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PRODUCTIVITY IMPROVEMENT OF SME GARMENT MANUFACTURING INDUSTRY: A CASE STUDY IN YEKA SUB CITY

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PRODUCTIVITY IMPROVEMENT OF SME GARMENT MANUFACTURING INDUSTRY

(A CASE STUDY IN YEKA SUB CITY)

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DECLARATION

I hereby declare that the work which is being presented in this thesis entitle "productivity improvement of SME garment manufacturing industry: A case study in yeka sub city" is original work of my own, has not been presented for a degree of any other university and all the resources of materials used for the thesis have been duly acknowledged.

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ABSTRACT

Small and Medium Enterprises have a central role for national economic. Unfortunately, it still has a domain of low productivity, as well as for SMEs on garment products. This study is aimed to identify the factors that influence productivity in correspond to increase the productivity of SME on garment products. Enhancement of productivity in the field of garment manufacturing production is of very great importance to an entrepreneur's ability to compete and make profits over time. An entrepreneur which fails to efficiently utilize its resources in creating value for its customers will not survive in the competitive business environment of today. Key performance indicators are found to affect the productivity of garment manufacturing SMEs, productivity plays main part.

While recognizing the centrality of garment manufacturing SMEs in charting the development trajectory of an economy the full potential of garment SMEs have not been adequately utilized in. Since enhancing the productivity of the garment manufacturing SMEs is mandatory in order to make the garment manufacturing SMEs competitive.

The general objective of the research is to develop a productivity improvement method that supports garment manufacturing small and medium enterprises (SMEs) to enhance their productivity by identifying the possible productivity factors and selecting the intervention areas. To achieve this objective, a literature survey has been conducted to get empirical knowledge. The existing productivity measurement and improvement practices, and productivity factors of the garment SMEs have been assessed.

To undertake this research primary and secondary data are collected in nine garment SMEs by using a well-structured questionnaire, interviews and personal observation as well as by referring previous research works. Descriptive statistics as well as cause and effect diagram were utilized to analyze data obtained from the SMEs interviews, questionnaires and direct observation.

From the thesis working capital, business network, sourcing, supply chain responsiveness , supply of raw material, wage/minimum wage, working condition ,product quality, technology, health and safety, production efficiency, motivation ,business regulation and restriction are productivity factors identified that affect garment SMEs productivity.

Study results revealed that the productivity of the garment SMEs is low and decreasing, since, most of the productivity factors of the garment SMEs show poor status and comparison of garment SMEs production with international benchmarks show huge deviation.

Since, all the productivity factors identified do not have equal impact on productivity of the garment manufacturing SMEs. In addition, the resource are limited to solve all the problems associated with productivity factor. Therefore, deciding the intervention areas which are potential for productivity improvement is very important.

The intervention areas identified are related human, capital, material and process. This requires organized and sustainable productivity improvement method to solve the problems associated with productivity. Therefore, a PIM based on this requirement has been developed.

The research concludes by proposing a conceptual frame work for productivity improvement of the garment SMEs along with the implementation steps for the frame work.

Contents

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

MSEs-Micro and small enterprises

MSMEs- Micro, small and medium enterprises

EU-European Union

OECD-Organization for Economic Cooperation and Development

SMEs-Small and Medium Enterprises

GDP-Gross National Product

TPM-Total Productive Maintenance

KPIs-Key Performance Indicators

EPRDF-Ethiopian Peoples' Revolutionary Democratic Front

ISO-International Organization for Standardization

FDI-Foreign Direct Investment

UNECA-United Nations Economic Commission for Africa

UNIDOU-united Nations Industry Development Organization

F.D.R.E-Federal Democratic Republic of Ethiopia

MOI-Ministry of Industry

PIM-Productivity improvement method

PDCA-Plan, Do, Check and Action

R&D-Research and Development

I.L.O-International labour Organization

BDS-Business Development Service

TFP-Total Factor Productivity

IFC-International Finance Corporation

IDS-Industrial Development Strategy

MOTI-Ministry of trade and industry

CTA-Cotton, Textile & Apparel Sectors

TVET-Technical and Vocational Education and Training

USAID-United States Agency for International Development

CMT-Cut, Make, Trim

ETGMA-Ethiopian Textile and Garment Manufacturers Association

AEC-Asians Economic Community

EPA-European Productivity Agency

NPBS-National Productivity Board of Singapore

BLS-Bureau of Labor Statistics

GTP-Growth and Transformation Plan

PNA-Productivity needs analysis

FeMSEDA-Federal Micro and Small Enterprises Development Agency

ReMSEDA-Regional State Micro & Small Enterprises Development Agency

AIDO-Addis Ababa industry development office

IDSI- Iindustrial Development Strategy

CHAPTER ONE

INTRODUCTION

The introduction part of the study has been organized into nine main parts, namely background of the study,justification of the study, statements of the problem, research question, objectives of the study both general and specific objectives, significance of the study, scope of the study, limitation of the study and finally organization of the studyare discussed .

1.1 BACKGROUND OF THE STUDY

The Ethiopian Government has defined the textile and garment sector as a top priority sector in the industrial development package of the country. This is because textile and clothing market is always demanded next to food commodities. The sector also utilizes more labor which is available abundantly at low cost in the country. The garment sector has a large potential for creating employment opportunities. The sector has strong vertical linkages with the textile industry that has the potential to increase the development of agriculture. It has a vast potential to manufacture goods for export, thus earning highly demanded foreign exchange (Cochrane, 2008).

According to Ethiopia MOI, SMEs in Ethiopia are considered to be important members within the supply chain and are established in almost all major sectors in Ethiopian industry including Agro processing and pharmaceuticals, Construction, chemicals & jewellers, Textiles& garments, Leather & leather goods and Metals& wood works. Among the sectors described above textiles and garments are prioritized sector because of high contribution to GDP, since it is labour-intensive industries, it is one of priority sector for export and it is one among the four specific economic sub-sectors that are identified in the industrial development strategy of Ethiopia. Among the sectors garment producing SMEs are selected for this study because textile is a huge sophisticated industry which needs huge capital.

Global competitiveness has forced businesses to examine their operation for the purpose of making process improvements. These improvements generally involve better utilization of resources and

higher level of quality. Essentially the focus is on enhancing productivity to meet or beat the competition on relevant cost, quality, time and flexibility issues. Productivity improvements require designing and successful implementing of sound programs.

The extent of the productivity problem of garment manufacturing SMEs is that they can't compete in the market and most of the SMEs become out of market. The main reason is that the free market strategy allow many global/international firms entering the market with superior products with less cost especially from china. Because of this in the local market the garment manufacturing SMEs are not competitive.

Since enhancing the productivity of the garment manufacturing SMEs is mandatory in order to make the garment manufacturing SMEs competitive. While recognizing the centrality of garment manufacturing SMEs in charting the development trajectory of an economy the full potential of SMEs have not been adequately utilized in Ethiopia. The small business sector in Ethiopia appears to be fraught with a number of policies, regulations, laws, rules and related challenges that stifle its rapid growth and development as a means of overcoming poverty and unemployment (Mulugeta,2011).Among the several challenges and obstacles that deter SMEs from further expanding their businesses and affect their competitiveness the study focus on productivity related problems on selected garment manufacturing SMEs in Addis Ababa city administration yeka sub city.

The general objective of the research is to develop a productivity improvement method that supports garment manufacturing small and medium enterprises (SMEs) to enhance their productivity by identifying the possible productivity factors and selecting the intervention areas.

The research provide overall picture on how productivity is enhanced by analysing the existing productivity improvement practice of the garment manufacturing SMEs and identifying the intervention areas, areas that need improvement in order to enhance productivity of the firms, and developing productivity improvement method (PIM) and finally conclusions and recommendations are drawn.

1.2 STATEMENTS OF THE PROBLEM

Even though SMEs are a potential source for economic development of Ethiopia the sector has not received a commensurate policy attention thereby hamstringing its capacity to access to finance as well as a poorly regulated dispensation (Animaw, 2016). A glaring weakness is revealed in the contents of the five year development plan of the government of Ethiopia, which ostensibly places premium on the expansion and growth of large scale firms whilst giving little to no focus for SMEs. As a result SMEs are beset by poor product quality, low productivity, absence of innovation, and lack incremental growth over several years (Hagos.2012).

According to industry development office (2018), Garment SMEs are still facing heaps of challenges and obstacles that deter them from further expanding their businesses and become competitive.Due to this their development and transformation to large industry is unsuccessful and none of the garment SMEs are transformed to large industry having capital of 20,000,000 birr.

Among the several challenges and obstacles that deter garment manufacturing SMEs from further expanding their businesses this study focus on productivity related constraints only.The productivity factors of garment SMEs are multidimensional related to human, capital, material, method, control, process and product that require organized and sustainable productivity improvement program.

Currently the garment SMEs use disorganized and reactive problem solving approach which is not effective for productivity improvement. The main reasons for not using organized and sustainable productivity improvement program are lack of understanding where to start productivity improvement, lack of identifying critical success factors, lack of addressing the possible productivity factors, lack of defining, measuring and analyzing productivity indicators (except capital productivity), and lack of identifying the intervention areas for productivity improvement.

Thus the thesis mainly focuses on assessing the productivity measurement and improvement practices, identifying factors affecting productivity, determining major productivity improvement or intervention areas and developing productivity improvement method for garment manufacturing SMEs. Finally making relevant recommendations and proposing a productivity improvement method for the garment manufacturing SMEs.

1.3 OBJECTIVES OF THE STUDY

The general objective of the research is to develop a productivity improvement method that supports garment manufacturing small and medium enterprises (SMEs) to enhance their productivity by identifying the possible productivity factors and selecting the intervention areas.

In order to achieve this general objective the specific objectives are:

- To assess the existing productivity measurement and improvement practice of garment manufacturing small and medium enterprises (SMEs).
- To identify factors that affect productivity of garment manufacturing small and medium enterprises (SMEs).
- To identify the major productivity improvement areas in garment manufacturing small and medium enterprises (SMEs).
- To propose productivity improvement method to enhance productivity level of garment manufacturing small and medium enterprises (SMEs).

1.4 SIGNIFICANCE OF THE STUDY

The entrepreneurs who encounter difficulties when establishing the SMEs were benefited by this study. The findings from this study were to fix productivity related problem. The outcome of this current study is expected to be published in academic papers.

It is important to organization to know the weaknesses and strength of their company. The information provided can help them to identify the courses of the low productivity and improvement to their successful the business.

Organizations need to know how to manage their productivity effectively. The study gives a guideline how a method that supports productivity improvement of manufacturing firm is initiated and implemented. The study can give empirical knowledge about concepts of productivity, productivity factors, and various tools and techniques of productivity for garment manufacturing SMEs.

The research aims to identify productivity related problems that hinder the SMEs competitiveness and develop a productivity improvement method, which could be taken as guide to the garment

manufacturing SMEs to enhance their productivity. Hopefully believed that the garment manufacturing SMEs will implement the productivity improvement method and have a remarkable improvement.

1.5 SCOPEA ND LIMITATION OF THE STUDY

1.5.1 Scope of the study

The study focus on productivity improvement and how to enhance competitiveness. The study aims to identify reasons of low productivity and to propose the method for solving the problem in garment manufacturing small and medium enterprises (SME).In this research, focus is on Small Medium Enterprise (SME). Small and Medium Enterprise (SMEs) are one of the principal driving forces in economic development.

The study has been done for garment manufacturing SMEs with special reference to 9 SMEs. The study is dedicated to development of PIM at firm level. The study mainly uses data collected from various literatures, organizations like Quality and Standards Authority of Ethiopia, Ministry of Trade and Industry, Ethiopian Garment Association, Ethiopian Textile Industry Development Institute (ETIDI), Central Statistics Agency, AIDB, FSMMEDA, 9 SMEs are contacted. Data are collected using survey questionnaire, observation, interview and secondary data source, finally the collected date is analyzed and interpreted. The study is limited to internal (firm level) productivity factors develop the PIM.

1.5.2 Limitation of the study

The research is limited to the chosen SMEs themselves. A selection bias of SMEs is additionally limit the results of the research. The other limitation is the verification of data. There is a constraint on the reliability of information collected from interviews, due to limitations on data verification. Therefore the results from the analysis might lack accuracy, in some cases participants refused to speak against their organizations. There is limitation of knowledge and language in order to answer the research questioners.

Data used for the study were the opinion of representatives/owners of SMEs. This might have its own limitation on the quality of data used for the analysis purpose. Another critical limitation was

the time used to conduct the research. The period was so short it did not give me the opportunity to observe the post implementation phase to see if proposed solutions is working the adjustments that needed to be made as well as measuring the level of productivity. Finally the limitations of the research result mainly from the lack of practical implementation of the method. It is worth emphasizing that every enterprise is different and operates in individual environmental conditions and therefore requires a unique approach.

1.6 ORGANIZATION OF THE STUDY

The study has been organized into six chapters. Chapter one introduces the background, statement of the problem, objectives, scope and problem statement of the study. The second Chapter presents literature review that states the study matter, the literature review of the study has been organized into six main parts, namely concepts of productivity, productivity factors, productivity measurement, productivity planning and analysis, overview of productivity improvement methods and tools, over view of the SMEs sector. Chapter three is the research methodology, this chapter presents the research methodology and the research methods used in this study to answer the research questions presented in the previous chapter. This chapter outlines the research design and approach, source of data, data collection, and data collection tools, sample population, sampling techniques, data analysis tools, validity and reliability of the studyand ethical considerations during the thesis work. In chapter four data analysis, interpretation and findings are discussed and in Chapter five PIM developed for the SMEs are discussed. The final chapter, chapter six consists of the conclusion and recommendation of the study.

CHAPTER TWO

RELATED LITRATURE REVIEW

The literature review of the study has been organized into nine main parts, namely concepts of productivity, productivity factors, productivity measurement, productivity planning and analysis, productivity improvement, over view of the Ethiopia SMEs sector, and finally the literature gaps are discussed.

2.1 CONCEPT OF PRODUCTIVITY

Productivity is commonly defined as a ratio of a volume measure of output to a volume measure of input use or in other words, how much of output which is obtained from a given set of inputs (Schreyer and Pilat, 2001). Productivity is a technical concept which measures the efficiency from the used factors of production. Higher productivity is likely to improve profitability and enhance a firm's competitiveness relative to its rivals (Syverson, 2010).

Table 1Traditional versus the New Productivity Paradigm (NPP) on key dimensions.

Dimension	Traditional	New Productivity Paradigm
Responsibility for productivity	Engineers/managers	Workers
Productivity goals	Short term	Long term
Manager's role	Boss	Coach
Employee's role	Work harder	Work smarter
Staff role	Control	Support
View of employee	Cost	Asset
Way to improve productivity	Automation and cost cutting	Process improvement
Methods	Time-and-motion study/trial and error	Structured/scientific method

Time-path of improvement	Intermittent/Big Bang	Continuous/kaizen
Cost–quality relation	Trade -off	Complementary
Supply chain	Arm's length	Partnership
Metrics	Financial	Customer and quality-focused

Source: Yana, 2012.

Productivity is an overall measure of the ability to produce a good or service. More specifically, productivity is the measure of how specified resources are managed to accomplish timely objectives as stated in terms of quantity and quality. Productivity may also be defined as an index that measures output (goods and services) relative to the input (labor, materials, energy, etc., used to produce the output) (Franklin, 2001).

Productivity is created in the real process, productivity gains are distributed in the income distribution process and these two processes constitute the production process. The production process and its sub-processes, the real process and income distribution process occur simultaneously, and only the production process is identifiable and measurable by the traditional accounting practices. The real process and income distribution process can be identified and measured by extra calculation, and this is why they need to be analyzed separately in order to understand the logic of production performance (Tabije, 2007).

Productivity contributes to wards increase in production through efficient utilization of resources and inputs rather than making workers to work hard. Productivity strives to minimize human hazards and human efforts with a view to utilize them to those areas where they can contribute maximum to the output. Organizations in recent times have experienced a period of massive change in their ways of operation due to the trend of increasing competition both at the domestic and international level (Christina, 2005).

The International labour organization in its report summarizes the concept of productivity, thus some think of productivity as a measure of the economy as a whole. Others think of productivity in terms of individual industries or plants". Some businessmen in their public relations speak as though the whole matter of productivity had to do with the degree of application of the workers to their Jobs. At other times, the concept of productivity is used as though it were a measure of the

degree of efficiency achieved in production. The I.L.O. publication "Higher Productivity in Manufacturing Industries" has defined productivity as the ratio between output of wealth and the input of resources used in the process of production". This definition applies to an enterprise, industry or an economy as a whole.

The definition of productivity is simple and complex at the same time, and this is because it is both a technical and managerial concept (Thomas, 2004). Productivity is defined and analyzed in various ways, and there is lack of consensus on a specific definition. (Tangen, 2005) forwarded the definition of the frequently used terms 'Efficiency', 'effectiveness', 'productivity', 'profitability' and performance in relative ways.

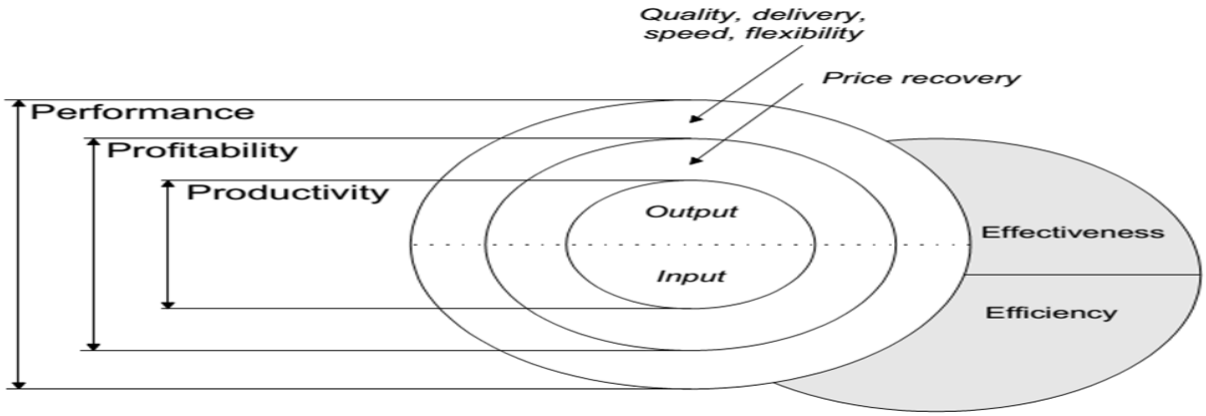

Figure 1 The relationship between Performance, profitability and productivity, the Triple-P Model (Tangen, 2005)

For this thesis productivity is defined as, productivity is effective and efficient utilization of resources used to produce products/services that meet customer requirements continuously by applying appropriate methods and by controlling the parameters. In this thesis the inputs of the firm considered are human, capital, material, energy and miscellaneous inputs. The outputs considered are finished and partial finished garment products for sale and internal use. Method is a means applied to do activities in a better way. Control deals with regulating activities and parameters to be within acceptable limit. All operation and non-operation time are considered. Waste is the part of the resources that has no purpose or value to the firm and customers.

2.2 PRODUCTIVITY FACTORS

Identifying the possible productivity factors is one the basic element for productivity improvement. Productivity factors can either boost or hinder productivity. The productivity factors surveyed from different literatures are presented as follows:

Belgin (2008) classify productivity factors in to internal and external factors. The internal factors categorized into materialistic and non-materialistic. Materialistic internal factor involves product, plant and equipment, technology, and material and energy; and non-materialistic internal factor includes human, organization, work methods and management. The external factors categorized into structure, natural resources and governmental issues. Structure external factor involves ergonomics and social situation; natural resources external factor includes land, energy and raw material; and governmental issues external factor involves corporate mechanisms and politics.

Study showed (Saha, 2015) ineffective management is the most significant factors that have strong impact a on the less productivity followed by Outdated system, Inadequate Monetary and non-Monetary rewards, Unsafe working conditions and the insufficient and ineffective coworkers.

Creating a high performance workforce can be achieved through adoption of quality improvement initiatives. In this context, leading organizations increasingly emphasize on continuous process improvement through “data driven decision-making”. These improvements specifically focus on applying management skills to eliminate inefficiency and maximize value through optimization of processes within the organization. The result is improved performance, fewer errors and increased efficiency and productivity (Ziaul, 2006).

Shafiqul, (2014) reveals the way to achieve productivity through technological adaptations, high tech equipment investment, and human resource development and pay strategy – including both formal and informal labor incentives.

Patra (2009) present the following ten commandments to improve productivity: leadership commitment, manage change, organize and plan, people are the assets, organize training, process is the backbone, and metrics based approach, assess and evaluate, improved communication, and focus on benefits.

Islam (2012) found that shortage of raw materials, absenteeism, machine malfunction, unexpected WIP, defective products, frequent changeover in production schedule, production shutdown caused by political action and power supply problem are contributor to low productivity.

Attia (2006) presents a four phase productivity improvement cycle. Phase I measurement, phase II-evaluation, phase III-planning and implementation, and phase IV-control and updating. Once the productivity level of an organization is measured in the current time period (for example, the current month, quarter, or year), it must be compared with the target level set up in the preceding period. Based on this evaluation, a new productivity level must then be planned for the next coming period. Finally, depending on the nature and level of the planned target of productivity, improvement must take place in the next period. To determine if the planned level has in fact been achieved, productivity must be measured again in the next period. The entire cyclic process repeats for as long as an organization formally manages its productivity level and growth rate.

Herron (2006) describe a model which has been developed to direct and generate productivity improvement in a group of manufacturing companies. The methodology developed has three clearly defined steps, the first step is a productivity needs analysis (PNA), which gives an overview of the current manufacturing condition of the company, identifies the key productivity measures for the plant and forms the basis for a detailed study of production efficiency. The second step is a manufacturing needs analysis (MNA) in which the plant processes and problems are defined and associated with the appropriate tools and metrics, and generates an initial 1-year improvement plan for a particular manufacturing unit. The third step is a training need analysis used to ensure that the tools which are found to be efficacious are fully embedded within the company by combining PNA and MNA.

Ethiopian garment industries have low productivity, and one of major factors is poor skill of workers. Workers skills are characterized as medium complex and further training should be given to increase the skill of the workers to more complex and flexible designs. Moreover production managers and supervisors are not trained enough in order to properly manage the process and unable to balance efficiently the production lines with constant supplying of fabrics and accessories. Furthermore, utilization of available resources, fabrics, machines, workforces is not satisfactory (RahelSorri, 2010).

According to Phusavat (2013), productivity improvements can also be understood at different levels. The productivity of individuals may be reflected in employment rates, wage rates, the stability of employment, job satisfaction or employability across jobs or industries. The productivity of enterprises, in addition to output per worker, may be measured in terms of market share and export performance. The benefits to the community from higher individual and enterprise productivity may be evident in increased competitiveness and employment or in a shift of employment from low to higher productivity sectors.

An empirical study (Hossan, 2012) suggested; reward system filled in as an impetus to make workers motivated and expand efficiency, they should be rewarded for their hard work and punctuality. For example, award for attendance. Work coordination is likewise vital to expand profitability and meet particular generation target. Sound worker conduct and proficiency reward additionally meet the objective and build efficiency.

The role of the government in facilitating and supporting SMEs remain critical worldwide. It is the government that creates the right or undesirable environment for businesses growth. When the government pays little attention to SMEs sector, then, the sectors is prone to suffer leading to many businesses being unable to survive. A government that does not support SMEs does not only hurt the sector but experiences negative growth in its economic development. The environment created by the government in terms of wages framework, taxation, licensing, opportunities, technological support and infrastructure pave the road to success or failure for the SMEs. Depending on the regulatory frameworks put in place by the government, can easily crush or promote small business economy (Kamunge et al., 2014).

Working conditions deals with the arrangement of work areas and equipment's to produce the products economically and give good working environment for the workers. Good working conditions should provide ease of working, less health hazards, greater safety, reduced material handling, less congestion of materials, machines and men Working conditions provide the facilitates such as welfare facilities, efficient workstations, minimizes material handling, effective utilization of manpower, safety, comfort at work, maximum exposure to natural light and ventilation. It is also essential because it affects the labour efficiency. Working conditions provides the environment for the better production and affected the productivity of the employees and maintain an environment that maximizes productivity. Efforts must be taken to industries and

workers, work together to improve productivity and working conditions. Poor working conditions can lead to a number of productivity problems, such as worker injuries, production errors, poor quality products, absenteeism, lack of machine maintenance, haphazard inventory systems (Wiyaratn and Watanapa, 2010).

According to Tshifhiwa (2009), productivity is a measure of how well the organization converts inputs by means of the transforming process into outputs. Japanese companies usually measure productivity in terms of labor, such as the number of product units produced per employee labor-hour or the number of employees needed to operate a particular machine. In line with this Kevin (2002) firm productivity measures how much input is needed to produce the firm's output. Most productivity growth comes from existing firms who can add to the ratio of capital per worker and adopt new technology.

In the face of shrinking land base for agriculture and limited absorptive capacity of large industry, SMEs in Ethiopia have an important role to play in generating employment opportunities for nearly a million new entrants to the labor force every year. Available evidence suggests that SMEs are important and growing segment of the economy. Facilitated by inroads into the export market, policy reforms providing easier access to imported raw materials and growth of domestic demand, SMEs in a number of manufacturing and service activities have experienced rapid growth over the past decade. However, a wide array of structural and policy induced constraints, lack of business support services and week governance have held back the sector from realizing its full potential.

2.3 PRODUCTIVITY MEASUREMENT

Productivity measurement enables an enterprise to assess the efficiency of conversion of its resources to goods. Based on this assessment, the enterprise would know whether it is doing well or badly and therefore could take the necessary action to produce more goods for a given amount of resources used. Measurement enables the enterprise to do resource planning and to set quantifiable objectives of productivity levels at which it ought to be operating. Productivity measurement also enables an enterprise to know whether it is improving its profitability through productivity or through price recovery. Moreover, productivity measurement enables an enterprise to know the

results of management decisions, to monitor progress, and to provide feedback. Thus, measurement is integral to the productivity management process.

In order to analyze and improve productivity first it should be measured. By itself, a productivity measure has no meaning. It only gains meaning when compared to productivity measurements for prior periods or to measurements from comparable facilities producing similar outputs. Productivity measures attempt to highlight improvements in the physical use of resources, that is, to motivate and evaluate attempts to produce more outputs with fewer inputs while maintaining quality. Productivity measurement systems analyze performance based on actual outputs and inputs in different time periods. The productivity measurement system can be viewed as a variance analysis of the actual costs incurred in successive periods. The most commonly used productivity indicators are partial productivity, total factor productivity, multifactor productivity and total productivity but these are direct measurements based on tangible outputs and inputs. Today productivity ranges from direct measurements to indirect measurements that are not based on tangible outputs and inputs like rates of turnover, absenteeism, customer satisfaction, disruption in work flow, morale, loyalty and job satisfaction (Shigeyasu, 2010).

Productivity can be measured as the ratio of output to input; the ratio between the amount produced and the amount of any resources used in the production; and output per unit of input. Productivity broadly classify into total productivity and partial productivity. Total productivity is the ratio of total output to the sum of all inputs. Partial productivity is the ratio of output to one class of input. There are many different productivity measures. The choice between them depends on the purpose of productivity measurement and, in many instances, on the availability of data. Total productivity, partial productivity, multifactor productivity and total factor productivity indexes are used to measure productivity. Multifactor productivity is ratio of output to a bundle of inputs. Total factor productivity is the ratio of net output to the sum of associated labor and capital inputs (OECD, 2001).

According to economists there are three basic approaches in measuring the productivity of industry in general namely, index approach, production function approach and Input-output approach.In order to improve productivity, it is necessary to have some means of measuring company productivity in terms of both the current position and the position after improvement actions have taken place. Without some sorts of measures, it would be difficult, if not impossible, to assess

whether any productivity improvement had actually taken place and whether the effort involved was worthwhile (Porter, 2006).

According Tangen (2004) productivity is directly and indirectly influenced. Therefore measuring, analyzing and improving both productivity influencing factors is very important. The directly productivity influence factors are measured by partial and total productivity indicators. Whereas the indirectly productivity factors are measured by surrogate productivity and process indicators.

Emerging literature on productivity measurement of late indicate that early productivity measures revolve around the value of aggregate output per man- hour of labour input despite the problems associated with measuring labour input. At the moment, productivity research has focused more on total factor productivity (TFP) measures, where comprehensive aggregates of outputs and inputs are of interest.

Bheda (2003) proposed a productivity measurement system for apparel industry and it has the following elements: work for all tasks, productivity reports for internal and external bench marking, review performance and plan improvement, communicate performance, generation of productivity reports, garment analysis sheets and worker allocation, practice of hourly productivity data collection, and communication of time standards to workforce. He presents three types of productivity measurement methods, namely: physical productivity measurement method, value productivity measurement method and value-added productivity measurement method. Productivity measurement method uses the quantity of output and input as a data for calculating productivity. Value productivity measurement method uses the monetary value of output and input as a data to for calculating productivity. Value-added productivity measurement method uses value-added expressed in momentary units as a data for calculation.

2.4 PRODUCTIVITY PLANNING AND ANALYSIS

Companies with low levels of productivity could theoretically get significantly more work done, but they have factors that hold them back from their full potential. This leads to wasting money and losing ground to competitors. Knowing the reasons company's productivity is lacking directs to appropriate solutions to improve productivity and profits (Gunasekaran, 2000).

Sumanth (1979) identifies two types of formal productivity planning, namely: short-term productivity planning and long-term productivity planning. According to him, the responsibility for short-term productivity planning should be at plant or division level and the responsibility for long-term productivity planning should be at corporate level. He indicates five forecasting methods to prepare short-term productivity planning; the methods are weighted partial productivity model, productivity evaluation tree (PET) model, linear trend model, comparative productivity evaluation model and seasonal variation model. Also he presents two models for long-term productivity planning namely, total productivity maximization model and total productivity profit model.

Productivity analysis is important for productivity improvement. Even as a separate element, it is a very effective tool for decision-making at all economic levels. The success of productivity measurement and analysis depends largely upon a clear understanding by all parties concerned (enterprise managers, workers, employers, trade union organizations and government institutions) of *why* productivity measurement is important for the effectiveness of the organization. The answer is that it indicates where to look for opportunities to improve and also shows how well improvement efforts are faring. Productivity analysis is a powerful systematic methodology to measure system performance, system efficiency, system effectiveness, resource utilization and profitability. Productivity analysis helps decision makers to identify the driving factors of productivity, adopt the appropriate action and monitor its consequences (Gomaa, 2006).

Productivity analysis is a powerful systematic methodology to measure system performance, system efficiency, system effectiveness, resource utilization and profitability. Productivity analysis helps decision makers to identify the driving factors of productivity, adopt the appropriate action and monitor its consequences. Sumanth (1984) developed methodologies to analysis total productivity for any given product between two periods two successive periods and within a given period. To analyze total productivity, the tasks undertaken are:

- Develop an expression for the change in total productivity between two successive time periods, and then derive the possible ways that this change could occur.
- Develop two methods for obtaining budgeted values of total productivity, and compare them with corresponding actual values.
- Establish a step-by-step procedure for analyzing total productivity between any two successive time periods and within a given time period.

- Illustrate the methodology with a numerical example.

2.5 PRODUCTIVITY IMPROVEMENT

Bheda (2003) presents the following strategies for productivity improvement in apparel manufacturing industry: initiate supervisor and manager training, strengthen work measurement and methods improvement, setup operator selection and training procedures, introduce productivity measurement system, strengthen quality system, improve worker involvement and working conditions, strategic technology up gradation, strengthen production planning and scheduling, introduce incentive scheme, and introduce information system for productivity improvement.

Mekonnen (2013) had pinpointed that inadequate infrastructure facilities, inadequate finance, poor managerial and technical skills, and inadequate working premises were the major challenges to MSEs' successful operations followed by marketing problems, low support from respective institutions, inadequate supply of raw materials, and regulatory issues. According to Commission on Legal Empowerment of the Poor (2006) study, most MSEs in Ethiopia face critical constraints both at the operation and start-up level. Some of these constraints include lack of access to finance, access to premise, infrastructure, training in entrepreneurial and management skills, information on business opportunities, and social and cultural factors particularly related to deficient entrepreneurial culture and excessive corruption.

Mulugeta (2011) has also identified and categorized the critical problems of MSEs into market related problems, which are caused by poor market linkage and poor promotional efforts institution-related problems including bureaucratic bottlenecks, weak institutional capacity, lack of awareness, failure to abide policies, regulations, rules, directives, absence of training to executives, and poor monitoring and follow-up; operator-related short coming slick developing dependency tradition, extravagant and wasting behavior, and lack of vision and commitment from the side of the operators; MSE-related challenges including lack of selling place, weak accounting and record keeping, lack of experience sharing, and lack of cooperation within and among the MSEs and finally, society-related problems such as its distorted attitude about the operators themselves and their products.

Since 2001, micro and small enterprises (MSEs) in Ethiopia have been confronted with several factors that affect their performance. Major factors include financial problems, lack of qualified employees, lack of proper financial records, marketing problems and lack of work premises, etc. Besides, environmental factor affects the business which includes social, economic, cultural, political, legal and technological factors. In addition, there are also personal attitudes or internal factors that affect the performance of MSEs, which are related to the person's individual attitude, training and technical know-how (Werotaw, 2010).

Yamfwa (2001) presents internal factors and external influences that affect the performance of the firm. Condition of production process, labor, management, firm level investment, marketing, organizational structure, firm intellectual property, and firm level technological capability and effort are typical internal factors. National infrastructure, trade policies, good governance, political stability, demand and inflation, national investment, national systems of innovation, and competition and intellectual property are external influences affecting firm's performance.

In spite of the enormous importance of the micro and small enterprise (MSE) sector to the national economy with regards to job creation and the alleviation of abject poverty in Ethiopia, the sector is facing financial challenges, which impeded its role in the economy. These challenges are lack of access to credit, insufficient loan size, time delay and collateral. Moreover, although MSEs, as compared to their larger counterpart businesses, can create more employment per unit of scarce capital, there are many MSEs which dissolve after a short period of time of their establishment rather than growing. Their dissolution will result in a vicious circle in that they won't be able to take owners out of unemployment, poverty, and economic growth remains weak as the dissolution of an established MSEs is a cost to both regional as well as national level governments (Wolday and Gebrehiwot, 2006).

Workneh (2007) research undertaken in Kolfe Keraneo sub-city of Addis Ababa indicated that lack of capital, lack of market, unfavorable policy, and inadequate infrastructure, absence of adequate and relevant training, bureaucratic structure and procedures are among constraints faced by MSEs. Similarly, Adil's (2007) research carried out in Addis Ababa shows that inappropriate government intervention, shortage of capital, location disadvantage, and lack of market and lack of display room are the major challenges that obstruct MSEs.

Gebrechristos Nuriye (2014) despite Ethiopian government efforts, it shows that there are a number of bottlenecks to address. These enterprises are still suffering from lack of initial and working capital, lack of premises, lack of market and unskilled labor force. The study results show that supports provided, and performance of enterprises has strong and direct linear relationships indicating supports are important for the better performance of enterprises.

Gizachew Animaw (2016) identify external and internal factors affecting the growth of MSEs. The first most important external factor identified are marketing factors and the second most important external factors identified are technological factors including: lack of appropriate machinery and equipment, lack of skills to handle new technology, lack of money to acquire new technology and unable to select proper technology.

But as finding of Beyene, internal attributers (personal and business related) and external attributers (governmental, access to market, infrastructure) factors were affected the success of the small and medium enterprises. In addition, SMEs in Ethiopia are constrained and failed to succeed by a number of factors such as unfavorable legal and regulation condition, lack of access to market, poor access to quality business infrastructure, problems of raw materials and lack of working capital are among many factors (Washiun, 2011).

To tackle the problems and improve the productivity of garment manufacturing firms, a coordinated and well organized system among the actors (at macro and micro level) in the value chain should be in place. Some of the major problems such as lack of skilled manpower and infrastructure has to be tackled by the government and private sectors. And the other problems could be approached by using some modern management philosophies (such as just-in-time manufacturing, business process re-engineering, lean production) and scientific methods like production planning and control etc. Productivity improvement centers at national, regional, and organizational levels shall take an initiation to coordinate all the actors in the chain to make it effective. Overcoming the existing major problems, Ethiopia has to have a radical and dramatic change in every standard or measurement of national competitiveness for the sector. This could be achieved by throwing away our old long trend paradigm at all levels through hard work and commitment for change. The authors believe that change or paradigm shift will not come overnight. It will take some time. The span of time to bring the required change may be long or short depending on our commitment to work hard intensively. Therefore, the Ethiopian government should work hard to bring a paradigm

shift at all levels of textile and garment manufacturing firms, considering it as one of the development strategy tool (Daniel and Amare, 2017).

Small and medium enterprises (SMEs) are one of the principal driving forces in economic development. The SMEs also can generate employment opportunity through diversification of economic activities in the economy. However, there are several factors which must be addressed to ensure productivity of SMEs. The above studies conducted shows that SMEs productivity is affected by many internal and external factors this justify that the SMEs are not productivity enough since there production process is affected by the internal and external factors. Based on this fact the objective of this study focus on in-depth study to identify the productivity associated problems of the garment manufacturing SMEs on a broader scale to provide appropriate solutions.

2.6 PRODUCTIVITY IMPROVEMENT METHODS AND TOOLS

Over the past decade, governments and international donors have increasingly turned their attention from merely offering financial assistance to providing business development services (BDS) for SMEs, recognizing that financial support alone is not enough for achieving sustained competitiveness. BDS are all types of SME support services, including training, consulting, technical and managerial assistance, marketing, physical infrastructure and policy advocacy. BDS interventions are specifically aimed at helping small enterprises to overcome market imperfections and inadequate access to technology, as well as to operate more competitively and with greater efficiency in domestic and global markets (OECD, 2017).

Creating a high performance workforce can be achieved through adoption of quality improvement initiatives. In this context, leading organizations increasingly emphasize on continuous process improvement through “data driven decision-making”. These improvements specifically focus on applying management skills to eliminate inefficiency and maximize value through optimization of processes within the organization. The result is improved performance, fewer errors and increased efficiency and productivity (Ziaul, 2006).

Standards may also positively contribute to the innovation performance of firms and consequently productivity. This may be the case when, in preparation to obtain a certificate, firms upgrade their existing capital stock and invest in new vintage machinery and equipment (e.g. less polluting, more

constant, etc.) which is in line with the definition of process innovation. Furthermore, even when a certificate has been already obtained, the continuous improvement requirements common to most used international certifications like ISO 9001 may positively affect the innovation performance. Finally, the same adoption of superior quality managerial systems and operational practices may help firms build technological capabilities and strengthen their ability to develop and absorb knowledge and, thus, to implement technological innovations (Bernardo, 2014).

Shafiqul (2014) reveals the way to achieve productivity through technological adaptations, high-tech. equipment investment, and human resource development and pay strategy – including both formal and informal labor incentives. In most cases, SMEs utilize foreign technology with a scarce percentage of shared ownership or leasing.

Table 2 Technology plays a vital role in improving productivity

Area of application & equipment particulars	Approx. increase in operation productivity (%)
Design room	
Computer aided pattern making & grading	150
Cutting room	
Fully automated carriages	40-100
Air floatation tables	25-35
Die cutting	270
Laser cutting	190
Fusing	
Continuous fusing press	60
Sewing room	
Programmable sewing machines	5-100
Auto back tacking, edge controlled	20

Sewing jigs	60
Folders	20-100
Engineered workstations	10-60
Panel pick up units	14
Needle positioner	10-20
Stacker	10-40
Finishing	
Programmable presses	60-130

Source: ETDI Training manual

Working conditions deals with the arrangement of work areas and equipment's to produce the products economically and give good working environment for the workers. Good working conditions should provide ease of working, less health hazards, greater safety, reduced material handling, less congestion of materials, machines and men (Wiyaratn and Watanapa, 2010).

Attia (2006) presents a four phase productivity improvement cycle. Phase I measurement, phase II-evaluation, phase III-planning and implementation, and phase IV-control and updating. Once the productivity level of an organization is measured in the current time period (for example, the current month, quarter, or year), it must be compared with the target level set up in the preceding period. Based on this evaluation, a new productivity level must then be planned for the next coming period. Finally, depending on the nature and level of the planned target of productivity, improvement must take place in the next period. To determine if the planned level has in fact been achieved, productivity must be measured again in the next period. The entire cyclic process repeats for as long as an organization formally manages its productivity level and growth rate.

The other area of SMEs promotion and support is provision of industry extension service. This strategy is adapted from Ethiopia's experience in agricultural extension. The primary objectives of the national industry extension service are to make SMEs competent enough in the market, to enable them to generate sufficient and sustainable job opportunities thereby improving their income. The industry extension service elements consist of entrepreneurship, business development

services, production technique, marketing management, supplies management, book keeping and continuous productivity improvement or kaizen. The mechanism of dissemination of the service is mainly through in-company training and consultation and through group discussions of enterprises that are engaged in the same sector (EDRI, 2014).

In clothing manufacturing a good quality management system would be concerned about the inputs used in the making of clothes, the skill of the workers and also having adequate sewing machines which sew in quality threads. Quality clothing is normally rewarded by consumers and the same is for consumers when they receive quality clothes. A challenge for co-operatives in maintaining consistent quality in clothing manufacturing is that they lack certain resources which are important to implementing and for continuous monitoring of quality practices, these resources as already indicated include capable sewing machines, available technology, skilled labour, quality assessment standards, pre and post quality checks and the sewing process outline (Lazim, 2013).

Emerging industries in clothing manufacturing such as those in South Africa and Africa, are dependent on the activities of small sewing enterprises mainly co-operatives to deliver local clothing and also to revitalize the clothing manufacturing sector. The lack of process quality management in small clothing-wear manufacturing enterprises can create inconsistencies on the quality of the output delivered. Quality management requires to be managed using resources which include capable human resources, machine resources, a capable workflow and adequate manufacturing facilities (Heizer& Render, 2014).

Table 3 Key Quality Control Points in Sewing

Available Resource(s)	Key Quality Control Points	Description
Industrial Sewing Machine(s)	Selection of correct settings Machine Maintenance	Machine and Resource Maintenance is key to quality management in a sewing process. A sewing enterprise with limited resources shall focus on the maintenance of the available machine resource and setting it correct for each job.

Cutters	Accuracy based on measurement Balance in saving of fabric and quality cuts	Cutters as resources in a sewing process have a potential of saving material if adequately used. Cut-men should cut-to size and also not compromise on quality cuts with an aim to save fabric. Quality and accurate cuts should be simultaneous.
Fabric /Cloth	Correct reading and assessment of fabric prints and, designs	The inspection and reading of quality shall be done by the buyer while making purchase inspection at the suppliers' site. The fabric design influences the quality look of a garment.
Facility	Adequate protective storage	Safekeeping of fabric in non-damp conditions protects it and other resources from damage that can compromise quality.
Labour skill	Inspection and application of job knowledge	Labour should use formal and tacit knowledge in managing a process of sewing as well as the associated resources.

Source: (Heizer& Render, 2014).

Sumanth (1984) cataloged more than fifty different techniques of productivity improvement in a comprehensive survey of the literature. These techniques classified into seven basic groups: Technology based techniques: includes computer applications, computer graphics (Auto Cad), computer aided design (CAD), computer aided process planning (CAPP), computer aided manufacturing (CAM), group technology, new production lines / machines, rebuilding old machines, maintenance planning & control and layout; Material based techniques includes: inventory control, material requirements planning (MRP), quality control, material handling improvement, material reuse / recycling and new materials; Product based techniques: includes research & development (R&D), product design, product standardization, product reliability improvement and value engineering; Employee based techniques: includes individual financial incentives, group financial incentives, training & education, quality circles, brain storming, working

conditions improvement, communication improvement and job rotation; Task based techniques: includes work study, job evaluation, job safety, human factors engineering (ergonomics), computer aided data processing and scheduling; Management based techniques: includes marketing management, production management, quality management, cost management, maintenance management, material management and resource management; and Investment based techniques: includes reducing the administration cost, increasing value added, increasing contribution and increasing profit.

Grunberg (2007) represented the productivity improvement methods into the following categories: logistics, quality, production engineering and others. Many firms have tried the tools of quality and productivity improvements (e.g. Quality Circles, Kaizen, control charts, etc.) but with limited success in their organizations. They have observed how these tools work but do not understand why they work and thus are unable to construct a coherent system for improvements (Inkpen, 2005).

Study showed by Saha (2015) Ineffective management is the most significant factors that have strong impact on the less productivity followed by Outdated system, Inadequate Monetary and non-Monetary rewards, Unsafe working conditions and the insufficient and ineffective coworkers.

2.7 OVERVIEW OF THE ETHIOPIAN SMEs SECTOR

Ethiopian government issued the National Micro and Small Enterprises (MSE) strategy in 1997 and established the Federal Micro and Small Enterprises Development Agency (FMSEA) to harness the benefit of such strategy. To implement the MSE policies and strategies at regional level, Regional Micro and Small Enterprise Development Agencies (ReMSEDAs) have been established even sub branch offices at zone/district level. Consequently, the government has emphasized the role of MSEs and provided support to this sector. Accordingly, the share of formal employment increased in urban areas, while informal employment declined from 4.3 percent in 2005 to 3.2 percent in 2013, declined by 1.1 percentage points. In 2005, of the 4.0 million employed people living in urban areas, 1.32 million were employed in the informal sector, and the same figure increased to 1.33 million in 2013. This implies that while there are still a large number of workforces employed in the urban informal sector, it has not grown significantly since 2005 (Ferede, 2014).

Having understood the significant roles of SMEs, the Ethiopian government has given due attention to strengthen MSEs and took a decisive measure for the development of the sector. As a result of which, the Council of Ministers approved Regulation No.201/2011 and re-structured the Federal Micro and Small Enterprises Development Agency again to enable the agency achieves its objectives (FeMSEDA, 2015).

Currently the government amend SMEs strategy with the objective of that in addition that the sector play alleviating poverty & reducing unemployment to help out the sector poverty & reducing unemployment, to help out the sector to play its pivotal role as a base to large scale industry. The strategy is implemented all over the country. In amending the strategy a lot of experiences had took from different countries especially from India, Japan and Malaysia (Konjit, 2011).

SMEs are labor-intensive and usually performed using moderate technology and medium-level skill to generate employment. As a result, micro and small enterprises are one of the seven strategy pillars of the Ethiopian Growth and Transformation Plan (GTP) Since SMEs development and their competence both in local and global market by enhancing their productivity is highly essential for Ethiopia economy growth. This is why this study is conducted.

2.7.1 Definition of SMEs

From the literature review there is no universal definition for SMEs since the definition depends on who is defining it and where it is being defined. SMEs can be defined in two ways: based on the number of employees in an enterprise and/or the enterprises fixed assets.SMEs are independent, non-subsidiary firms that are defined by size. Various criterions can be taken into account to define the size of a firm. Most commonly the number of employees is used, being fewer than 250 employees for SMEs. Additionally the Organization for Economic Cooperation and Development (OECD) uses turnover and number of shares owned by another company to define the size of a firm. However there is no general consensus among OECD member states on how SMEs are defined (OECD, 2005).

Table 4 Definition of MSMEs by World Bank.

Enterprise indicators (2/3)	Number of employees	Total assets	or	Total annual sales
Medium	> 50; ≤ 300	>$3,000,000; ≤$15,000,000	or	>$3,000,000; ≤ $15,000,000
Small	> 10; ≤ 50	>$100,000; ≤ $3,000,000	or	>$100,000; ≤ $3,000,000
Micro	< 10	≤ $100,000	or	≤ $100,000

Source: Independent Evaluation Group, 2008

SMEs in Ethiopia are defined and classified based on the size of cost of investment of the firm and its number of employees. According to F.D.R.E council of ministers regulation no. 373/2016"small manufacturing industry" means an industry having a total capital, excluding building, from Birr 100,001 to Birr 1,500,000 (one Hundred Thousand One Birr to One Million Five Hundred Thousand Birr) in the manufacturing sector and engages from 6 to 30 workers including the owner, his family members and other employees and medium manufacturing industry" means an industry having a total capital, excluding building. from Birr 1,500,001 to Birr 20,000,000 (One Million Five Hundred Thousand One Birr to Twenty Million Birr) in the manufacturing sector and engages from 31 to 100 workers including the owner, his family members and other employees. For this study this definition is used to identify SMEs sector from other sector.

2.7.2 Characteristics of SMEs

Easy of entry, reliance on local resource, family ownership, small scale operation, labor intensive, adopted technology and competitive market are among the major characteristics of MSE. Perhaps the most commonly cited characteristic of SMEs regards resource limitations. It is often said that it is harder for SMEs to dedicate resources (including for improvement efforts) than it is for large companies The size of an SME can also lead to issues that are lost in round-offs for large companies. In large companies, results are measured over an aggregated period of time, whereas liquidity is often crucial in smaller companies. There is a considerable difference between “money now” and “money in two months". Investment pay-offs are also less continuous when a company is small: even if the current number of specialized employees or machines are insufficient, one fuller unit might not be worth the extra cost (Bridge, 2003).

It is generally agreed that there are fundamental operational differences between SMEs and larger company's .Hudson (2001) summarized the key characteristics of SMEs as follows: personalized management, with little devolution of authority, severe resource limitations in terms of management, manpower and finance, reliance on a small number of customers and operating in limited markets ,flat, flexible structures ,high innovation potential ,reactive, fire-fighting mentality, informal, dynamic strategies, small scale productions and sales ,low labor productivity and high labour intensity, lack of skilled labour and strong dependency on unpaid family workers and inadequate financial resources

Similarly Tsiegereda (2002) outlined the common characteristics of SME like small scale operation, labor intensive mode of production, low fixed cost, reliance on family labor, use personal and informal source of credit, and lack of wage employment. Furthermore, some of the major distinguishing differences between large and small enterprises are listed as follow.

Table 5 Major difference between large and small enterprises.

Characteristics	Large scale business	Small scale business
Technology	Capital intensive	Labor intensive
Management	Bureaucratic	Family based
Capital	Abundant	Scarce
Work hour	Regular	Irregular
Financial service	Bank	Personal, informal
Market	Often export	Rarely export
Inventories	Large	Small

Source: Tsigereda, 2002

2.7.3 SMEs contribution to Economic Development

The significance of SMEs is that they are source of new business creation and employment generation in the developed countries. The emergence of SMEs in the developed world makes economic case for fostering development of these industries. Considering significant contribution of

SMEs on overall growth and sustainable economic development, it is imperative to take necessary steps towards facilitating growth of SMEs, which includes: Enhancing Access to SME Finance; Development of SME Infrastructure; Training Facilities for SME workers and Entrepreneurship and Ensure SME Promotional Drive (Qamruzzaman, 2015).

Garment is one of the three basic needs of mankind. Hence, textile and garment have retained an important place in human life starting from historical era to today's modern world. Textile and garment industry in today's contemporary market place is a truly global industry. It is a well-documented fact that the textile and apparel industries have been the driving force for all developing countries. Today, such countries have targeted the garment industry as means to provide jobs, raise their standard of living and create economic wealth. There are two primary reasons that the garment industry continues to be the industry that is used to lead developing countries to the promise of a better tomorrow. The reasons are the industry continues to be labor intensive, and the barriers to entry are relatively low (Bheda, 2003).

In Ethiopia, SMEs Sector is the second largest employment-generating sector next to agriculture (CSA, 2011). According to CSA (2011) this sectors contributes 14.5% of GDP, 44% of the industrial sector's contribution and 57% of the manufacturing sector contribution to the GDP of the year 2010.To that end in recent years the Ethiopian government has given special emphasis to the growth and development of Small and Micro Enterprises and they are now become the lifeblood of the Ethiopian economy. This is especially true as most graduates, learning institutions as well as policy makers are beginning to accept the fact that the larger organizations and government offices cannot provide all the needed jobs, but would have to be complemented by the SMEs (Wolday and Gebre Hiwot, 2006).

The development of the sector in Ethiopia is believed to be the major source of employment and income generation for a wider group of the society in general and urban youth in particular. The five-year Growth and Transformation Plan (GTP) of Ethiopia envisages to create a total of three million micro and small scale enterprises at the end of the plan period (NBE, 2011). Citing the source from the Federal Micro and Small Enterprise Development Agency (FMESDA), the EEA Research Brief noted that a total of seventy thousand five hundred (70500) new MSEs were established in 2011/12 employing eight hundred six thousand three hundred (806300) people across the country. Their performance is below the target set in GTP (EEA, 2015).

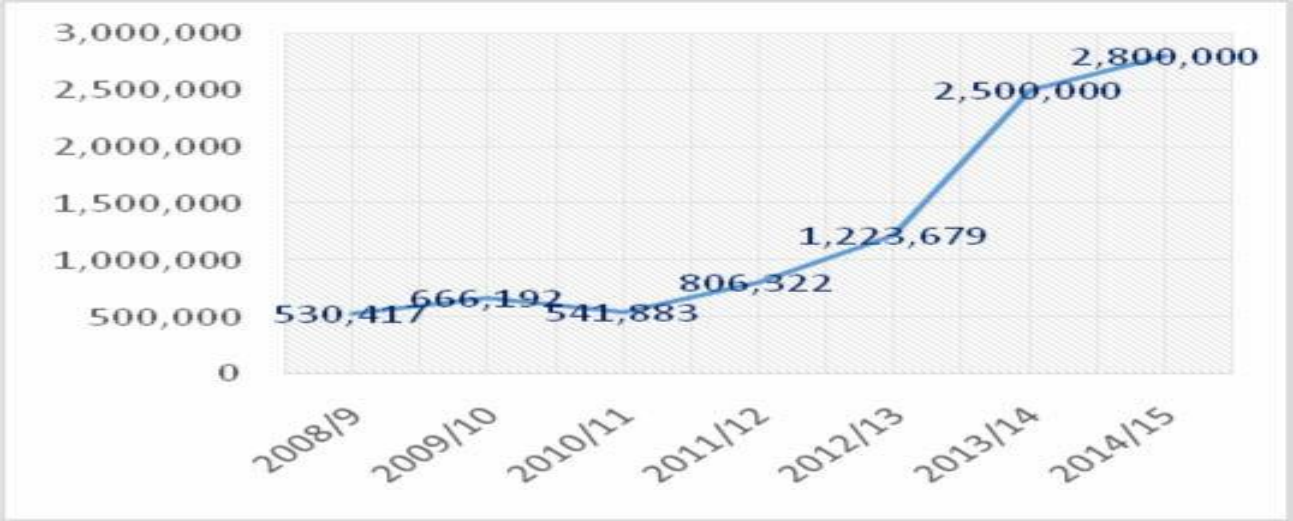

Figure 2 Employment generated by SMEs (National bank of Ethiopia)

According to the GTP II projection, the share of the manufacturing sector in GDP is expected to show a fourfold increase from 4.8 % in 2014/15 to 18 % by 2025. From this projection the share of Micro and Small Enterprises in GDP under base scenario in percent is stated as 1.1 in 2014/15 to 1.8 by 2019/20 with an average contribution of 1.4 in 2015/16 to 2019/20 and the projection is also made for Medium and Large scale enterprises as 3.7 in 2014/15 to 5.9 in 2019/20 with average share of 4.9 in periods 2015/16 to 2019/20.

As the contribution of SME sector in every major macroeconomic indicator became clearer, particularly with respect to the role of these enterprises in creation of new jobs, real GDP growth and development of entrepreneurship, SME sector became the center of socio-economic policies in Ethiopia economies, also causing an acceleration of research in this area. This is why this thesis is conducted to enhance the productivity of the garment manufacturing SMEs by considering the major contribution of the sector to the Ethiopian economy.

2.8 LITERATURE GAP

From the literature review the major gap identified was that most of the reviewed papers doesn't focus only on productivity related problems of the entrepreneurs but this thesis among the many challenges that affect garment SMEs focus only on productivity related problems. The second gap identified was that all studies focus only on identifying factors affecting growth and performance

they doesn't try to develop improvement methods ,frame work or models to solve the identified problems. The review literatures also have limitation on identifying the impact of the factors and effort required to eradicate or improve them. The previous studies only identify factors but the major intervention areas for improvement are not identified.

In addition the other gap identified was misunderstanding of SMEs in Ethiopian context. Any good policies and strategies need to rely on timely information if they are to promote the enterprises with the view to increasing their contribution to poverty reduction and economic growth. Therefore, the purpose of this study is to enhance productivity of garment manufacturing SMEs.

The major contribution of this paper is that it focus only on productivity related problems of the entrepreneurs and after analysis have been done the major intervention areas for productivity improvement of the entrepreneurs are identified and based on the identified major intervention are a productivity improvement method has been developed.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the research methodology and the research methods used in this study to answer the research questions presented in the previous chapter. This chapter outlines the research design and approach ,source of data, data collection , data collection tools, sample population, sampling techniques, data analysis tools ,validity and reliability of the study and finally ethical considerations are discussed .

3.1 THE RESEARCH DESIGN AND APPROACH

According to Vogt (2011), research design is the science and art of planning procedures for conducting studies so as to get the most valid findings. In this regard, research design offers the strategy to direct this study. For the research strategy survey research approach on selected garment manufacturing SMEs has been chosen.

The thesis, with the purpose of in-depth analysis of the garment manufacturing SMEs sector for enhanced productivity by developing a productivity improvement method is conducted on a purposive sample basis on selected 9 garment manufacturing SMEs found at two cluster site.

The data sources in the thesis work is based on both the primary and secondary data. Scientific articles and books are used for understanding of problem, finding the solution and developing a productivity improvement method for the study. Primary data was collected though questionnaires, interviews and observations, while secondary data is collected from company's documents and their online resources.

The data collection and analysis use mixed methods both quantitative and qualitative techniques are employed to collect data from SMEs.Questionnaires were designed based on problems identified in root cause analysis and brainstorming, from literature and are reviewed and standardized .Data collection and analysis methods show quantitative characteristics as well as purely qualitative ones. By doing so, the qualitative data is supported by quantitative data originating from the factual SMEs data.A structured questionnaires is used to collect data in the first phase followed up with

interviews and observation in the second phase to conduct an in-depth investigation into the research problem. Secondary data's are also used in the study from different secondary data source for the selected garment manufacturing small and medium enterprises (SMEs).

The next decision in the framework of this research is to investigate the existing productivity improvement practice of the firms. Having analyzed the existing productivity improvement system, its shortfalls are identified. Based on identified shortfalls intervention areas for productivity improvement are identified and a solution has been proposed .Finally productivity improvement method is proposed to improve SMEs productivity. Finally conclusions and recommendations are drawn.

3.2 SOURCE OF DATA

According to Kothari (2004), data sources are the carriers and provide the opportunity to investigate the problem. The data sources could mainly be categorized as primary and secondary. Primary data is the original data that is investigated or collected to meet the research objectives or problem by the researcher at hand. Primary data is directly targeted to research objectives and can better solve the problem faced, however it can requires the specialized tool to collect and analyze it.

The data sources for this research work is based on both primary and secondary data. Scientific articles and books are used for understanding of the research problem, finding the solution and developing a productivity improvement method for the study. Primary data will be collected thoughquestionnaires, interviews and observations, while secondary data is collected by reviewing company's documents like company's annual performance reports including production and technique annual performance, finance and accounting annual performance, human resource development and general service annual performance, and marketing and sales annual performance of the SMEs for different years (for last five years). Company profile documents and bulletins and others, such as the company's brushers, were among the company's documents reviewed. With these documents and records, it had been possible to see the existing productivity improvement system of the garment SMEs.

In order to obtain additional information about the productivity and productivity related information and data of garment enterprises, Quality and Standards Authority of Ethiopia, Ministry of Trade and

Industry, Ethiopian Garment Association, Ethiopian Textile Industry Development Institute (ETIDI), Central Statistics Agency, AIDB and FSMMEDA are contacted.Primary data for the study are collected from the mentioned government and non-government office and selected garment manufacturing SMEs of the sub-city through structured questionnaires, observation and in-depth interviewing. Secondary data from the company's internal documentation, from different books, articles and journals are also used.

3.3 SAMPLING TECHNIQUES

A purposive sampling technique is employed for the thesis and 9 garment manufacturing SMEs are selected for the study.This means participants are selected because they are likely to generate useful data for the project (Nouria and Green, 2007).Purposive sampling /non-probability sampling is a sampling procedure which does not afford any basis for estimating the probability that each item in the population has equal chance of being included in the sample. In this type of sampling, items for the sample are selected deliberately by the researcher; choice concerning the items remains supreme. In other words, under non-probability sampling the organizers of the inquiry purposively choose the particular units of the universe for constituting a sample on the basis that the small mass that they are to select will be typical or representative of the whole (Kothari, 2004)

3.4 SAMPLE POPULATION

Depending upon the type of research problem, a clear set of guidelines about which kinds of cases to include is required. The choice of the firms for the sample must fit into the official Ethiopian SMEs definition. Meanwhile, the samples selected should depend on the identification of key determinants of productivity.

First, the sample SMEs are chosen on the basis of a purposive sample and 9 garment manufacturing SMEs are selected out of 20 garment manufacturing SMEs in the sub-city. The selected firms fit within the definition of Ethiopian SMEs in terms of number of employees and capital they have. Second, sampling decisions were based on criteria that had relevance for the research questions. In addition the samples are selected in accordance with the following criteria:

- Corresponding to the Ethiopian definition of SMEs;

- Representativeness for garment manufacturing small and medium enterprises;
- The companies has relatively plentiful data required for this research purpose;
- Ease of accessibility for frequent data collection;
- The companies are also trying to implement different modern management tools and systems including kaizen;
- They all are in cluster ;
- High-growth SMEs undergoing substantial changes.

Nine firms that areTaimeMlse Garment, LeyuDesign Garment, Abbay Garment, MelkamuTadel Garment, Kibru and Tateqe Garment, Zenach Garment, SenaytGeses Garment, Cottex Garment and YMOS Garment are selected for the study, so as to obtain a broad understanding of the phenomenon under the study from a variety of perspectives.From the garment manufacturing SMEs in the sub-city 9 garment manufacturing SMEs are selected on a purposive sample basis for the study. The sample firms are production-oriented SMEs, produce different products and have the same technologies focused on different markets. The companies had been in business for an average of 7 years.

3.5 DATA COLLECTION METHODS AND TOOLS

According to Kothari (2004) selection of data collection method depends on the research problem faced by a researcher. Research objectives will be a deciding factor for choosing the quantitative or qualitative method and both the methods are not mutually exclusive.

A structured questionnaires is developed for selected garment manufacturing SMEs. The purpose of this questionnaire is to find out productivity related date. The questionnaire is developed in English language and during data collection for those who didn't clearly understand English language the questionnaire is translated to Amharic, the native of respondent’s language. Questionnaires with questions on a 5 point rating scale is designed based on problems identified in root cause analysis and brainstorming and are standardize.

For the qualitative data collection in-depth individual interviewing with the general managers, operation managers and with selected employs with in selected SMEs and Addis Ababa industry development office is conducted in Amharic and English with the purpose of knowing the root

cause of the productivity related problems and factor affecting firms productivity, to know what masseurs are taken before, productivity improvement tools and techniques used, to know major productivity improvement areas for garment manufacturing SMEs, cause and the impact crated by low productivity.

Observation is used to observe and record the swing machines arrangements, way of inventory, scrap, defects, raw material and finished product handling mechanisms. Direct observations were made at each firm, involving looking around the different offices, workshops, plants, warehouses, the laboratories, different departments and visiting the manufacturing area etc. I carefully observe everything relevant to productivity at all the sample SMEs manufacturing plant.

A wide range of data is collected for the study to suggest a solution for the defined problem. The following subsections describe the different primary data collection methods used in the thesis:

3.5.1 Semi-structured Interviews

According to Gray (2009), qualitative data could be gathered through a number of sources, mainly the interviews and observations. Interviews could be qualitative or quantitative based on the structure of interview. Semi-structured interview has the benefits of both structured interview and unstructured interview.Semi-structure interviews is conducted during the SMEs visit; the semi-structured interviews are selected due their good freedom and structure to deal with the problem.

In-depth interviews is carried out at nine different garment manufacturing SMEs. For the purpose of generating a deeper interpretation, it is intended to collect as much relevant evidence from the SMEs as possible. The raw data in each SMEs originated from multiple informants and sources.In addition to the SMEs respondents form Addis Ababa industry development office four participant participate in the interview. One respondents from yeka -sub city industry development office and three respondent from Addis Ababa industry development office. The interviews with Addis Ababa industry development office employees were used to cross check the reliability of the response of the questionnaire and gather additional information.

Table 6 The participants from Addis Ababa industry development office for interviews

Key informant	Industry development office	Yeka sub city
Textile garment and leather support Directorate director	•	
Garment and apparel division team leader	•	
Garment and apparel expert	•	
Manufacturing industries support Business process owner		•

Source: Research Data

The enterprises and industry development employees were first contacted by telephone to confirm whether they approved my being part of the research. Before going to the sample SMEs, I had a basic pre-understanding of the company's profile and any related information that could be found on the Internet and at sub-city industry development office. Normally, because the sample SMEs are quite small, there is very little information available online. I visited the sample firms several times. Data collection was conducted with founder owners, production managers, marketing managers, quality control representatives, HR managers, employees etc. These key people were all assumed to have substantial knowledge about their business and a good overview of their company from their different perspectives.

Generally, appointments with each individually informant are made to ensure sample time for each interview. The personal interview time was arranged at each informant's convenience. The interviews were generally formal, but there were also occasional informal discussions. The formal interviews took place in informant's offices and the company's meeting rooms. Prior to the commencement of each interview, asking the participant's background and workplace position are done and briefly introduced myself to them so we could get to know each other.

Then present the questionnaire to the interviewee to introduce them to the research topic and the purpose of the interview, as well as the promise of confidentiality. As it turned out, after only a brief glance, most interviewees returned the questionnaire to me and allowed me to ask questions

freely. During the interview process, the questions asked were not restricted to the pre-formulated questionnaire. In order to gain an overall picture of firms and to increase my understanding, many additional questions were asked to capture as much data as possible. The interviewees were able to identify the major productivity problem in the firms.Key thoughts are summarized and written down on field not on each interview. The preliminary data analysis involved reviewing the written-up field notes.

Table 7 The participants from the sample firms for interviews

Key informants	TaimeMlseGarment	Abbay Garment	Leyu design arment	MelkamuTadelarment	Cottex Garment	SenaytGesesGarment	Zenach Garment	Kibru and Tateqe Garment
Founder/CEO/ General Manager	•	•	•	•	•	•	•	•
Quality representative		•						•
Production technician					•			

Source: Research Data

3.5.2 Observation

Observation is the most commonly used data collection method. Under the observation method, the information is sought by way of investigator's own direct observation without asking from the respondent. The main advantage of this method is that if observation is done accurately, subjective bias will be eliminated. Secondly, the information obtained under this method relates to what is currently happening; it is not complicated by either the past behavior or future intentions or attitudes. Thirdly, this method is independent of respondents' willingness to respond and as such is relatively less demanding of active cooperation on the part of respondents as happens to be the case in the interview or the questionnaire method (Kothari, 2004).

The data from observations come from the phenomenon under their real environment. Observation has many forms, and the observation can be applied even people unwilling to express themselves verbally. Gray (2009), argued field notes are the essence of qualitative data collection during observation.

This method is used for collecting the required data and information from the respective SMEs. In this research direct observation is used as a means to assess the techniques used in documentation and production processes as well as the existing facilities of the SMEs. Data collected through direct observation were carried out on the company through frequent travel and whole sites visits, starting from raw material and spare parts storages to finished products warehouses and sales shops for nearly two months. Productivity improvement process needs to go through several steps .Moreover, the infrastructure and facilities of the SMEs has been observed. Observed process defect data for this study were collected by making notes (field notes) of what has been observed.

3.5.3 Structured Questionnaires

The layout of the questionnaire was kept very simple to encourage meaningful participation by the respondents. The questions were kept as concise as possible and great care was taken to the actual wording and phrasing of the questions. In preparing the questionnaire English language was used. During data collection through questionnaires because some operators might not fully understand English as equal as Amharic the questionnaires is translated to Amharic. Greater emphasis was also given for the appearance and layout of the questionnaire because they play of greater role and are important in data collection process where the questionnaire is to be completed by the respondent.

The comments of pretesting participants were taken into account during the finalization of the survey questionnaire to improve the question wording, format, sequence and layout of the questionnaire. Since the data collection was self-administered, the questioners were present face-to-face with each respondent to explain and clarify their questions. In addition to minimizing misunderstanding the questions, the self-administration of the survey also provided the advantage of an increased response rate. The reliability of the SME survey responses has been used for the study with the assumption that the SME owner or managers have provided information that is nearest to the actual information.

For the purpose of this research the five-point Likert scalequestionsare used. The Likert scale ranges from ‘strongly agree’ to ‘strongly disagree’ so as to not limit the response of respondents to some limited ranges.

3.6 TOOLS FOR DATA ANALYSIS

The collected data through the means of interviews, questionnaires, direct observation and secondary data source were analyzed & interpreted. In data analysis phase of the research, both quantitative and qualitative data analysis methods were used. The data obtained through questionnaire and observation were analyzed using both quantitative and qualitative method. Conversely for qualitative data analysis content analysis method used to analyze and describe the data obtained through structured interview and document review.

Analysis is made by investigate the productivity related problems and apply cause and effect diagram to identify the potential areas of improvement. Cause and effect diagram is used to identify the root cause for the productivity problems and to identify root causes for various defects.This answers research question by giving a better understanding which areas has the most occurring frequency and needs to be given more attention and prioritized in other to achieve operational excellence (productivity).Finally, a productivity improvement method is proposed targeted to enhance productivity of garment SMEs.

For data collected through interviews and observation, the recorded interviews and observations from the field notes are selected. Data analysis was focused on putting the pieces of information fragments together from the interviews and observations which are related to the theoretical concept of productivity and productivity improvement. The emphasis was on the information that best addressed the research problem. The information from the field notes are carefully screened to determine whether particular data was suitable for answering the research questions.

Data from the questionnaires, observation and the interview are analyzed by use of descriptive statistics (frequencies, tables, means, histograms and percentages).Once the analyses of the questionnaire have been completed, the data obtained from the interview was analyzed and interpreted along with the main themes of qualitative analysis.

Descriptive statistics were utilized to analyze data obtained from the SMEs interviews, questionnaires and direct observation. Moreover, pie charts was also used to describe the general characteristics of enterprises. The reason for using descriptive statistics is to compare the different factors.

3.7 VALIDITY AND RELIABILITY OF THE STUDY

Accordingly, the questionnaire developed in this study was administered after pre-testing .The pretesting is done by my thesis advisor and co-advisor at the University of Addis Ababa institute of technology, industry development experts and SMEs experts . After this pre-testing, collecting data through the questionnaires was run on the selected garment SMEs in the sub city. The results of the pretesting ,done by my advisor, industry development employees and management and by some of the SMEs managers ,addressing the reliability of the instrument indicated that each respondent had the same understanding of questions, resolving doubts on question clarity and comprehensiveness.

Validity of the developed PIM is ensured through reviewing intensive literature study to develop the PIM that answers the problem formulation and the measures selected for PIM development also based on major factors affecting productivity mentioned by the entrepreneurs. It is also ensured by interviewing with highly experienced personnel's to accurately answer the desired question seeing relationships between measures(Advisor ,co advisor, industry development office experts and some SMEs general managers).External validity is ensured by developing the PIM from scientific literatures, which are already generalized theories.

3.8 ETHICAL CONSIDERATIONS

All the research participants included in this study were appropriately informed about the purpose of the research that the research is merely academic and their data is held confidential and their willingness and consent was secured before the beginning of distributing questionnaire. Regarding the right to privacy of the respondents, the study maintained the confidentiality of the identity of each participant. Their privacy, identity and confidentiality were maintained by assigning them code numbers instead of names. The completed questionnaires were filed safely and were accessible only to the researcher and thesis advisor. In all cases, names are kept confidential thus

collective names like, respondents‟ were used. Based on this premise, the study does not reveal firms' information.

3.9 METHODOLOGICAL FRAME WORK FOR THE STUDY

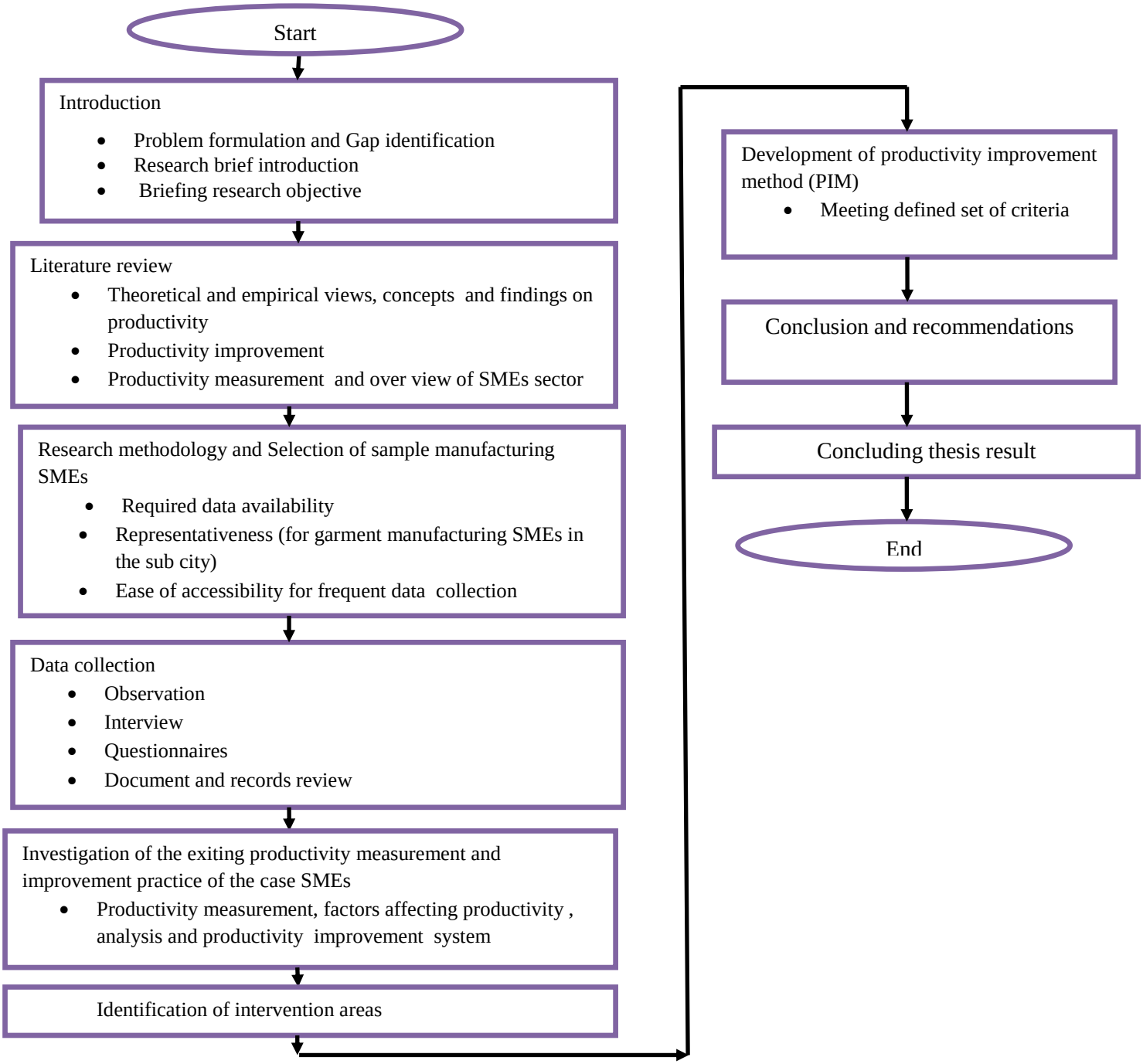

Figure 3 Research framework (Own work Modified from Yitagesu, Daniel and Amare, 2015)

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

This chapter presents data analysis and findings of the study improving garment manufacturing SMEs through enhanced productivity in yaka sub city of Addis Ababa. Many literatures confirms that in most cases developing countries are facing the challenges affecting SMEs for unsuccessful development. This study investigate and identifying the possible productivity factors,among the possible productivity factors identify the major intervention areas for improvement and develop a productivity improvement method that supports garment manufacturing Small and medium enterprises (SMEs) to enhance their productivity in yeka sub city of Addis Ababa.

Data collected through questionnaires, interviews, observation and from secondary data source were analyzed and interpreted. The analysis was presented in different sections. The aim of this sections was to answer the basic research questions. Questionnaires, interview data from the entrepreneurs and Addis Ababa and yeka sub city industry development officers, observation data and secondary data were consumed for analysis in this thesis. Therefore, the presentation, analysis and interpretation of data were made based on the data obtained from the above sources.

4.1 PRODUCTIVITY FACTORS ANALYSIS OF ENTERPRISES

Based on review of literature, various critical factors affecting productivity of SMEs are identified and were well communicated with the respondents and their response were incorporated in the survey. Respondents assess the statements in the questionnaire using a five-point likert scale of strongly agree to strongly disagree (Where; 1= strongly disagree; 2= Disagree; 3= Neutral; 4= Agree; 5= strongly disagree) and evaluate the factors in relation to their enterprise. In addition to data collected through the survey questionnaire data from observation of the SMEs production facility, interview and literature were used for the analysis.

4.1.1 Educational status of respondents of SMEs

The position of respondents are founder/CEO, marketing manager, general manager, quality manager, production manager, marketing manager and human resource manager.Regarding the respondents work experience except two respondents one with 6 years and the other with 8 years' experience, all the other respondents have work experience more than 10 years in the garment sector. All the respondents have TVET /Diploma in their qualification.

From this data one can understand that the education status of respondents in the research is low. Therefore, they may face a problem in complex business decision making processes; and this will have a negative impact on the productivity of their business activities.

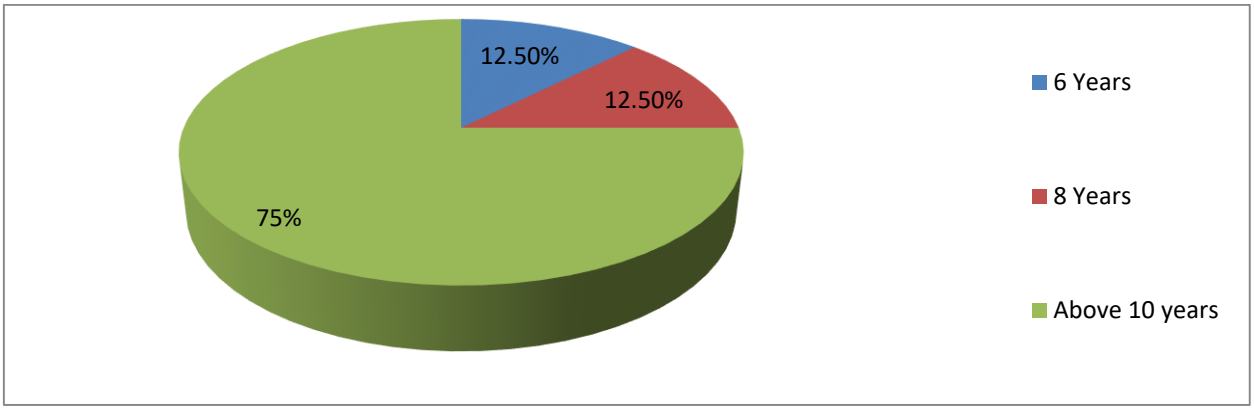

Figure 4 Pie Chart illustrating work experience status of respondents of SMEs

4.1.2 Production factor

The major production factor identified that affect productivity of SMEs considered in this thesis work are spare parts supply, technology, quality and production efficiency. In order to know production factor effect on productivity of garment manufacturing SMEs data collected through survey questionnaire, interviews ,observation and secondary data analysis and interpretation is done as follow.

From the interview, it is understood that there is shortage of spare parts supply in the market. The spare parts for sewing, button fixing and over lock are not easily accessible in the market. The SEMs get this spare parts from shops in merkato and the spare parts are not available when they are needed. The spare parts has also quality problem. Finding original spare parts in the market is difficult task for SMEs in required quality and quantity.

Research shows that automated technologies exist in all 4 stages of apparel production. For example, during product development, there are digital printing and body scanning technology. During apparel design, there are 3D body scanning, computer aided design (CAD) pattern tools. During production, there are fabric spreader truck, automated cutting machines and sewing robotics. During apparel finishing, there is pressing automation.

Responses from the interview shows that technology is one determinant of SMEs productivity and adds value in their productivity. The responses confirm that technology assisted their firms mainly in saving costs, improving product quality, increasing production volume and raising relatively on overall productivity if further financial supports are given to them for installation of modernize technology. This implies that using improved appropriate technology in SMEs enterprises can produce a more valuable and competitive products. The technologies that they used for pattern design, fabric/cloth spreading, cutting, fusing, sewing, buttoning and finishing consists old machine they can't purchase new technology due to financial shortage. Since accusation of new technology machines requires high investment the SMEs can't have new technology for their garment production this intern reduce their product quality. Garment with poor quality are not competitive with the RMG imported from abroad.

From observation most of the production machineries used by the enterprises are old technologies and are not new technologies. This confirms that they can't produce with their full potential. The research indicates that 100% of the SMEs doesn't have a quality management system certificate. Quality management system with established procedures for each point of the process, records, databases, analysis and action plans to improve the process does not exist. None of them have ISO 9000 QMS certificate. From interview responses it is understood that, all SMEs have awareness about quality and quality control as well as they perform quality related activities in informal way. Except Cottex have a separate quality control and assurance department while Abbay garment assigned one responsible personnel for quality control and assurance but other firms have neither separate quality department nor responsible personnel for quality issues.

From the interview it is understood that, all of the SMEs doesn't have separate design department consisting of pattern design and sample maker. In all the enterprises the pattern design is performed by the SMEs owners' .In all firms pattern is designed manually and most measurements are done by approximation from their experience, but from observation it is clear that the manual pattern design

development is neither sufficient nor efficient. The time taken to develop a new product ranges from 2 to 3 weeks and depends on the activity of shop floor and market. For new pattern design by external designer the SMEs pay an average of 20,000 birr to 30,000 birr.

Due to this lead times for deliveries are with large margin therefore the SMEs are not competitive in delivery. The major production efficiency problem identified are old machines , shortage of spare parts delivery, shortage of inputs used in the making of clothes (fabrics and accessories), poor quality of raw material, poor working condition, shortage of working capital, the skill and attitude of the workers and production method. Employee's performance at swing section is also the major problem of the firms.

From observation it is seen that the preproduction areas consist of pattern design, fabric/cloth spreading, cutting, fusing, sewing, buttoning (if needed) and finishing consists old machine and most of the production process are performed manually. Almost all the SMEs get their production machine from Addis capital by loan. From interview Addis capital provides all the machines required by SMEs but they doesn't provide new technology machines with high machine efficiency.

From literature work standards identify the best way of doing a job and it consists of set of documented policies, rules, directives and procedures fixed by the management for all major operations to enable employees to perform their jobs without mistakes and to enable management to minimize variations in output, quality, work-in-progress and cost.

From observation the working condition of the SMEs are not standardized in accordance to the principles of kaizen and 5s.Exepet Cottex and kibru all the SMEs doesn't implement kaizen. They doesn't have documented quality policies, they doesn't develop documented policies, rules, directives and procedures fixed by the management for all major operations to enable employees to perform their jobs without mistakes and to enable management to minimize variations in output, quality, work-in-progress and cost. In all SMEs the swings are properly arranged in production lines but when we observe the motion of operators in the shop there is high motion of operators, that doesn't add value.

From literature seating time standards for each production process can also be improved since lesser time can be implemented to finish such tasks. Standard time can also be major factor in increasing the productivity of the garment manufacturing SMEs at lesser time and for the workers to maintain

their efficiency in doing each process. Therefore, productivity can be maximized through utilization of workers given that standards are set and resulting to the attainment of desired outputs.From the collected questioner87.5% garment SMEs have standard time for each garment style and12 % doesn't have.

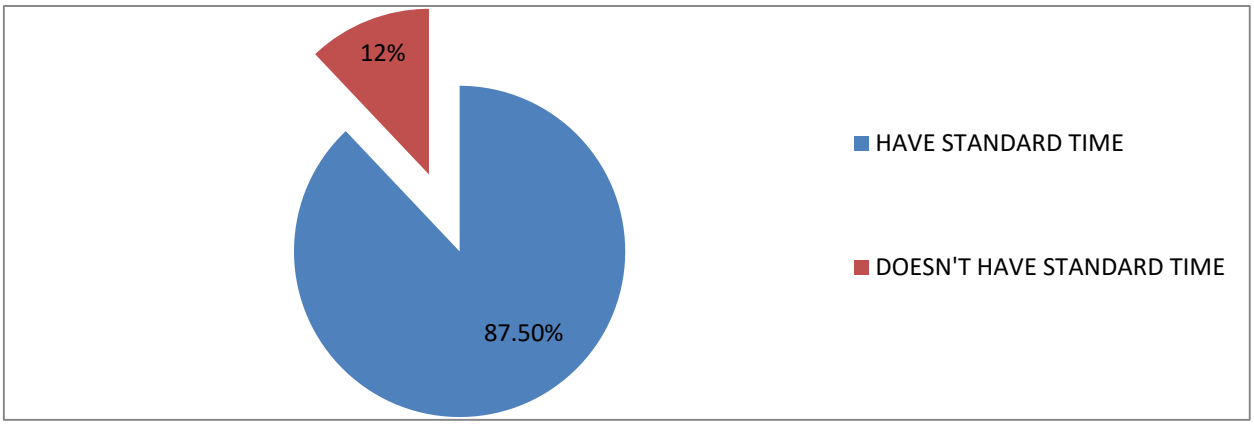

Figure 5 Pie Chart illustrating standard time

Regarding manufacturing machine/equipment utilization except Cottex garment in all garment SMEs, all machines are not run all the time because the garment SMEs doesn't have continuous job order. Since there is no continues production most of the time machine/equipment are idle.Except Cottex Garment all the SMEs doesn't fill the questioner asked. I asked the reason why they doesn't answer the questioner asked during the interview and they respond ,they have faced with shortage of working capital , the current political unrest of the country ,shortage of raw materials (resulted from shortage of hard currency), bureaucracy of developmental bank of Ethiopia for loan, market and electric power shortage due to this they are not producing in accordance with their schedule and most of the production machines are idle for days or weeks without any work.

The respondents have also indicated the major reasons for machine failure, which includes: improper handling of machines, maintenance problem, depreciation, old machines, due to improper handling of machines, machine quality problems, using machine for long period of time, electric power fluctuation, and shortage of operator's skill, spare parts problem and motion of machines from one place to another.

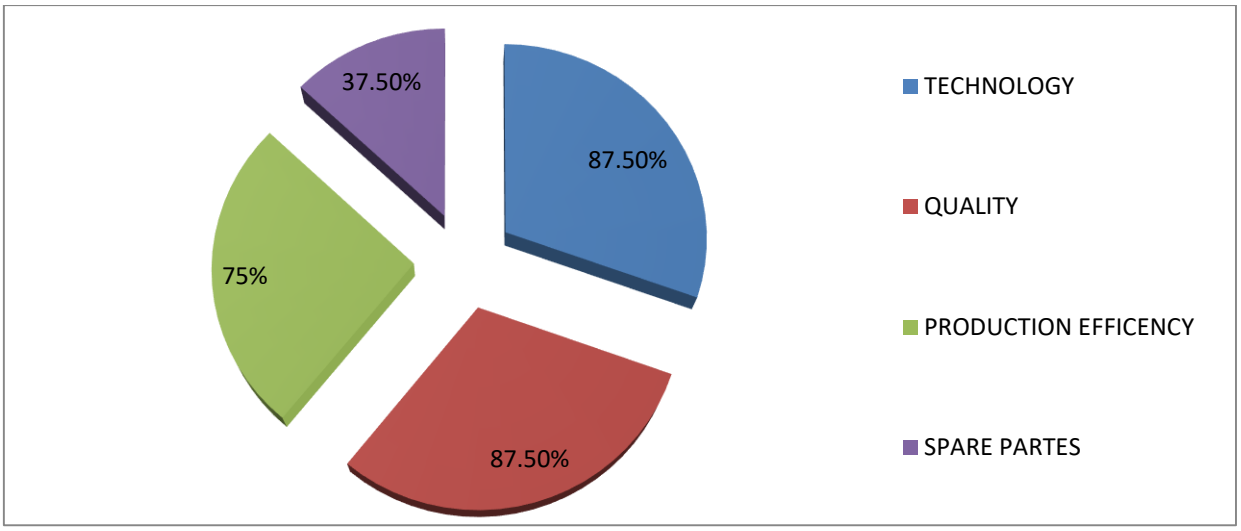

Figure 6 Pie Chart illustrating production factors that affect productivity

From the research 87.5 % of respondents mentioned that technology and quality were their top production factor that affect their productivity. In line with this, 75% respondents mentioned that production efficiency problem was second main problem for the SMEs. On the other hand, 37.5 % of respondents showed that spare parts was also main problem they have been facing.

4.1.3 Human resource factor

The major human resource factor that affect productivity of SMEs considered in this thesis work are motivation of employs, human resource performance, health and safety of employs, wage and working conditions. In order to know human resource factor effect on productivity of garment manufacturing SMEs the data collected through survey questionnaire, interviews ,observation and secondary data analysis and interpretation is done as follow.

It has been reported that job motivation is a main criteria and principle in human resource management. (Ortiz & Tran, 2007) It reveals that there is a positive and direct correlation between motivation and productivity among organization's employees. Being careful about fulfilling the motivation factors causes a considerable improvement.

From direct interview, it is understood that the garment manufacturing SMEs in the sub city has motivation mechanism for their employees based on their production performance. The employs are evaluated based on number of garments they produce and new innovative ideas they provide. The

motivation mechanism for employees are providing allowance/ Bones (incentive) for employees, giving reward for production line that produce beyond the production target on weekly base and increasing their monthly wage. From direct interview it clear that motivational system is neither efficient nor sufficient in most of the SMEs due to the fact that it is not applied systematically but randomly.

From literature human resource performance is attained by educating and training of the work force of the firms. In dealing with firm productivity, the most common factor included by many researchers is the human capital variables measured by education level, training, educational expenditure, literacy rate and so forth. Human capital attainment especially in terms of education and training plays an important role in determining firm's performance such as output, productivity and profit .Firms with more educated workers are better able to sustain and control their present technology or adopt modern and new technology. They are more able to invest in human capital like training because knowledgeable workers learn and adapt faster and are more innovative Labor productivity is very much related to skills among workers that can be acquired through Proper training. Workers who have attended training will be more efficient, productive and contribute to productivity growth.

Worker performance is the ability of the worker to execute a series of tasks given by the company in order to produce a product. With proper utilization of the available resources and doing each process right the first time with less cost, workers tend to perform the job efficiently and produces quality products through right movements and techniques needed to finish the job at a shorter period of time. In this way, the capacity of the worker to perform each assigned task appropriately helps increase productivity and their improvements to perform each task efficiently. Efficiency is achieved when each worker performs a specific task with correct movements that allows each worker to finish the task with less interruptions and delays in production. In addition, the efficiency improvement and proper management can also be a factor to an efficient performance by implementing a single-tasking activities and an open communication.

From observation accident preventive methods applied in the garment SMEs include implementing occupational safety and health procedures by giving trainings, using Personal protective apparatuses such as Protective Equipment devices/clothing for employees engaged in potentially dangerous or harmful work like uniform, fabric cap, rubber gloves, dust mask or carbon masks, soap, rubber

boots, goggles and by covering machines that need protection is not satisfactory and needs improvement in order to protect the well beings of the employees. All SMEs regarding safety of employees they doesn't use any protective mechanism to protect the employee's safety. The manufacturing SMEs sites doesn't have proper hygienic working conditions.

From the responses regarding health and safety of employees it is understood that, all SMEs have awareness about health and safety of employees. Unhealthy employee can't produce what is expected from him and he is unproductive.

A higher wage rate received by the workers will encourage them to work harder and contribute to higher productivity. Workers with higher level of education and attended formal training tend to receive higher wages and they are also more likely to contribute to career development, research and development and further human capital accumulation and consequently they contributes to higher productivity growth. Therefore, it is very important for firms to have more educated workers to gain this added stimulus effect.

The minimum wage is the lowest legal payment for an employee who performs the simplest work under normal working conditions during normal hours of work i.e. 8 hours. The minimum wages shall be determined on monthly, daily and hourly basis. From direct interview there is no minimum wage set by government for the sector due to this different wage are paid for employee performing similar job. Average wage of a worker/employee working in SMEs are between 900-150 birr per month.

Labour turn-over and socio-economic background of the employees was the main chronic problem that affected productivity in majority of the SMEs. According to interview conducted with human resource department of the SMEs employees from Addis Ababa are not stable they leave their job even without announcing to them this intern affect their productivity since the garment production process is a continuous process if one step is not performed all the operations are also stop. Another problem faced is that since there is no quality of skilled manpower available in the market the new employees has to train, this costs the SMEs. Absenteeism and Working conditions also affect labour productivity.

They also highlighted high staff turnover as one of the reasons for lack of skills as employees tend to migrate to other organizations leaving them short in manpower hence rendering them to produce

below their set standards. From the collected questioner the turnover rate among workers according to 66.6%respondent is 1-2% and 5-6% according to 33.33% of the respondents. While when we see absenteeism rate according to 16.6% of respondents the absenteeism rate is 1- 2 %, 66.6 % of respondents the absenteeism rate is 3-4% and 9-10% according to 16.6 % of respondents. This indicate that absenteeism rate is the garment SMEs is not the major productivity problem. The absenteeism rate is low. From the direct interview it can be conclude that, the relationship between employees and superior, income, work environment and job security had an effect on employee absenteeism.

From literature working conditions were analyzed to evaluate the workstation designs, material handling and storage, working environment, cleanliness and welfare facilities. After the comparison of low, medium and high productivity units, it was concluded that in high productivity units, working conditions were better as compared to medium and low productivity units. From interview conducted the management is unaware of many issues related to working conditions and the working conditions like lighting, passageways, ventilation ,toilets, materials storage and Machine safety are no in a good conditions that gives comfort for the workers and for the quality and efficiency of the production process and needs improvement.

The apparel SMEs should evaluate the working conditions and welfare facilities and should take corrective measures accordingly. Good working conditions are essential for enhancing productivity .Most workers in SMEs are producing garments repeat the same or similar operations for the whole production lot which, if performed efficiently and quickly, can result in better productivity. Each workstation should be designed to suit the needs of a worker, the machine and the task to be performed.

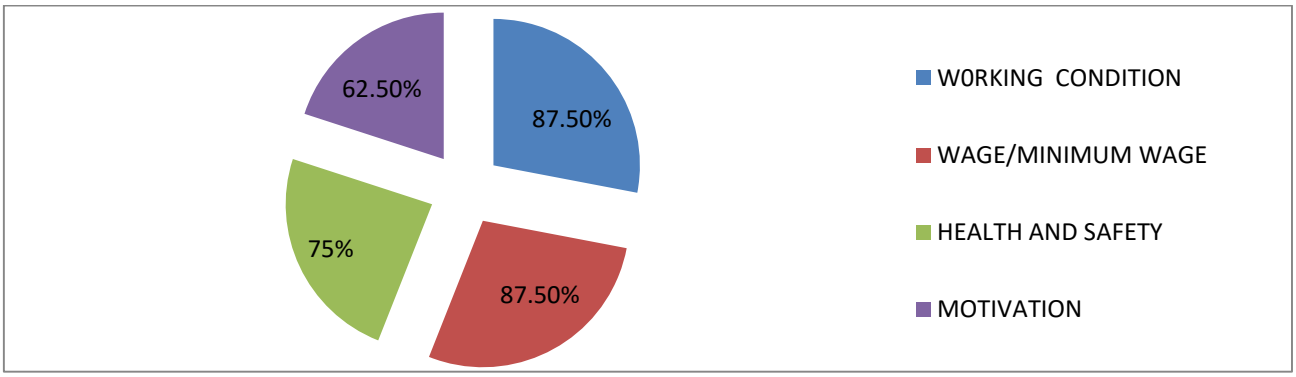

Figure 7 Pie Chart illustrating human resource factors that affect productivity

From the research 87.5 % of respondents mentioned that working condition and wage/minimum wage were their top human resource factor that affect their productivity. In addition to 75% of the respondents mentioned that health and safety and human resource performance was their second human resource factor that affect their productivity .On the other hand, 62.5 % of respondents showed that motivation of employees was also main problem they have been facing.

4.1.4 Business environment factors

The major business environment factor that affect productivity of SMEs considered in this thesis work are working capital, business regulation and restriction and business networks are the major ones. In order to know business environment factor effect on productivity of garment manufacturing SMEs the data collected through survey questionnaire, interviews ,observation and secondary data analysis and interpretation is done as follow.

Table 8 Initial (start-up) and Current Capital of SMEs

S.No.	Enterprise name	Initial (startup) Capital (Birr)	Current Capital (Birr)
1	TaimeMlse Garment	56,000.00	700,000.00
2	Leyu Design Garment	100,000.00	900,000.00
3	Abbay Garment	25,000.00	715,000.00
4	MelkamuTadel Garment	5,800.00	550,000.00
5	Kibru and Tateqe Garment	20,000.00	700,000.00
6	Zenach Garment	70,000.00	120,000.00
7	SenaytGeses Garment	70,000.00	120,000.00
8	Cottex Garment	50,000.00	1,300,000.00
9	YMOS Garment	5500.00	650,000.00

Source: Research Data

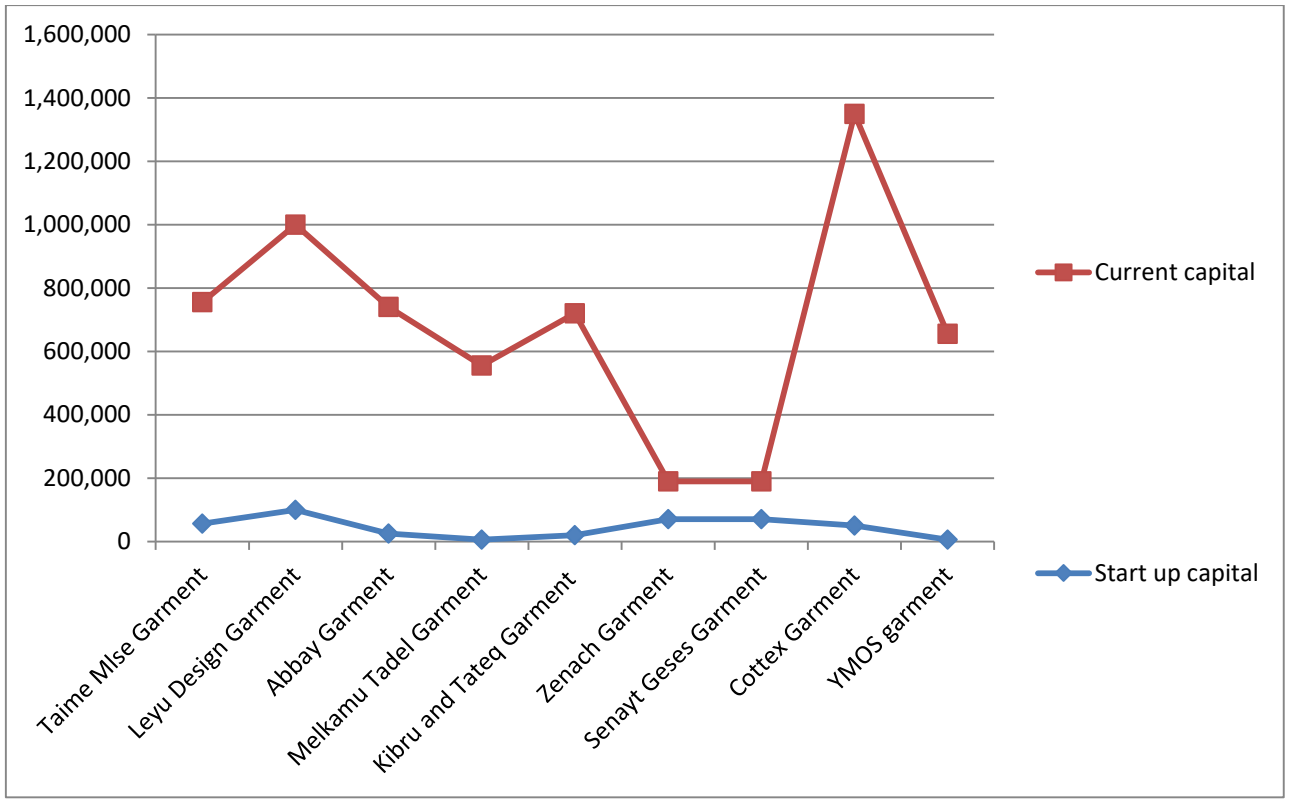

Figure 8 Line Chart illustrating financial growth of SMEs

One of the major requirements for establishing business is the startup capital/initial capital. As indicated in table above the greater part of the owner of the enterprises start up with small amount of capital. For that reason 44.44 % of the enterprises were launched with less than 50,000 birr, 55.55 % of the respondent started up their business with a capital of 50,000 birr and above. Thus most of the enterprises were established with a low amount of capital. This affect their productivity at the early stage and long term. Even though this is the main feature of enterprises in the developing countries, the government should support this sector in terms of finance and other incentive in order to enhance SMEs productivity.

On the other hand from the collected data, the current capital of all enterprises, except Cottex garment with capital 1.3 million birr, doesn't exceed 1 million birr. Again this is very low capital amount. That is one major hindrance factor for further expansion of enterprises and affect their productivity.

According to F.D.R.E council of ministers regulation no. 373/2016"small manufacturing industry" means an industry having a total capital, excluding building, from Birr 100,001 to Birr 1,500,000

(one Hundred Thousand One Birr to One Million Five Hundred Thousand Birr) and medium manufacturing industry" means an industry having a total capital, excluding building. From Birr 1,500,001 to Birr 20,000,000 (One Million Five Hundred Thousand One Birr to Twenty Million Birr) in the manufacturing sector.

Based on this definition when we assess the SMEs none of them is transferred to medium manufacturing industries having a capital of 1,500,001 birr. In an interview with the entrepreneurs the major constraint for this is lack of appropriate government support, political instability of the country and collateral requirement of bank. If they get enough financial support from the government the SMEs are committed to transform to medium and large manufacturing industries.

As one can see from the table above, all of the respondents 100 % has increased their initial investment or there is improvement in their capital but none of them fulfill the minimum requirement set by the government for medium manufacturing industries that is 1,500,001 birr.

From literature the absence of government commitment to ensure an enabling business environment and enhance the capacity of SMEs is another obstacle for productivity. In assessing how the business environment is affecting the productivity of SMEs business regulation and restriction set by the government for tax, labor and rental are assessed.From the interview the SMEs productivity is affected by government regulation and restriction especially for rental of the working premises. The working premises rental for one square meter is 37 birr before it was 20 birr for one square meter this cost affects their productivity. The major problem identified is that the government increase the rental cost of the working premises without discussing with the entrepreneurs and the rental cost is high which shows 200% increment.

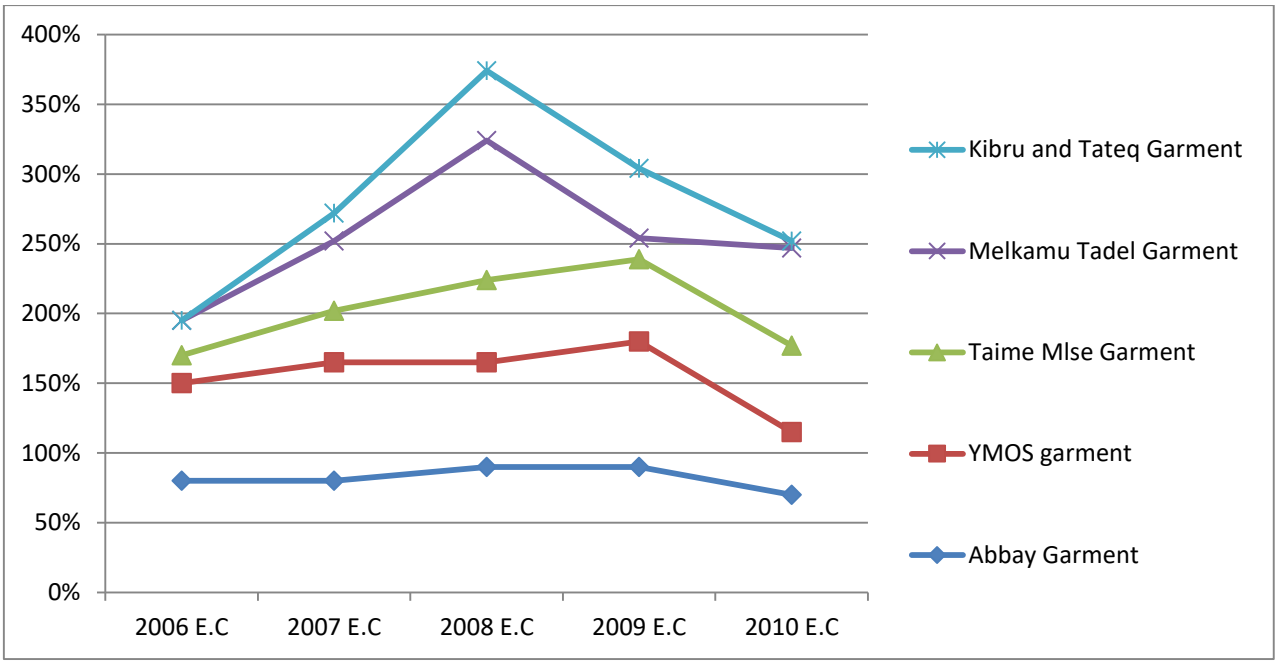

Figure 9 Line chart illustrating Sales % in birr

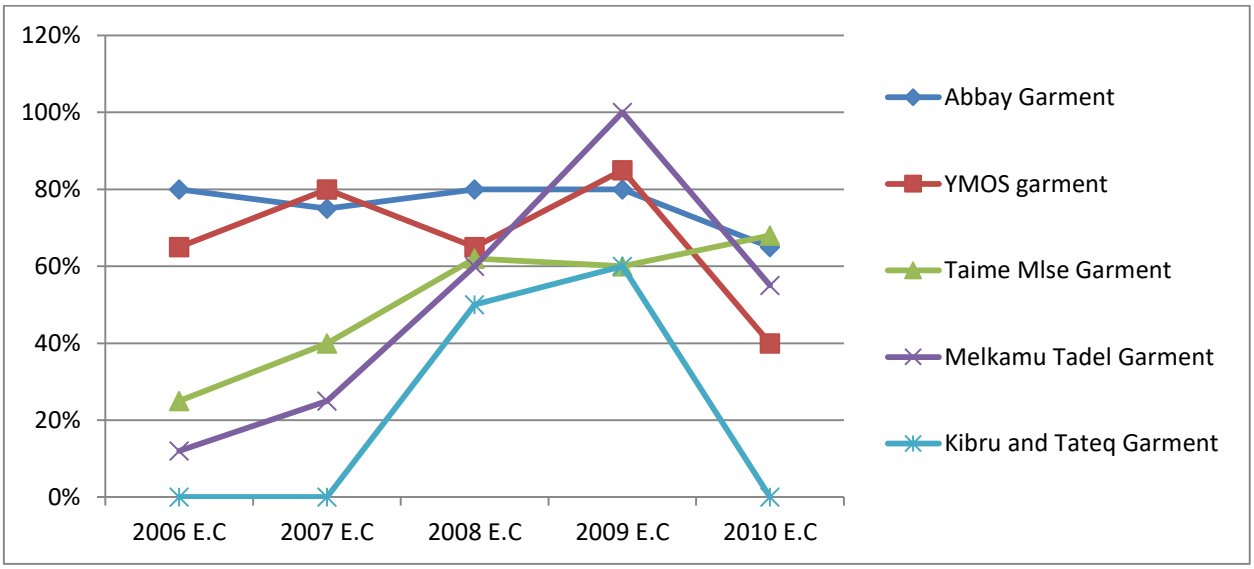

Figure 10 Line chart illustrating Profit % in birr

Regarding sales and profit of the enterpriser's data was collected analysed.The analyzed data indicates that most of these SMEs profit haven't increased after the last two years. Most of these (44.45%) have no knowledge of market situation and their respective market share situation in the market. From the above graph it is identified that, the sales volume and profit of most of the enterprises declines from the last two years due to political instability of the nation.

Enterprises need finance to purchase equipment's and machinery, expand their market, to cover working capital shortage and for expansion of their process. However the major difficulty for entrepreneurs still seems to be the lack of access to finance. The research indicates that all garment industries have a working capital problem and In an interview conducted with regard to financial factors affecting the growth of SMEs confirmed that SMEs couldn't able to get loan from banks due to uninviting preconditions of development bank of Ethiopia in relation to collateral requirements. Due to this obstacle of banks, they are forced to go to micro financial institutions and exposed for high interest rate. But majority of interviewees widely outlined that, they frequently use informal sources as main sources of finance.

From the research the main reason for working capital shortage in the SMEs are collateral requirements required from the SMEs, which is difficult to fulfilled by the SMEs and bureaucracy of loan acquisition preconditions set by the development bank of Ethiopia. The government of Ethiopia develop a lease financing program for SMEs to get access to finance for machinery purchasing without collateral but this program has set more than 25 precondition requirements which must be fulfilled by the SMEs. From the interview none of the SMEs fulfill the requirements and get access to loan from the development bank of Ethiopia. All the respondents presented strong arguments on the importance of collateral to successfully gain access to bank loans which is the major problem of the SMEs.

During the interview with the entrepreneurs the major issue raised was the development bank of Ethiopia doesn't rely on local entrepreneurs but rather they give loan to foreign entrepreneurs simply. According to research conducted by UNDP the reason why the development bank doesn't give loan to the SMEs simply is insufficient assets, low capitalization, and vulnerability to market fluctuations, high mortality rates and lack of accounting records. The interview also revealed that the banks' lack confidence in the ability of SMEs to repay the loan.

The interview with entrepreneurs revealed that the business network is created by themselves. The government doesn't give them any incentives when they participate in government biding. Because of this may SMEs are out of biding during bid assessment this in turn affect their productivity since they doesn't get access to work. Lack of policy alignment (e.g., differential advantages according to firm ownership) crowd out domestic suppliers instead of create linkages between SMEs and suppliers. The entrepreneurs complain that they are disadvantaged in accessing resources such as

land, capital and government contracts (even while their contribution to the economy and jobs growth are significant). In essence, lack of effective domestic competition policies to effectively participate in government contractual bids.

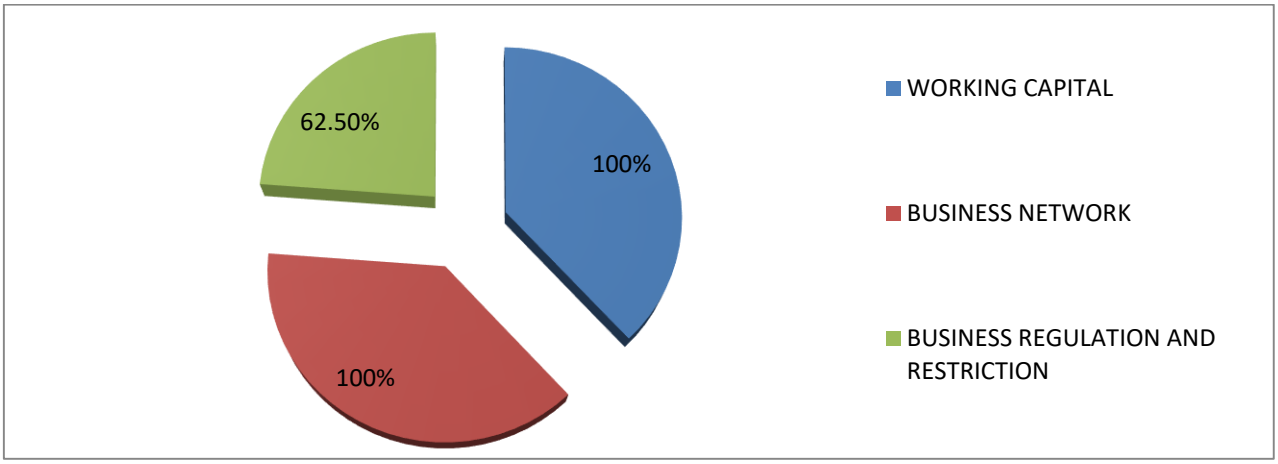

Figure 11 Pie Chart illustrating business resource factors that affect productivity

From the research 100 % of respondents mentioned that working capital and business networks were their top business environment factor that affect their productivity. On the other hand, 62.5 % of respondents showed that business regulation and restriction was also main problem they have been facing.From the above graph it is identified that, the most sever obstacles for productivity improvement are working capital and business networks, secondly factors rated as major obstacle is business regulation and restriction.

4.1.5 Quality infrastructure factor

From literature standards represent a form of codified knowledge that can bring management systems to a more sophisticated level than the practices generally diffused in a developing context. For this reason, management standards certifications have started to be used in firm-level productivity analyses. However, the cost of ISO implementation and certification by third-party systems is a major factor for garment enterprises. Most of these enterprises are not strong financially.

Evidence from literature has also been found that firms adhering to standards are more likely to provide better work conditions for their labour force, experiencing positive effects on the

employees. Thus, introducing better practices for human resources as part of overall management quality improvements, providing training to increase human capital, and improving workplace safety and satisfaction may contribute to better work conditions and better employee performance, ultimately reflecting into increased productivity.

From the direct interview with entrepreneurs revealed that there is no national standards for garment production and the national quality infrastructure doesn't support them to be ISO 900 management system certified and to manufacture standard garment for both national and international market. The national quality infrastructure do nothing in supporting garment SMEs .There is also no anthropometric measurement data for garment manufacturing at national level and garment standards for M, L, XL, XXL, XXXL garment to manufacture accordingly. The SMEs use random measurement for manufacturing of the garment products. Due to lower productivity and the inability to meet international product standards, SMEs struggle to deliver the required product quantities at consistent quality this inhibit them from exporting there product. Low levels of compliance with national and international standards is the major reason why national and international buyers are wary about buying SMEs products.

From the interview SMEs garment product is not reliable in the market, because the products doesn't manufactured in accordance with customers requirement, quality problem and absence of manufacturing standard for different garment style. All most all of the garment enterprises do not identify customer requirements. There is a large gap between customer requirement and the products of the enterprises. The degree of communication with the customers to understand their requirements and translating into products is not satisfactory. The major problem identified was most of these enterprises are not strong financially. Therefore, the cost of upgrading their infrastructure to meet international standards and the cost of certification is unbearable

From an interview conducted product standardization and product reliability improvement are important for productivity of the SMEs. Since standard products are more accepted by the customers than nonstandard ones, but producing standard garment is difficult since there is no product standard as a nation for garment.

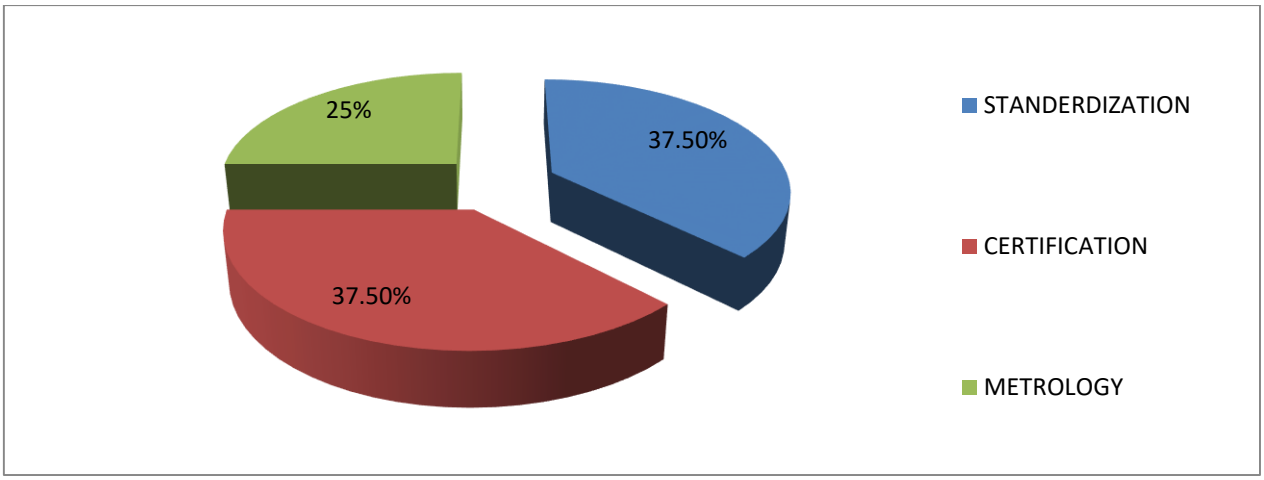

Figure 12 Pie Chart illustrating quality infrastructure factors that affect productivity

From the research 37.5 % of respondents mentioned that standardization and certification were factor that affect productivity of garment SMEs. On the other hand, 25 % of respondents showed metrology factor affect productivity.

4.1.6 Supply chain factor

From literature A supply chain is the network of raw material producers, component manufacturers, final product manufacturers, wholesalers and distributors, retailers, and customers, interconnected by several types of flows, including material, information, finance, and people.

The interview with entrepreneurs revealed there is an organization called EGEL organized by the government to supply raw material for SMEs. But the company is not effective in supply of raw material for the enterprises because it supply the raw materials by purchasing from local distributors this makes the cost of supply high and the SMEs are not interested to purchase raw material form the company.

On the other hand, access to key inputs being their critical problem was not solved. All enterprises did not benefit from getting linkage with suppliers of key inputs like fabric. Access to key inputs remained the key problem of the SMEs. In line with this, the general manager of most SMEs stated that they encounter problems of supply of raw material in desired quantity and quality. They believed that it is absolutely impossible to imagine improvement in the quality of products without the availability of affordable raw materials with good quality and quantity.

From the interview with the entrepreneurs the major supply chain problem is that the supply of fabric is dominated by merkato brokers it is difficult to break the broker's chain and enter in to the supply chain. The fabric manufacturer at dukem supply the manufactured fabric for the brokers and they purchase the fabric from shops at merkato .Due to supply of raw material problem the SMEs are not producing in accordance with their production target. This is because the entrepreneurs want to minimize supply risks and meet production targets in order to enhance their productivity. Lack of competitive local suppliers in the country that supply raw material for SMEs in terms of quality, quantity, price and timely inputs needed for production. Almost all the textile manufacturers manufacture fabric for export market they doesn't supply for local market .Interviews with firms reveal that while there are market-based legal frameworks, the laws written on paper are not put into actual practice ,there is a lack of enforcement. Also, application of rules is subjective and government bureaucratic processes remain the major obstacle.

Regarding access to raw materials all responded that they use locally purchased raw materials. The problems encountered by garment industries during purchase of raw materials locally are raw material quality, shortage of raw material, cost of raw material and supply of raw material is not responsive. Lack of competitive local suppliers, shortage of capital, Institutional and government failures to crate partner linkages, lack of enforcement, insufficient policy coordination failures and suppliers are not willing to be immediate suppliers for SMEs are the major problems identified from the research.

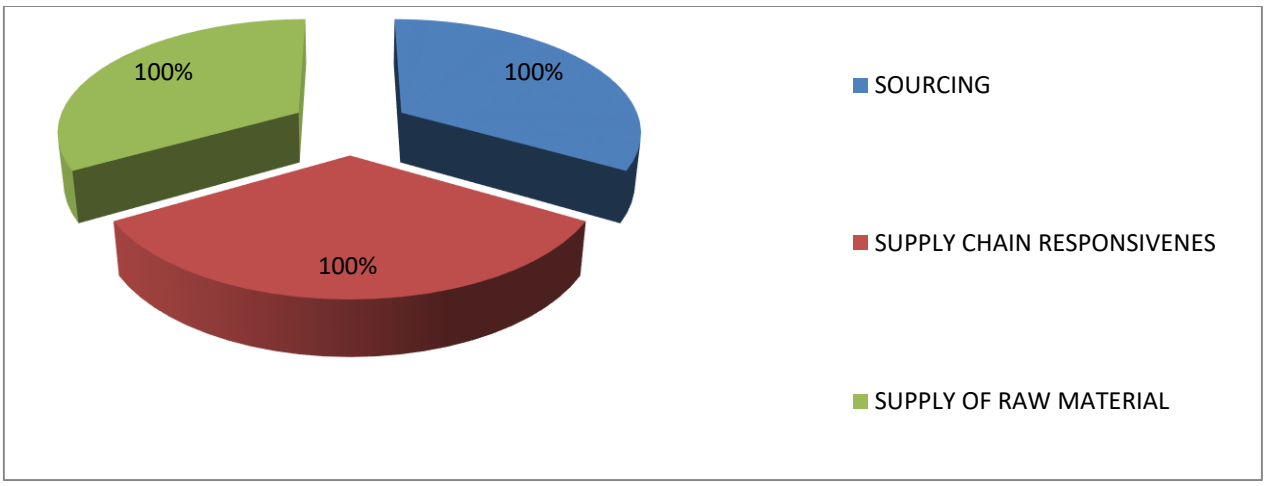

Figure 13 Pie Chart illustrating supply chain factors that affect productivity

According to all of the respondents, the garment enterprises do not have any mechanism to evaluate the performance of fabric and accessory suppliers. The enterprises focus on price instead of quality in the selection of suppliers. From the research 100 % of respondents mentioned that sourcing, supply chain responsiveness and supply of raw material were their top supply chain factor that affect their productivity.

4.2 COMPARISON OF FACTORS

Even though, all the production factor, human resource factor, business environment factors, quality infrastructure factor, and supply chain factor affect the productivity of the garment manufacturing SMEs, this does not necessarily mean that all factors have equal impact. What follows is a brief discussion of the ranking of the relative importance of primary causes for low productivity

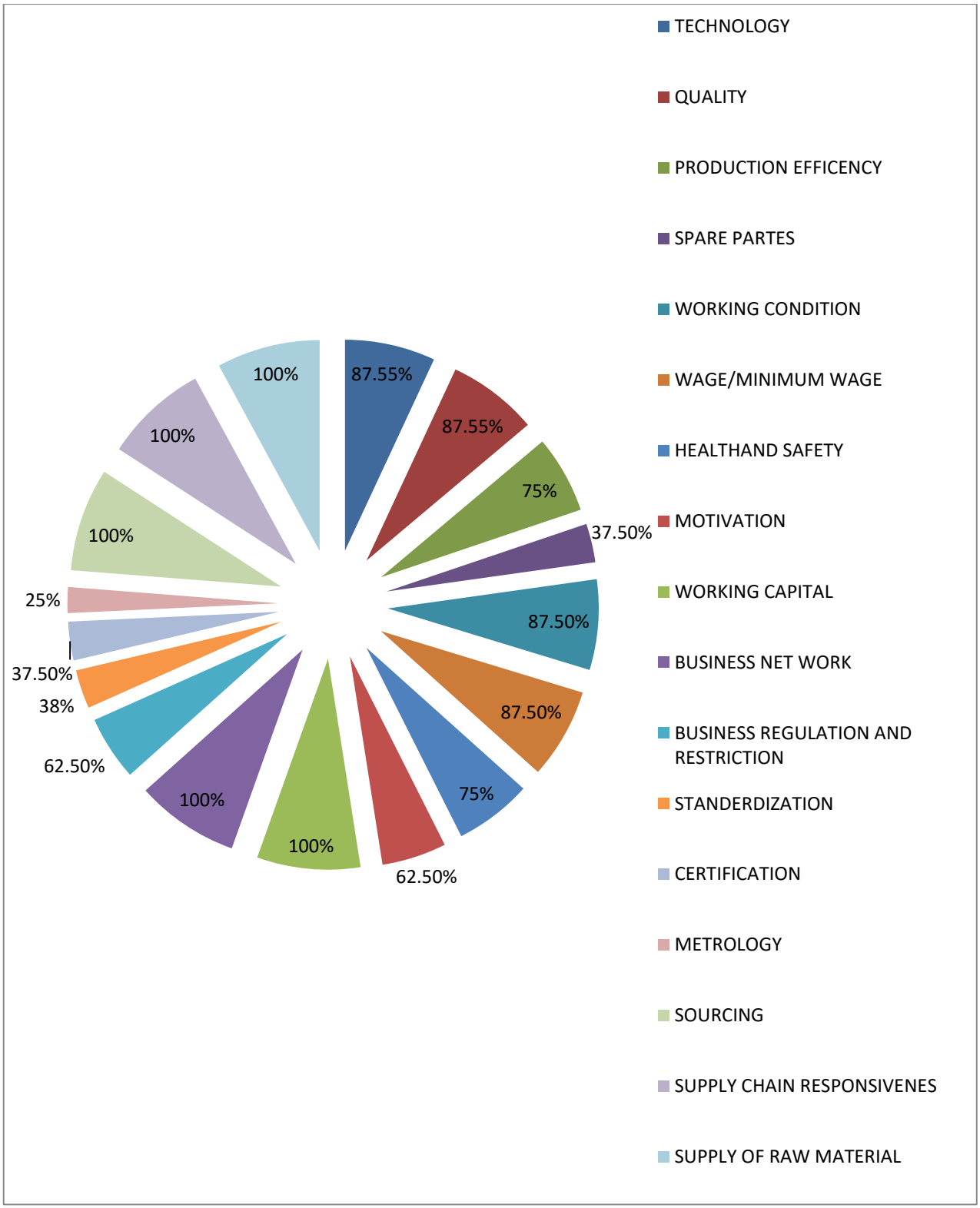

Figure 14 Pie Chart illustrating factors affecting productivity of SME

From the above Pie Chart illustrated it is identified that working capital, business network, sourcing, supply chain responsiveness and supply of raw material, wage/minimum wage, working condition , quality and technology are major factors affecting productivity of garment SMEs.The other factors health and safety, production efficiency, motivation ,business regulation and restriction are productivity factors that affect garment SMEs.

4.3 EXISTING PRODUCTIVITY MEASUREMENT PRACTIC OF ENTERPRISES

The existing productivity measurement practice of SMEs, it has been observed that there is incompleteness in considering all factors of production of the entrepreneurs. These include the raw materials, machineries, energy and other utilities used in producing the final product of the firm. These input factors have key impact on the productivity of the SMEs. Ignoring these factors while measuring productivity of the entrepreneur, in fact, result in erroneous effect and misdirect the entrepreneur's productivity improvement effort.

The most commonly used productivity measurement system by SMEs identified are labor productivity and capital productivity. But this doesn't show the overall firm productivity (multi factor productivity), it gives productivity information only about the labor and capital (partial productivity), this by itself affects the SMEs productivity since they doesn't have full information about all the measures.

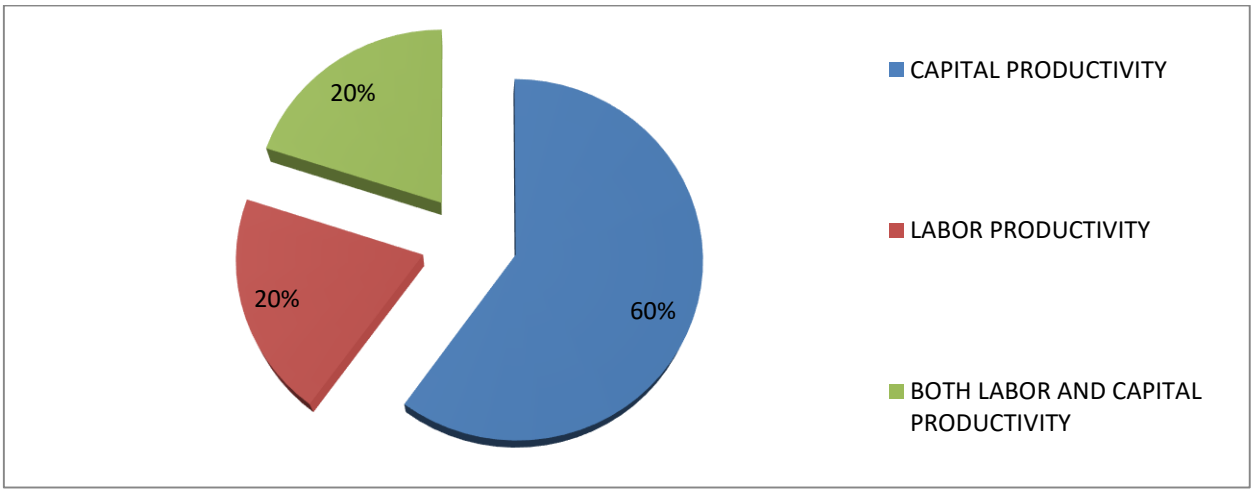

Figure 15 Pie Chart illustrating types of existing productivity measurement practice of SMEs

From the garment SMEs having productivity measurement culture 60 % use capital productivity, 20 % used labor productivity and 20% used both labor and capital productivity for their productivity measurement. From the research the major problem identify were the productivity measurement practice of the SMEs lacks consistency and doesn't consider all the productivity factor.

When the standard time of the garment SMEs compared with performance of benchmarks they are a lot behind the benchmark standard time for garment manufacturing. From interview the major reason for this is old technology, operator's skill problem, skill and attitude of employees, working method and working capital shortage.

Table 9 Garment Benchmarks With Reference and Competitor Countries

	Ethiopia	Egypt	Turkey	Romania	Bangladesh
Average rework rate 2007-sewing (%)	5–10	30	5	5	10
Average 2nd quality fallout rate 2007garmenting (%)	2	10	4	3	7
Average overall efficiency – garmenting (%)	30	40	77	80	50
Productivity-causal trousers (pcs/worker/day)	10	15	40–50	50	30
Productivity–T-shirt (pcs/worker/day)	30	40	70	80	50
Average export selling price-T-shirt (USD/pcs)	0.45	2.5	10	10–12	1.8
Average export selling price trouser(USD/pcs)	0.85	7.5–10	20	25	5
Average standard allowed minutes T–shirt(min/pcs)	5–6	5–6	10–12	15	5–10
Average standard allowed minutes-trouser (min/pcs)	20–30	15–20	15–30	25–35	15–25
Average cost price per minute(USD/min)	0.015–0.02	0.05	0.2	0.16	0.03

Source: Sorri, 2010

When the productivity of the garment SMEs are compared with international benchmarks the productivity of our garment SMEs in the sub city is very low. From interview the major reason for this is old technology, operator's skill problem, skill and attitude of employees, working method and working capital shortage.

Table 10 Comparison of actual productivity of Trousers of SMEs with International Benchmarks

S.No.	Enterprise name	Actual Productivity Trousers (pcs/workers/day) of SMEs	International Benchmarks	Deviation from benchmarks
1	TaimeMlse Garment	130	500	370
2	Leyu Design Garment	153	1250	1097
3	Abbay Garment	150	650	500
4	MelkamuTadesse Garment	120	500	380
5	Kibru and Tateq Garment	200	1600	1400
6	Cottex Garment	380	10000	9620
7	YMOS Garment	40	600	560

Source: Source: Own developed

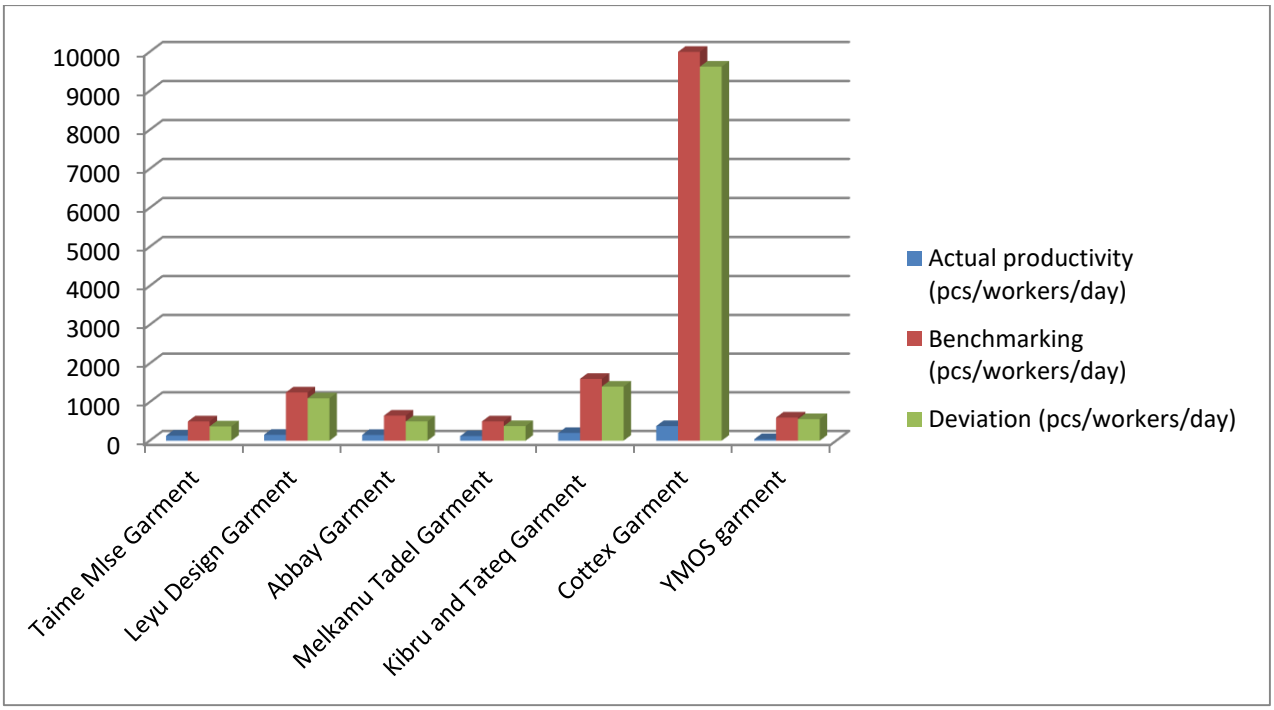

Figure 16 Column Chart illustrating actual productivity of Trousers of SMEs with International Benchmarks

Table 11Comparison of actual productivity of T-shirt of SMEs with International Benchmarks

S.No.	Enterprise name	Actual Productivity T-shirt (pcs/workers/day) of SMEs	International Benchmarks	Deviation from benchmarks
1	TaimeMlse Garment	90	800	710
2	Leyu Design Garment	200	2000	1800
3	Abbay Garment	300	1040	740
4	MelkamuTadesse Garment	80	800	720
5	Kibru and Tateq Garment	100	2560	2460
6	Cottex Garment	400	16000	1200
7	YMOS Garment	100	960	860

Source: Own developed

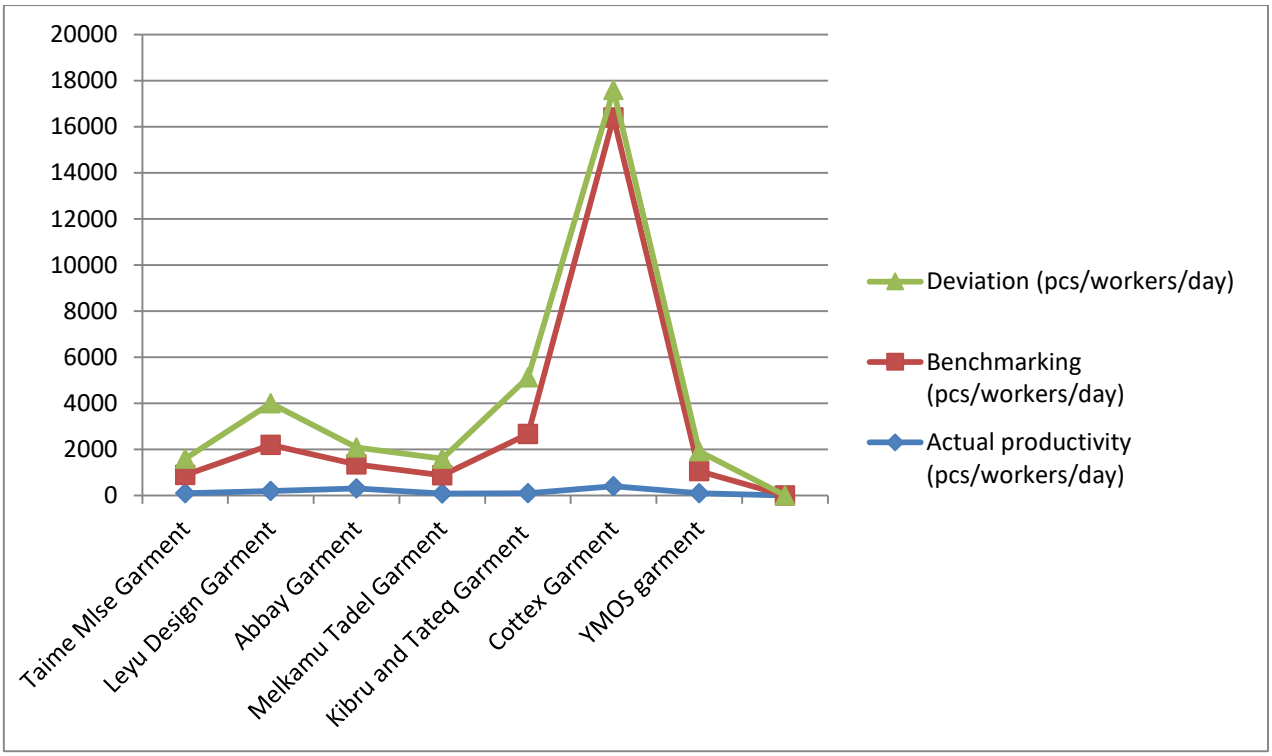

Figure 17 Line chart illustrating actual productivity of T-shirt of SMEs with International Benchmarks

4.4 EXISTING PRODUCTIVITY IMPROVEMENT TECHNIQUES OF ENTERPRISES

From literature firms that achieve dramatic improvements in productivity are those that take a systems approach and make the necessary culture change in their organization. Technology based techniques, material based techniques ,product based techniques, employee based techniques, task based techniques and management based techniques are the major productivity improvement techniques used to enhance entrepreneurs productivity and this productivity improvement techniques are used to assess the garment SMEs in the sub city.

From the interview with the entrepreneurs majority of the respondents have knowledge of productivity improvement tools through awareness training. The finding is not surprising since government has been providing productivity awareness training to the sector through industry development office, ETIDI and FeMSEDA .Judging from the productivity problems still affecting

the sector, this may indicate that the productivity campaign is not producing the desired results and needs improvement.

Results from both interview and observation indicated that there is poor top management commitment when it comes to application of productivity improvement techniques. Studies in the area of productivity improvement adoption indicate that top management is vital to the success of productivity improvement techniques. Indeed, the lack of top management commitment in productivity improvement techniques application has been attributed to the low level of awareness among managers of the existence of these productivity improvement techniques, as well as their limited faith in the usefulness of these tools which result in poor tool implementation is also the major constraint of the SMEs in the sub city observed. The SMEs do not have well established system to support effective and efficient implementation systems for productivity improvement.

From the responses lack of training is the main reason for the productivity improvement implementation failure. The entrepreneurs also pointed out that the government agent's industry development office and TVET doesn't have enough competence to give a practical skill training. They further stated that some of their positions remain vacant for long periods of time because they cannot find skilled manpower to fill the positions. They also highlighted staff turnover as one of the reasons for lack of skills as employees tend to migrate to other organizations leaving them short in manpower hence rendering them to produce below their set standards.

Lack of appropriate machinery and equipment is the main productivity improvement problem of the garment SMEs. According to the interview with the entrepreneurs, absence of modern machines, tools and equipment's have hindered them to produce products in a better quality and much quantity. The regular payment for machines bought by credit made them lead a subsistence life having no significant improvement in their growth. Moreover, respondents replied that, if new and appropriate technologies obtained, the presence of them will result in fundamental growth of their business and enhance their productivity.

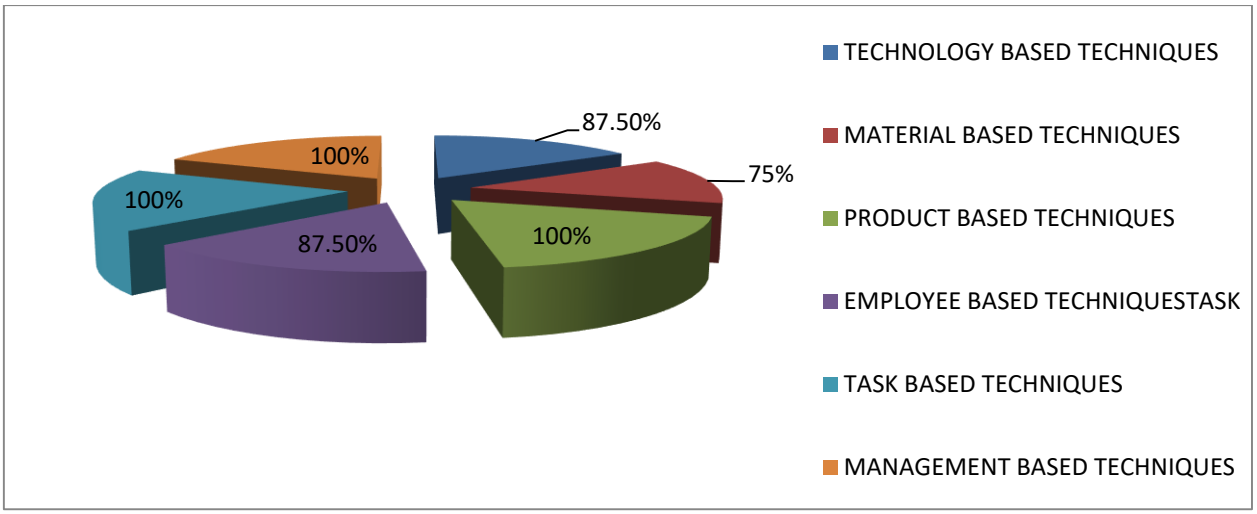

Figure 18 Pie Chart illustrating productivity improvement techniques

On the subject of technology based techniques, 87.5 % of respondents mentioned that introduction of new production line, computer aided pattern design and new machine were the top technology based techniques used for productivity improvement. But since all the above productivity improvement techniques requires capital in order to introduce the SMEs can't implement them as a productivity improvement techniques since they have capital problem due to collateral requirement for loan.

On the topic of material based techniques, 87.5 % of respondents mentioned that introduction of quality control and assurance and material handling improvement were the top material based techniques used for productivity improvement. On the other hand, 75 % of respondents showed that inventory control and 50 % of respondents showed material reuse were also material based techniques used for productivity improvement.

From the collected questionnaire it is understood that, 100 % of respondents mentioned that product standardization and product reliability were the top product based techniques used for productivity improvement. But since there is no standard at national level for garment manufacturing the SMEs are not manufacturing according to standard this in turn reduce their garment product reliability in the market. From the research 100 % of respondents mentioned that management performance was the top management based techniques used for productivity improvement.

Moreover from the research 100 % of respondents mentioned that working conditions improvement was the top employee based techniques used for productivity improvement. On the other hand,

87.5% of respondents showed that financial incentive and 70 % of respondents showed training and education were employee based techniques used for productivity improvement respectively. On the other hand 100 % of respondents mentioned that job evaluation was the top task based techniques used for productivity improvement .The respondents mentioned that the garment enterprises have job evaluation techniques and employs are benefited based on the result of evaluation. All most all SMEs usefinancial incentive productivity improvement techniques by giving financial incentives for best performing employs. This creates competition between employs. The other employee based productivity improvement techniques used by employs to enhance their productivity is training of their employs on their own firm and outside to build the employees capacity and enhance their skill.

Most of the garment SMEs are not using their production capacities due to raw material shortage, working capital shortage, tax systems, and lack of market as well as machinery breakages and lack of spare parts. Poor layout including missing factory layouts, material flow plans and work plans is another observed weakness, where these are vital for the coordination, flexibility of the factory production system and to see where production and machinery arrangements might be inefficient. Sewing layouts is in almost all cases one single line cumulating preparation of parts and assembling, difficult to manage efficiency and quality wise where this setting is not recommended for trousers or complex products.

The general trend of the production processes are such that there is no separate sections for cutting/sewing/finishing rooms exist which is difficult to manage and improper as utilization of resources. In addition position of departments, especially in case of warehouses, is not according to a general flow leading to extra material handlings and transport. In cutting sections, accumulations of fabrics are observed, due to missing correct flow and limited skills of operators for the spreading and numbering operations. Furthermore intermediary between cuttings and sewing is missing, where mostly it is done directly in lines leading to poor utilization of available machines and personnel. Besides supplying accessories with fabrics according to the cut quantities are not done and all accessories are delivered directly to line generating waste and errors.

Finally the garment manufacturing SMEs are potentially wasting valuable and scarce resources since they doesn't implement productivity improvement tools and techniques and some the implemented one like kaizen and 5s are also failing to deliver the results expected. A number of related factors would appear to be contributing to this position are the relatively low level of

understanding of productivity improvement tools and management methodologies, the relatively low level of training received in the use and application of productivity improvement tools and management methodologies, lack of a strategic approach to the application of tools and techniques as a result of tools and techniques being selected before a clear business need has been identified.

4.5 IDENTIFICATION OF INTERVATION AREA

As mentioned earlier, there are several productivity factors which affect productivity of the SMEs. All the productivity factors do not have equal impact on productivity of the garment manufacturing SMEs. In addition, the resource are limited to solve all the problems associated with productivity factor. Therefore, deciding the intervention areas which are potential for productivity improvement is very important. To decide the intervention areas the productivity factors are located in the four fields based on resource requirement, respondent's information provided and the impact on productivity .The current status of productivity factor has been used to estimate the effort required and impact on productivity.

As shown in Figure 27 below, there are four fields namely, low effort-low impact, low effort-high impact, high effort-low impact and high effort-high impact. The low effort-high impact is most preferred field whereas the high effort-low impact is least preferred field. Low effort- low impact and high effort -high impact could be preferred fields.

Productivity factors in the fields low effort-low impact, low effort-high impact and large effort large impact can be taken as intervention areas but the productivity factors within low effort-high impact field should be given first priority. Therefore, improving production efficiency, motivation of employees, human resource performance, health and safety of employees, business regulation and restriction, marketing linkage, management skill and knowledge, training and technical support, and productivity measurement are potential for productivity improvement at low effort. Whereas improving aaccess to technology, qquality, wage /minimum wage, working capital, wworking condition, business network, sourcing, supply of raw material, supply chain responsiveness, attitude and infrastructure are potential for productivity improvement at large effort.

Low effort	• Absenteeism	• Production efficiency • Motivation of employees • Human resource performance • Health and safety of employees • Business regulation and restriction • Marketing linkage • Management skill and knowledge • Training and technical support • Productivity measurement
High effort	• work experience • Certification • Standardization • Metrology • Spare parts	• Access to technology • Quality • Wage /minimum wage • Working capital • Working condition • Business network • Sourcing • Supply of raw material • Supply chain responsiveness • Attitude • Infrastructure
	Low impact	High impact

Figure 19 Intervention areas using four fields

CHAPTER FIVE

THE PRODUCTIVITY IMPROVEMENT METHOD

In general, results obtained from assessment of garment SMEs show that the productivity of the garment SMEs is low and decreasing, since, most of the productivity indicators of the garment SMEs show poor status and the production capacity deviation from International benchmarks for garment products are high.

Table 12 Deviation from International benchmarks for Trousers and T-shirt production

S.No.	Enterprise name	Deviation from benchmarks T-shirt (pcs/workers/day) of SMEs	Deviation from benchmarks Trousers (pcs/workers/day) of SMEs
1	TaimeMlse Garment	710	370
2	Leyu Design Garment	1800	1097
3	Abbay Garment	740	500
4	MelkamuTadesse Garment	720	380
5	Kibru and Tateq Garment	2460	1400
6	Cottex Garment	1200	9620
7	YMOS Garment	860	560

Source: Own developed

The identified productivity factors are multidimensional ranging from human to capital to material to method to control to process to product factors. This requires organized and sustainable productivity improvement method to solve the problems associated with productivity. Therefore, a PIM based on this requirement has been developed.

5.1 PRODUCTIVITY IMPROVEMENT METHOD

The main components of productivity improvement method for garment SMEs are identified based on the research analysis, intensive literature surveys and previous similar research works. These are; paradigm shift, management commitment, supply chain improvement, intensive education and training, continuous improvement and improved government support. Based on main components of productivity improvement method a model which is part of productivity improvement method is proposed for the garment SMEs.Following the proposed model work has been stated considering the specific nature of the garment SMEs, present technology, culture, financial ability, organizational structure and personnel involved.

5.1.1 Paradigms shift (for radical change)

An old long traditional industrial working trend has existed in garment manufacturing firms. Through time, individuals and the firms as a whole have adapted a traditional working culture. Most of the workers in these firms are not aware of the productivity, productivity measurement and improvement tools and techniques of their firms. They are not ready to make a change. Similarly, the firms accept this trend and they do not have vision to change their firms. Most of the firms are not ready to practice the modern management philosophies to improve their productivity.To change attitude of both management and employees of the garment SMEs and increase productivity Paradigm shift of management and employs attitude is required.

Paradigm shift is a continuous task that needs consistent updating to catch up the unprecedented global competition. Therefore, the Ethiopian government should work hard to bring a paradigm shift in all levels of garment manufacturing SMEs, considering it as one of the development strategy tool. Therefore paradigm shift (for radical change) is required from the government support system, entrepreneurs management commitment and employees attitude.

5.1.2 Management commitment

Moreover to be productive, it requires industries to perform a continuous improvement of their process, hence continuous improvement should always be an elusive goal for garment industries in order to improve the productivity and competitiveness in the current market. Management

commitments are also required for allocating budgets and resources and monitoring progress. Particularly management commitment needs to improve regarding training system, motivational system and social compliances to meet international working conditions.

The management should give attention for customers and must recognize that the purpose of all work and efforts to make improvements are to serve the customer better. Hence to satisfy customers' requirements, industries must fully understand the customers' current and future needs and expectation and must focus on value added manufacturing activities only. Therefore, garment manufacturing SMEs shall focus their manufacturing efforts on the value added activities.

In order to solve the identified problems of garment SMEs, several solutions have been proposed as follows, proper utilization of employee, hiring necessary employee based on human resource planning, conducting training to upgrade skills of employee and the management staff , preparing job description for individual employees, giving clinical, transportation, recreational and office services, creating conducive working areas, follow up the proper implementation of human resource management policies, procedures and manuals, identification and implementation of appropriate productivity improvement techniques and tools, performance appraisal of each department and individual employees and Establish good reward mechanism and welfare system for employees on weekly, monthly and yearly base.

And the other problems could be approached by using some modern management philosophies (such as business process re-engineering, lean production) and scientific methods like production planning and control etc. In order to implement the modern management philosophies and scientific methods the SMEs management must be committed. Finally the government must undertake different package of measures to support SMEs to improve their management skills and enable local networks for benchmarking best practice where SMEs can learn from one another.

5.1.3 Continuous quality improvement

Quality has become one of the most important drivers of the global competition today. Intensifying global competition and increasing demand for better quality by customers have caused more and more companies to realize that they will have to provide high quality product and/or services in order to successfully compete in the marketplace.

In garment manufacturing SMEs, the quality awareness is very low. Most of the firms do not even clearly identify their customers. They produce their products without considering customer needs/requirements. The production system is traditional and it is not quality and market-oriented.

The quality control activities in these enterprises are inspection-based instead of prevention-based. But, inspection actually does not build quality; quality is built into the process. When a defect shows up, the information should be sent back to the work stage so that the process can be corrected. Hence, the enterprises should make use of quality control tools for measuring, prioritizing, and improving their processes.

Garment industries must have quality improvement plan to improve the productivity where it should include a quality policy that contains goals and methods to achieve it. They should implement and maintain a documented quality system as a means of ensuring quality. Quality control system should be implemented to measure the percentage that deviate from the acceptable in order to prevent the reoccurrence of a defect garment. Quality control techniques should include monitoring incoming raw material quality levels as well as utilizing statistical quality control methods to reduce garment variability. Implementation of the quality systems, together with an intensive training over the handlings, methods, records and data analysis is necessary for all management positions.

There are many methodologies of continuous improvement. The two that can be adapted to the garment SMEs condition are kaizen (Continuous improvement) and lean manufacturing. The frequent decline of garment SMEs in customer satisfaction due to poor quality could be solved using this tool.

5.1.4 Improved government support

To date, there are government efforts to address the major productivity problems of the garment SMEs. But It is noted that there are policy and institutional constraints such as (i) coordination failures; (ii) lack of enforcement; (iii) insufficient policy alignment; and (iv) poor implementation of government support packages (SMEs access to technology, capital goods and machinery delivery, infrastructure, access to credit, market linkage, promotion, incentives packages ,BDS and industry extension supports) . Results suggest that all of these issues are binding. This suggests that

horizontal interventions, such as improvement of government support, are a key part in addressing SMEs productivity. Government's role in enhancing SME productivity has to be improved.

In order to solve such problems of the government support system, several solutions have been proposed as follows: (1) Technology promotion system, Therefore, the government must support SMEs access to technology which has high contribution to productivity improvement.(2) The government must improve its current enforcement, support policy and system. The government must review and dramatically change the current support system provided for SMEs , The current support system which is not efficient ,effective and well organized (3) Improving the support provided by government agencies for the garment SMEs like national development bank of Ethiopia ,quality infrastructures(Ethiopia national standard agency, certification agency) ,ETIDI,TVET , FEMSEDA and industry development office for SMESs (4) Improving the finance support system, access to credit and working capital problem, by revising its collateral requirements for bank loan (5) The government must establish a detailed strategy for SMEs' (6) Introducing effective and efficient incentive mechanism, that privileged that garment SMEs (7) Programs must be expanded to equip SMEs with new and improved management and business practices methods in production, quality improvement, marketing and productivity improvement; and further development of technical skills amongst SMEs.

To achieve a higher rate of success the government support approach has to be systematic and coordinated. This synchronized approach is to be carried out hand in hand with financial support programs which include: Assisting entrepreneurs to upgrade technical and professional skills, Assisting in the purchase of new machinery and equipment and providing industrial sites (clusters) at competitive prices.

Generally, if the government is committed to work hard by focusing on the above dimensions of productivity improvement for the garment entrepreneurs, ultimately there will be a change and possible to come to the positions of the best competitors in the nation and worldwide. Since it is difficult to give solution for all productivity problems of garment SMEs at the same time developing a strategy is a must. The proposed three-step development strategy of the garment SMEs shown on table 20 describes the coordinated development plan in short (up to 1 years), medium (up to 2 years) and long (up to 3 years).

Table 13 Coordinated development plan of garment SMEs.

Sub-sectors / **Time span**	**Garment SMEs**
Short term	• Improve quality and productivity • Develop technical skills among SMEs • Improve coordination failures among government support agencies • Improve current enforcement system • Technology promotion • Delivery of capital goods and machinery
Mid Term	• Review and dramatically change the current support system and support packages • Improve support provided by government agencies like ,ETIDI,TVET , FEMSEDA and industry development office • Improve bank collateral requirement • Ensure continuous improvement • Seating minimum wage • Introducing effective and efficient incentive mechanism • Provide efficient infrastructure
Long term	• Develop detailed strategy for SMEs • Introduce effective and efficient incentive mechanism • Improve current enforcement support policy • Review and dramatically change the current support system and support packages • Perfect SMEs policy

	• Industry park development for the sub sector

Source: Own work

5.1.5 Intensive education and training

Ethiopian government is expanding educational institutions such as TVET (Technical and Vocational Education Training) colleges to fulfill the demand of technical skills by garment manufacturing firms. This program is encouraging. But the implementation process is not yet effective. Moreover, intensive training of the existing staff (top management, middle management, and shop floor workers) in the sector is also very essential. Therefore, TVET colleges should focus on practical training program.

Poor management and leadership is a problem for garment SMEs and is damaging their productivity and ability to grow. Often, this is because SMEs lack financial resources to invest in relevant training, are unaware of the benefits such training can deliver or suspect that it will not be directly relevant to their business. The Government must provide support for leadership and management training.

It was noted that the general awareness of quality in the enterprises is low, especially in the shop floor. Therefore, quality awareness education should be provided to ensure that employees have a common understanding of the importance of quality. The quality awareness program should aim to ensure that employees know their roles within the firm, and build a desired organizational quality culture. Training is the critical element for the success of garment enterprises. It enables the workforce to acquire the skills needed to improve and maintain the quality and productivity of the production process. Education and training should be given in the garment enterprises on continual basis to improve the performance of workers which enhance SMEs productivity. Government agencies ETDI,TVET, Industry development office, Ethiopian standard agency and certification institute has to do more on this by providing training on BDS, industry extension, concept of productivity, garment value chain, supply chain, embroidery, pattern design, quality control and quality assurance, system and product certification, productivity improvement and standardization ,

For human resource development (HRD) of garment SMEs, it was recommended that; (1) Governmental effective campaign to deploy the value of training for productivity improvement, (2)

Creating comprehensive training support system, (3) Frequent provision of training courses for employees of the entrepreneurs , (4) Progression of training courses from basic to intermediate to advanced, (5) Communicating to the managers the benefits of the initiative, and (6) Encouraging employees involvement, participation and empowerment.

5.1.6 Supply chain improvement

From the analysis the primary cause of poor quality products in garment enterprises is poor quality fabric. The selection of suppliers should not solely depend on price but should mainly focus on quality. In addition, the enterprises must assess the reputation of the supplier and investigate supplier manufacturing facilities before sourcing the supplier and purchase any fabric. The enterprises should frequently evaluate the quality of products received and provide feedback for improvement.

The management is responsible in supplier evaluation and selection, where the selection of suppliers must be based on existing relation with garment industries, previous records and testimonies from previous clients and financial capacity and other relevant information about the supplier.

Select the best marketing strategy, to carry out efficient marketing channels according to consumers' demands and Utilize the varied promotion and market activities for enhancing marketing linkage.

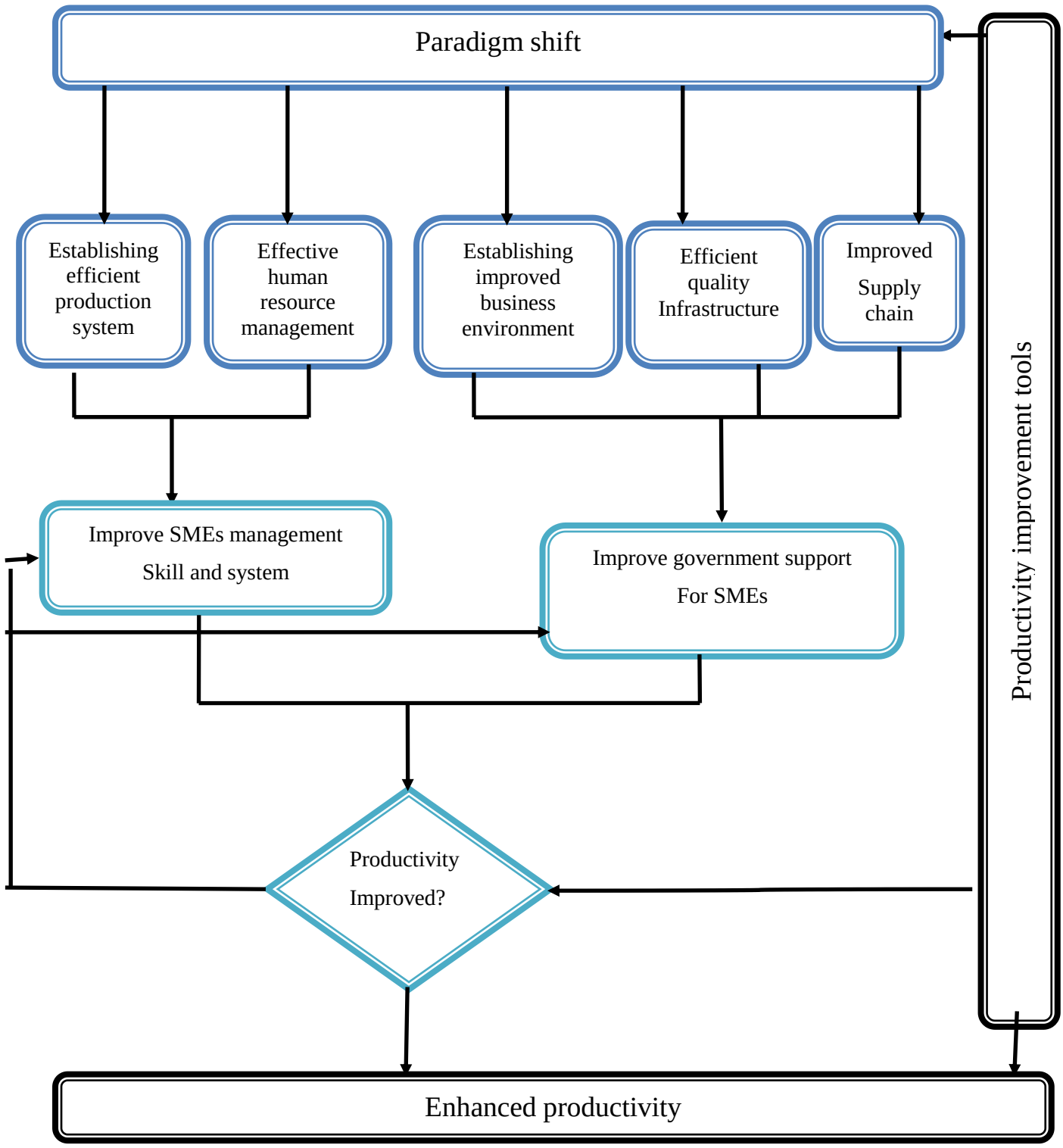

Figure 20 Productivity improvement model for garment enterprises.

5.2 IMPLEMENTATION OF PRODUCTIVITY IMPROVEMENT METHOD

Once the productivity improvement method has been formulated, top management should be committed to it and should implement it in practice. Continuous support from top management in setting goals and targets, allocating resources and creating awareness is essential to the success of its implementation. Effective implementation requires a sound understanding of the underlying principles and ideas of the productivity improvement method. In order to ensure success of implementation, it is critical to educate and train relevant employees involved. In addition, reasonable amount of resources should be provided for implementing the method. Note that the productivity improvement method is nothing if it cannot be implemented by the enterprises.

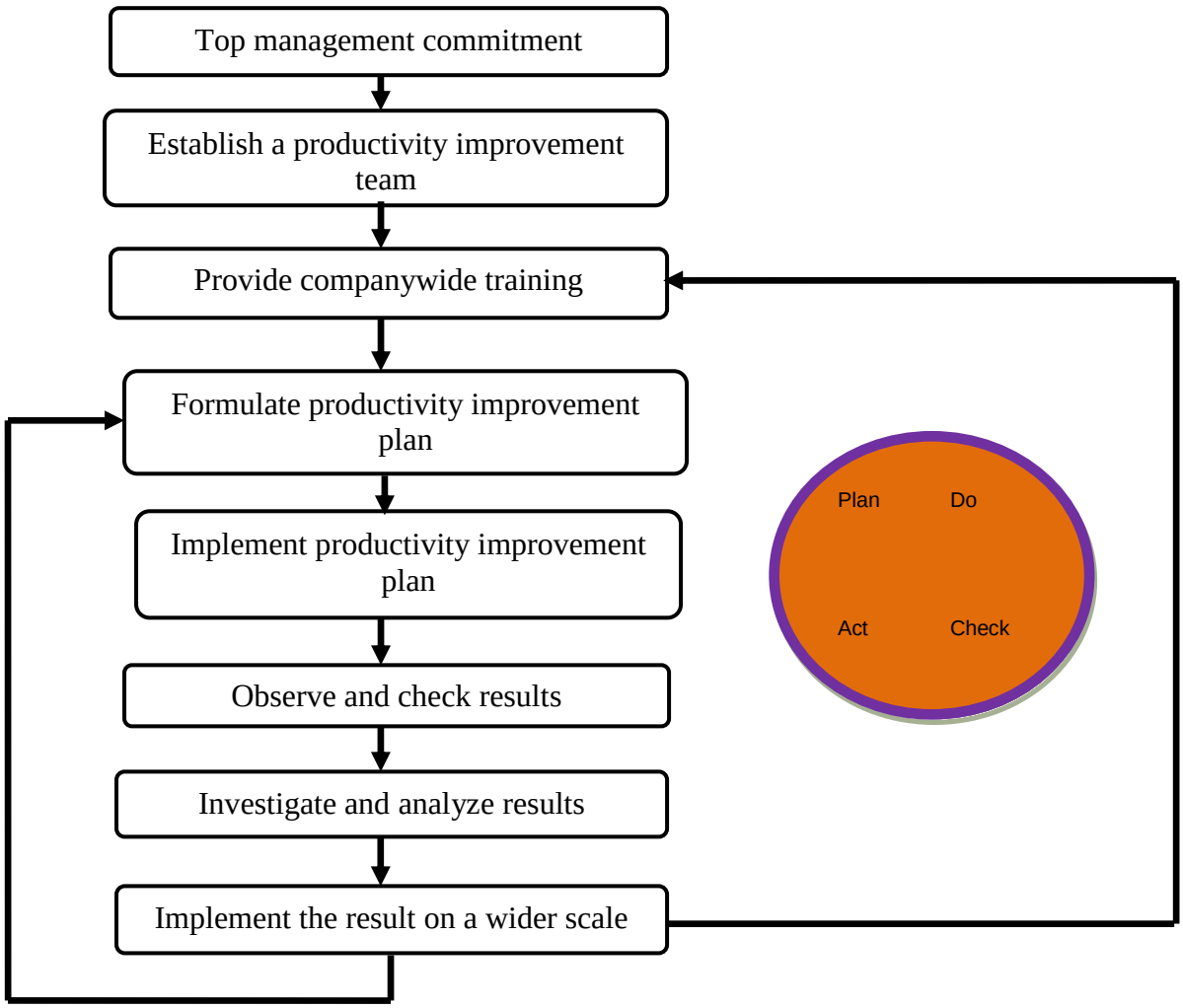

Figure 21 Productivity improvement implementation model for garment enterprises.

CAPTER SIX

CONCLUSION AND RECOMENDATION

6.1 CONCLUSION

In today's global market, success and survival of manufacturing firms demands on competitiveness. Productivity is one of the major determinants that enable manufacturing firms to compete in the global market. So, improving productivity can be taken as critical task of a manufacturing firm. The results obtained from the assessment of garment SMEs show that they possess low productivity since, most of the productivity indicators of the garment SMEs show poor status. This low productivity makes them to face challenges in market competition. Therefore, using different methods of quality management, personnel, production, capital, energy and other resources in the enterprise can significantly save money and increase productivity.

The productivity factors are multidimensional ranges from human to capital to material to method to control to process to product factors. But all these factors do not have equal effect on productivity. And the resources are limited to solve all the problems associated with the productivity factors. Therefore, deciding the intervention areas which are potential for productivity improvement is very important.

It can be concluded from the research that there are different productivity factors that are hindering the productivity improvement of the garment SMEs, where the factors can be categorized as potential for productivity improvement at low effort and large effort. Therefore, improving production efficiency, motivation of employees, human resource performance, health and safety of employees, business regulation and restriction, marketing linkage, management skill and knowledge, training and technical support, and productivity measurement are potential for productivity improvement at low effort. Whereas improving access to technology, quality, wage /minimum wage, working capital, working condition, business network, sourcing, supply of raw material, supply chain responsiveness, attitude and infrastructure are potential for productivity improvement at large effort.

Currently garment SMEs uses disorganized and reactive problem solving approach. Lack of understanding where to start productivity improvement, lack of identifying critical success factors, lack of addressing the possible productivity factors, lack of defining, measuring and analyzing productivity indicators (except capital productivity), and lack of identifying the intervention areas for productivity improvement are the main reasons for not applying organized and sustainable productivity improvement.

Therefore, the research identify intervention areas for productivity improvement based on identified intervention area a PIM is developed. The developed PIM consists six major potential areas for productivity improvement that address all the intervention areas identified. These are: paradigm shift, management commitment, supply chain improvement, intensive education and training, continuous improvement and improved government support.

Increasing productivity is one of the most critical goals in business. If the productivity improvement is carefully planned and executed, the painstaking investment is the initial cost and effort, and the reward is overwhelming result. To achieve continuous productivity improvement through the utilization of improvement tools, all barriers that lead to their implementation failure have to be overcome. Also, unlike large companies, small companies have limited resources and this act as an implementation barrier.

Though, various governmental bodies designed various programs aimed at developing SMEs. Most of the programs were not given the appropriate backing and as such the impact of the programs could not be felt in the productivity of SMEs.This is mainly because of the fact that these programs or policies are not effectively implemented in line with their intended objectives owing to various reasons. According to the findings, the reason ranges from lack of visible commitment of governmental bodies to lack of regular integration between the garment SMEs and the concerned bodies of the government in the sub city.

Implementing the PIM can improve partial and total productivity by enhancing effective utilization resources like human, capital, material, energy and miscellaneous inputs; it can improve quality by minimizing rates of rejection, rework and scrap; it can increase capacity by increasing human hour utilization and machine hour utilization; it can also increase both internal and external customer satisfaction; and it can reduce cost by minimizing waste of resources.

6.2 RECOMENDATIONS

Based on the findings of this study, it is recommended that:

- Productivity is one of the major determinants of competitiveness. Therefore, the garment SMEs should manage their productivity in organized and sustainable way so that to compete in the market place.
- With regard to business factor for SMEs, Ethiopian government should revise the tight regulation of financial institutions on collateral requirements so that SMEs will have equal and fair funding sources like their large counterparts. In fact, the risky nature of SMEs in the country may pose a problem but if the physical and institutional infrastructures along with indiscriminate support for all SMEs is guaranteed the enterprises will have attractive performance and loan repayment capacity. A structural reforms on the SME business environment, as well as on the role and impact of policies targeted to SMEs is recommended.
- To increase the labour productivity in apparel SMEs, an appropriate recruitment procedure should be created after job analysis. Workers should be counseled for reduction in production output, poor quality of garments and so on. To achieve positive results motivation tools such as training, appropriate wage structure and incentive along with annual productivity linked bonus can be provided.
- Currently the garment SMEs in the sub city apply single partial productivity indicator (i.e. human productivity and capital productivity) only. This overemphasizing one input factor to the extent that the effect of the other input factors has been underestimated or even ignored, leading to incorrect judgments and costly mistakes. Hence this may misdirect productivity improvement efforts. Therefore, garment SMEs, in addition to human and capital productivity, should focus on, material productivity, energy productivity, miscellaneous productivity, total productivity, surrogate productivity and process indicators.
- In order to enhance productivity, workers skills need to be improved in designing, pattern making and grading as well as marker making and cutting. Hence upgrading technology and moreover adopting CAD will increase the speed and the accuracy for the sampling process; transfer of data from customers will also be easier and faster hence increases flexibility.

Facility layouts are to be reorganized in order not to allow accumulation of fabrics in cutting areas as well as sewing. Optimum material handling system usage should improve for better flexibility.

- With regard to technology for manufacturing, Adapting more efficient new technologies to boosting productivity of the garment SMEs is recommended like, modern swing machines .
- Currently garment SMEs uses disorganized and reactive problem solving approach even though there are multidimensional productivity factors needing organized and sustainable productivity improvement program. So, the case company is strongly advised to use the PIM by involving all its employees.
- With regard to production factor for SMEs, in garment SMEs operation, production costs constitute mainly, raw material cost, labor cost, and equipment's and machineries costs. Thus to reduce production costs, resource utilization should improve i.e. wastage of fabrics and accessories, reworks, quality degree. Inspection of raw materials, good relation with suppliers in order to get optimum cost of raw materials, proper utilization of existing machineries is also important. The study also recommends that SMEs should establish quality management systems and improve on their quality management programs for overall success of the enterprises productivity.
- With regard to human resource factor for SMEs, Time based minimum wages shall been set by the government for the garment sector for SMEs. Since it is the major productivity factor that affect the productivity of garment SME. The garment SMEs should follow modern management practices, adopt flexible manufacturing, kaizen, lean manufacturing and productivity improvement techniques.
- With regard to education statues of the enterprises, the design and implementation of policy interventions aimed at enhancing the support given by government agencies ETDI, TVET, Industry development office, Ethiopian standard agency and certification institute to enhance the capacity of the garment SMEs should be implemented.

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