGOs, and farmer's organization. Education which train people that can operate in local Mozambican environment is needed, in order to achieve this (NICHE, 2010).

A transformation in agricultural higher education is required, such that the higher agricultural educational systems are able to educate young leaders with the skills, knowledge and attitudes that will enable them to transform the agricultural sector, making it more sustainable (Maredia 2007).

This requires a clear picture of personnel needed by the various actors in the agriculture sector, in terms of typical job profile as well as skills, knowledge and attitudes a graduate must possess, a strong and coherent curricula that ensure students to gain practical knowledge and skills as well as get a good picture of the issues and its solutions (NICHE, 2010).

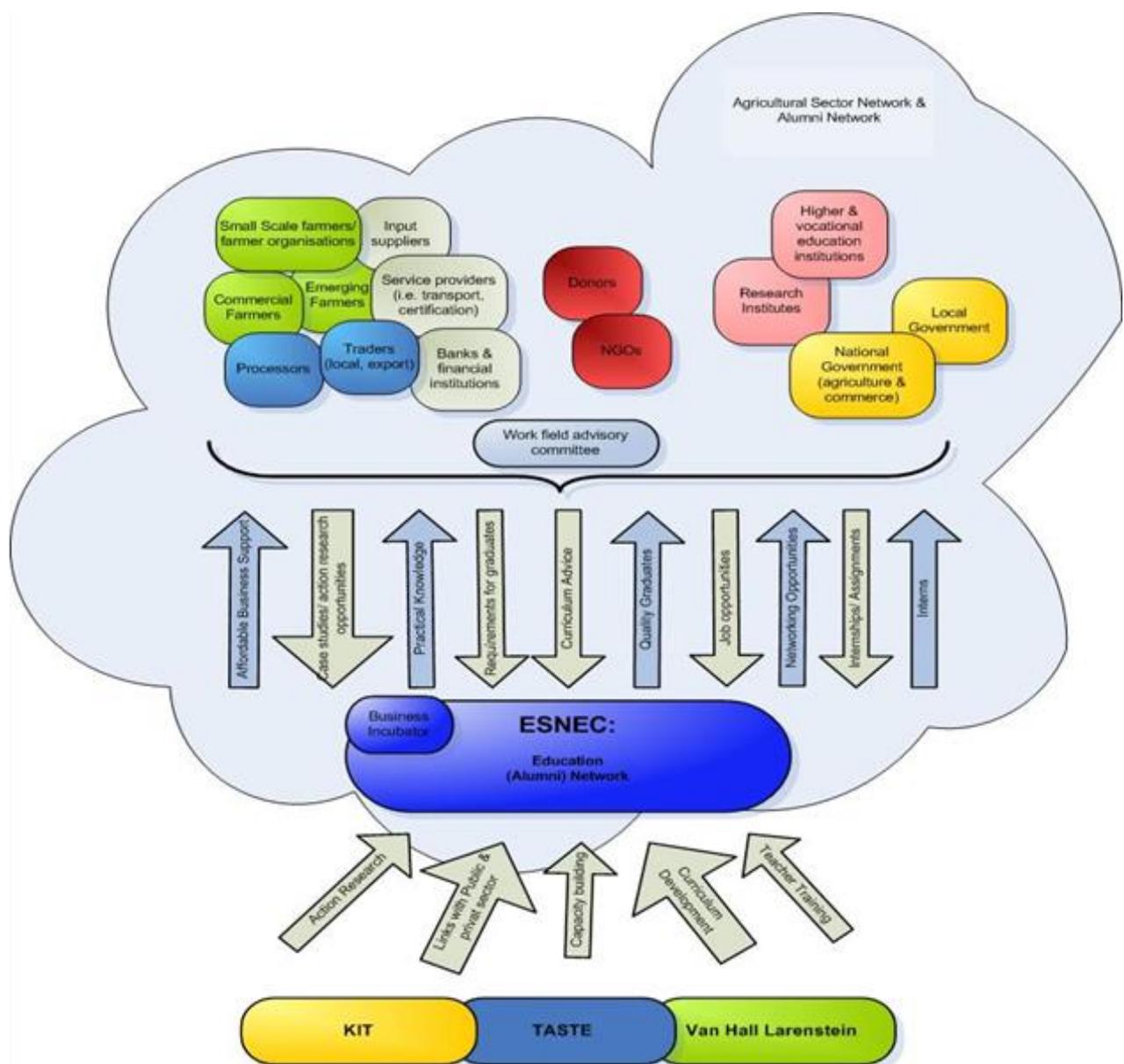
Many universities have moved quite fast in the direction of improving marketable skills of their graduates by offering new credential such as graduate certificates and diplomas often drawn from exiting curriculum rather than starting with a reflective exploration of the range of needs of employers themselves (Guiton, 1999, cited by Kibwika, 2006). In response to these challenge, ESNEC engaged in 2010 in partnership with three Dutch organization, (1- TASTE, 2- VHL and 3- KIT) in a Project called NICHE, MOZ 031 " Development of a Sustainable Trade Academy".

The specific objective of the project is to develop a sustainable trade academy, in which staff and students can participate in action research, sustainable trade management training and guidance as well as advice to players in the emerging agriculture sector in Mozambique. This

objective is seen as a mean to the end goal, which is to deliver graduates with the right kinds of skills, attitudes and knowledge to work at management level in the agriculture sector and thus, contributing to its development (NICHE, 2010).

The main project strategy been used is to create a continuous interaction between the different stakeholders within the sector and ESNEC students and staff. The sector provides information on the requirements they have for graduates, and the curriculum will be designed to meet these requirements. The sector will also offer the practical learning environment needed for participative learning methods, in the form of assignments, internships and case studies. The Action research approach is used to document case local studies and conduct research that can be used in the curriculum. Each activity is expected to have double impact, it will on one hand be a direct result in solving a real case problem for Mozambican agri-business, and on other hand serve as a real case for a problem based learning trajectory of the involved staff and students. This relationship is illustrated in figure 1 (NICHE, 2010).

Figure 1: Niche Moz. 031, Project strategy



Source Niche, 2010

## **1.2. Justification of the Study**

Strategically important to countries, higher education has experienced major growth in latest decades. Within this context, the education market experienced several alterations with the advent of competition among higher education institutions, whether in national or international market (Tam, 2007). An extremely competitive market demands universities to develop competences not formerly required (Michael, 2010). As a consequence to subsist in a competitively hostile market, universities turned in the direction of the identification of the needs of their respective publics and the subsequent definition of strategies based on the needs in the meanwhile identified (Laredo, 2007 cited by, Mainardes, et al., 2010).

By focusing on the competencies demanded by the professional environment, the new entrants to the labour market will be more qualified to meet its needs. Curricula play a central role in this process, since it provides means by which learning outcomes acquired in learning processes can communicate more effectively with the competences required in the professional environment (CEDEFOP, 2012).

ESNEC is aware of the importance of the student's qualification to be competitive in the market. The use of professional environment analysis turn possible to develop curricula which can equip students with knowledge, skills and attitudes that are relevant to available employment opportunities and of value to them in a range of different work and social situations (CEDEFOP, 2012).

A side for strength relationship between ESNEC and the Labour market, involvement of professional environment in the curriculum development process may fulfil at least two different functions. It may increase:

1. The relevance of curricula for the labour market and
2. The legitimacy and acceptance of the curriculum (CEDEFOP, 2010).

## **1.3. Research Problem**

Development of a sustainable trade academy is a NICHE project which is running at ESNEC, one of the goals of the project is to update the curriculum so that this can be focus on the needs of the professional environment. In 2011, 13 interviews were taken in order asses the need of the futures employers of the graduated students. However the information (annex 1) obtained were perceived as superficial, the interviews were not done in such extent that we can draw conclusions if the Commercial Agriculture covers or not the working environment expectations.

This situation suggests that the professional environment analyses need to be re-conducted, since those are the starting point to properly assess the curriculum, can also strengthen the link between ESNEC and the professional environment aside from being fundamental to develop a curriculum which matches the requirements of the professional environment.

## **1.4. Problem Owner**

Higher School of business and entrepreneurship of Chibuto- ESNEC

## **1.5. Research Objective**

This thesis seeks to analyse the professional environment that the graduates are going to, in order to upgrade the Commercial Agriculture curriculum.

## 1.6. Research Questions and Sub Questions

To answer the research objective, this study focuses in the two main questions and sub questions bellow:

### **Question 1. Which competences from commercial agriculture graduates are needed in the professional environment?**

- 1.1. What specific job positions do graduates get after graduating related with the agro food chains?
- 1.2. Which skills knowledge and attitudes are expected from a graduates?

### **Question 2. Which strategies are required to align the curriculum and the professional environment expectations?**

- 2.1. What are the current job profiles on the Commercial agriculture and Agribusiness curricula?
- 2.2. What are the competences related to those job profiles?
- 2.3. In what extent the curriculum is aligned with the professional environment expectation?

## 1.7. Concept Definitions

For the purposes of this thesis the concepts defined bellow are used.

Table 1: Concepts Definitions

Term	Definition
Competence	Proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development (CEDEFOP, 2011).
Knowledge	Outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices related to a field of work or study (CEDEFOP, 2011).
Skills	Ability to apply knowledge and use know-how to complete tasks and solve problems skills are described as cognitive (involving use of logical, intuitive and creative thinking) or practical (involving manual dexterity and use of methods, materials, tools and instruments) (CEDEFOP, 2011).
Professional environment	Organizations who can employ commercial agriculture graduates. On these thesis expressions employers, working environment and field are used to refer to the professional environment.
Curriculum	Consists of a statement of aims and objectives, of content in terms of theoretical knowledge, practical skills to be acquired, attitude towards work and necessary support materials to be used in its presentation, (UNEVOC, 1993).

Source: Literature

## 1.8. Limitation of the Work Performed

During the field work some challenges arise:

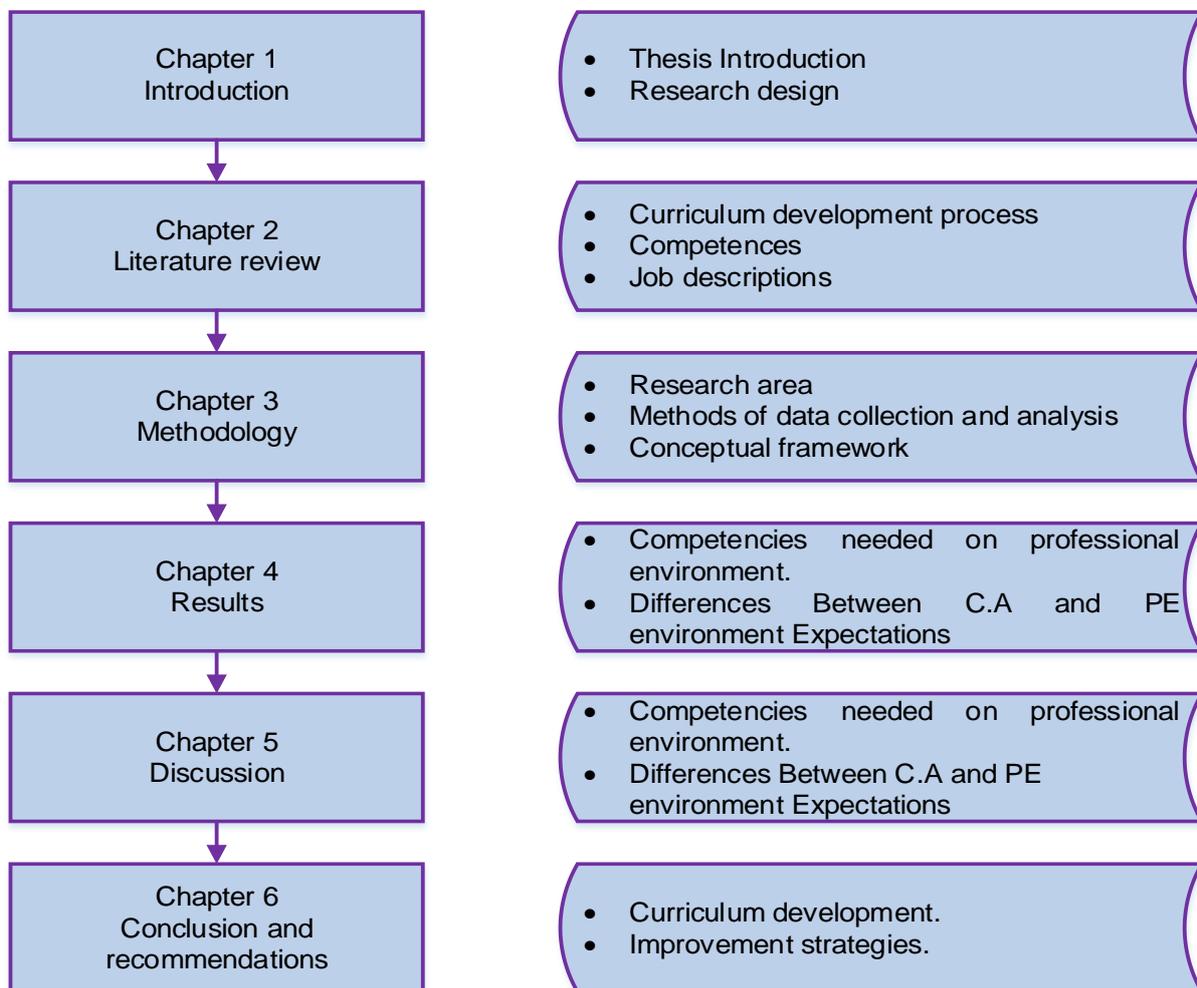
- ✚ The first one was related with the selection of a respondent insight the organization who could give useful information for the research.

- ✚ The second was related with the communication process, the use of the vocabulary word in a universities are several different than what organizations normally use, due to these situations some misunderstood arise with the interviews.

### 1.9. Thesis Outline

This thesis is composed by six chapters. The introduction is presented to the reader in the first chapters, it includes the background information, the justification of the study, the problem to be addressed in this paper, as well as the research issues (objectives and questions). On the second chapter based on findings of literature review the theoretical background to curriculum development is presented. The methodology used along the whole process of the report is presented on chapter three, where details of data collection and analyses as well as the research and conceptual framework are presented. In chapters four findings of field work are presented and discussed in chapter five, and finally chapter six gives the conclusions and recommendations to the curriculum development (Figure 2).

Figure 2: Thesis outline



Source: Author

## CHAPTER 2. LITERATURE REVIEW

The present chapter gives to the reader information related to the curriculum development process, it also gives an insight to needs assessment which is one of the phases of curriculum development, and finally provides information on competencies. All the theoretical background addressed on this chapter are the focus of this research.

### 2.1. Curriculum Development

Curriculum is considered the basis of the educational process and a mean to accomplishing the goals of education and training (CEDEFOP, 2012). It is a dynamic tool that reflects the educational objectives to be achieved and the educational experiences which can be provided to achieve them. Since these objectives will change over time, so will people's judgments as to what experiences will be likely to achieve them. There is consequently a need for continual curriculum upgrading as society itself develops (Taylor, 1999).

Curriculum development focuses primarily on content and experiences related to the content. As is stated in Millán, et al., (2003) cited by Schmidtt, Rojas- Briales, Pelkonen, and Villa, 2007, the active participation of employers and young professionals in the creation, guiding, updating and initiation of curricula can be guaranteed by making them permanent members of programs committees

Yildirim and Simsek (2001), stated that, at the present time universities are under rigorous studies to evaluate a number of aspects of their systems in terms of their strengths and weakness in preparing the students for rapidly changing world of work in order to better meet the needs of the students and the industry. One of these aspects is the process followed to update the curriculum in line with new industry developments.

As we move from industrial information age, the ever- changing needs of the industry present a great challenge for higher education schools in updating their curriculum regularly. The current job market realities require schools to do their own curriculum research and development in collaboration with the local industries in continuous basis (Yildirim and Simsek, 2001).

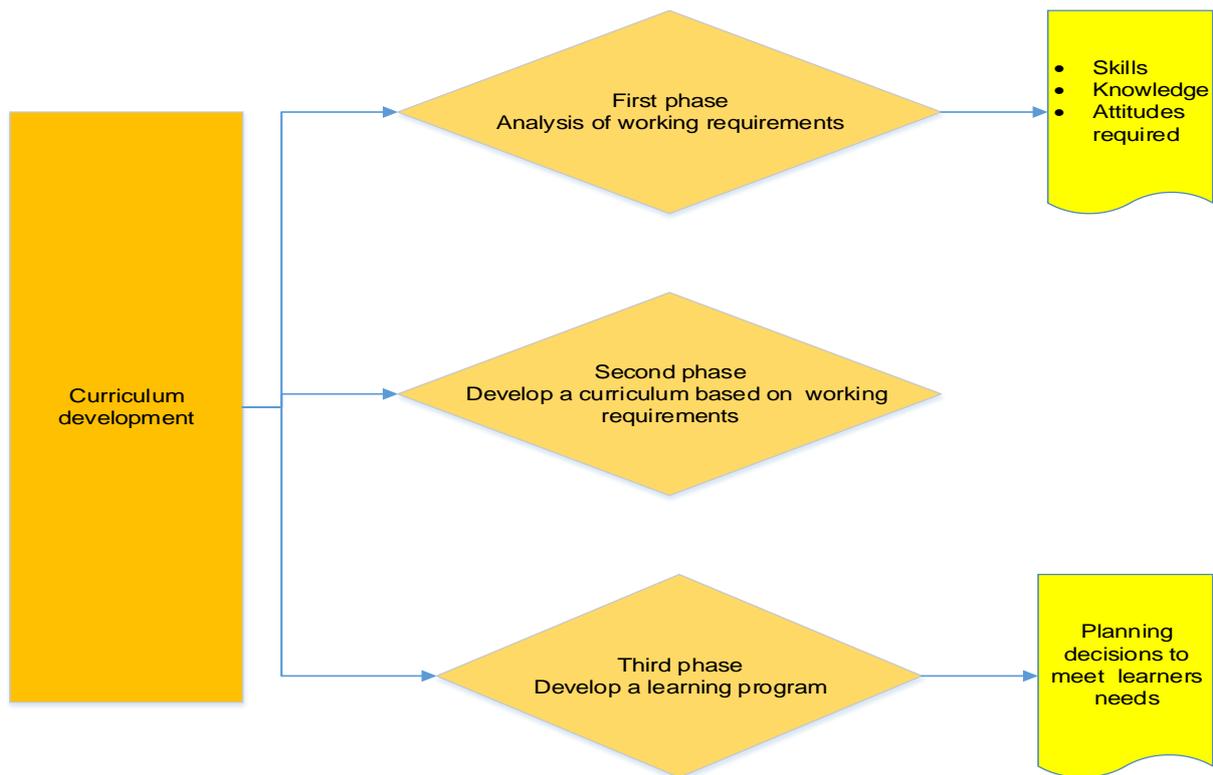
Naturally, curricula change to reflect shifting trends in education, training and the labour market (CEDEFOP, 2012). For educational providers and employers, curricula based on needs of employers can offer a useful platform for connecting the worlds of education, training and work, providing a common language between competences acquired in learning and the needs of the labour market. For students this curriculum allow them to clarify the learning objective and enhances opportunities for active learning or integration in the labour market (CEDEFOP, 2010).

In several countries where outcome-oriented approaches have been introduced to strengthen the link between the curriculum and work requirements, three curriculum development phases can be identified (figure, 3).

1. Analysing work requirements in terms of skills, knowledge's and attitudes needed.
2. Developing the curriculum based on these requirements (Bauer, 2008).
3. Develop a learning program based on the curriculum (kibwika, 2006) which includes the planning decisions taken locally to meet the needs of particular learners in a determined place and time (CEDEFOP, 2010).

The curriculum development process is essential for successful achieving educational goals. Ljuca, Lozo, Simunovic, Bosse, Kdmon (n.d), stated that, one of the basis of the curriculum development is the continual improvement of the outcomes, the analysis of the process and the decision to change. The curriculum developers should decide what should be taught as well as what can be removed, from the curriculum hence the need to define minimum and essential knowledge and skills.

Figure 3: Curriculum development phases



Source: CEDEFOP, 2010

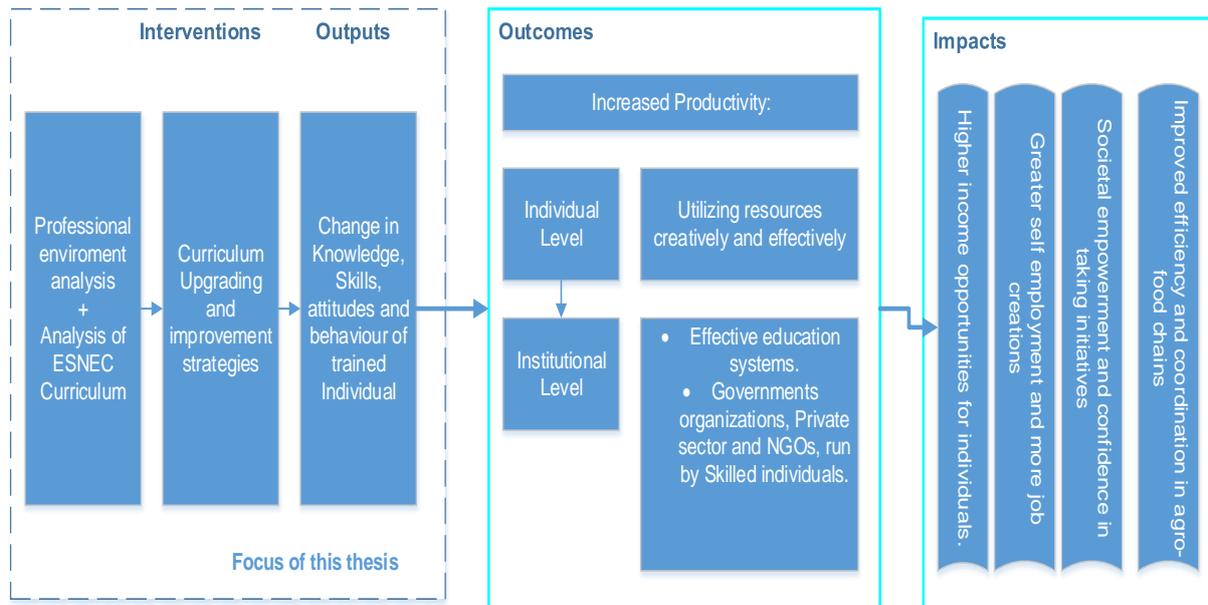
Development interventions, are about bring change in individuals with an final objective of realizing development impacts that result from collective changes aggregated across a large number of individuals (Taylor 1998 as cited by Maredia, 2007). For educational interventions, the intended objective is change in people knowledge, understanding, skills, attitudes and behaviour. The outcome of this change from education is expected to result in a person with an improved capacity to decide and to choose, to implement and assess strategies in a complex and speedily changing environment, meanwhile efficiently using the existing resources. This increased capacity to make informed and knowledgeable decisions with available resources is indispensable for improving productivity at the individual and the institution level. A well-trained pool of individuals employed in core institutions that directly or indirectly serve participants throughout the agriculture-based value chains can then collectively increase the productivity of the agriculture sector Maredia, 2007 (figure, 4).

### 2.1.1. Needs assessment

Nowadays, Higher education institutions are facing a process of transformation. The contribution they make to the welfare of their economic and social environment, is being reassessed (Jongbloed, Enders and Salerno, 2007 as cited in Mainardes, Alves and Raposo, 2010). Due to this situation higher education institutions need to be involved in sustainable relationships with a number of organizations as well as integrate their respective needs into their own curricula (Mainardes, et al., 2010).

The most important step in curriculum development is the general needs assessment. The goal of this step is to focus the curriculum by defining the deficits in knowledge, attitude and skills that current exists and what is wanted (Ljuca, et al., n.d.). Needs assessment is one main task of people involved with planning education and training program (Oruoyehu, 2008).

Figure 4: Interventions to impact the pathway of educational programs



Source: Adapted from Maredia, 2011

Needs assessment is an ongoing process of gathering data from varied sources in order to make effective decision or recommendations on what needs exists so that programs can be developed to help the organization accomplish its objective (Brown, 2002). Refers to coming up with desired states, future conditions, changes in performance, deficiencies or inadequacies in the performance of individuals (Caffarella, 2002 stated by Mawire, 2009).

Rooseet, 1987, has written that Needs assessment involves contact with sources to seek new information and perspectives on subject of concern. The sources of ideas for training can come from society, people, roles and responsibilities, organizations and society (Mawire, 2009 and Oruoyehu, 2008).

### 2.1.2. Continuous improvement

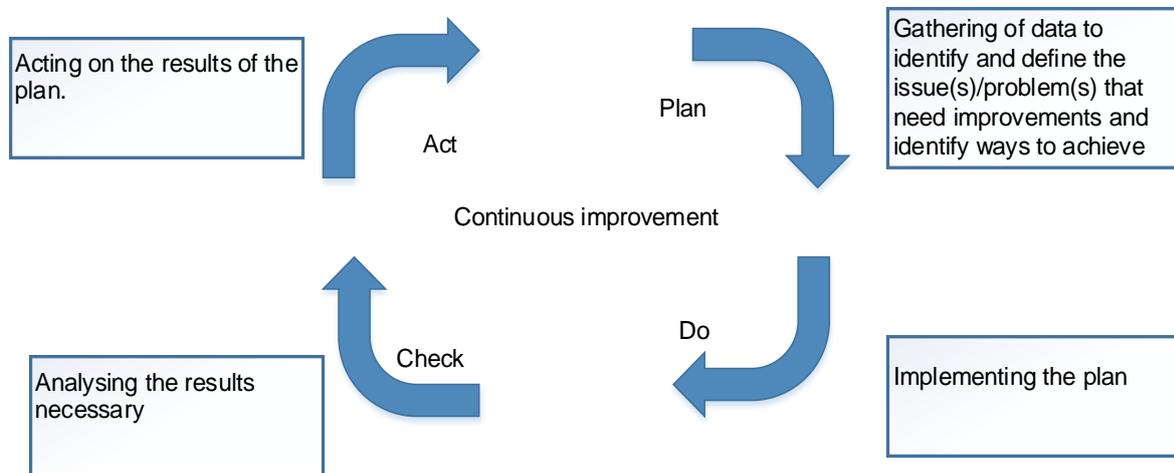
Temponi, 2005, state that, continuous improvement means incremental improvements of the on-going processes. According to CIF, 2012, comprises two parts: a thinking part and a doing part. Kenny and Desmarais (n.d) added that, to manage this process, it is helpful for commissions to establish a manageable framework for continuous program assessment and development by based on five questions. These questions are the thinking part of the continual improvement process and they are described below:

1. Why? (What are the specific goals and objectives for curriculum assessment and improvement?).
2. Who? (Who will be involved? Who are the target stakeholders?).
3. When? (What are the timelines?).
4. How? (What assessment method is most appropriate?).
5. What? (What data will be collect to help inform?).

The second part of the model represents the doing part (CIF, 2012). It is illustrated by the Shewhart-Deming plan-do-check and action (PDCA) cycle that is showed in figure 5.

The plan stage includes identifying a problem, or potential for improvement, and developing a plan for the problem's solution. The do step includes the implementation of the plan which is evaluated in the check step. The final action step represents the action on the results of the plan. (Martin, 2013).

Figure 5: Shewart- Dening continuous improvement cycle



Source: adapted from Martin, 2013.

## 2.2. Competence Based Education

On the last two decades Competence Based Education has rapidly gained ground in the vocational as well as in higher education, it tends to be a form of education that develops a curriculum from an analysis of expected or actual role in modern society (Grant et al, 1979 cited by Mulder, 2004).

One of the aims of the main purposes of competence based education is to prepare future professional to be able to perform correctly and without to many teething problems in their future jobs and as participants in society as a whole (Wesselink, 2010).

Various approaches of the concept of Competence are, and have been, used in different parts of the world, Nederstigt, 2011 and Mulder, 2004.

Nederstigt, 2011, have found that, a wide division into three different perspectives (table 2) could be identified in existing literature:

1. The input oriented approach, frequently seen as the America prevailing perspective, strongly focuses on the development of the individual's competences as professional characteristics of an individual.
2. Output oriented approach often seen as the British prevailing perspective, has a strongly focus on the need of the labour market. Competences identified by the labour markets define the result of the learning process. Not as much the development of a learning individual, but the development of skills, Knowledge and attitudes is the key area of education (Nederstigt, 2011 and SCIC, n.d).
3. Combines both the input and output approach into a holistic development of an individual. Not skills, but the development of a person's professional behaviour are dominant (Mansfield 1989; Mansfield 2004; Clarke et al. 2008; Hjort 2009; Irwin 2009 cited by Nederstigt 2011).

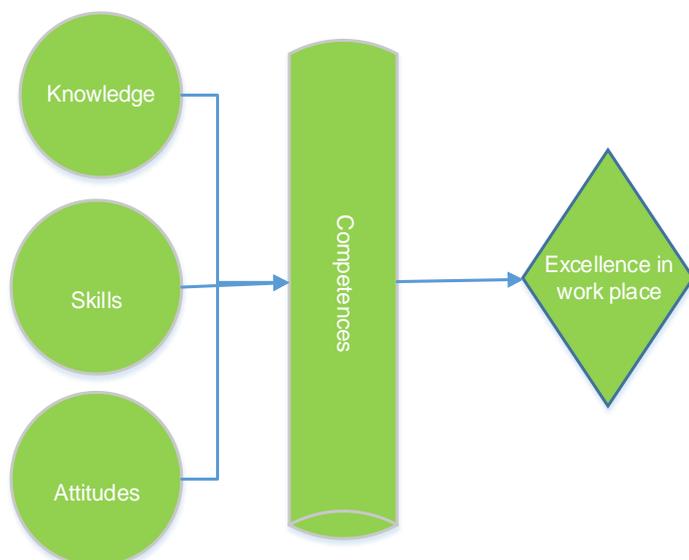
Table 2: Different perspectives of competences

Approach	Known as	Focus
The input oriented approach	The American Perspective.	Development of the individual's competences as professional characteristics of an individual
Output oriented	The British Perspective.	The need of the labour market.
Combines both the input and output approach into a holistic development of an individual.	-----	The development of a person's professional behaviour.

Source: adapted from Nederstigt, 2011

For the purposes of this research the output oriented definition is going to be use, Competence as cluster of knowledge, skills and attitudes that leads to excellence in the work place (SCIC, n.d and Grift, 2008 ) as showed in figure 6. The knowledge forms the baseline of information acquired through work and life experiences, learning situations and formal education. The skills are needed for effective performance, and are acquired through practice and experience. The attitudes are underlying characteristics which are deep and enduring parts of an individual expressed most of the time. SCIC, n.d).

Figure 6: The competence concept



The notion of competences put emphasis on knowing how rather than knowing that (Gib, 2000 cited in Kibikwa, 2006). Competences are wanted for organizational performance, however organizations are made up of persons who perform certain jobs or tasks. Therefore the basis of competencies lies in the abilities on people not only to do the job on their organizations but also to be aware of and to respond effectively to wider expectations (Kibikwa, 2006).

Source: adapted from Grift, 2008.

Today's industries are facing a challenge of succeeding in a very competitive world market, world of speedy technology development and improvements in communication and attempting to became more efficient and productive. These changes apparently create new list of competencies critical for employees. The narrow based skills required by simple, one task jobs of mass production of the industrial age are replaced by sophisticated and abstract

technology (Yildirim and Simsek, 2001). The urge for new types of flexible, skilled employees demands the development of competent graduates (Mulder, 2004). Moving away from the predominant theoretical focus, the development of students' skills and attitude in relation to theoretical knowledge should become the main objective of the education system (Nederstigt 2011).

Due to these challenges higher education institutions face a challenge to constantly examine the courses contents, strategies and implementations, as well to update course curricula and explore new areas to include in the whole curriculum. Higher education institutions needs rigorous programs integrating academic and practical subjects that meet the future needs of a the population by addressing workplace realities technology (Yildirim and Simsek, 2001).

The employers today demand a kind of worker with a broad set of working competencies, or at least a strong foundation in the basics that will facilitate leaning in the job (Carnevale, Grainer and Meltzer, 1990) .Deficits on many of competences demanded by employers, impede entry into productive and well-paid work, for those who are employed or even seeking for jobs.

These paper addresses competencies required in the professional field as well as the existent competencies in commercial agriculture curricula, they are: able to communicate interactively, able to show entrepreneurial understanding, able to advice in agriculture and extension work, able to innovate, able to network and able to manage a project and this competences are described below:

### **2.2.1. Able to communicate effectively.**

Communication is the exchange of information, facts, ideas, and meanings. The communication process is important for informing, coordinating and motivating people. Nevertheless good communication is not easy because it is hard to recognize one's own problem in communication (Quinn, Faerman, Thompson and McGrath, 2003).

People in organization have to communicate in order to develop goals, channel energy, and identify and solve problems. Learning to communicate effectively is vital to improving work unit and organizational effectiveness. Poor communications skills can significantly inhibit the workers' productivity and their ability to upgrade their skills (Fernandez-Stark, Bamber and Gereffi, 2012), and results in both interpersonal and organizational problems. When interpersonal problems arise, people begin to experience conflict, resist change, and avoid contact with others. Organizationally, poor communication often results in low morale and low productivity (Quinn et al., 2003).

Carnevale, et al., 1990 have stated that, communication skills are at the basis of getting and maintaining customers, pitching innovation, contributing to quality circles, solving conflict, and providing significant feedback. Samovar and Mill, 1998 as cited by Quinn, Faerman, Thompson, McGrath, and St. Clair 2007 found that, effective communication comprises two elements:

1. Individuals must be able to express themselves, they need to convey to others what they are feeling, what are they thinking, what are they necessities and so on.
2. Individuals must be good listeners. They must be open to truly hearing the thoughts and the ideas that others people are expressing.

Finally, Carnevale, et al., 1990 conclude that, communicate effectively is a key element of good relationship with costumers. Getting and keeping customers means that people from all areas of an enterprise, not just its designated sales and marketing department, must communicate effectively.

### **2.2.2. Able to show entrepreneurial understanding.**

The Oxford dictionary defines understand as “perceive the intended meaning of words, a language, or speaker)”. So an entrepreneurial understanding can be defined as perceive the intended meaning of entrepreneurship.

People who are able to start their own business and work themselves are called entrepreneurs, and they are often both owners and employees. They can recognize an opportunity to start a business that other people must not be noticed, and jump on it (Mariotti, 2007). They produce for the market and are determined and creative leader, always looking for opportunities to improve and expand they business (Kalan, 2012).Entrepreneurs create and manage a change, establish and manage business for the main purposes of profit and growth (Kirby, 2003)

An entrepreneur is passionate about growing his business and is constantly looking for new opportunities The entrepreneurs is characterized by innovative behaviour and will employ strategic management practices in a business (Kirby, 2003). By innovation entrepreneurs continually demonstrate the ability to seize opportunity. Innovations is the means by which entrepreneurs create new wealth producing resources and utilize existing resources to create additional wealth. By converting opportunities into marketable ideas, entrepreneurs become catalysts for change (Sexton and Raymond, 1996).

### **2.2.3. Able to advice on agriculture and extension work.**

As stated by Farrington, 1994, Extension conventionally comprises several of the following functions:

- ✚ Diagnosis of farmers' socio-economic and agro-ecological conditions and of their opportunities and constraints.
- ✚ Message transfer through direct contact between extension agent and farmer or indirect contact involving intermediaries such as 'contact farmers' or voluntary organizations; through training courses and through mass media. Messages may comprise advice, awareness creation, skill development and education.
- ✚ Feedback to researchers on farmers' reactions to new technology to refine future research agenda.
- ✚ Development of linkages with researchers, government planners, NGOs, farmers' organizations, banks, and the private commercial sector. In remote areas, extension agents have taken on a number of these functions directly.
- ✚ Monitoring of the extension system, and evaluation of its performance at farm level.

A significant part of agricultural extension aims to provide improved technical information to farmers for increasing their efficiency and productivity.

### **2.2.4. Able to innovate.**

Innovation is driven by the ability to see connections, to spot opportunities and to take advantages of them. Equally important is the ability to spot where and how new markets can be created and grown. Innovation matters but it does happen automatically. It is driven by entrepreneurship- a potent mixture of vision, passion, energy, enthusiasm, insight judgment and plain hard work which enables good ideas to become reality (Tidd and Bessanti, 2011).

Six principles of innovations have been stated by Kalan, 2012, they are:

1. Know what the innovation does and how it works.
2. Analyse the opportunity to see if people will be interested in using the innovation.
3. Effective innovations are simple and focus on a specific need or opportunity.
4. Effective innovations start small. Focus on a small, limited market, with a product requiring

5. Little money and few people to produce and sell it.
6. Aim at leading the market from the beginning. An innovation that aims at leading the market (e.g. dominating a small specialized market) is more likely to be successful.

Innovation does not necessarily imply the commercialization of only major advances on technological state of the art, but it includes also the utilization even small scale changes in technological know-how. (Tidd and Bessanti, 2011)

### **2.2.5. Able to network.**

Networking is important right across the innovation process. A network can be defined as a complex interconnected group or system, and involves using the arrangements to accomplish particular task (Tidd and Bessanti, 2011)

A network is a set of relationships. It contains a set of objects (in mathematical terms, nodes) and a mapping or description of relations between these objects (or nodes). The simplest network contains two objects (nodes 1 and 2) and one relationship linking them. Often, however, networks are more complex and the relationship between the nodes are multi-dimensional. Network approaches offer usable insights into the dynamics of relations in social systems (Sriwichailamphan, 2007).

### **2.2.6. Able to manage a project.**

A project can be defined as a group of people, usually from various fields of expertise, collaborating temporarily with the aim of reaching a predetermined goal within a budget (Grift, 2008), in this sense managing a project has the same meaning as managing team.

Project teams are one of the type of teams that have become necessity on the organizations that need to bring specialists from several different organizational areas to work more efficiently one a single time limited activity. They are seen as an ideal approach to deal with the needs to respond more quickly to changes in the turbulent business environment (Quinn et al., 2003)

Project management comprises a wide range of roles and responsibilities and this must be reflected in educational programs. However, the focus of most project management training, in the context of universities, has been on the technical skills deemed essential to achieve project success (Baroundi, 2007).

The definition of project management includes both projects that are undertaken within a work unit and those that require people to be brought together from across several work units. Further, while bringing people from different functional areas together makes good sense from a creativity perspective, it may also create priority conflicts if members of the project team are also involved in other work over which the project manager has not authority (Grift, 2008). Therefore is very important that a project manager to have good negotiation and conflict management skills.

Two key element s should be considered when manage a project

1. Understanding how the project is progressing
2. Decision making to get the project back on track.

### **2.2.7. Able to manage stress and time**

Lazarus, 1990 cited by Gillespie, Walsh, Winefield, Dua and Stough, 2010, defines stress as a complex, multivariate process, resulting from a broad system of variables involving inputs, outputs and the mediating activities of appraisal and coping, the stress process is dynamic,

and constantly changing as a result of the continual interplay between person and environment.

The issue of stress and stress management has become increasingly important for organizations and their managers. Beyond affecting their physical health stress can affect employee's ability and willingness to their jobs by reducing their cognitive abilities, level of energy and motivation as well as their ability to relate to their co-workers. The costs of individual stress to organizations can be measured in terms of increased absenteeism, turnover, accidents rates and low rates of performance (Quinn, et al., 2003)

Due to important impact of stress on individuals, physical, and mental health as well as on individual and organizational performance, it is important for the managers to be aware of how the work environment creates stress for individuals. (Quinn, et al., 2007)

Nowadays, time is on the cutting edge. The ways leading companies manage time-in production, in new product development and introduction, in sales and distribution-represent the most powerful new sources of competitive advantage (Stalk, n.d.)

Time management was conceptualized in terms of setting goals and priorities, the use of mechanics (like listing priorities), preference of an organized workplace, and the perceived control of time. Effective time management seemed to lower stress (Misra and McKean, 2000).

Managers more than other employees should be able to use their time efficiently, but they also should plan time for unscheduled encounters, they should focus on identifying priorities and concentrate in critical tasks than on mapping out each minute of a day (Quinn, et al., 2003).

### **2.2.8. Able to work, build and manage a team**

Organizations are build-up of people with different thoughts and working styles. Every time people work together, successful interaction depends upon effective interpersonal skills, focused negotiation, and a sense of teamwork (Carnevale, 1999).

Quinn et al., 2003, stated in their studies that a team is group with the following characteristics:

- ✚ A group committed to a common goal or purpose
- ✚ Members of the group have clear roles and responsibilities that are independent
- ✚ A group with a communication structure, that foster the sharing of information
- ✚ Team member committed to each other.

Nowadays the use of teams has become extremely common work design in all sorts of organizations. Stevens and Campion, 1994. Team-building is the deliberate process of facilitating the development of an effective and close group (Bloom, and Stevens, 2002). Quinn et all, 2007, asserts that one of the motives to have people working together in a team is to be able to draw on different knowledge, skill and abilities that people bring to the work place.

Carnevale, et al., 1990, conclude that, building and work in an operational team entails that individual members recognise and work through their differences instead of ignore and repress them or allow them to turn into conflict. Members should understand and accept the changing nature of their roles on the team task functions, group building and maintenance functions, and individual functions as well as understand how they suit into the organization.

### **2.2.9. Able to work productively**

Productivity is a key measure of individual, group, and organizational effectiveness. (Quinn et al., 2003). And yet productivity is of imperative endeavour, it is easy to evaluate according to

accounting and economic metrics for tangible assets like factories, while it present a challenge for human capital evaluation.

### **2.3. Knowledge**

In educational contexts, knowledge is frequent intend as embracing both set of ideas: the accumulated skill and lore concerning to technological control for the environment, and those intellectual arts and experiences whose value is intrinsic to themselves (Paechter and MacCormik, 1999).

The view of knowledge has important implication that those concerned with the curriculum cannot avoid. The process of knowledge construction for learners is of central importance, and viewing it as such a process of transformation both what we think can be achieved by way of knowledge ability and how we think that process should be supported (Paechter and MacCormik, 1999). The same authors add that, the higher value of some knowledge is institutionalised by the creation of schools colleges and universities to transmit it as the curriculum.

The fact that the curricula should make use of the combination of knowledge, skills and attitudes, does not implies that knowledge acquisition and testing are not allowed in the curricula. Knowledge acquisition should be an integral part of the curriculum plan (Wesselink, 2010).

### **2.4. Skills**

Skill is a property of a person: it is a person's ability to demonstrate a system and sequence of behaviour that are functionally related to attaining a performance goal (Boyatzis, 1982 cited by Assiter, 1995). A person uses a set of skills to perform a function effectively. To became competent at any skill, people need to understand the skill conceptually and behaviourally have opportunities to practice the skill; get feedback on how well they are performing in the skill and use the skill often enough that becomes integrated in their behavioural repertoire (Johnson and Johnson, 1994 cited by Robbins and Hunsaker, 2010)

Enterprising graduates would be able to use their skills in a range of situations irrespective of particular occupational role or functions within that role (Assiter, 1995)

Skill building trough cases, role plays, structured exercises, work simulations and the like, has become an accepted added dimension of many college and university courses in human behaviour (Robbins and Hunsaker, 2010).

For employer's skills such as Problem solving, Listening, negotiation, knowing how to learn, teamwork, leadership are viewed as essential. On this paper skills needed to better performance at work, were identified at the professional environment. They are: communication, problem solving, organizational, leadership, technical and analytical skills and they are described below:

#### **2.4.1. Communication skills**

Communication is the basis for all human interaction, and interpersonal relationships cannot exists without it. It is trough communication that members in relationships interact to exchange information and transmit meaning (Robbins and Hunsaker, 2010).

#### **2.4.2. Problem solving skills**

Problem refers to a question or issue that in uncertain and need so must be examined and solved (Jonassen. 2011). Problem solving skills comprise the ability to identify and define problems, create and apply solutions as well as track and assess results. Employers need

problem solving skills to overcome barriers that arise in new situations (Carnevale, et al., 1990).

### **2.4.3. Organizational and leadership skills**

Both organizational and leadership skills are fundamentals for success in workplace. Individuals who have these skills can assist employers building the conditions for being successful in the marketplace (Carnevale, et al., 1990).

Team leaders are described as "good at generating ideas", they spend as much time anticipating the future as they do managing the present they dedicate their time to thinking forward to, and talking to others about, their goal, for it is this that provides the team with its purpose and direction. Carnevale, et al, 1990. Leadership means that one person exerts influence on others, is the ability to influence individuals objectives towards the achievement of goals. (Robbins and Hunsaker, 2010)

### **2.4.4. Technical and analytical skills**

Technical and analytical skill implies an understanding and talent, on a specific kind of activity, particularly one that involves methods, processes, procedures or techniques. They involve specialized knowledge and analytical ability to use the tools and techniques of the specific subject (El-Sabaa, 2001).

## **2.5. Attitudes**

Attitudes are the core characteristics that are deep and enduring parts of a person expressed most of the time. They are one's personal style or personal effectiveness such as, attributes and habits. They are directly connected to behaviors that are requirements of a given job (SCIC, n.d)

## **2.6. Job Profiles**

Job profiles are used to describe a job structure and content (Wesselink, 2010). Job profiles provide management of sectorial organisations in the field of training and examination with a framework on which to base their programs and, in doing so, allow these organisations to better align training and testing programs with the learning needs within the profession hence job training profiles (Mulder, 2004)

## CHAPTER 3. METHODOLOGY

The method used for data collection and analyses are described in this chapter as well as the research area and the framework for analyses.

### 3.1. Study Area

As it states in (FAO, 2007), Mozambique lies along the south-eastern coast of Africa (figure 7) is extends for 2 500 km along the south-east coast of Africa. It shares land borders with Tanzania, Malawi, Zambia, Zimbabwe, South Africa and Swaziland. Mozambique's economy is agricultural based with this sector employing 83% of the population and accounting for about 80% of exports (Mafu, 2012). Agriculture is by far the single largest employment sector in Mozambique, employing around 80% of the labour force, though only contributing with 31% of GDP (Labour Market Profile 2012). Agriculture drives the Mozambican economy, and is a major source of livelihood in the country (World Bank, 2006 cited by (Mazvimavi, Minde, Manussa, Tshuma, and Murendo, 2011).

Figure 7: Mozambique Map



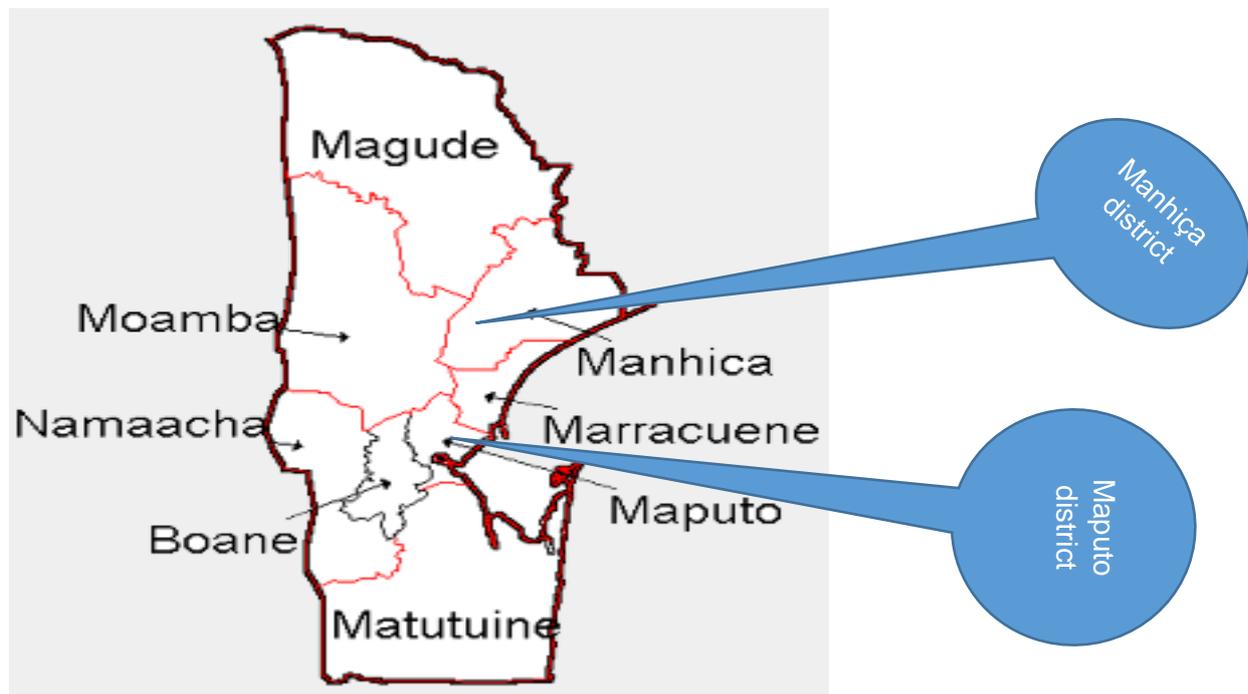
Source: FAO, 2007

The sample used in the study was drawn from two provinces in south of Mozambique: Maputo and Gaza provinces. The two provinces are vibrant with agriculture production, processing and marketing. Two districts (Manhiça, and Maputo) were selected in Maputo Province and other (Chókwe) in Gaza province, since those are the major employers for the agriculture sector in south of Mozambique.

### Maputo Description

Maputo (Figure, 8) is the capital of Mozambican and is situated in the south of the country. It has an area of 675 Km<sup>2</sup> and bit more than 1.3 million inhabitants. This is 20% of the country's urban population (UN-HABITAT, 2010)

Figure 8: Maputo Province Map



Source: world Bank, 2013.

### Manhiça description

Manhiça (figure 8) is situated in the North of Maputo Province at about 80 km of the Maputo city Agriculture is the largest sector employment, it employs .65% of the district Labour force (MAT, 2013).

### Chókwe description

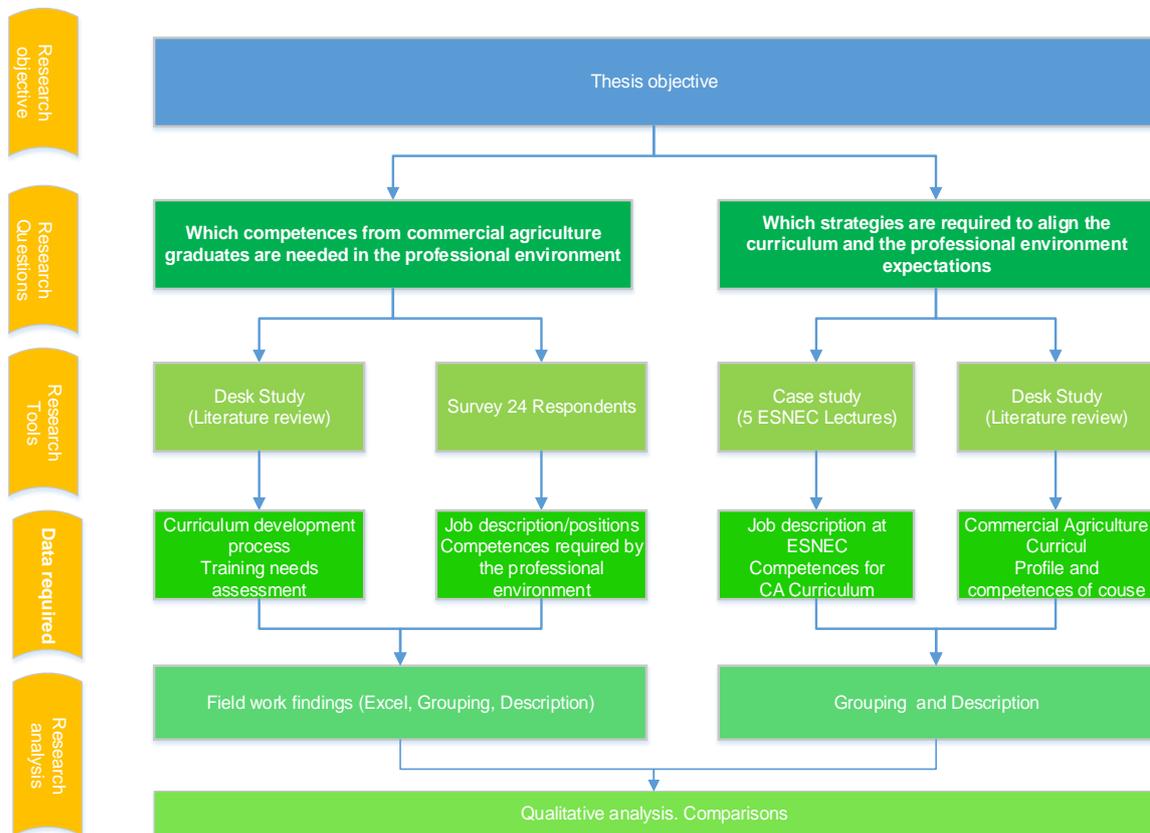
Chókwe is situated in the North of Gaza Province in south of Mozambique. It know in Mozambique as the Granary of the nation due to the optimal condition for agriculture. Indeed Agriculture is the most dominant activity and involves 80% of the district active Population (MAT, 2013).

## 3.2. Research Design

The research uses qualitative approach, both primary (survey and case study) and secondary research (literature review) were carried out to provide empirical materials for a comparative analysis of professional environment needs and Commercial agriculture curriculum. Data was collected from input suppliers, producers, processing companies as

well as from service providers in agribusiness sector. For the research question one interviews were administered to 24 key informants, a semi structured questionnaire (annex 2) and competencies interviews template was used to guide on the skills needed by the professional environment and for the research question 2 the interview was guided by a checklist (annex 3). The research framework in figure 7 shows how data were obtained and analysed.

Figure 9: Research framework



Source: Author

### 3.3. For research question one

#### Which competences from commercial agriculture graduates are needed in the professional environment?)

For gathering information this thesis uses, Literature review and survey (interview), this selection criteria was based on Erasmus, 1999, which suggests on his studies that various methods can be used to gather information for needs analysis purposes, among them are: survey, interviews, questionnaires, document analysis and observation.

First and foremost the relevant literature was reviewed in order to lay a foundation for this research (Oliver, 2008), this was done by going through journals, scientific books, reports of existing curriculum development methods, needs assessment, competences based education improvement strategies for curriculum, as well as other information relevant to the research.

### 3.3.1. Data collection

Primary data were gathered in survey which involved interviews to 24 key informants of selected agribusiness organizations (annex 4)

Semi-structured interviews, were conducted, with the objective of obtain detailed information on the competencies needed by the professional environment on a Commercial Agriculture graduate. The interviewees were representatives of ministries, Project coordinators, human resources managers as well as owners of Organizations (annex 4). They were selected by their own organization according the insight they had on the processes of human resources contract and assessment.

Prior to each interview a permission letter attached by the questionnaire were sent to the organization as well as an advance communication via telephone message and call were done with the respondents to request the interview as well as to ensure their availability for an interview appointment.

Before the interviews start, the purpose of the study was explained to each respondent. The interviews were conducted in both languages Portuguese or English depending on the language which the interviewee were feeling more comfortable to communicate. Open-ended questions were asked in fifty to sixty minutes of interview. Notes were taken meanwhile the information was recorded on a mobile phone

The interview used semi structured questionnaire designed mainly to get an understanding of two main issues:

- ✚ The job position that graduated students get on the professional field.
- ✚ The competences needed by the employees on a graduated students.

Secondary data were gathered from literature search on the topics (curriculum development, competences based curriculum, training needs assessment, job profiles and related topics), data were be sourced on books, internet browsing at Google, WUR library. The literature was carried out during all the thesis process (from proposal to submission).

### 3.3.2. Sampling procedures

To gain a broad understanding from different needs of potential employers, representations of all groups of actors along the agro food chains was selected. This selection covers chain positions that graduates students could get for the working environment, therefore, Producers, Processing, Trading and services providers, organization was selected both from private as well as Government organizations.

Two selection criteria were used in this thesis

1. From the data base of the national institute of statistic. the following criteria was used:
  - ✚ Organization related to agriculture.
  - ✚ The organization business should be under one of the categories, production, processing, finance and technical advice
  - ✚ Organization with more than 100 hectares production areas production area.
  - ✚ Processing unit who can employ more than 50 people and at least 5 agriculture graduates
  - ✚ Agriculture services providers who can employ at least 10 graduates.
2. Agribusiness Organizations who have relationships with ESNEC,

Those companies were considered by the author more likely to have reasonable idea on their requirements (in terms of competences in graduated students).

### **3.4. For research question two**

Which strategies are required to align the curriculum and the professional environment expectations?

#### **3.4.1. Data collection**

A case study involving five ESNEC lectures were used as a source of primary data. This case study were done will with the purpose of getting more information on the competencies and job profiles around the commercial agriculture and Agribusiness curricula

During the interview, a checklist were used, with the following topics:

- ✚ Job descriptions for each course
- ✚ Skills, Knowledge and Attitudes that students are training for.
- ✚ Possible gaps between curriculum and professional environment.

Secondary data were gathered from literature review (Courses documents) in order to establish the following:

- ✚ The curriculum from Commercial agriculture Course.
- ✚ What are the existent job profiles
- ✚ For what skills, knowledge and attitudes students have been trained for.

It included analysis of following documents:

- (a) Profile and Competencies of ESNEC graduates
- (b) Curriculum of Commercial Agriculture.
- (c) Eduardo Mondlane University curriculum framework.

#### **3.4.2. Sampling procedures**

Sampling for this case study was done intentionally since the respondents were chosen having on consideration the type of information the researcher wanted to get. The 5 respondents for the study were purposefully selected by the researcher because a side from being involved in the curriculum development process at ESNEC, they have insights to the research issues and they showed willingness to participate in the research. This selection criteria was based on the Oliver (2008) suggestions that in a purposive sample the research identifies certain respondents as being potentially able to provide significant data on the research subject. The table 3 shows breakdowns details from respondents at ESNEC.

Table 3: Breakdown details of responds at ESNEC

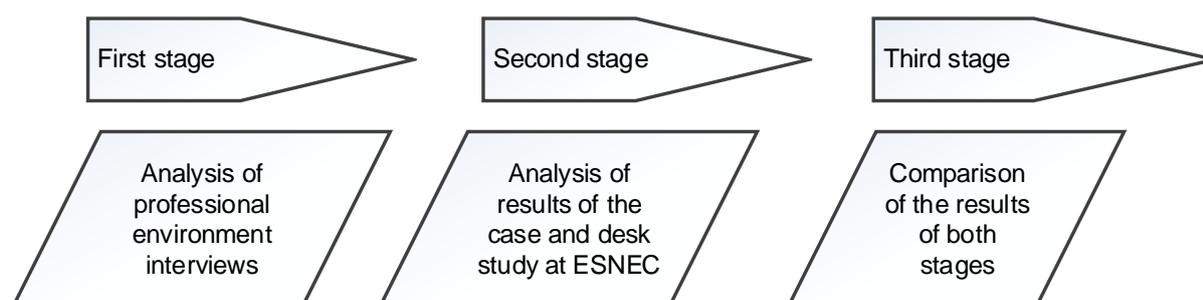
Name	Function	Topics on interview	Time used
Constâncio Machanguana	Research coordinator	Job Description and Students competences at commercial agriculture course, as well as possible gaps between commercial agriculture curriculum and professional environment needs.	Between 50 min to 60 min to each respondent.
Merry Mondlane	Academic coordinator		
Jeremias Jasse	Agribusiness and commercial agriculture courses coordinator.		
Efraime Gobeia	Commercial Agriculture lecture		
Paulo Muando	Commercial Agriculture lecture.		

Source: Author

### 3.5. Data Analysis

The data collected were subjected to three stages of analysis (figure 10). The first one comprised analysis of the interview carried out with the professional environment. The same process has been followed for the second stage but in this case results of the case study were analysed and lastly a comparison of the results of both stages by using Microsoft excel package. Pie charts were used to analyse and to show the degree of difference of both curricula at ESNEC and the needs from the professional environment. Results were supplemented with literature relevant to findings.

Figure 10: Stages of data analysis



Source: Author

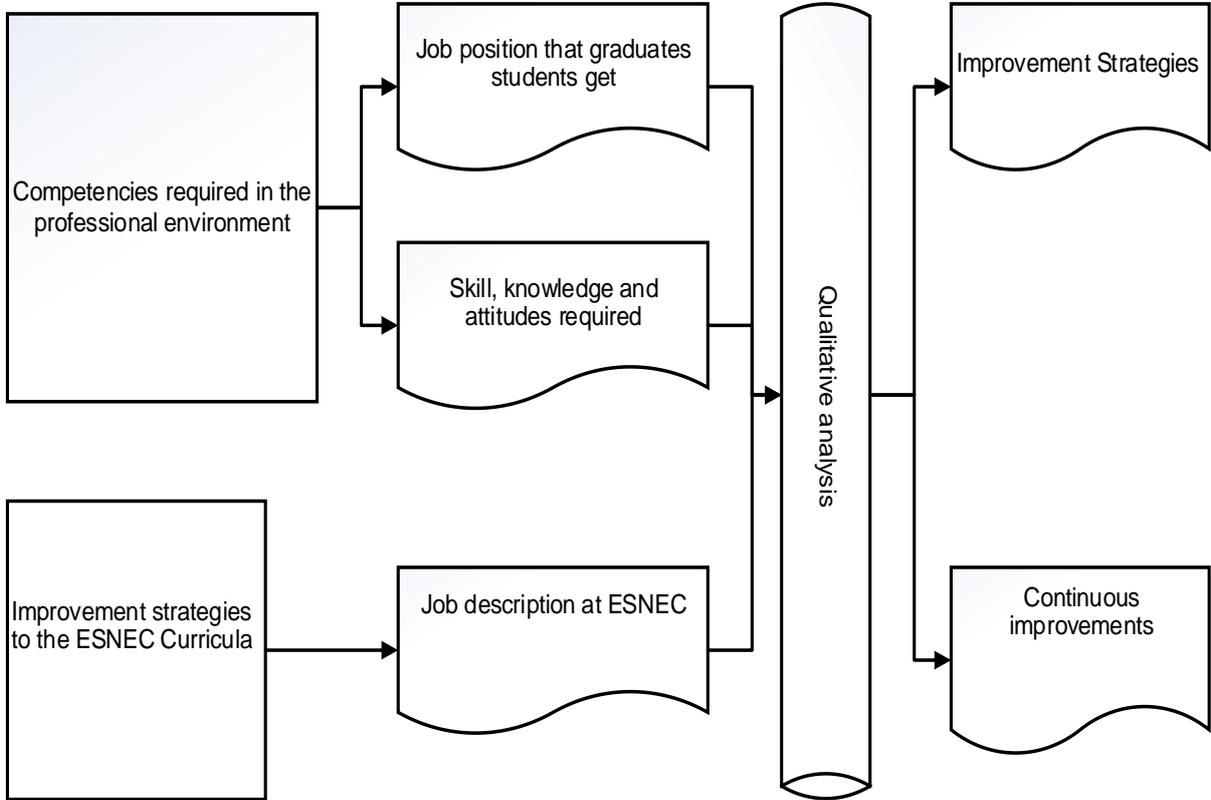
### 3.6. Questionnaire and Template

Depending of the language of the respondents the questionnaires were written in Portuguese either in English. The first six questions in the questionnaire asked for background information. Besides Name and position in the organization of the respondent were asked, followed by function of the organization in the chain and kind was asked. The remained part of the questionnaire was directed to questions about the competencies as explained in the literature review part of this thesis. A template (annex 5) with definition of competences (knowledge, attitudes and different groups of skills) was used during interview.

**3.7. Conceptual Framework**

The research is designed to answer at two main questions. Data obtained was analysed using the conceptual framework in Figure 11.

Figure 11: Conceptual framework



Source: Author

## CHAPTER 4. RESULTS AND DISCUSSION

In this chapter the findings of the field study are presented. They include Job positions that graduated students get in the professional environment, competencies (skills, Knowledge and attitudes) required in the field work as well as current job positions and competences at the Commercial agriculture curricula.

### 4.1. Job Positions

Job position assigned on the professional environment as well as job position which commercial agriculture students are trained for are described below.

#### 4.1.1. Job positions assigned in the professional Environment

Results from the survey in the professional environment provides evidences that managers, coordinator, supervisors, and assistant coordinators are the main job positions that the employees in the agribusiness sector get (figure 12). Managers and coordinators job positions requires a knowledge of each task associated with the duties included in supervisor and assistant supervisor roles.

Figure 12: Job Position assigned in the professional environment



Source: Field data

#### a) Managers

The manager is a person which main tasks are to manage the production, as well as the delivery process, monitor results of the activities performed by other employers, guide employees. In some extent he is seen as the owner or then representative of the owner he is managing all the activities necessary to bring a product from the production until the consumer. Project Managers are often sociable, tactful, friendly, understanding and helpful. The main focus should be leading the others around him to reach the goals of the organization.

Interviewees also highlighted that a potential manager requires concrete experience in the relevant field, as well as a complete combination of competencies including ability to communicate effectively, to work productively, to manage and organize a team, to manage time and stress and to manage projects.

Under the manger are the coordinator, the supervisor as well as the assistant supervisor.

#### **b) Coordinator**

As stressed by interviewees the roles of a coordinator are normally a subset of that of a Manager. The main obligation of a project is to keep the processes insight the organization running smoothly. Inside the organization activities coordinators are responsible for a certain project or coordinate activities in departments. Potential coordinator requires a combination of competencies including ability to communicate effectively, to work productively, to manage and organize a team, to manage time and stress, to manage projects and to work productively

#### **c) Supervisor**

The supervisor is responsible for a certain activities inside the organization, their role depends of the organization field of expertise. He can be production supervisor: who supervise the workers and ensure that the production goals are achieved in the field. It can be a processing unit supervisor who is responsible for the processes involved with the delivery of a product for a certain group of costumers, it can also be a services provider supervisor who can be responsible of extension services or credits provided for a specific group of farmers or a certain region. Besides that he should report for the coordinator or for the manger.

The combination of competencies required for this role are: Give technical advice in agriculture, communicate effectively, manage time and stress as well as manage and work in a team.

#### **d) Assistant supervisor**

As stressed by interviewees the roles of an assistant are normally a subset of that of a supervisor. The combination of competencies required for this role are: Give technical advice in agriculture, communicate effectively, and manage time and stress, as well as work in a team.

### **4.1.2. Job Position considered in the learning trajectory**

Results from desk and case study provide information that students are being training to the manager's positions figure 13.

Figure 13: Job Positions trained



Source: field data

## **a) Manager**

Results of field work shows that, the trained manager can act in all stages of the agriculture value chain, it can manage, production, the processing, extension as well as research services, as well as his own business. Managers are often dedicated, hard worker, innovative, confident, independent organized and communicative.

Interviewees also highlighted that a potential manager requires broad knowledge in relevant fields, in agriculture production, as well as a complete combination of competencies including ability to communicate effectively, to work productively and ability to manage a project.

## **4.2. Competences Required In the Professional Environment**

Interviewees from employers in Mozambique indicated that employees coming from agriculture universities does not adequately meet their requirements in terms of competencies required from them. They also stressed that competences in the field of agro financing, Marketing, entrepreneurship, project planning and management among others, would value quite more a graduated students. More specifically they require employees who are able to:

- ✚ Manage time and stress.
- ✚ Work, build and organize a team.
- ✚ Work productively.
- ✚ Manage projects and teams.
- ✚ Communicate effectively.
- ✚ Give technical advice in agriculture.

The competencies required in the professional environment grouped according with the stage of agro food chain they are required as showed in figure 13. And they are described below:

### **a) Manage time and stress**

Ability of managing time and stress was mentioned as a fundamental competence for employers, although the key informants mentioned that several employees lack this ability. Lack of ability for managing stress and time can affect the relation among workers as well the relation between the manager and his team member, those for people in managerial job positions. For those in referred position, it is important to use their time efficiently, and be prepared for some unexpected meeting or agenda. For the interviewees, a person who is able to manage stress is someone who can surely manage himself and probably a team.

- ✚ Knowledge associated: Time management
- ✚ Skills associated with this competence: Leadership, problem solving and organizational skills.
- ✚ Attitudes associated with this competence: organized, independent, objective.

### **b) Work , build and organize a team**

All the interviewed organizations are very concerned with team building and organization skills, they mention that is highly important. Organizations demand employees who can be able to work productively as a team, share and exchanging information essential for contributing for the effectiveness of the organization.

As the interviews mentioned this competence allow the employees to interact interactively with others team members.

- ✚ Knowledge required: People management, team work

- ✚ Skills associated with this competence: Technical, problem solving, communication and team building.
- ✚ Attitudes associated with this competence: A person able to build and organize a team is someone who is useful, dedicated, open- minded, flexible, helpful, trustable, and supportive.

### c) Work productively

This competence was also mentioned by all respondents and also as fundamental for all job positions described above in this thesis. The ability of work productively can improve de quality of the product, reduce de delays the customer rejections as well as contribute to organizational effectiveness.

- ✚ Knowledge required: Agriculture and organizational field of expertise
- ✚ Skills associated with this competence: Technical, analytical, organizational as well as communication skills.
- ✚ Attitudes associated with this competence: hard worker, objective and confident.

### d) Manage projects and teams

A project manager should network with people inside and outside the organization. This relationships requires good capacity to adapt and to deal with people. He should be a competent leader, and a person who can apply efficiently the knowledge acquired during previous work experiences as well as during the studies.

- ✚ Skills associated with this competence: Problem solving, organizational, technical, and analytical, communication and leadership skills.
- ✚ Attitudes associated with this competence: Accurate, precise, diplomatic, discreet, communicative, objective, confident, independent.
- ✚ Knowledge required: A manager is someone who should have deep knowledge related with his area of management therefore the knowledge required for this role are described in figure 15.

### e) Communicate effectively

- ✚ Skills associated with this competence: Communication and Leadership skills.
- ✚ Attitudes associated with this competence: Accurate, precise, diplomatic, discreet, and communicative.
- ✚ Knowledge associated: Communication and languages.

### f) Give technical advice in agriculture.

The ability of advising out growers, farmers as well as others actors in the chain was mention by those actors on supporting services as well as for those on production side.

- ✚ Skills associated with this competence: Communication, problem solving, technical, analytical, communication and leadership skills.
- ✚ Attitudes associated with this competence: Communicative, diplomatic, discreet, open minded.

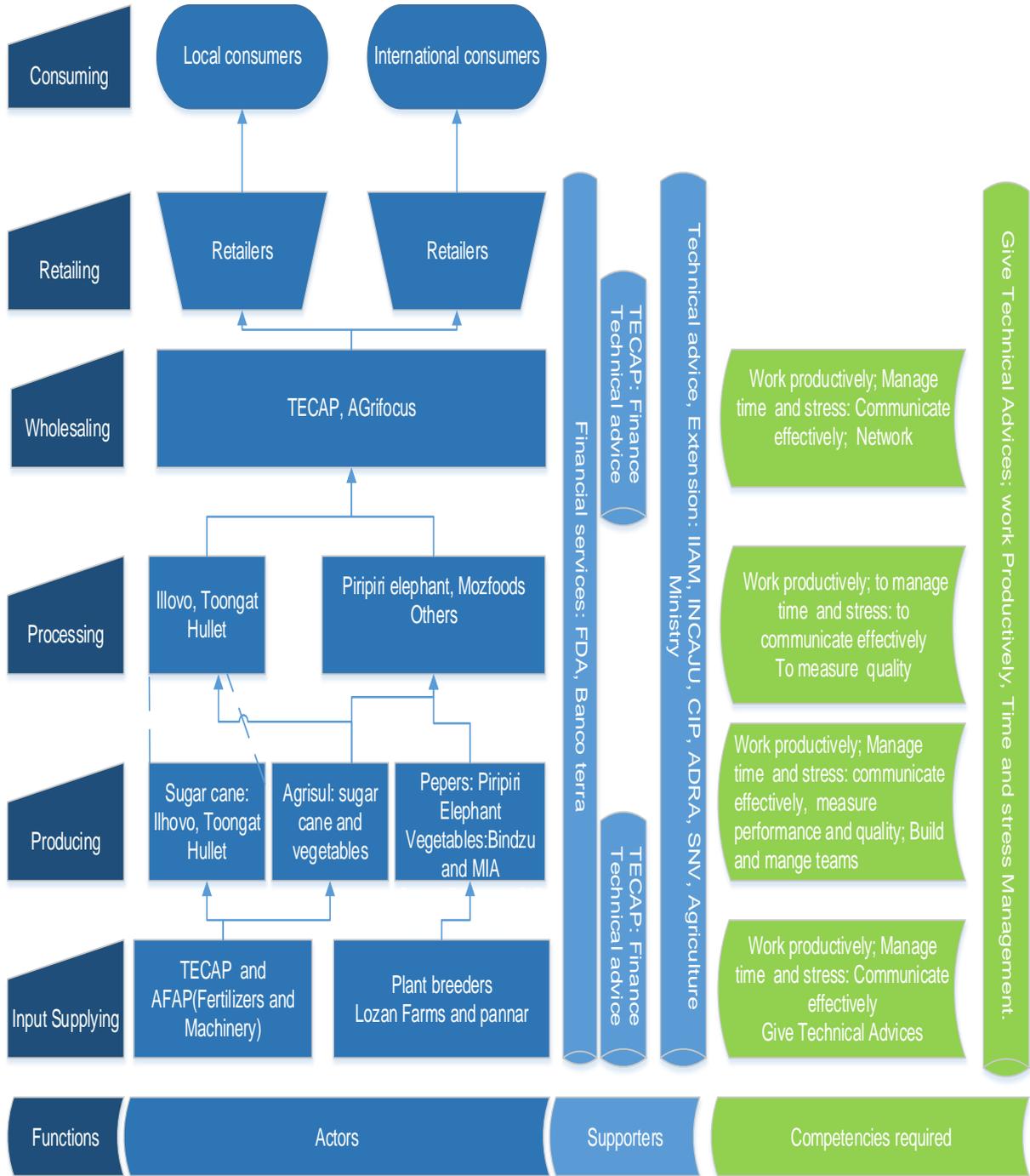
The skills knowledge and attitudes required are indicated in details below:

#### 4.2.1. Skills required

It was mentioned by several key informants that the new entrants in the labour market come with vast scientific knowledge, they know about formulations and about several theoretical concepts behind a problem or a situation, but the most struggling aspects is that they lack

practical skills to solve field problem, since they show difficulties in transforming these knowledge into practice.

Figure 14: Competences required in the professional environment



Source: Field data.

The organizations interviewed also mentioned that what they need in terms of human resources is people with Commercial, entrepreneurial and managerial skills and somewhat the skills which are pointed below:

- ✚ Communication skills
- ✚ Leadership skills
- ✚ Problems solving skills
- ✚ Organizational Skills
- ✚ Technical and Analytical skills

#### **a) Communication skills**

The ability of communicate with each other, provides clear explanations to the employees, as well as the suppliers and the organizations manager is a skill in higher demand in professional field. People are normally dealing with other people but several times the employee's shows difficulties in expressing themselves clearly and to present results and reports of some tasks that they have been allocated to perform.

#### **b) Leadership skills**

The new entrants found difficult to coach or instruct other workers under their supervision in terms of work that need to be accomplish, as well as provide information and explanations of procedures to workers.

#### **c) Problems solving skills**

Was other aspect addressed by several interviews, when these employers a facing with a situation which needs immediate solution, several times they are unable to give a solution with local resources, they can even have or show a broad theoretical knowledge in that aspect, but when it comes to solve in practical situation, they are lack capacity to implement appropriate solutions.

#### **d) Organizational Skills**

Regard to the current job requirements, Organizational skills are something missing, as was mentioned by several interview, for jobs in the production part, several times the new entrants in the labour market should be assigned a supervisor, because they lack ability of plan large volume of works, which is required by people in the production to meet the deadlines.

#### **e) Technical and Analytical skills**

Many employees at the first shows ability to use electronic equipment's and programs such, word and excel, but when it comes to use other software as GIS systems, the employers should invest in extra trainings in order to help them to input and update the information on computer using various software, so in these case it will be grateful and less costly for employers to employ people who really have technical skills.

Employers complained that the lack of analytical and technical skills, results in expensive errors for the organizations, at production as well as at processing stages.

The Team working skills was also mentioned in the production side as very important to achieve organizational goals, by maintaining positive relationship among employees.

### **4.2.2. Attitudes required**

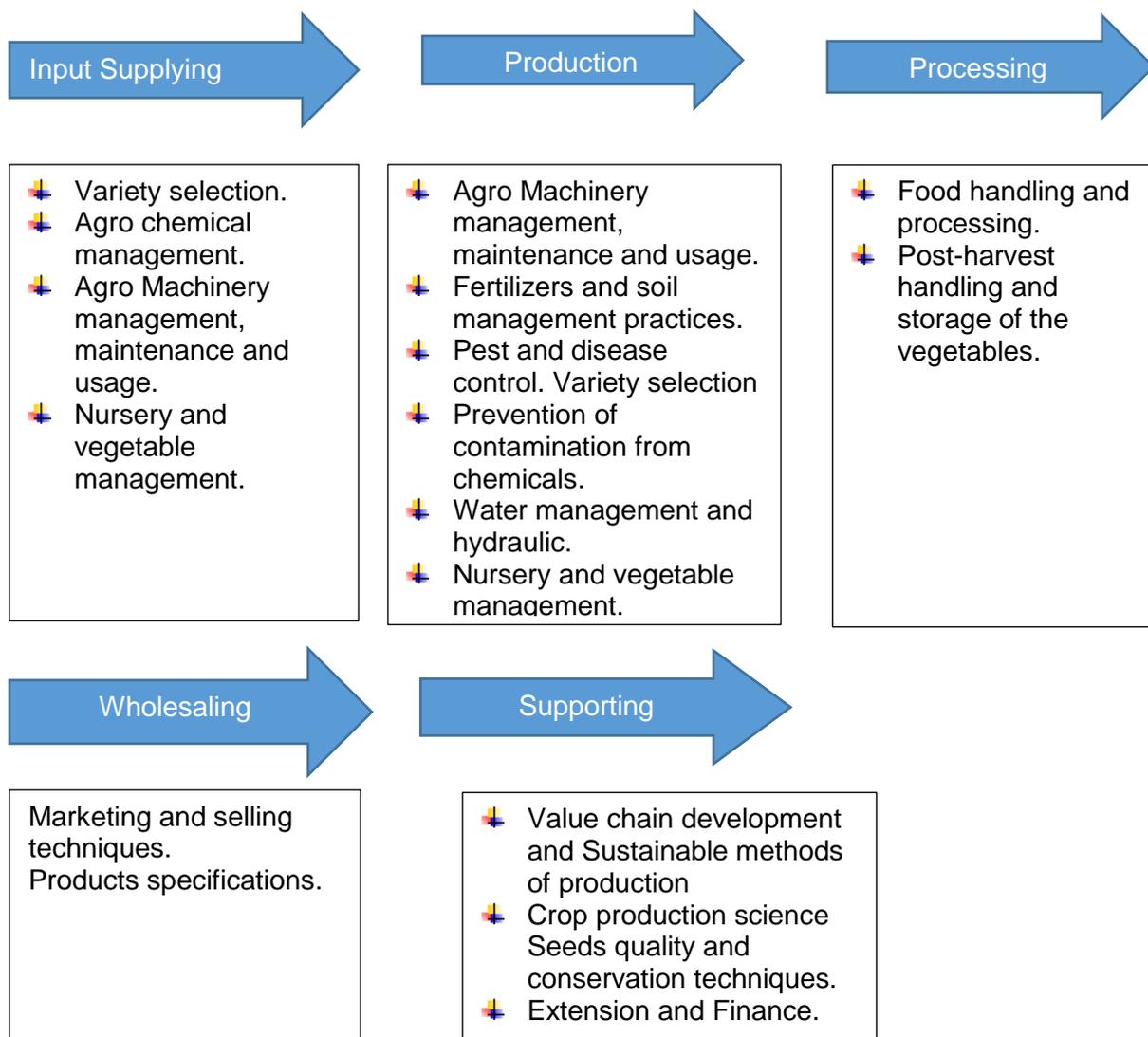
From employees attitudes is somehow difficult to perceive, but they found very important to an employee to be honest, assertive, confident opinionative, objective, open-minded,

Confident, shows self-initiative, independent, hard worker, organized, useful, dedicated, flexible, helpful, trustable and communicative.

### 4.2.3. Knowledge requirements

As was stated in paragraphs above when graduates are employed in the labour market, they come with vast scientific knowledge, they may lack some specific knowledge in the subject concerned with the organization which they are employed. However the key respondents stressed that graduates students should present other languages knowledge specifically English, since the organizations are expanded their business to be more global is quite important that their employees have ability to communicate in English, Value chain development and knowledge and agriculture science and system Quality control and management, Computer usage, software packages and databases, was aspects stressed by all key respondents. More specifically, respondents point substantial knowledge in the subjects mentioned in figure 15.

Figure 15: Knowledge requirements in the professional environment



Source: field data

### 4.3. Competences in the Learning Trajectory

It was also found that the commercial agriculture graduates should be able to apply all the theoretical concepts as well as the production techniques acquired in the learning trajectory. Therefore the competences which commercial agriculture students are trained for are, being able to:

- + Implement new production techniques
- + Communicate interactively
- + Network and with the actors in the agriculture value chain in both local and international market.
- + Manage project
- + Design, implement and monitors agriculture business plans.
- + Run and start a business,
- + Advice in agriculture and extension work.
- + Innovate
- + Show entrepreneurial understanding

#### a) Implement new production techniques

- + Skills related: Production, technical and analytical skills
- + Knowledge related: Productions systems, agriculture science
- + Attitudes related: Innovative

#### b) Communicate interactively.

This competence is related with the ability to exchange information, communicate arguments, and analyses appropriately and consistently, orally and in writing to different groups of audiences.

- + Skills related: Communication skills
- + Knowledge related: Productions systems, agriculture science
- + Attitudes related: communicative, open minded

#### c) Manage project

Through training students are enabled to manage projects

- + Skills related: Management, Communications, technical and analytical.
- + Knowledge related: Productions systems, agriculture science.
- + Attitudes related: leadership, organized, objective, and confident.

#### d) Network and with the actors in the agriculture value chain in both local and international market.

- + Skills related: Communication and analytical skills.
- + Knowledge related: Productions systems, agriculture science.
- + Attitudes related: Not described on the existing curriculum.

#### e) Design, implement and monitors agriculture business plans.

- + Skills related: Production, technical and analytical skills
- + Knowledge related: Productions systems, agriculture science, and agro business.
- + Attitudes related: innovative.

#### f) Run and start a business

- ✚ Skills related: communication, leadership technical and analytical skills
- ✚ Knowledge related: Productions systems, agriculture science
- ✚ Attitudes related: Innovative.

#### g) Advice in agriculture and extension work.

- ✚ Skills related: Communication, problem solving and analytical skills.
- ✚ Knowledge related: Productions systems, agriculture science
- ✚ Attitudes related: Not described on the existing curricula.

#### h) Innovate

The innovations are integrated in production, processing and service providers, It determines the ability of the future graduated student to produce, customize services, create new varieties, new system of service provide among others in an efficient and qualitative manner.

- ✚ Skills related: Production, technical and analytical skills
- ✚ Knowledge related: Productions systems, agriculture science.
- ✚ Attitudes related: Innovative.

#### i) Show entrepreneurial understanding

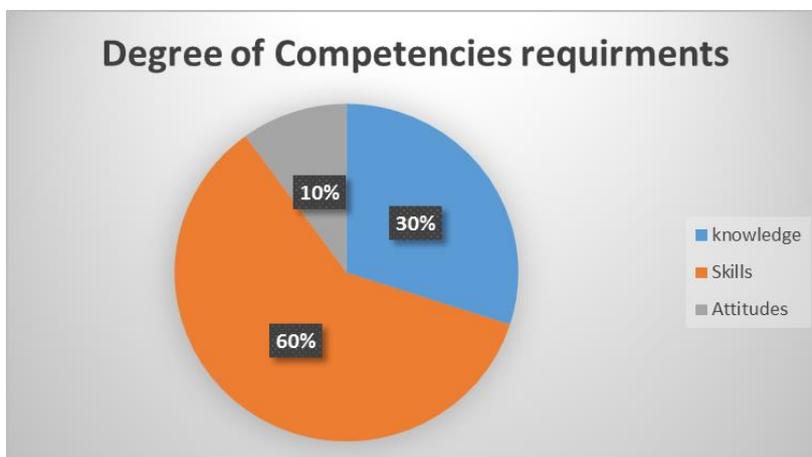
Skills related: Technical, communication, analytical and problem solving  
Knowledge related: Entrepreneurship  
Attitudes related: innovative.

### 4.4. Differences between the CA Curricula and the PE Expectations

Figure 13 shows that Commercial Agriculture students are trained for manager's role (100%) however at professional field four job positions are assigned to students as showed in figure 12. Indeed at the professional field only 17 % of the graduated students are employed for the manager position.

For the professional environment the most important is that an employee should able to apply the knowledge and complete tasks (figure, 16).

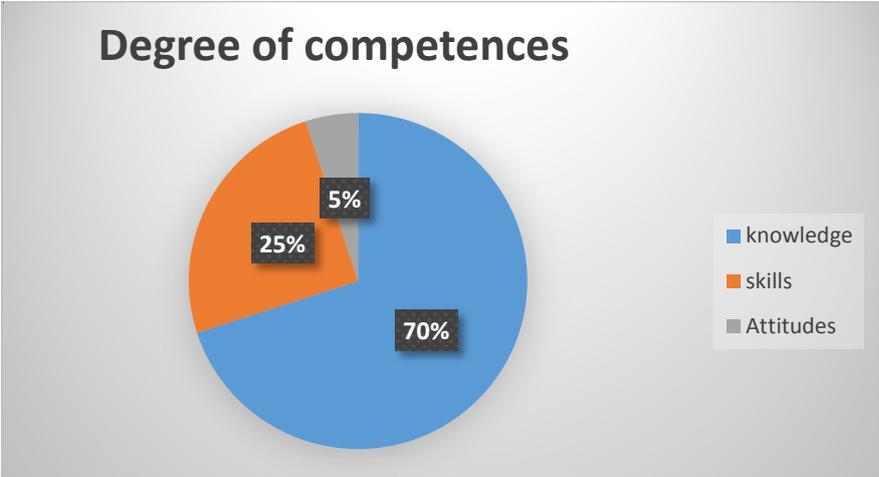
Figure 16: Degree of competences requirement by the PE



Source: field data

On the other hand ESNEC is focus equip students with knowledge, the ability of apply the knowledge acquired is in certain extent not given too much attention, as the figure 17 shows.

Figure 17: Degree of competencies in the learning trajectory



Source: Filed data

As the table 4 shows, some differences can be notice between the ESNEC curricula and the professional field expectations. The ability to communicate interactively as well as the ability to manage a project are the two common competences that both have.

Table 4: Competences required by both the professional field and ESNEC

Competencies required by the professional field	Competencies considered in the learning trajectory
Ability of manage time and stress	Ability to implement new production technics
Ability to build and organize and manage team	Ability to show entrepreneurial understanding
Ability to work productively	Ability to design, implement and monitors agriculture business plan.
Ability to communicate effectively	Ability to communicate interactively
Ability to manage project	Ability to manage a project
Ability to give technical advice	Ability to advice in agriculture in extension work
	Ability to network and ability to innovate
	Ability to run and manage a business

Source: field data

## **CHAPTER 5. DISCUSSION**

This chapter addresses the discussion of the results of the field work and the desk study.

### **5.1. Job Positions**

Figure 13 shows that Commercial Agriculture students are trained for manager's role (100%) however at professional field graduated students are assigned to be coordinator, assistant supervisor, and supervisor and only a small percentage is employed to the managerial position.

There is a slightly agreement in what makes an effective manager for both, employers and ESNEC. First, both seem to agree on the importance of the combinations of the competences ability to communicate effectively and ability to manage projects as well as a certain number of skills, knowledge and attitudes which includes communication, leadership organizational and problem solving skill, knowledge in agriculture systems production and personal attributes such as: honest, objective, confident, independent, organized and communicative. Indeed, Peters and waterman 1982 cited by fisher 2010, consider that it is behaviours and competences that make an effective manager. They suggest that an effective manager needs to be able to communicate well, inspire others, lead their people and show empathy.

On the other hand a disagreement can be noticed between both, employers state that ability to manage time and stress and to manage team are also fundamental to an effective manager, which is not considered in commercial agriculture curricula. This situation is confirmed in a study carried by Baroundi, 2008, which emphasises that most employers today expect workers to demonstrate and excel in many competences such as teamwork and group development and management. There are eager to explore the vital competences obtained during the learning trajectory rather than just a degree specific knowledge. In addition the same author suggests that being a manager demands more than just technical competence and involves the ability to manage a team.

### **5.2. Competences needed in the Professional Environment**

The results of this study shows that the commercial agriculture curriculum does not meet the needs of the professional environment. The curriculum appear to become outdated

Abilities to manage time and stress, to build and organize a team, to work productively, to communicate effectively, to manage project and teams and to give technical advices in agriculture, were identified by employers as competences on critical needs. Witkin (1984) suggested that critical needs area should be given priority for curriculum development. ESNEC staff interviewed also stated that even though some of these competencies are not included on the curriculum they are important to be addressed.

Ability of communicate effectively was stressed by all interviews as a determinant for maintaining the business and as important for all employees indeed, Carnevale, et al., 1990 also argument that communicate effectively is a key element of good relationship with costumers, getting and keeping customers means that people from all areas of an enterprise, not just its designated sales and marketing department, must communicate effectively.

Ability to build and work in a team was also mentioned as an essential competence an employee must have. Work productively as a team, share and exchanging information is essential for contributing for the effectiveness of the organization, as Stevens and Campion, 1994 stated in their studies, the use of teams has become extremely common work design in all sorts of organizations. Carnevale et al., 1990 add that employees also need competencies

that enable them to interact actively with other team members, effective interaction imply knowing how to influence others inside the organization.

Although the ability to manage a project was found as a common competence for both, employers and commercial agriculture curricula, they diverge on what skills knowledge and attitudes, the ability to manage a project should be built on. For the professional environment a project manager should possess problem solving, technical, organizational, analytical, communication and leadership skills, associated with the knowledge on the project subject. Petersen, 1991, have identified important skills for a project manager he divide his role into three categories (technician, manager and human) within a team. The technical aspect is fundamental, the manager must have theoretical and practical knowledge of project-management techniques. He must be a competent organizer and a dynamic leader, and have exceptional decision-making skills, related to the managerial aspect. He must be able to apply basic knowledge of various subsystems, include the ability to apply knowledge in a given field, and lastly the human relationships skills involve the ability to communicate efficiently and to maintain a harmonious working group.

On the other in academic institutions the development of project managers has followed quite linear approach emphasizing the development and transfer of know what. They teaches students to think, feel, and perform as instructed instead of preparing them to deal with unexpected difficulties or unique situations in the work field (Thomas and Mengel, 2008). The focus of most project management training, in the context of universities, has been on the technical skills believed essential to achieve project success (Baroundi, 2007).

Inability to manage stress influences negatively the worker performance not only on professional but also in their personal lives. As stated by Gillespie, et al., 2010, stress have negatives influences on employee's job performance, interpersonal work relations, their commitment to the employers as well as, on their extra-role performance. At a personal level stress resulted in a variety of physical and psychological health problems, and strained family and personal relations. Manage time and stress form a subtle undercurrent that reaches into every aspect of an employer's organization. Therefore, it is essential for every employers, from the new entrants through the experienced workers (Carnevale, et al., 1990).

### **5.3. Differences between the CA curricula and the PE expectations**

It seem that ESNEC curriculum is more emphasizes on knowledge while the Professional environment wants skills. indeed, it was mentioned by several key informants that the new entrants in the labour market come with vast scientific knowledge, they know several theoretical concepts behind a problem, but the most struggling aspects is that they lack practical skills to solve the problems, they would suggest to universities to emphasises more in the learning trajectory skills rather than Knowledge, However ESNEC lectures stressed that knowledge is the basis of the entire learning process, and influence in future the ability of the graduated student learn in the professional field, they also suggested that rather than emphasises more the skills employers want they would integrate both in the learning trajectory. This is in line with the ideas Carnevale, et all., 1990 which stressed that knowledge eventually translates into efficient production, improvements in quality, and new applications for products or services, and Wesselink, 2010 which in turn add that the fact that the curricula should make use of the combination of knowledge, skills and attitudes, does not implies that knowledge acquisition and testing are not allowed in the curricula. Knowledge acquisition should be an integral part of the curriculum plan.

Comparison between figure 16 and 17 shows that there is a difference between employer's expectations and the commercial agriculture curricula. Recent critiques of education question the capacity of current education offerings to address a more complex world, the tie between the topics taught and the competencies required and the need to focus on the practice of the

contents rather than the tools and techniques of contents .Clearly, there appears to be a gap between what education providers are offering and what is needed to deal with organizations in today's environment (Thomas and Mengel, 2008).

## **CHAPTER 6. CONCLUSIONS AND RECOMMENDATIONS**

This chapter concludes the research study as well as propose recommendations to the curriculum Development.

### **6.1. Conclusions**

It was also found that a gap exists between what ESNEC is offering and what is needed in the professional environment.

Commercial Agriculture students are being trained to managerial roles however they are assigned to perform managerial, coordinator, assistant supervisor and supervisor roles. at the professional environment.

Commercial agriculture curricula does not adequately meet the requirements in terms of competences. The competences that the professional environment demands are: ability to manage time and stress, ability to build and organize a team, ability to work productively, ability to communicate effectively, ability to manage projects and teams as well as ability to give technical advice in agriculture. These competencies were identified as critical level need and often lacking, they should be given priority for curriculum development.

The key findings also reveal that, Communication, Leadership. Problem solving, organizational, technical and analytical skills are fundamental for good performance at workplace. Even though attitudes are not given so much attention in the professional field, dedicated, open- minded, flexible, helpful, trustable, and supportive. And someone who shoes self-initiative.

The professional environment is demanding the ability of employers to apply knowledge rather than the ability to show this knowledge on the other hand the Commercial agriculture curricula emphasises more the knowledge component.

## 6.2. Recommendations

Being a manager as viewed by the professional environment requires range of skills, knowledge and attitudes as well as experience on the organization referred field. This must be reflected in commercial agriculture curriculum. As suggested by Pettersen, 1991, wider management skills: planning, organization, decision making, team supervision , human aspects and a certain number of attitudes, among which analytical ability, creativity, vivacity, flexibility, the ability to adapt, stability, energy and persistence, must be included in a manager training.

Considering the challenges pointed by the professional environment it is indeed recommendable that human and practical aspects should be considered in the learning trajectory. Knowledge on their own does not make an effective employees specific attitudes and skills should be considered in the learning trajectory.

Students should be more exposed to the work environment during the learning trajectory so that they can be acquainted to the professional field, the internship could be used as tool in these process.

The Commercial curriculum allow 3 internships during the all leaning trajectory divided as follow:

- ✚ 3 months as optional exit qualification.
- ✚ 15 day in July for the second year students.
- ✚ 15 day in January for the third year students.

A rearrangement on the internship process is suggested in order to better equip students with practices so this would be as stated in table 4.

Table 5: Proposed plan for internships

Semester	Period	Subject
3	15 days	AJUS
4	15 days	AJAS
5	45 days	Agriculture practices 3
6	45 days	Agriculture practices 5
8	90	Thesis

Source: Author

The competences required by the professional environment should be included in the curriculum. Trainings and guest lectures must also be considered in order to enhance the abilities of students to perform the required competencies. The proposed plan for the recommended trainings and guest lectures is showed in table 6.

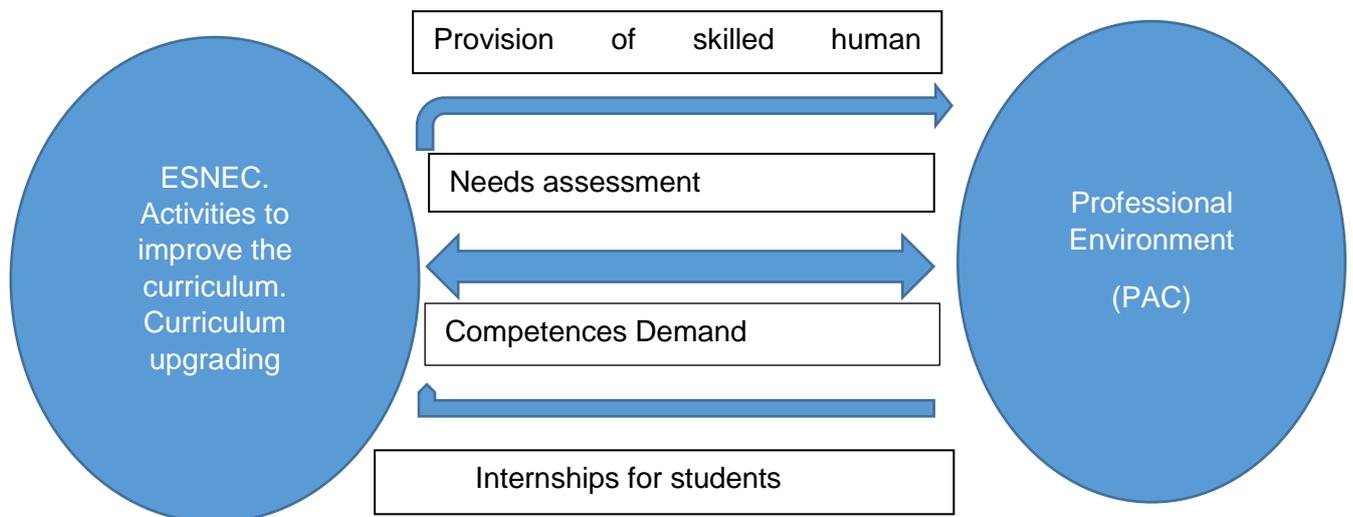
Table 6: proposed plan for enhancing competencies required

Competences	How to introduce
Manage time and stress.	One week training for semester in a period of 3 semester's s on time and stress management. Organizing guest lectures and workshops to time and stress management. Deadlines on assignments submissions
Work, build and organize a team.	A much more emphasizes should be given tom group work. Each group member should have a role and should be accessed for the role he plays in the group. At least three trainings on team work should be introduced in the curriculum
Manage projects and teams.	How to manage people should be included as a content in project management subject. At least one Leadership and project management training should be considered
Communicate effectively	Communication trainings/ Leadership training
Give technical advice in agriculture	Through the subject agriculture practices, students should work with the local communities (small and medium farmers), diagnosing existing problems and giving technical advice to farmers with the guidance of the lecture. On the six and seven semester they should provide this technical advice for big farmers.

Source: Author

Efforts should be done to include the organizations interviewed in this research as part of the professional advisor committee which is being created at ESNEC. This PAC should be made up of rotating groups, composed by entrepreneurs, governments as well as private organizations in the agriculture sector. The proposed relationship between ESNEC and the PAC is showed in figure 17. Since the challenges for the employers also includes inexistence of experience, this PAC could be used as a mean to provide internships for students.

Figure 18: Proposed relationship between ESNEC and Professional environment



Source: Author

### 6.2.1. Continuous improvement

A competence based approach to curriculum development requires developing a focus on continuous improvement (Wolf, 2007). In order to ensure that the curricula is will not be outdated, it is recommended to evaluate continually that the stakeholder's needs are being included in the curriculum. This continuous improvement plan can be introduced by following the recommendations in figure 18 and table 6.

Before applying the continuous improvement cycle the need for curriculum upgrading should be recognized, this should be followed for the use of the plan-do-check and act cycle.

#### Plan the Research

- ✚ First the sample should be selected (recommendable to use the organizations selected for this research as well organization who would engage in future relationships with ESNEC).
- ✚ A maximum of fifty organizations is recommended.
- ✚ Since ESNEC is a service provider for several chains, different chains commodities as well as functions should be selected.
- ✚ After having the sample the questionnaires as well as the methodology for gathering data should be selected (recommendable the use of interviews).

#### Do the research

- ✚ At this stage what have been planned should be carried ought. The research should be done with the use of the selected methodology.
- ✚ It is recommendable to record the information gathered.

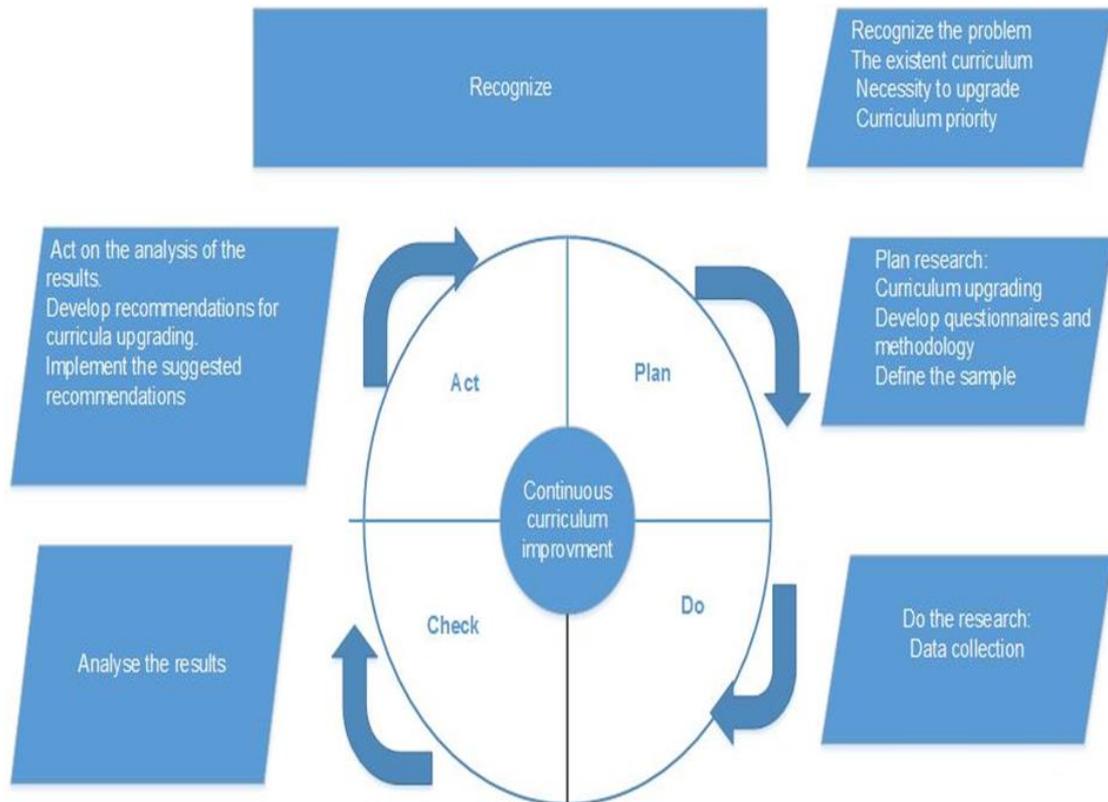
#### Check the results

- ✚ On this stage the results should be analysed and summarized.

## Act on the results

- ✚ The last stage ,were recommendations for curriculum upgrading should be done and implemented

Figure 19: Plan for continuous curriculum improvement at ESNEC



Source: adapted from *Source: Adapted from VoE, 2009*

The use of a framework for continual curriculum assessment would an opportunity for ESNEC to collaboratively discuss and propose changes to the curriculum based on data from the sources indicated in the table 7. This framework should be applied over a period of 3 years.

Table 7: Framework for continuous curriculum assessment

Objective	Stakeholders	Timeline	Data collection	Data to collect
To identify professional environment needs and emerging trends on the market for the existent curricula	Employers: Representatives from the PAC. Entrepreneurs. Private organizations. Government. NGOs.	As suggested by Winter 2012, should be once in three year period.	Survey (in-depth interview for the employer's representatives).  Literature review	Professional environment needs in terms of knowledge, skills and attitudes.  Emerging trends on existing curricula.
To assess the level of alignment between the ESNEC curricula and the Professional Environment needs	ESNEC staff	Three years period.	Literature Review  Focus group discussion/ Case study.	Curricula strengths and weakness.  Knowledge skills and attitudes considered in learning trajectory.
To identify graduated students input and perspectives related to new curriculum	Graduated students already working (employed or self-employed) trough ALUMNI.	Three years period.	Individual Interviews or if its possible focus group discussion.	Expectations of graduates; recommended Program changes. Skills knowledge and attitude lacking when they perform a job.

Source: Adapted from Kenny and Desmam, n.d

### 6.2.2. Recommendations for further research

- ✚ Similar research should be undertaken in one year period in order to include graduated students perceptions, in term of skills they thing would better equip them to serve the professional environment.
- ✚ Additional research needs to be conducted in the areas of Agribusiness, Finance, Management and Leadership and Trading, using the same methodology, however I would suggest to select also graduated students to make part of the sample.
- ✚ Further research should be done addressing how contents in Commercial agriculture classroom are being taught rather than the content that is being taught.

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## **8. ANNEXES**

### **Annex 1: Conclusions from stakeholder interviews**

#### **Skills, attitudes, knowledge needed in the sector**

Skills & knowledge:

1. Bookkeeping, accountancy, financial management, stocktaking
2. marketing, sales, contract negotiation, linking with processors
3. logistics (stocking, transport, storage)
4. business plan development & access to finance
5. Good agricultural practises
6. value chain analyses/ development
7. practical experience with irrigation
8. how to deal with corruption

Attitudes:

1. Must like to work in the field with farmers
2. No arrogance/ respect for small farmers
3. motivated
4. professional
5. Ethics

#### **Typical jobs for graduates**

Financial managers, accountants, business plan developers, extension workers, agronomists, marketing & sales experts

#### **Opportunities for short practical courses for companies (business opportunity for incubator)**

Stock keeping, financial management bookkeeping, negotiation, marketing, market analyses, new agricultural techniques

#### **Networks**

- ✚ Important networks: IPEX, IIAM, CEPAGRI, UNAC; need to integrate those in the ESNEC network
- ✚ What is missing is a vertical network, that contains actors from different levels in the value chain
- ✚ Participants enjoy sharing experiences with colleagues and learning from others
- ✚ Participants want to connect to producers or processors; organizations from other levels in the chain

#### **Opportunities for cooperation**

Most organizations are interested in receiving interns and students  
Many want to work with ESNEC as they see this as an opportunity to connect to others  
Prepared to come to ESNEC to share experience with students.

## Annex 2. Questionnaire to the professional environment

1. Name of the respondent.
2. Position on the organization
3. Name of organization
4. Kind of organization
  - a) Producer
  - b) Processor
  - c) Service provider
  - d) Other...
5. Kind of organization
  - a) Governmental
  - b) Private
  - c) NGO
6. Number of employers
7. What are they criteria for higher employers?
  - a) Educational level
  - b) Salary
  - c) Age
  - d) Experience
  - e) Other.....
8. Which job a commercial agriculture graduated get on this organization?
9. Which knowledge these employees should have for this jobs?
10. Which skills they should have for this jobs?
11. Which personal attributes or attitudes they should have for this jobs?
12. Which position do this graduated students occupies?
13. In which extend having this competences importance in you employers

To run and start a business.

- a) Very higher
- b) Higher
- c) Low
- d) Very low

Communicate interactively.

- a) Very higher
- b) Higher
- c) Low
- d) Very low

To have entrepreneurial understanding.

- a) Very higher
- b) Higher
- c) Low
- d) Very low

To advice on agriculture and extension work.

- a) Very higher
- b) Higher
- c) Low
- d) Very low

To innovate.

- a) Very higher
- b) Higher
- c) Low
- d) Very low

To network.

- a) Very higher
- b) Higher
- c) Low
- d) Very low

To implement new production technics.

- a) Very higher
- b) Higher
- c) Low
- d) Very low

To manage a project.

- a) Very higher
- b) Higher
- c) Low
- d) Very low.

13. What other competencies are considered important for you organization?

14. What competencies do you consider fundamental for you employees to perform their job?

### **Annex 3: Checklist for interviews at ESNEC**

1. Job profiles are considered in the learning trajectory
2. Knowledge and attitudes are expected from a graduates
3. General competencies for these job profiles
4. Possible Gaps between the CA Curricula and the PE.

#### Annex 4: Breakdown of respondents at the Professional Environment

Name of the organization	Function in the value chain	Respondent	Position in the organization	Organization details
1. Agrifocus	Input Suppliers	Eng. Lizzie Mabote	Human resources Manager	Supplier of pesticides and fertilizers.
2. TECAP		Eng. Alberto Francisco Buque	Sales and technical advice Manager	Agro and livestock technology and consultant. Importing company. Supplier of machinery pesticides, seeds and other agriculture inputs.
3. Pannar		Eng. Albino Mutipo	Manager director	Seed company which aims to improve genetics and cutting-edge technology. Plant breeding and genetics.
4. AFAP		Sergio Ussaka	Mozambican country Manager	African fertilizer and agribusiness partnership. Stabilishment of sustainable markets of fertilizers.
5. Lozan farm		Bakir Lozan	Manager director	Producing and certified seed supply organization.
6. Piri piri elephant	Producers	Michel Gravina	Manager director	Peppers producer, processing and export organization.
7. Maragra acucareira (illovo)		Keith domleo	Agriculture Manager	Leading sugar producer and a significant manufacturer of sugar cane
8. Agrisul		Gary Thirkettle	Manager director	Sugar cane and horticulture produce organization
9. Bindzu		Marcia Maposse	Manager	Production and wholesaling company
10. MIA		Eng. Joao Francisco	Field coordinator	Rice and horticulture producer organization.
11. Toonghat Hullet		Eng. Rodrigues Nhatse	Agro training Manager	Sugar cane Produces

Source: Key Informants

## Continuation annex 4.

Name of the organization	Function in the value chain	Respondent	Position in the organization	Organization details
12. Toonghat Hullet	Processors	Egidio de Castro	Human resources manager	Sugar cane Processor
13. Sugar cane Factory Maragara( ILLOVO		Casimiro chemane	Human resources director	Leading sugar producer and a significant manufacturer of sugar cane
14. Mozfood		Utilia chemane	Human resources manager	Rice and horticulture processor organization.
15. Piripiri elephant		Michel gravina	Manger director	Chili pepper processing
16. IIAM	Services providers	Anabela zacarias	Project director	Agriculture service provider (Extension)
17. CEPAGRI		Nelia banze	Human resources Manager	Agriculture Promotion Centre
18. INCAJU		eng. Benedito Zacarias	Human resources manager	Service provider for cashew nut value chain. It also dedicated to the cashew nuts promotion and production.
19. CIP		Maria Isabel Andrade. Phd	Program Director	International center, service provider for sweet potatoes value chain, it also dedicates to the production and sweet potatoes processor and marketing.
20. ADRA		Fernando quembo	Human resource manager	Cashew nuts production
21. SNV		Manuel Mutimucuo	Impact Investment Advisor, and agriculture sector coordinator.	Value chain promotion

Source: Key respondents

## Continuation annex 4

Name of the organization	Function in the value chain	Respondent	Position in the organization	Organization details
22. FDA	Services providers	eng. Alcides Nhamatate	Financial Manager	Financial institutions under Agriculture Ministry, oriented toward Agriculture sector development in Mozambique. Its role is to promote access to financial services for Farmers and agriculture organization. It is also facilitating linkages and partnership between government institutions and others intervenient in agro food value chains.
23. Banco terra		Eng. Higino	Finance Manager	Food and agriculture banks which aims to Private financial services to urban and rural organizations and people in agriculture sector
24. MINAG		Human resources Director		Agriculture minister

Source: Key respondents

## Annex 5: Template for competencies used in interviews

Competencies	Details	Description
<b>Skills</b> Demonstrates abilities, or proficiencies which one has learned from work, life experience, and formal training.	<b>Communication</b>	Ability to : <ul style="list-style-type: none"> <li>+ Clearly and concisely compose and/or edit correspondence, Reports and manuals.</li> <li>+ Request or provide information.</li> <li>+ Verbally provide clear, concise and accurate explanations.</li> </ul>
	<b>Leadership</b>	Ability to : <ul style="list-style-type: none"> <li>+ Provide information and explain procedures to workers in order to achieve set objectives.</li> <li>+ Objectively evaluate work performance while encouraging employees to meet set work goals and standards.</li> <li>+ Instruct, guide, coach and encourage others to enhance their job performance and further develop their skills.</li> <li>+ Assign work to others taking into consideration priorities, employees' workloads and skills and the work that needs to be accomplished.</li> </ul>
	<b>Problem solving</b>	Ability to : <ul style="list-style-type: none"> <li>+ Identify and assess problems, explore options and implement appropriate solutions using applicable policies and guidelines.</li> <li>+ Ability to identify, design and contribute to the development of new ideas and approaches that will improve work processes and systems.</li> </ul>
	<b>Interpersonal</b>	<ul style="list-style-type: none"> <li>+ Ability to calmly listen, assess and clarify problems and respond with options to clients, co-workers and/or vendors who may be angry, confused or Upset.</li> </ul>
	<b>Team/Independence</b>	Ability to: <ul style="list-style-type: none"> <li>+ Work independently and in teams</li> <li>+ Establish, build and maintain positive work</li> </ul>

		Relationships.
	<b>Organizational</b>	<p>Ability to :</p> <ul style="list-style-type: none"> <li>+ Plan and organize a large volume of work taking into consideration frequent interruptions, and conflicting and changing priorities to meet tight deadlines.</li> <li>+ Design, establish, maintain and archive hard copy or electronic records management systems.</li> </ul>
	<b>Analytical</b>	<p>Ability to:</p> <ul style="list-style-type: none"> <li>+ Accurately compile, calculate and summarize data</li> <li>+ Check and verify documentation for completeness and accuracy in accordance with applicable policies and procedures.</li> <li>+ seek out, gather and compile relevant information</li> <li>+ Examine, understand and appropriately apply complex and sometimes conflicting policies, agreements, contracts, acts and regulations to daily operations.</li> </ul>
	<b>Technical</b>	<p>Ability to:</p> <ul style="list-style-type: none"> <li>+ Input, edit, update and retrieve information on a computer using various software packages and applications with accuracy and within established timelines.</li> <li>+ Properly operate various types of office equipment such as: calculators, photocopiers, fax machines and paper shredders.</li> </ul>
<p>Knowledge: Baseline of information acquired through work and life experiences, learning situations and formal education, which enables an individual to perform from an informed perspective.</p>		
<p>Attitudes: Qualities of character, which a person must have to be an effective and successful performer in the job.</p>		

Source: Saskatchewan Crop Insurance Corporation, (n.d)