

**GAP ANALYSIS OF THE TECHNICAL COLLEGES
MINISTRY OF HIGHER EDUCATION
ARAB REPUBLIC OF EGYPT**

Final Report

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WITH AND FOR THE
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FROM THE AMERICAN PEOPLE



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I. Executive Summary

This Report presents the final results of the GAP Analysis of three Middle Technical Colleges (MTCs) which are administered by the Ministry of Higher Education (MOHE). The overall goal of the analysis is to assess the status of the three technical colleges as compared to international norms. The Report summarizes the status, strengths, weaknesses/threats to the current system, and identifies recommendations/opportunities for actions which need to be taken to improve program quality, cost effectiveness, and relevance of the Colleges to enhance the participation of graduates in the labor force.

The Report was developed by international and Egyptian consultants from the Academy for Educational Development (Washington D.C), with resources from the United States Agency for International Development (USAID), and with the support of the MOHE. The three Technical Colleges studied were: (a) Mataryia Technical College, (b) Mehalla Technical College; and (c) South Valley Technical College. The analysis is also intended to establish a process to assess the status of, and make recommendations to, enhance the operation of the remaining five remaining Technical Colleges.

This Report concludes that while the strategic goal of the colleges, to provide level three technicians to fill an emerging gap in the Egyptian labor force, is appropriate and needed, there are three broad policy and technical gaps that must be addressed or this goal will not be achieved. First, while the “quantity” of technician training is moving toward international standards, the quality of the training is far below international standards. There is a need to address a number of technical issues, including the overcrowding of facilities which is causing serious problems with the delivery of quality instruction, as highlighted in the results of both the graduate and employer surveys. Second, concrete actions need to be taken to selectively decentralize college operations, and address related technical issues, to enable colleges to be more responsive to regional labor market requirements and student interests (this issue is addressed directly within each topic noted in the following paragraph). Decentralization must be led by and supported with, accompanied by technical assistance provided by the MOHE to the Colleges. Third, if the policy and technical issues identified in this Report cannot be addressed in a timely and comprehensive manner within the organizational structure of the MOHE, consideration should be given to moving national administration of the colleges from the MOHE to a more flexible market driven structure, as is done in a number of other countries, to help ensure national investments are used more effectively and labor force needs are addressed. This Report does not address the last issue in-depth, or provide alternative models of national administration, as this issue was not in the terms of reference of the study.

The Report is organized, as required contractually, around the topics of: Governance and Finance; Administration and Institutional Support; Program and Curriculum; Faculty Competence; Facilities and Equipment; Program Accountability and Evaluation; Skill Standards; and Design and Delivery of Programs Meeting Industry Needs.

II. Introduction

This Report presents the results of the GAP Analysis of three Middle Technical Colleges (MTC) administered by the Ministry of Higher Education (MOHE). This Report, which is an expansion of the Phase I report that provided baseline information, adds information on gaps and international norms and includes recommendations for actions to address these gaps. This Report also includes a summary of the results of the MTC Graduate Follow-up Survey and Employer survey. The findings and recommendations of these two surveys were used as input to the body of the report, including the recommendations. This Report was developed by a team of international and Egyptian consultants hired by the Academy for Educational Development (Washington D.C), with resources from the United States Agency for International Development (USAID), in cooperation with MOHE staff.

The overall goal of the GAP analysis is to assess the status of the three pilot technical colleges administered by the MOHE that are currently undergoing enhancement activities and compare the current status with international norms and standards. The three Technical Colleges are: (a) Mataryia Technical College, which consists of four institutes in two campuses, (b) Mehalla Technical College which has six institutes located in four campuses; and (c) South Valley Technical College, which includes nine institutes located in four campuses. The analysis also suggests a process to replicate the GAP analysis at the remaining five Technical Colleges at a later date. This will allow MOHE to identify overall short-comings in college operations which need to be addressed to improve program quality, cost effectiveness, and relevance for graduates to enhance their participation in the labor force.

This Report is organized, as required in the terms of reference, around the following topics: Governance and Finance; Administration and Institutional Support; Program and Curriculum; Faculty Competence; Facilities and Equipment; Program Accountability and Evaluation; Skill Standards; and Design and Delivery of Programs Meeting Industry Needs. There are two broad issues which are highlighted throughout the Report. First, the need to take concrete actions to increase decentralization of selected aspects of College operations to ensure they can be more responsive to regional labor market requirements and student interests. Second, there is a need to address the general overcrowding of facilities and selected programs which is causing serious problems with the quality of instruction, a fact highlighted by the results of both the graduate and employer surveys.

Economic Context

Egypt experienced high growth in the second half of the 1990s, following the adoption of a structural adjustment program, but economic growth and investment levels slowed after 2000. Growth rates were in the range of 7% in 2007. These trends were reinforced by the results of the Employer Survey (see Annex E). As a percentage of GDP, agriculture is decreasing, services is steady, while industry and manufacturing are increasing with related labor force implications.

Estimates of overall unemployment rates have declined slightly in recent years and were approximately 8% in 2007, with a large proportion of the unemployed being youth. This trend,

when combined with a demographic bulge (the percentage of working age population between 15-64 years old will increase from 55% to 67% in 2020) presents Egypt with both opportunities to support a growing economy, as well as challenges to create productive employment opportunities to reduce social pressures. The results of the MTC Graduate Follow-up survey (Annex F) highlight this challenge, as 47% of 2007 graduates indicated they were unemployed in June 2008.

It is estimated that the economy will need to maintain a growth rate of about 6% just to maintain the current level of employment. With regard to productivity, Egypt does not compare well with its competitors, particularly in small to medium sized enterprises (SMEs) and large public companies in traditional sectors. For example, average gross production per worker is 4.1 times higher and average value added is 5.7 times higher in Turkey¹. This has significant implications for the industry/manufacturing sector.

On the human resource side, the availability and quality of labor is cited as a limiting factor by a number of recent surveys². Unskilled labor is abundant, but the quality and quantity of skilled and highly skilled labor appears to be low and not well adapted to the needs of firms. The quality of the education and the Technical and Vocational Education and Training (TVET) system is viewed as needing upgrading. While the provision of in-service training to upgrade the quality and relevance of skills is increasing, it is starting from a very low base. The shortage of appropriate labor in the sector is exemplified by recent reports in the press³ on the "Problem of Foreign Workers" which indicates there are large numbers of legal and illegal workers, including an estimate that 80% of the workers in the Coastal city of Port Said in free zone factories are from India and Bangladesh. The Ministry of Trade and Industry Industrial Training Council (ITC) confirms this trend in the industrial sector (i.e. as an example, there is an estimated 30% shortfall in labor in the ready-made garment sub-sector).

General Structure of the Colleges

The public higher education sector of Technical and Vocational Education (Annex B for the Organization Chart) is administered under the auspices of the MOHE and is comprised primarily of eight regional technical colleges, which include forty-five technical institutes covering a variety of disciplines. With World Bank and Egyptian government funding, the MOHE has embarked on a Higher Education Enhancement Project (HEEP) to reform these colleges. Due to the fact that these technical colleges were recently established to consolidate the forty-five existing technical institutes, they are faced with a number of challenges. The administrative structure of all the colleges is very similar. The HEEP addresses some of the aforementioned elements in all eight technical colleges including the three pilot colleges.

- *Mataryia Technical College* is constituted of four institutes in two campuses namely tourism and hotel, optics, Shubra commercial and industrial, and Mataryia commercial and industrial institutes. The AED team visited Mataryia Technical College three times including two visits to the Mataryia campus with two institutes (commercial and industrial) which are receiving

¹ World Bank, Higher Education Enhancement Project, Project Appraisal Report, Washington D.C.

² Surveys include those completed by the World Bank, ECES, and Economic Research Forum.

³ The Egyptian Gazette, March 27, 2008

support from the Higher Education Enhancement Project (HEEP). The other visit was to the commercial and industrial institutes of the Shubra campus.

- Mehalla Technical College has six institutes located in four campuses including Mehalla industrial and commercial, Zagazig industrial and commercial, Mansoura commercial and Domietta commercial. The team visited Mehalla technical College three times including two visits to the Mehalla industrial and commercial institutes which are also receiving HEEP support. The other visit was to the Zagazig campus with its industrial and commercial institutes.
- South Valley Technical College includes nine institutes located in four campuses. The institutes include aluminum in Naga Hamady; commercial, industrial, travel & hotel, and the survey and irrigation institutes in Quena; and the commercial, the industrial and the restoration of antiquities institutes in Aswan. The team visited Aswan with its three institutes, and the Quena commercial and industrial institute.

GAP Project Working Group

The Ministry of Higher Education organized a “Working Group” composed of key stakeholders from the private sector, the Ministry, and the Colleges, to provide advice and counsel to the project. The list of members is contained in Annex A. The AED Team met with the Group four times (twice during each visit). The first meeting on each visit was an orientation to the project and the documents and the second provided a briefing on progress and recommendations. The Working Group provided both written and verbal input to the AED Team and this input has been considered when drafting this Report.

General Issues

This Report concludes that while the strategic goal of the colleges, to provide level three technicians to fill an emerging gap in the Egyptian labor force, is appropriate and needed there are a number of policy and technical gaps that must be addressed for this goal to be achieved. If left unaddressed, the Colleges will not be able to move forward and provide the technical labor force needed by Egypt’s growing economy nor will they assist in addressing the social concerns arising from having a large youth population. The key concerns are:

- Quantity and Quality. Countries in the Middle East, including Egypt, have made tremendous gains in terms of ensuring equitable access to formal education (internal efficiency), including an approximately five-fold increase at the level of higher education⁴. The gross enrollment rate in tertiary education in Egypt (including technical colleges) is 32.6%, as compared with a mean of 25.8% in the Middle East, 34.7%, in East Asia, and 37.2% in Latin America (World Bank, 2008). In accomplishing this expansion two issues have emerged. First, the large cohort of youth in the population has put an immense strain on the available budget and the number of training places in the higher education system. As a result, existing facilities are often badly overcrowded and quality

⁴ These increases have included nearing gender equity in most countries including Egypt.

of instruction is compromised. Second, the match between the needs of the labor market and the skills of graduates is not always appropriate in quantity (i.e., the correct profile of programs -- external efficiency⁵) or quality (i.e., skills taught in existing programs).

- Centralization vs. Decentralization. The current system is highly centralized. While selected elements of the operation of the Colleges need to be centralized to ensure that national priorities are addressed and that there are minimum standards of instruction, if Colleges are to react to the needs of local employers, and gain their support and involvement in program planning and implementation, the Colleges need increased flexibility and local control in program content, financing, and staffing (i.e. decentralization). For decentralization to be successful, existing policies need to be changed and the MOHE needs to provide leadership in the form of templates, guidelines, and staff training to help Colleges implement decentralized operations (i.e., develop local advisory councils for specialized programs, market and operate on-job-training, undertake employer and graduate surveys, etc.). Increased accountability must also go hand-in-hand with decentralization.
- National leadership and Administration: If the above policies and related technical issues cannot be addressed in a timely and comprehensive manner, within the organizational structure of the MOHE, consideration should be given to moving national administration of the colleges from the MOHE to a more flexible market driven structure, to help ensure national investments are used effectively and labor force needs are addressed. This is a common approach in a number of other countries. This Report does not address this issue in-depth, or provide alternative models of national administration, as it was outside the terms of reference of the study.

Organization of the Report

This Report is organized around the following topics: Governance and Finance; Administration and Institutional support; Programs and Curriculum; Faculty competence; Facilities and Equipment; Program accountability and Evaluation; Skill standards; and Design and Delivery of Programs meeting Industry needs. Each section summarizes the: (a) current status, (b) strengths, (c) weaknesses/threats, (d) gaps and international norms, and (e) opportunities/recommendations for actions on each topic. In addition to the above topics this Report contains three additional sections including a summary of the design and results of the Graduate Follow-up Survey, the Employer Survey, a summary of the conclusions and recommendations, and a suggested process for replicating the GAP Analysis in the remaining five colleges. The Report contains a number of Annexes including a summary and detailed findings of the graduate follow-up and employer surveys, baseline reports, and information on the colleges including data on the graduate and employer surveys at each college.⁶

⁵ In Latin America the expansion of tertiary education followed economic development, while in the Middle East the expansion has often paralleled, or been done in advance of, economic development. This has sometimes resulted in inappropriate training profiles. For example the distribution of higher education students is 35% Education and Humanities, 41% Social Sciences, 7% Medicine, 10% Scientific, Technical Engineering, 6% other in Egypt, as compared with 17, 39, 10, 24, and 9% in Latin America.

⁶ The individual college reports do not contain separate recommendations for three reasons. First, because of the centralized nature of the college system, there are few differences between the management and operation of the

III. Governance and Finance⁷

1. Mission, Vision and Goals: There is a general mission statement for all technical colleges in Egypt. Article one, Ministerial decree #2655, October 2006, guides the colleges' mission, vision and goals. However, the colleges do not have individual mission, vision and goal statements.

Strengths: There is an overall mission statement for all technical colleges in Egypt.

Weaknesses/Threats: The overall mission statement is not well known, the colleges do not know how it was developed, and it is not well publicized or disseminated. None of the three colleges has developed its own mission, vision and goals statement that would direct college activities and allocate resources to meet local needs. A complicating factor is that while the overall mission is primarily to prepare youth for the workforce, there are competing social and political missions which, although not explicitly stated, have a negative impact on operation of the colleges and the quality of instruction (i.e., large enrollment increases without parallel increases for facilities, equipment, and instructors). Any evaluation of the mission of the Colleges must take this latter issue into account.

Gaps and Norms: None of the three colleges visited have developed their own mission, vision and goals statements. The absence of these statements is a gap. While the mission statement for all technical colleges in Egypt, Article one, Ministerial decree #2655, provides direction at a national level, it falls short of providing both the product and process of developing these statements at the individual college level. International norms call for the development of an institutional profile that includes mission and vision statements as well as goal statements that provide milestones to drive the achievement of vision and mission.⁸ Policy, planning and administration are best achieved through partnerships at the local/regional level.⁹

Recommendations/Opportunities for Action: Technical colleges, with technical assistance and training from MOHE, should develop their own mission, vision and goal statements that support the national mission of technical colleges and also reflect local and regional needs and plans. The recommended process is to develop partnerships that include representatives of the business and social community in each region that help inform the development of these plans. With input from the community representatives, each technical college should develop a mission statement that addresses the reason for existence, types of clients served, services to be provided, and customer service philosophy and responsibility. A vision statement that defines the future of

Colleges, thus the major recommendations for each college would be very similar. Second, the number of responses to the graduate and employer surveys at each college are limited, and primarily provide anecdotal data, and should not be used for general recommendations, which are provided in the overall summary for all colleges.. Third, due to the lack of project resources the team had only limited time at each college and thus is not in a position to make does detailed micro recommendations at different colleges.

⁷ The AED Governance and Administration team met with key MOHE staff responsible for management of the technical colleges. The following analysis reflects these discussions. Additional details of these discussions is contained in Annex B.

⁸ GAP Analysis Template, Section A.1.

⁹ UNESCO-ILO Revised Recommendations, No. 9.

the college will provide the basis for goals that will help the college achieve its vision in alignment with its mission.¹⁰

2. Quality Policy: A quality system was recently developed which is guided by the Quality Assurance and Accreditation Project (QAAP) Handbook. Each college and institute has a quality unit guided by staff members and administrators. These quality units were established in 2008 but a quality policy is only just being developed and is one of the performance indicators in the HEEP.

Strengths: A quality system has been initiated which demonstrates management's commitment to quality.

Weaknesses/Threats: No overall quality policy yet exists at individual colleges. Committee members are appointed to serve without remuneration or schedule adjustment.

Gaps and Norms: The quality system that is guided by the Quality Assurance and Accreditation Project (QAAP) Handbook meets international norms.¹¹ The gap lies in the implementation of the plan at the individual colleges. There is evidence of progress in developing committees at the college level and the visiting team observed excitement and anticipation on the part of committee members that this work would have a positive impact on the college.

Recommendations/Opportunities for Action: Each college needs to develop a quality policy consistent with national and local (decentralized) mission, vision and goal statements and communicate this policy widely to local stakeholders. Consideration should be given to providing some type of remuneration or schedule adjustment for committee members. The work should include continual improvement as to satisfaction of the needs of students, employers and other customers of the college.

3. Funds and Finances: The fiscal year is July 1- June 30. Each Institute prepares a budget request which is consolidated at the College level and is sent to the MOHE for approval and fund allocation.¹² Colleges revealed that their budgets include very little discretionary funds. Students pay fees of approximately 80 LE per year of which 16% goes to the MOHE with the balance used for student activities. About 20% of students receive social support to pay fees. Salaries are distributed to institutes while the remaining funds are allocated as a lump sum to the college. College budgets are heavily weighted to salaries ranging from 76 to 97% of the total budget.

Special Production and Training Units: According to the technical college by-laws (Ministerial decree 2655, October, 2006) each College should have its own by-laws for Special Units and Service Center that will provide self-generated income. Mataryia and Mehalla colleges have made proposals for special units and South Valley is preparing a proposal.

¹⁰ GAP Analysis Template, Section A.1.

¹¹ GAP Analysis Template, Section A.2.

¹² The team learned that budget requests would typically be funded at 60% for non-salary and 100% of salary requests.

Strengths: The by-laws allow the establishment of Special Units Centers which would allow local colleges to develop activities to meet local needs and ease budget constraints.

Weaknesses/Threats: The colleges have very little flexibility or control of funding. Salaries and maintenance budgets are centrally determined and controlled by the MOHE. This makes it difficult to move from a supply driven to a demand driven state and may preclude providing training to meet local needs. There is also considerable funding available from the MTC for short term in-service training for workers, but the Colleges do not apply for these funds partially because they lack the flexibility to respond. To date no Special Unit Centers have been approved at any of the three colleges due to the lack of national policies at MOHE to implement such units. There is potential for conflict between the production (to earn income) and training, since a major portion of the funds generated are not currently retained at the colleges.

Gaps and Norms: The finance system for technical colleges is highly centralized. The gap is that there is little flexibility for the colleges to adjust curriculum or program offerings to serve specific employment needs in their area and limited ability to generate funding at the local/regional level. Most U.S. Community Colleges generate significant amounts of funding through contract training—training designed for a specific business or group of businesses or associations that pay the college for this service. (For more information on this type of funding contact the League for Innovation at www.league.org). International norms indicate that colleges should provide flexible admissions and programming and should be able design programs with involvement of business and industry to suit local needs.¹³

Recommendations/Opportunities for Action: More emphasis should be placed on decentralizing budget and finance responsibility to the college level. Colleges should be encouraged to provide specialized, contract training to enterprises for fees, which they should be allowed to retain. Such funding is also available from the Ministry of Trade and Industry. MOHE and college officials need to develop improved communications and understanding on how Special Units and Service Centers can be developed and implemented. Colleges should be allowed and encouraged to solicit assistance from business and industry through donations of equipment and other forms of financial assistance that will increase the capacity of the local/regional college.

4. Corporate Branding: The colleges and some institutes have logos; however, typically there are no college promotional and marketing materials. The colleges do not compete for students as they are admitted by the MOHE. No course catalogs exist. The Employer Surveys indicate that employers are often not very aware of the programs and services provided by the Colleges.

Strengths: Colleges are guaranteed student enrollment and do not have to compete for students.

Weaknesses/Threats: Students are admitted centrally so the colleges do not develop a corporate brand to attract them. Employers are not aware of College programs and services.

¹³ See Annex J, UNESCO-ILO Revised Recommendations, No 13, 18.

Gaps and Norms: International norms suggest that colleges should create a corporate image and identify that can be associated with their quality of service.¹⁴ The colleges visited have not developed promotional/marketing materials due to the fact that student selection and admissions are centralized, and that very little contract training for enterprises is done. The results of the Middle Technical College Employer Survey indicate that employers lack information about the college programs and specialized training that can be provided for their employees.

Recommendations/Opportunities for Action: Consideration should be given to decentralizing admissions, student selection, and providing greater autonomy and incentives for technical colleges to attract, inform and recruit students. Colleges should develop informational and marketing materials to inform students of college policies, procedures, services and programs. Materials should develop an image of quality and service for students, staff and employers. Colleges should also develop specific marketing materials for specialized contract training that can be done through the Special Units/Service Centers provisions mentioned above. However, the MOHE does not yet have Special Unit procedures at the national level. Policies to implement these units need to be completed as several colleges have already made application for such units which could serve as models for decentralization of budget, finance, and program implementation.

IV. Administration and Institutional Support

1. **Management and Governance.** All technical colleges are public institutions and all staff have civil service status and are hired centrally by the MOHE. There is intent to decentralize some of the management functions and responsibilities to the colleges, and this process is a performance indicator for the HEPP. The colleges have been asked for input on decentralization for consideration by the MOHE. According to Ministerial Decree #2655, October 2006, Technical College Boards of Trustees have specific power and authority but their function is not fully developed so as to impact the colleges. Teachers must possess a B.Sc. degree or related degree, but industrial work experience is not required to teach. Officials indicated that colleges find it difficult to hire qualified technicians for laboratories and workshops. Teaching staff have defined teaching load.

Strengths: Plans for decentralization are under development which could enable the colleges to better meet local needs. By-laws provide some authority for local policy making to local Boards of Trustees. Employees of technical colleges have job security and do not have to be concerned about dismissal. The Boards of Trustees have recently become active in the some regions (i.e., Alexandria).

Weaknesses/Threats: Centralized hiring limits the flexibility of technical colleges to staff according to local needs. Civil service salaries and regulations do not provide performance incentives or ensure job satisfaction and make it difficult for colleges to make necessary staff changes (hiring, dismissal, rewarding, etc.). Information about Boards of Trustees varied between Colleges and there was lack of clarity regarding the formal roles and responsibilities of the Boards. It appeared that the Boards had little authority over governance of the Colleges and

¹⁴ See Annex C, GAP Analysis Template, Section A.7.

that the majority of authority and decision making was done centrally at the MOHE. Boards of Trustees meet infrequently, agenda and minutes of meetings were not available, and College administrators were not able to cite major actions of the Board at the three colleges visited by the AED team.

Gaps and Norms:

- **Management:** International norms reflect the need for administrators to be equipped with several specific skills including knowledge of administrative techniques and procedures.¹⁵ As a part of the process of decentralization, administrators of the colleges will require technical assistance and training in order to assume the functions previously held at the MOHE. In addition, MOHE staff must honor organizational channels of the technical colleges (i.e., communicate directly with the college administration rather than dealing directly with individual institutes).
- **Governance:** Policy formulation should reflect regional social and economic requirements of the present and future.¹⁶ Governance of technical and community colleges is typically led by an effective administrative team and an elected or appointed Board of Trustees. There is a serious gap in the effectiveness of the Board of Trustees at the Colleges visited.

Recommendations/Opportunities for Action

- **Management:** MOHE staff should take the lead in developing training for local/regional college administrators during the process of decentralization in order to ensure smooth and effective transition. Training should include key administrators at all technical colleges and should build teamwork throughout the network. Administrators should be held accountable for achievement of goals, particularly when they are decentralized, and should reflect the mission and vision of the college. It is also recommended that the MOHE continue to solicit concrete input from the colleges, and conduct on-going discussions with the colleges on the specific functions that should be decentralized and how the changes could be implemented.
- **Governance:** The responsibilities of the college Boards of Trustees, as contained in the Ministerial decree #2655, October, 2006, should be followed by the college Boards of Trustees. These responsibilities should be tailored to meet local needs. Colleges should provide leadership for Boards, provide administrative support to their Boards, and should be allowed to make recommendations to the MOHE for Board membership (an element of decentralization). Training should be available and required of both new and continuing Board members to facilitate improved meetings and capacities for local policy making, and to help ensure that the Board can carry out their responsibilities¹⁷. MOHE should conduct annual evaluations of college Board activities.

2. Rules and regulations: State public rules, regulations and policies apply to the colleges. This applies to admissions policies and regulations as well as student policies and responsibilities related to admissions and studies; therefore local policy for these areas is not allowed. The

¹⁵ Annex J, UNESCO-ILO Revised Recommendations, No 89.

¹⁶ Annex J, UNESCO-ILO Revised Recommendations, No 9.

¹⁷ There was no evidence offered to the AED consultant team that any training had been offered or implemented for Board members.

college communicates policies, regulations and procedures to students through teachers and, in some colleges, through a bulletin for students.

Strengths: State public rules provide a uniform system throughout the technical colleges. Colleges have been asked to submit suggested bylaws for decentralization of the administration of the colleges to the MOHE.

Weaknesses/Threats: At present there are no approved plans or bylaws for decentralization to support development of rules and regulations to meet local needs. At the time this study was conducted, colleges had not yet provided suggested by-laws to support decentralization, as requested by the MOHE. There appears to be a lack of knowledge and guidance from the MOHE to the colleges as to what form the by-laws should take and which areas they should address (i.e. finance, management, personnel management, governance, student selection, curriculum design, evaluation, etc.) and as a result, input from the colleges may not be useful or complete.

Gaps and Norms: Both national and local/regional authorities have responsibility for policy formulation, planning processes and corresponding structures according to national norms.¹⁸ There is lack of evidence that the plans for decentralization include adequate training and assumption/change of responsibilities. It is also not evident that relevant stakeholders are involved through the Board of Trustees and other community-based groups.

Recommendations/Opportunities for Action: It is imperative that the MOHE provide leadership to ensure that all members of the college administration and Boards of Trustees receive training on their roles and responsibilities in light of decentralization of some policy and administration functions. The MOHE should provide training for administrators on new leadership responsibilities as decentralization evolves. A transition plan should be developed that includes training and assistance for both Boards of Trustees and college administrators.

3. Student Admissions Process: The colleges indicate their intake capacity is established by the MOHE which also assigns students nationally. Students completing technical secondary school or general secondary school are allowed to list their priorities for advanced study in the Technical College. The process of admitting students is done centrally by the MOHE considering the students' grade point average. The college must have approval of the MOHE to change curriculum including increasing capacity in specific programs. College officials indicated they would like to admit students into programs that would serve local need but the program and curriculum change process is very lengthy.

Strengths: The possibility of program and curriculum change exists and a process for these changes exists.

Weaknesses/Threats: Specializations taught are determined and changed centrally by the MOHE. This does not always take local market needs into consideration. Specialization change is a lengthy process. The number of students assigned is often more than College capacity which causes overcrowding. Students may be allocated to individual institutes and specialties, based on secondary school grades or lack of capacity in a particular specialty at a College, which may

¹⁸ Annex C, GAP Analysis Template, Section A.5., Annex J, UNESCO-ILO Revised Recommendations, No 12.

result in assignment to areas which do not meet student interests or needs (i.e., females in welding and machine shop), or does not reflect the training taken at the Secondary Technical School level.

Gaps and Norms: Overcrowding, particularly in laboratory and workshop settings (i.e., six students attempting to turn a shaft on one lathe, six students putting a carburetor on an engine, two to three students working on one computer with a queue waiting outside the door of the classroom) often results in very poor quality instruction, lack of practical skill development, concerns about safety, and contributes to a high absentee rate (estimated in some courses up to 25% a day). International norms speak directly to the need to address these issues¹⁹. Post Secondary technical programs in developed countries such as US Community Colleges, which have a similar mission to the Middle Technical Colleges in Egypt, normally have a maximum of 1-2 persons per work station in workshops and laboratories. The overcrowding in these settings cannot be overcome by adding staff, as the issue is student to work station overcrowding, and in some cases lack of space particularly in office occupation computer laboratories.

Recommendation/Opportunities for Action: It is recommended that arrangements be made to operate double shifts (i.e. 7-12 AM for one group and 1-6 PM for a second group) in classes where overcrowding in laboratories is present (particularly in office occupations). This could reduce class size without reducing enrollment, which is recognized as a social and economic issue. Double shifting could also create the capacity to increase enrollment in high demand courses (i.e. textiles) instead of forcing students to take alternatives which they have no intention of pursuing as an occupation (i.e., females currently assigned to welding and machine shop programs because there is insufficient room in textile courses). This recommendation would require hiring additional instructional staff and management personnel, but the benefits far outweigh the costs in terms of quality of training and utilization of facilities. It is noted that similar colleges in developed and developing countries operate from 7 am to 10 PM, and on the weekend, to increase utilization of facilities, enroll more students, and cater to adults. In-service training for adults is not common practice at the Middle Technical Colleges, but there is an urgent need and funding available (i.e., from the Ministry of Trade and Industry) to support adult retraining²⁰. If the above double shifting is implemented, there needs to be an explicit MOHE policy that student admissions will be capped, in a manner to ensure that "second shift programs" do not become afflicted with the same overcrowding that is found in the existing single shift programs. It is also recommended that technical college admission policies be revised to allow students the opportunity to build on their previous studies by weighting this factor in the admissions process.

4. **Records:** Records are mainly paper based without automation. Some colleges are developing a management information system that will be connected to the MOHE and should cover student and administration records. Students are able to access their records and obtain transcripts of their grades for a fee.

¹⁹ GAP Analysis Template B.1.2; UNESCO and ILO Recommendations 2002 – Technical and Vocational Education for the 21st Century.

²⁰ See Section IX on Meeting the Needs of Business and Industry.

Strengths: There is a system for keeping records. Colleges are starting to develop a management information system (this is a performance indicator under HEEP).

Weaknesses/Threats: There is a delay in developing an electronic system and backup systems for records. Paper records are inadequate and non-standardized. The HEEP management information system appears to be focused on the management of project resources (i.e. procurement and inventory of project financed equipment) and has not yet developed generic management systems (i.e. management of all equipment in Colleges).

Gaps and Norms: International norms require that systems of education maintain reliable, protected, and identifiable records.²¹ Currently, there is no evidence that colleges conform to this norm and that their current system is effective. There is a gap in the area of records as there is no developed automated management information system in place.

Recommendations/Opportunities for Action: An electronic management information system that encompasses key program areas (i.e. staff, students, finance, evaluation, facilities and equipment) and key data functions (e.g. input, monitoring, verification, retrieval, analysis, etc.) should be in place as soon as possible. This system should, to the extent practical, mirror data of all technical colleges some of which is reported uniformly to the MOHE and other national agencies. Training must be provided to colleges to ensure satisfactory implementation.

V. Programs and Curriculum

1. **Status:** For many specializations (i.e., air conditioning and refrigeration, electricity, etc.) the curriculum committees began their work using the Egyptian national skill standards that were recently developed through the National Skills Standard Project (NSSP) and that are available from the Industrial Training Council (see following discussion in Section VIII). Development of curricula for each specialization for the Technical Colleges is done at the national level under the direction of the Ministry of Higher Education. A team is created to develop the curriculum and the related scope and sequence map for each program to be offered. The latter addresses the need to ensure that individual courses are integrated to reduce overlap and duplication between courses. The teams appear to have standard procedures; however the detailed scope and sequences are still under development. The typical team consists of a professor, an employer, and a teacher from a technical college. Some teams may have more than one member from each of these positions.

The syllabi committees establish the objectives of programs and determine the percentage of instruction to be delivered in theory and practice. The syllabi that these teams create are taught in all technical colleges. Faculty at the local level may suggest changes in the syllabi, but all suggestions must be referred to the appropriate national committees for review.

Almost all of the textbooks for the programs are written by teachers from the technical colleges and academics. The Ministry of Higher Education chooses these teachers. Teachers at the three colleges visited complained that some of the authors selected do not have wide knowledge of the

²¹ Annex C, GAP Analysis Template, Section B.2.

content areas for their textbooks. Most of these texts do not receive an independent review to ensure their accuracy. Several examples of inadequate textbooks were shown to the AED team. A 2007 text for commercial studies, for example, discussed communication methods. While published in 2007, it contains no reference to the Internet/e-mail, and the secretarial curriculum does not stress keyboard skills.

Strengths: There are NSSP standards available for many curricula areas. Centralized development of syllabi and scope and sequence ensures that the framework for a given program area is uniform across the country. Centralized development also makes it possible to identify individuals who are expert to serve on the syllabi committees.

Weaknesses/Threats: Occupational skill standards for some areas are not available and there is no standard process agreed at the Ministry to develop missing standards. A small committee, typically three people, regardless of their level of expertise, is unlikely to reflect the full range of knowledge within a given occupational area. A standardized syllabus does not allow local modifications and as such, local teachers and trainers have difficulty customizing the curricula to local needs. There are no written procedures for developing scope and sequences. There is little on-job-training for students nor is it an integral part of the curriculum. There is no entrepreneurship training integrated into the curriculum, even though the majority of employment opportunities are in the small informal or formal sector, both being an integral part of the supply chain for large enterprises. Basic employability soft skills (i.e. customer relations, teamwork, etc.) are not directly addressed in the curricula but were stressed as very important by employers who responded to the employer survey. Colleges have no authority to add to the core curricula to meet local needs.

Gaps and Norms: The lack of written standardized procedures for the development of new occupational standards, curricula, and scope and sequence maps are major gaps as different curriculum groups will approach the tasks in different ways, which may cause conflicts and affect quality of products. There are no established criteria for the selection of authors to write textbooks for the syllabi, or for the review of textbooks, and current methods of obtaining textbooks do not ensure that the right ones are adopted. On-job-training is seldom implemented, and entrepreneurship and employability skills are not included in programs. Colleges cannot add to the core curriculum to meet local needs. International norms call for use of standardized procedures in general, and involvement of key stakeholders in the development of standards, curriculum and textbooks, and review and pilot testing of new materials prior to dissemination, including adding local content to address local needs.²² On-job-training (Mason and Haines, 1965), entrepreneurship (Grierson and McKenzie, 1966), and employability skills are the norm in most international training systems.

Recommendations/Opportunities for Action:

- Develop and use written standards procedures for the development of occupational standards (i.e. functional analysis, or DACUM, or job analysis).
- Develop and use written standards procedures for the design of curriculum and scope and sequence; maps should be written and adopted for use by all curriculum committees and disseminated to college staff.

²² Annex C, GAP Analysis Template. Section C.2.

- Refine procedures for writing of textbooks and selection of individuals to write textbooks. The current practice of allowing individuals to write and sell text books, without adequate review should be discouraged, and more resources should be available to ensure that individuals contracted to write agreed textbooks will receive adequate compensation.
- Update procedures for on-job-training (OJT) to encourage and support OJT both during the year and in the summer, approval of OJT should be delegated to Colleges (decentralized), and the MOHE should develop related guidelines and procedures, and train college staff how to use them.
- Develop modules on basic employability²³ and entrepreneurship skills that are integrated into all curricula as appropriate.
- Change regulations to allow Colleges to add to the core curriculum to meet local needs, a concrete step in the decentralization process.
- Provide guidelines to Colleges for the establishment of employer advisory committees for all major specialties to advise on curricula additions, on-job-training, and job placement of graduates. These committees would be technical and advisory only, and would supplement more general policy input from the Board of Trustees.

VI. Faculty Competence

1. Instructor Preparation: With regard to initial pre-service training, typically teachers begin their careers following graduation from a university. One must be a graduate of an arts, sciences, engineering, or information technology faculty to receive the title of “Teacher” in a technical institute, which means they teach the theory of a given occupation in lecture classes. Teachers and contract trainers who do not have their degree from an education faculty are given six days of training in pedagogy. Trainers are responsible for the practical instruction in the workshops. There are no higher education degree requirements for trainers, but they must have graduated from a vocational-technical high school. Any teachers or trainers hired under the Higher Education Enhancement Project (HEEP) must have a four-year degree from an engineering, information technology, or technical-vocational education faculty. These teachers are on “contract” and not paid the same salary as permanent civil service staff²⁴.

Some in-service education is available to teachers and trainers but is not required; however additional training is required for promotion. Teachers and trainers reported that they participated in training opportunities provided by the Ministry of Higher Education and did self study. The teachers and trainers had not, at the time of this study, received in-service training to use the new syllabi that were developed under HEEP. However the HEEP project includes a component for leadership and faculty development, and a Fulbright program is sending some staff from Colleges for study in Community Colleges in the USA.

²³ These include such skills as customer relations, cleanliness, behavior, personal appearance – see Annex E, charts D3 (a) and D3 (b) for details of employer requirements.

²⁴ No attempt was made to undertake a comprehensive review, and comment on, all civil service hiring and promotion processes affecting MOHE due to the complexity of such an undertaking and limitation of project resources (i.e. days of consultant time). However selective issues on promotion, pay, and qualifications have been noted and related recommendations have been made.

Strengths: The four year degree requirement ensures that teachers have a broad theoretical background in the occupations that they teach. Trainers who have graduated from a vocational-technical education faculty have received preparation in the pedagogy appropriate for practice instruction. The requirement of in-service training for promotion is positive.

Weaknesses/Threats: Little or no occupational experience is a major weakness of the current method of preparation of teachers and trainers. Teachers teach what they have been taught, not necessarily the skills needed to be a proficient worker. Actual experience in an occupation provides a perspective that cannot be gained by studying that occupation. There is a wide gap between understanding how a car runs and being able to diagnose and repair a car that is not running. Some of these skills can be learned through study in a formal setting but actual experience performing tasks in the labor market improves one's ability to teach. Separation of instruction in theory and practice occurs in many countries, but the AED team believes this provides less effective instruction. Practice should be grounded in the theory that underlies it, and this is facilitated if the same instructor delivers both. The lack of a requirement for minimal in-service training is a weakness. Finally, the inequality between the pay of permanent civil serviced staff, and the increasing number of contract staff needs to be addressed or the latter well qualified staff will leave the profession²⁵.

Gaps and Norms:

- **Pre-service Training:** The requirement of a tertiary degree for teachers meets international norms, but the absence of pedagogic preparation for existing teachers and trainers is a gap²⁶. In almost all cases, neither the teachers nor trainers have acquired practical experience using the skills they teach, which represents another gap²⁷. Contract staff are normally paid more, not less than, civil service staff, because they do not get other civil service benefits. The current system does not encourage or require teachers and trainers to obtain advanced degrees or formal continuing education, including work experience in the industry.
- **In-service Training:** Every educational institution should require, provide, and compensate faculty for engaging in continuing education to ensure faculty remain current with the occupational skills that they teach²⁸. We saw no evidence of any systematic attempts to require such opportunities at the technical colleges we visited.

Recommendations/Opportunities for Action:

- **Pre-service Training:** Efforts should be made to reward future teachers and trainers who have work experience in the occupations that they will teach and encourage them to continue such experience. Employers should be encouraged to provide internships and summer work experience for existing and future teachers. In many developed countries, experienced workers are hired as part-time (referred to as "adjunct") faculty. The feasibility of using such faculty should be tested. A minimum level of pedagogical training should be required for all teachers and trainers. The International Labor Organization and other sources have modular training materials already developed which could be used for in-service pedagogical training.

²⁵ For example, contract staff did not receive the recent 30% civil service salary increase.

²⁶ Annex J, UNESCO-ILO Revised Recommendations, No. 81.

²⁷ Annex J, UNESCO-ILO Revised Recommendations, No. 74.

²⁸ Annex C, GAP Analysis Template, Section C6; Annex J, UNESCO-ILO Revised Recommendations, No.72.

At a minimum, contract staff should be paid the same as civil service staff, work experience in enterprises should be recognized for salary increments, and consideration should be given to providing salary supplements to staff in occupations where private sector salaries are much higher than college salaries.

- **In-service Training:** MOHE should introduce, over the next several years, a requirement that all faculty take a minimum number of hours of in-service training and that those who do so receive related monetary compensation. Each technical college should create a faculty committee responsible for professional development. Each committee should conduct periodic surveys to determine the areas in which the faculty members of each college would like to improve their skills. The results of these surveys should be used to identify priorities and plan an array of continuing education opportunities including in-house training, external training, seminars, workshops, and formal courses. The committee should also recruit the cooperation of employers at the local/regional level to provide opportunities for training for both faculty and students and to encourage the employment of students following training.

2. Teaching Methodology and Processes: Teachers lecture on the theory while trainers and technicians provide hands-on practice. In the colleges that we visited we observed both lectures and workshops. The lectures are given to large groups. The teachers present material orally and write and draw diagrams on whiteboards and blackboards. The team did not observe any use of instructional media in the lectures. Most of the laboratories and workshops observed were organized in a similar fashion. Each of the workstations serves a group of students ranging in number from roughly six to twelve. The trainers and technicians demonstrate the skills to be learned and observe and guide the students as they practice the tasks being studied.

Weakness/Threats: the number of students per workstation is large. With so many students sharing equipment, it is difficult for them to have sufficient practice to acquire the manipulative skills required in many occupations. The number of workstations per student was especially low in the computer laboratories. For example, in one Institute students received only one hour of computer instruction per week. When the number of students enrolled is compared to the number of computers available, it would not be possible for all students to receive an hour a week, even if there were two or three students at each computer. The absence of software is another problem in the computer laboratories. In the theory classes, the students appeared attentive and answered questions promptly, but they took no notes to reinforce their learning.

Gaps and Norms:

- **Methodology:** The separation of instruction in theory and practice (i.e., use of different staff – teachers, for theory, and trainers for practice) is not recommended in international norms. Contextualized instruction in which students directly apply theory and related mathematics and science to the performance of practical tasks is the preferred practice²⁹. Very little use of new instructional media was observed during the site visits.
- **Learning Processes:** The major gap between the learning processes that were observed at the technical colleges and international norms is the number of students per workstation in the

²⁹ Annex C, GAP Analysis Template. Sections C 4.1, C7.3; Annex J, UNESCO-ILO Revised Recommendations, No. 63.

workshops and laboratories. This fact was a major finding from both the employer and graduate surveys. The norm in developed countries is one or two students per workstation for practical exercises and for computer workstations one-to-one³⁰.

Recommendations/Opportunities for Action:

- **Methodology:** The feasibility of minimizing the separation of instruction in theory and practice should be tested (i.e. Instruction in theory and practice should be delivery by similarly qualified and training staff³¹). This would require a major change in Egypt, but it has the potential to produce more effective instruction. A possible approach would be for the theory teachers to deliver brief lectures in the workshops on content that the students would immediately see applied in their practical exercises. Teachers should be trained in how to create and use new instructional media as part of the previously recommended pedagogical training.
- **Learning Processes:** The simple recommendation is to provide more workstations, but this would be very costly to implement. An alternative is to use existing facilities and equipment more intensively. This could be accomplished by scheduling two sets of classes (i.e., double shifts, one set in the morning and the second in the afternoon) to use the same equipment. It is recognized that this option is not available in all colleges and would require addition of staff, but it is less costly to implement than building and equipping new facilities and can be done quickly. Smaller classes during each set would give more students the opportunity to gain the hands-on experience required for the development of psychomotor skills.

VII. Facilities and Equipment

1. Planning and Programming: Plans for refurbishments are prepared through the General Administration for Management (GAM), via external consultants. Plans for new buildings are generated through the General Administration for Engineering Affairs (GAEA) by external consultants. GAEA often contracts with outside professionals. In a few cases, HEEP plans are done with external consultants. Specifications for classrooms, laboratories, workshops, and administration and support spaces are available. However, while the AED team asked for local or national building codes, none were forthcoming³².

Strengths: This current process assures some consistency and control at the Ministry level. The use of outside professionals exposes the design process to fresh ideas and, if properly monitored, control of costs.

Weaknesses/Threats: The separation of planning from the end user (the Colleges) often does not provide the product the Colleges need, essentially because they have no input in the programming or design process. The discrepancy between what is built vs. what is needed often results in a compromise of safety issues or equipment clearances. Although standards exist for construction of colleges at the Ministry of

³⁰ Annex C, GAP Analysis Template. Section C4.2.

³¹ It is understood that the MOHE is moving forward to implement this recommendation over the coming years as older teachers and trainers retire).

³² See following Section 5 on Documentation.

Education, they are not available for Technical Colleges at the MOHE. Funds for design and planning are insufficient in most cases to provide the level of documentation necessary to assure coordinated planning and budgeting for construction of refurbishments and for new buildings. To attempt to apply the International Building Codes (now being implemented in the U.S.) may well overwhelm the elementary state of school building systems and construction companies in Egypt. It would also require code enforcement that may be beyond the current capabilities (i.e. trained, equipped building officials with sufficient authority to administer plans and construction reviews).

Gaps and Norms:

- **Planning and Programming:** Local college officials in other countries typically are involved in the planning and design programming of new buildings and refurbishments on their campuses. This ensures local needs and priorities are addressed. Presently, local input is not considered in planning technical colleges in Egypt.
- **Allocation of Space:** There are imbalances and gaps with regard to the allocation of space (space subdivisions of the 10 major space use categories for assignable space—classrooms, labs, offices, study facilities, special use, general use, support, health care, residential, and unclassified—that are used to accomplish the institution’s mission), as compared to international norms. Guideline space norms are available for standard spaces from international sources (DeChiara, Joseph 1990).

Recommendations/Opportunities for Action³³

- **Planning and Programming:** The MOHE should provide/identify at least one or more qualified planning representatives at each College who will be available and responsible for coordinating staff input into the design program for capital improvements. These representatives would solicit input regarding planning needs and recommendations from their staffs and administrators and would then participate as equal partners with MOHE in planning and programming.

The MOHE should implement international planning norms via the use of templates, modifying them as necessary for each College and/or program. This decentralization opportunity will provide flatter hierarchical structures. If local people are involved at this level, wider training opportunities and the development of higher skilled staff in outlying areas will also result (Also see Section III—Management Team and Continuous Quality Improvement sections.).

- **Allocation of Space:** The basic issue of overcrowding has been addressed in the previous item and in the section on student admissions. Before building space standards can be developed, the programmatic and instructional elements of a college need to be defined. This is called the design program. Programming is a problem-seeking, analytical look at both

³³ It is recognized that Egypt cannot in the near future meet per international norms for student and equipment space allocations, particularly give the large cohort of youth entering the colleges. But more progress can be made toward international norms and is essential to improve the quality of instruction. In addition it is recognized that there is a need to maintain a balance between the design of facilities that are so general they do not meet the needs of instruction, and designing facilities so specifically that it is very difficult to use then for other purposes when program change. But, at present the former, not the latter, is the problem.

existing facilities and projected needs to quantify space requirements. The design program defines the problem to be solved and establishes the parameters or the design objective (Abramson, Paul and Burnap, Edward, 2006; CEFPI, 2008; Adler, 1970).

Once the programmatic and instructional requirements are defined, a comparative analysis can be done of the size and nature of the spaces available and the College facility space or design standards. If this is not done, instruction will remain sub-standard and level three instruction and competence will not be attainable. Area per student should be established for the following use areas: (a) standard sizes for offices, administration, study rooms, residential quarters, special and general use areas, support areas, health care facilities and unclassified areas. (b) square meters/student for standard classrooms and computer labs, lecture halls and assembly areas; (c) for laboratories and workshops that have special requirements or large equipment, the Ministry should have qualified planners establish space/student standards. Reference resources are available from equipment manufacturers, safety experts, and from the sources noted in the previous paragraph.³⁴

2. Space and Equipment. Large enrollments and the shortage of instructors and technicians require that teaching spaces be made as efficient as possible. For example, in several colleges, the work stations in computer labs faced away from one another, 5-6 meters apart, and facing toward outside walls. This may not appear to be significant but with several students needing more assistance, the Instructor is not likely to be aware of, or have the energy at the end of a long day, to move from one work station to another across the room. It would be better is to provide power supplies from the floors to position equipment and workstations in a tighter arrangement as is done in a few Computer Labs.

Considerable amount of new equipment (from HEEP project) was not installed, although it has been on site for up to a year. The reason stated is that the supplier has not yet checked out the equipment; and it could not be used until checkout was complete. In a number of cases, electrical power supply to equipment has been installed in an unsafe manner.

Strengths. Top floor workshops and labs have clerestory windows at some institutions which is excellent for indirect light. There appears to be a strong desire to impart knowledge to the students but it is hampered by a lack of input at the local level, very high enrollment, lack of funding and teaching slots, space and equipment needs.

Weaknesses/Threats. Some workshops lack water supply and/or electrical and breakers to serve equipment, and the equipment often arrives before necessary renovations are made. Fenestration is not planned to reflect how the interior space is used; e.g., banks of windows at side/front of classrooms have been curtained off in a number of cases to cut interior glare. The lack of sufficient electrical power

³⁴ These criteria would apply to those instructional areas which require (a) equipment requiring a large footprint; (b) equipment which needs additional clearances for safety, access, or operation; (c) equipment or processes that involve flammable or corrosive materials, possibly requiring multiple egress routes; (d) an instruction methodology that requires unique arrangements of equipment; (e) noise separation, lighting requirements, line of sight requirements which may affect space needed per work station; (f) specialized instruction procedures or spaces; (g) an increased number of students per work station allowable without compromising safety requirements; (h) special building code applications pertaining to ventilation, light, sound, safety and egress.

outlets and non-functioning internet laboratories constricts the potential of laboratory and workshop instruction. Repairs to broken/unusable parts; e.g., classroom door, besides being a safety hazard, projects an attitude of lack of caring on the part of administration. The general lack of cleanliness imparts this same attitude.

Gaps and Norms: International norms would position work stations so instructors and students have immediate access to each other for safe and appropriate learning to take place. For example, computer work stations appear to be positioned primarily to access electrical power (facing the walls).

Recommendations/Opportunities for Action: There is a need to revise locations of power strips so work stations can be positioned in rows, facing the instructor rather than exterior walls. This would position equipment and workstations in a tighter arrangement, thereby reducing the distance between instructor and students (Emory College Classroom Design Guide 2003). Outside windows produce glare and eyestrain, but if necessary for ventilation, work stations should be oriented away from direct glare, as well. If air conditioning is available, computer labs can be located at the building interior.

3. Safety and Health. Medical equipment and supplies were in unprotected containers and cabinets. Minimal first aid supplies were available. Fire suppression equipment was not available or was inoperable.

Strengths. Medical staff appeared to be caring and interested in the welfare of their students.

Weaknesses/Threats. College medical services do not have capability to readily treat accident or burn victims while waiting transport to hospital. Multiple injuries or victims of shock, as in an emergency involving a flash fire, would largely go untreated due to lack of supplies, sufficient beds and isolation facilities. The Colleges lack rudimentary support for disabled students. These unsafe conditions project an attitude of indifference to caring about the welfare of the students.

Gaps and Norms: Availability of adequate medical equipment and supplies for care and treatment of injuries falls well short of acceptable norms, creating a critical gap to the well-being of students and staff. Additionally, studies show that serious laboratory accidents are more likely when class size increases. Safety of science students and teachers is compromised when classes exceed 24 students or room space per student falls significantly below 58 sf (5.22 sq.m.). (Position Statement—Science Teachers Assn. of TX, Science Classroom Size & Lab Safety).

Recommendations/Opportunities for Action: The MOHE should prepare an emergency preparedness plan for laboratory safety. All laboratory and workshop instructors must have safety training and access to appropriate safety equipment, such as eye/face wash stations and fire extinguishers. Campus medical clinics must have capability to readily treat accident or burn victims while waiting transport to hospital. Sufficient first aid supplies must be available in all clinics and fire-fighting procedures established per international norms (Fire Safety in Colleges Building Our Future: Scotland's College Estate).

4. Maintenance of Laboratory/Workshop Equipment and Systems. Most classrooms had a shopworn look, and maintenance appeared not to be a strong priority. Some doors and window hardware were broken.

Strengths. Hard surfaced floors and walls withstand abuse and wear, are easy to maintain, and will have longevity.

Weaknesses/Threats. Poor maintenance and lack of cleanliness convey a lack of caring on the part of administration, has a negative impact on instruction, and can create unsafe conditions.

Maintenance of Laboratory/Workshop Equipment and Systems – Gap and Norm: Insufficient maintenance staff and poor equipment maintenance/installation, coupled with inadequate housekeeping creates a gap between a fully functioning, positive learning environment. International studies show that students who attend colleges in a good state of repair score 5 to 11 percentile points higher on national tests than students who attend colleges in need of repair.

Recommendation/Opportunities for Action. The MOHE should be an example in assuring that all Colleges have safe, dependable electrical power and water supply where needed; that repairs, daily housekeeping and maintenance of equipment and furnishings are done efficiently and in a timely manner. This is best done by establishing systematic inspections of equipment with periodic maintenance and procedures for reporting malfunctioning equipment with expected follow-up dates.

Laboratory instructors should set a standard for cleanliness. They can do this by cutting instruction time a few minutes short each period and requiring students to clean all labs and workshops every class day before they are allowed to leave. This involvement of students will improve their work habits, enhancing their appeal to future employers.

5. Documentation of Physical Improvements. The AED team was not able to analyze the baseline conditions of the Colleges. Drawings and Specifications were generally not available. Other plans were submitted to our team in a reasonable time.

Strengths. Some plans are available.

Weaknesses/Threats. Unavailability of the as-built plans of existing facilities makes it very difficult to do budget assessments for refurbishments unless re-measurements are done. Repairs become more difficult when locations of infrastructure lines are unknown. Documents given to the AED team were, for the most part, incomplete or unavailable for most of the institutions visited. It was apparent there was no system for storing or retrieving as-built documents. The Plans that were located were almost totally bereft of building cross-sections, connection details, and specifications. It appeared that contractors used stock plans for outdated designs, relating little to current institutional needs.

Gaps and Norms: There is a serious gap in the documentation of and ability to access physical improvements drawings. No automated management information system is in place. Maintaining reliable, accessible, complete documentation of original construction and remodels of campus buildings and their infrastructure will facilitate future planning, budgeting of improvements and production of construction documents for improvements. The norm is that all

as-built drawings of new construction and building modifications be retained as a reliable, identifiable management resource (Annex C, GAP Analysis Template, Section B.2).

Recommendations/Opportunities for Action: Under the guidance of the MOHE, each college administration should set up and maintain a uniform repository of complete as-built drawings of all buildings, equipment and utility layouts for its campus. A standard electronic information management system would best be used for systematic retrieval of these documents when needed. It should be in place as soon as possible. Beginning with storage of all documents now available, the process of gaining complete documentation of all buildings and equipment should proceed. Assigned staff would administer the records unit, setting up systematic procedures for storing, identifying and accessing the documents. They would be charged with updating these records as new equipment is acquired or building improvements are made.

6. The Construction Process. Contractor selection and construction oversight is done by GAEA together with their consultant. GAEA hires outside consultants in nearly all cases where the work is in outlying areas. The completed construction is accepted by GAEA, but payment authorization lies solely under the authority of the Head of the Central Administration for Engineering (CAE) or his representative.

Strengths. This assures control and standardization of construction procedures throughout the country. Contractors know what to expect from the tendering of these projects, which may equate to lower costs.

Weaknesses/Threats. Based on the AED team review, the concentration of approval authority (under the Head of CAE) sometimes creates a processing bottleneck, as the CAE is also responsible for ongoing maintenance projects. Modifications to reflect the needs of client colleges are not considered. Colleges have no input on scope of work, site layout, materials or finishes or recommendations regarding new technology. This often results in allocation of space that is inefficient or inappropriate for instruction (i.e., large offices for managers and excessive width circulation areas while classrooms and labs are cramped for space). Additionally, interior walls are not easily modified to meet changing needs.

Gaps and Norms: The international norm is to include local college representatives in the contractor selection and change order processes. However, local colleges are not allowed to participate in any of this process which directly affects them, including equipment purchases. These approvals are done by the Central Administration for Engineering Affairs. This GAP, related to the overall issue of centralization, shuts out the people most familiar with local conditions. It also introduces potential bottlenecks while waiting for a response from central office.

Recommendations/Opportunities for Action: This area is another opportunity for decentralization, and the MOHE should develop specific thresholds and procedures to allow local college officials to participate in the contractor selection process, have input re changes during construction, and to review and approve a minimum level of payment for construction and/or equipment purchase and/or maintenance (Also see Section III—Management Team and Continuous Quality Improvement sections.).

VIII. Program Accountability and Evaluation

1. **Quality Assurance.** The colleges and institutes are beginning to develop a quality assurance system as supported by the HEEP project. Each College has a quality assurance unit and committee. Each committee consists of four staff members and an administrator. Through the quality assurance system, committee members attended quality assurance workshops and provided training for additional staff members. The institutes have developed course specifications and are going to produce course reports and action plans for course and program development for the coming year. In addition tools have been developed for the quality assurance process including templates for student, staff and stakeholder surveys. The quality assurance system started recently (January, 2008) and includes plans for internal assessment and data analysis and control of nonconformance. Although a will was expressed for continuous improvement, there is not a system for continuous quality improvement in the management and operations areas in the local colleges.

Strengths: A quality assurance system has been initiated and work has started at the college and institute levels. It appears to be comprehensive and provides for staff involvement and input. Management appears to be aware of the need for improvement and is willing to achieve it. There is a quality assurance and accreditation handbook for higher education in Egypt (QAAP, 2004)

Weaknesses/Threats: There is a lack of widespread understanding and support of the quality assurance system by the staff and administrators. The Quality Assurance System has not been fully implemented or completed, and a plan for continuous quality improvement is absent. Centralization of management and operations functions reduces the incentives and power for change at local level. Plans for decentralization will improve this condition.

Gaps and Norms: International norms agree that management should create an environment where staff is empowered and given responsibility to identify opportunities for improvement.³⁵ While management at the national and local/regional level appear to be aware of the need for effective quality improvement procedures, there is a gap between this awareness and the reality of implementation.

Recommendations/Opportunities for Action: Continuous quality improvement should be emphasized and put into place as rapidly as possible as decentralization evolves. The necessary finances should be provided to ensure quality training through skilled, trained personnel and using the QAAP Handbook.

2. **Teacher and Learning Assessment.** The methods used at the Technical Colleges for teacher assessment include observation of teaching performance, and student test performance. The Quality Assurance and Accreditation Committee have developed procedures for the MOHE teacher assessment that incorporate, and in many ways, exceed prevailing international standards.

³⁵ Annex C, GAP Analysis Template, Section E.

Learning evaluation practices used at the Technical Colleges include short quizzes, longer exams, and an end of term exam. Colleges set examination for first year completers, while graduate examinations are set by the MOHE.

Strengths: The Quality Assurance and Accreditation Handbook provide a comprehensive guide for assessment of colleges, including the quality of their teachers. It includes templates for all phases of an institutional assessment and instructions for their use. Egyptian methods of evaluating student learning are consistent with international standards.

Weaknesses/Threats: The reviews did not see any major weakness in the quality assurance methods that have been developed, but saw little evidence that these methods are being used in the Colleges visited. This is a new initiative in Egypt and will take many years to be implemented. Assessment of knowledge and performance by trainees at the end of programs did not appear to be linked directly to original skill standards, nor were there any procedures in place to ensure the national exams are linked to the curriculum. There is no regular follow-up of graduates, and high levels of absenteeism were noted in most colleges.

Gaps and Norms: The Quality Assurance and Accreditation process that has been developed for MOHE meets international norms³⁶. The gap lies in the implementation of these methods. As noted it will take several years for this initiative to reach full implementation. There is no regular follow-up of graduates, this normally an international norm for similar colleges.

Recommendations/Opportunities for Action: Implementation of the Quality Assurance and Accreditation process should continue. The knowledge and skills assessed by the nationwide end of program examinations should be reviewed to determine if they are aligned with the competencies described in the skill standards upon which the national program syllabi are based. One of the components of this process that should receive special attention is attendance of students. Systems should be put in place to monitor attendance and sanction students who have excessive absences, such as more than 10% of classes. Colleges should be required to do an annual sample follow-up of graduates.

IX. Skill Standards

The National Skills Standards Project (NSSP) originally located at the Social Fund, has over the last few years developed skill standards and assessment materials. The NSSP is now closed however the Industrial Training Council at the MTC is continuing the process. The standards that were developed by the NSSP meet international standards as they were adapted from UK, French, and Danish standards using a functional analysis during the NSSP at the Social Fund. Additional Standards are being developed under the Technical Education and Vocational Training Project (TEVT) financed by the European Union using the internationally recognized DACUM process. The objective is to set standards equivalent to those of the European Union. The Egyptian standards are based on analyses and comparisons of the standards used in such countries as Scotland, France, Germany, Denmark, Canada, and Jordan. For most occupations, five competency levels are specified. In Egypt, these levels are roughly defined as laborer, skilled

³⁶ Annex C, GAP Analysis Template. Sections C5, C8; Annex J, UNESCO-ILO Revised Recommendations, No. 71.

worker, master worker (supervisor of skilled workers), engineer, and professor. In addition, a National Skills Qualifications Framework has been initiated by the European Training Foundation of the EU and is supported by the Ministry of Manpower.

It is the goal of the Ministry of Higher Education Technical College Unit to have curricula which will teach the knowledge and skills required by a level three master worker. Over 200 standards, for over 100 occupations, were developed for industrial specialties under the NSSP. These standards have been provided to the Ministry of Higher Education for use in syllabus development. Unfortunately, these standards have not been provided to the technical colleges for use in development of content for the syllabi. For those specializations in commerce, tourism, and social service for which national skill standards are not available, workshops are conducted with employers by MOHE. The employers are asked to describe the skills needed by their employees. The initial NSSP standards used a Functional Analysis approach, but a structured process is not used in the workshops.

Strengths: The existing skill standards provide a foundation for syllabi development. Many developed countries have adopted a similar approach. The existing NSSP standards appear to have been carefully developed and are of high quality.

Weaknesses/Threats: The teachers and trainers at the college level do not have the national skill standards to help ensure that their instruction meets these standards. New standards at the Ministry of Higher Education are not developed using a standardized approach (i.e. Functional analysis, DACUM). An examination of the Level 3 skill standards, on which the Colleges are to base their curricula, indicates that these standards are often considerably beyond the current level of instruction at the Colleges. This has multiple causes including, but not limited to, instructors who themselves do not have level three skills or work experience, lack of basic equipment, and up to date facilities which are key to developing more advanced skills on new equipment provided by HEEP. A major overriding problem is overcrowding in classes resulting in students "observing" rather than "doing".

Gaps and Norms: International norms agree that programs must be up-to-date, and meet the needs of the workplace³⁷. Syllabi based on well-developed skill standards are essential for programs to meet this norm. The project did not review the specific skill standards developed by the MOHE, to supplement those developed under NSSP and TVET, but the methods that are being used to develop these standards are not defined or written, and discussion with curriculum experts led the consultants to the conclusion that the standards do not appear to meet international norms³⁸. The instruction observed at the technical colleges we visited cannot bring students to Level 3 of the skill standards developed by the NSSP. Level 3 is a master worker, capable of supervising less skilled workers. This conclusion is based on observations of instruction and the students' use of materials and equipment at all three Colleges visited³⁹. The

³⁷ Annex C, GAP Analysis Template. Sections C2.6, C2.7; Annex J, UNESCO-ILO Revised Recommendations, No.72.

³⁸ Fretwell, Lewis, & Deij (2001).

³⁹ Note that this Report does not attempt to compare 26 individual occupational standards to international norms, as requested the Contract Terms of Reference. Such analysis goes far beyond the level of resources and days of consultant assistance provided for in the AED Contract, and would require specialized technical consultants for each skill area. AED advised MOHE of this shortfall in resources at the initial project inception meetings.

students were receiving basic instruction, far below the self-directed, problem solving skills required of a master worker. The Consultant team doubts, in most cases, if the instruction currently being offered can bring a student to Level 2. Egypt needs level 3 trained workers to compete in the international global economy. And as such will need to address a number of administrative, program, and facility issues noted in this GAP analysis to upgrade the level of training at the Colleges.

Recommendations/Opportunities for Action: The methods used by MOHE to develop skill standards should conform to best international practices, such as Functional Analysis or DACUM (Fretwell, 2002). The standards developed by these processes should be verified by review of a minimum number of expert workers for each set of standards. Bringing graduates to Level 3 skills will require major improvements in all aspects of the colleges, especially the qualifications of faculty and the quality of curriculum, facilities, equipment, and materials. The new equipment provided by the HEEP project moves the colleges toward the improvement that is needed. This equipment, however, is just the first step. It must be supplemented with professional development for teachers in the use of the equipment and in the new curriculum. Students must be provided sufficient practical instruction actually using the equipment to acquire the skills needed to operate, maintain, and repair it.

X. Design and Delivery of Programs Meeting Industry Needs

Technical colleges should continually attempt to ensure their programs of study meet the needs of the labor markets that they serve. There is little or no local initiation of programs in Egypt⁴⁰. Nevertheless, the Ministry of Higher Education generally attempts to match programs with local needs. The programs offered at the three colleges visited appear to be appropriate for their labor markets in content, if not in quantity. Mehalla, for example, is located in an area of Egypt that is home to major textile mills and prepares its students for the electrical, electronic, metal working, clothing, and commercial skills needed in these mills. It also offers programs in skills that are needed everywhere in Egypt, such as air conditioning/refrigeration and auto mechanics/electronics.

Strengths: The programs offered at the Colleges are generally matched to the labor markets that they serve. Curricula are usually based on industry standards (See Section VIII). National Bylaws are in place to establish Boards of Trustees at Colleges, including employer representatives.

Weaknesses/Threats: In general the direct linkages between employers and colleges are very weak. Decisions as to the types of programs to be offered do not draw upon a variety of labor market information sources. Systematic graduate follow-ups are not conducted to determine if graduates obtain employment in the fields in which they have been trained. Surveys are not regularly conducted with employers to determine the occupations for which they are having the most difficulty finding qualified workers. Faculty have little or no input into the kinds of programs that should be added or discontinued. While there tends to be a pattern of specialties in

⁴⁰ The Americana project at one college, which integrated training for a private restaurant chain was an exception, was an exception.

the institutes that reflect sector needs, the proportions are not always appropriate (i.e. in the textile area in Mehalla, there is only a curriculum for readymade clothes; there is high demand from students, but enrollment is limited; as a result students are diverted to other skill areas where sector demand is less). There appeared to be no plan to increase the breadth of enrollment in the textile specialty and reduce or close other programs.

Colleges do not attempt to provide in-service training for workers, for which funding is available from the Skill Development Project at MTC, and current regulations do not allow Colleges to charge and accept fees for delivery of contracted training services. This will increasingly be a shortfall as Colleges obtain modern equipment under HEEP. Colleges do not appear to be developing or using performance and knowledge assessments available from NSSP which are based on skill standards, but rather use MOHE assessments based on curricula. Boards of Trustees are largely dysfunctional and there are no technical advisory committees for specializations. There is little On-Job-Training (OJT) organized for students in the summer or during the year. Only one Institute appeared to be doing this; others indicated they could not find places, did not want to send students on OJT unless all students could go, or the enterprises wanted payment for providing OJT for students (i.e. 100 EP per student). There is no entrepreneurship training integrated into the training programs at the Colleges, yet the majority of employment in Egypt is in the small informal or formal sectors.

Gaps and Norms: The major gaps have been noted in the above citation of weaknesses, and related norms have been cited in previous sections of this paper. To summarize: (a) systematic graduate follow-ups and employer surveys are the international norm; (b) faculty, with the support of employer advisory committees, have direct input to program design and assist with organizing OJT and helping with job placement of graduates; (c) colleges provide in-service training for workers and earn and keep the funds; (d) OJT is the norm during training (not only during summer breaks); (e) definition of new occupational standards by MOHE do not currently use one of the internationally recognized procedures; and (e) entrepreneurship and employability skill training are integrated into technical training program.

Recommendations/Opportunities for Action: Related recommendations have already been noted in previous sections. To summarize, MOHE should take the leadership to develop guidelines and templates, and provide staff training to Colleges as appropriate, to ensure that the following programs are developed: (a) annual graduate follow-up and employer surveys; (b) employer advisory committees for each specialized program, and strengthened Boards of Trustees; (c) provision of in-service training for workers; (d) implementation of on-job-training for students during training as well as during summer breaks; (e) development of new occupational standards using internationally recognized procedures; and (e) integration of entrepreneurship and basic/employability skills training into technical training as appropriate and needed.

XI. Graduate Follow-up Survey (see Annex F for details)

Graduate surveys were conducted at three Middle Technical Colleges (MTC) with support from the Ministry of Higher Education and resources provided by the United States Agency for International Development. The objectives of the survey were to provide the MOHE and Colleges with information on the status of MTC Graduates; assist the MOHE in enhancing the

operation and programs of the Middle Technical Colleges; and support the MOHE in planning and improving the employability of graduates, and the productivity of the economy.

Design: The survey questionnaire was developed by the consultants and circulated and discussed with members of the project working group and with managers of the three Colleges and related institutes. The sample size was planned to allow surveying of up to a total of 1,500 graduates of existing programs (500 for each of three colleges) of the approximately 30,000 total graduates. The address information on graduates in all colleges was not complete, and many of the graduates in the randomized sample did not have proper address or phone numbers. This led the College leaders to include only the names of the graduates with documented proper addresses. As a result, invitations were sent to a total of 1,890 graduates (690 from South Valley, 500 from Mehalla and 700 from Mataryia Technical Colleges).

The survey was implemented by inviting a sample of graduates from the 2007 academic year to the College to participate in an “alumni party” where the survey was handed out. Invitees also included employers and faculty. The surveys were completed during the party and there were prizes for selected participants.

Summary and Conclusions of the Survey: Nineteen percent of the 1,890 invited graduates participated in the survey, reflecting that the culture of performing and analyzing surveys in these colleges is not well developed in Egypt⁴¹. As such the results of this survey should be treated with caution, and because of the small sample size any attempt to do sub-group analysis (i.e., by area of specialization, by individual college/institute or specialization) should be done with great caution.

Sixty one percent of respondents were female, and 39% male, which may be a factor in the high number of unemployable graduates, since a percentage of married girls never intend to work. The sample size represented 17 specializations at the colleges, which is a broad spectrum. Also, 46% of the graduates moved more than 50 Km after graduating from MTC which may account for the low number of graduates who participated in the alumni parties to fill out the survey. In the future, the MOHE may like to gather the graduates to complete questionnaires from more accessible locations.

Twenty-two percent of graduates indicated they were involved in some type of employment, while 74% percent of the sample indicated that they are not working (47% were unemployed and 27% were full time students). This is quite an alarming situation as a primary objective of the MTC investment and budget it to assist youth to enter the labor force. The costs are high compared to the employment outcomes. Half the respondents indicated that the primary reason for unemployment was that they could not find a job related to their area of study. In addition, 66% of the employed graduates have only a part time job while only 33% have a full time job. This gives the graduates a feeling of insecurity that may have an effect on the community. Moreover, 42% said they while they were satisfied with their job they want to change it, 27% are satisfied and want to keep their current job, and 17% said that they were unhappy with their

⁴¹ The total number of surveys returned was 358 including 159 from South Valley, 124 from Mehalla, and 75 from Mataryia.

jobs. Some of the graduates do not have confidence in what they have learned and they believe that they are not sufficiently qualified for the careers they desire.

More than half of the studied group declared that their current occupation or study courses were not related to the training received in the Middle Technical College. This could be due to misdistribution of the graduates as they are primarily distributed exclusively according to their secondary school exam grade and this grade is the primary factor in assignment to a College specialization. Although students indicated multiple specialties for admission to a college, the number and distribution of specialties at the colleges does not always reflect student interests or labor market needs. This causes many students to be forced into inappropriate specialties, some of which are also different from the specialties taken at secondary technical schools. For example, females may be forced into welding and machine shop specialties, due to lack of capacity in textile programs, even though more students desire entry into textile programs and there are job opportunities in the textile or ready-made clothes industry. The survey asked the graduates about their employment and the relation of their employment to the specialties they took at the Colleges. Surprisingly the majority are working in other specialties than those they studied.

Faculty members, families, friends or other students have assisted 73 % of the graduates in their choice of employment and/or training after having completed their studies at the institute. But there is no institutional plan to help the graduates find a proper job and the majority of job opportunities were supported individually. Some local business owners assisted graduates in finding employment, but graduates did not report any assistance from private employment offices or by the Ministry of Manpower employment offices.

A high percentage of the graduates think their teachers have good knowledge but they need better training for presenting the course material. This is a positive sign of trust in the knowledge of their teachers. On the other hand; they strongly believe that MTC needs to improve laboratories, workshops and equipment. Moreover they stressed the need for students to spend more individualized time to use the equipment and for the creation of job-placement services. Nine percent indicated they felt that the curriculum content needed to be improved to prepare them to enter universities and 9% wanted the examination and grading system improved. Seventy nine percent of the sample indicated that the types of institutions they are attending for further education and training are public Universities. In addition the primary reason for attending further education is to prepare for a better job, followed by preparing them for their role as a family member and better citizen.

Recommendations: ⁴²

1. Employment of Graduates:

- Establish an alumni and job placement office at each College, with proper hardware and software equipment and trained human resource officers.
- Conduct an annual job fair to support students in finding jobs. This will help reduce the level of unemployment of graduates and help create awareness for the market among the specialized institutions at MTCs (job fairs could be combined with the previous recommendation on the annual survey).
- Create career guidance services at each College, in cooperation with secondary schools, to help students in their initial selection of careers and specializations that meet their interests and aptitudes and labor market needs

2. Content and Structure of Training:

- Implement internal surveys to ask students to express their opinion of their training during the time they are at the Colleges. This should be done yearly in every program taught within the College. This also will help the administration to write an annual report on their activities which will be needed to accredit the school in the future.
- MTC's should immediately take actions to reduce the number of students working on each set of equipment to give them a better chance to achieve practical skills. This will happen either by buying more equipment or managing the time of laboratories more efficiently (i.e. double shifting). If double shifts are implemented to reduce class sizes, the Ministry of Higher Education must not add students to a College or the purpose of implementing the double shift will be negated.

3. Employment Policy – Meeting Labor Market Needs and Increasing Productivity

- The Ministry of Higher Education, in cooperation with the MTCs, should complete annual employer surveys, in parallel with graduate surveys, to provide information to reduce and/expand program offerings in different specializations based on labor market needs and student interests (see next section on the Employer Survey).

XII. Employer Survey (see Annex E for details)

The Employer survey was conducted in regions surrounding three Middle Technical Colleges (MTCs) by the Ministry of Higher Education, with the support of the Academy for Educational Development (AED, Washington DC) with resources provided by the United States Agency for International Development (USAID).

⁴² Based on previous experience in other countries and in Egypt which showed low response rates, the idea of mailing the survey to enterprises was rejected in favor of using interviews (JICA Employer survey for Ministry of Trade and Industry, 2006).

Objectives of the survey: The overall goal of the survey was to develop recommendations to the Government of Egypt, and specifically the Ministry of Higher Education and Middle Technical College Institution for development of Middle Technical Colleges (MTC). Specific objectives were to:

- improve productivity in the economy,
- improve the employment of MTC Graduates,
- promote more effective governmental policy in the sphere of employment, and
- improve the structure and content of vocational and technical training programs, elaborate and introduce new programs that would meet the ongoing demand of public and private employers.

General Survey Procedures: The GAP Analysis project included an activity to identify and document information from employers via a survey. The employer survey was designed and implemented carried out by a team of Egyptian and international consultants, and with the support of staff from the three MTCs between March, 30 and June 10th, 2008.

Design of the survey: A draft survey document was circulated and discussed with members of the project working group and with managers for the three Colleges and related institutes. Refinements were made based on this review and agreement was reached that the survey would be implemented by interviews conducted by selected College staff who would be trained and supervised by AED consultants. A sample of 240 enterprises (80 per college) in sectors related to the specialties provided by the MTCs, and stratified by size (small, medium and large) was to be selected. The idea of mailing the survey to enterprises was rejected, vs. using interviews, based on previous experience in other countries and in Egypt (JICA Employer survey for Ministry of Trade and Industry, 2006) with low response rates.

Implementation: AED consultants advised the Colleges on selection of the 80 employers per College, and verified with the Colleges that the survey was targeting small, intermediate and large companies in sectors related to College programs. AED arranged for translation of the survey into Arabic, provided copies to each college, and trained survey staff from the colleges on the methodology of conducting the survey, collected and analyzed the complete surveys, and wrote the final reports. It proved to be difficult to both identify a sample of enterprises willing to participate in the survey interviews. A total number of 92 surveys were completed, 29 at South Valley, 25 at Mataryia, and 38 at Mehalla.

Summary and Conclusions

Survey implementation. The expected sample size for the survey was to be about 240 (80 per college) employers. It was difficult, particularly with the time and resources available, to reach this number of firms. Some firms declined to respond for multiple reasons (i.e. they were afraid that their responses may be given to tax authorities). The final number of interviews completed was 92 (38 in the Mehalla area, 29 in South Valley, and 25 in Mataryia). As such the results of this survey should be treated with caution, and because of the small sample size any attempt to do sub-group analysis (i.e. by individual college, by sector, or size of enterprise) should be done with great caution.

Enterprises responding to the survey. The enterprises represent a broad profile of sectors; a balance between small, medium, and large; and were primarily from joint stock companies and private entrepreneurs. As such the findings present profiles which reflect broad labor force trends, but as mentioned previously, do not allow for detailed sub-group analysis due to the small size of the overall sample of firms.

Structure and Content of Vocational and Technical Training: Survey responses indicate that the primary education level of employees being added is secondary technical education, and not MTC graduates. Analysis suggests that this may change in the future as there is evidence that skill requirements are increasing (see following points on skill levels and requirements). There is a high turn over of secondary technical graduate employment (significant increases and decreases), and decreases in hiring of elementary graduates. However, there seems to be little awareness of the objectives of the MTCs, and skill level of graduates. In addition, current salary guidelines may favor hiring of secondary vs. post secondary graduates. Hiring of new employees is often done using media (TV, Newspapers), and by referrals from other employers. Little use is made of public or private employment services. MTC faculty should use this information in assisting graduates in job search.

Skill Levels. A large proportion (88%) of enterprises surveyed indicated that skill level requirements are increasing and that this is due to three factors: First, higher levels of technology; second, increasing competition; and third, increasing concerns about quality. These factors have very direct implications for the demand for MTC graduates, and quality of their training.

Availability of Skills: Trends on growth and investment in enterprises, and hiring of personnel, are generally positive and reflect overall economic trends in the Egyptian economy (about 7% per year). Enterprises indicate that the lack of availability of skilled workers is one of the major obstacles to their growth and development. Enterprises indicate they have priorities for “soft skills” including personal (i.e. honesty, punctuality, etc.), and basic skills (i.e. literacy, customer relations, management, ability to work independent problem solving skills etc.). With regard to technical skills, enterprises indicate that the most important gauge of these skills is previous general or sector specific experience, followed by institutional certification. However they rate evidence of skills, without certification, as important as certification of skills, and evaluate skill levels via interview, performance tests, and reference from previous employers. These latter trends emphasize the importance of on-job-training for MTC students, and a need to address development of soft skills as an integral part of MTC programs.

Improving the Employment of MTC Graduates. Enterprises do provide internal training for employees, in particular for technical and skilled workers. However, they do not have a high opinion of public and private sector training institutions. They indicate that that two of the major reasons for the shortage of skill labor is lack of quality and quantity of institutional training. The majority of enterprises generally rate secondary, secondary technical, Middle Technical College (MTC), and Ministry of Trade and Industry training as poor (the MTCs, while rated poorly, do rate slightly higher than the others). Universities are rated slightly higher. When enterprises were asked why they have not hired MTC graduates, the majority replied that graduates had not applied for employment, 14% of employers said they were not aware of the role of MTC, did not

think that MTC trained the graduates they needed (14%), or did not think MTC graduates had the skills to be productive in their company (11%). These trends indicate a need for MTCs to promote their programs with local employers, and address quality issues.

Recommendations

MTCs should perform an annual employer survey using standard core questions and procedures in order that the MOHE can summarize national trends (this does not exclude MTCs adding some survey questions beyond the core survey). The data obtained can be used to promote more effective regional and government policy in the sphere of employment and training, including reducing unemployment and improving the productivity of the economy.

- MTCs should develop employer advisory committees for each major program area, and fully activate Boards of Trustees (including ensuring local employers are on the Boards) to help ensure programs need the demand of public and private employers. It is understood that it is difficult to maintain active involvement of employers unless selected components (i.e. additions to curricula) of MTCs operations are decentralized.
- MTCs should aggressively work with employers to implement short term on-job-training (OJT), both during the instructional year and during the summer, for all students as already required by MOHE bylaws, to help ensure trainees gain appropriate soft as well as technical skills. Identification of OJT opportunities can be facilitated by annual employer surveys, and job fairs. To accomplish a better functioning OJT system the MOHE will need to decentralize the administration of OJT programs and provide technical assistance and training to MTC staff on how to operate OJT programs.
- MTCs need to develop institutional branding and marketing activities to ensure that employers know about the role of the MTC and the skills of their graduates, which can result in increased employment among graduates.
- The content of MTC programs should be refined to more fully address the needs expressed by employers to: (a) develop soft skills, including entrepreneurship skills, (b) link curricula directly to occupational standards, and allow MTCs to add to core curricula to address local needs, (c) provide more practical experience during training, and (d) shift the number of programs in different specialties so they reflect regional needs and student interests. Resources to add facilities and equipment are limited and there is a need to consider double shifting in high demand programs, vs. allocating excess students to undersubscribed programs. If double shifts are implemented to reduce class sizes, the Ministry of Higher Education must not add students to a College or the purpose of implementing the double shift will be negated.

XIII. Summary of Conclusions and Recommendations

General Conclusions

- Goal of Colleges. The strategic goal of the colleges, to provide level three technicians to the Egyptian labor force is appropriate and needed, and fills an emerging gap in the labor force to allow Egypt to compete in the knowledge economy. The results of the employer survey reinforce this conclusion (see Annex E).

- Quantity and Quality of Services. While the quantity of technician training is moving toward international standards, the quality of the training is far below international standards and does not in general provide graduates with Level three skills. There is a need to address a number of technical issues, including the overcrowding of facilities which is causing serious problems with the delivery of quality instruction, as highlighted in the results of both the graduate and employer surveys.
- Centralization vs. Decentralization. More concrete actions need to be taken to increase decentralization of college operations, and address related technical issues, to enable colleges to be more responsive to regional labor market requirements and student interests. Decentralization must be accompanied by technical assistance provided by the MOHE. Specific recommendations on decentralization are contained within each section of this Report (i.e. governance, administration, finance, curriculum, etc.).
- National Leadership: If the above policy concerns, and technical issues noted below, cannot be addressed in a timely and comprehensive manner within the organizational structure of the MOHE, consideration should be given to moving national administration of the colleges from the MOHE to a more flexible market driven structure, to help ensure national investments are used more effectively and labor force needs are addressed. This Report does not address this issue in depth, or provide alternative models of national administration, as it was outside the terms of reference of the study.

Summary of Technical Recommendations (readers are strongly encouraged to read Sections II-IX for more complete details and related analyses).

- Governance and Finance (Section II). Colleges should develop their own unique and decentralized mission, vision and goal statements (within the framework of the national mission) and related corporate branding to help ensure that all stakeholders (employers, citizens, and potential students) are aware of their role. Quality assurance activities that have been initiated need to be fully implemented and maintained. Decentralization initiatives should allow and encourage colleges to do contract training for enterprises and the unemployed, and colleges should be able to retain revenue generated. More flexibility and control of financing should be decentralized to the colleges to allow them to reduce bottlenecks and allow them to respond quickly to local needs.
- Administration and Institutional Support (Section III). Management of Colleges must be involved in development of decentralization policies, and provided with more technical assistance and training to manage decentralization effectively and ensure accountability. Policies for Boards of Trustees should be reviewed and strengthened to ensure more local decentralized input. Colleges should have increased input to appointment of Trustees, and Colleges administrators and Board members should receive training to ensure they understand and can more effectively implement their respective roles. In order to address the overcrowding, and inappropriate assignment of students in many programs colleges should begin double shifts whenever possible. The MOHE must not assign additional students to colleges shifts as this would negate the purpose of the double shifts. Consideration should be given to giving weight to previous technical secondary training

for incoming MTC students, in addition to secondary school exam marks, to help ensure they are not allocated to MTC programs that are totally different than their Secondary Technical School training.

- Program and Curriculum (Section IV). MOHE should adopt international procedures for the development of new occupational standards; procedures for the development of curriculum and scope and sequence maps should be written; procedures for development of textbooks and the selection of individuals to write textbooks should be refined; a procedure for OJT should be revised and decentralized to encourage and support OJT both during the year and in the summer; modules on employability and entrepreneurship skills should be developed and integrated into technical curricula; regulations should be changed to allow colleges to add to the core curriculum in support of decentralization; and colleges should be required to establish employer advisory committees for all major specialties to help identify additions to core curricula to respond to local needs and support implementation of OJT.
- Faculty Competence (Section V). Recognition of enterprise work experience should be factored into the salary of teachers and trainers. Minimum levels of in-service training should be increasingly required for all teachers and trainers, and those who obtain such training should receive additional income. Allowable in-service training should be flexible and emphasizes practical learning related to the teacher/trainers work (i.e., enterprise internships, conferences, seminars, short term technical and pedagogical training as opposed to merely obtaining advance academic credentials). The separation between teachers and trainers should be eliminated over time (i.e., the same instructor should teach both theory and practice) as the current practice of having separate instructors creates an artificial barrier between theory and practice. Trainers should be provided with additional training and materials to use modern instructional technology. As mentioned previously, double shifting should be implemented when needed and possible to reduce overcrowding and misallocation of students which is having a very negative impact on the quality of instruction.
- Facilities and Equipment (Section VI). College representatives should be more directly involved in planning the broad design of facilities, and oversight of construction and equipment selection and placement as part of the decentralization process. This will help ensure that buildings and equipment meet the meet local needs, in particular the needs of specific programs to be implemented at the colleges. Specific guidelines should be developed to address maintenance and safety in the colleges and in particular laboratories and workshops. Instruction should ensure that students are aware of these issues and are involved in them, as part of learning basic employability skills required by employers.
- Program Accountability and Evaluation (Section VII). The previously mentioned, a quality assurance system needs to be fully implemented and can be used as a tool to increase local accountability and to monitor the impact of decentralization. Procedures should be put into place to more carefully monitor and address student absences, as these are a key factor in employability. Students should be asked to evaluate instructors and

instruction during their training. All colleges should implement annual sample graduate surveys.

- Skill Standards (Section VIII). The MOHE must ensure that new occupational standards are developed using acceptable international practices. These standards should be used to define student curricula as well as instructor technical training and competence, and should be made available to all colleges and instructors so they can compare them with their curricula and assessment procedures. A major concern is that current instruction in many specializations does not meet level three technician levels (the goal of the colleges) due to extensive overcrowding in laboratories (thus trainees do not get sufficient practical experience), lack of appropriate equipment, and inadequate instructor skills.
- Design and Delivery of Programs Meeting Industry Needs (Section IX). Most of these recommendations have been cited in previous sections. In general the colleges have weak links with enterprises, which is an important element needed to support decentralization. To address this gap the following technical issues need to be addressed: (a) implementation of annual graduate follow-ups and employer surveys; (b) establishment of employer advisory committees and strengthened Boards of Trustees; (c) enable colleges to provide contacted in-service training for workers, and retain the funds generated; (d) organize on-job-training for students during training; (e) develop new occupational standards using internationally recognized procedures; and (e) provide entrepreneurship and employability skill training as an integral part of technical training.

XIV. Replication of GAP Analysis in Five Remaining Colleges

The AED Team recommends the following steps be used by the MOHE to replicate the GAP analysis at the five remaining Colleges/

1. Identify MOHE Coordinator and Research Assistant:

MOHE should identify two full time persons, each for a period of six months, to lead and coordinate the implementation and documentation of the GAP analysis of the five remaining colleges.

- The Coordinator could be an individual who is already on staff at MOHE, and who is released from his normal duties for a six month period; or an outside Consultant. It is emphasized, based on the experience of AED, that this person be available full time for a minimum of six months to coordinate the analysis at the five remaining colleges. If this person is not available full time for this period, analysis may fail, or will be of questionable quality. The person identified must be familiar with the process and content of the report of the GAP analysis of the three initial Colleges, should be familiar with operation of the Colleges (preferably a former administrator of a College), and have some international experience with evaluation and accreditation of technical colleges (i.e. US or Canadian Community Colleges, French IUT, UK Adult Continuing Colleges, Australian TAFE Colleges).

- The Research Assistant should take the lead in working with the five remaining colleges to replicate the employer and graduate follow-up studies, input related data, and assist the Coordinator with the write up the summary and conclusions of the surveys. The Research Assistant must be familiar with related computer programs (i.e., Microsoft XL, Word, etc.), and the process used in the initial employer and graduate surveys described in this Report. The Research Assistant should also provide back up word processing and administrative support to the Coordinator for other parts of the GAP analyses.

2. Identify Coordinators at Colleges and Institutes.

One individual should be identified to coordinate all GAP analysis activities at each college, and one person at each Institute of the college. These coordinators will need six to eight weeks of release time each, over a six month period, to coordinate implementation of the GAP analysis using the templates and procedures designed and piloted during the analysis of the three initial colleges. The Coordinators must have word processing skills, or have access to secretarial support with word processing skills, to implement and document/write up the analysis.

3. Develop Templates, Provide Training to Coordinators, and Agree on Implementation Schedule.

The MOHE Coordinator, in cooperation with the Research Assistant, should develop templates and training materials, deliver initial training, and provide ongoing technical support to ensure that each College completes the GAP Analysis in a standardized fashion and in the agreed time frame. The templates, training, and implementation schedule should cover, but not necessarily be limited to:

- Identification of the goal and outputs of the GAP analysis: This should include an overview of the format of the final report that each College is expected to deliver (provision of a report outlining the strengths, weaknesses/threats, gaps according to norms, and recommendations/opportunities to improve the College)
- Identification of basic tools and templates to implement the GAP analysis: These should include but not be limited to: (a) a template for development of baseline information (see Annex C of this Report). (b) the questionnaire and procedures to implement an employer survey (Annex E of this Report), (c) the questionnaire and procedures to implement a graduate survey (Annex F of this Report), and (d) a template/outline for writing up the final report of the GAP Analysis at each college (i.e. Sections I – XII of this Report, and Annexes E-F of this Report).
- Provision of Training to Coordinators: This should involve at least one full day of training and orientation and College and Institute coordinators from the five colleges. This could be done at MOHE in Cairo, and all key College Administrators and Coordinators from the five colleges should be required to attend the full training session. During this training session the templates noted previously can be refined as necessary, clarified with all participants, and the schedule for implementation agreed at each College.

4. Implement GAP Analysis at Each College:

- College Visits and Briefing: It is anticipated that the MOHE Coordinator and Research Assistant would need to make two to three site visits to each of the five Colleges to clarify issues, address problems and ensure that the GAP analysis is carried out in a timely, standardized, and professional manner. **The first visit** would be an “inception” visit to ensure the self assessment (see following point) was implemented correctly, and the employer and graduate surveys were designed appropriately. **The second visit** would be to review the self assessment and help supervise the initial implementation of the employer and graduate surveys. **The third visit** (if needed) would be to review the draft write up and summary of the final GAP Analysis, employer, and graduate, surveys, at each College.
- Self-Assessment: Institute Coordinators would complete (write) the self assessment of their Institutes, with the general support of the College Coordinator, using the assessment template (Annex C of this Report). The strengths and weaknesses would be summarized in written form at the College level by the College Coordinator under the following headings: Governance and Finance; Administration and Institutional Support; Program and Curriculum; Faculty Competence; Facilities and Equipment; Program Accountability and Evaluation; Skill Standards; and Design and Delivery of Programs Meeting Industry Needs. It is anticipated that the self assessment would take up to one month at each College.
- Employer and Graduate Surveys: The MOHE Coordinator and Research Assistant would make a second visit to each college to assist with the design and implementation of the two surveys (during this visit they would also review the written self assessment). The MOHE would provide printed standardized questionnaires for each survey to each College, and any additional funds required for implementation of each survey based on the costs incurred on the surveys at the initial three colleges (which was very low). The primary cost for the employer surveys were payment to staff for visits to enterprises; and for the graduate survey, the cost of refreshments at the graduate party (if this approach is used) plus minor printing costs. It is anticipated that implementation of these two surveys would take a maximum of eight weeks from initial planning. The MOHE Research Assistant would the input data and provide each College with a printout with graphical summaries of responses to each survey item using the Excel analysis program used for the initial three surveys. It is anticipated that the data input and summary would take one to two weeks per college, depending on the number of responses, and then each College Coordinator would be responsible to write a summary report using a standardized template (see Annexes E and F for samples). The entire process of design, implementation, data summary and write up of the two surveys should take about four months from the time the process begins.
- Drafting of College GAP Analysis Reports. Each College Coordinator would develop a Draft Report on their College following the agree template format (see Sections II-XII of this Report) and forward it to the MOHE Coordinator. It is anticipated that this would

take one month to complete, therefore the entire GAP analysis process could be complete in a period of about 6 months at each college. It is anticipated that the MOHE Coordinator would read each College report, make comments, and then the College Coordinator would make adjustments and submit a final report.

5. National GAP Analysis Report and Dissemination:

It is anticipated that the MOHE will want and need a summary report on the GAP Analysis of all eight colleges. The MOHE Coordinator and Research Assistant should write this report, which could be organized in a similar fashion to this Report. It is anticipated that the writing of this Report would take up to four total weeks of time and would include an initial draft, review, and final draft. This would be followed by a two day national dissemination seminar led by MOHE with the participation of key stakeholders including representatives from, but not limited to, MOHE, employers, and Colleges.

XV. Annexes

**ANNEX A:
AED Consultants, MOHE Coordinators, Key Individuals Met**

| GAP Analysis AED Consultants | | | |
|-------------------------------------|-----------------------------------|--|--|
| Lead Responsibility | Name | EM address | Phone # |
| Team Leader (International) | Dr. David Fretwell | scarcliffe@sbcglobal.net | +1 703 606 0865 (mobile) +1 805 238 4970 (h) |
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| Administration/finance (intl) | Dr. Laurance Warford | warford@league.org | +1 541 687 1952 (h) +1 541 913 6006 (m) |
| Administration/Finance (Egypt) | Dr. Mostafa Mohsen Radwan | radwan_mm@yahoo.com | |
| Curriculum (Intl) | Dr. Morgan Lewis | mvlewis13@gmail.com | +1 614 451 9921 |
| Curriculum (Egypt) | Dr. Mohamed Ibrahim El Desokey | mohamedeldesokey1511@yahoo.com | 20 10 108 0980 (mobile) 20 2520 3390 (h) |
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| AED Project Manager | Dr. Robin DePietro- Jurand | rdepietro@aed.org | 202-884-8299 (o) |
| USAID Project Manager | Elizabeth Warfield | ewarfield@usaid.gov | +20 2 2522 6802 (o) +20 2 2522 7000 (o) |
| | Barbara Jones | bljones@usaid.gov | |
| Research | James Stone | stone003@umn.edu | +1 612 396 7640 |

Ministry of Higher Education Coordinators

| Lead Responsibility | Name | EM address | Phone # |
|---|---|--|--|
| Ministry of Higher Education and Scientific Research Coordinators | Saad Kassem, Advisor to the Minister of Higher Education | sdkassem@hotmail.com | (202) 3345-8610 x127 (2) 011-129-4392 (m) |
| | Nader Matter | Matter_nader@yahoo.co.uk | 2-012-398-4835 (m) |

Key Individuals Met at Mataryia Technical College

| Name | Job |
|--|--|
| Hesham Samaha | Vice manager of MTC. |
| Samir Saad Zaghloul | Vice manager of the MTC |
| Dr. Mohamed Saad Negom | General Manager of Hotel & Tourism |
| Dr. Mahmoud Abdelbasset | General Manager for Industrial Technical |
| Ahmad Abdel Aziz | General Manager for for H.R |
| Ehab Mahdy | Quality assurance of the College |
| Mohamed khalifa | Coordinator of H.R. |
| Attia Aly Attia | Vice manager of Mataryia Technical |
| Yousry Hanna | General Secretary |
| Aly Seleem Hassany | Manager of M.T.C |
| Samir Saad Zaghloul, Mohamed Abbas, Ihab Mahdy, Atef Aly, Mohamed Saad | |

Key Individuals Met at Mehalla Technical College

| Name | Job |
|---|---|
| Fawzzi el Soudy | Dean of the technical college in Mahlla |
| Adel Hamdy Tawfek | Director of exam unit in the college |
| Ahmed salam | Manger Director |
| Hassan Aboul Keir | |
| Fatma Abdel Haleem | General Director of ELM .IND.INST. |
| Hamdy El dafrawy | No title |
| Mahmoud Kamal | HEEP Consultant |
| Maha Moktar Zaki | Al Moktar Construction Co.. |
| Al sayed saad Nagem | General Manger institute of commerce |
| Mostafa mostafa saad | Teacher in the industry institute |
| Hoda Hasaan Debes | Deputy for education of industry |
| Al shema wafky tawfek | English teacher in the Industry institute |
| Mohamed Abdalla | Deputy of industry institute |
| Abdel Naser Saber Mohamed | Teacher in the technical information |
| Al Sayed Ismael Saleh | Social worker |
| Salah El Ghareeb Mohamed | Teacher of technical information |
| Fawzy El Seweid, Ahmed Aboul Azem, Fatma Naser EL Sayed Nagm, Ahmed Farahat, Adel Samry, Hoda Debes, Mohamed El Masry | |

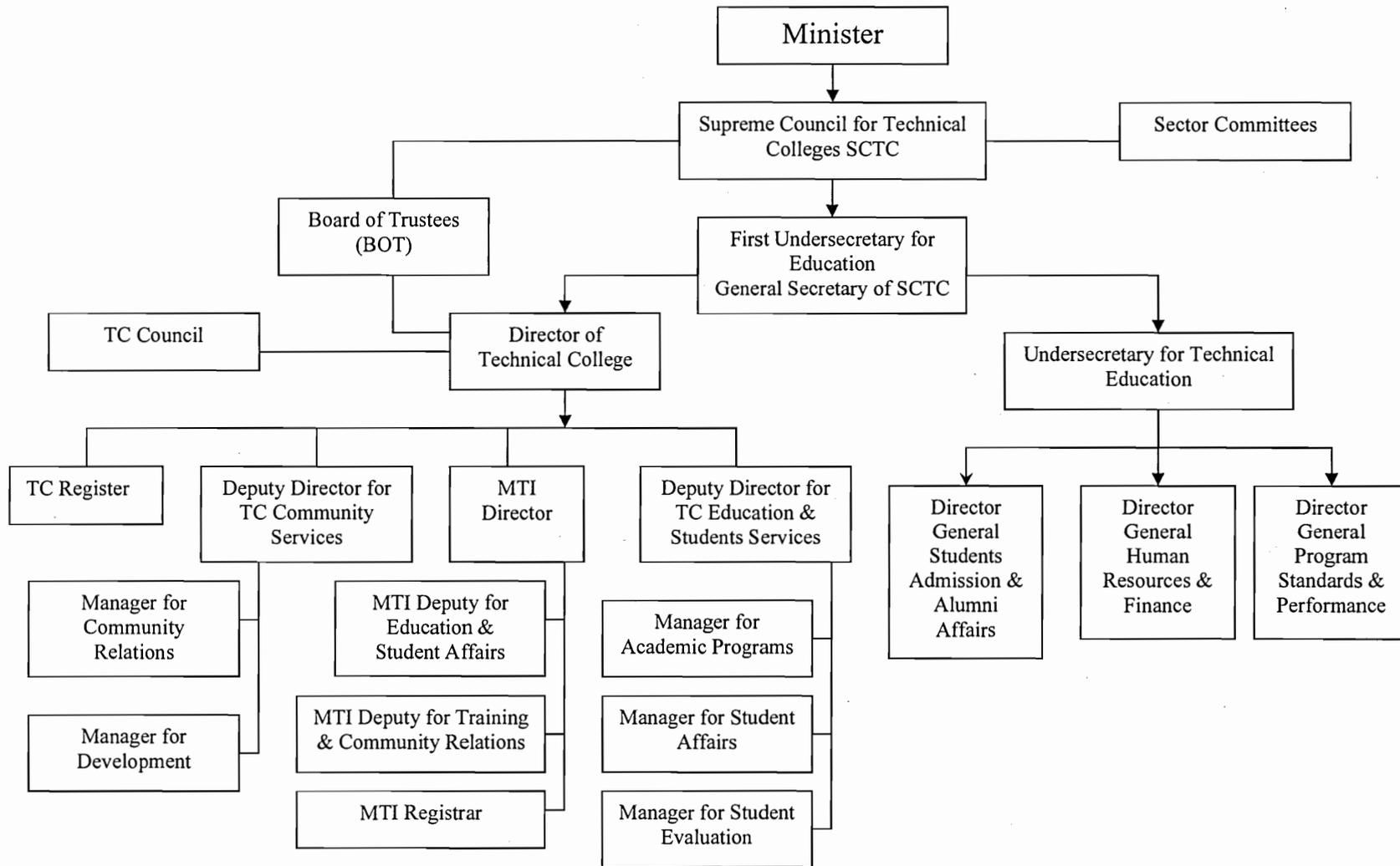
| Key Individuals Met at Zagazig Institute | |
|---|---------------------------------------|
| Fawzi | Dean of the technical college-Mehalla |
| Amal Benyameen | English teacher |
| Abdel Hameed Al Bagoury | ---- |
| Ahmed Mohamed Ali Moawad | Management teacher |
| Mohamed Al mohamdy | Teacher of commerce |
| Mabrouk Gareeb Adem | Industrial teacher |
| Mohamed Mohamed Naguib | Practical teacher |
| Mahmoud Saker | Practical teacher |
| Sami Shafeek Ibrahim | Practical teacher |
| Hassan wally | Practical teacher |
| Abdel Latif Mohamed | President of teachers |
| Abdel Naser Abdel Al | Practical teacher |
| Hussein Ahmed Mohamed | Executive manger |
| Maha moktar Zaki | El eman |
| Al sayed Saad negm | General manger commercial institute |
| Mohamed Kamal El deen Al sabet | Deputy commercial institute |
| Al soudy Mohamed Soliman | English teatcher |
| Mohamed Abass | General manger of commercial-Zagazig |
| Ahmed nour el deen goda | Deputy industry- Zagazig |
| Abdel Razak Mahmoud Abdallah | Deputy industry- Zagazig |
| Samir kobreal sharoem | Senior teacher of engineering |
| Mohamed Mohamed Hussein yousef | Senior teacher industry- Zagazig |

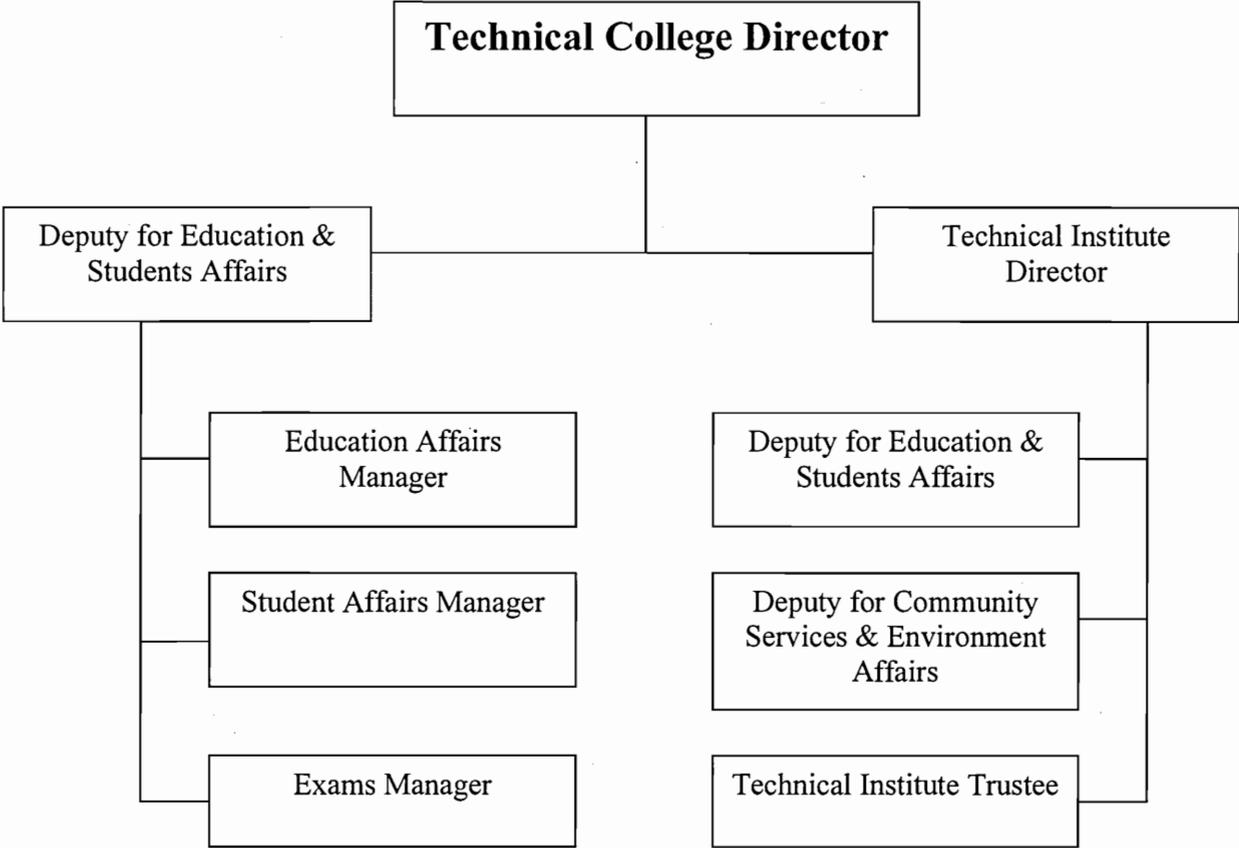
| Key Individuals Met at South Valley Technical College | |
|---|---|
| Eng. Abdel Basset Matok | Director of south valley college |
| Eng. Ragaee Samer | Executive manger for Quality, technical institute |
| Mohamed Saad | Executive Director |
| Ahmed Al Mahdy Marey | General manger of the commerce institute -Aswan |
| Malak | Director of the institute-Aswan |
| Hadya Roushdy | Deputy of the institute for training |
| Abdel Baset Matok, Ragaii Samir, Mohamed Saad, Samir Yousef, Mohamed Yousef | |

MOHE Working Group for GAP Analysis Project

| Name | Affiliation & Position | Telephone (mobile) |
|---------------------------------|--|-----------------------|
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| Dr Ali Rashed | ETCP representative for human resources and curriculum | 010-1452579 |
| Dr Mahmoud Khalil | ETCP representative for facilities | 010-6451326 |
| Eng. Hisham Samaha | El-Matarya Tech College (college representative) | 012-33454657 |
| Eng. Fawzi Hamed El- Sewidi | El-Mahala Tech College (college representative) | 010-2006254 |
| Eng. Abdel Baset Abdel Rehim | South Mley Tech College (college representative) | 012-3471414 |
| Dr Mohamed Khalil Bedewy | Professor, Cairo University, former Dean of the Faculty of Engineering | 012-3474318 |
| Eng. Abdulmonem El-Kady | CEO, El-Kady Fittings Co. and Secretary to the Chamber of Auto Feeding Industries | 012-3111090 |
| Prof. Dr Ibrahim Shabaka | Professor at Cairo University, Faculty of Engineering | |
| Prof. Dr Mohamed El Fateh | Consultant to the Minister of Labour | |

ANNEX B
Organizational Chart for MOHE Middle Technical Institutes





ANNEX C: GAP Analysis Template

Revised and Updated 6/20/08

A. Institutional Profile

A1. Mission, Vision and Goals

A1.1 The institute is required to develop its mission and vision, and define specific and measurable goals and benchmarks, to provide a path to achieving the mission and vision.

A1.2 A mission statement indicates the reason for the institute's existence. The factors to be considered while forming a mission statement include:

- A1.2.1 Reason for existence
- A1.2.2 Types of customers served
- A1.2.3 Services and products that are to be offered
- A1.2.4 Internal and external customer service philosophy
- A1.2.5 Responsibility to society and the country

A1.3 A vision statement is the future state of an institute and defines where the management views the institute in five to ten years or more. The vision statement is;

- A1.3.1 Closely linked with the mission statement
- A1.3.2 Sets a clear direction for achievement
- A1.3.3 Motivates the institute's effort

A1.4 Goals are the milestones that help the institute achieve its vision in alignment with its mission. Goals must be:

- A1.4.1 Specific in nature and focused on what is required to achieve those goals
- A1.4.2 Measurable so that a comparison can be made between what was needed against how much has been achieved
- A1.4.3 Acceptable to all stakeholders in order to have individual commitment from all those who are involved in achieving the goal

A1.4.4 Realistic yet challenging to maintain motivation and excitement of success

A1.4.5 Time bound to maintain a sense of direction and dedication for growth

A2. Quality Policy

A2.1 The institute is required to develop a quality policy that would define the institute's philosophy and objectives for quality and the institute's commitment to quality.

A2.2 The institute's quality policy should be consistently a part of the institute's overall policies and performance and must:

A2.2.1 Be consistent with management's vision and strategy for the institute's future

A2.2.2 Permit quality objectives to be understood and pursued throughout the institute

A2.2.3 Demonstrate management's commitment to quality and the provision of adequate resources for achievement of objectives

A2.2.4 Aid in promoting a commitment to quality throughout the institute with clear leadership by top management.

A2.2.5 - Include continual improvement as related to satisfaction of the needs and expectations of customers and associated parties, and disseminate procedures to all stakeholders.

A2.2.6 Be effectively formulated and efficiently communicated

A3. Management Team

A3.1 The institute is required to validate that the management team and professional staff have the necessary experience, knowledge and qualifications to achieve the institute's defined goals and that the policies related to employment and employees are in accordance with the applicable laws of Egypt.

A3.2 Information about the ownership or management of the institute, including:

A3.2.1 Type of ownership/management

A3.2.2 Name of owner(s)/management team

A3.2.3 Resume of owner(s)/management team

A3.2.4 Establishment date of the institute

A3.3 Employment details (non-teaching employees):

A3.3.1 Total numbers of non-teaching employees

A3.3.2 Terms of non-teaching employment (full time, part time or contractual).

A3.3.3 Total numbers of teaching employees

A3.3.4 Terms of teaching employment (full time, part time, contract)

A3.4 Employees' details:

A3.4.1 Names of personnel

A3.4.2 Titles/designations

A3.4.3 Brief information about each position and core responsibilities

A3.4.4 Qualification and experience details of non-teaching employees

A.4 Governance: has an appointed or elected Board of Trustees designed to provide the regional technical college with policy oversight. The Boards are required to hold regular meetings with public notice of meeting times/place. Boards must keep an accurate account of all meetings for public record.

A.4.1 Composition of Board of Trustees

A.4.2 Appointment/election procedures of Board

A.4.3 Roles and responsibilities of Board

A.4.4 Agendas and meeting minutes

A.4.5 Training required for Board membership

A.4.5.1 Initial training required

A.4.5.2 Continuing training required

A.4.6 Evaluation procedures

A5. Funds and Finances

A5.1 Has prescribed financial limits for each level of institute and does it comply with government legislation. The institute is required to provide the following information regarding funds and finances, to prove that the venture is financially secure to sustain and continue its operations for at least a period of one year.

A5.2 Type of operation:

A5.3 Name(s) of investors or donor agencies (if any for special projects)

A5.4 Name(s) of owner(s) (if other than investors for special projects)

A6. Infrastructure

A6.1 Facilities and Equipment

A6.1.2 Design and Planning of Facility Construction and Renovation

A6.1.3 Construction Process (bidding, contractor selection, construction oversight and payments)

A6.1.4 Spaces and Equipment

A6.1.5 Records

A6.2 Operational Rules and Regulations

A6.2.1 Defined and established rules, regulations and policies that are within the legal framework of the laws of Egypt and those that demonstrate fair treatment and best practice methodologies

A6.2.1.1 Employment rules and employee facilities and treatment, regulations and policies

A6.2.2.2 Admissions policies and regulations (payment many not apply to colleges):

Fee schedule

Mode of payment

Payment due date

Scholarships and fellowships

Exceptions and exemptions

A6.2.1.3 Student policies and responsibilities related to admissions and studies:

Attendance

Ethical and moral behavior

Class and exam participation requirements

Mid term and final exam rules, regulations and requirements

A6.2.2 All rules, regulations, policies and procedures communicated to the applicable individuals through appropriate and effective channels, including:

- Documents
- Bulletin boards
- Web page
- Email

A7. Corporate Branding

A7.1 The institute must create a corporate image and identity that can be associated with the quality of service of the institute. A branding image is necessary to demonstrate the uniqueness of the institutes identity and - -is useful for promotional campaigns, as this would help people to associate the image of the institute with quality in learning and variety of courses that are offered by the institute. Factors that may be considered for corporate branding include:

- A7.1.1 Corporate logo and colors
- A7.1.2 Physical infrastructure layout and interior design
- A7.1.3 Facilities that are available to students
- A7.1.4 Design and layout of all operational documents
- A7.1.5 Design and layout of letters, promotional/marketing materials and other communication documents
- A7.1.6 Design and layout of teaching aids, handouts and study material

B. Administration

B.1 Student Admission Process

- B1.1 Course admission criteria:
 - B1.1.1 Define student admissions criteria for all certificate/diploma courses other than approved courses
 - B1.1.2 Candidate selection and admissions for certificate/diploma courses in accordance with pre-established criteria for each course
 - B1.1.3 Define the effective class size for each course
 - B1.1.4 The institute should clearly communicate the course admission criteria through the admission campaign.

B1.2 Candidate selection and screening:

B1.2.1 The institute must be proactive and open to providing quality education to a maximum number of people. It would not only be beneficial from a commercial aspect but also necessary to develop and maintain quality standards in education.

B1.2.2 The student admissions process must be a transparent and smooth activity that should be based on fairness and demonstrate equal opportunity for all.

B1.2.3 Admissions in courses must be given to candidates who fulfill the established educational entry criteria for each course.

B1.2.4 The admissions process must be used to identify prevalent candidate skills and abilities and allow the institute to realign its teaching methodology and developed course outlines in accordance with the skills of the candidates and needs of the market.

B1.2.5 Candidates applicability on the basis of comparing minimum educational qualification requirements for the course with the candidates achieved education level.

B1.3 A screening test that would assist in identifying:

B1.3.1 Candidates probable ability to perform in class with regards to the requirements of the course

B1.3.2 The most current level of candidate skills and competencies available in the market

B1.3.3 Probable areas of improvements, additions and deletions in courses to align them with current market needs and available candidate skills.

B1.3.4 Probable areas of improvement in teacher's skills and teaching methodology

B2. Records

B2.1 The institute is to maintain evidence of conformity to requirements and of the effectiveness of its operation and quality management system.

B2.2 The institute is to establish a documented procedure that will define the controls needed for records, including:

B2.2.1 Identification

B2.2.2 Storage

B2.2.3 Protection.

B2.2.4 Retrieval

B2.2.5 Retention time

B2.2.6 Disposition

B2.3 The institute has to ensure that all records are:

B2.3.1 Legible

B2.3.2 Readily identifiable

B2.3.3 Readily retrievable

B2.4 The institute is to maintain records that fall under the scope of the following:

B2.4.1 Policies and procedures

B2.4.2 Marketing and branding

B2.4.3 Curriculum development and lesson plans

B2.4.4 Course applicability and effectiveness evaluations

B2.4.5 Candidate applications and admissions

B2.4.6 Student attendance and progress reports

B2.4.7 Student learning evaluations

B2.4.8 Faculty performance evaluations

B2.4.9 Faculty development

B2.4.10 Student counseling, job placement and internship records

B2.4.1.1 Internal and external customer feedback

B2.4.1.2 Non-conformities and corrective actions taken

B2.4.1.3 Financial statements including revenue and expenditure and balance sheet

B2.4.1.4 Communication with students and parents regarding academic progress

C Academics

C1. Selection of Courses

C1.1 The institute must offer those courses that are in alignment with its vision, mission and goals and are designed in a way to meet the expectations of the students and the job market.

C1.2 The selection must be made by obtaining pertinent and relevant information through the following sources:

- C1.2.1 Student needs assessment
- C1.2.2 Job market and probable employers survey
- C1.2.3 Applicant feedback.
- C1.2.4 Active student and graduate student feedback
- C1.2.5 Faculty feedback
- C1.2.6 Accreditation body feedback and communications

C1.3 The survey and feedback should be obtained through the following methods:

- C1.3.1 Questionnaire based surveys
- C1.3.2 Focus group surveys
- C1.3.3 Feedback forms

C2. Curriculum Selection, Design and Testing

C2.1 The curriculum and courses should be designed in a professional manner to achieve the desired objectives

C2.2 The course outlines, content and selection are made through participation and cooperation of all stakeholders, which may include the following:

- C2.2.1 Students
- C2.2.2 Employers
- C2.2.3 Faculty
- C2.2.4 Community at large

C2.3 The institute has a curriculum development committee comprising of management and faculty members.

C2.4 The committee ensures that all internally developed courses are designed with facilitation, contribution and effort of the following internal and external resources:

- C2.4.1 Faculty of the relevant course

- C2.4.2 Professional curriculum developers
- C2.4.3 Senior faculty members
- C2.4.4 Professional course writers and publishers
- C2.4.5 Employer representatives

C2.5 The curriculum development committee ensures that all internally developed curriculum and course contents, theory and literature are evaluated and critiqued through the following means, before being adopted:

- C2.5.1 Professionals of repute with expertise in the fields of the courses
- C2.5.2 Controlled field-testing
- C2.5.3 Technical guidance from enterprise representatives

C2.6 The curriculum development committee is responsible to ensure that all courses are up-to-date, with the latest knowledge and information in content and material. This is done through concurrent analysis and evaluation of the course material, through the following means:

- C2.6.1 Spot and scheduled reviews
- C2.6.2 Student feedback
- C2.6.3 Job market and employer feedback
- C2.6.4 Faculty feedback
- C2.6.5 Accreditation body feedback
- C2.6.6 Benchmark to National and International skill standards

C2.7 For realignment, correction and update of courses that have been obtained through international or local accreditation bodies or external sources, the curriculum development committee formally informs the source about areas that need to be re-defined.

C3. Teaching Faculty

C3.1 Details of faculty requirements for various levels of approved courses are available.

C4. Teaching Methodology

C4.1 The institute ensures that the teaching methodology is participative and contributes in building a positive learning environment and conforms to the best practice teaching methodologies. There should also be an appropriate balance between theory and practice, to ensure maximum hands on training to the students.

C4.2 The institute is required to ensure that a balance between teachers, students and computers are maintained. Ratios that are considered acceptable are:

C4.2.1 Teacher to student ratio in classrooms - 1: 30 (maximum)

C4.2.2 Student to computer ratio =1:1

C4.2.3 Laboratories 1:15

C5. Teacher Assessment

C5.1 The institute periodically evaluates teacher effectiveness and quality of teaching, through the following:

C5.1.1 Student feedback

C5.1.2 Monthly performance appraisals, based on:

C5.1.2.1 Student attendance

C5.1.2.2 Student participation in class

C5.1.2.3 Student performance in exams and projects

C6. Faculty Training

C6.1 The institute is responsible for providing learning opportunities on the latest trends and developments to keep its permanent teaching faculty up-to-date.

C6.2 On the basis of the teacher assessment, the institute identifies areas of development in teaching faculty skills, competencies and knowledge.

C6.3 The institute also identifies and provides the opportunity to its teaching faculty in further enhancing their skills and competencies in different professional areas.

C6.4 Teacher development is done through the following ways:

- C6.4.1. In house training
- C6.4.2 External training
- C6.4.3 Seminars
- C6.4.4 Workshops
- C6.4.5 Certificate or degree courses

C6.5 The College is responsible to develop the 'Train the Trainer,* program in collaboration and facilitation with a professional body to develop professionally trained and appropriately skilled faculty for the local market.

C7. Learning Process

C7.1 The institute ensures that the student learning process is a professionally organized activity and is representative of the best practice methodology in learning.

C7.2 The learning process includes an orientation activity, which covers:

C7.2.1 The institute and its facilities such as computer laboratory, library, workshops, washrooms etc.

C7.2.2 Scope of services and courses offered in education and training

C7.2.3 The faculty and its teaching methodology

C7.2.4 Student evaluation schedules and methodology

C7.2.5 Career Counseling

C7.2.6 On Job Training and Internships

C7.3 It is ensured that learning is a participative process, which is concurrently monitored for improvement and includes the following:

C7.3.1 Interactive method of learning (student-teacher interaction)

C7.3.2 Application of theory into practice using laboratory facilities

C7.3.3 Chapter projects for student teams

C7.3.4 Learning assessments based on at least one-hour interactive class discussions of the weeks learning

C7.3.5 Quizzes

C7.3.6 Tests

C7.3.7 Facilitation and encouragement to remedial students

C8. Learning Evaluation

C8.1 Student progress is monitored on a concurrent basis to ensure that students' learning progress is maintained.

C8.1.1 Student evaluation for each course may be based on the following suggested methodology and distribution of scores:

C8.1.1.1 Class quiz

C8.1.1.2 Surprise quiz - suitable frequency depending on the length of the course

C8.1.1.3 Chapter projects

C8.1.1.4 Scheduled evaluation of knowledge and performance

C8.1.1.5 Surprise tests

C8.1.1.6 Laboratory practice evaluation

C8.1.1.7 Attendance

D. Quality Assurance

D1. Monitoring and Measurement

D1.1 The institute considers customer satisfaction as the key element for its sustenance and growth and has established processes to obtain a clear understanding about the perceptions and expectations of the institute from its students, faculty and staff members, with regards to the quality of courses offered, facilities provided, and any other areas that require feedback.

D1.2 The institute conducts internal assessments at regular intervals to determine whether the quality of courses and other services:

D1.2.1 Conform to the expectations of the students, parents and market requirements.

D1.2.2 Conform to management system requirements

D1.2.3 Are timely and effectively provided

D1.3 By regularly analyzing the data related to performance of students, faculty and other administrative affairs, monitoring and measurement of the Quality Management System are ensured to demonstrate the ability of the processes to achieve the planned results.

D1.4 In case the planned results are not achieved the institute looks into the causes of the non-conformities and takes appropriate corrective actions.

D1.5 Each institute is required to submit a report to MOHE on a quarterly basis, as per the reporting requirements.

D2. Controls of Non-Conforming Courses and Services

D2.1 It is ensured that courses and services that do not conform to established standards and requirements are put on hold till they are upgraded to the required level.

D2.2 Non-conforming courses and services are dealt with, in one or more of the following ways:

D2.2.1 Taking corrective action to remove the non-conformities from the courses and services

D2.2.2 Providing alternate courses and services that fulfill the core requirements of the non-conforming courses and services

D1.2.3 Removing the courses and services offered

D2.3 When non-conforming courses and services have been corrected, they are subject to re-verification to demonstrate conformity to the requirements.

D2.4 When non-conformities of courses and services are identified after they have been offered to students, faculty or staff members, and the institute takes responsibility to provide alternate or additional courses and services to rectify the non-conformities.

D3. Corrective Action

D3.1 The causes of non-conformities are given priority, in order to prevent recurrence, by adhering to the following steps:

D3.1.1 Review of the non-conformities (including any complaints received)

D3.1.2 Determining the causes of the non-conformities,

D3.1.3 Evaluating the needs for action to ensure that non-conformities do not recur

D3.1.4 Determining and implementing the actions needed

D3.1.5 Recording the results of actions taken

D3.1.6 Reviewing the corrective actions taken

E. Continuous Quality Improvement

E1. Management and Operations

E1.1 The management has created an environment where the staff is empowered and is given the responsibility to identify opportunities for improvement to improve the performance of the institute. This requires the institute to:

- E1.1.1 Set objectives for people, projects and operations
- E1.1.2 Benchmark performances and best practices from recognized institutes
- E1.1.3 Recognize and reward staff for achievements and improvements

E1.2 The management of the institute has defined and implemented a process of continual improvement, which has been applied towards the realization and support processes and activities.

E1.3 Continual improvements are achieved in the following areas:

- E1.3.1 Effectiveness related to activities performed
- E1.3.2 Efficiency related to resources and results
- E1.3.3 Aligning strategy and operations with economic and technological changes
- E1.3.4 Identifying ways to improve on weaknesses and consistency of quality performance
- E1.3.5 Opportunities to employ better ways and means to execute activities
- E1.3.6 Controls for planned and unplanned activities
- E1.3.7 Measurements of achievements

E1.4 The institute supports improvements in increments and small steps and based on on-going activities integrates them with existing processes.

E1.5 The management ensures that all changes are:

- E1.5.1 Approved
- E1.5.2 Prioritized
- E1.5.3 Planned
- E1.5.4 Provisioned
- E1.5.5 Controlled

E1.6. The institute is conscious of the financial impact of quality systems and is vigilant in reviewing and realigning its strategy, to remain financially viable. While conducting the financial analysis, the institute gives due considerations to the following:

- E1.6.1 Cost effectiveness of the system
- E1.6.2. The positive and negative impact on revenue and profits
- E1.6.3 Cost per student versus course expenses
- E1.6.4 Operational and administrative expenses and overheads
- E1.6.5 Corrective measures and methods to reduce negative financial impact

ANNEX D: References

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ANNEX E

Middle Technical College Employer Survey

Employer Survey Results

The Employer survey was conducted in regions surrounding three Middle Technical Colleges (MTC) by the Ministry of Higher Education and State for Scientific Research, with the support of the Academy for Educational Development (AED, Washington DC) and resources provided by the United States Agency for International Development (USAID).

I. Objectives of the Survey:

The overall goal of the survey was to develop recommendations to the Government of Egypt, and specifically the Ministry of Higher Education and the Middle Technical College Department for the development of Middle Technical Colleges (MTC). The recommendations are intended to improve the quality of MTC graduates by suggesting changes that will align MTCs with international norms and in doing so:

- improve productivity in the economy,
- improve the employment of MTC Graduates,
- promote more effective governmental policy in the sphere of employment, and
- improve the structure and content of vocational and technical training programs, elaborate and introduce new programs that would meet the ongoing demand of public and private employers.

II. General Survey Procedures:

The GAP Analysis project included an activity to identify and document information from employers via a survey. The employer survey was designed, implemented, and carried out by a team of Egyptian and international consultants, with the support of staff from the three MTCs. It was completed on June 20, 2008.

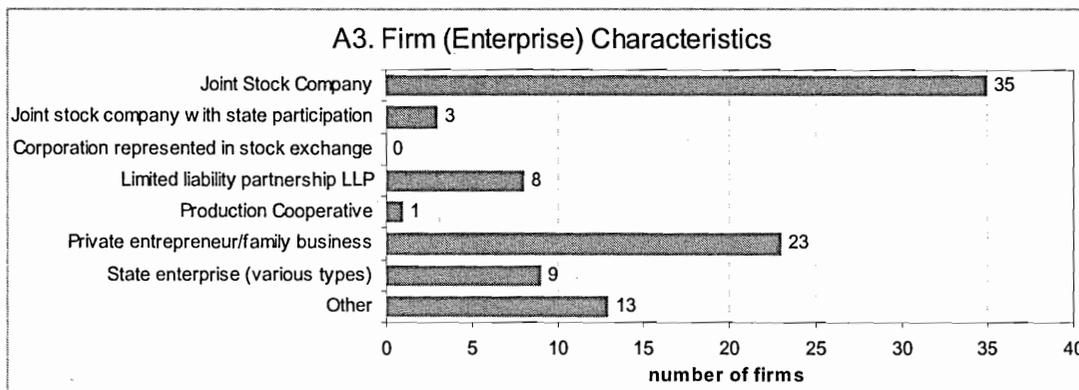
Design of the survey: A draft survey document was circulated and discussed with members of the project working group, and with managers for of the three Colleges and related institutes. Refinements were made based on this review⁴³ and agreement was reached that the survey would be implemented by interviews conducted by selected College staff that would be trained and supervised by AED consultants. A sample of 240 enterprises (80 per college) in sectors related to the specialties provided by the MTCs, and stratified by size (small, medium and large) was to be selected.

Implementation: AED consultants advised the Colleges on selection of the 80 employers per College, and verified with the Colleges that the survey was targeting small, intermediate and large companies in sectors related to College programs. AED arranged for translation of the survey into Arabic, provided copies to each college, trained survey staff from the colleges on the

methodology of conducting the survey, collected and analyzed the completed surveys, and wrote the final reports. It proved to be difficult to identify a sample of enterprises willing to participate in the survey interviews. In the end, 92 surveys were completed including 38 at Mehalla, 29 at South Valley and 25 at Mataryia.

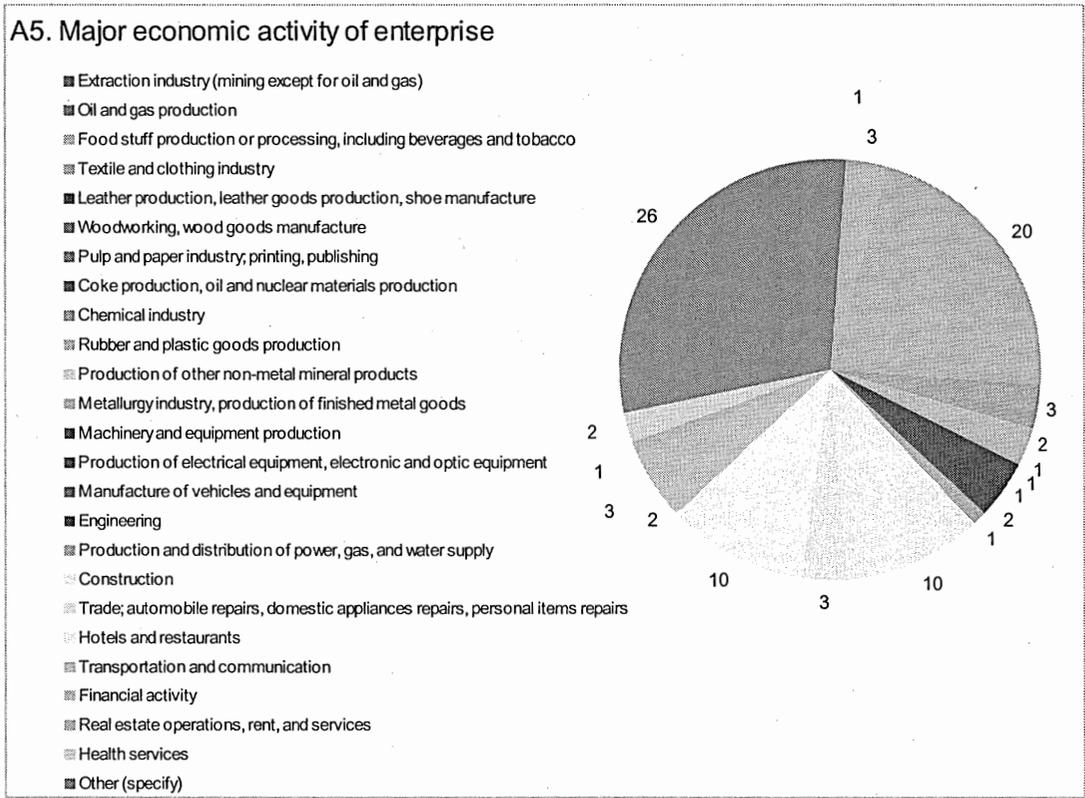
III. Results of the Survey ⁴⁴

- 1- **Characteristics of Firms in the Survey.** Thirty-five percent of the enterprises were joint stock companies, 28% were private entrepreneurs, and 96% were established with local vs. foreign capital.

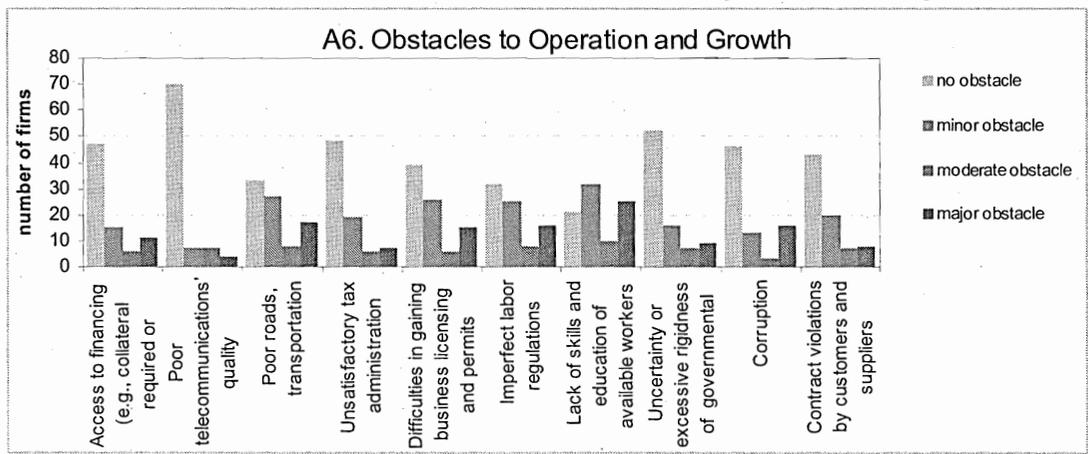


⁴⁴ Note that the letters/numbers on the charts refer to individual questions on the survey which is included in the at the back of this Annex.

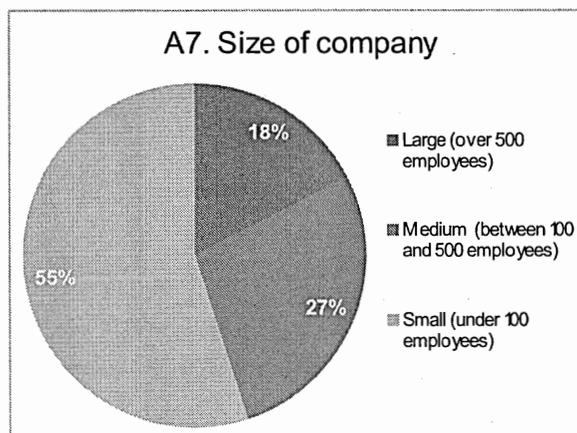
2- **Sectors represented by enterprises in the survey.** A wide variety of sectors were represented by enterprises involved in the survey, 20% were in the textile survey and 26% in other sectors not listed on the survey. This variety helped ensure that the results were representative of overall employment issues.



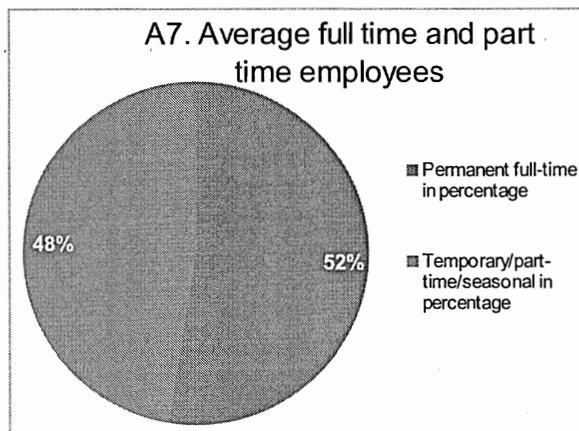
3- **The obstacles to operation and growth of enterprises.** Enterprises listed the lack of skills and education available to workers as one of the major obstacles to growth.



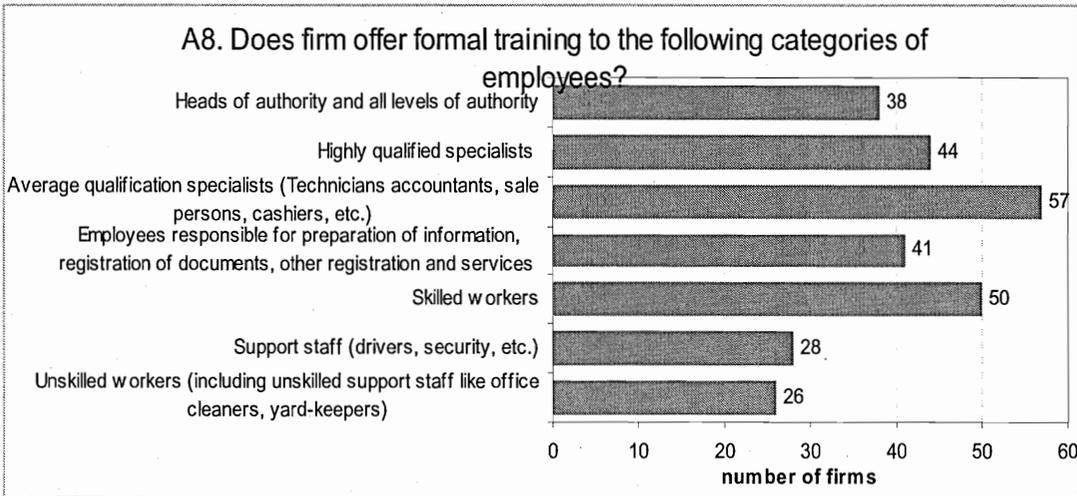
- 4- **Size of enterprises in the survey.** Fifty five percent of the enterprises were small, which is significant and important to the results of the survey as these firms generate the largest amount of employment in most countries.



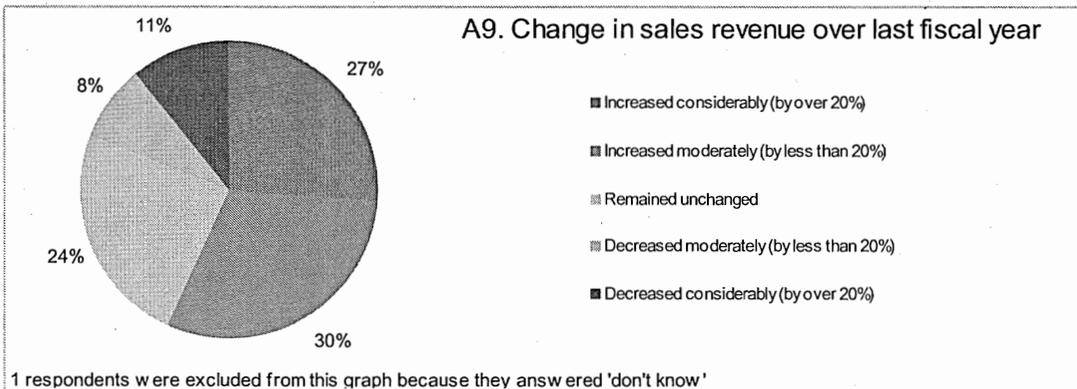
- 5- **Profile of full and part time employees.** The proportion of full to part time employees is similar, which is also reflected in the employment of MTC graduates (a high proportion of graduates who are employed are in part time work).

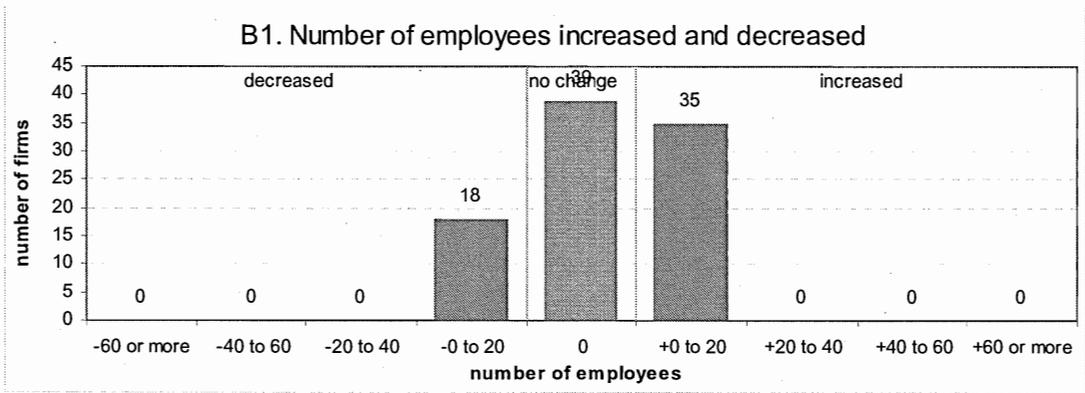
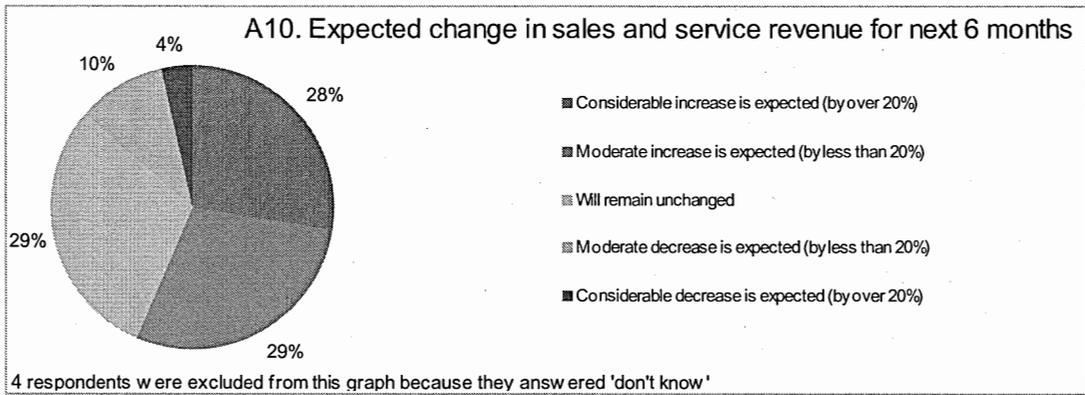


6- **The provision of training by enterprises.** A considerable proportion of enterprises do offer training for their employees, particularly for technicians and skilled workers. Given this trend, it should be possible for MTCs to work with employers to arrange short term on-job-training for their students.

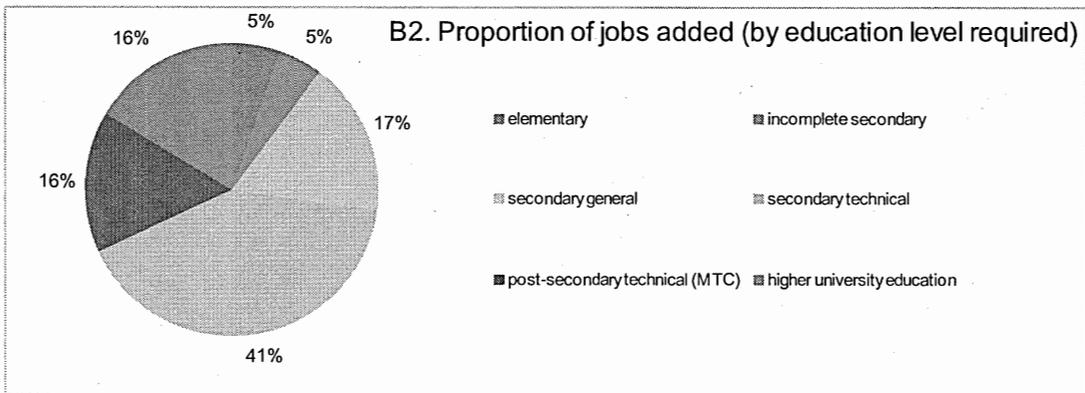


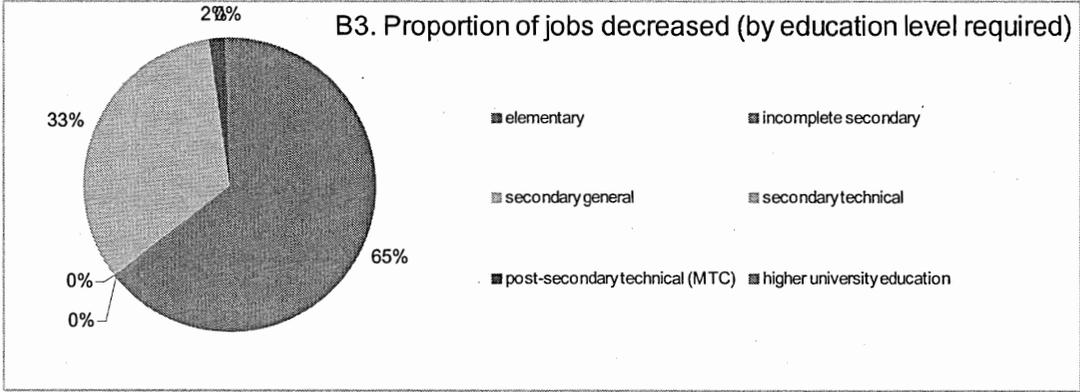
7- **Growth and investment by enterprises.** A considerable proportion of enterprises indicate that their revenue increased during the past year, and they expect a similar pattern in the coming months. This growth is being translated into growth of employment in these firms which is a be a positive factor for MTC graduates/



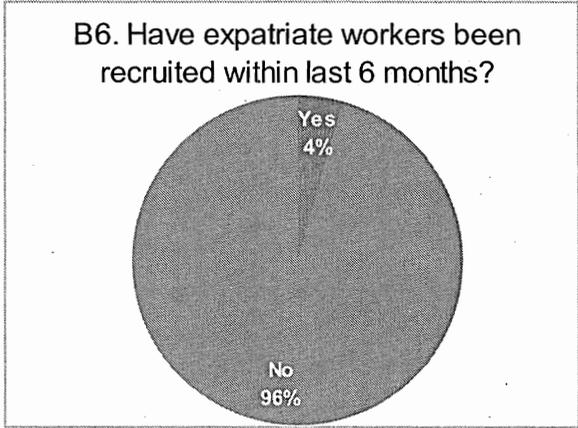


8- **The nature of employment in enterprises.** The greatest proportion of employees hired are from secondary technical schools (41%), with a much smaller proportion from the Middle Technical Colleges (16%). With regard to decreases in employment, the largest proportion are employees with elementary education (65%), and secondary technical (33%). The above figures appear to indicate a large turnover and change in employment of individuals with secondary technical education.

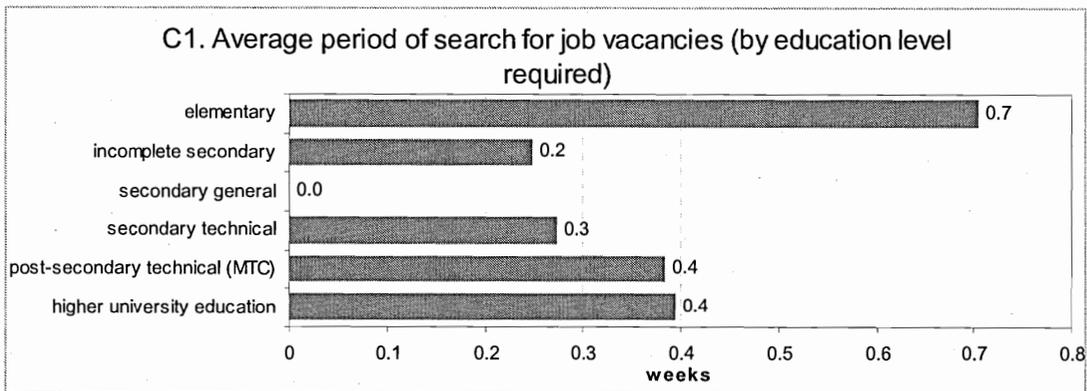
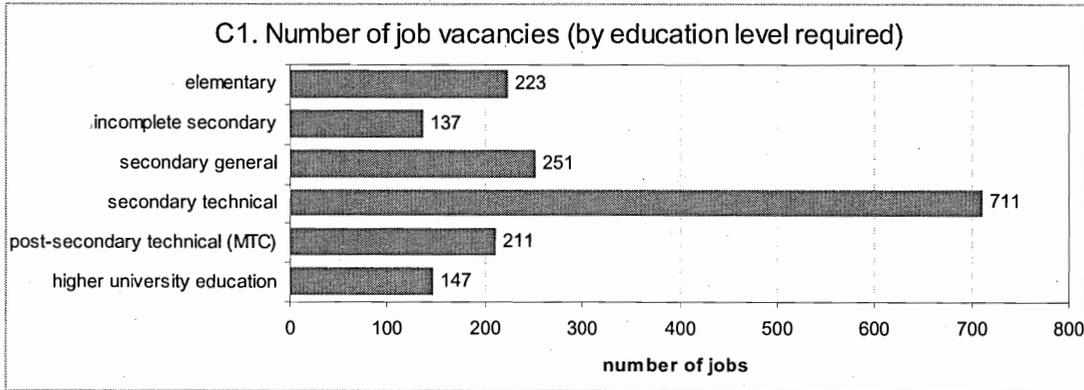




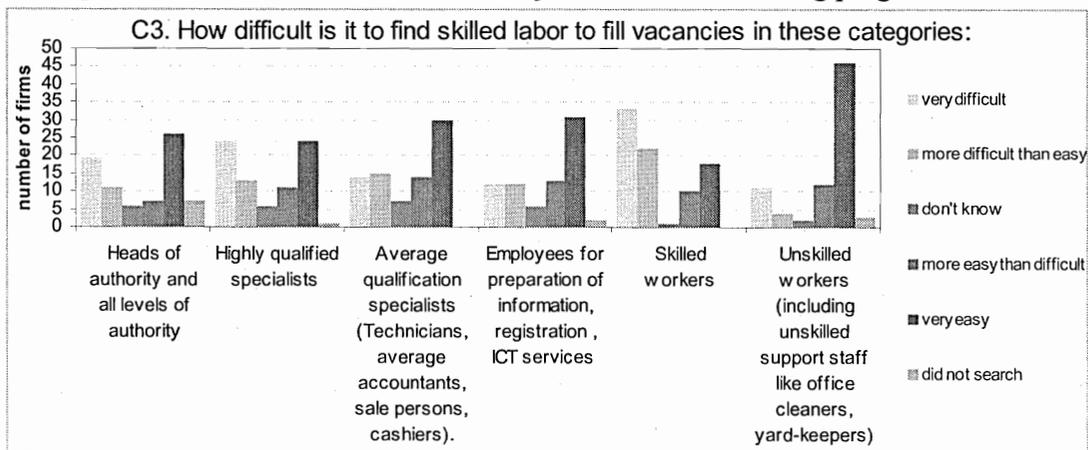
9- **Hiring of expatriate workers be enterprises.** Very few enterprises are hiring expatriate workers.



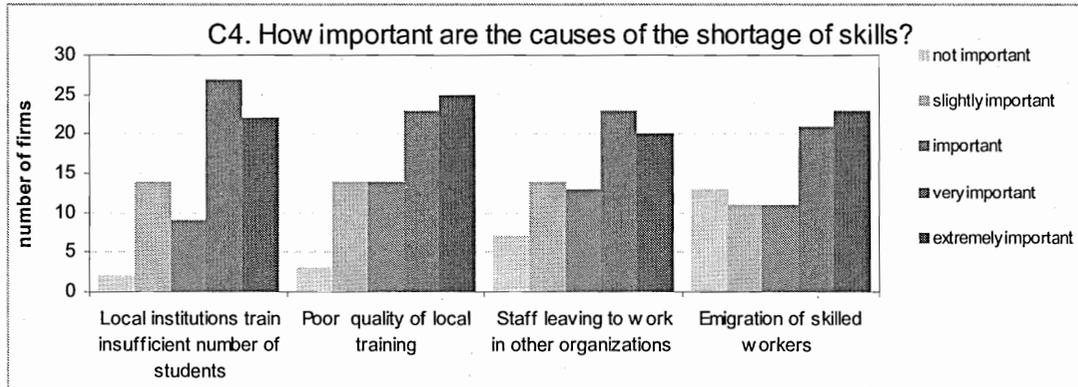
The profile of current vacancies in enterprises. Enterprises indicate that they are primarily looking for new employees with secondary technical education (47%) to fill current vacancies; and that the average number of weeks required to fill vacancies requiring secondary technical and middle technical training is three and four months respectively.



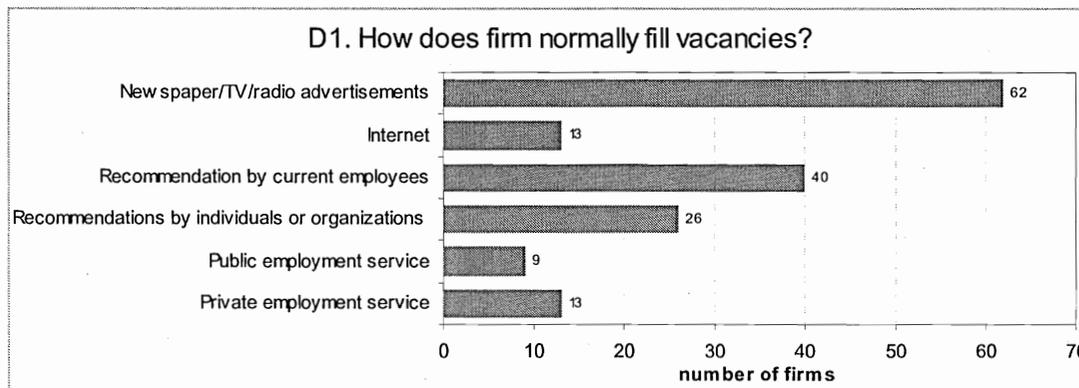
10- Difficulty in filling vacancies at enterprises. The most difficult types of vacancies to fill are positions for skilled workers – the objective of MTC training programs.



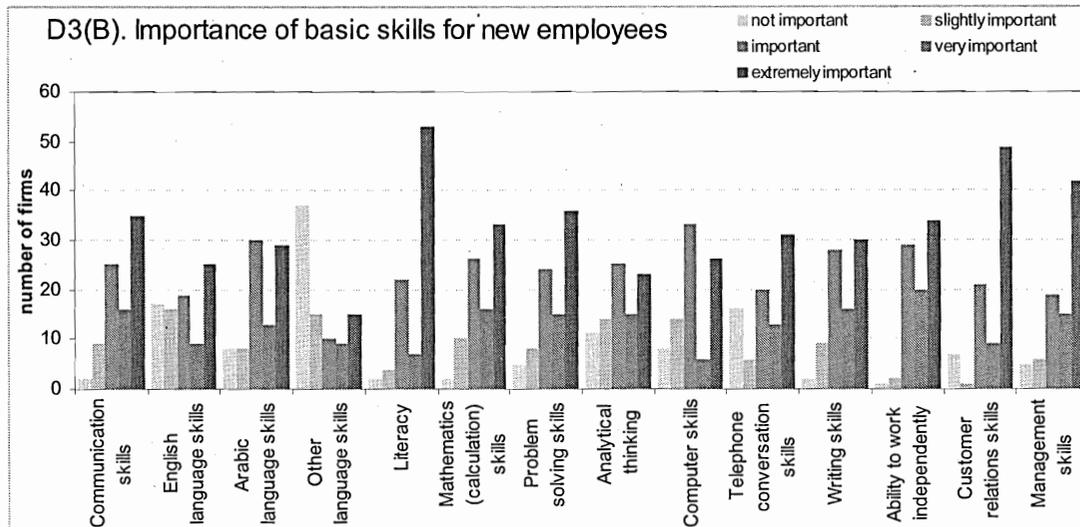
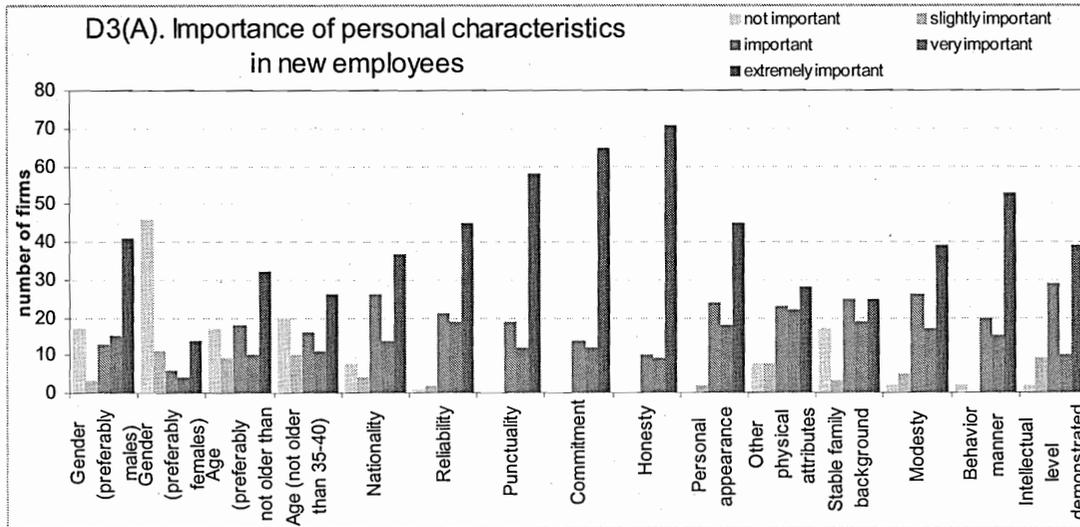
11- **Primary reason of shortage of skills:** Enterprises state that there are multiple reasons for the skill shortage, but the lack of both quantity and quality of local training are the most important factors. These reasons speak directly to the importance of increasing both quality and quantity of MTC programs.



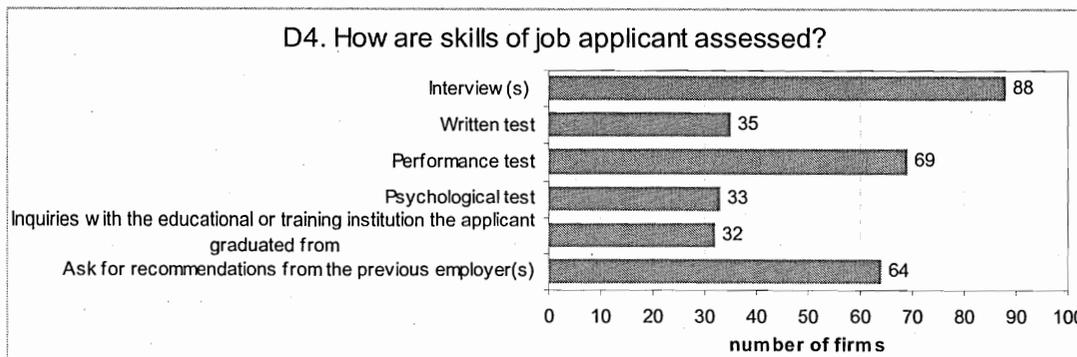
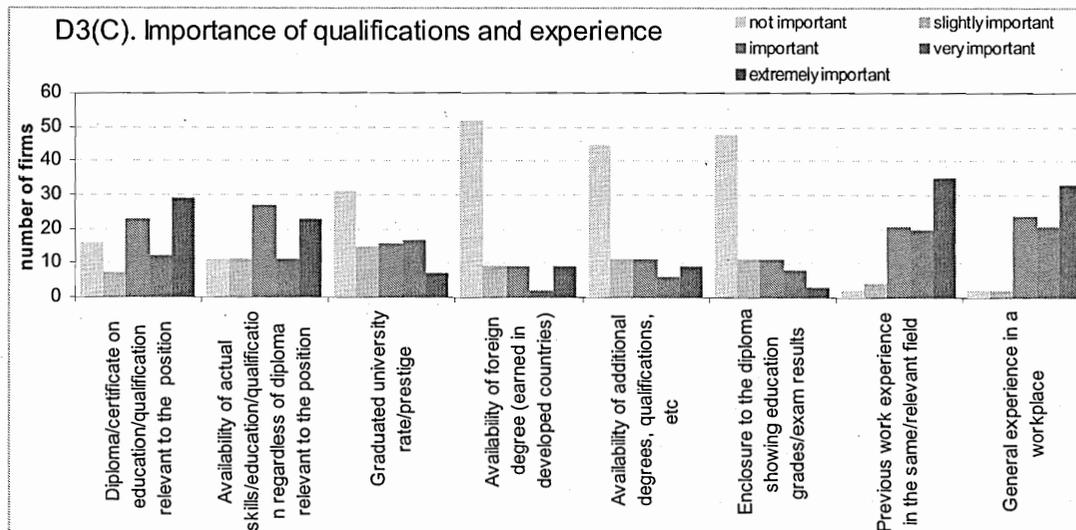
12- **Methods used by enterprises to fill vacancies:** The primary ways enterprises recruit employees are via media, recommendations from employers, and from other organizations. This provides MTC with information on how to assist graduates with job search and emphasizes the need for MTCs to try to get all students into on-job-training during the time they are at MTCs.



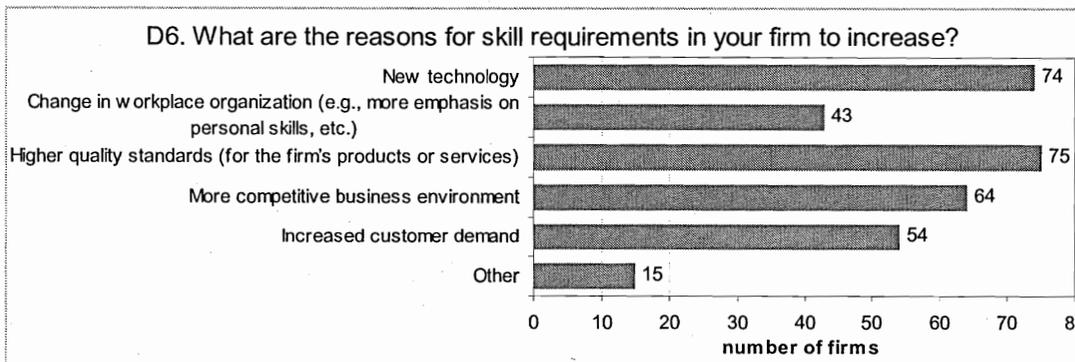
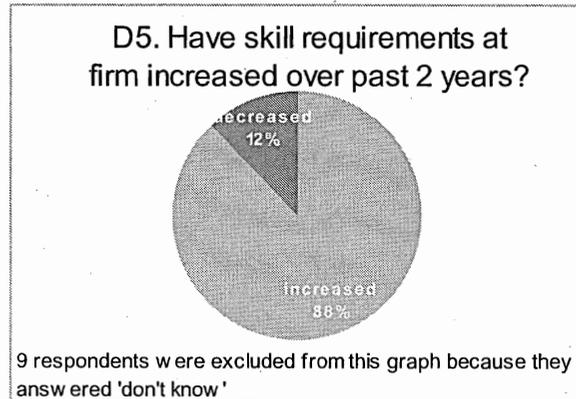
13- **What personal and basic skills do enterprises consider most important?** Enterprises indicate that reliability, punctuality, commitment, honesty, and behavior are key personal characteristics. Literacy, customer regulations, management, and problem solving skills are important basic skills. These “soft skill” areas need increased emphasis in MTC training programs.



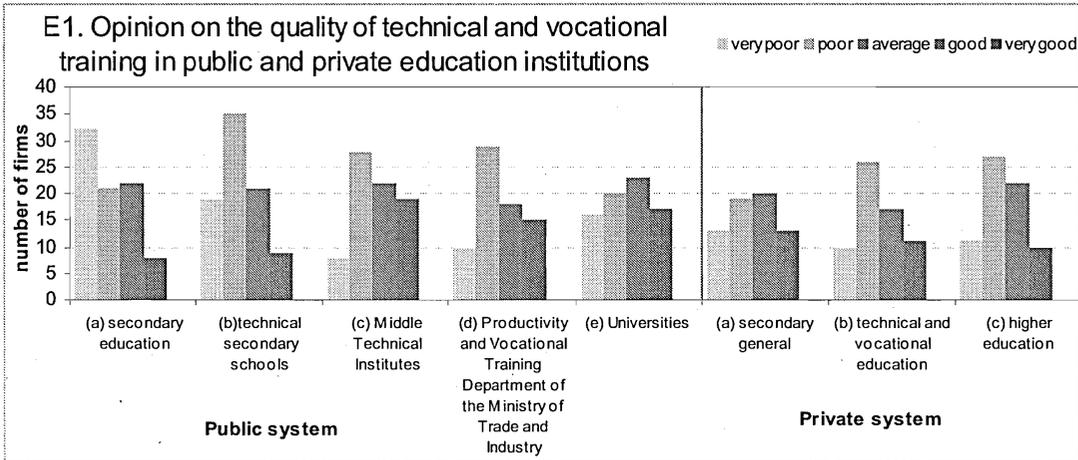
14- How important are technical skill qualifications and how do enterprises assess these qualifications when hiring workers? Previous general work experience, and experience in the sector, are the most important factors, followed by certification from institutions. However the availability of skills (regardless of certification) is almost as important as having certification from a training institution. Employers primarily assess skills by interviews, performance tests, or recommendations from employers. These trends emphasize the need for MTCs to provide practical as well as theory training, and if at all possible organize on-job-training for students during their training period.



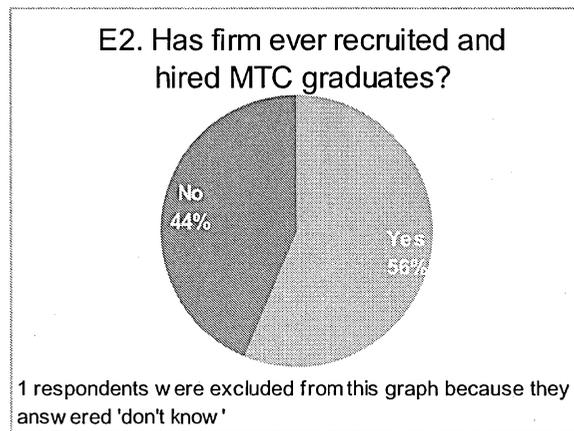
15- Have skill requirements changed over the past two years and what factors are affecting skill requirements? Eighty eight percent of enterprises indicate that skill requirements have increased, and the three primary reasons are increases in technology, competition, and need for increased quality of goods and services. These factors have direct implications for the quality/content of MTC training.

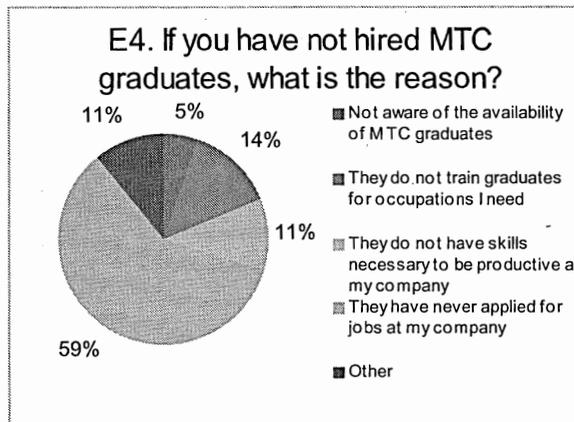


16- How do enterprises rate training programs provided by public and private institutions? Enterprises, in general, do not rate training provided by public and private training institutions very high, which reflects their responses to other questions in the survey.

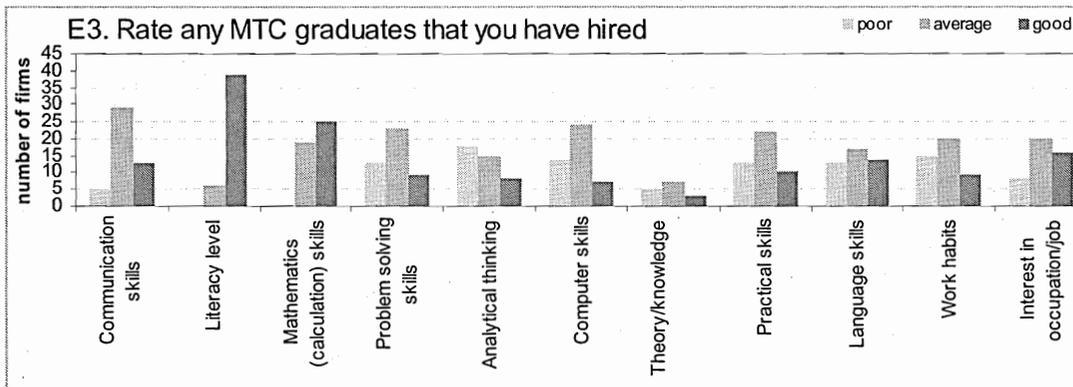


17- Have the enterprises hired MTC graduates, and if they have not hired MTC graduates why not? About half of the enterprises surveyed have not hired any MTC graduates, and the reasons for not hiring graduates are that the enterprises feel MTCs do not provide training for their needs (14%) and MTC graduates have not applied to the enterprise for work (59%).





18- How do enterprises that have hired MTC graduates rate graduates. A major portion of enterprises indicate that graduates are quite literate and good in mathematics. However, few enterprises rate MTC graduates very high in analytical skills, theory/knowledge, and practical skills. These findings have direct implications for MTCs.



Survey implementation. The expected sample size for the survey was to be about 240 (80 per college). It was difficult, particular with the time and resources available, to reach this number of firms, and some firms did not want to respond for multiple reasons (i.e. they were afraid that their responses may be given to tax authorities). The final number of interviews completed was 92 (38 in the Mehalla area, 29 in South Valley, and 25 in Mataryia). As such, the results of this survey should be treated with caution, and because of the small sample size any attempt to do sub-group analysis (i.e. by individual college, by sector, or size of enterprise) should be done with great caution and primarily be treated as anecdotal data.

Enterprises responding to the survey. The enterprises represent a broad profile of sectors; a balance between small, medium, and large in size; and were primarily from joint stock companies and private entrepreneurs. As such the findings present profiles which reflect broad labor force trends, but as mentioned previously, do not allow for detailed sub-group analysis due to the small size of the overall sample of firms.

Structure and Content of Vocational and Technical Training: Survey responses indicate that the primary education level of employees being hired is secondary technical education, and not MTC graduates. Analysis suggests that this may change in the future as there is evidence that skill requirements are increasing (see following points on skill levels and requirements). There is a high turn over of secondary technical graduate employment (significant increases and decreases), and decreases in hiring of elementary graduates. However, there seems to be little awareness of the objectives of the MTCs, and the skill level of graduates. In addition, current salary guidelines may favor hiring of secondary vs. post secondary graduates. Hiring of new employees is often done using media (TV, Newspapers), and by referrals from other employers. Little use is made of public or private employment services. MTC faculty should use this information in assisting graduates in their job search.

Skill Levels. A large proportion (88%) of enterprises surveyed indicated that skill level requirements are increasing and that this is due to three factors: First, higher levels of technology; second, increasing competition; and third, increasing concerns about quality. These factors have very direct implications for the demand for MTC graduates and the quality of their training.

Availability of Skills: Trends on growth and investment in enterprises, and hiring of personnel, are generally positive and reflect overall economic trends in the Egyptian economy (about 7% per year). Enterprises indicate that the lack of availability of skilled workers is one of the major obstacles to their growth and development. Enterprises indicate they have priorities for “soft skills” including personal (i.e. honesty, punctuality, etc.), and basic skills (i.e. literacy, customer relations, management, ability to work independent problem solving skills etc.). With regard to technical skills, enterprises indicate that the most important gauge of these skills is previous general or sector specific experience, followed by institutional certification. However they rate evidence of skills, without certification, as important as certification of skills, and evaluate skill levels via interview, performance tests, and references from previous employers. These latter trends emphasize the importance of on-job-training for MTC students, and a need to address the development of soft skills as an integral part of MTC programs.

Improving the Employment of MTC Graduates. Enterprises do provide internal training for employees, in particular for technical and skilled workers. However, they do not have a high opinion of public and private sector training institutions. They indicate that two of the major reasons for the shortage of skilled labor is lack of quality and quantity of institutional training. The majority of enterprises generally rate secondary, secondary technical, Middle Technical College (MTC), and Ministry of Trade and Industry training as poor (the MTCs, while rated poorly, do rate slightly higher than the others). Universities are rated slightly higher. When enterprises were asked why they have not hired MTC graduates, the majority replied that graduates had not applied for employment, 14% of employers said they were not aware of the role of MTCs, did not think that MTCs trained the graduates they needed (14%), or did not think MTC graduates had the skills to be productive in their company (11%). These trends indicate a need for MTCs to promote their programs with local employers, and address quality issues.

V. Recommendations

- MTCs should perform an annual employer survey using standard core questions and procedures in order that the MOHE can summarize national trends (this does not exclude MTCs adding some survey question beyond the core survey).
- MTCs should develop employer advisory committees for each major program area, and fully activate the Board of Trustees – including adding local employers to the Boards. It is understood that it is difficult to maintain active involvement of employers unless selected components (i.e. additions to curricula) of MTCs operations are decentralized.
- MTCs should aggressively work with employers to implement short term on-job-training (OJT), both during the instructional year and during the summer for all students as already required by MOHE bylaws. This can be facilitated by annual employer surveys, and job fairs. However, to accomplish a better functioning OJT system the MOHE will need to decentralize the administration of OJT programs and provide technical assistance and training to MTC staff on how to market and operate OJT programs.
- MTCs need to develop institutional branding and marketing activities to ensure that employers know about the role of the MTCs and the skills of their graduates.
- The content of MTC programs should be refined to more fully address the needs expressed by employers to: (a) develop soft skills, including entrepreneurship skills; (b) link curricula directly to occupational standards, and allow MTCs to add to core curricula to address local needs; (c) provide more practical experience during training, including OJT; and (d) shift the number of programs in different specialties so they reflect regional needs and student interests. It is understood that resources to add facilities and equipment are limited, therefore there is a need to consider double shifting in high demand programs, vs. just allocating excess students to undersubscribed programs. If double shifts are implemented to reduce class sizes, the Ministry of Higher Education must not add students to a College or the purpose of implementing the double shift will be negated.

Employer Survey Document

Egypt Enterprise Survey)
Skills/Labor Demand and Job Vacancies

Enterprise Questionnaire # _____

QUESTIONNAIRE FORM

(to be faxed to Enterprise to confirm appointment made by telephone)

This purpose of this form is to confirm the appointment we have agreed at (AM/PM) (Day, Month) to obtain the needed information. Please review the form and please prepare as much information as possible before I arrive to expedite the interview and ensure I have the needed information before the interview is concluded.

My name is _____ and I can be reached by phone at _____. I represent the _____ Middle Technical College (MTC) conducting this survey with the support of the Ministry of Higher Education and Middle Technical College, and am conducting the survey with resources from the United States Agency for International development We are conducting this survey to identify the demand for labor and its skill profile in three zones in Egypt. Your enterprise was selected to participate in the survey as a one representative of a sector of the economy in Egypt.

The interview data we collect are confidential and will not be released to any third party. The results will be used exclusively for research purposes, and will be presented only in aggregated form. Accordingly, the name of your firm and any other identifying details will never be shown in any published or otherwise presented material.

The survey results will be used for developing the recommendations to the Government of Egypt, and specifically the Ministry of Higher Education and Middle Technical College Department, in developing refining training programs at Middle Technical Colleges (MTC) to improve productivity in the economy and employment of MTC Graduates. The results will promote more effective governmental policy in the sphere of employment, improve and structure and content of vocational and technical training programs, elaborate and introduce new programs that would meet the ongoing demand of enterprises and organizations of the country. I will ask you questions and read out proposed options for answers, and you are to choose the ones most closely reflecting your opinion. If no answer fits in, please offer your own option.

*Thanks in advance for cooperation
Ministry of Higher Education*

S1. What is your job title? Please note that even if you have more than one job title we are interested in knowing your main responsibility.

| | Variable S1 |
|---|-------------|
| Chairman of the Board | 1 |
| Chief Executive Officer | 2 |
| Head of personnel department | 3 |
| Manager/inspector of personnel department | 4 |
| Head of HR department/HR manager | 5 |
| Business owner, partner | 6 |
| Other (Please specify) | |
| | |

A. Firm (Enterprise) Characteristics

A1. Full enterprise name _____

A2. In what year did this firm begin operating in Egypt? _____ (Variable A2)

A3. What is the legal status of this firm?

| | Variable A3 |
|--|-------------|
| Joint Stock Company | 1 |
| Joint stock company with state participation | 2 |
| Corporation represented in stock exchange | 3 |
| Limited liability partnership LLP | 4 |
| Production Cooperative | 5 |
| Private entrepreneur/family business | 6 |
| State enterprise (various types) | 7 |
| Other (Specify) | 0 |

A4. Was you firm (enterprise) established with participation of foreign capital (international investor)?

| | Variable A4 |
|------------|-------------|
| Yes | 1 |
| No | 2 |
| Don't know | 99 |

A5. Please specify the major economic activity of your enterprise

| | Variable A5 |
|--|-------------|
| Extraction industry (mining except for oil and gas) | |
| Oil and gas production | |
| Food stuff production or processing, including beverages and tobacco | |
| Textile and clothing industry | |
| Leather production, leather goods production, shoe manufacture | |
| Woodworking, wood goods manufacture | |
| Pulp and paper industry; printing, publishing | |
| Coke production, oil and nuclear materials production | |
| Chemical industry | |
| Rubber and plastic goods production | |
| Production of other non-metal mineral products | |
| Metallurgy industry, production of finished metal goods | |
| Machinery and equipment production | |
| Production of electrical equipment, electronic and optic equipment | |
| Manufacture of vehicles and equipment | |
| Engineering | |
| Production and distribution of power, gas, and water supply | |
| Construction | |
| Trade; automobile repairs, domestic appliances repairs, personal items repairs | |
| Hotels and restaurants | |
| Transportation and communication | |
| Financial activity | |
| Real estate operations, rent, and services | |
| Health services | 24 |
| Other (specify) | 25 |

A6. Can you please tell how problematic are the following different factors for the operation and growth of your business (answer all the questions)

| | No obstacle | Minor obstacle | Moderate obstacle | Major Obstacle | Don't know | Variable A6 |
|---|-------------|----------------|-------------------|----------------|------------|-------------|
| Access to financing (e.g., collateral required or financing not available from banks) | 1 | 2 | 3 | 4 | 99 | A6a |
| Poor telecommunications' quality | 1 | 2 | 3 | 4 | 99 | A6b |
| Poor roads, transportation | 1 | 2 | 3 | 4 | 99 | A6c |
| Unsatisfactory tax administration | 1 | 2 | 3 | 4 | 99 | A6d |
| Difficulties in gaining business licensing and permits | 1 | 2 | 3 | 4 | 99 | A6e |
| Imperfect labor regulations | 1 | 2 | 3 | 4 | 99 | A6f |
| Lack of skills and education of available workers | 1 | 2 | 3 | 4 | 99 | A6g |
| Uncertainty or excessive rigidness of governmental control over your activity or industry | 1 | 2 | 3 | 4 | 99 | A6h |
| Corruption | 1 | 2 | 3 | 4 | 99 | A6i |
| Contract violations by customers and suppliers | 1 | 2 | 3 | 4 | 99 | A6j |

A7. What is the approximate size of your company (i.e. current number of employees your firm)?

| | | Variable A7 |
|--|---|-------------|
| Large (over 500 employees) | 1 | A7a |
| Medium (between 100 and 500 employees) | 2 | A7b |
| Small (under 100 employees) | 3 | A7c |
| Permanent full-time in percentage | % | A7d |
| Temporary/part-time/seasonal in percentage | % | A7e |

A8 Does your firm offer formal training for the following categories of employees?

| | Yes | No | Don't know | Variable name |
|--|-----|----|------------|---------------|
| Heads of authority and all levels of authority | 1 | 2 | 99 | A8a |
| Highly qualified specialists | 1 | 2 | 99 | A8b |
| Average qualification specialists (Technicians accountants, sale persons, cashiers, etc.) | 1 | 2 | 99 | A8c |
| Employees responsible for preparation of information, registration of documents, other registration and services | 1 | 2 | 99 | A8d |
| Skilled workers | 1 | 2 | 99 | A8e |
| Support staff (drivers, security, etc.) | 1 | 2 | 99 | A8f |
| Unskilled workers (including unskilled support staff like office cleaners, yard-keepers) | 1 | 2 | 99 | A8g |

A9. How did the sales revenue of your firm change over the last fiscal year (compared to previous year)?

| | Variable A9 |
|---|-------------|
| Increased considerably (by over 20%) | 1 |
| Increased moderately (by less than 20%) | 2 |
| Remained unchanged | 3 |
| Decreased moderately (by less than 20%) | 4 |
| Decreased considerably (by over 20%) | 5 |
| Don't know | 99 |

A10. What in your view are your firm's future prospects as to sales and services revenue for the next 6 months?

| | Variable A10 |
|--|--------------|
| Considerable increase is expected (by over 20%) | 1 |
| Moderate increase is expected (by less than 20%) | 2 |
| Will remain unchanged | 3 |
| Moderate decrease is expected (by less than 20%) | 4 |
| Considerable decrease is expected (by over 20%) | 5 |
| Don't know | 99 |

B. Labor Turnover (last 12 months)

B1. How has the number of employees changed for the last 12 months in contrast with the previous year?

| | Specify approximate number of people in this column | Variable Name |
|---|---|---------------|
| Number of employees increased (Go to B2): | 1 | B1a |
| Number of employees decreased (go to B3) | 2 | B1b |
| Remained the same (Go to B4) | 0 | B1c |

B2. Please specify the job titles where you INCREASED hiring during the last 12 months, the minimum level education required, and the approximate number hired. (Please enter the job title and the approximate figure reflecting the increase in the number of employees for this job)

| Job title | Required education level: | | | | | | Increased by: | Variable name |
|-----------|---------------------------|-------------------------|----------------------|------------------------|--|--------------------------------|---------------|---------------|
| | 1) elementary | 2) incomplete secondary | 3) secondary general | 4) secondary technical | 5) post-secondary technical (Middle Technical Institute) | 6) higher university education | | |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | people | B2a |
| 2 | 1 | 2 | 3 | 4 | 5 | 6 | people | B2b |
| 3 | 1 | 2 | 3 | 4 | 5 | 6 | people | B2c |
| 4 | 1 | 2 | 3 | 4 | 5 | 6 | people | B2d |
| 5 | 1 | 2 | 3 | 4 | 5 | 6 | people | B2e |
| 6 | 1 | 2 | 3 | 4 | 5 | 6 | people | B2f |

B3. Please specify the job titles for which the number of employees DECREASED over the last 12 months and the level of decrease: (Enter the job title, level of education, and approximate decrease in the number of employees for this job)

| Job title | Level of Education | | | | | | Decreased by | Variable Name |
|-----------|--------------------|---|---|---|---|---|--------------|---------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | | |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | people | B3a |
| 2 | 1 | 2 | 3 | 4 | 5 | 6 | people | B3b |
| 3 | 1 | 2 | 3 | 4 | 5 | 6 | people | B3c |
| 4 | 1 | 2 | 3 | 4 | 5 | 6 | people | B3d |
| 5 | 1 | 2 | 3 | 4 | 5 | 6 | people | B3e |
| 6 | 1 | 2 | 3 | 4 | 5 | 6 | people | B3f |

B4. What are your firm's plans for the next 6 months in terms of changing the total number of employees?

| | Specify approximate number of people in this column | Variable Name |
|---|---|---------------|
| Number of employees to increase (Go to B5): | 1 | B4a |
| Number of employees decreased (go to B6) | 2 | B4b |
| Remained the same (Go to B7) | 0 | B4c |

B5. Please specify job titles, minimum required education level, for which your firm is planning to INCREASE the number of employees over the next 6 months and the level of increase:

(Please enter the job title and the approximate level of planned employee increase for this job title)

| Job title | Required education level: 1) elementary 2) incomplete secondary 3) secondary general 4) secondary technical 5) post-secondary technical (Middle Technical Institute) 6) higher university education | Increased by: | Variable name |
|------------------------------|---|---------------|---------------|
| 1. | 1 2 3 4 5 6 | people | B5a |
| 2. | 1 2 3 4 5 6 | people | B5b |
| 3. | 1 2 3 4 5 6 | people | B5c |
| 4. | 1 2 3 4 5 6 | people | B5d |
| 5. | 1 2 3 4 5 6 | people | B5e |
| 6 | 1 2 3 4 5 6 | people | B5f |
| No such plans were developed | 99 | | B5g |

B6. Please specify the job titles, minimum education level, for which your firm is planning to DECREASE the number of employees over the next 6 months and the level of decrease:

(Please enter the job title, level of education, and the level of planned employee decrease for this job title)

| Job title | Required education level: | Increased by: | Variable Name |
|------------------------------|---------------------------|---------------|---------------|
| 1. | 1 2 3 4 5 6 | people | B6a |
| 2 | 1 2 3 4 5 6 | people | B6b |
| 3 | 1 2 3 4 5 6 | people | B6c |
| 4. | 1 2 3 4 5 6 | people | B6d |
| 5. | 1 2 3 4 5 6 | people | B6e |
| 6. | 1 2 3 4 5 6 | people | B6f |
| No such plans were developed | 99 | | B6g |

B6 – a. Have you recruited expatriate workers within the last 12 months?

| | Variable B7 |
|----------------------|-------------|
| Yes (go to B8) | 1 |
| No (go to section C) | 2 |

B6 - b. Please provide the following information about expatriate workers you have recruited over the last 12 months.

| | | Variable name |
|--|---------------------|---------------|
| 1. Approximate Number of expatriate workers recruited: | | B8a |
| 2. Country / countries from which they were recruited (list up to 3 most common countries): | Country A: _____ | B8b |
| | Country B: _____ | B8c |
| | Country C: _____ | B8d |
| 3. Occupations for which they were recruited (list up to 3 most common job titles or occupations): | Occupation A: _____ | B8e |
| | Occupation B: _____ | B8f |
| | Occupation C: _____ | B8g |

C. Vacancies

C1. Please specify the major vacancies currently available at your firm: (Please fill out the table below)

A position is considered vacant under the following three conditions: 1) the position is available (including full employment, part-time employment as well as temporary and seasonal employment); 2) one can commence work within 30 days, 3) your Company is actively seeking for employees to take the position.

| Position title | Required education level: 1) elementary 2) incomplete secondary 3) secondary general 4) secondary technical 5) post-secondary technical (Middle Technical Institute) 6) higher university education | Approximate number of vacancies | Period of search, <u>weeks</u> | Variable Name |
|----------------|--|---------------------------------|--------------------------------|---------------|
| (a) | (b) | (c) | (d) | |
| TOTAL | | | | C1a |
| 1. | 1 2 3 4 5 6 | | | C1b |
| 2. | 1 2 3 4 5 6 | | | C1c |
| 3. | 1 2 3 4 5 6 | | | C1d |
| 4. | 1 2 3 4 5 6 | | | C1e |
| 5. | 1 2 3 4 5 6 | | | C1f |
| 6. | 1 2 3 4 5 6 | | | C1g |

C3. How difficult it is to find skilled labor to fill the vacancies at your firm in the following job categories. (Provide one answer per line reflecting types of jobs for which vacancies were / are available at your firm)

| | Very difficult | It's more difficult than easy | Don't know if it is difficult or not | It's more easy than difficult | Very easy | Did not search | Variable name |
|---|----------------|-------------------------------|--------------------------------------|-------------------------------|-----------|----------------|---------------|
| Heads of authority and all levels of authority | 1 | 2 | 3 | 4 | 5 | 6 | C3a |
| Highly qualified specialists | 1 | 2 | 3 | 4 | 5 | 6 | C3b |
| Average qualification specialists (Technicians, average accountants, sale persons, cashiers). | 1 | 2 | 3 | 4 | 5 | 6 | C3c |
| Employees for preparation of information, registration, ICT services | 1 | 2 | 3 | 4 | 5 | 6 | C3d |
| Skilled workers | 1 | 2 | 3 | 4 | 5 | 6 | C3e |
| Unskilled workers (including unskilled support staff like office cleaners, yard-keepers) | 1 | 2 | 3 | 4 | 5 | 6 | C3f |

C4. How important are the following causes of this shortage of skills in your opinion? Please use the following scale and circle in each row.

| | Not important | Slightly important | Important | Very important | Extremely important | Variable name |
|--|---------------|--------------------|-----------|----------------|---------------------|---------------|
| Local institutions train insufficient number of students | 1 | 2 | 3 | 4 | 5 | C4a |
| Poor quality of local training | 1 | 2 | 3 | 4 | 5 | C4b |
| Staff leaving to work in other organizations | 1 | 2 | 3 | 4 | 5 | C4c |
| Emigration of skilled workers | 1 | 2 | 3 | 4 | 5 | C4d |

D. Recruitment practices

D1. How do you normally fill your vacancies? Please mention all methods used.

| | Yes | No | Variable name |
|---|-----|----|---------------|
| Newspaper/TV/radio advertisements | 1 | 2 | D1a |
| Internet | 1 | 2 | D1b |
| Recommendation by current employees | 1 | 2 | D1c |
| Recommendations by individuals or organizations | 1 | 2 | D1d |
| Public employment service | 1 | 2 | D1e |
| Private employment service | 1 | 2 | D1f |

D2. If you cannot fill your vacancies by the normal means, what are the alternatives you use?

| | Yes | No | Variable name |
|---|-----|----|---------------|
| Enhancing skills of existing employees through training and development | 1 | 2 | D2a |
| Actively recruiting employees from other organizations | 1 | 2 | D2b |
| Recruiting overseas | 1 | 2 | D2c |
| Assigning tasks on the unfilled vacancy to other employees | 1 | 2 | D2d |
| Changing the structure of personnel to cancel the vacancy | 1 | 2 | D2f |
| Scheduling overtime for existing workers | 1 | 2 | D2g |

D3. Please indicate the importance of the following personal characteristics, basic skills and job-related skills that you look for in new employees, in particular the new jobs that you are now recruiting for that you listed in the previous questions number B5. *Please use the following scale and circle in each row.*

Not important
Slightly important
Important
Very important
Extremely important

D3 (A): Personal characteristics

| | | Variable name |
|------------------------------------|-----------|---------------|
| Gender (preferably males) | 1 2 3 4 5 | D4Aa |
| Gender (preferably females) | 1 2 3 4 5 | D4Ab |
| Age (preferably not older than 25) | 1 2 3 4 5 | D4Ac |
| Age (not older than 35-40) | 1 2 3 4 5 | D4Ad |
| Nationality | 1 2 3 4 5 | D4Ae |
| Reliability | 1 2 3 4 5 | D4Af |
| Punctuality | 1 2 3 4 5 | D4Ag |

| | | |
|--|-----------|------|
| Commitment | 1 2 3 4 5 | D4Ah |
| Honesty | 1 2 3 4 5 | D4Ai |
| Personal appearance | 1 2 3 4 5 | D4Aj |
| Other physical attributes (e.g. fitness) | 1 2 3 4 5 | D4Ak |
| Stable family background | 1 2 3 4 5 | D4Al |
| Modesty | 1 2 3 4 5 | D4Am |
| Behavior manner | 1 2 3 4 5 | D4An |
| Intellectual level demonstrated | 1 2 3 4 5 | D4Ao |

D3 (B): Basic skills

| | | Variable name |
|----------------------------------|-----------|---------------|
| Communication skills | 1 2 3 4 5 | D4Ba |
| English language skills | 1 2 3 4 5 | D4Bb |
| Arabic language skills | 1 2 3 4 5 | D4Bc |
| Other language skills | 1 2 3 4 5 | D4Bd |
| Literacy | 1 2 3 4 5 | D4Be |
| Mathematics (calculation) skills | 1 2 3 4 5 | D4Bf |
| Problem solving skills | 1 2 3 4 5 | D4Bg |
| Analytical thinking | 1 2 3 4 5 | D4Bh |
| Computer skills | 1 2 3 4 5 | D4Bi |
| Telephone conversation skills | 1 2 3 4 5 | D4Bj |
| Writing skills | 1 2 3 4 5 | D4Bk |
| Ability to work independently | 1 2 3 4 5 | D4Bl |
| Customer relations skills | 1 2 3 4 5 | D4Bm |
| Management skills | 1 2 3 4 5 | D4Bn |

D3 (C): Qualifications and work experience

| | | Variable name |
|--|-----------|---------------|
| Diploma/certificate on education/qualification relevant to the position | 1 2 3 4 5 | D4Ca |
| Availability of actual skills/education/qualification regardless of diploma relevant to the position | 1 2 3 4 5 | D4Cb |
| Graduated university rate/prestige | 1 2 3 4 5 | D4Cc |
| Availability of foreign degree (earned in developed countries) | 1 2 3 4 5 | D4Cd |
| Availability of additional degrees, qualifications, etc | 1 2 3 4 5 | D4Ce |
| Enclosure to the diploma showing education grades/exam results | 1 2 3 4 5 | D4Cf |
| Previous work experience in the same/relevant field | 1 2 3 4 5 | D4Cg |
| General experience in a workplace | 1 2 3 4 5 | D4Ch |

D4. How do you assess the skills of the applicant for the job position? *Please mention all methods used.*

| | Yes | No | Variable name |
|---|-----|----|---------------|
| Interview(s) | 1 | 2 | D5a |
| Written test | 1 | 2 | D5b |
| Performance test | 1 | 2 | D5c |
| Psychological test | 1 | 2 | |
| Inquiries with the educational or training institution the applicant graduated from | 1 | 2 | D5d |
| Ask for recommendations from the previous employer(s) | 1 | 2 | D5e |

D5. Have skill requirements in your firm increased over the last 2 years?

| Increased | Decreased | Don't Know | Variable |
|-----------|-----------|------------|----------|
| 1 | 2 | 99 | D6 |

D6. What, in your opinion, is the reason(s) for skill requirement in your firm to increase (please mark every reason from the table below that applies):

| | Yes | No | Variable name |
|---|-----|----|---------------|
| New technology | 1 | 2 | D7a |
| Change in workplace organization (e.g., more emphasis on personal skills, etc.) | 1 | 2 | D7b |
| Higher quality standards (for the firm's products or services) | 1 | 2 | D7c |
| More competitive business environment | 1 | 2 | D7d |
| Increased customer demand | 1 | 2 | D7e |
| Other (please specify) | 1 | 2 | D7f |

E. Views about the technical and vocational Training System

E1. How would you evaluate the quality of technical and vocational training in the public and private education institutions respectively? Please use the following scale and circle in each row.

| | Very poor | Poor | Average | Good | Very good | Don't know | Variable name |
|---|-----------|------|---------|------|-----------|------------|---------------|
| 1. Quality of public system: | | | | | | | |
| (a) secondary education | 1 | 2 | 3 | 4 | 5 | 99 | E1a |
| (b) technical secondary schools | 1 | 2 | 3 | 4 | 5 | 99 | E1b |
| (c) Middle Technical Institutes | 1 | 2 | 3 | 4 | 5 | 99 | E1c |
| (d) Productivity and Vocational Training Department of the Ministry of Trade and Industry | 1 | 2 | 3 | 4 | 5 | 99 | E1d |
| (e) Universities | 1 | 2 | 3 | 4 | 5 | 99 | E1e |
| 2. Quality of private system: | | | | | | | |
| (a) secondary general | 1 | 2 | 3 | 4 | 5 | 99 | E2d |
| (b) technical and vocational education | 1 | 2 | 3 | 4 | 5 | 99 | E2e |
| (c) higher education | 1 | 2 | 3 | 4 | 5 | 99 | E2f |

E2. Have you ever recruited and hired graduates from the Middle Technical Institutes?

| | | Variable Name |
|------------|---------------|---------------|
| Yes | 1 (go to E3) | E2a |
| No | 2 (go to E4) | E2b |
| Don't know | 99 (Go to E5) | E2c |

E3. Please rate the quality of the MTI graduates that you have hired on the criteria listed below.

| | Poor | Average | Good | Not applicable | Variable name |
|------------------------------------|------|---------|------|----------------|---------------|
| Basic Skills | | | | | |
| Communication skills | 1 | 2 | 3 | 99 | E3a |
| Literacy level | 1 | 2 | 3 | 99 | E3e |
| Mathematics (calculation) skills | 1 | 2 | 3 | 99 | E3f |
| Problem solving skills | 1 | 2 | 3 | 99 | E3g |
| Analytical thinking | 1 | 2 | 3 | 99 | E3h |
| Computer skills | 1 | 2 | 3 | 99 | E3i |
| | 1 | 2 | 3 | 99 | E4J |
| Technical Vocational Skills | | | | | |
| Theory/knowledge | 1 | 2 | 3 | 99 | E3k |
| Practical skills | 1 | 2 | 3 | 99 | E3l |
| Language skills | 1 | 2 | 3 | 99 | E3m |
| Work habits | 1 | 2 | 3 | 99 | E3n |
| Interest in occupation/job | 1 | 2 | 3 | 99 | E3o |

E4. If you have not hired graduates from the Middle Technical Institutes what is the reason?.

| Reason | | Variable Name |
|---|---|---------------|
| Not aware of the availability of MTI graduates | 1 | E4a |
| MTI does not train graduates for occupations I need. | 2 | E4b |
| MTI graduates do not have skills necessary to be productive at my company | 3 | E4c |
| MTI Graduates have never applied for jobs at my company | 4 | E4d |
| Other | 5 | E4e |

E5. Do you have any suggestions as to how the vocational and technical Training system could be improved?
(Interviewer: Please write the respondent's response here)

E6. Would you like to make any other comment? (Interviewer: Please write the respondent's comment here)

Interviewer Thank Respondent (*read the statement below*):

Thank you very much for having taken the time to complete this questionnaire. The information on your perceptions of workers' skills is a very important input for the evaluation of labor skills required by firms in Egypt, as well as for the formulation of the policy advice.

THANK YOU FOR YOUR COOPERATION

F. This section is to be filled in by the interviewer after the interview

F1 Region/city:

1 Upper Valley

2 Cairo

3 Delta

F2 Address (Street name and number) _____

F3 Respondent's first name, family name, contact tel. _____

F4 Interviewer's first name, family name, contact tel. # _____

F5 Interviewer's signature _____

F6. Stamp of Company _____

استمارة الاستبيان

تهدف هذه الاستمارة إلى التأكيد على الموعد المتفق عليه في الساعة _____ صباحاً/ مساءً يوم _____ شهر _____ للحصول على المعلومات الضرورية. برجاء مراجعة الاستمارة وإعداد أكبر قدر ممكن من المعلومات قبل موعد المقابلة حتى تتم بسرعة ويسر فضلاً عن ضمان حصولي على المعلومات الضرورية وذلك قبل إنتهاء المقابلة.

اسمي _____ ورقم تليفوني هو _____ . وأنا أمثل _____ من الكلية التكنولوجية/ المعهد الفني وأقوم بإجراء هذا المسح وذلك بدعم من وزارة التعليم العالي والكليات الفنية التكنولوجية و الوكالة الأمريكية للتنمية الدولية. ونحن نقوم بإجراء هذا المسح لأجل تحديد الطلب على العمالة ونوعية المهارات المطلوبة في ثلاث مناطق من جمهورية مصر العربية. ولقد تم اختيار شركتكم للمشاركة في هذا المسح بوصفه ممثلاً لأحد قطاعات الاقتصاد المصري.

تعتبر المعلومات التي يتم جمعها من خلال هذا المسح سرية ولن يتم الإفصاح عنها لأطراف أخرى. وسوف تُستخدم نتائج هذا البحث للأغراض البحثية فحسب كما ستظهر في شكل مجمع فقط. وبالتالي لن يظهر اسم شركتكم أو أي معلومات توضيحية عنها في أي مطبوعات منشورة أو أي مواد أخرى.

سوف يتم استخدام نتائج المسح في صياغة توصيات للحكومة المصرية وبصفة خاصة وزارة التعليم العالي وإدارة الكليات التكنولوجية /المعاهد الفنية لأجل تطوير برامج التدريب داخل الكليات التكنولوجية/المعاهد الفنية وذلك لتحسين إنتاجية الاقتصاد وعملية توظيف خريجي الكليات التكنولوجية. كما سوف تساعد النتائج في تطوير سياسات حكومية أكثر فاعلية في مجال التوظيف فضلاً عن تحسين هيكل ومحتوى البرامج التدريبية المهنية والفنية واستحداث وإدخال برامج جديدة تلبي الطلب المتزايد لدى الشركات والمؤسسات داخل هذا البلد. وسوف أطلع عليك الاسئلة وأقرأ الحلول المقترحة لتختار من بينها أكثر تلك الحلول التي تعبر عن رأيك. وفي حالة عدم توافق أي من الحلول المقترحة مع رأيك برجاء القيام بطرح وجهة النظر الخاصة بك.

شكراً على حسن تعاونكم وزارة التعليم العالي

. ما هو المسمى الوظيفي الخاص بك؟ في حالة تعدد الوظائف التي تقوم بها نرغب في معرفة الوظيفة أو المسئولية الرئيسية الموكلة
إليك؟

| Variable S1 | | |
|-------------|---|---------------------------------|
| 1 | 1 | رئيس مجلس الإدارة |
| 2 | 2 | الرئيس التنفيذي |
| 3 | 3 | رئيس إدارة شؤون العاملين |
| 4 | 4 | مدير إدارة شؤون العاملين |
| 5 | 5 | رئيس قسم الموارد البشرية |
| 6 | 6 | صاحب العمل/أحد شركاء صاحب العمل |
| 0 | 0 | وظيفة أخرى (من فضلك حدد) |

أ خصائص الشركة (المنشأة)

1. اسم المنشأة بالكامل

2. متى بدأت المنشأة أعمالها في مصر؟ _____ (variable A2)

3. ما هو الوضع القانوني لهذه المنشأة؟

| Variable A3 | | |
|-------------|---|---|
| 1 | 1 | شركة مساهمة |
| 2 | 2 | شركة مساهمة تشارك فيها الدولة |
| 3 | 3 | شركة ممثلة في البورصة |
| 4 | 4 | شركة ذات مسئولية محدودة |
| 5 | 5 | جمعية أو مؤسسة تعاونية إنتاجية |
| 6 | 6 | مستثمر خاص/ أعمال تجارية يديرها أفراد من أسرة واحدة |
| 7 | 7 | منشأة مملوكة للدولة (أنواع مختلفة) |
| 0 | 0 | غير ذلك (من فضلك حدد) |

4. هل أنشئت شركتك (منشأتك) بمساهمة من رأس مال أجنبي (مستثمر دولي)؟

Variable A4

| | | | |
|----|---|----|---------|
| | 1 | 1 | نعم |
| | 2 | 2 | لا |
| 99 | | 99 | لا اعرف |

5. برجاء تحديد النشاط الاقتصادي الرئيسي لمنشأتك.

| Variable A5 | | |
|-------------|----|--|
| 1 | 1 | صناعة استخراج المعادن (التعدين باستثناء البترول والغاز) |
| 2 | 2 | انتاج البترول والغاز |
| 3 | 3 | انتاج وتصنيع المواد الغذائية شاملة المشروبات والتبغ |
| 4 | 4 | صناعة المنسوجات والملابس |
| 5 | 5 | انتاج الجلود والمنتجات الجلدية وصناعة الاحذية |
| 6 | 6 | أعمال النجارة وتصنيع المنتجات الخشبية |
| 7 | 7 | صناعة العجينة الورقية والورق والطباعة والنشر |
| 8 | 8 | انتاج فحم الكوك وانتاج المواد البترولية والنووية |
| 9 | 9 | صناعة الكيماويات |
| 10 | 10 | انتاج السلع المطاطية والبلاستيكية |
| 11 | 11 | انتاج المنتجات المعدنية غير التعدينية الأخرى |
| 12 | 12 | الصناعة المعدنية وانتاج السلع المعدنية الجاهزة |
| 13 | 13 | انتاج الماكينات والمعدات |
| 14 | 14 | انتاج المعدات الكهربائية والالكترونية والبصرية |
| 15 | 15 | صناعة المركبات والمعدات |
| 16 | 16 | الصناعات الهندسية |
| 17 | 17 | انتاج وتوزيع الكهرباء والغاز والمياه |
| 18 | 18 | البناء |
| 19 | 19 | التجارة واصلاح السيارات واصلاح الأجهزة المنزلية والأجهزة الشخصية |
| 20 | 20 | الفنادق والمطاعم |
| 21 | 21 | المواصلات والاتصالات |
| 22 | 22 | النشاط المالي |
| 23 | 23 | الأعمال العقارية والإيجارية والخدمات الأخرى |
| 24 | 24 | الخدمات الصحية |
| 25 | 25 | غير ذلك (حدد من فضلك) |

6. برجاء تحديد صعوبة كل عنصر من العناصر التالي ذكرها والخاصة بعمليات ادارة عملك ونموه (أجب على كل الاسئلة)

| Variable A6 | لا أعرف | صعوبات متوسطة | صعوبات رئيسية | صعوبات بسيطة | لا توجد صعوبات | |
|-------------|---------|---------------|---------------|--------------|----------------|---|
| A6a | 99 | 3 | 4 | 2 | 1 | الحصول على التمويل (مثال الضمان المطلوب أو عدم توافر التمويل من البنوك) |
| A6b | 99 | 3 | 4 | 2 | 1 | تدني جودة الاتصالات الهاتفية |
| A6c | 99 | 3 | 4 | 2 | 1 | سوء أحوال الطرق والمواصلات |
| A6d | 99 | 3 | 4 | 2 | 1 | أداء ادارة الضرائب غير مرضي |
| A6e | 99 | 3 | 4 | 2 | 1 | صعوبات في الحصول على تراخيص وتصاريح الأعمال التجارية |
| A6f | 99 | 3 | 4 | 2 | 1 | توافر قوانين عمل غير مناسبة |
| A6g | 99 | 3 | 4 | 2 | 1 | غياب المهارات والتعليم لدى العمال الحاليين |
| A6h | 99 | 3 | 4 | 2 | 1 | عدم وضوح أو جمود سيطرة الحكومة على نشاطك أو صناعتك |
| A6i | 99 | 3 | 4 | 2 | 1 | الفساد |
| A6j | 99 | 3 | 4 | 2 | 1 | مخالفة العقود من جانب العملاء والموردين |

7 ما هو الحجم التقريبي لشركتك (أي عدد الموظفين في شركتك في الوقت الحالي)؟

| Variable A7 | | |
|-------------|---|---|
| A7a | 1 | كبير (فوق 500 موظف) |
| A7b | 2 | متوسط (ما بين 100 إلى 500 موظف) |
| A7c | 3 | صغير (أقل من 100 موظف) |
| A7d | % | موظفون دائمون يعملون بشكل متفرغ (اذكر النسبة المئوية) |
| A7e | % | موظفون مؤقتون/يعملون بشكل غير متفرغ/موسميون (اذكر النسبة المئوية) |

8 هل تقدم شركتك تدريب رسمي للفئات التالية من الموظفين؟

| Variable name | لا أعرف | لا | نعم | |
|---------------|---------|----|-----|---|
| A8a | 99 | 2 | 1 | رؤساء الادارات وكل مستويات الرئاسة |
| A8b | 99 | 2 | 1 | المتخصصون من ذوي المهارات العالية |
| A8c | 99 | 2 | 1 | المتخصصون من ذوي المهارات المتوسطة (الفنيون والمحاسبون و مندوبو المبيعات والكاشير الخ) |
| A8d | 99 | 2 | 1 | الموظفون المسئولون عن اعداد البيانات وتسجيل الوثائق والتسجيل والخدمات الأخرى |
| A8e | 99 | 2 | 1 | العمال المهرة |
| A8f | 99 | 2 | 1 | الموظفون الذين يقدمون خدمات المساعدة (السايفون وأفراد الأمن الخ) |
| A8g | 99 | 2 | 1 | العمالة غير الماهرة (شاملة العمالة التي تقدم خدمات المساعدة مثل عمال النظافة وعمال الحدائق) |

9 أ كيف تغيرت إيرادات المبيعات الخاصة بشركتك عبر العام المالي الماضي (مقارنة بالعام السابق له)؟

| Variable A9 | | |
|-------------|----|----------------------------------|
| 1 | 1 | زادت بنسبة كبيرة (ما يفوق 20%) |
| 2 | 2 | زادت بنسبة معقولة (أقل من 20%) |
| 3 | 3 | ظلت بلا تغيير |
| 4 | 4 | انخفضت بنسبة بسيطة (أقل من 20%) |
| 5 | 5 | انخفضت بنسبة كبيرة (ما يفوق 20%) |
| 99 | 99 | لا أعرف |

10 أ من وجهة نظرك ما هي الفرص المستقبلية لشركتك في مجال إيرادات المبيعات والخدمات خلال الستة أشهر القادمة؟

| Variable A10 | | |
|--------------|---|---|
| 1 | 1 | أتوقع حدوث زيادة كبيرة (ما يفوق 20%) |
| 2 | 2 | أتوقع حدوث زيادة متوسطة (ما يقل عن 20%) |
| 3 | 3 | لا أتوقع تغيير |
| 4 | 4 | أتوقع حدوث انخفاض بسيط (أقل من 20%) |
| 5 | 5 | أتوقع حدوث انخفاض كبير (ما يفوق 20%) |
| 99 | 6 | لا أعرف |

ب. حركة العمالة (خلال 12 شهر الماضية)

1. كيف تغير عدد الموظفين خلال 12 شهر الماضية مقارنة بالعام السابق؟

| Variable Name | حدد عدد الأشخاص في هذا العمود | | |
|---------------|-------------------------------|---|--|
| B1a | | 1 | زاد عدد الموظفين (أذهب إلى سؤال ب2) |
| B1b | | 2 | انخفض عدد الموظفين (أذهب إلى سؤال ب3) |
| B1c | | 0 | ظل عدد الموظفين بلا تغيير (أذهب إلى سؤال ب4) |

2. برجاء تحديد المسميات الوظيفية (الوظائف) التي زادت فيها نسبة التعيين خلال 12 شهر الماضية وأذكر المستوى التعليمي المطلوب فيها والعدد التقريبي للأشخاص الذين تم تعيينهم (برجاء ادخال المسمى الوظيفي والرقم التقريبي الذي يعكس الزيادة في عدد الموظفين لهذه الوظائف)

| Variable name | زاد العدد بنسبة | المستوى التعليمي المطلوب: | | | | | | المسمى الوظيفي |
|---------------|-----------------|---------------------------|---|---|---|---|---|----------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | |
| B2a | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 1 |
| B2b | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 2 |

| | | | | | | | | |
|-----|-------|---|---|---|---|---|---|---|
| B2c | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 3 |
| B2d | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 4 |
| B2e | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 5 |
| B2f | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 6 |

ب3. برجاء تحديد المسميات الوظيفية (الوظائف) التي انخفضت فيها نسبة التعيين خلال 12 شهر الماضية واذكر معدل الانخفاض (برجاء ادخال المسمى الوظيفي والمستوى التعليمي والرقم التقريبي الذي يعكس الانخفاض في عدد الموظفين لهذه الوظائف)

| Variable name | انخفض العدد بنسبة | المستوى التعليمي: | | | | | | المسمى الوظيفي |
|---------------|-------------------|-------------------|---|---|---|---|---|----------------|
| B3a | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 1 |
| B3b | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 2 |
| B3c | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 3 |
| B3d | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 4 |
| B3e | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 5 |
| B3f | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 6 |

ب4. ما هي خطط شركتك بالنسبة للسنة أشهر القادمة بخصوص تغيير إجمالي عدد الموظفين؟

| Variable Name | حدد الرقم التقريبي للموظفين في هذا العمود | | |
|---------------|---|---|---|
| B4a | | 1 | زيادة عدد الموظفين (انتقل إلى سؤال ب5): |
| B4b | | 2 | تخفيض عدد الموظفين (انتقل إلى سؤال ب6) |
| B4c | | 0 | بقاء عدد الموظفين بلا تغيير (انتقل إلى سؤال ب7) |

ب5. برجاء تحديد المسميات الوظيفية (الوظائف) واذكر الحد الأدنى للمستوى التعليمي المطلوب للموظفين الذين ترغب شركتك في زيادة عددهم خلال السنة أشهر القادمة ومعدل الزيادة (برجاء ادخال المسمى الوظيفي والرقم التقريبي الذي يعكس الزيادة في عدد الموظفين لهذه الوظائف)

| Variable name | زاد العدد بنسبة | المستوى التعليمي المطلوب: | | | | | | المسمى الوظيفي |
|---------------|-----------------|--|---|---|---|---|---|----------------|
| | | (1) أساسي (2) لم يكمل المرحلة الثانوية (3) ثانوي عام (4) ثانوية فنية (5) معهد فني متوسط (بعد اتمام الثانوية الفني) (6) تعليم عالي | | | | | | |
| B5a | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 1 |
| B5b | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 2 |

| | | | | | | | | |
|-----|-------|----|---|---|---|---|---|---------------------------|
| B5c | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 3 |
| B5d | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 4 |
| B5e | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 5 |
| B5f | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 6 |
| B5g | | 99 | | | | | | لم يتم وضع خطط لهذا الأمر |

ب6. برجاء تحديد المسميات الوظيفية (الوظائف) واذكر عدد الموظفين الذين ترغب شركتك في خفض عددهم خلال الستة أشهر القادمة ومعدل الانخفاض (برجاء ادخال المسمى الوظيفي والمستوى التعليمي والرقم التقريبي الذي يعكس الانخفاض في عدد الموظفين لهذه الوظائف)

| Variable name | انخفاض العدد بنسبة | المستوى التعليمي: | | | | | | المسمى الوظيفي |
|---------------|--------------------|-------------------|---|---|---|---|---|---------------------------|
| B6a | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 1 |
| B6b | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 2 |
| B6c | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 3 |
| B6d | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 4 |
| B6e | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 5 |
| B6f | أشخاص | 1 | 2 | 3 | 4 | 5 | 6 | 6 |
| B6g | | 99 | | | | | | لم يتم وضع خطط لهذا الأمر |

ب7. هل قمت بتعيين عمالة أجنبية خلال الستة أشهر الماضية؟

| Variable B7 | | |
|-------------|---|------------------------|
| 1 | 1 | نعم (اذهب إلى سؤال ب8) |
| 2 | 2 | لا (اذهب إلى قسم ج) |

ب8. من فضلك قدم المعلومات التالية عن العمالة الأجنبية التي قمت بتعيينها خلال 12 شهراً الماضية.

| Variable name | | |
|---------------|--------|--|
| B8a | | 1. العدد التقريبي للعمالة الأجنبية المعينة |
| B8b | دولة أ | 2. الدولة / الدول التي تم تعيينهم منها (اذكر أهم ثلاث دول): |
| B8c | دولة ب | |
| B8d | دولة ج | |
| B8e | مهنة أ | 3. الوظائف التي تم تعيينهم لأجلها (اذكر أهم ثلاث مسميات وظيفية أو مهنة): |
| B8f | مهنة ب | |
| B8g | مهنة ج | |

ج. الوظائف الشاغرة

ج1. برجاء تحديد الوظائف الشاغرة الرئيسية المتوافرة حالياً في شركتك: (برجاء ملئ الجدول أدناه)

تعتبر الوظيفة شاغرة إن توافرت فيها الشروط الثلاثة الآتية:

- 1) توافر الوظيفة (شاملة العمل بشكل متفرغ (طوال الوقت) أو غير متفرغ (جزء من الوقت) فضلاً عن الوظيفة المؤقتة والموسمية
- 2) يستطيع الشخص العمل خلال 30 يوم.
- 3) أن تسعى شركتك بجدية لتعيين أشخاص في هذه الوظيفة

| Variable Name | فترة البحث بالأسابيع | العدد التقريبي للوظائف الشاغرة | المستوى التعليمي المطلوب: | | | | | | المسمى الوظيفي |
|---------------|----------------------|--------------------------------|---------------------------|---|---|---|---|---|----------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | |
| | (د) | (ج) | (ب) | | | | | | (أ) |
| Cl a | | | | | | | | | الاجمالي |
| Cl b | | | 1 | 2 | 3 | 4 | 5 | 6 | 1. |
| Cl c | | | 1 | 2 | 3 | 4 | 5 | 6 | 2. |
| Cl d | | | 1 | 2 | 3 | 4 | 5 | 6 | 3. |
| Cl e | | | 1 | 2 | 3 | 4 | 5 | 6 | 4. |
| Cl f | | | 1 | 2 | 3 | 4 | 5 | 6 | 5. |
| Cl g | | | 1 | 2 | 3 | 4 | 5 | 6 | 6. |

ج2. ما هو مدى صعوبة إيجاد عمال مهرة لشغل الوظائف الشاغرة في شركتك داخل فئات العمل الآتية (اكتب اجابة واحدة على كل سطر تعكس نوعية الوظائف التي كانت أو مازالت متوافرة في شركتك)

| Variable name | لم ابحث في الأمر | سهل جداً | سهل أكثر منه صعب | لا اعرف إن كان صعباً أم لا | صعب أكثر منه سهل | صعب جداً | |
|---------------|------------------|----------|------------------|----------------------------|------------------|----------|--|
| C3a | 6 | 5 | 4 | 3 | 2 | 1 | رؤساء الإدارات وكل مستويات الرئاسة |
| C3b | 6 | 5 | 4 | 3 | 2 | 1 | متخصصون مؤهلون على مستوى عالي |
| C3c | 6 | 5 | 4 | 3 | 2 | 1 | متخصصون مؤهلون على مستوى متوسط (فنيون ومحاسبون متوسط المستوى ومندوبو مبيعات وعمال كاشير) |
| C3d | 6 | 5 | 4 | 3 | 2 | 1 | موظفون مختصون في إعداد البيانات والتسجيل وخدمات تكنولوجيا المعلومات |
| C3e | 6 | 5 | 4 | 3 | 2 | 1 | عمال مهرة |
| C3f | 6 | 5 | 4 | 3 | 2 | 1 | عمال غير مهرة (شاملة أطقم المساعدة في المكتب شأن عمال النظافة والحراس) |

ج3. في رأيك ما هي أهم الأسباب الآتي ذكرها التي أدت إلى نقص المهارات لدى العمالة؟ برجاء استخدام الأرقام التالية ووضع دائرة في كل خانة.

| Variable name | مهم إلى أقصى درجة | مهم جداً | مهم | مهم إلى حد ما | غير مهم |
|---------------|-------------------|----------|-----|---------------|---------|
| C4a | 5 | 4 | 3 | 2 | 1 |
| C4b | 5 | 4 | 3 | 2 | 1 |
| C4c | 5 | 4 | 3 | 2 | 1 |
| C4d | 5 | 4 | 3 | 2 | 1 |

د. ممارسات التعيين

د1. كيف تقومون بملئ الوظائف الشاغرة لديكم بشكل معتاد؟ برجاء ذكر كل الأساليب المتبعة.

| Variable name | لا | نعم |
|---------------|----|-----|
| D1a | 2 | 1 |
| D1b | 2 | 1 |
| D1c | 2 | 1 |
| D1d | 2 | 1 |
| D1e | 2 | 1 |
| D1f | 2 | 1 |

د2. إن لم تستطع ملئ الوظائف الشاغرة لديك باستخدام الأساليب المعتادة فما هي البدائل التي تلجأ إليها؟

| Variable name | لا | نعم |
|---------------|----|-----|
| D2a | 2 | 1 |
| D2b | 2 | 1 |
| D2c | 2 | 1 |
| D2d | 2 | 1 |
| D2e | 2 | 1 |
| D2f | 2 | 1 |

د3 برجاء تحديد أهمية السمات الشخصية الآتي ذكرها والمهارات الأساسية والمهارات المرتبطة بالعمل والتي تبحث عنها عند تعيين موظفين جدد وبصفة خاصة الوظائف الشاغرة الجديدة التي تقوم بتعيين أشخاص لها في الوقت الحالي للأعمال التي سبق وأن سردتها في سؤال ب5. برجاء استخدام الأرقام الآتية ووضع دائرة في كل خانة.

1. غير مهم
2. مهم إلى حد ما
3. مهم
4. مهم جداً
5. مهم إلى أقصى درجة

د3 (أ): السمات الشخصية

| Variable name | | |
|---------------|-----------|--|
| D4Aa | 1 2 3 4 5 | النوع الاجتماعي (يفضل الذكور) |
| D4Ab | 1 2 3 4 5 | النوع الاجتماعي (يفضل الإناث) |
| D4Ac | 1 2 3 4 5 | السن (يفضل ألا يزيد السن عن 25 عاماً) |
| D4Ad | 1 2 3 4 5 | السن (يفضل ألا يزيد السن عن 40-35 عاماً) |
| D4Ae | 1 2 3 4 5 | الجنسية |
| D4Af | 1 2 3 4 5 | القدرة على الاعتماد عليهم |
| D4Ag | 1 2 3 4 5 | الدقة في المواعيد |
| D4Ah | 1 2 3 4 5 | الالتزام |
| D4Ai | 1 2 3 4 5 | الأمانة |
| D4Aj | 1 2 3 4 5 | المظهر الشخصي |
| D4Ak | 1 2 3 4 5 | الخصائص الجسدية الأخرى (مثل اللياقة البدنية) |
| D4Al | 1 2 3 4 5 | خلفية عائلية مستقرة |
| D4Am | 1 2 3 4 5 | التواضع |
| D4An | 1 2 3 4 5 | السلوك العام |
| D4Ao | 1 2 3 4 5 | المستوى الفكري والثقافي للشخص |

د3 (ب): المهارات الأساسية

| Variable name | | |
|---------------|-----------|------------------------------------|
| D4Ba | 1 2 3 4 5 | مهارات التواصل والاتصال |
| D4Bb | 1 2 3 4 5 | مهارات استخدام اللغة الانجليزية |
| D4Bc | 1 2 3 4 5 | مهارات استخدام اللغة العربية |
| D4Bd | 1 2 3 4 5 | المهارات اللغوية الأخرى |
| D4Be | 1 2 3 4 5 | إجادة القراءة والكتابة |
| D4Bf | 1 2 3 4 5 | المهارات الحسابية (إجراء الحسابات) |
| D4Bg | 1 2 3 4 5 | مهارات حل المشكلات |
| D4Bh | 1 2 3 4 5 | التفكير التحليلي |
| D4Bi | 1 2 3 4 5 | مهارات استخدام الكمبيوتر |
| D4Bj | 1 2 3 4 5 | مهارات إجراء المحادثات التليفونية |
| D4Bk | 1 2 3 4 5 | مهارات الصياغة (الكتابة) |
| D4Bl | 1 2 3 4 5 | القدرة على العمل بشكل مستقل |
| D4Bm | 1 2 3 4 5 | مهارات خدمة العملاء |
| D4Bn | 1 2 3 4 5 | مهارات الإدارة |

د3 (ج): المؤهلات والخبرة العملية

| Variable name | | |
|---------------|-----------|---|
| D4Ca | 1 2 3 4 5 | دبلوما/شهادة في مجال التعليم/مؤهل مرتبط بالوظيفة |
| D4Cb | 1 2 3 4 5 | توافر مهارات فعلية/تعليم/مؤهل بغض النظر إن كان يرتبط بالوظيفة أم لا |
| D4Cc | 1 2 3 4 5 | خريج جامعة بتقدير |
| D4Cd | 1 2 3 4 5 | الحصول على شهادة اجنبية (من دولة متقدمة) |
| D4Ce | 1 2 3 4 5 | توافر درجات علمية إضافية أو مؤهلات إضافية الخ |
| D4Cf | 1 2 3 4 5 | توافر تقرير مع الدبلوما يوضح الدرجات/نتائج الامتحانات |
| D4Cg | 1 2 3 4 5 | الخبرة السابقة في نفس المجال/مجال ذو صلة |
| D4Ch | 1 2 3 4 5 | الخبرة العامة في مكان عمل |

كيف

د4
تقييم

مهارات المتقدم للحصول على وظيفة؟ برجاء ذكر كل الأساليب المتبعة.

| Variable name | لا | نعم | |
|---------------|----|-----|---|
| D5a | 2 | 1 | المقابلات الشخصية |
| D5b | 2 | 1 | امتحان كتابي |
| D5c | 2 | 1 | اختبار أداء |
| | 2 | 1 | اختبار نفسي |
| D5d | 2 | 1 | الاستفسار من المؤسسة التعليمية أو التدريبية التي تخرج منها المتقدم للحصول على وظيفة |
| D5e | 2 | 1 | طلب تزكية من أصحاب العمل السابقين |

د5 هل زادت الاشتراطات الخاصة بالمهارات في شركتك خلال العامين الماضيين؟

| Variable | لا أعرف | قلت | زادت |
|----------|---------|-----|------|
| D6 | 99 | 2 | 1 |

د6 في رأيك ما هو السبب في زيادة الاشتراطات الخاصة بالمهارات في شركتك (برجاء وضع علامة على كل سبب تراه ينطبق على شركتك في الجدول أدناه):

| Variable name | لا | نعم | |
|---------------|----|-----|---|
| D7a | 2 | 1 | التكنولوجيا الحديثة |
| D7b | 2 | 1 | التغير في مكان العمل (التركيز المتزايد على المهارات الشخصية (الخ) |
| D7c | 2 | 1 | ارتفاع معايير الجودة (فيما يتعلق بمنتجات الشركة أو خدماتها) |
| D7d | 2 | 1 | احتدام التنافس في بيئة الأعمال |
| D7e | 2 | 1 | زيادة الطلب من جانب العملاء |
| D7f | 2 | 1 | أسباب أخرى (من فضلك حدد) |

هـ. وجهات النظر الخاصة بنظام التدريب الفني والمهني

هـ.1 كيف تُقيم نوعية التدريب الفني والمهني في المؤسسات التعليمية العامة والخاصة؟ برجاء استخدام الأرقام أدناه ووضع دائرة في كل خانة.

| Variable name | لا أعرف | جيد جداً | جيد | متوسط | ضعيف | ضعيف للغاية | |
|---------------|---------|----------|-----|-------|------|-------------|--|
| | | | | | | | 1. نوعية النظام العام |
| E1a | 99 | 2 | 4 | 3 | 2 | 1 | أ. التعليم الثانوي |
| E1b | 99 | 2 | 4 | 3 | 2 | 1 | ب. المدارس الفنية الثانوية |
| E1c | 99 | 2 | 4 | 3 | 2 | 1 | ج. الكليات التكنولوجية/ المعاهد الفنية |

| | | | | | | | |
|-----------------------|----|---|---|---|---|---|--|
| E1d | 99 | 2 | 4 | 3 | 2 | 1 | د. ادارة الكفاية الانتاجية والتدريب المهني التابعة لوزارة التجارة والصناعة |
| E1e | 99 | 2 | 4 | 3 | 2 | 1 | ه. الجامعات |
| 2. نوعية النظام الخاص | | | | | | | |
| E2f | 99 | 2 | 4 | 3 | 2 | 1 | أ. الثانوي العام |
| E2g | 99 | 2 | 4 | 3 | 2 | 1 | ب. التعليم الفني والمهني |
| E2h | 99 | 2 | 4 | 3 | 2 | 1 | ج. التعليم العالي |

2هـ. هل سبق لك أن عينت خريجين من الكليات التكنولوجية / المعاهد الفنية ؟

| Variable Name | | |
|---------------|-------------------------|---------|
| E2a | 1 (انتقل إلى سؤال 3هـ) | نعم |
| E2b | 2 (انتقل إلى سؤال 4هـ) | لا |
| E2c | 99 (انتقل إلى سؤال 5هـ) | لا أعرف |

3هـ. برجاء تقييم مستوى خريجي المعاهد الفنية المتوسطة الذين قمت بتعيينهم بناء على المعايير الموضحة أدناه.

| Variable name | غير منطبق | جيد | متوسط | ضعيف | |
|-------------------------|-----------|-----|-------|------|----------------------------|
| المهارات الأساسية | | | | | |
| E3a | 99 | 3 | 2 | 1 | مهارات التواصل والاتصال |
| E3b | 99 | 3 | 2 | 1 | اجادة القراءة والكتابة |
| E3c | 99 | 3 | 2 | 1 | المهارات الحسابية (الحساب) |
| E3d | 99 | 3 | 2 | 1 | مهارات حل المشكلات |
| E3e | 99 | 3 | 2 | 1 | التفكير التحليلي |
| E3f | 99 | 3 | 2 | 1 | مهارات الكمبيوتر |
| E3g | 99 | 3 | 2 | 1 | |
| المهارات الفنية المهنية | | | | | |
| E3h | 99 | 3 | 2 | 1 | المهارات النظرية/المعرفية |
| E3i | 99 | 3 | 2 | 1 | المهارات العملية |
| E3j | 99 | 3 | 2 | 1 | المهارات اللغوية |
| E3k | 99 | 3 | 2 | 1 | عادات العمل |
| E3l | 99 | 3 | 2 | 1 | الاهتمام بالمهنة/الوظيفة |

4هـ. إن لم تقم بتعيين خريجين من الكليات التكنولوجية / المعاهد الفنية فما السبب في ذلك؟

| Variable Name | | السبب |
|---------------|---|--|
| E4a | 1 | لم أكن أعرف بتوافر خريجين من المعاهد الفنية المتوسطة |
| E4b | 2 | لا تقم المعاهد الفنية المتوسطة بتدريب الخريجين على المهن التي احتاج إليها. |
| E4c | 3 | لا يتوافر لدى خريجي المعاهد الفنية المتوسطة المهارات الضرورية كي يحققوا انتاجية في أي شركة |
| E4d | 4 | لم يتقدم أي من خريجي المعاهد الفنية المتوسطة بطلب للحصول على وظيفة في شركتي |
| E4e | 5 | أسباب أخرى |

5هـ. هل لديك أي مقترحات بخصوص تحسين نظام التدريب المهني والفني؟ (المسؤول عن اجراء المقابلة: برجاء كتابة اجابة المستجيب للاستبيان هنا)

6هـ. هل ترغب في تقديم أي تعليقات أخرى؟ (المسؤول عن اجراء المقابلة: برجاء كتابة اجابة المستجيب للاستبيان هنا)

يشكر المسؤول عن المقابلة المستجيب (ويقرأ العبارة أدناه)

شكراً جزيلاً لاتاحة الوقت المناسب لاستكمال هذا الاستبيان. إن المعلومات التي قدمتها حول أرائك بخصوص مهارات العمال مهمة جداً لأجل تقييم مهارات العاملين المطلوبة من الشركات في مصر كما أن لها قيمة كبيرة في صياغة الارشادات الخاصة بالسياسات التعليمية للكليات التكنولوجية.

شكراً على حسن تعاونكم

و. يملئ هذا القسم المسؤول عن اجراء المقابلة بعد انتهائه منها

و 1 الاقليم/المدينة

1 الصعيد 2. القاهرة 3. الدلتا

2. العنوان (اسم الشارع ورقمه)

3. اسم المستجيب بالكامل ورقم تليفونه

4. اسم المسؤول عن المقابلة بالكامل ورقم تليفونه

5. توقيع المستجيب

6. ختم الشركة

Annex F

ANNEX F:

Middle Technical College Graduate Follow-up Survey

Graduate Survey Results

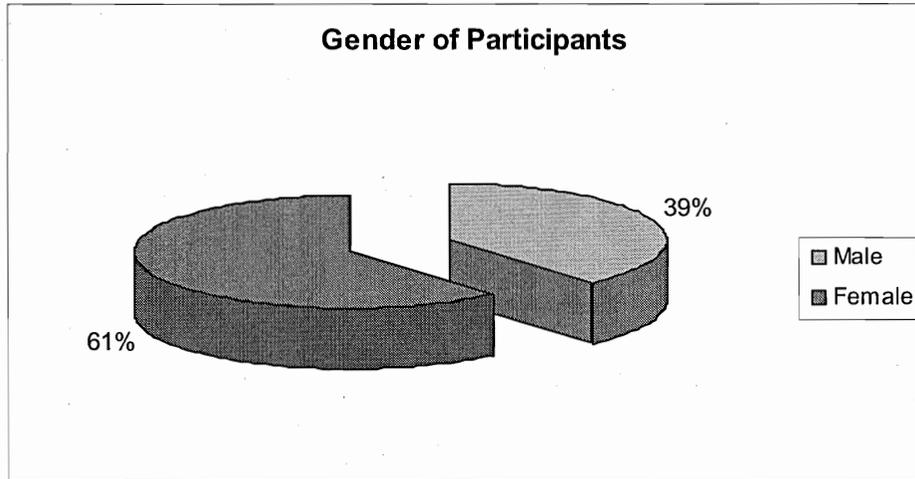
The graduate survey was conducted at three Middle Technical Colleges (MTC) with the support of the Ministry of Higher Education and State for Scientific Research, and with resources from the United States Agency for International Development. The objectives of the survey were to provide the MOHE and Colleges with information on the status of MTC Graduates; assist the MOHE in enhancing the operation and programs of the Middle Technical Colleges; and support the MOHE, in planning and improving the employability of graduates, and the productivity of the economy.

I. Design: The survey questionnaire was developed by the consultants and circulated and discussed with members of the project working group and with managers of the three Colleges and related institutes. The sample size was planned to allow surveying of up to a total of 1,500 graduates of existing programs (500 for each of three colleges) of the approximately 30,000 total graduates. The address information on graduates in all colleges was not complete, and many of the graduates in the randomized sample did not have proper address or phone numbers. This led the College leaders to include only the names of the graduates with documented proper addresses. As a result, letters were sent to a total of 1890 Technical College graduates (690 from South Valley, 500 from Mehalla and 700 from Mataryia).

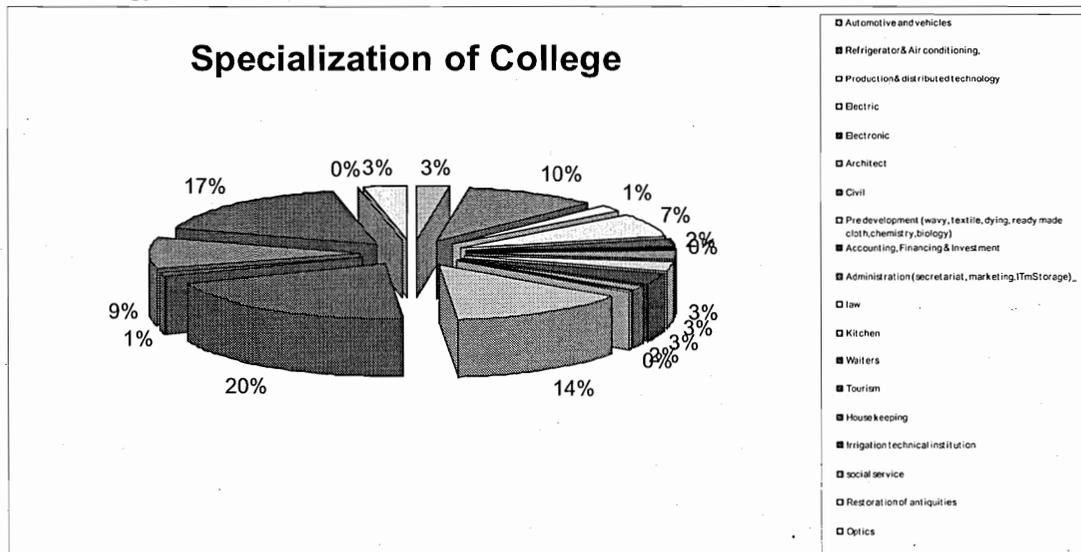
The survey was implemented by inviting the sample of graduates from the class of 2007 to the College to participate in an "alumni party" at which the survey was handed out and completed. Prizes were also given out to selected graduates to further encourage their attendance at the party and their completion of the survey. Other invitees included employers and faculty. About 19 % of the 1890 invited graduates participated in the survey.

II. Results of the Survey

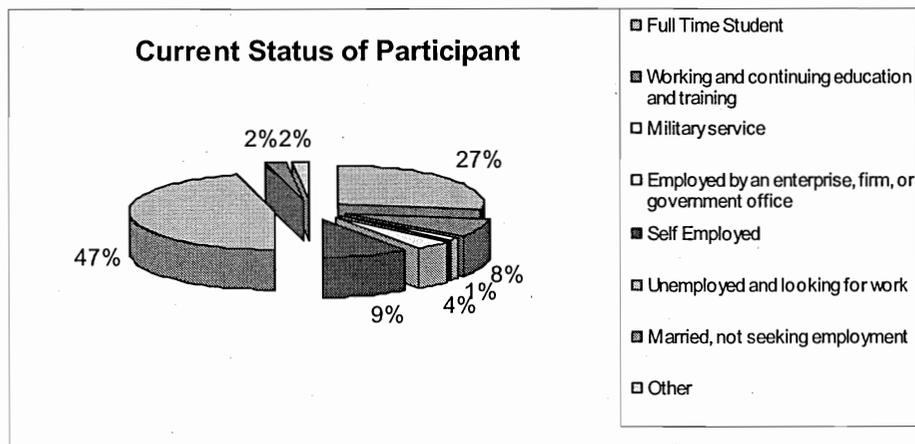
1- **Gender of the participants:** 39% of the participants were male and 61% were female



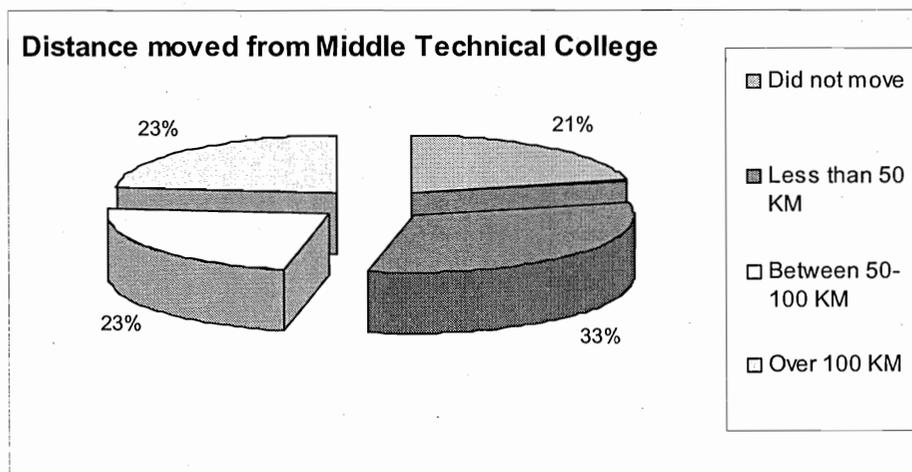
2- **The College training specialization of the participants were:** 20% waiters, 17% irrigation and technical institutions, 14% kitchen, 10% air condition & refrigeration and Air conditioning, 9% house keeping, 7% electric, 3% optics, 3% automotive and vehicles, 3% civil, 3% textile, 3% accounting and financing, 3% administrative, 2% secretariat and marketing, 2% electronics, 1% tourism and 1% production and distributed technology



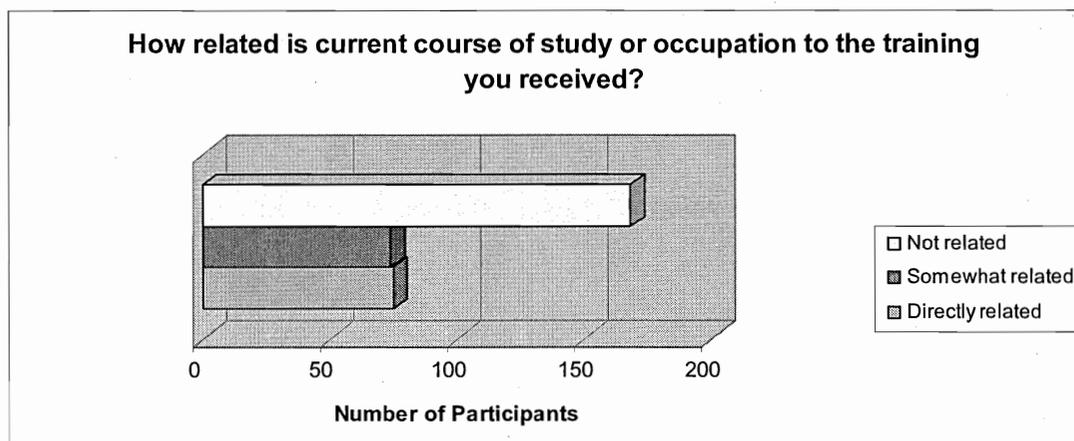
- 3- **The current status of the 2007 graduates.** 47% of the graduates are unemployed, 27% are full time students, 10% are self employed, 8% are working and continuing education or training, 4% are employed by an enterprise, firm or government office and the rest are either in the military service or married and do not work. This raises questions about the quality and quantity of training in different specialties.



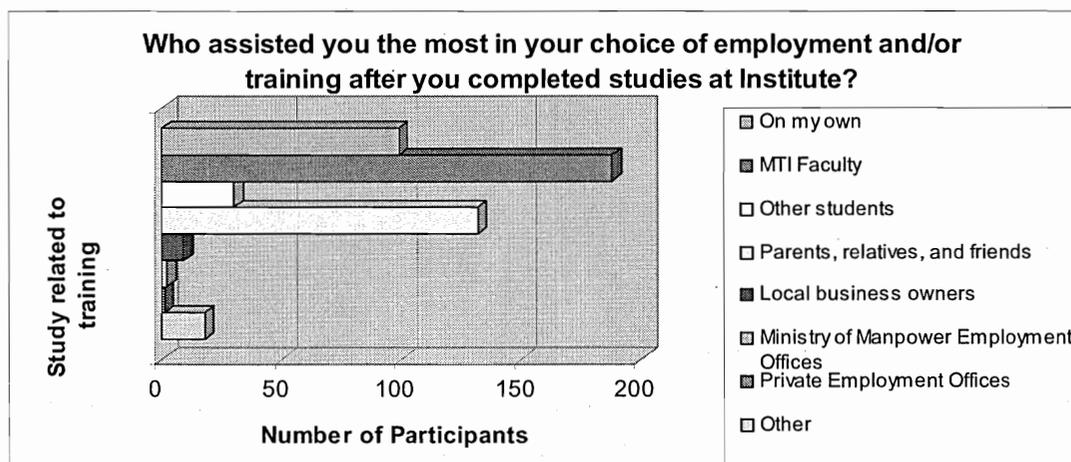
- 4- **Distance moved after graduation from MTC:** 23% of the graduates moved more than 100 KM after graduating from their MTC, 23% moved between 50 and 100 KM, 32% moved less than 50KM and only 22% currently lived in the same geographic area of the College. This indicates that youth are somewhat mobile, and while colleges need programs related to local needs, they should make graduates aware of opportunities for employment in other regions.



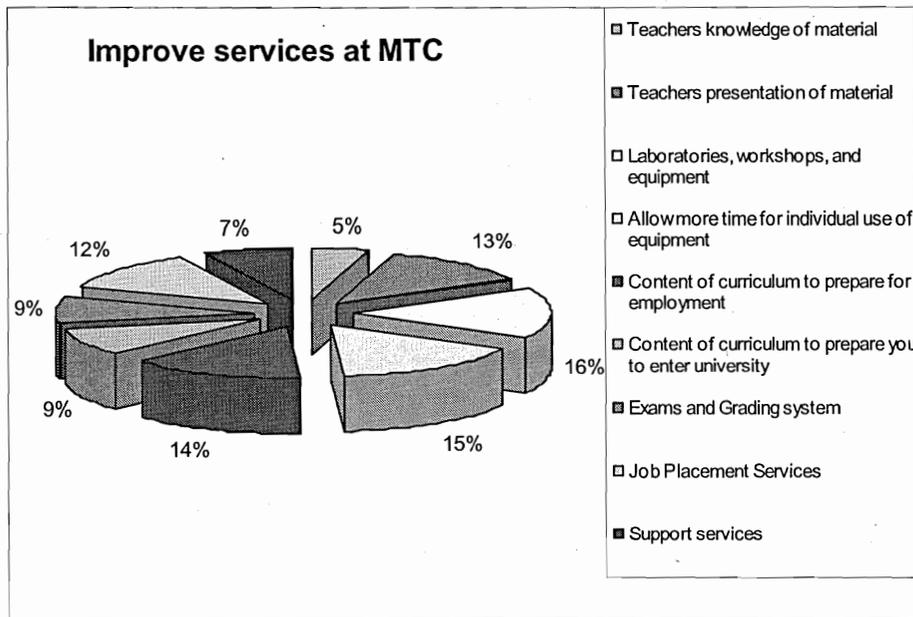
5- **Relation of the current course of study or occupation to the training received in MTC:** 53% of the studied group stated that their occupation or study courses are not related to the training received in the Middle Technical Colleges and 47% acknowledged they are somewhat or directly related. This finding raises questions about the admission of students to specific programs, and the capacity of programs at different colleges.



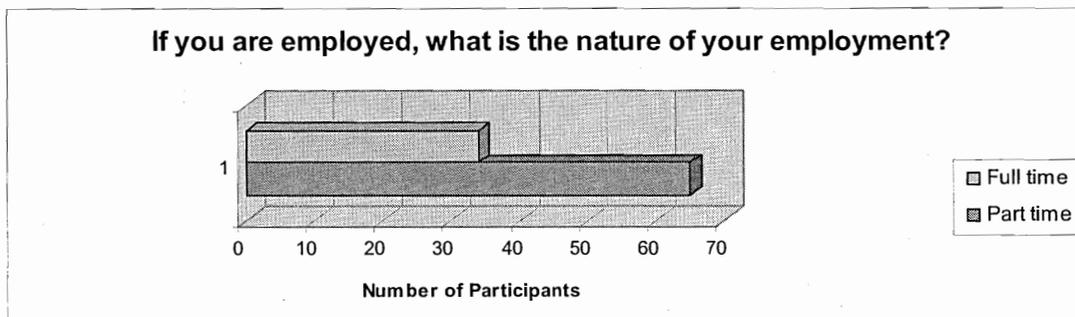
6- **Who assisted graduates in their choice of employment and/or training after completed studies at the College:** 39% of the graduates received support from faculty members, 28% from their families or friends, 21% were on their own, 6% had assistance from other students, 2% received support from local business, and none were supported by private employment offices or the Ministry of manpower employment offices. This finding should help Colleges target job finding services for graduates.



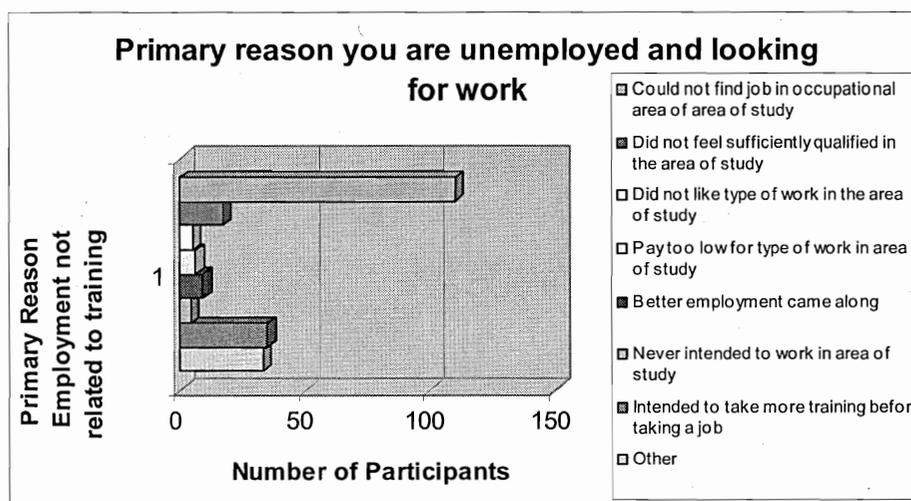
7- The survey asked the graduates to list up to three services which needed the most improvement at the Middle Technical Colleges. Sixteen percent of the graduates responded that the main areas needing improvement are the laboratories; workshops and equipment, followed by allowing more time for individual students to use the equipment (15%); 14% asked for improvements in the content of curriculum to prepare them for employment; 13% requested improvements in teaching methodology; and 12% requested job placement services be provided in MTCs. In addition, 9% would like to see improvements in the content of the curriculum to prepare them to enter university, 9% wanted to see improvements in the exam and the grading system, and 5% indicated that teacher knowledge needs to be increased.



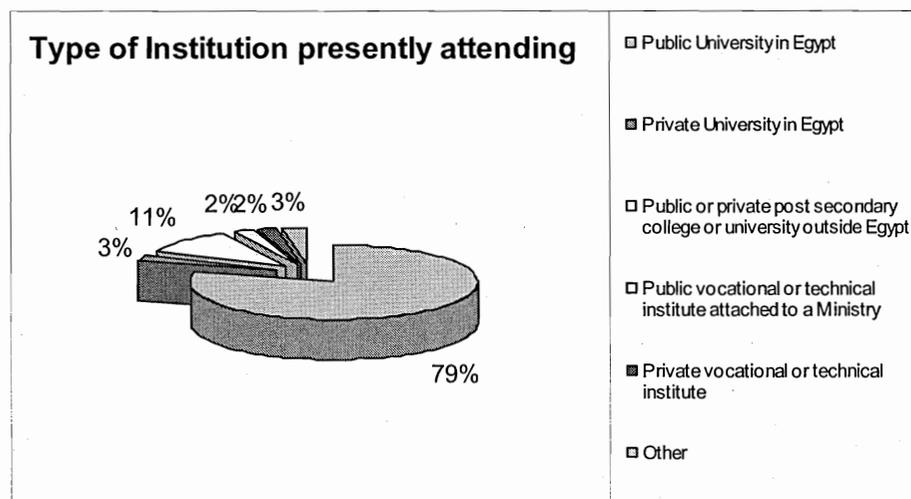
8- **The nature of employment:** Of the four percent who were employed, 66% indicated they have a part time job and 34% had a full time job.



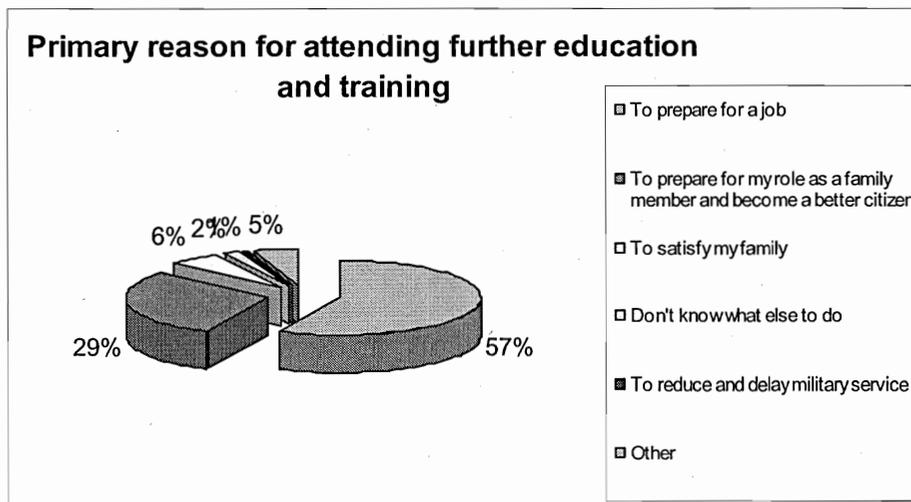
11. **Primary reason of unemployment:** Of the 47% of graduates who indicated that they were unemployed, 50 % said that the primary reason for unemployment was that they could not find a job that matched the areas of their study, 16% intended to do more training, and 8% felt that they were not sufficiently qualified in the area of study. This finding again raises questions about the allocation of trainees to specific specialties, and the profile and capacity of different specialties at each College.



12. **Type of institution attending for further education:** Of the 35% of graduates who said they were attending school full and/or part time, 79% indicated that the types of institution they were attending was a public university.



13. **Primary reason for attending further education:** Fifty seven percent of the graduates indicated that the primary reason for attending further education was to prepare for a better job, and 29% indicated it was to prepare for their role as a family member and to become a better citizen.



IV. Summary and Conclusions of the Survey:

Only 19 % of the 1,890 invited graduates participated in the survey, reflecting that the culture of performing and analyzing surveys in these colleges is not well developed in Egypt. As such the results of this survey should be treated with caution, and because of the small sample size any attempt to do sub-group analysis (i.e., by area of specialization, institute, college) should be done with great caution and such sub-group data should be treated primarily as anecdotal information.

Sixty one percent of respondents were female, and 39% male, which may be a factor in the high number of unemployed graduates, since some married girls never intend to work. The sample size represented 17 specializations at the colleges, which is a broad spectrum. Also, 46% of the graduates moved more than 50 KM after graduating from MTC which may account for the low number of graduates who participated in the alumni parties to participate in the survey. In the future the MOHE may like to gather the graduates to accomplish questionnaire from more accessible locations.

Twenty two percent of graduates indicated they were involved in some type of employment, while 74% of the sample indicate they do not work (47% were unemployed and 27% were full time students). This is quite an alarming situation as a primary objective of the MTC investment and budget it to assist youth to enter the labor force. The costs are high when compared to the employment outcomes. Half the respondents indicated that the primary reason for unemployment was that they could not find a job related to their major. In addition, 66% of the employed graduates have a part time job and only 33% have full time job. This gives the graduates a feeling of insecurity that may have an effect on the community. Of those who were employed, 42% were satisfied with their job but would like to change it, 27% are satisfied and would like to keep their current job, and 17% are unhappy with their jobs. Some of the graduates

do not have confidence in what they have learned and they believe that they are not sufficiently qualified for the careers they desire.

More than half of the respondents declared that their current occupation or study courses are not related to the training received in the Middle Technical College. This could be due to misallocation of graduates upon entry to the MTCs as they are primarily distributed to a course of study based almost exclusively on their secondary school exam grade. Although students can indicate multiple specialties for admission to a college, the number and distribution of specialties at the colleges does not always reflect student interests or labor market needs. This causes many students to be forced into less desirable specialties, some of which are also different from the specialties taken at secondary technical schools (the major course of College students). For example, females may be forced into welding and machine shop specialties, due to lack of capacity in textile programs, even though students want into textile programs and there are job opportunities in the textile or ready-made clothes industry. The survey asked the graduates about their employment and indicated 12 jobs related to their specialties at the Colleges. Surprisingly, the majorities are working in other specialties than the 12 indicated on the survey and they did not mention the nature of these other jobs.

Faculty members, families, friends or other students have assisted 73 % of the graduates in their choice of employment and/or training after having completed their studies at the institute. But there is no institutional plan to help the graduates to find a proper job and the majority of job opportunities were supported individually. Some local business owners assisted graduates in finding employment, but graduates did not report any assistance from private employment offices or by the Ministry of Manpower employment offices.

A good percentage of the graduates think their teachers have good knowledge about their fields but lack pedagogical skills to teach effectively. This is a positive sign of trust in the knowledge of their teachers. On the other hand, they strongly believe that MTCs need to improve and upgrade laboratories, workshops and equipment. Moreover, they indicated that they would like more time for individual student use of equipment and for the MTCs to provide job placement services. Nine percent indicated they felt that the curriculum content needed to be improved to prepare them to enter universities and 9% wanted the examination and grading system improved. Seventy-nine percent of the sample indicated that the types of institutions they are attending for further education and training are public Universities. In addition, the primary reason for attending further education is to prepare for a better job followed by preparing them for their role as family members and better citizens.

V. Recommendations:

Due to the fact that only 19 % of the 1890 invited graduates participated in the survey, the results of this survey should be treated with caution. Because of the small sample size, any attempt to do sub-group analysis (i.e. by area of specialization, college, and institute) should be done with great caution and primarily treated as anecdotal information.

4. Employment of Graduates:

- Establish an alumni and job placement office at each College, with proper hardware and software equipment and trained human resources.
- Conduct an annual job fair to support their students in finding jobs. This will help reduce the level of unemployment of graduates and help create awareness for the market among the specialized institutions at MTCs (job fairs could be combined with the previous recommendation on the annual survey).
- Create career guidance services at each College, in cooperation with secondary schools, to help the students in their initial selection of careers and specializations that meet their interests and aptitudes and labor market needs

5. Content and Structure of Training:

- Implement internal surveys to ask students to express their opinion of their training during the time they are at the Colleges. This should be done yearly in every program taught within the College. This also will help the administration to write an annual report on their activities which will be needed to accredit the school in the future.
- MOHE and MTCs should immediately take actions to reduce the number of students working on each set of equipment to give them a better chance to achieve practical skills. This will happen either by buying more equipment or managing the time of laboratories more efficiently (i.e. double shifting). If double shifts are implemented to reduce class sizes, the Ministry of Higher Education must not add students to a College or the purpose of implementing the double shift will be negated

6. Employment Policy – Meeting Labor Market Needs and Increasing Productivity

- The Ministry of Higher Education, in cooperation with the MTCs, should complete annual employer surveys, in parallel with graduate surveys, to provide information to reduce and/expand program offerings in different specializations based on labor market needs and student interests (see Annex E, Employer Survey).

Survey Document

Graduate Survey

Dear Graduates of the Middle Technical Institutes

You are being asked to participate in the survey as a graduate of the Middle Technical College (MTC) and your answers to the survey will provide the Ministry and Institute with valuable information to improve programs at the Middle Technical College, the employability of graduates, and productivity of the economy.

Three Middle Technical Colleges are conducting this survey, with the support of the Ministry of Higher Education and Research, with resources from the United States Agency for International Development.

The survey data are confidential and will not be released to anyone. The results will be used exclusively for research purposes to assess your satisfaction with the MTC programs, and will be presented only in aggregated form. Your name and any other identifying details will never be shown in any published or otherwise presented material.

We ask you to review the questions carefully, select and circle the options that most closely reflecting your opinion. If no answer fits, please offer your own option. We will randomly pick three completed returned surveys from the alumni participating in the survey and give prizes to the three persons selected.

a)

Thank you in advance for cooperation
Ministry of Higher Education and Scientific Research
Arab Republic of Egypt

1. Circle a number from the list below which best indicates your current status:
 - a. Student continuing education full time
 - b. Working and continuing education and training
 - c. Military service
 - d. Employed by an enterprise, firm, or government office
 - e. Self-employed
 - f. Unemployed and looking for work
 - g. Married, not seeking employment
 - h. Other (specify) _____

2. Circle the number from the list below which indicates how far you moved after graduating from the Middle Technical Institute?
 - a. Did not move
 - b. Less than 50 Kilometers
 - c. Between 50-100 Kilometers
 - d. Over 100 Kilometers

3. How related is your current course of study, or occupation if you are working, related to the training you received at the Middle Technical Institute?
 - a. Directly related
 - b. Somewhat related
 - c. Not related

4. Who assisted you the most, while you were at the Middle Technical Institute, in your choice of employment and/or training after you completed your studies at the Institute (*circle one or two numbers*)?
 - a. On my own
 - b. MTI Faculty
 - c. Other students
 - d. Parents, relatives and friends
 - e. Local business owners
 - f. Ministry of Manpower Employment Offices
 - g. Private Employment Offices
 - h. Other (specify) _____

- 5 If you could **improve the services** which you received at the Middle Technical Institute, which of the services do you think need the most improvement (*circle up to three numbers*)?
- Teachers knowledge of material
 - Teachers presentation of material
 - Laboratories, workshops and equipment
 - Allow more time for individual student use of equipment.
 - Content of Curriculum to prepare you for employment
 - Content of Curriculum to prepare you to enter university
 - Exams and Grading system
 - Job Placement Services
 - Support services (i.e. library, health and food services, recreation).
6. If you are employed, what is the nature of your employment (*if you are not employed, skip the question and go to question K*)?
- Full time
 - Part time
7. If you are employed, indicate the sector of employment by circling the appropriate number from the list below (*if you are not employed, skip the question and go to question 10*).
- Agriculture
 - Marketing and sales
 - Health Sector
 - Financial and accounting
 - Clerical, secretarial, office work
 - Mechanical and engineering
 - Construction
 - Metals fabrication
 - Textiles including ready made garments
 - Communications
 - Services, including tourism
 - Government civil service
 - Other (specify) _____
- 8 If you are employed, circle the statement below that best describes your feelings about your job (*if not employed, skip the question and go to question 10*)?
- I like my job and would like to keep it
 - I am satisfied at the moment but would like to find another job
 - I am unhappy with my job
 - Other (specify) _____

- 9 If you are employed, but your employment is not related to your training or you are unemployed and looking for work, circle the primary reason from the list below.
- I tried but could not find a job in the occupational area I was trained in at the Institute
 - I did not feel sufficiently qualified in the field I studied at the Institute
 - I found I did not like the type of work found in the area I studied at the Institute
 - I found the pay was too low for the type of work found in my area of study
 - Better employment came along before I found a job in my area of study
 - I never intended to work in my area of study
 - I intended to take more training before taking a job
 - Other (specify) _____
10. If you are presently attending further education or training indicate the type of institution from the list below (*if you are not attending further education, skip the question and go to question 12*).
- Public university in Egypt
 - Private university in Egypt
 - Public or private post secondary college or university outside Egypt
 - Public vocational or technical institute attached to a Ministry (i.e. Ministry of Housing, Ministry of Trade and Industry, Ministry of Manpower, etc.)
 - Private vocational or technical institute
 - Other (specify) _____
11. If you are presently attending further education or training indicate the primary reason for attending from the list below (*if you are not attending further education, skip the question and go to question 12*).
- To prepare for a job
 - To prepare for my role as a family member and become a better citizen
 - To satisfy my family
 - I don't know what else to do
 - To reduce and delay military service
 - Other (specify) _____
12. Name and code number of Institute (*from list provided by supervisor*) _____ Code _____
13. Name of Specialization and code number (*from list provided by supervisor*)
_____ Code _____
- 14 Are you male or female (*circle the correct response*)
- Male
 - Female

Optional Questions but needed if you want to qualify for the prizes for filling out the survey.

15 Background information

Name _____

Address _____

Telephone # _____

16 Employer Information (if employed)

Name _____

Address _____

Telephone # _____

**Thank you for your cooperation.
Add any comments you may have below**

أعزائي خريجو المعاهد الفنية المتوسطة

برجاء المشاركة في مسح خريجي المعاهد الفنية المتوسطة وسوف تساعد إجاباتكم على هذا المسح كل من الوزارة والمعهد من خلال توفيركم للمعلومات المفيدة في تحسين برامج المعهد الفني المتوسط وتزيد من فرص توظيف الخريجين كما سترفع من الانتاجية الاقتصادية.

تُجري هذا المسح ثلاث معاهد فنية متوسطة وذلك بدعم من وزارة التعليم العالي والبحث العلمي والوكالة الأمريكية للتنمية الدولية.

تُعتبر المعلومات التي يحتوي عليها هذا المسح سرية ومن ثم فلن يتم إتاحتها لأي أحد. كما سيتم استخدام النتائج التي سيخلص إليها هذا المسح للأغراض البحثية فحسب وذلك لتقييم مدى رضاكم عن برامج المعاهد الفنية المتوسطة. وسوف يتم تقديم هذه البيانات في شكل مجمع فحسب اما اسمك وبقية التفاصيل الخاصة بشخصك فلن تظهر في أي مواد منشورة أو أي مواد يتم تقديمها للجمهور.

برجاء قراءة الأسئلة بعناية ثم اختر وارسم دائرة على أكثر الخيارات التي تعبر عن رأيك. وفي حالة عدم تعبير أي من الاختيارات عن رأيك قم بإضافة رأيك الخاص. سوف نختار بشكل عشوائي ثلاثة مسوح من مجموع مسوح الخريجين المشتركين في هذا البحث ونمنح هؤلاء جوائز.

الشكر الجزيل لمشاركتكم وتعاونكم

مع
وزارة التعليم العالي والبحث العلمي
جمهورية مصر العربية

1. ضع دائرة حول الحرف الذي يحدد بدقة وضعك الحالي :
- طالب في مرحلة استكمال تعليمه بشكل متفرغ
 - تعمل وتستكمل تعليمك وتدريبك في ذات الوقت
 - تؤدي الخدمة العسكرية
 - تعمل في مشروع أو شركة أو جهة حكومية
 - تعمل عمل حر
 - لا تعمل وتبحث عن عمل
 - متزوج ولا تسعى للعمل
 - غير ذلك (من فضلك حدد ما تقوم به)
2. ضع دائرة حول الحرف الذي يحدد بدقة المسافة التي ابتعدت فيها عن المعهد الفني المتوسط بعد تخرجك؟
- لم أتحرك
 - أقل من 50 كم
 - ما بين 50-100 كم
 - أكثر من 100 كم
3. إلى أي مدى تتصل الدراسة التي تقوم بها في الوقت الحالي أو الوظيفة التي تشغلها بالتدريب الذي تلقينته في المعهد الفني المتوسط
- تتصل به بشكل مباشر
 - تتصل به بطريقة أو بأخرى
 - لا تتصل به
4. من هو أكثر شخص قدم لك المساعدة أثناء دراستك في المعهد الفني المتوسط في مجال اختيارك للوظيفة و/أو التدريب بعد استكمالك لدراستك في المعهد (ضع دائرة حول حرف واحد أو حرفين)؟
- أنا وحدي
 - الأساتذة في المعهد
 - الطلاب الآخرون
 - الآباء والأقارب والأصدقاء
 - أصحاب المشروعات التجارية المحليين
 - مكاتب التوظيف التابعة لوزارة القوى العاملة
 - مكاتب التوظيف الخاصة
 - مصادر أخرى (حدد من فضلك)
5. لو أتاحت لك فرصة تحسين الخدمات التي حصلت عليها أثناء دراستك في المعهد الفني المتوسط فأبي من الخدمات الآتي ذكرها في حاجة ماسة إلى مثل هذا التحسين (ضع دائرة حول 3 أحرف)؟
- معرفة الأساتذة بالمواد الدراسية
 - طريقة شرح الأساتذة للمواد الدراسية
 - المعامل وورش العمل والمعدات
 - إتاحة المزيد من الوقت لكل طالب أثناء استخدامه للمعدات
 - محتوى المنهج الذي يعدك لسوق العمل
 - محتوى المنهج الذي يعدك لدخول الجامعة
 - الامتحانات وأسلوب إعطاء الدرجات
 - خدمات توزيع الوظائف
 - خدمات الدعم والمساعدة (المكتبة والخدمات الصحية وتوفير الغذاء وخدمات الاستجمام والترفيه)

6. إن كنت تعمل فما هي طبيعة وظيفتك (وإن لم تكن تعمل فتجاهل هذا السؤال وانتقل إلى السؤال رقم 7)؟
 أ. تعمل بشكل متفرغ (طوال الوقت)
 ب. تعمل بشكل غير متفرغ (جزء من الوقت)
7. إن كنت تعمل فحدد قطاع العمل الخاص بك بوضع دائرة حول الحرف المناسب من قائمة الاختيارات الآتي ذكرها (وإن كنت لا تعمل فتجاهل هذا السؤال وانتقل إلى السؤال رقم 10)
 أ. الزراعة
 ب. التسويق والمبيعات
 ت. قطاع الصحة
 ث. القطاع المالي والمحاسبي
 ج. الأعمال المكتبية وأعمال السكرتارية
 ح. الميكانيكا والهندسة
 خ. أعمال البناء
 د. تصنيع المعادن
 ذ. قطاع المنسوجات بما في ذلك الملابس الجاهزة
 ر. الاتصالات
 ز. الخدمات بما في ذلك السياحة
 س. وظيفة حكومية
 ش. غيرها (حدد من فضلك)
8. إن كنت تعمل ضع دائرة حول العبارة التي تعبر عن مشاعرك تجاه عملك (وإن لم تكن تعمل تجاهل السؤال وانتقل إلى السؤال رقم 10)
 أ. أحب عملي وارغب في الاحتفاظ به
 ب. أنا راض عن عملي في الوقت الحالي ولكن أرغب في إيجاد عمل آخر
 ت. أنا غير راض عن عملي
 ث. غير ذلك (حدد من فضلك)
9. إن كنت تعمل ولكن وظيفتك لا علاقة لها بالتدريب الذي تلقيتَه أو كنت لا تعمل وتبحث عن عمل ضع دائرة حول السبب الرئيسي لذلك من قائمة الاختيارات الآتي ذكرها.
 أ. حاولت ولكني لم أجد وظيفة في المجال المهني الذي تدربت عليه في المعهد
 ب. لم أشعر أنني حصلت على الكفاءة المناسبة في المجال الذي درسته في المعهد
 ت. اكتشفت أنني لا أحب نوع العمل الذي درسته في المعهد
 ث. وجدت أن أجر العمل في مجال دراستي ضعيف جداً
 ج. حصلت على وظيفة أفضل قبل أن تتاح لي فرصة العمل في مجال دراستي
 ح. لم أكن أرغب أبداً في أن أعمل في مجال دراستي
 خ. كنت أرغب في أن أتلقى تدريب أكثر قبل أن أحصل على وظيفة
 د. أسباب أخرى (حدد من فضلك)
10. إن كنت تتلقى المزيد من التعليم أو التدريب في الوقت الحالي حدد نوع المؤسسة التعليمية من قائمة الاختيارات الآتي ذكرها (إن لم تكن تتلقى المزيد من التعليم تجاهل هذا السؤال وانتقل إلى السؤال 12).
 أ. جامعة حكومية في مصر
 ب. جامعة خاصة في مصر
 ت. معهد عالي أو جامعة حكومية أو خاصة خارج مصر
 ث. معهد مهني أو فني تابع لوزارة (مثل وزارة الإسكان، وزارة التجارة والصناعة ووزارة القوى العاملة الخ)
 ج. معهد مهني أو فني خاص
 ح. مؤسسة أخرى (حدد من فضلك)

11. إن كنت تتلقى المزيد من التعليم أو التدريب في الوقت الحالي حدد السبب الرئيسي لذلك من قائمة الاختيارات الآتي ذكرها (إن لم تكن تتلقى المزيد من التعليم تجاهل هذا السؤال وانتقل إلى السؤال 12).

- أ. لإعداد نفسك لوظيفة ما
ب. لإعداد لدوري كفرد في العائلة ومواطن أفضل
ت. لإرضاء عائلتي
ث. لا أعرف ما الذي أستطيع أن أقوم به غير ذلك
ج. للتقليل من فترة خدمتي العسكرية أو تأجيلها
ح. أسباب أخرى (حدد من فضلك) _____

12. اسم معهدك والكود الخاص به (من القائمة التي أعطاها لك المشرف) _____

كود

13. اسم التخصص ورقم الكود (من القائمة التي أعطاها لك المشرف) _____

كود

14. هل أنت ذكر أم أنثى (ضع دائرة حول الإجابة الصحيحة)

1. ذكر
2. أنثى

أجب على الاسئلة الاختيارية الآتية إن رغبت في أن تتأهل للحصول على جوائز استكمال هذا المسح

15 معلومات عن خلفيتك

الاسم _____

العنوان _____

رقم التليفون _____

16 معلومات عن صاحب العمل

الاسم _____

العنوان _____

رقم التليفون _____

شكراً على حسن تعاونكم
أضف أي تعليقات لديك أدناه

ANNEX G:

BASELINE STUDY FOR EL-MATARYIA TECHNICAL COLLEGE

- I. Introduction
- II. Governance and Finance
- III. Administration and Institutional Support
- IV. Curriculum
- V. Faculty Competence
- VI. Facilities and Equipment
- VII. Program Accountability and Evaluation
- VIII. Skill Standards
- IX. Design and Delivery of Programs Meeting Industry Needs
- X. Employer Survey Finding
- XI. Graduate Survey Findings
- XII. Annex
- XIII. Distribution of Education Staff

I. Introduction

This Report presents the results of a GAP Analysis of Mataryia Technical College. The Report should be read in conjunction with the summary report of all three colleges. This analysis was carried out by a team of international and Egyptian consultants and completed on June 20, 2008.

Objective of the GAP Analysis:

The objective of the GAP analysis is to assess the status of technical college administered by the MOHE. This analysis will establish the relevant norms and standards (desired state) from which the remaining Middle Technical Colleges (MTC) will be analyzed. The results of these analyses, the gap between the current state and the desired state, are intended to aid MOHE strategic planning, quality assurance and accreditation, and capacity building of the eight MOHE Technical Colleges as well as new technical colleges to be established.

Phases of the GAP Analysis:

Phase I of the GAP Analysis developed baseline information on Mataryia Technical College and refines the model template and procedures. This will assist other Colleges in conducting self-assessments and identify short-comings in college operations that need to be addressed to improve program quality, cost effectiveness, and relevance for graduates vis-a-vis the labor force. Phase II finalized the framework for the GAP Analysis, identified norms, and provided recommendations for closing the GAPS. Phase III of the GAP analysis will focus on dissemination and discussion of the recommendations of the GAP analysis and strategies for future self-assessments.

General Structure of the College:

Mataryia Technical College consists of four institutes including tourism and hotel, optics, Shubra commercial and industrial, Mataryia commercial and industrial institutes. The AED team visited Mataryia Technical College three times. The first visit was to the Mataryia campus with four institutes, three of which receive support from the Higher Education Enhancement Project (HEEP). The second visit was to the commercial and industrial institutes at Shubra.

Organization of this Report:

The baseline report summarizes the status, strengths and weaknesses of the Mataryia College on the topics of governance and finance, administration and institutional support, curriculum, faculty competence, facilities and equipment, program accountability, skill standards, and design and delivery of program meeting industry needs. This is followed by a summary of the planned design and implementation of two surveys (MTC graduate follow survey and employer survey) which will provide additional baseline information on the above topics⁴⁵. The report also contains some Annexes to provide more information on the above mentioned topics.

⁴⁵ Note that there has not been any attempt to draw detailed conclusions from the data presented on the employer and graduate surveys at individual colleges due to the low number of surveys completed. Summary level conclusions and recommendations, based on data compiled for all three colleges, has been provided for both surveys

II. Governance and Finance

Mission, Vision and Goals: The College does not have its own mission statement or announced vision and goals, however, the general mission statement for all technical colleges in Egypt, article one, ministerial decree #2655, October 2006 guides the college's mission, values and goals.

Strengths: There is an overall mission statement for all technical colleges in Egypt.

Weaknesses: The overall mission statement is not well known, publicized or disseminated. The general mission statement guides technical colleges throughout Egypt. Neither Mataryia Technical College, nor any of their institutes have developed their own mission statement in response to local community markets/needs. A complicating factor is that while the overall mission is primarily to prepare youth for the workforce, there are competing social and political missions which, although not explicitly stated, have a large influence on operation of the colleges and the quality of instruction (i.e. the large enrollment increases without parallel support for facilities, equipment, and instructors). Any evaluation of the mission of the College must take these latter issues into account.

Quality Policy: The College has a quality center operated by a committee consisting of four staff members and one administrator. Each institute has a quality unit guided by four staff members and one administrator. These quality units were established in 2008 but no quality policy is in place.

Strengths: A quality system has been initiated which demonstrates management's commitment to quality.

Weaknesses: No overall quality policy exists at individual colleges. Committee members are appointed to serve without remuneration or schedule adjustment.

Funds and Finances: The fiscal year is July 1- June 30. Each Institute prepares a budget request which is consolidated at the College level and is sent to the MOHE for approval and fund allocation.⁴⁶ Budgets include very little discretionary funds. Students pay fees of approximately 80 LE per year of which 16% goes to the M of HE and the balance is used for student activities. About 20% of students receive social support to pay fees. The 2007-2008 college budget is 9.1 million LE of which 8.6 million LE is salaries (95%). Salaries are distributed to institutes while the remainder of funds is allocated as a lump sum to the college.

Special Production and Training Units. According to the technical college by-laws (ministerial decree 2655, October, 2006) each college should have its own by-laws for Special Units and

in Annexes E and F of this Report, Survey data from individual colleges should primarily be treated as anecdotal, due to the low number of responses, and not used to develop policy and program changes at individual colleges and institutes.

⁴⁶ The team learned that budget requests would typically be funded at 60% for non-salary and 100% of salary requests.

Service Center that will provide self-generated income. Mataryia Technical College submitted a proposal for this to the Ministry of Higher Education. To date their proposal has not been approved.

Strengths: There is a secure salary financial status.

Weaknesses: The College has very little flexibility or control of funding. Salaries and maintenance budgets are centrally determined and controlled by the MOHE. This makes it difficult to move from a supply driven to a demand driven state and may preclude providing training to meet local needs. There is very limited funding for maintenance and supplies (5% of total budget). There is also considerable funding available from the Ministry for Trade and Industry for short term in- service training for workers, but the Colleges do not apply for these funds partially because the flexibility to respond. There is a potential for conflicts between the production (to earn money) and training, and a major portion of the funds generated are not currently retained at the colleges.

Corporate Branding: The College has a logo. But it is not widely used. There are no college promotional/marketing materials or other documents nor are there promotional campaigns. The college does not have to compete for students as they are admitted by the MOHE. No course catalog exists.

Strengths: College is guaranteed student enrollment and does not have to compete for students.

Weaknesses: Students are admitted centrally so the college does not develop a corporate brand to attract them.

III. Administration and Institutional Support

Management Team: All technical colleges are public institutions and all staff have civil service status and are hired centrally by the Ministry of Higher Education. Teachers must possess a B.Sc. degree or equivalent. Work experience is not required to teach. The college's organizational chart which lists employees by institute and type employment can be found in the Annex. In the by-laws written job descriptions for the College Director and Vice Directors (2) and the Institute Director and Vice Directors (2) are included. Teaching staff have defined teaching load and a list of staff is included in the Annex.

Strengths: Employees of technical colleges have job security and do not have to be concerned about dismissal.

Weaknesses: Centralized hiring limits flexibility of the local technical college to staff according to local needs. Civil service salaries do not provide incentives for job satisfaction and make it difficult to make necessary staff changes (hiring, dismissal, rewarding, etc). The Boards of Trustees meet infrequently, minutes of meetings were not available and local administrators were not able to cite major actions of the Board at the three colleges visited by the AED team.

Rules and regulations: State public rules, regulations and policies apply to the College. This applies to admissions policies and regulations as well as student policies and responsibilities related to admissions and studies therefore local policy for these areas is not allowed. College web page is under construction. The college communicates policies, regulations and procedures to students through teachers.

Strengths: State public rules provide adequate reference that provides a uniform system through the technical colleges.

Weaknesses: There is no facility to generate local rules and regulations to meet local needs. At present there are no approved plan/bylaws for decentralization to support development of rules and regulations to meet local needs. Colleges have not provided suggested bylaws to support decentralization as requested by the MOHE. There appears to be a lack of knowledge and guidance from the MOHE to Colleges as to what form the bylaws should take, and which areas they should address (i.e. governance, finance, management, personnel management, governance, student selection, curriculum design, evaluation, etc.).

Student Admissions Process: The College indicates the MOHE sets their capacity, and assigns students nationally. Students completing technical secondary school or general secondary school are allowed to list their priorities for advanced study in the Technical College. The process of admitting students is done centrally by the MOHE considering the students' grade point average. The college must have approval of the MOHE to change curriculum. They have successfully gone through the process of minor curriculum change in the Hotel and Tourism Institute.

Strengths: The possibility of curriculum change exists when needed. A process for these changes exists.

Weaknesses: Curriculum is determined and changed centrally by the MOHE. This does not always take local market needs into consideration. The number of students assigned is often more than College capacity which causes overcrowding. Students may be allocated to individual institutes and specialties, based on secondary school grades or lack of capacity in a particular specialty at the College, which may result in assignment to areas which do not meet student interests or needs or do not reflect the training taken at the Secondary Technical School level.

Records: Records are mainly paper records. An electronic records system is just being started. Payroll is done manually by 8-9 staff in each institute. Student exam papers are kept for three years and achievement records kept in three records (institute, college, MOHE). These records are kept in the institutes for five years. Student can access their records and obtain transcripts of their work for a fee.

Strengths: There is a system for keeping records. College is starting to develop an electronic system for records, payroll, etc.

Weaknesses: Delay in developing an electronic system and backup systems of records. It appears that a management information system is not currently being considered.

IV. Curriculum

Status: Development of the syllabi for all curricula for the Technical Colleges is done at the national level under the direction of the Ministry of Higher Education. A team is created to develop the syllabus for each program to be offered. The typical team consists of a professor, an employer, and a teacher from a technical college. Some teams may have more than one member from each of these positions. For most of the industrial specializations (air conditioning and refrigeration, electricity, etc.) the committees begin their work with the Egyptian national skill standards that have been developed by the Industrial Training Council (see discussion below under Section VIII).

The syllabi committees establish the objectives of programs and determine the percentage of instruction to be delivered in theory and practice. The syllabi that these teams create are taught in all technical colleges. Faculty at the local level may suggest changes in the syllabi, but all suggestions must be referred to the appropriate national committees for review.

It is the responsibility of teachers at the technical colleges to develop the content for the syllabi, but they do not have copies of the skill standards. Almost all of the textbooks for the programs are written by two teachers from the technical colleges. The Ministry of Higher Education chooses these teachers. Teachers at the three colleges visited complained that some of the authors who are selected do not have wide knowledge of the content areas for their textbooks. Most of these texts do not receive an independent review to ensure their accuracy. Several examples of inadequate textbooks were show to us. The topic for a text in commercial studies, for example discussed communication methods. It was published in 2007, but makes no reference to the Internet or e-mail.

Strengths: Centralized development of syllabi ensures that framework for a given program area is uniform across the country. National skill standards provide a solid basis for a syllabus. Centralized development also makes it possible to identify individuals who are expert to serve on the syllabi committees.

Weaknesses: A small committee, typically three people, regardless of their level of expertise, is unlikely to reflect the full range of knowledge within a given occupational area. A standardized syllabus does not allow local modifications to meet local needs. There is little on-job-training (except for the Americana special project for about 100 students) nor is it an integral part of the curriculum. There is no entrepreneurship training integrated into the curriculum, even though the majority of employment opportunities are in the small informal or formal sector, both being an integral part of the supply chain for large enterprises.

V. Faculty Competence

Status: Teacher Preparation: Instructional Staff at Technical Colleges do not often have work experience in their field of instruction. Typically teachers begin their careers following graduation from a university. One must be a graduate of an arts, sciences, engineering, or information technology faculty to receive the title of "Teacher" in a technical institute, which means they teach the theory of a given occupation in lecture classes. They are engineers and in

most cases have not received preparation in pedagogy. Trainers are responsible for the practical instruction in the workshops. Any trainers who are hired under the Higher Education Enhancement Project (HEEP) must have a four-year degree from an engineering, information technology, or technical-vocational education faculty. Technicians also provide instruction in the workshops. There are no higher education degree requirements for technicians, but they must have graduated from a vocational-technical high school.

Status: Teaching Methodology. Teachers lecture on the theory while trainers and technicians provide hands-on practice. In the colleges that we visited we observed both lectures and workshops. During the visit to Mataryia, no students were observed in workshops. The condition of the workshops was not good. Several had new equipment that had been provided by the HEEP, but little of it was in use. There were two especially egregious examples: a culinary arts and an electricity workshop.

Shoubra Middle Technical Institute that has been merged into the Mataryia Technical College was also visited. None of these workshops had received equipment from the HEEP. There were a group of approximately 10 students around each work station. One student performed a task while the others observed. In the computer laboratory there were 24 work stations, but only 7 students and the class had a poor attendance record. The consultants visited two theory classes at Mataryia. One was a large lecture hall with about 90 students who were the second group of participants in the Americana project. The teacher used lecture, group recitation, and student questioning. He employed no media. The whiteboard in the lecture hall was covered with writing that had been done with permanent ink, and consequently could not be used for instruction. The students had no books and took no notes. The second theory class was in tourism and hospitality and had 12 students. The instructor drew a diagram on the whiteboard and called upon the students to add parts to the diagram. A few of the students had books, but we did not see any students taking notes. The ratio of students to teachers at Mataryia is 70 to 1. Each student has one hour of computer experience per week, but that seems highly unlikely. The enrollment figures indicate there are over 15,000 students enrolled. There were only 72 computers in the labs. None were linked to the Internet, and software is not provided. The trainers must often use illegal software.

Status: Faculty Continuing Education. Technical College contract trainers who do not have their degree from an education faculty are given six days of training in pedagogy. This training is a requirement for promotion. Teachers and trainers reported that they participated in training opportunities provided by the Ministry of Higher Education and did self study. The teachers and trainers did not receive professional development in the new syllabi that were developed for the HEEP.

Status: Learning Processes. The number of students per workstation is large. With so many students sharing equipment, it is difficult for them to have sufficient practice to acquire the manipulative skills required in many occupations. The number of workstations per students was especially low in the computer laboratories. For example, in one Institute students received one hour of computer instruction per week, and in some program more time. When the numbers of students enrolled is compare to the number of computers available, it would not be possible for all students to receive an hour a week, even if there were two or three students at each computer.

The absence of software is another problem in the computer laboratories. In the theory classes, the students appeared attentive and answered questions promptly, but they took no notes to reinforce their learning.

Strengths: The four year degree requirement ensures that entrants into the teaching profession have a broad theoretical background in the occupations that they teach. Trainers who have graduated from a vocational-technical education faculty also have received preparation in the pedagogy appropriate for practice instruction.

Weaknesses: Little or no occupational experience is a weakness of the current method of teacher preparation. Teachers teach what they have been taught, not necessarily the skills needed to be a proficient worker. Actual experience in an occupation provides a perspective that cannot be gained by studying that occupation. There is a wide gap between understanding how a car runs and being able to diagnose and repair a car that is not running. Some of these skills can be learned through study in a formal setting but actual experience performing tasks in the labor market improves one's ability to teach.

Separation of instruction in theory and practice occurs in many countries, but in our judgment results in less effective instruction. Practice should be grounded in the theory that underlies it, and this is facilitated if the same instructor delivers both. This weakness, however, is minor in comparison to the poor condition of the workshops we visited. Culinary arts should never be taught in such a dirty workshop.

VI. Facilities and Equipment

Planning and Design. Plans for refurbishments are prepared through the General Administration for Management (GAM), via external consultants. Plans for new buildings are generated through the General Administration for Engineering Affairs (GAEA) by external consultants. They often contract with outside professionals. Note: In a few cases, HEEP plans are done with external consultants. Specifications for 1) classrooms, 2) laboratories, 3) workshops, and 4) administration and support spaces are available only for private institutes. The AED team could not analyze the baseline conditions of the technical colleges because of the lack of Drawings and Specifications or because they were not submitted to our team in a reasonable time. Funds for design and planning are insufficient in nearly all cases to provide the level of documentation necessary to assure coordinated planning of refurbishments and for new construction.

Strengths. This process assures consistency and control. The use of outside professionals exposes the design process to fresh ideas and, if properly monitored, control of costs.

Weaknesses. This separation from the end user (the colleges themselves) often does not give them the product they want. The common complaint is that the technical colleges have no input in the programming or design process. They are simply told what they are getting. The discrepancy between what is installed vs. what was planned could be understood to accommodate the needs of particular instructors but in many cases, clearances to ensure safety or efficient operation of equipment are violated. These unsafe conditions project an indifference to the welfare of the students.

The Construction Process. Contractor selection and construction oversight is done by GAEA together with their consultant. GAEA hires outside consultants in nearly all cases where the work is in outlying areas. The completed construction is accepted by GAEA, but payment authorization lies solely under the authority of the Head of the Central Administration for Engineering (CAE) or his representative.

Strengths. This assures control and standardization of construction procedures throughout the country. Contractors know what to expect from the tendering of these projects, which should equate to lower costs.

Weaknesses. In the view of the Consultants, and those interviewed re this aspect the conclusion was that the concentration of approval authority (under the Head of CAE) creates a processing bottleneck, as the CAE is also responsible for ongoing maintenance projects. Modifications to reflect the needs of client colleges are not considered. They simply have no input on scope of work, site layout, materials or finishes or accommodation of new technology.

Space and Equipment. Computer work stations in the labs were lined up facing the exterior walls (see attached Photo #1)—an inefficient use of space, in that this required greater distance for the instructor to move across the 6 m. wide room. Additionally, all students facing the east wall had to endure the direct glare of the sun during morning hours, reducing concentration and learning. Equipment in labs and workshops is not as shown on the Plans. In one computer laboratory, 7 of 30 computers were missing. This is over 23%.

Considerable amount (63 items, in one case) of new equipment (from HEEP project) that is not installed (Refrigeration and A/C equipment), although it has been on site for as much as a year. Rationale is that the supplier has not yet checked out the equipment; thus, it cannot be used until checkout is complete. In a number of cases, electrical power supply to equipment has been installed in an unsafe manner.

Strengths. Top floor workshops and labs have clerestory windows—an excellent design for indirect light. Forming and Traditional Machining Workshop provides 4-6 sq m of workspace per student. Using that allowable space per student meets usage standards. Hard surfaced floors and walls provide easy maintenance and longevity.

Weaknesses. Design and planning. Documentation (Plans) lacking or inconsistent with what's actually in place. Some of this could be understood to accommodate the needs of particular instructors but in many cases, clearances to ensure safety or efficient operation of equipment are violated.

Fenestration not designed or installed to reflect actual use of interior space; e.g., a bank of windows at side/front of classroom which had to be curtained off to cut interior glare. Repairs to broken/unusable parts; e.g., classroom door, besides being a safety hazard, projects an attitude of lack of caring on the part of administration. Safety. Single exit to classrooms presents a life-threatening safety hazard. Windows facing onto interior circulation hallways and to the exterior all are barred, preventing escape. Case in point is a classroom at Shoubria 2 Branch, which had a bird nest atop the fluorescent fixture. Should this short out, the ensuing fire and panic could affect many casualties. Only two classrooms currently have two exit doors. The Silk screening and Dying Workshop was highly dangerous, with open-flame Bunsen burners, an abundance of combustible materials (huge bolts of cloth and only one exit

Records and Storage. There are no criteria for classroom storage. However, each workshop and laboratory must have sufficient storage to secure supplies and equipment (a list of specifics is available).

Strengths. Plans available will be invaluable for planning, future modifications and budgeting and cost estimates.

Weaknesses. Documentation (Plans) lacking or inconsistent with what's actually in place. This partial record-keeping procedure defeats the purpose of documentation. It requires re-measuring, re-checking and the host of other tasks that must be accomplished to assure the validity of the record itself.

VII. Program Accountability and Evaluation

Quality Assurance: The college and institutes are beginning to develop a quality assurance system as contained in the HEEP project. The college and each institute have a quality assurance unit and committee. Each committee consists of four staff members and an administrator. Through the quality assurance system committee members attended quality assurance workshops and provided training for additional staff members. The institutes have developed course specifications and are going to produce course reports and action plans for course and program development for the coming year. In addition tools have been developed for the quality assurance process including templates for student, staff and stakeholder surveys. The quality assurance system started recently (January, 2008) includes plans for internal assessment and data analysis and control of nonconformance. However this is not completed at this time

Strengths: A quality assurance system has been initiated and work has started that the college and institute levels. It appears to be comprehensive and provides for staff involvement and input.

Weaknesses: There is a lack of widespread understanding and support of the quality assurance system by the staff and administrators.

Continuous Quality Improvement: Although a will was expressed for continuous improvement, there is not a system for continuous quality improvement in the management and operations areas. Due to centralization, college/institute management does not have the power or incentives to change current systems.

Strengths: Management appears to be aware of the need for improvement and is willing to achieve it.

Weaknesses: Absence of a system for continuous quality improvement. Centralization of management and operations functions reduces power for change at local level.

Teacher and Learning Assessment. The methods used at the Technical Colleges for teacher assessment include observations of teaching performance, student test performance and student feedback. The Quality Assurance and Accreditation Committee have developed for the Ministry

of Higher Education procedures for teacher assessment that incorporate, and in many ways, exceed prevailing international standards.

Learning evaluation practices used at the Technical Colleges include short quizzes, longer exams, and an end of term exam. The use of a nationwide, end of program examination, which is required in Egypt, is not as common. Colleges set examination for first year completers, while graduate examinations are set by the MOHE.

Strengths: The Quality Assurance and Accreditation Handbook provide a comprehensive guide for assessment of colleges, including the quality of their teachers. It includes templates for all phases of an institutional assessment and instructions for their use. Egyptian methods of evaluating student learning are consistent with international standards.

Weaknesses: The reviews did not see any major weakness in the quality assurance methods that have been developed, but saw little evidence that these methods are being used in the College. This is a new initiative in Egypt and will take many years to be implemented. Assessment of knowledge and performance by trainees at the end of programs did not appear to be linked directly to original skill standards, or use the assessments developed by the NSSP.

VIII. Skill Standards

The National Skills Standards Project (NSSP), located at the Social Fund developed skill standards and assessment materials for the past several years. The NSSP is closed however the Industrial Training Council is continuing the process. The objective has been to set standards equivalent to those of the European Union (a National Qualifications Framework project has been initiated by the European Training Foundation of the EU at the Ministry of Manpower). The Egyptian standards are based on analyses and comparisons of the standards that are used in such countries as Scotland, France, Germany, Denmark, Canada, and Jordan. For most occupations, five competency levels are specified. In Egypt these levels were roughly defined for us as laborer, skilled worker, master worker (supervisor of skilled workers), engineer, and professor. It is the goal of the Ministry of Higher Education Technical College Unit to have curriculum which will teach the knowledge and skills required by a level three master worker. Over 200 standards, for over 100 trades have been developed for industrial specialties. These standards have been provided to the Ministry of Higher Education for use in syllabus development. Unfortunately, these standards have not been provided to the technical colleges for use in development of content for the syllabi.

For those specializations in commerce, tourism, and social service, for which national skill standards are not available, workshops are conducted with employers. The employers are asked to describe the skills needed by their employees. The initial NSSP standards used a Functional Analysis approach, but a structured process is not used in the workshops.

Strengths: The existing skill standards provide a strong foundation for syllabi development. Many developed countries have adopted a similar approach. The existing NSSP standards appear to have been carefully developed and are of high quality.

Weaknesses: The teachers and trainers at the college level do not have the national skill standards for use in development of the content for the syllabi. An examination of the Level 3 skill standards on which the Colleges are to base their curriculum, are in general beyond the current level of instruction at the Colleges. This has multiple causes including, but not limited to, instructors who themselves do not have level three skills or work experience, lack of basic equipment and facilities which are key to developing more advanced skills on new equipment provided by HEEP. A major over riding problem is the overcrowding in classes resulting in “observation” rather than “doing”.

IX. Design and Delivery of Programs Meeting Industry Needs

Technical colleges should continually work to ensure their programs of study meet the needs of the labor markets that they serve. There is evidence that Mataryia is attempting to do so. The two primary examples are the Americana project and the new optics program. The Americana project is being conducted in cooperation with an Egyptian company that represents many American brands. One of these brands is KFC, the company that operates fast-food, chicken restaurants. The first 93 students in this project started in May 2007 and received six months, 1080 hours, of training. Only 10% of this training was theoretical. The other 90% was on-the-job. At the end of the program, 84 of the 93 received passing grades on both written and hands-on examinations, with almost all graded excellent (45%) or very good (37%). Unfortunately, only 10 of the students obtained jobs with Americana.

In response to a need expressed by the board of trustees, the college is attempting to develop an optics program. An administrator from the college has visited Germany to develop partnerships with similar programs and is working with two industry groups in Egypt. It is not yet operational. At Shoubra there were outlines for four proposed programs in biology and chemistry that are scheduled to be started in the near future.

The other programs are continuations of those that existed in the Middle Technical Institute. The Ministry of Higher Education makes the final decision on all programs that will be offered. Once programs have been established, they are rarely discontinued.

Strengths: Within the constraints of its limited decision-making authority, Mataryia is attempting to respond to the needs of its labor market.

Weaknesses: Decisions as the types of programs to be offered are made at the national level and do not draw upon a variety of information sources. Systematic follow-ups are not conducted to determine if graduates obtain employment in the fields in which they have been trained. No surveys are conducted with employers to determine the occupations for which they are having the most difficulty finding qualified workers. Faculty has no input into the kinds of programs that should be added or discontinued.

While there tends to be a pattern of specialties in the institutes which reflects the sector needs the proportions are not always appropriate. There appeared to be no plan to increase the breadth of enrollment in over subscribed specialties and reduce or close other under subscribed programs.

Colleges do not attempt to provide in service training for workers, for which funding is available from the Skill Development Project at Ministry of Trade and Industry. This will increasingly be a shortfall as Colleges obtain modern equipment under HEEP which could be used for training these workers.

Colleges do not appear to be developing or using performance and knowledge assessments available from NSSP which are based on skill standards, but rather use MOHE assessments based on curricula.

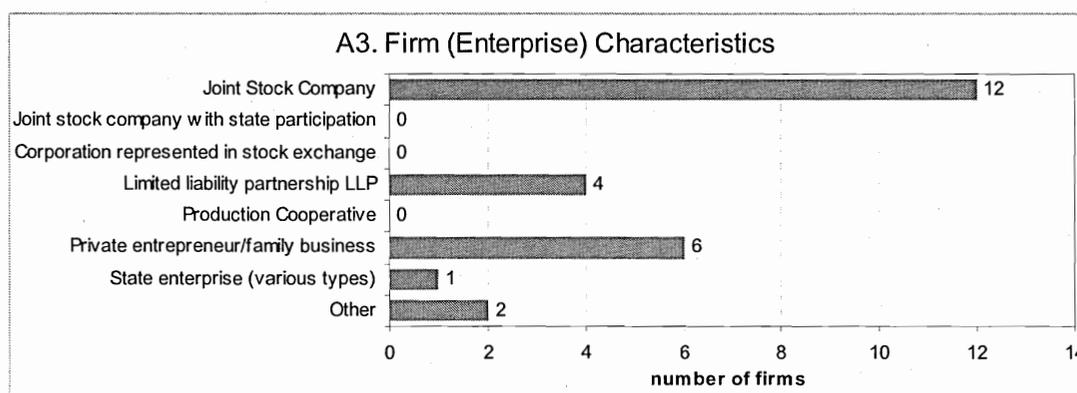
Boards of Trustees are basically dysfunctional. There is little On-Job-Training organized for students in the summer or during the year (the Americana Project is an exception for 100 students). It appeared it was difficult to find places, or the enterprises wanted payment for becoming involved in providing OJT for students.

X Employer Survey

Note: due to the small sample size caution should be taken in interpreting the results, not attempt has been made to draw conclusions, and the data should primarily be used as anecdotal information.

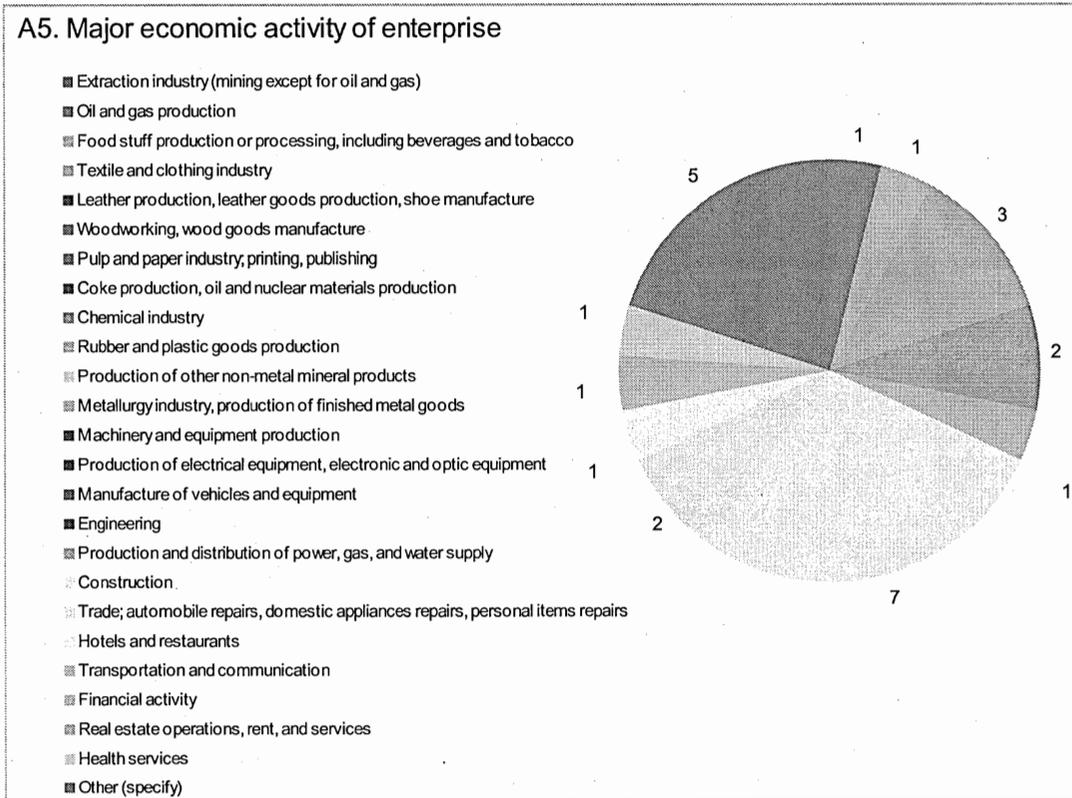
Results of the Survey ⁴⁷

- 1- **Characteristics of Firms in the Survey.** The majority of enterprises were joint stock companies, and private entrepreneurs, and 88% were established with local vs. foreign capital.

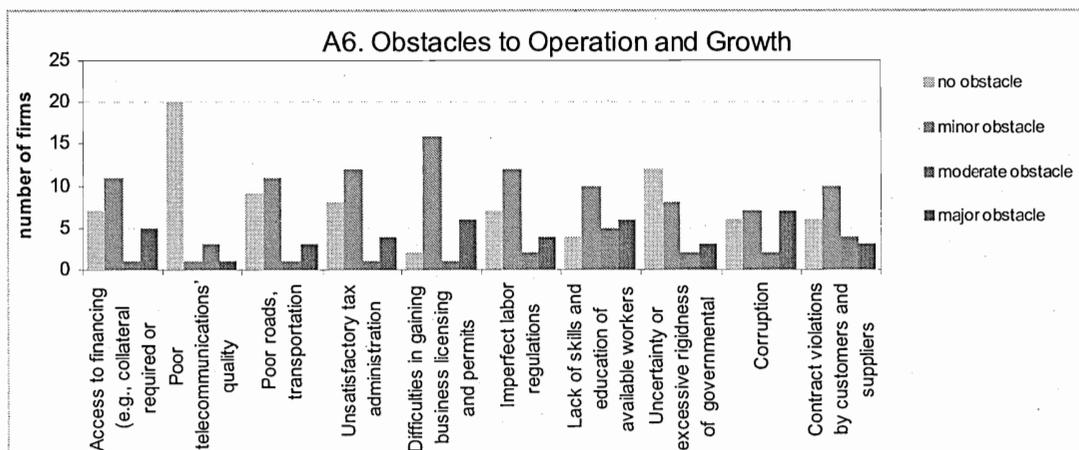


⁴⁷ Note that the letters/numbers on the charts refer to individual questions on the survey which is included in the annex of this report.

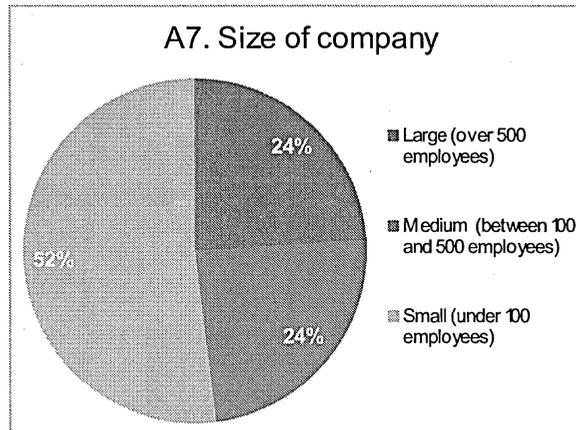
2- **Sectors represented by enterprises in the survey.** A wide variety of sectors were represented by enterprises involved in the survey. This variety helped ensure that the results were representative of overall employment issues.



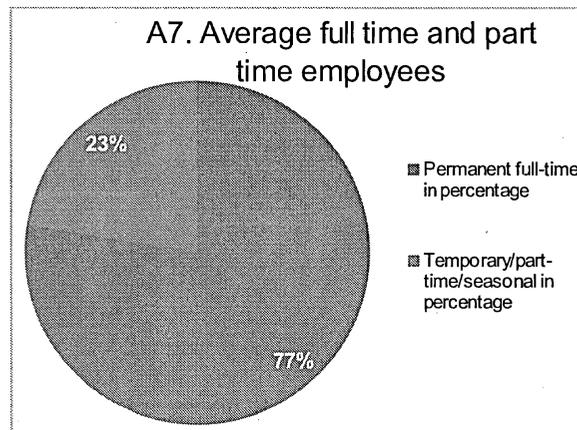
3- **The obstacles to operation and growth of enterprises.** Enterprises listed the lack of skills and education available to workers, and corruption, as several of the major obstacles to growth.



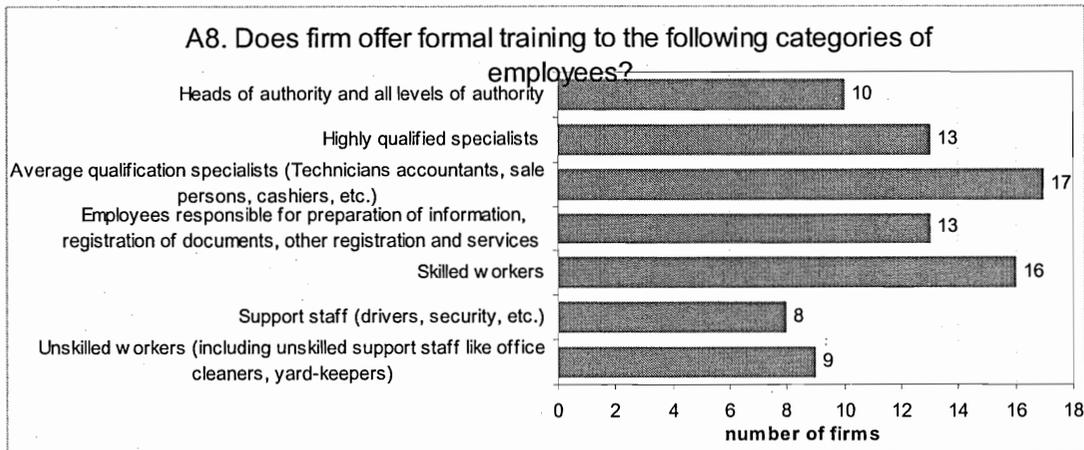
- 4- **Size of enterprises in the survey.** Fifty two percent of the enterprises were small, which is significant and important to the results of the survey as these firms generate the largest amount of employment in most countries.



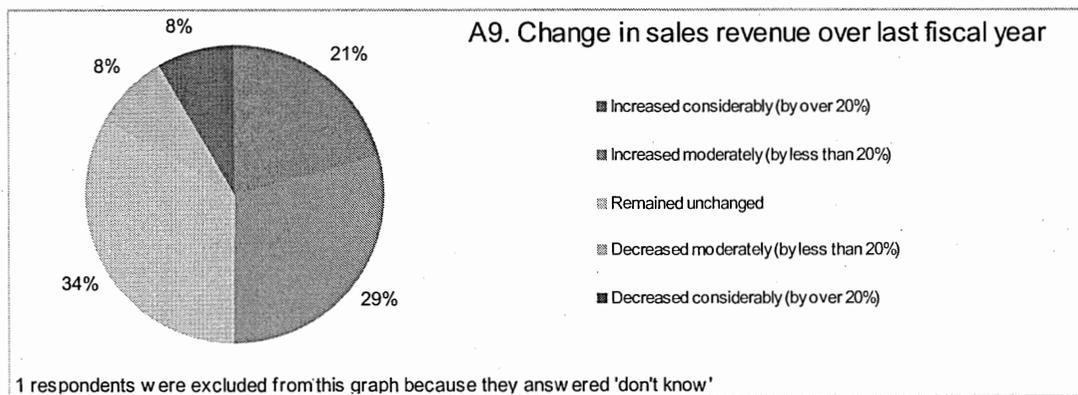
- 5- **Profile of full and part time employees.** Seventy seven percent of employees were full time.

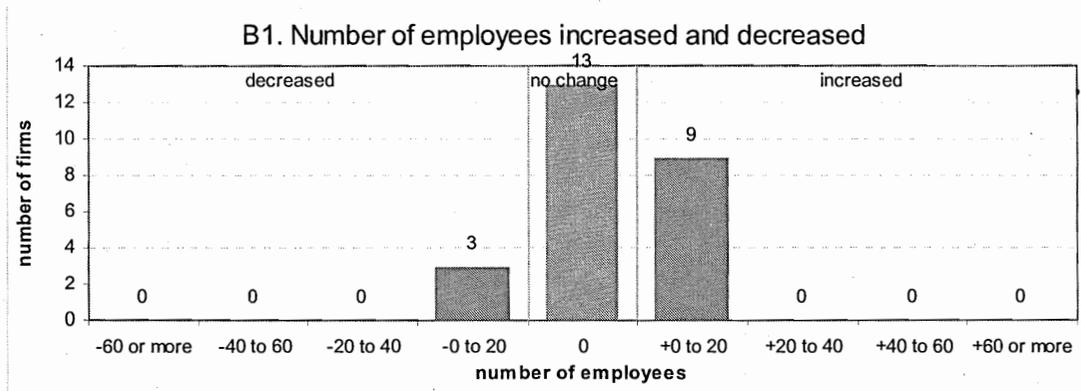
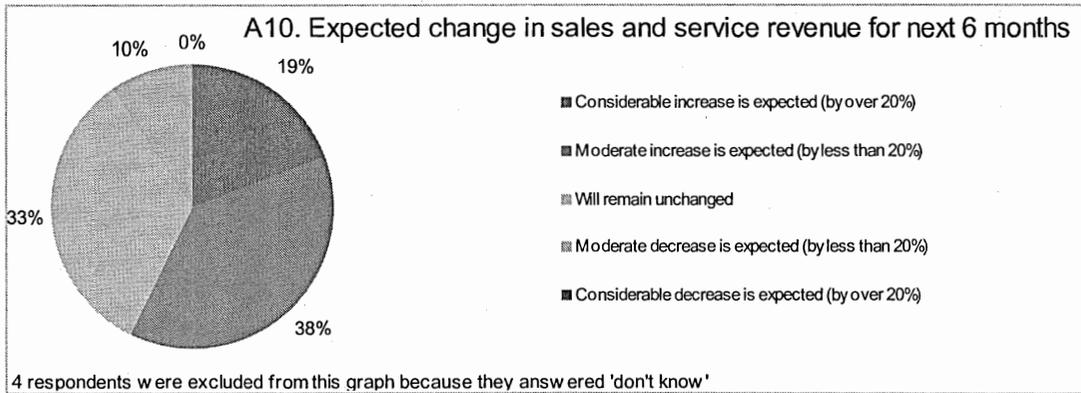


6- **The provision of training by enterprises.** A considerable proportion of enterprises do offer training for their employees, particularly for technicians and skilled workers. Given this trend, it should be possible for MTCs to arrange short term on-job-training for their students.

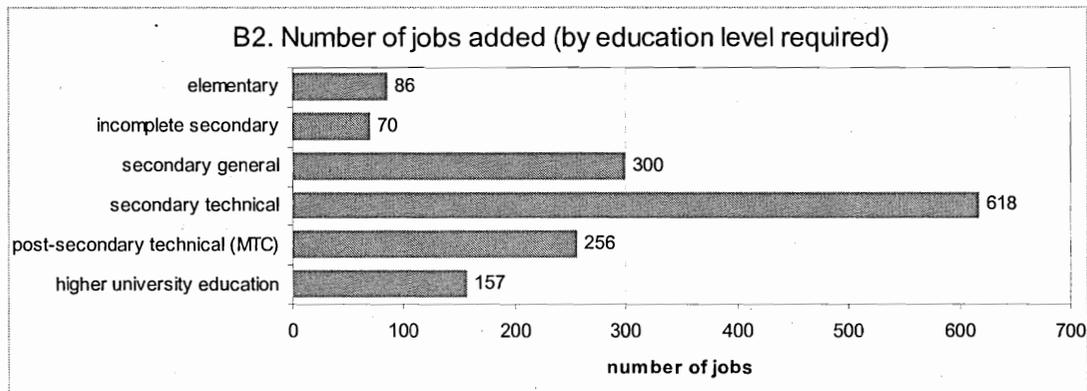


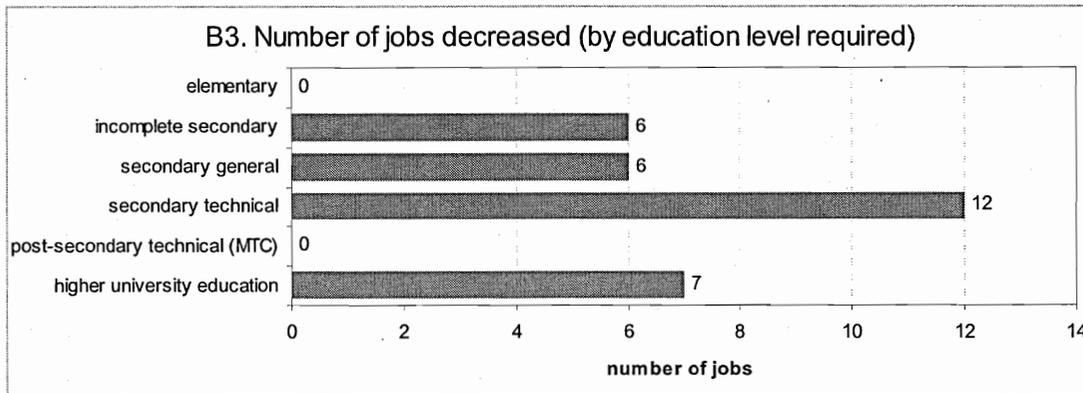
7- **Growth and investment by enterprises.** A considerable proportion of enterprises indicate that their revenue increased during the past year, and they expect a similar pattern in the coming months. This growth is being translated into growth of employment in these firms which is a be a positive factor for MTC graduates/



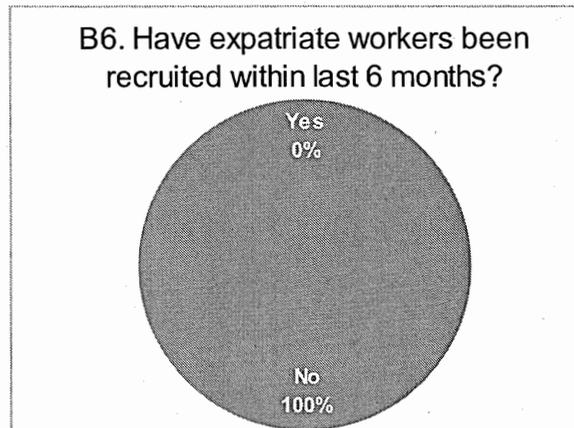


8- **The nature of employment in enterprises.** The greatest proportion of employees to be hired are from secondary technical schools with a much smaller proportion from the Middle Technical Colleges. With regard to decreases in employment, the largest proportion are employees with secondary technical. The above figures appear to indicate a large turnover and change in employment of individuals with secondary education.

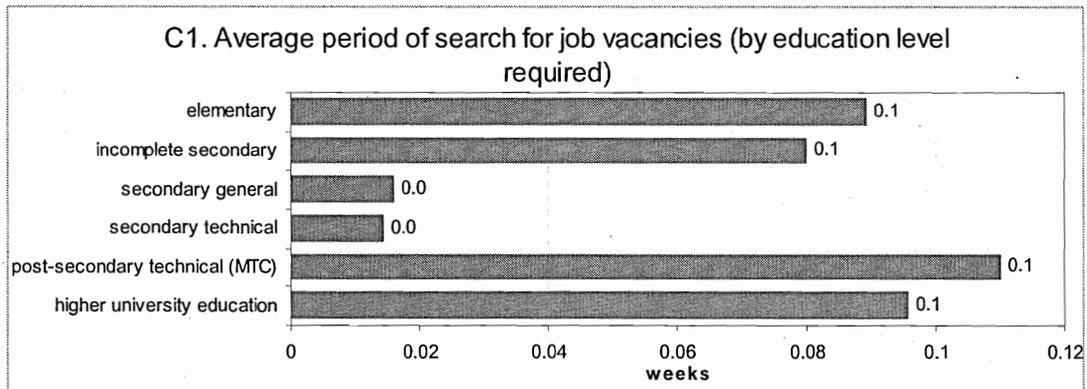
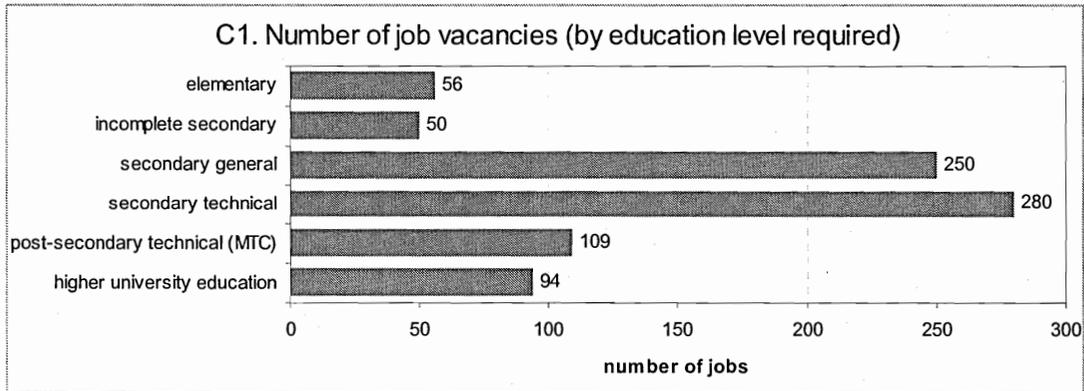




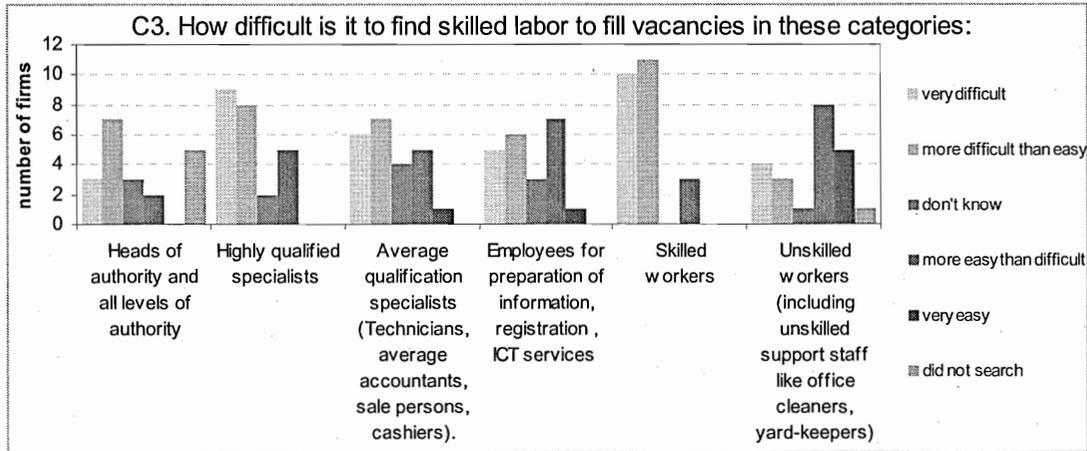
9- **Hiring of expatriate workers by enterprises.** No enterprises reported that they have hired expatriate workers in the past 6 months.



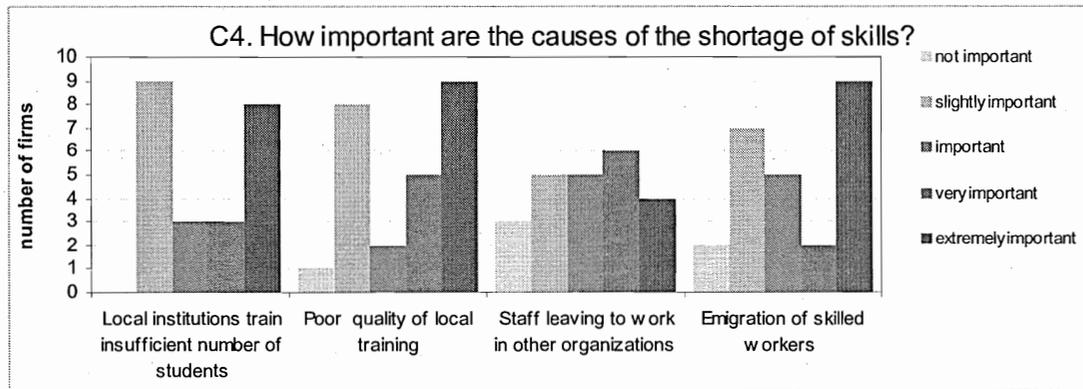
10- The profile of current vacancies in enterprises. Enterprises indicate that they are primarily looking for new employees with secondary education to fill current vacancies with some recruitment of MTC graduates; and that the average number of weeks required to fill vacancies requiring secondary is very short, but for MTC graduates the recruitment time is about one month.



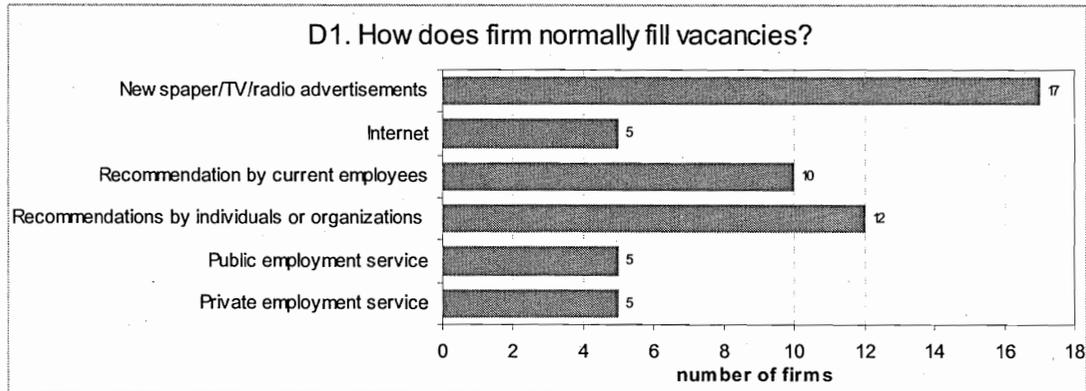
11- Difficulty in filling vacancies at enterprises. The most difficult types of vacancies to fill are positions for skilled workers – the objective of MTC training programs.



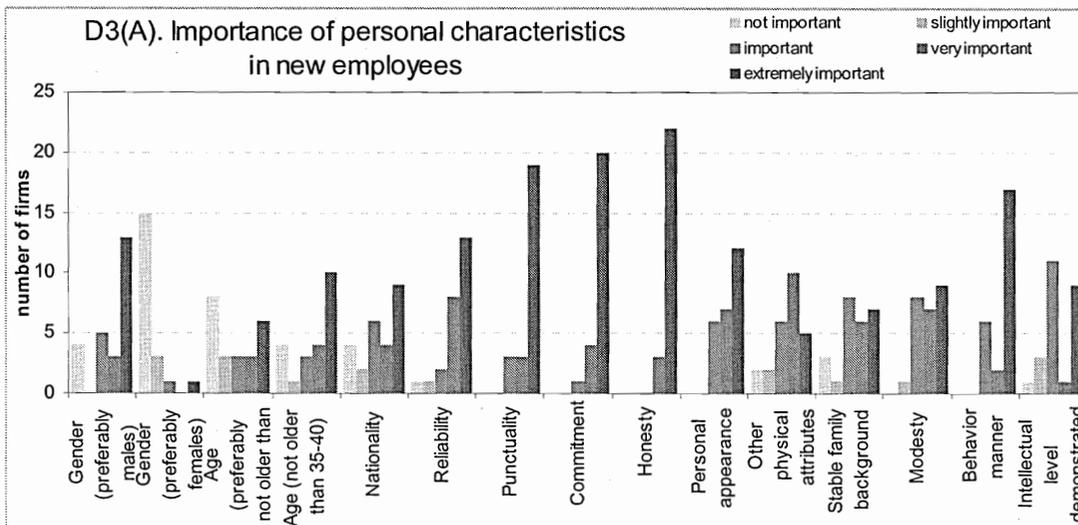
12- Primary reason of shortage of skills: Enterprises state that there are multiple reasons for the skill shortage, but the lack of both quantity and quality of local training are the most important factors. These reasons speak directly to the importance of increasing both quality and quantity of MTC programs.

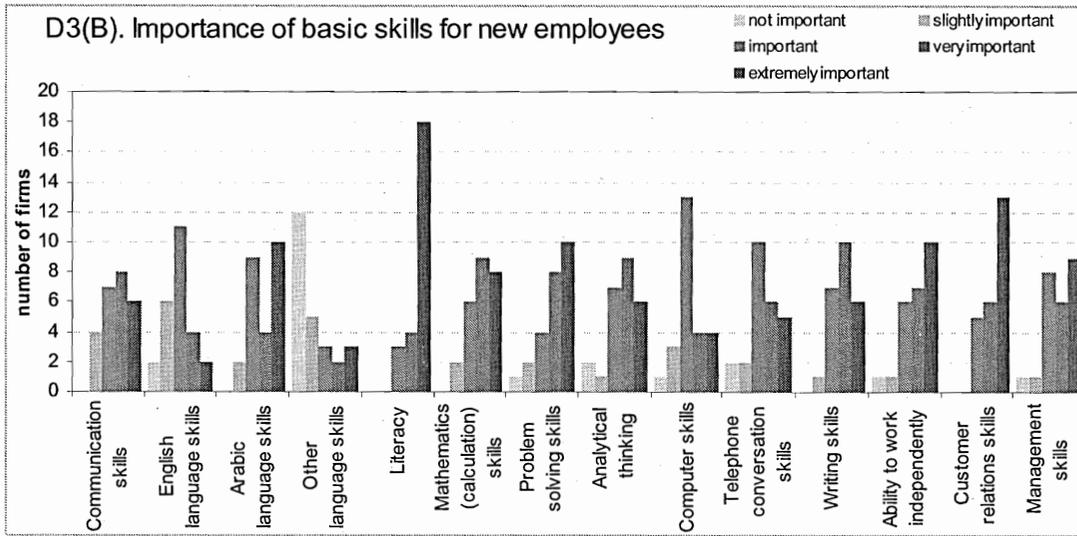


- 13- **Methods used by enterprises to fill vacancies:** The primary ways enterprises recruit employees are via media, recommendations from employers, and from other organizations. This provides MTC with information on how to assist graduates with job search and emphasizes the need for MTCs to try to get all students into on-job-training during the time they are at MTCs.

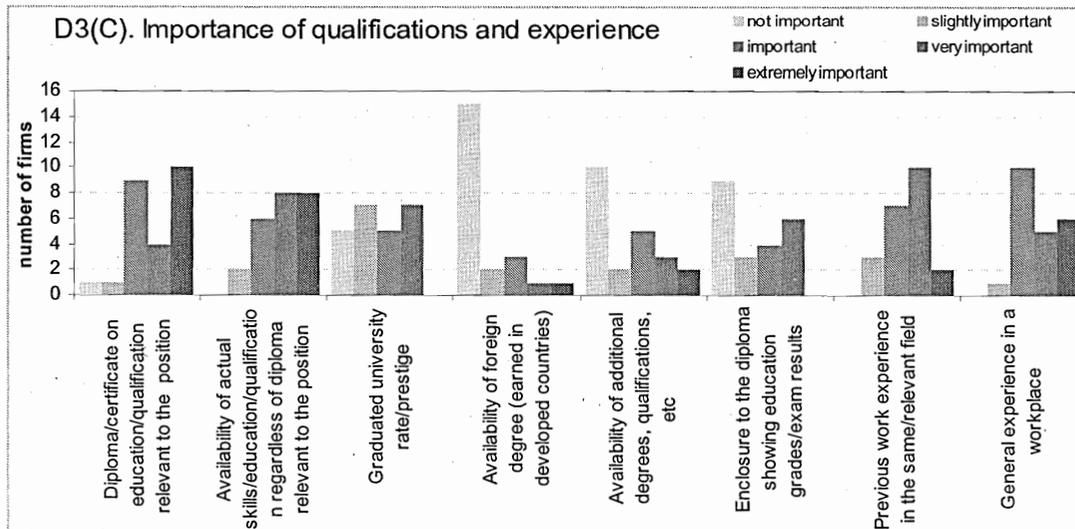


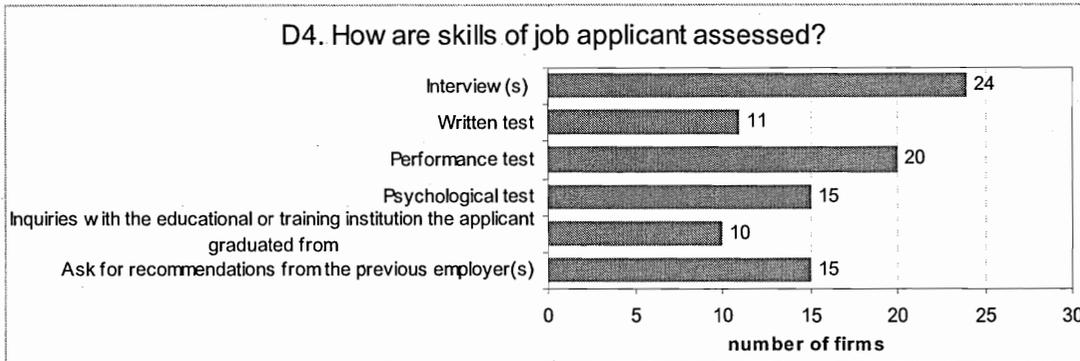
- 14- **What personal and basic skills do enterprises consider most important?** Enterprises indicate that reliability, punctuality, commitment, honesty, and behavior are key personal characteristics. Literacy, customer regulations, and problem solving skills are important basic skills along with the ability to work independently. These areas need emphasis in MTC training programs.



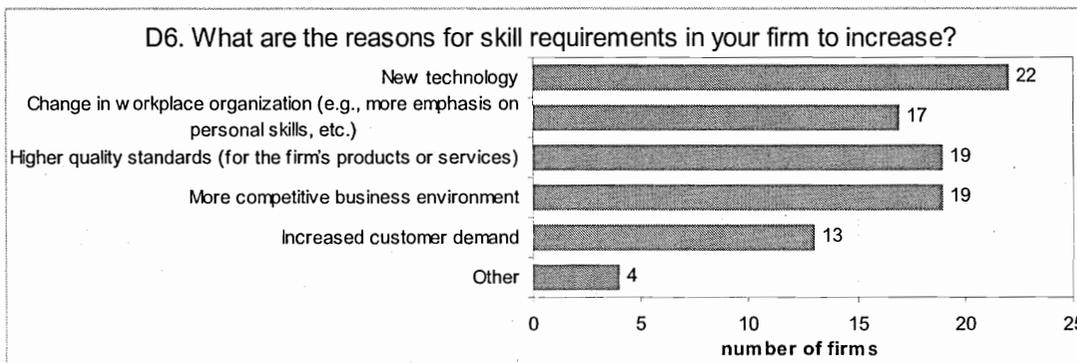
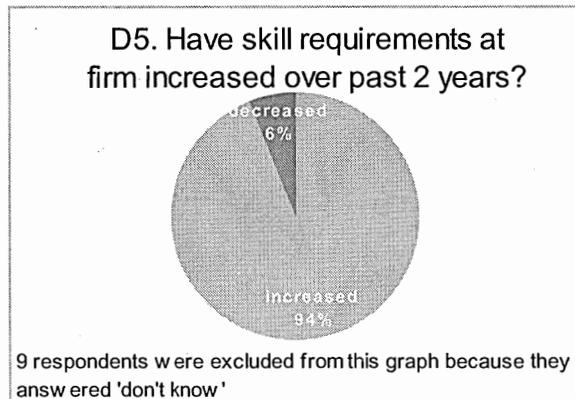


15- How important are technical skill qualifications and how do enterprises assess these qualifications when hiring workers? Previous general work experience, and experience in the sector, are important factors, followed by certification from institutions. However the availability of skills (regardless of certification) is almost as important as having certification from a training institution. Employers primarily assess skills by interviews, performance tests, or recommendations from employers. These trends emphasize the need for MTCs to provide practical as well as theory training, and if at all possible provide on-job-training for students during their training period.

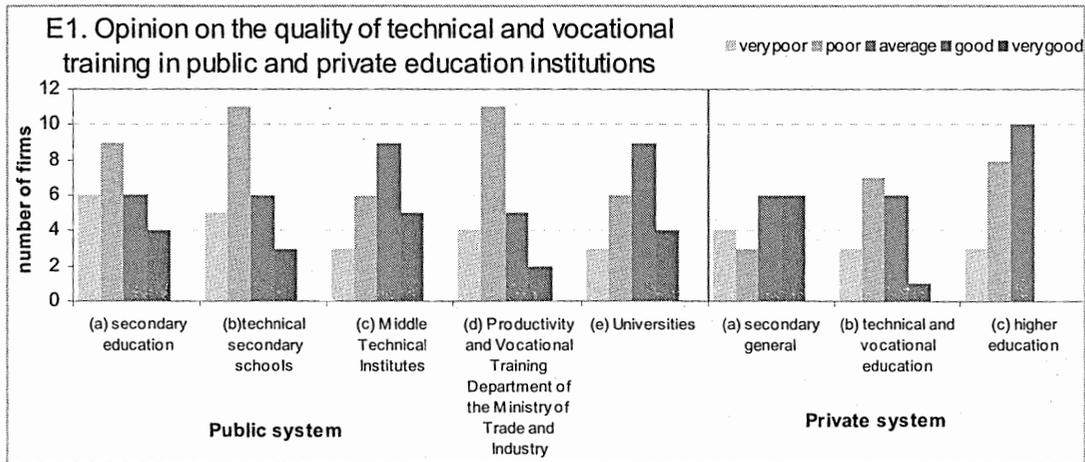




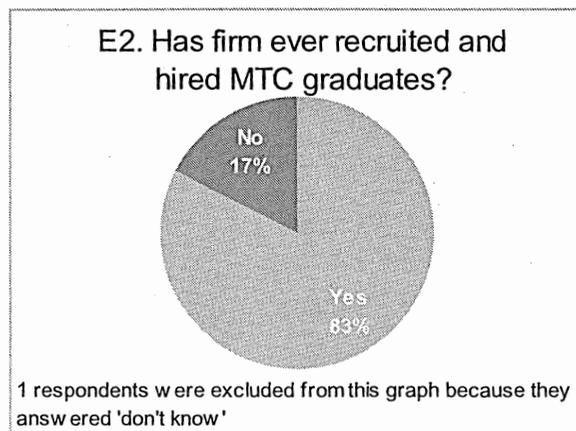
16- Have skill requirements changed over the past two years and what factors are affecting skill requirements? Ninety four percent of enterprises indicate that skill requirements have increased, and the primary reasons are increases in technology, competition, customer demand, change in workplace organization and the need for increased quality of goods and services. These factors have direct implications for the quality/content of MTC training.

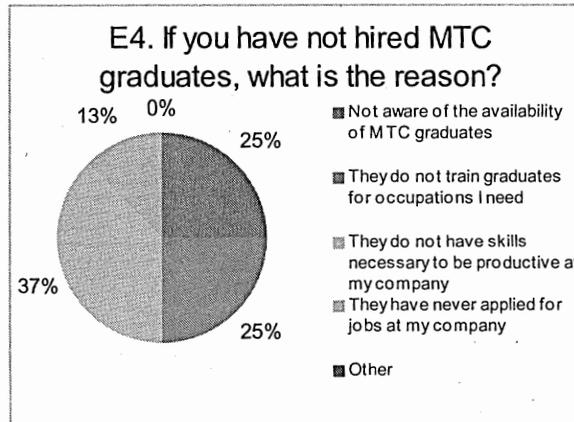


17- How do enterprises rate training programs provided by public and private institutions? Enterprises, in general, do not rate training provided by public and private training institutions very high, however MTCs and Universities are rated somewhat better than other institutions.

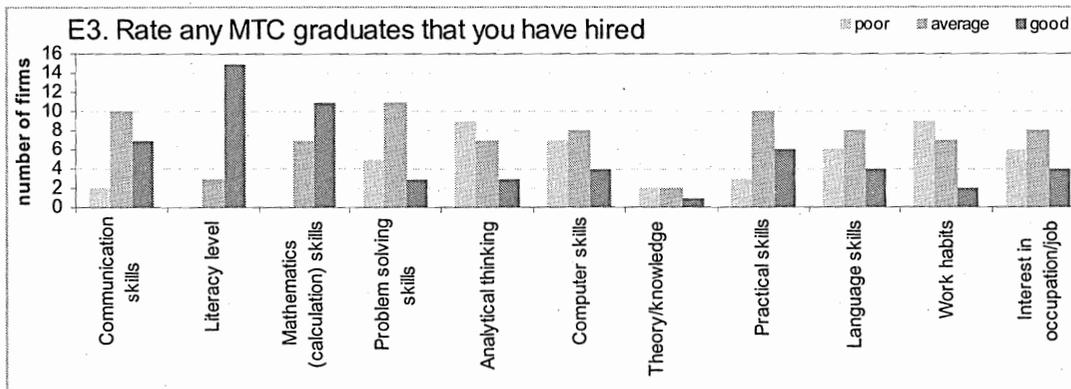


18- Have the enterprises hired MTC graduates, and if they have not hired MTC graduates why not? Eighty three percent of the enterprises surveyed have not hired any MTC graduates, and the reasons for not hiring graduates are that the enterprises feel MTCs graduates do not have the needed skills to be productive in their firms (37%), do not provide training for their needs (25%), or are not aware of the (25%).





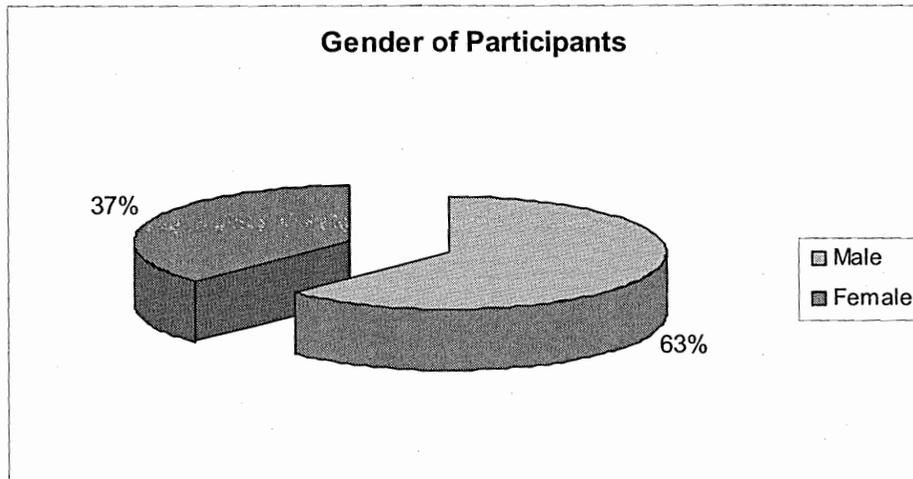
19- How do enterprises that have hired MTC graduates rate graduates. A major portion of enterprises indicate that graduates are quite literate and good in mathematics. However, few enterprises rate MTC graduates very high in analytical skills, problem solving, or theory/knowledge. These findings have direct implications for MTCs.



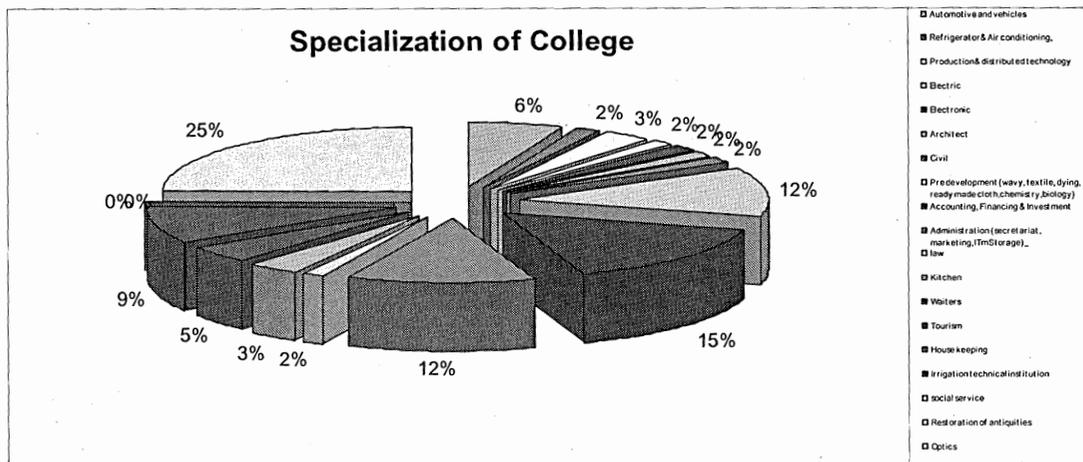
XI Graduate Survey Findings at Mataryia

Note: due to the small sample size caution should be taken in interpreting the results, not attempt has been made to draw conclusions, and the data should primarily be used as anecdotal information.

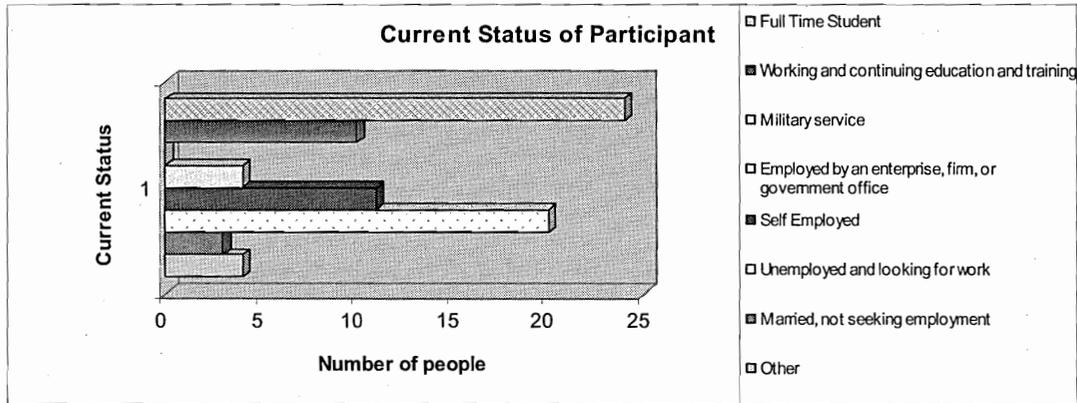
1- Gender of the survey participants.



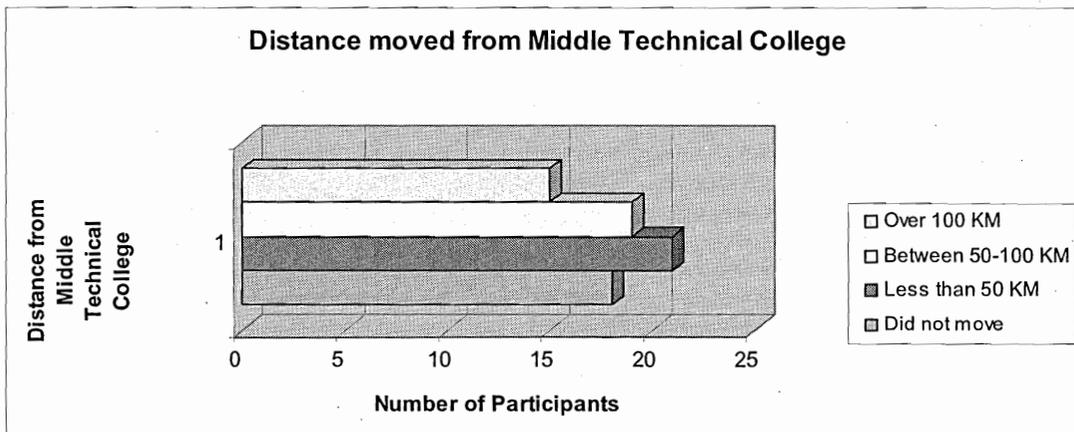
2- The College training specialization of the participants



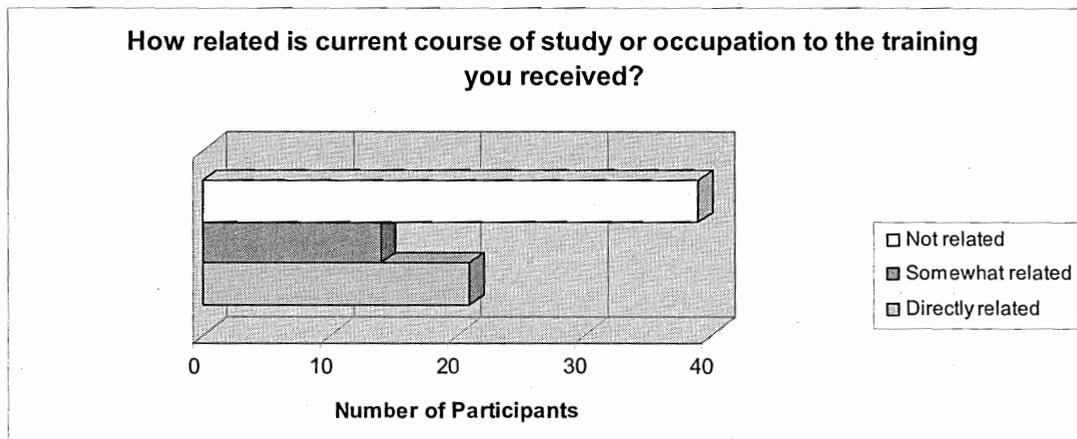
3- The current status of the 2007 graduates



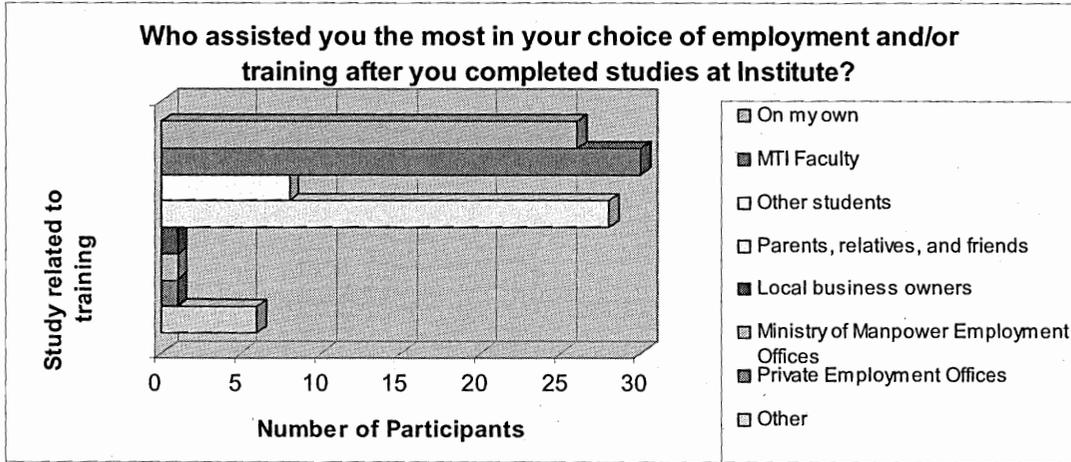
4- Distance moved after graduation from MTC



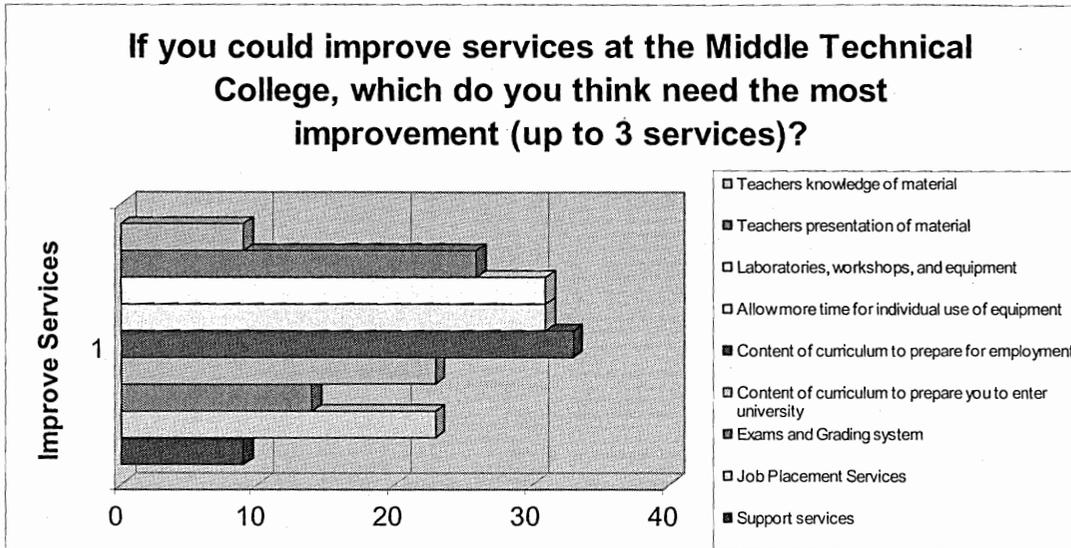
5- Relation of the current course of study or occupation to the training received in MTC



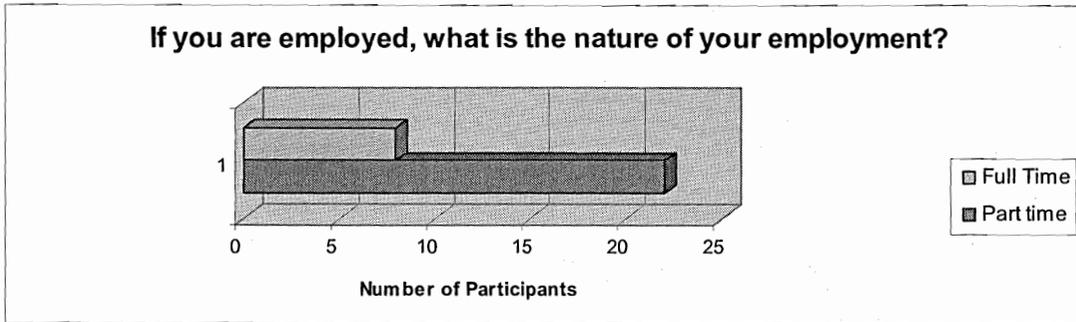
6- Who assisted graduates in their choice of employment and/or training after completed studies at the College



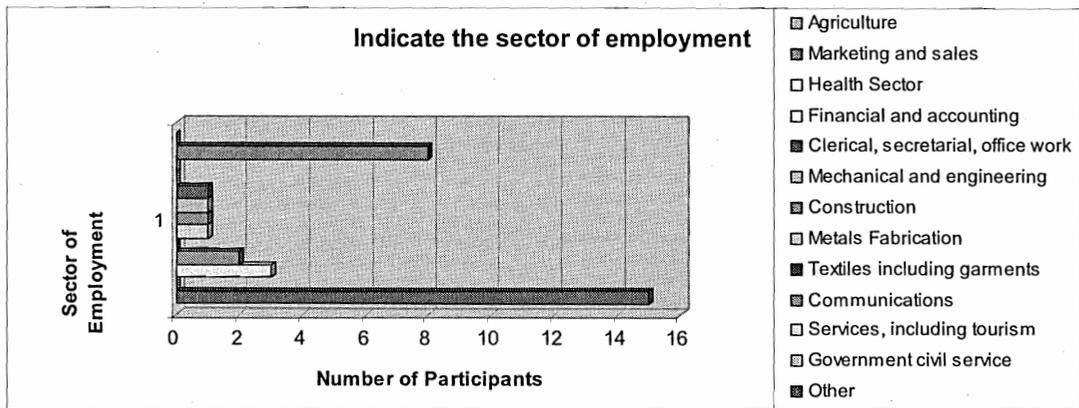
7- What services need the most improvement at the Middle Technical Colleges (graduates were asked to list up to three services).



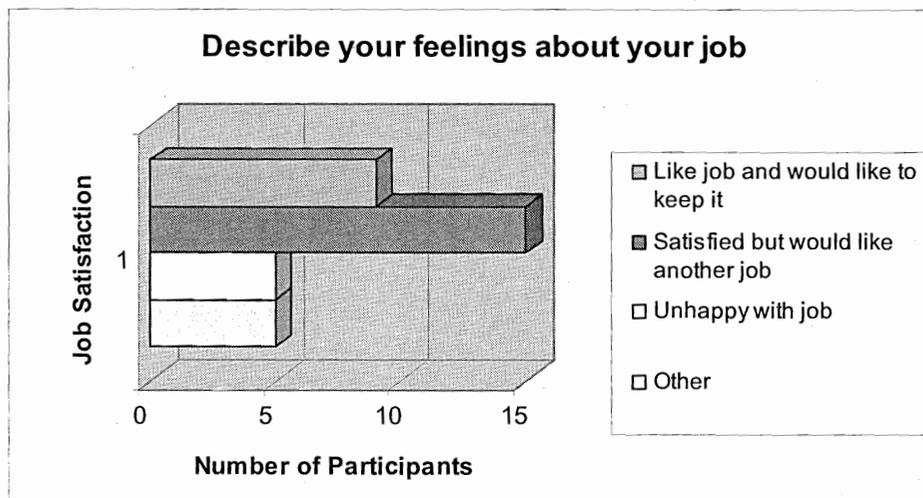
8- The nature of employment



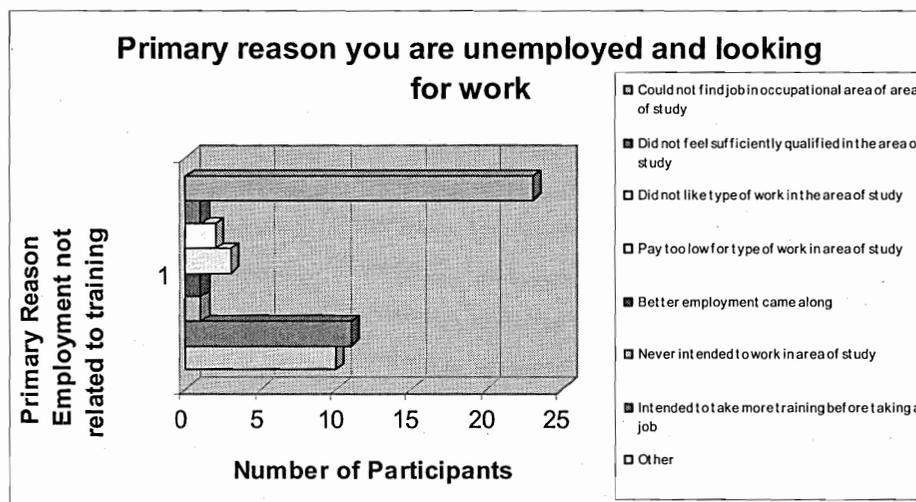
9- Sector of employment



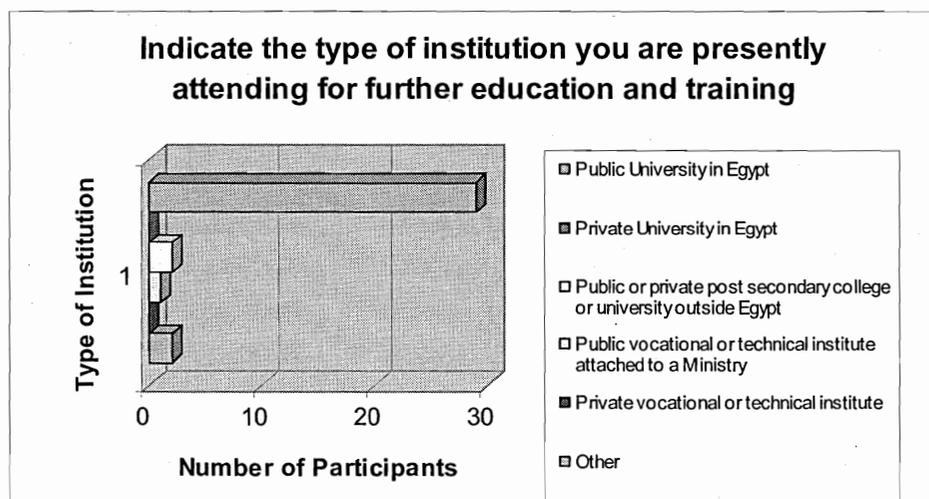
10- Satisfaction of the job



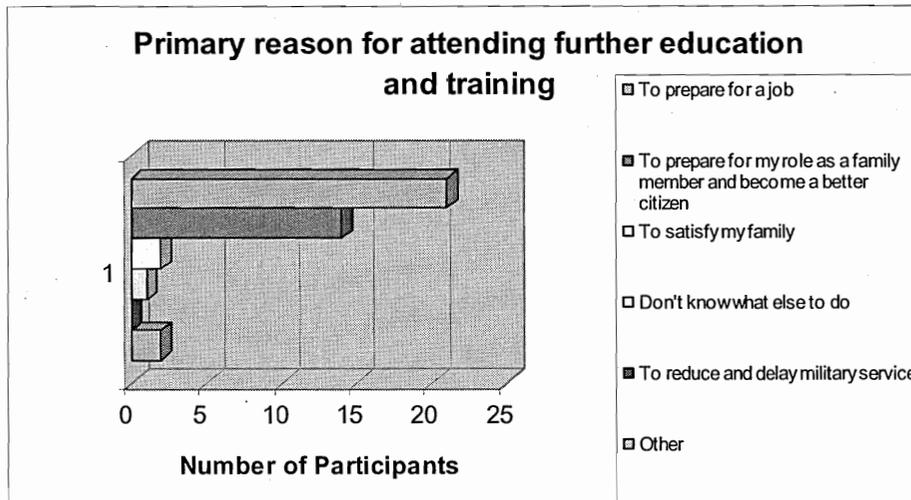
11- Primary reason of unemployment



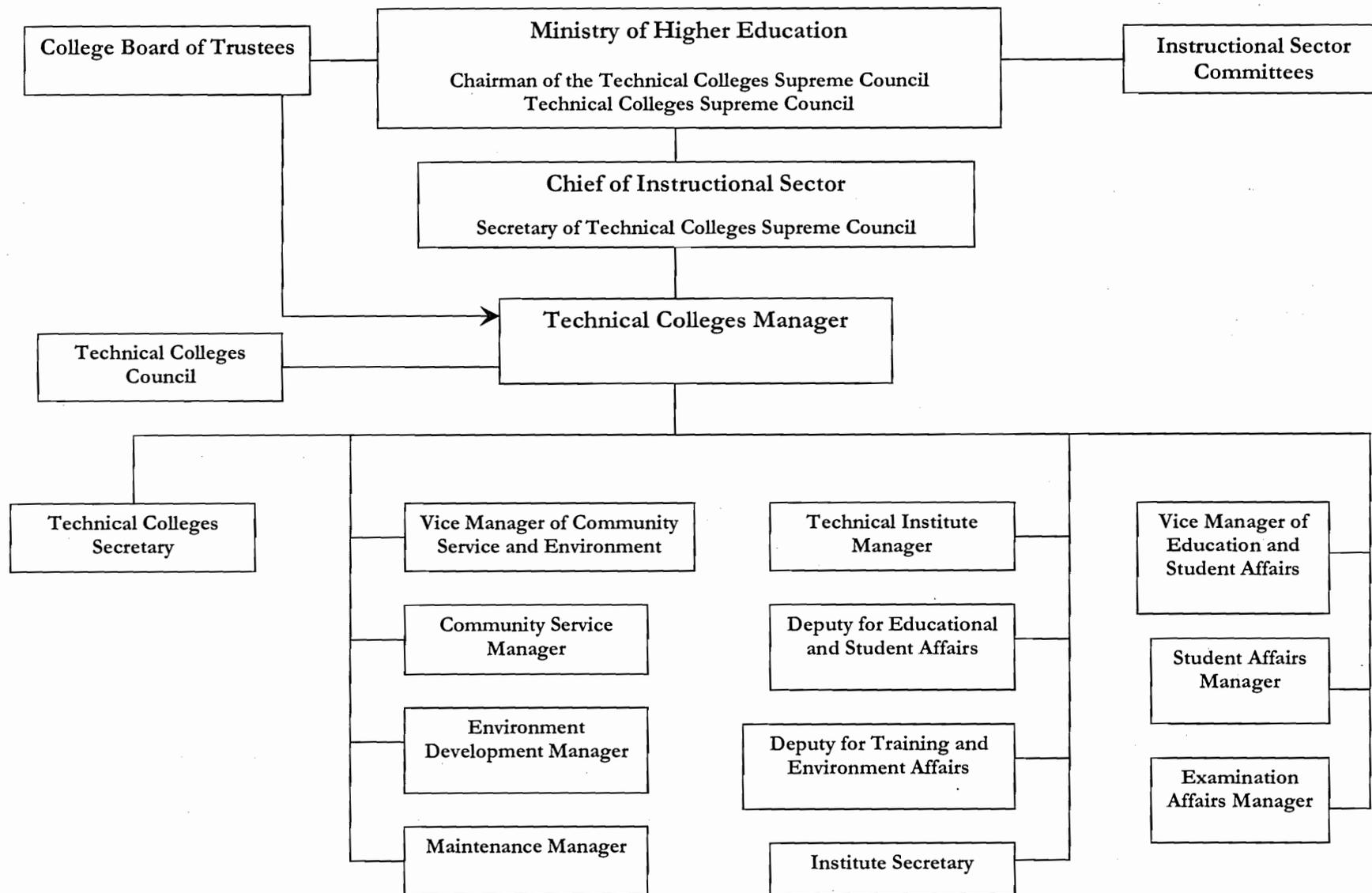
12- Type of institution attending for further education



13- Primary reason for attending further education



XII. Organizational chart of MOHE



XIII: Distribution of Education Staff

| Institute | Teaching Staff | | | | Total | Administration | | | Total |
|-------------------------------|-------------------|-------------------|-----------------|-----------------|---------------|----------------|--------------------|-------------|------------|
| | Basis theoretical | Theoretical Temp. | Practical Basis | Practical Temp. | | Basis | Commissioned Temp. | provisional | |
| Mataryia Industrial Institute | 73 | 5 | 47 | 6 | 131 | 82 | 9 | 5 | 96 |
| Mataryia Com. Institute | 23 | 9 | - | - | 32 | 60 | 4 | 5 | 69 |
| Optics | 5 | 6+(18) | 16 | 2 | 29+18 | 25 | - | 3 | 28 |
| Tourism and Hotels | 15 | 2 | 3 | 4+2 | 24+2 | 19 | 2 | 6 | 27 |
| Shubra Commercial | 22 | 10 | - | - | 32 | 55 | 2 | 8 | 65 |
| Shubra industrial | 31 | (16) | 2 | 19+4 | 52+20 | 70 | 10 | 8 | 88 |
| Total | 169 | 32+34 | 68 | 31+6 | 300+40 | 311 | 27 | 35 | 373 |

ANNEX H:

BASELINE STUDY FOR EL-MEHALLA TECHNICAL COLLEGE

- I. Introduction
- II. Governance and Finance
- III. Administration and Institutional Support
- IV. Curriculum
- V. Faculty Competence
- VI. Facilities and Equipment
- VII. Program Accountability and Evaluation
- VIII. Skill Standards
- IX. Design and Delivery of Programs Meeting Industry Needs
- X. Employer Survey Finding
- XI. Graduate Survey Findings
- XII. Organization chart

I. Introduction

This Report presents the base line results of a GAP Analysis of Melhalla Technical College including the results of the graduate and employer surveys. The Report should be read in conjunction with the summary report of all three colleges. The analysis and report were completed by a team of international and Egyptian consultants on June 20, 2008.

Objective of the GAP Analysis:

The objective of the GAP analysis is to assess the status of technical college administered by the MOHE. This analysis will establish the relevant norms and standards (desired state) from which the remaining Middle Technical Colleges (MTC) will be analyzed. The results of these analyses, the gap between the current state and the desired state, are intended to aid MOHE with strategic planning, quality assurance and accreditation, and capacity building of the eight MOHE Technical Colleges as well as new technical colleges to be established.

Phases of the GAP Analysis:

Phase I of the GAP Analysis developed baseline information on the Melhalla Technical College, and refined the model template and procedures. This will assist other Colleges in conducting self-assessments and to identify short-comings in college operations which need to be addressed to improve program quality, cost effectiveness, and relevance for graduates in their participation in the labor force. Phase II of the analysis finalized the framework for the GAP Analysis, identified norms, and provided recommendations for closing the GAPS. Phase III of the GAP analysis will focus on dissemination and discussion of the recommendations of the GAP analysis and strategies for conducting future institutional self-assessments.

General Structure of the College:

Mehalla Technical College was visited three times by the AED team. Mehalla has six institutes located in four campuses including Mehalla industrial and commercial, Zagazig industrial and commercial, Mansoura commercial and Domietta commercial. The team visited Mehalla Technical College twice. The first visit was to the Mehalla industrial and commercial institutes that are also receiving HEEP support. The second visit was to the Zagazig campus with its industrial and commercial institutes.

Organization of this Report:

The baseline report summarizes the status, strengths and weaknesses of the Mehalla College on the topics of governance and finance, administration and institutional support, curriculum, faculty competence, facilities and equipment, program accountability, skill standards, and design and delivery of programs meeting industry needs. This is followed by a summary of the two surveys (MTC graduate follow survey and employer survey) which provide additional baseline

information on the above topics⁴⁸. The report also contains some Annexes to provide more information on the above-mentioned topics.

II Governance and Finance

Mission, Vision and Goals: The College does not have its own mission statement or announced vision and goals, however, the general mission statement for all technical colleges in Egypt, article one, ministerial decree #2655, October 2006 guides the college's mission, values and goals.

Strengths: There is an overall mission statement for all technical colleges in Egypt.

Weaknesses: The overall mission statement is not known, publicized nor disseminated. The general mission statement guides technical colleges throughout Egypt. Melhalla Technical College has not developed their own mission statement in response to local community markets/needs. A complicating factor is that while the overall mission is primarily to prepare youth for the workforce, there are competing social and political missions which, although not explicitly stated, have a large influence on operation of the colleges and the quality of instruction (i.e. the large enrollment increases without parallel support for facilities, equipment, and instructors). Any evaluation of the mission of the Colleges must take these latter issues into account.

Quality Policy: The College has a quality center operated by a committee consisting of four staff members and one administrator. Each institute has a quality unit guided by four staff members and one administrator. These quality units were established in 2008 but no quality policy is in place.

Strengths: A quality system has been initiated which demonstrates management's commitment to quality.

Weaknesses: No overall quality policy exists. Committee members are appointed to serve without remuneration or schedule adjustment.

Funds and Finances: The fiscal year is July 1- June 30. Each Institute prepares a budget request that is consolidated at the College level and is sent to the MOHE for approval and fund allocation.⁴⁹ Budgets do not include any discretionary funds. Students pay fees of approximately 80 LE per year of which 16% goes to the MO HE with the balance used for student activities. About 20% of students receive social support to pay fees. The 2007-2008 college budget is 6.8

⁴⁸ Note that there has not been any attempt to draw detailed conclusions from the data presented on the employer and graduate surveys at individual colleges due to the low number of surveys completed. Summary level conclusions and recommendations, based on data compiled for all three colleges, has been provided for both surveys in Annexes E and F of this Report, Survey data from individual colleges should primarily be treated as anecdotal, due to the low number of responses, and not used to develop policy and program changes at individual colleges and institutes.

⁴⁹ The team learned that budget requests would typically be funded at 60% for non-salary and 100% of salary requests.

million LE of which 6.6 million LE is salaries (97%). Salaries are distributed to Colleges while the remainder of funds is allocated as a lump sum to the college.

Special Units Training Service Center. According to the technical college by-laws (ministerial decree 2655, October 2006), each college should have its own by-laws for Special Units and Service Center that will provide self-generated income. The College has not submitted a proposal for a Special Units Center at this time.

Strengths: There is a secure salary financial status.

Weaknesses: The College has very little flexibility or control of funding. Salaries and maintenance budgets are centrally determined and controlled by the MOHE. This makes it difficult to move from a supply driven to a demand driven state and may preclude providing training to meet local needs. There is very limited funding for maintenance and supplies (3% of total budget). There is also considerable funding available from the Ministry for Trade and Industry for short term in-service training for workers, but the Colleges do not apply for these funds partially because they lack the flexibility to respond. There is a potential for conflict between the production (to earn money) and training, and a major portion of the funds generated are not currently retained at the colleges.

Corporate Branding: The College has a logo but it is not widely used. There are no college promotional/marketing materials or other documents nor are there promotional campaigns. However, officials indicated that materials about the college are being developed and will be available at the beginning of next year. The college does not have to compete for students as they are admitted by the MOHE. No course catalog exists.

Strengths: College is guaranteed student enrollment and does not have to compete for students.

Weaknesses: Students are admitted centrally so the college does not develop a corporate brand to attract them.

III Administration and Institutional Support

Management Team: All technical colleges are public institutions and all staff have civil service status and are hired centrally by the Ministry of Higher Education. Staff members must possess a B.Sc. degree. Work experience is not required to teach. The college's organizational chart which lists employees by institute and type employment can be found in the Annex. In the by-laws written job descriptions for the College Director and Vice Directors (2) and the Institute Director and Vice Directors (2) are included. Teaching staff have defined teaching load. A concern was expressed that, due to multiple locations and decentralized local college operations, the MOHE often bypasses the college administration and works directly with the institute administration.

Strengths: Employees of technical colleges have job security and do not have to be concerned about dismissal.

Weaknesses: Centralized hiring limits the flexibility of the local technical college to staff according to local needs. Civil service salaries do not provide incentives for job satisfaction and make it difficult to make staff changes (hiring, dismissal, rewarding, etc). Communications and operations do not always go through the college administration. The Boards of Trustees meet infrequently, minutes of meetings were not available and local administrators were not able to cite major actions of the Board at the three colleges visited by the AED team.

Rules and regulations: State public rules, regulations and policies apply to the College. This applies to admissions policies and regulations as well as student policies and responsibilities related to admissions and studies; therefore local policy for these areas is not allowed. The College had developed its own web page. The college communicates policies, regulations and procedures to students through teachers.

Strengths: State public rules provide adequate reference that provides a uniform system through the technical colleges.

Weaknesses: There is no facility to generate local rules and regulations to meet local needs. At present, there are no approved plans/bylaws for decentralization to support development of rules and regulations to meet local needs. Colleges have not provided suggested bylaws to support decentralization as requested by the MOHE. There appears to be a lack of knowledge and guidance from the MOHE to the College as to what form the bylaws should take, and which areas they should address (i.e. governance, finance, management, personnel management, governance, student selection, curriculum design, evaluation, etc.).

Student Admissions Process: The College indicates their capacity is determined by the MOHE, and students are assigned by MOHE. Students completing technical secondary school or general secondary school are allowed to list their priorities for advanced study in the Technical College. The process of admitting students is handled centrally by the MOHE considering the students' grade point average. The college must have approval of the MOHE to change curriculum. College officials indicated they would like to admit students to a program that would serve the local textile industry but no such programs exists.

Strengths: The possibility of curriculum change exists when needed and a process for these changes exists.

Weaknesses: Curriculum is determined and changed centrally by the MOHE. This does not always take local market needs into consideration. The number of students assigned is often more than College capacity which causes overcrowding. Students may be allocated to individual institutes and specialties, based on secondary school grades or lack of capacity in a particular specialty at the College, which may result in assignment to areas which do not meet student interests or needs or do not reflect the training taken at the Secondary Technical School level.

Records: Records are mainly paper records. An electronic records system is just being started. Payroll is done manually by 8-9 staff in each institute. Student exam papers are kept for three years and achievement records kept in three places (institute/college/MOHE). These records are

kept in the Colleges for five years and student can access their records and obtain transcripts of their work for a fee.

Strengths: There is a system for keeping records. The College is starting to develop an electronic system for records, payroll, etc.

Weaknesses: There is a delay in developing the electronic system and backup systems of records. It appears that a management information system is not currently being considered.

IV Curriculum

Status: Development of the syllabi for all curricula for the Technical Colleges is done at the national level under the direction of the Ministry of Higher Education. A team is created to develop the syllabus for each program offered. The typical team consists of a professor, an employer, and a teacher from a technical college. Some teams may have more than one member from each of these positions. For most of the industrial specializations (air conditioning and refrigeration, electricity, etc.) the committees begin their work with the Egyptian national skill standards that have been developed by the Industrial Training Council (see discussion below under section VIII).

The syllabi committees establish the objectives of programs and determine the percentage of instruction to be delivered in theory and practice. The syllabi that these teams create are taught in all technical colleges. Faculty at the local level may suggest changes in the syllabi, but all suggestions must be referred to the appropriate national committees for review.

It is the responsibility of teachers at the technical colleges to develop the content for the syllabi, but they do not have copies of the skill standards. Almost all of the textbooks for the programs are written by two teachers from the technical colleges. The Ministry of Higher Education chooses these teachers. Teachers at the three colleges visited complained that some of the authors who are selected do not have wide knowledge of the content areas for their textbooks. Most of these texts do not receive an independent review to ensure their accuracy. Several examples of inadequate textbooks were shown to us. The topic for a text in commercial studies, for example discussed communication methods. It was published in 2007, but makes no reference to the Internet or e-mail.

The teachers and trainers indicated difficulties in implementing the national syllabi. They cited many examples of weaknesses in the syllabi they worked with. These included no theoretical instruction provided for the project that students must complete in their final year, the teaching of technical drawing in only the first year, the limited hours assigned to auto CAD, and elimination of some programs that they considered essential.

Strengths: Centralized development of syllabi ensures that the framework for a given program area is uniform across the country. National skill standards provide a solid basis for determining the syllabus. Centralized development also makes it possible to identify qualified individuals to serve on the syllabi committees.

Weaknesses: A small committee, typically three people, regardless of their level of expertise, is unlikely to reflect the full range of knowledge within a given occupational area. A standardized syllabus does not allow local modifications to meet local needs. Local teachers and trainers often have difficulty developing the content for the syllabi. There is no entrepreneurship training integrated into the curriculum, even though the majority of employment opportunities are in the small informal or formal sector, both being an integral part of the supply chain for large enterprises

V. Faculty Competence

Status: Teacher Preparation. Instructional Staff at technical Colleges do not often have work experience in their field of instruction. Typically, teachers begin their careers following graduation from a university. One must be a graduate of an arts, sciences, engineering, or information technology faculty to receive the title of "Teacher" in a technical institute, which means they teach the theory of a given occupation in lecture classes. The teachers are engineers and in most cases, they have not received preparation in pedagogy. Trainers are responsible for the practical instruction in the workshops. Any trainers who are hired under the Higher Education Enhancement Project (HEEP) must have a four-year degree from an engineering, information technology, or technical-vocational education faculty. Technicians also provide instruction in the workshops. There are no higher education degree requirements for technicians, but they must have graduated from a vocational-technical high school.

Status: Teaching Methodology. Teachers lecture on the theory while trainers and technicians provide hands-on practice. An air conditioning/refrigeration was observed with 40 students, 17 of whom were female. The teacher was dynamic and had formulas and a schematic on the board and questioning the students while pointing to these. The workshop for the same program was arranged into four small groups of about 10 students, each focused on a trainer or technician. Another large workshop with several pieces of large, new equipment that had been provided by HEEP, this equipment had been delivered about two months ago, but had not yet been installed. A trainer said that three of the machines had not passed inspection. The teacher whom we had observed lecturing joined us there and complained that he and the trainers had not been training in the use of this equipment. Several more workshops and a physics laboratory were observed, all of which had received HEEP equipment that was in use. The arrangement in each was similar, a small group of students, ranging from about four to eight, gathered around the equipment while one or two performed an exercise. The ratio of students to teachers at Melhalla ranges from 71 to 1 for the industrial institute to 173 to 1 for the Zagazig commercial institute. All of the ratios are very high by international standards. The ratio of students to computers is so high it is unlikely that students have one hour of computer experience per week at the commercial institute

Strengths: The four-year degree requirement ensures that entrants into the teaching profession have a broad theoretical background in the occupations that they teach. Trainers who have graduated from a vocational-technical education faculty also have received preparation in the pedagogy appropriate for practice instruction.

Weaknesses: Little or no occupational experience is a weakness of the current method of teacher preparation. Teachers teach what they have been taught, not necessarily the skills needed to be a

proficient worker. Actual experience in an occupation provides a perspective that cannot be gained by studying that occupation. There is a wide gap between understanding how a car runs and being able to diagnose and repair a car that is not running. Some of these skills can be learned through study in a formal setting but actual experience performing tasks in the labor market improves one's ability to teach. Separation of instruction in theory and practice occurs in many countries, but in our judgment results in less effective instruction. Practice should be grounded in the theory that underlies it, and this is facilitated if the same instructor delivers both.

The major weakness observed was poor use of student time. It appears that students spend much of their time they are not in class socializing outside the buildings. This time should be spent studying. The limited amount of time for learning manipulative skills and the absence of note taking are other weaknesses that were noted above

VI. Facilities and Equipment

Planning and Design. Plans for refurbishments are prepared through the General Administration for Management (GAM), via external consultants. Plans for new buildings are generated through the General Administration for Engineering Affairs (GAEA) by external consultants. They often contract with outside professionals. Note: In a few cases, HEEP plans are done with external consultants. Specifications for 1) classrooms, 2) laboratories, 3) workshops, and 4) administration and support spaces are available only for private Colleges.

The AED team could not analyze the baseline conditions of the technical colleges because of the lack of Drawings and Specifications or because they were not submitted to our team in a reasonable time. Funds for design and planning are insufficient in nearly all cases to provide the level of documentation necessary to assure coordinated planning of refurbishments and for new construction.

Strengths: This process assures consistency and control. The use of outside professionals exposes the design process to fresh ideas and, if properly monitored, control of costs.

Weaknesses: This separation from the end user (the colleges themselves) often does not give them the product they want. The common complaint is that the technical colleges have no input in the programming or design process. They are simply told what they are getting. The discrepancy between what is installed vs. what was planned could be understood to accommodate the needs of particular instructors but in many cases, clearances to ensure safety or efficient operation of equipment are violated. These unsafe conditions project an indifference to the welfare of the students.

The Construction Process. GAEA does contractor selection and construction oversight together with their consultant. GAEA hires outside consultants in nearly all cases where the work is in outlying areas. The completed construction is accepted by GAEA, but payment authorization lies solely under the authority of the Head of the Central Administration for Engineering (CAE) or his representative.

Strengths: This assures control and standardization of construction procedures throughout the country. Contractors know what to expect from the tendering of these projects, which should equate to lower costs.

Weaknesses: Our view and of those we interviewed re this aspect was that the concentration of approval authority (under the Head of CAE) creates a processing bottleneck, as the CAE is also responsible for ongoing maintenance projects.

Modifications to reflect the needs of client colleges are not considered. They simply have no input on scope of work, site layout, materials or finishes or accommodation of new technology.

Space and Equipment. Computer workstations in the labs were generally efficiently laid out, with power supplies from the floors; however, equipment in labs and workshops is not as shown on the Plans. Considerable amount of new equipment (from HEEP project) that is not installed (Engines and Automotives Workshops and Traditional Machining for Metals Workshop), although it has been on site for up to six months. Rationale is that the supplier has not yet checked out the equipment; thus, it cannot be used until checkout is complete. Medical facilities to care for students are in an abysmal state. In a number of cases, electrical power supply to equipment has been installed in an unsafe manner.

Strengths: Top floor workshops and labs have clerestory windows—an excellent design for indirect light. Deputy for Community Services Offices is well lighted. Forming and Traditional Machining Workshop provides 4-6 sq m of workspace per student. Using that allowable space per student meets operating standards. Hard surfaced floors and walls provide easy maintenance and longevity.

Weaknesses: Lack of equipment maintenance and maintenance technicians. The lack of sufficient electrical power outlets and non-functioning internet laboratories constricts the potential of laboratory and workshop instruction.

Medical clinic does not have capability to readily treat accident or burn victims while waiting transport to hospital. Multiple injuries, particularly victims of shock, would largely go untreated due to lack of supplies, sufficient beds and isolation facilities. See attached photos. Some workshops lack water supply and/or electrical and breakers to serve equipment; e.g., Welding Workshop lacks water supply for 10 bays and it needs cable and breakers. Fenestration not planned to reflect proposed use of interior space; e.g., a bank of windows at side/front of classroom that had to be curtained off to cut interior glare.

Records and Storage. There are no criteria for classroom storage. However, each workshop and laboratory must have sufficient storage to secure supplies and equipment. There are no criteria for classroom storage. However, each workshop and laboratory must have sufficient storage to secure supplies and equipment.

Strengths: Plans are available in some Colleges, and will be invaluable for planning, future modifications and budgeting and cost estimates.

Weaknesses: Documentation (Plans) lacking is inconsistent with what is actually in place. This partial record-keeping procedure defeats the purpose of documentation. It requires re-measuring, re-checking and the host of other tasks that must be accomplished to assure the validity of the record itself

VII. Program Accountability and Evaluation

Quality Assurance: The college and Colleges are beginning to develop a quality assurance system as contained in the HEEP project. The College and each institute have a quality assurance unit and committee. Each committee consists of four staff members and an administrator. Through the quality assurance system, committee members attended quality assurance workshops and provided training for additional staff members. The Colleges have developed course specifications and are going to produce course reports and action plans for course and program development for the coming year. In addition, tools have been developed for the quality assurance process including templates for student, staff and stakeholder surveys. The quality assurance system started recently (January 2008) includes plans for internal assessment and data analysis and control of nonconformance. However, this is not complete at this time.

Strengths: A quality assurance system has been initiated and work has started that the college and institute levels. It appears to be comprehensive and provides for staff involvement and input.

Weaknesses: There is a lack of widespread understanding and support of the quality assurance system by the staff and administrators.

Continuous Quality Improvement: Although a will was expressed for continuous improvement, there is not a system for continuous quality improvement in the management and operations areas. Due to centralization, college/institute management does not have the power or incentives to change current systems.

Strengths: Management appears to be aware of the need for improvement and is willing to achieve it.

Weaknesses: Absence of a system for continuous quality improvement. Centralization of management and operations functions reduces power for change at local level.

Teacher and Learning Assessment. The methods used at the Technical Colleges for teacher assessment include observations of teaching performance, student test performance and student feedback. The Quality Assurance and Accreditation Committee have developed for the Ministry of Higher Education procedures for teacher assessment that incorporate, and in many ways, exceed prevailing international standards.

Learning evaluation practices used at the Technical Colleges include short quizzes, longer exams, and an end of term exam. The use of a nationwide, end of program examination, which is required in Egypt, is not as common. Colleges set examination for first year completers, while graduate examinations are set by the MOHE.

Strengths: The Quality Assurance and Accreditation Handbook provide a comprehensive guide for assessment of colleges, including the quality of their teachers. It includes templates for all phases of an institutional assessment and instructions for their use. Egyptian methods of evaluating student learning are consistent with international standards.

Weaknesses: The reviews did not see any major weakness in the quality assurance methods that have been developed, but saw little evidence that these methods are being used in the Colleges visited. This is a new initiative in Egypt and will take many years to be implemented. Assessment of knowledge and performance did not appear to be linked directly to original skill standards, or use the assessments developed by the National Skill Standards Project (NSSP)

VIII. Skill Standards

The National Skills Standards Project (NSSP), located at the Social Fund developed skill standards and assessment materials for the past several years. The NSSP is closed however the Industrial Training Council is continuing the process. The objective has been to set standards equivalent to those of the European Union (a National Qualifications Framework project has been initiated by the European Training Foundation of the UE at the Ministry of Manpower). The Egyptian standards are based on analyses and comparisons of the standards that are used in such countries as Scotland, France, Germany, Denmark, Canada, and Jordan. For most occupations, five competency levels are specified. In Egypt these levels were roughly defined for us as laborer, skilled worker, master worker (supervisor of skilled workers), engineer, and professor. It is the goal of the Ministry of Higher Education Technical College Unit to have curriculum which will teach the knowledge and skills required by a level three master worker. Over 200 standards, for over 100 occupations have been developed for industrial specialties. These standards have been provided to the Ministry of Higher Education for use in syllabus development. Unfortunately, these standards have not been provided to the technical colleges for use in development of content for the syllabi.

For those specializations in commerce, tourism, and social service, for which national skill standards are not available, workshops are conducted with employers. The employers are asked to describe the skills needed by their employees. The initial NSSP standards used a Functional Analysis approach, but a structured process is not used in the workshops.

Strengths: The existing skill standards provide a strong foundation for syllabi development. Many developed countries have adopted a similar approach. The existing NSSP standards appear to have been carefully developed and are of high quality.

Weaknesses: The teachers and trainers at the college level do not have the national skill standards for use in development of the content for the syllabi, and new standards at the Ministry of Higher Education not developed using a standardized approach (i.e. Functional analysis, DACUM). An examination of the Level 3 skill standards on which the Colleges are to base their curriculum, are in general beyond the current level of instruction at the Colleges. This has multiple causes including, but not limited to, instructors who themselves do not have level three skills or work experience, lack of basic equipment and facilities which are key to developing more advanced skills on new equipment provided by HEEP. A major over riding problem is the overcrowding in classes resulting in "observation" rather than "doing".

IX. Design and Delivery of Programs Meeting Industry Needs

Melhalla is located in an area with the major textile mills in Egypt and prepares its students for the electrical, electronic, metal working, clothing, and commercial skills needed in these mills. It also offers programs in skills needed everywhere in Egypt, such as air conditioning/refrigeration and auto mechanics/electronics.

Strengths: The programs offered at Melhalla generally appear to respond to the needs of its labor market.

Weaknesses: Decisions as the types of programs to be offered do not draw upon a variety of information sources. Systematic follow-ups are not conducted to determine if graduates obtain employment in the fields in which they have been trained. No surveys are conducted with employers to determine the occupations for which they are having the most difficulty finding workers. Faculty has no input into the kinds of programs that should be added or discontinued.

While there tends to be a pattern of specialties in the institutes which reflects the sector needs the proportions are not always appropriate. For example in the textile area in Melhalla, there was only ready made clothes in the textile area, a high demand from students, but limited enrollment, and as a result students were diverted to other skill areas where the sector demand was less. There appeared to be no plan to increase the breadth of enrollment in the textile specialty and reduce or close other programs.

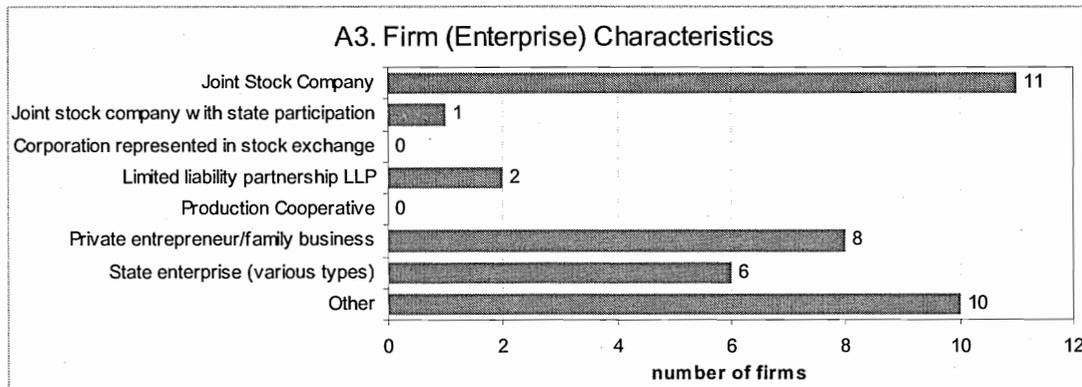
Colleges do not attempt to provide in service training for workers, for which funding is available from the Skill Development Project at Ministry of Trade and Industry. This will increasingly be a shortfall as College obtains modern equipment under HEEP which could be used to train these workers.

Colleges do not appear to be developing or using performance and knowledge assessments available from NSSP which are based on skill standards, but rather use MOHE assessments based on curricula. The Board of Trustees is basically dysfunctional.

X Employer Survey Findings

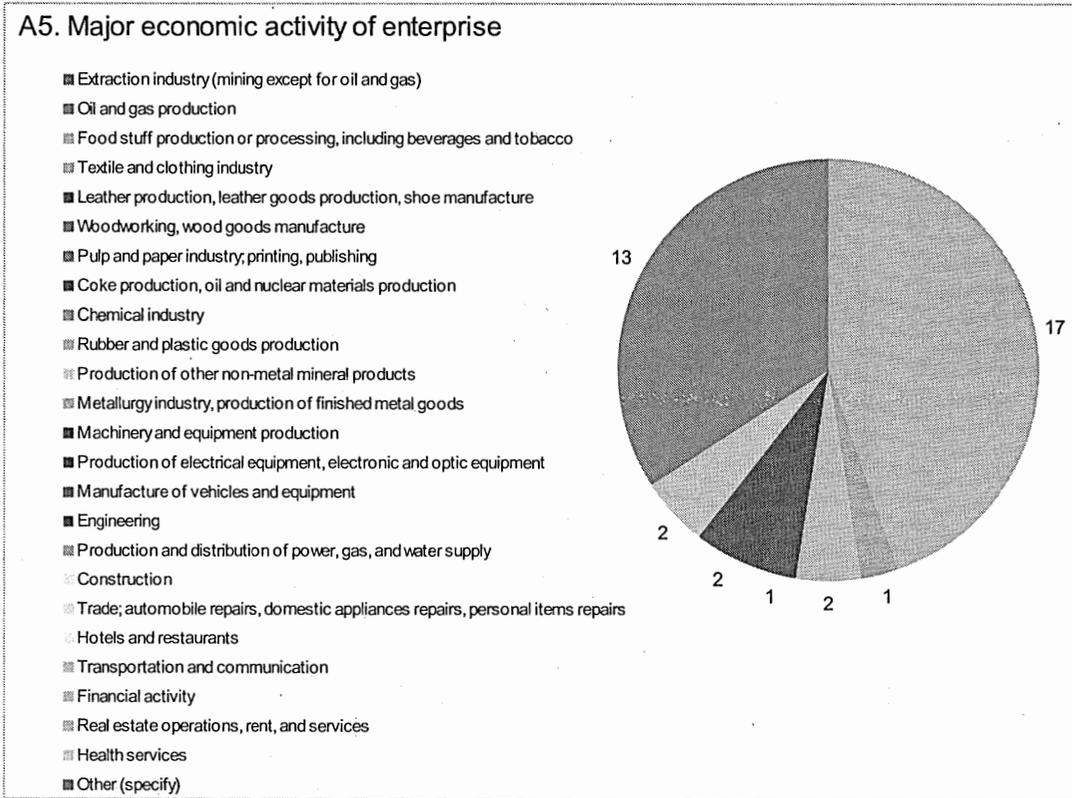
Note: due to the small sample size caution should be taken in interpreting the results, not attempt has been made to draw conclusions, and the data should primarily be used as anecdotal information.⁵⁰

- 1- **Characteristics of Firms in the Survey.** Twenty nine percent of the enterprises were joint stock companies, 16% were private entrepreneurs, and 97% were established with local vs. foreign capital.

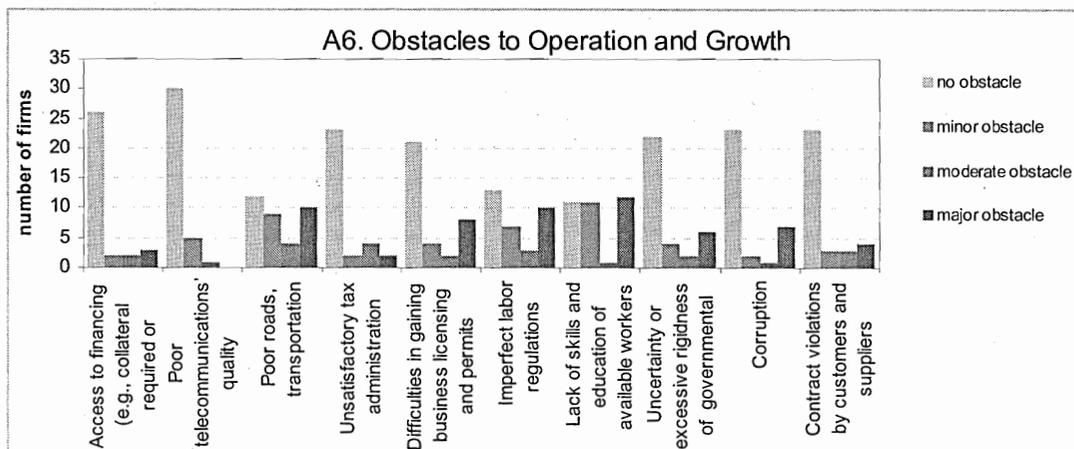


⁵⁰ Note that the letters/numbers on the charts refer to individual questions on the survey which is included in the annex of this report.

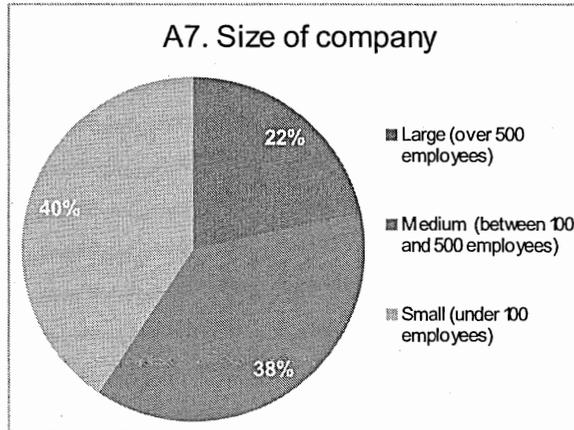
2- **Sectors represented by enterprises in the survey.** The majority of the firms surveyed were in textiles and other categories.



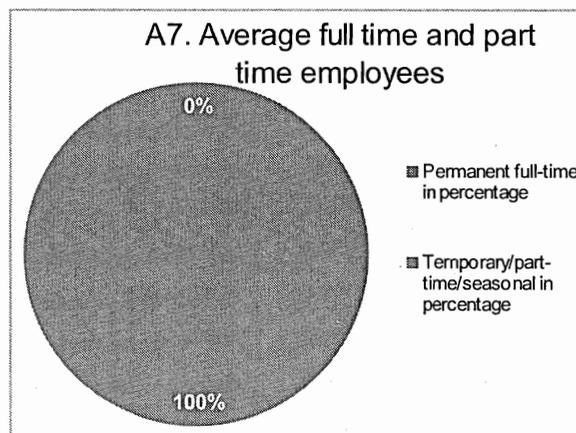
3- **The obstacles to operation and growth of enterprises.** Enterprises listed the lack of skills and education available to workers as one of the major obstacles to growth.



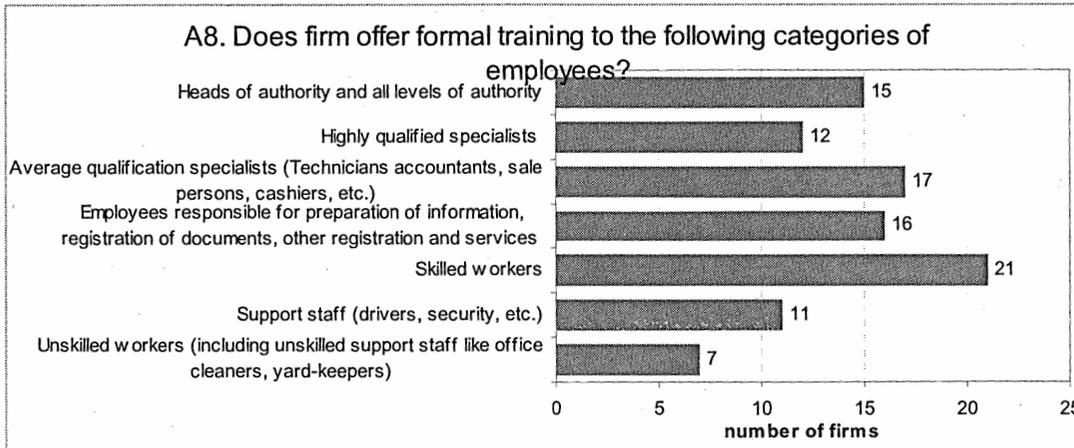
- 4- **Size of enterprises in the survey.** Fourty percent of the enterprises were small, which is significant and important to the results of the survey as these firms generate the largest amount of employment in most countries.



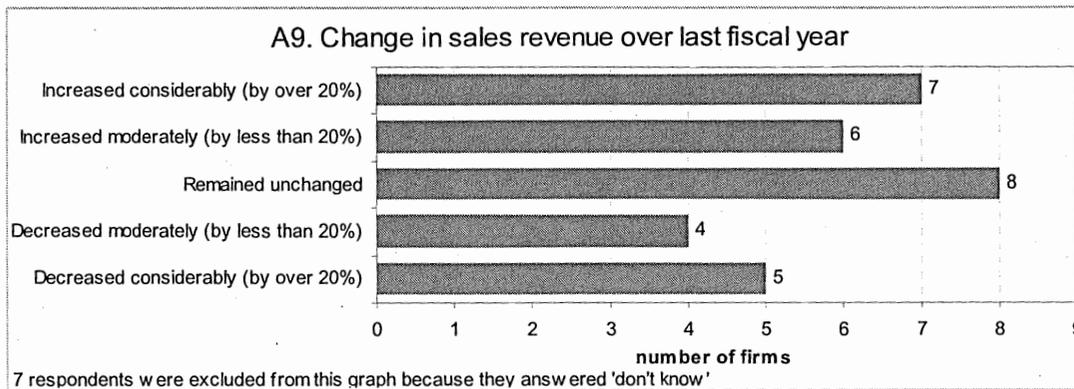
- 5- **Profile of full and part time employees.** All employees were listed as full time.

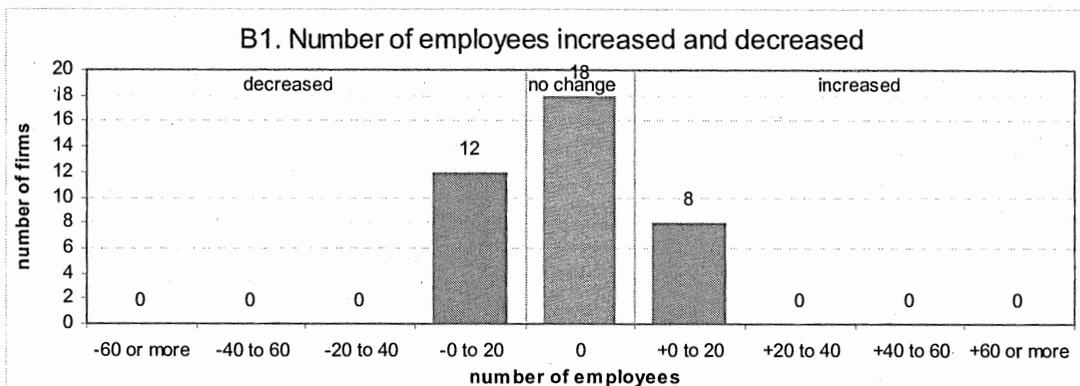
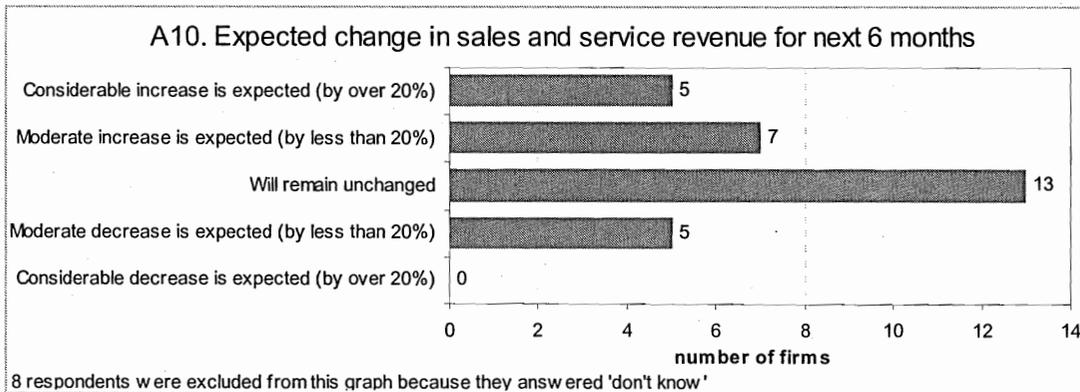


- 6- **The provision of training by enterprises.** A considerable proportion of enterprises do offer training for their employees, particularly for technicians and skilled workers. Given this trend, it should be possible for MTCs to arrange short term on-job-training for their students.

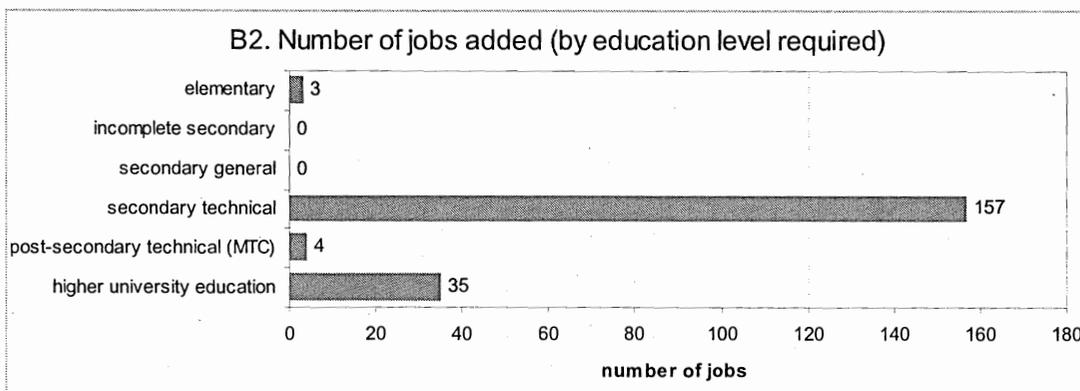


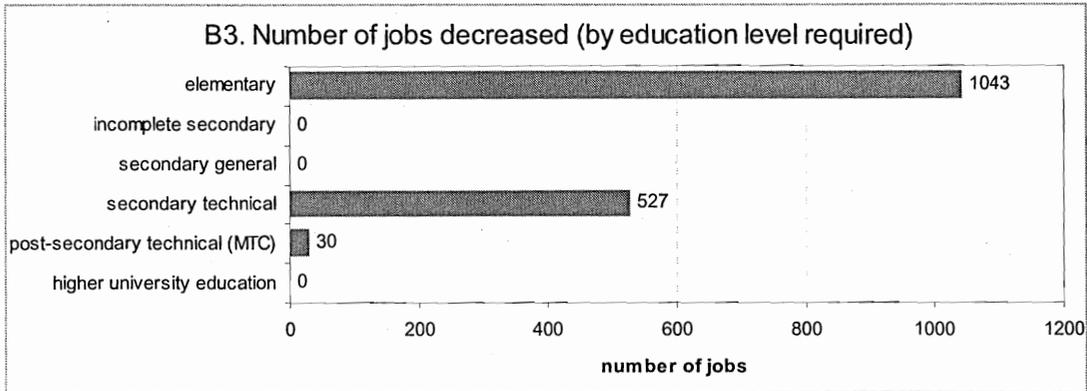
- 7- **Growth and investment by enterprises.** A considerable proportion of enterprises indicate that their revenue increased during the past year, and they expect a similar pattern in the coming months. This growth is being translated into growth of employment in these firms which is a be a positive factor for MTC graduates/



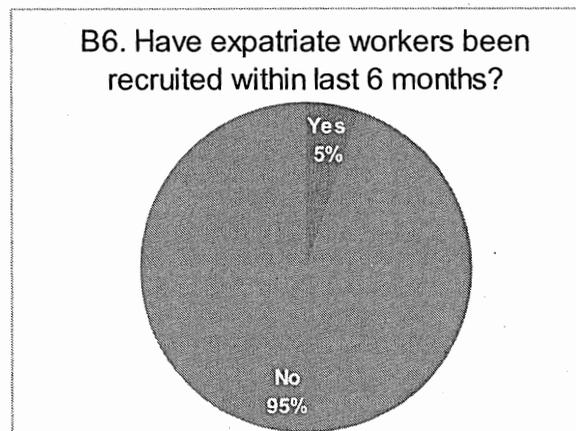


8- **The nature of employment in enterprises.** The greatest proportion of employees to be hired are from secondary technical schools (41%), with a much smaller proportion from the Middle Technical Colleges (16%). With regard to decreases in employment, the largest proportion are employees with elementary education (65%), and secondary technical (33%). The figures appear to indicate a large turnover and change in employment of individuals with secondary technical education.

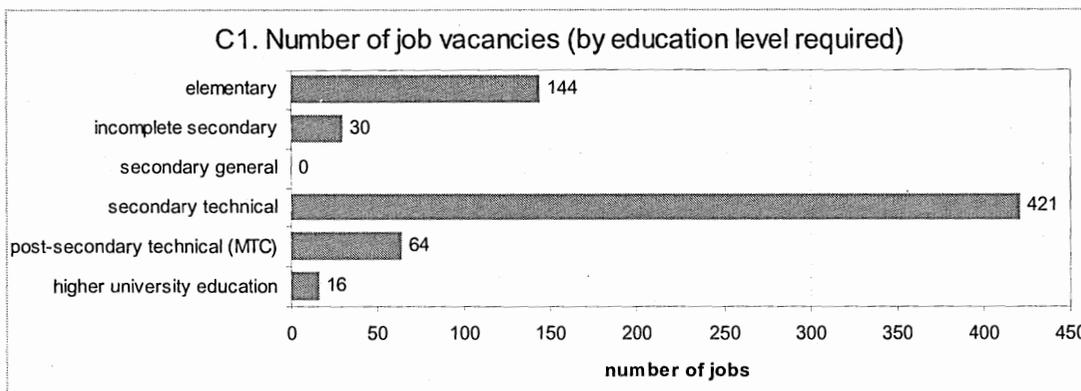


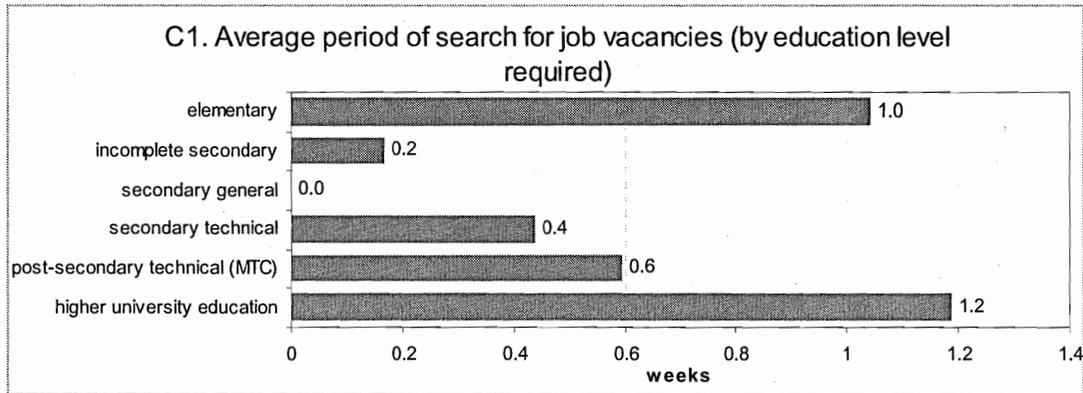


9- **Hiring of expatriate workers by enterprises.** Very few enterprises are hiring expatriate workers.

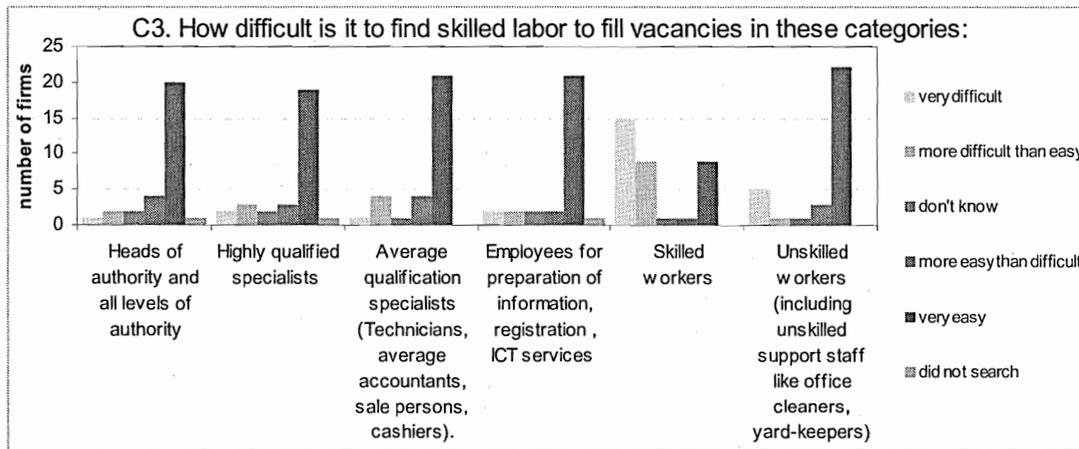


10- **The profile of current vacancies in enterprises.** Enterprises indicate that they are primarily looking for new employees with secondary technical education (to fill current vacancies; and that the average number of weeks required to fill vacancies requiring secondary technical and middle technical training is 1-2 months.

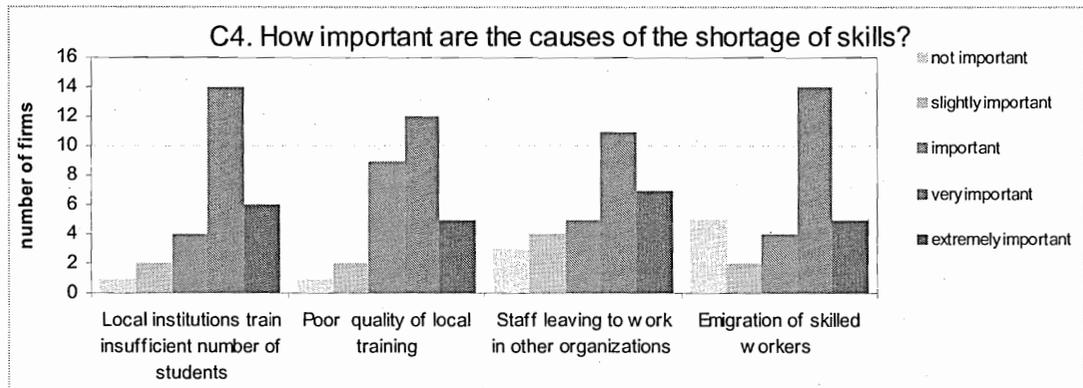




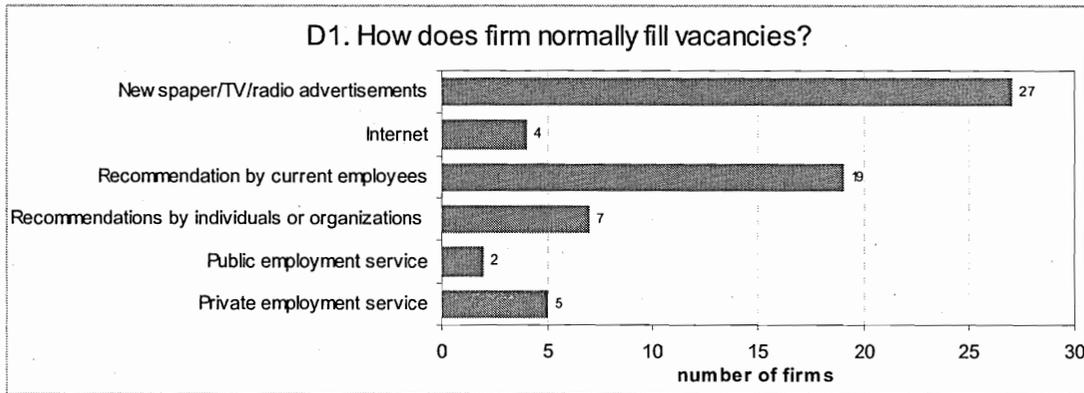
11- Difficulty in filling vacancies at enterprises. The most difficult types of vacancies to fill are positions for skilled workers – the objective of MTC training programs.



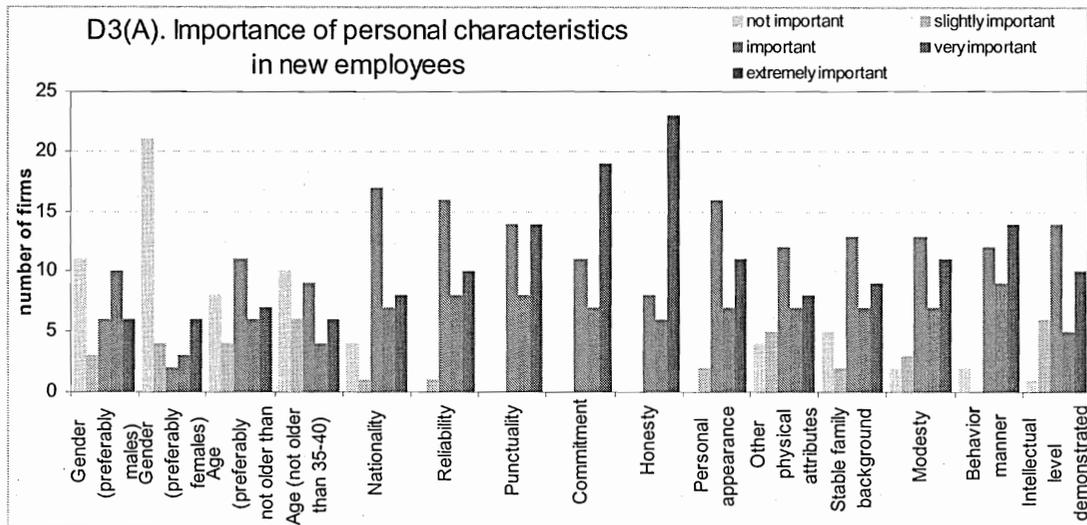
12- Primary reason of shortage of skills: Enterprises state that there are multiple reasons for the skill shortage, but the lack of both quantity and quality of local training are the most important factors. These reasons speak directly to the importance of increasing both quality and quantity of MTC programs.

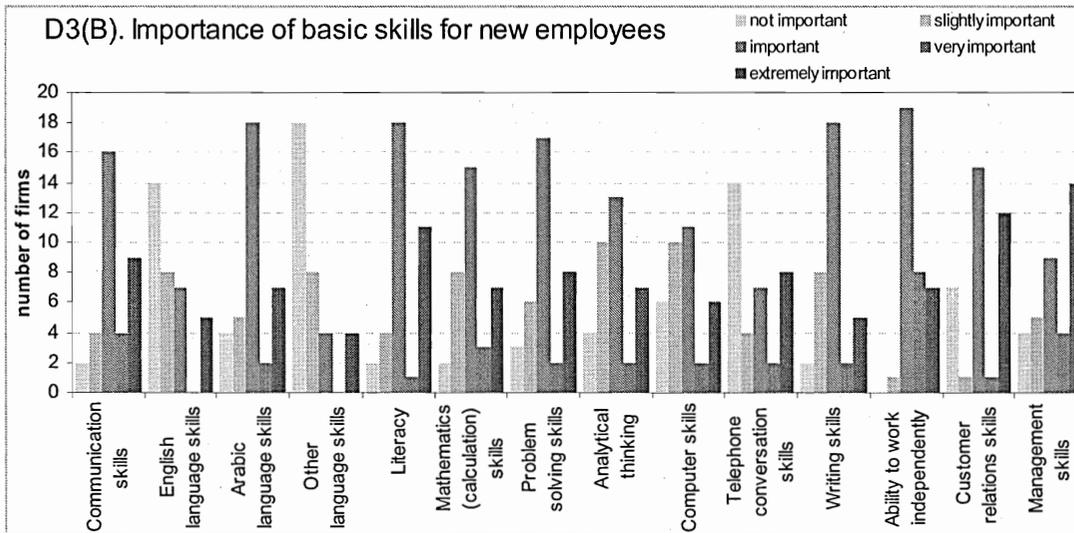


13- **Methods used by enterprises to fill vacancies:** The primary ways enterprises recruit employees are via media, recommendations from employers, and from other organizations. This provides MTC with information on how to assist graduates with job search and emphasizes the need for MTCs to try to get all students into on-job-training during the time they are at MTCs.

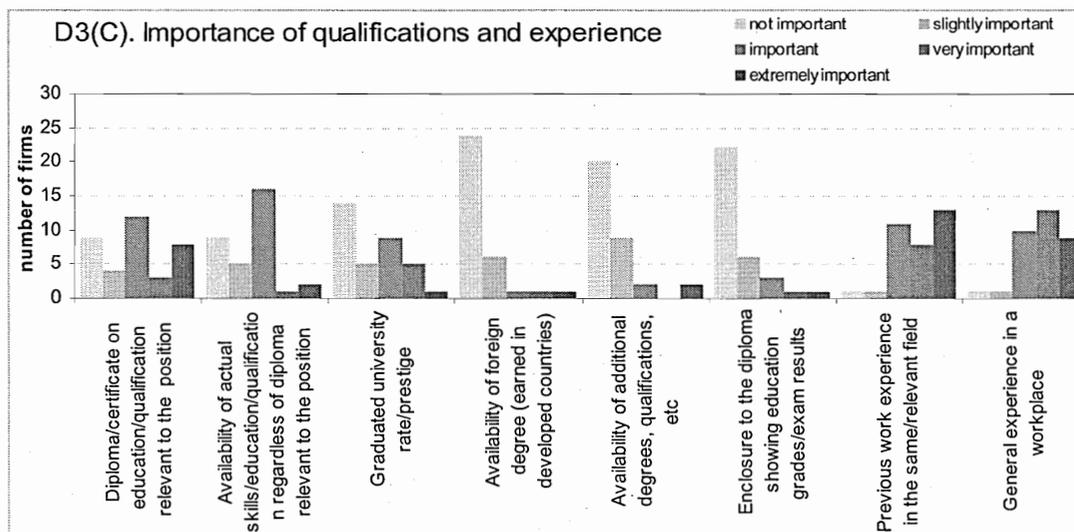


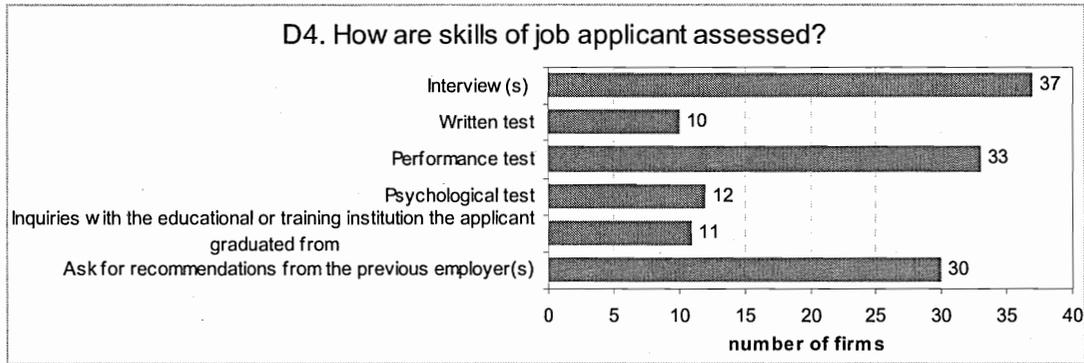
14- **What personal and basic skills do enterprises consider most important?** Enterprises indicate that reliability, punctuality, commitment, honesty, and behavior are key personal characteristics. Literacy, customer regulations, management, and problem solving skills are important basic skills. These areas need emphasis in MTC training programs.



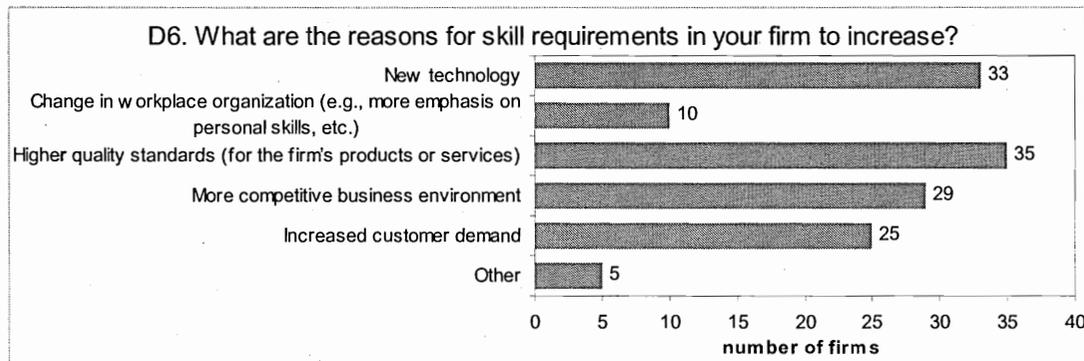
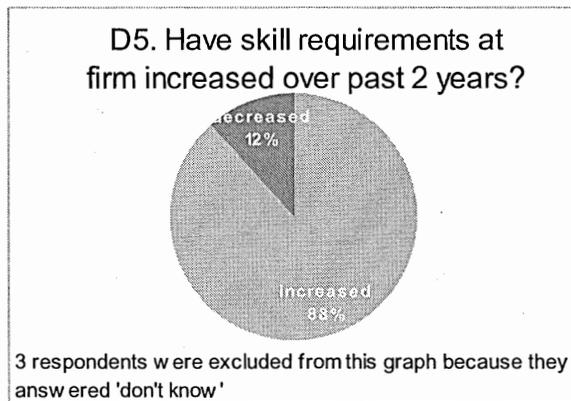


15- How important are technical skill qualifications and how do enterprises assess these qualifications when hiring workers? Previous general work experience and experience in the sector are the most important factors, followed by certification from institutions. However, the availability of skills (regardless of certification) is almost as important as having certification from a training institution. Employers primarily assess skills by interviews, performance tests, or recommendations from employers. These trends emphasize the need for MTCs to provide practical as well as theory training, and if possible, provide on-job-training for students during their training period.

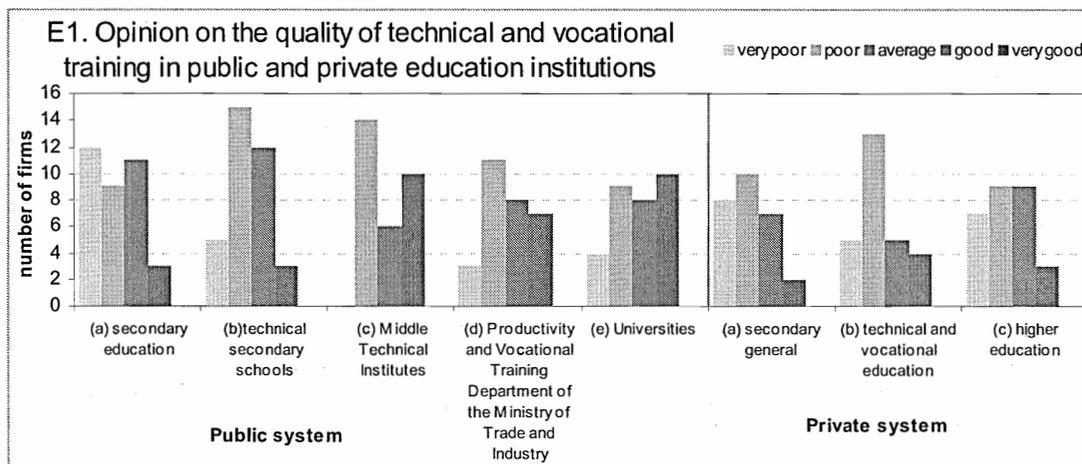




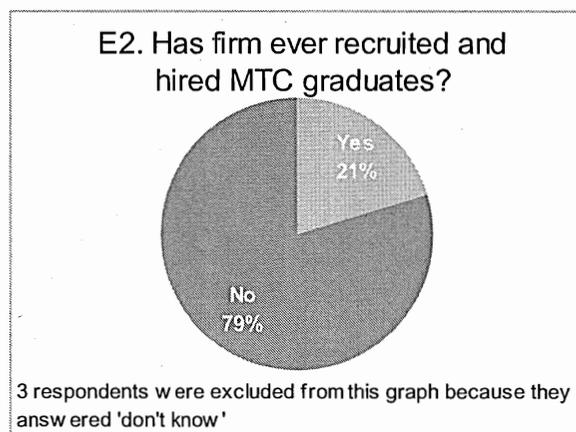
16- Have skill requirements changed over the past two years and what factors are affecting skill requirements? Eighty-eight percent of enterprises indicate that skill requirements have increased, and the three primary reasons are increases in technology, competition, and need for increased quality of goods and services. These factors have direct implications for the quality/content of MTC training.

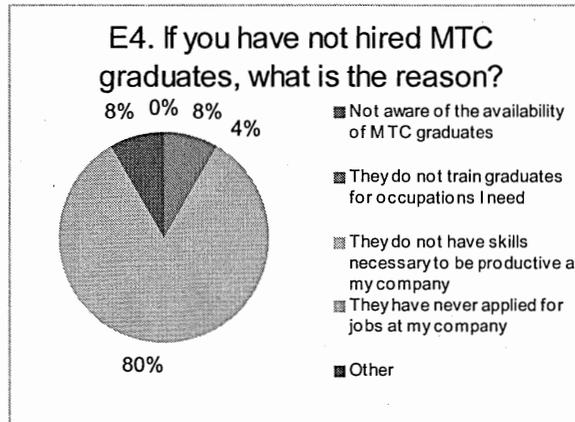


17- How do enterprises rate training programs provided by public and private institutions? Enterprises, in general, rate training provided by public and private training institutions as moderate in quality, which reflects their responses to other questions in the survey.

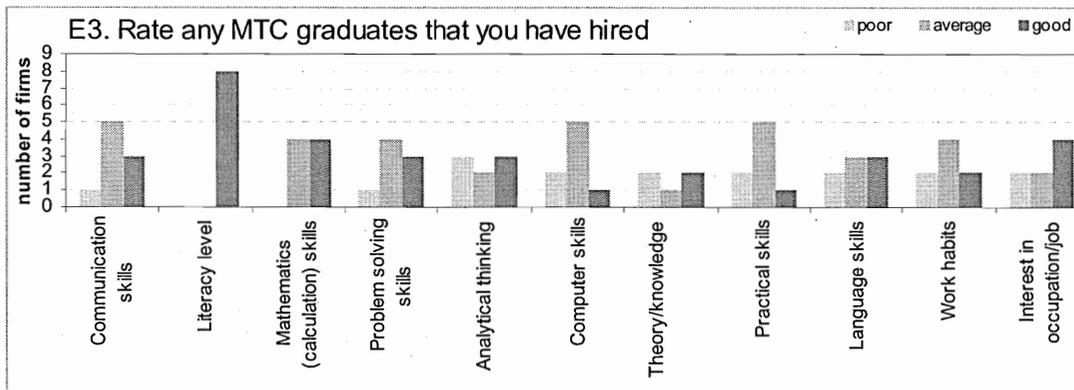


18- Have the enterprises hired MTC graduates, and if they have not hired MTC graduates why not? Seventy-nine percent of the enterprises surveyed have not hired any MTC graduates, and the primary reason for not hiring graduates is that MTC graduates have not applied to the enterprise for work (59%).





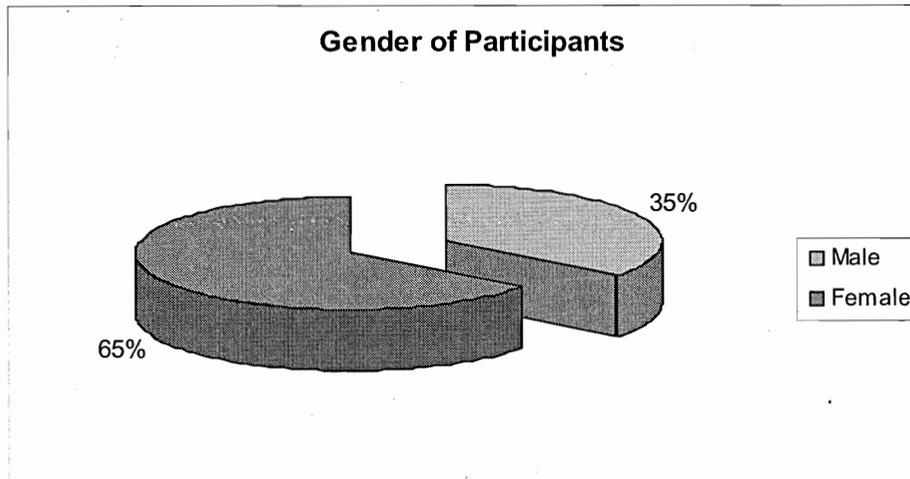
19- How do enterprises that have hired MTC graduates rate graduates. A majority of enterprises indicate that graduates are quite literate and good in mathematics. However, few enterprises rate MTC graduates very high in computer skills, theory/knowledge, and practical skills. These findings have direct implications for MTCs.



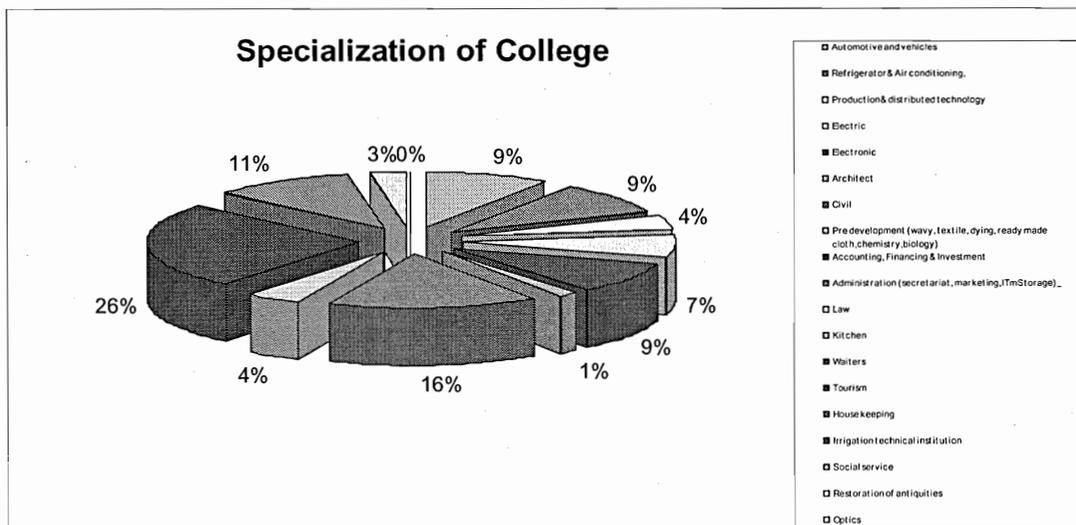
XI Graduate Survey Findings at Mehalla

Note: due to the small sample size caution should be taken in interpreting the results, not attempt has been made to draw conclusions, and the data should primarily be used as anecdotal information.

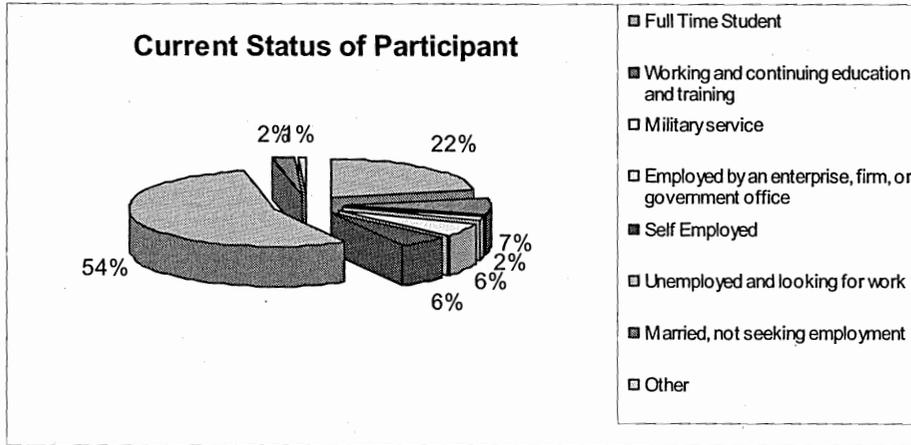
1- Gender of the survey participants.



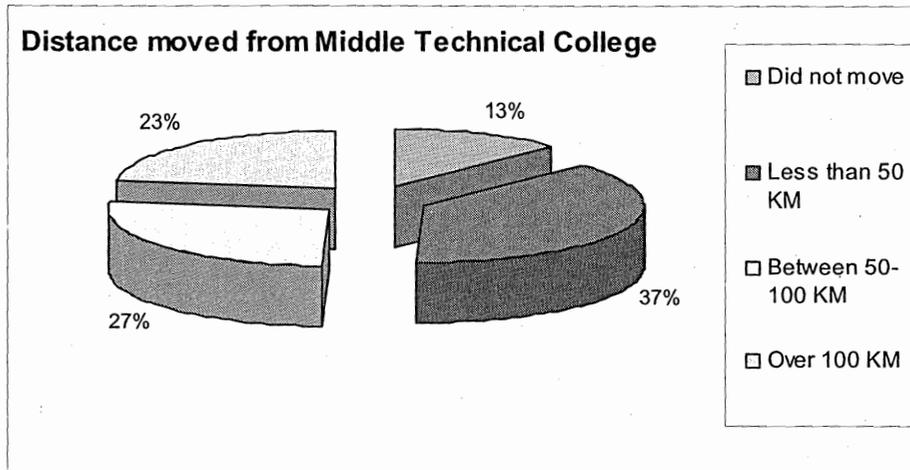
2- The College training specialization of the participants



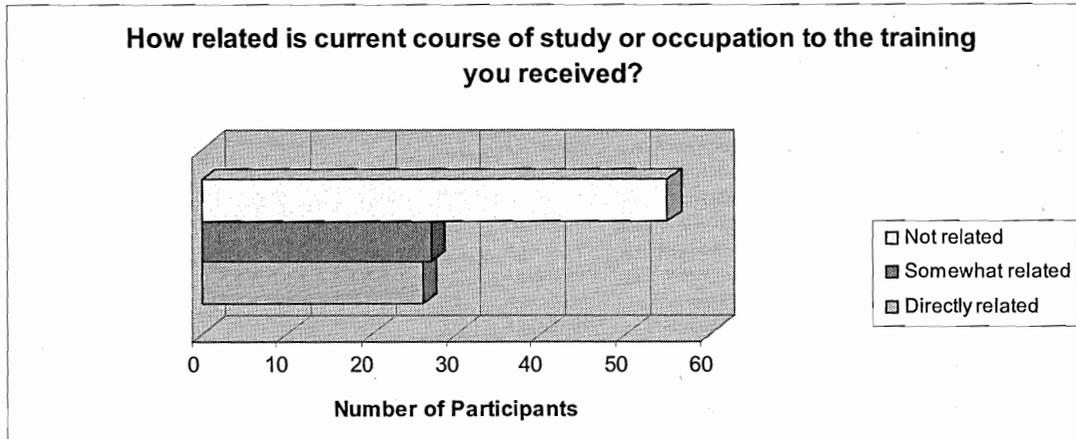
3- The current status of the 2007 graduates



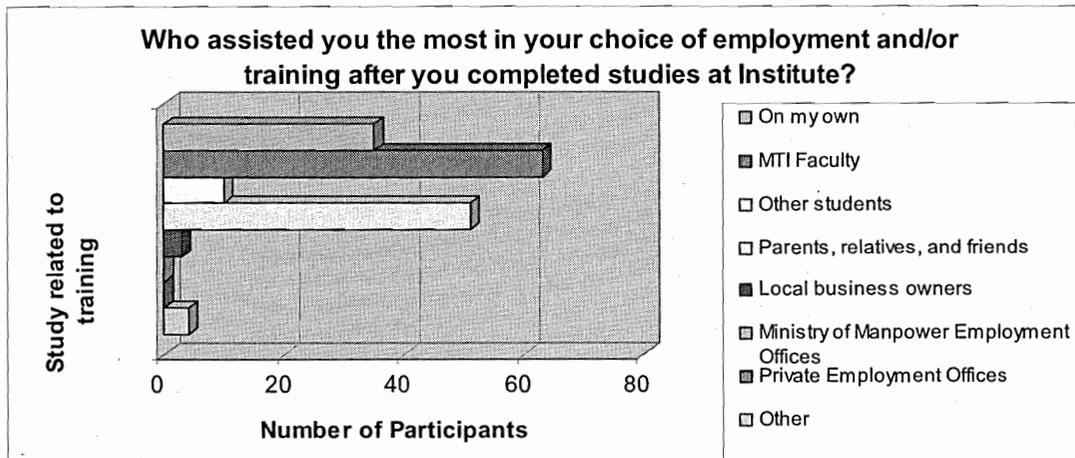
4- Distance moved after graduation from MTC



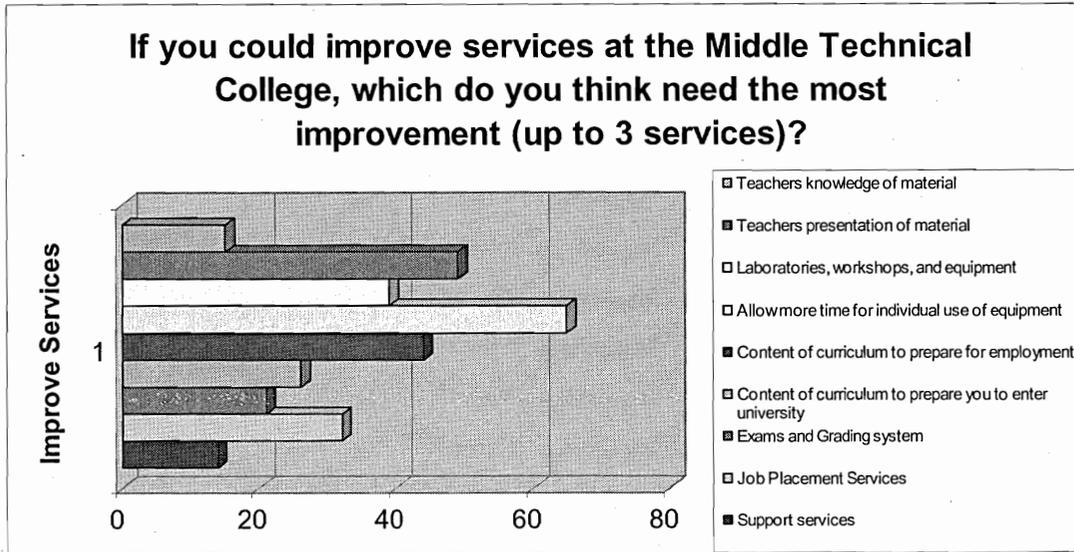
5- Relation of the current study or occupation to the training received in MTC



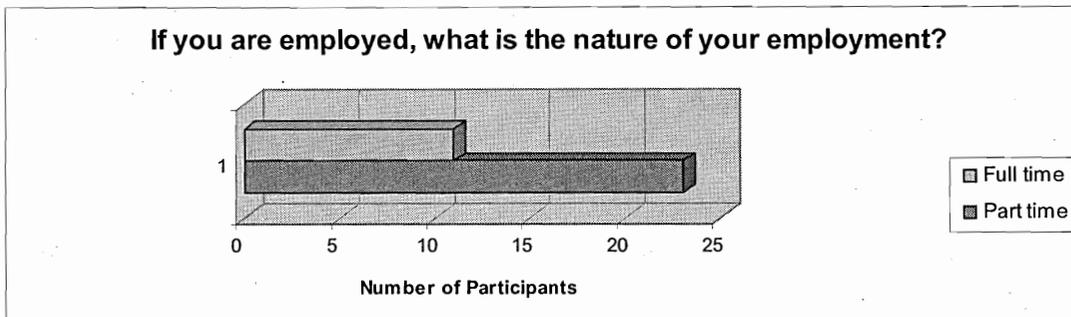
6- Who assisted graduates in their choice of employment and/or training after completed studies at the College



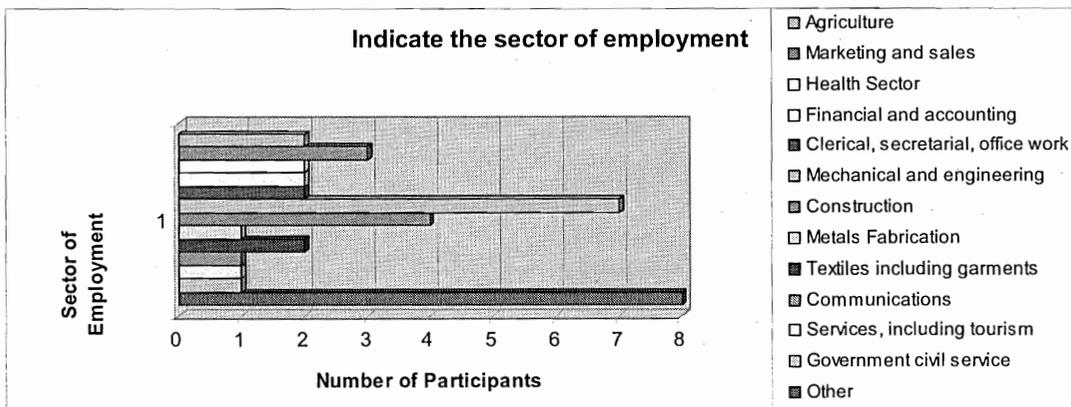
7- What services need the most improvement at the Middle Technical Colleges (graduates were asked to list up to three services).



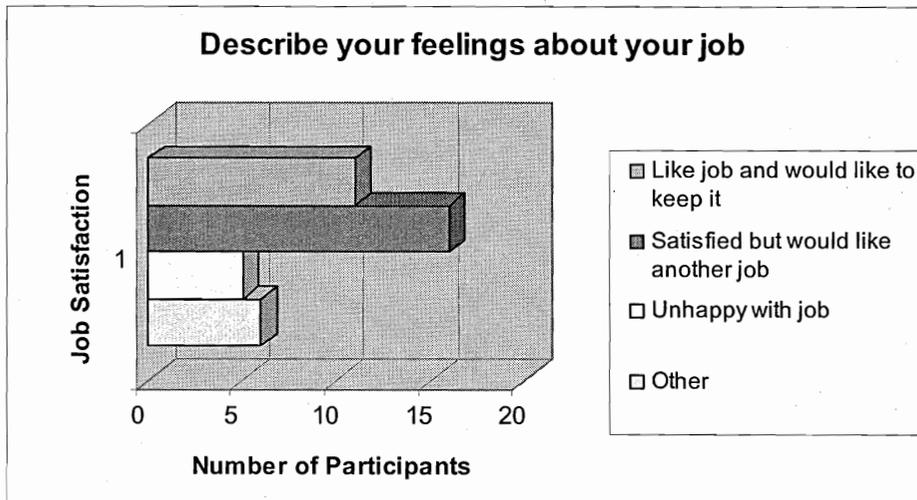
8- The nature of employment



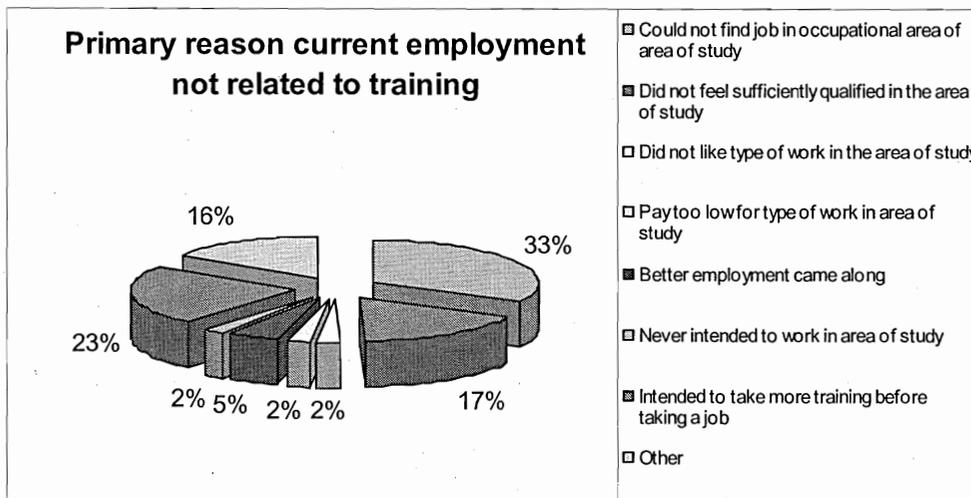
9- Sector of employment



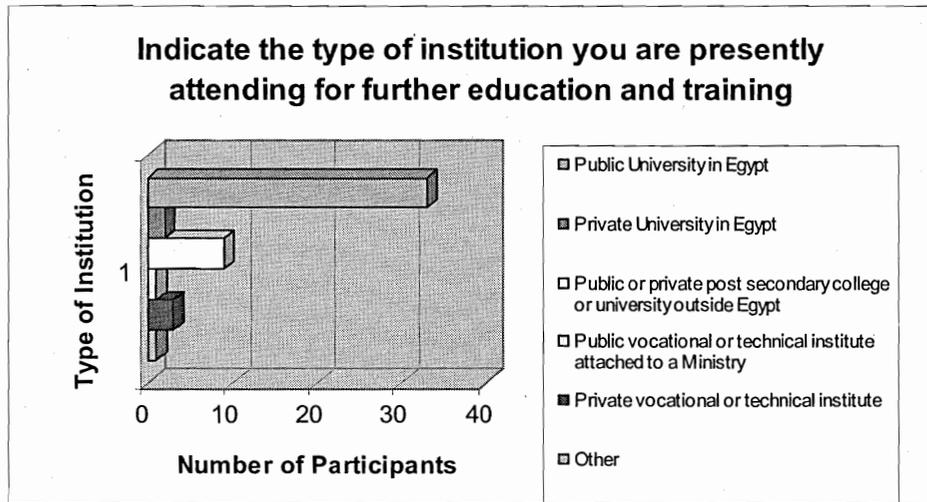
10- Satisfaction of the job



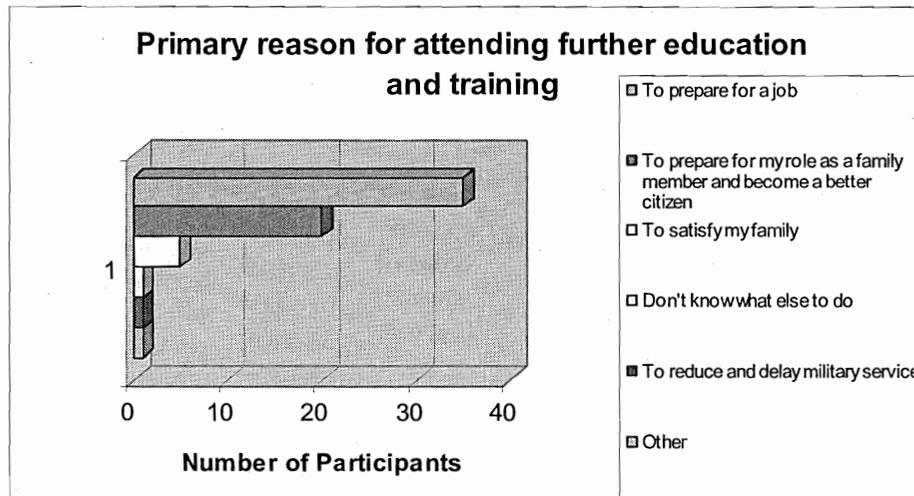
11- Primary reason of unemployment



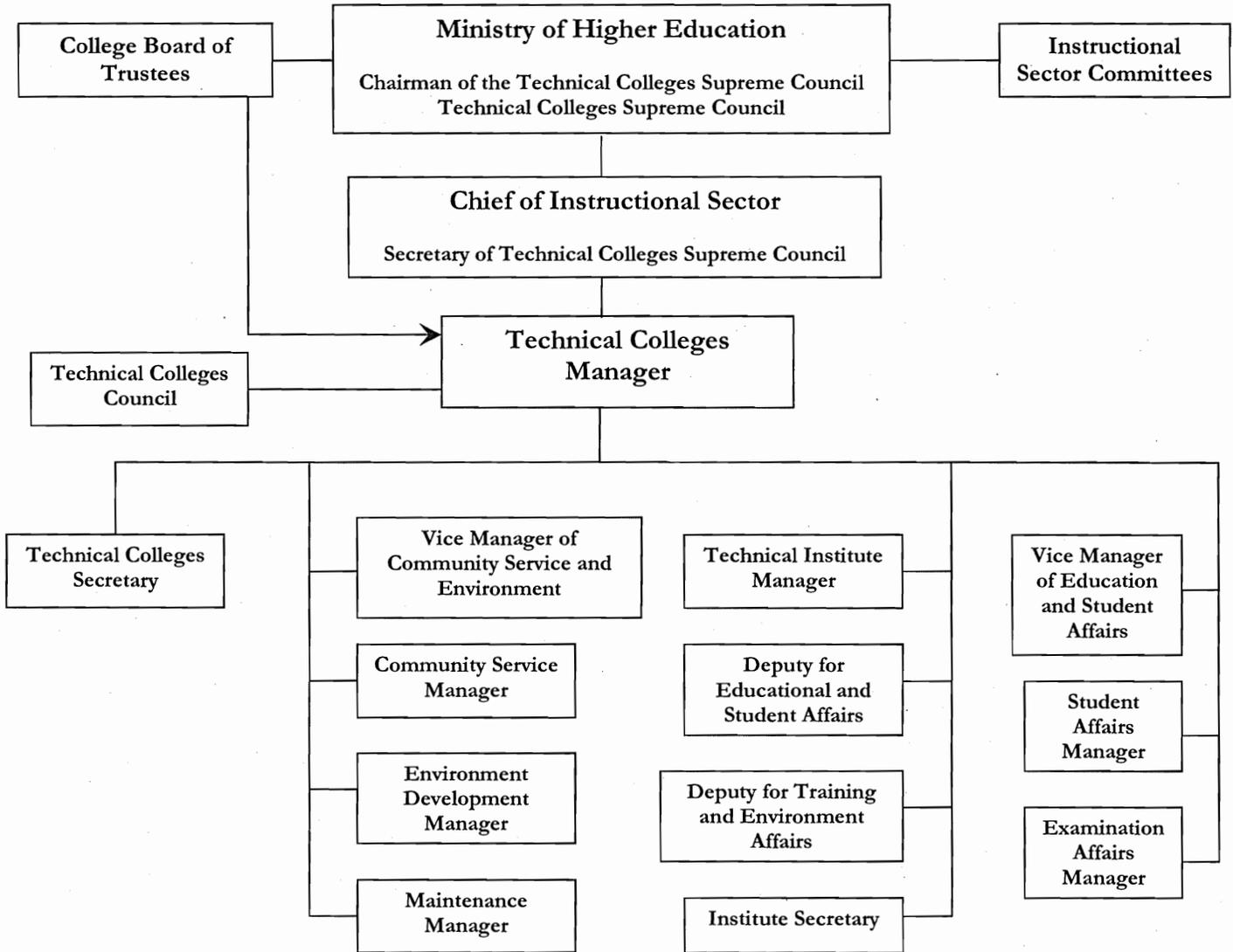
12- Type of institution attending for further education



13- Primary reason for attending further education



XII. Organization chart



**ANNEX I:
BASELINE STUDY FOR
SOUTH VALLEY TECHNICAL COLLEGE**

- I. Introduction
- II. Governance and Finance
- III. Administration and Institutional Support
- IV. Curriculum
- V. Faculty Competence
- VI. Facilities and Equipment
- VII. Program Accountability and Evaluation
- VIII. Skill Standards
- IX. Design and Delivery of Programs Meeting Industry Needs
- X. Employer Survey Findings
- XI. Graduate Survey Findings
- XII. Organization Chart
- XIII. South Valley Technical College Staff

I. Introduction

This Report presents the results of a baseline analysis, and employer and graduate surveys during the GAP Analysis of South Valley Technical College. The Report should be read in conjunction with the summary report of all three colleges. The work was completed by a team of international and local consultants on June 20, 2008.

Objective of the GAP Analysis:

The objective of the GAP analysis is to assess the status of technical college administered by the MOHE. This analysis will establish the relevant norms and standards (desired state) from which the remaining Middle Technical Colleges (MTC) will be analyzed. The results of these analyses, the gap between the current state and the desired state, are intended to aid MOHE in strategic planning, quality assurance and accreditation, and capacity building of the eight MOHE Technical Colleges as well as new technical colleges to be established.

Phases of the GAP Analysis:

Phase I of the GAP Analysis developed baseline information on the South Valley Technical College, and refines the model Template and procedures. This will assist other Colleges in conducting self-assessments, and to identify short-comings in college operations which need to be addressed to improve program quality, cost effectiveness, and relevance for graduates in their participation in the labor force. Phase II finalized the framework for the GAP Analysis, identified norms, and provided recommendations for closing the GAPS. Phase III of the GAP analysis will focus on dissemination and discussion of the recommendations of the GAP analysis and strategies for conducting future institutional self-assessments.

South Valley Technical College Structure:

South Valley Technical College includes nine institutes located in four campuses. The institutes are the aluminum in Naga Hamady, the commercial, the industrial, the travel & hotel and the survey & irrigation in Quena, the commercial, the industrial and the restoration of antiquities in Aswan. The team visited Aswan and Quena.

Organization of this Report:

The baseline report summarizes the status, strengths and weaknesses of the South Valley Technical College on the topics of governance and finance, administration and institutional support, curriculum, faculty competence, facilities and equipment, program accountability, skill standards, and design and delivery of program meeting industry needs. This is followed by a presentation of the results two surveys (MTC graduate follow survey and employer survey) which provide additional baseline information on the above topics⁵¹. The report also contains some Annexes to provide more information on the above mentioned topics.

⁵¹ Note that there has not been any attempt to draw detailed conclusions from the data presented on the employer and graduate surveys at individual colleges due to the low number of surveys completed. Summary level conclusions and recommendations, based on data compiled for all three colleges, has been provided for both surveys

II Governance and Finance

Mission, Vision and Goals: The College does not have its own mission statement nor announced values and goals, however, the general mission statement for all technical colleges in Egypt, article one, ministerial decree #2655, October 2006 guides the college's mission, vision and goals.

Strengths: There is an overall mission statement for all technical colleges in Egypt.

Weaknesses: The overall mission statement is not well publicized nor disseminated. The general mission statement guides technical colleges throughout Egypt. South Valley Technical College has not developed their own mission statement in response to local community markets/needs. A complicating factor is that while the overall mission is primarily to prepare youth for the workforce, there are competing social and political missions which, although not explicitly stated, have a large influence on operation of the colleges and the quality of instruction (i.e. the large enrollment increases without parallel support for facilities, equipment, and instructors). Any evaluation of the mission of the Colleges must take these latter issues into account.

Quality Policy: The College has a quality center operated by a committee consisting of four staff members and one administrator. Each institute has a quality unit guided by four staff members and one administrator. These quality units were established in 2008 but no quality policy is in place.

Strengths: A quality system has been initiated which demonstrates management's commitment to quality.

Weaknesses: No overall quality policy exists at individual colleges. Committee members are appointed to serve without remuneration or schedule adjustment.

Funds and Finances: The fiscal year is July 1- June 30. Each Institute prepares a budget request which is consolidated at the College level and is sent to the MOHE for approval and fund allocation.⁵² Budgets include very little discretionary funds. Students pay fees of approximately 80 LE per year of which 16% goes to the MOHE and the balance is used for student activities. About 20% of students receive social support to pay fees. The 2007-2008 college budget is 3.5 million LE of which 2.6 million LE is salaries (74%). Salaries are distributed to institutes while the remainder of funds is allocated as a lump sum to the college.

Special Production/Training Unit Center. According to the technical college by-laws (ministerial decree 2655, October, 2006) each college should have its own by-laws for Special Units and Service Center that will provide self-generated income. The College is preparing proposals for

in Annexes E and F of this Report, Survey data from individual colleges should primarily be treated as anecdotal, due to the low number of responses, and not used to develop policy and program changes at individual colleges and institutes.

⁵² The team learned that budget requests would typically be funded at 60% for non-salary and 100% of salary requests.

Special Units Centers for the Tourism and Hotel Institute in Quena and the Commercial Institute in Aswan.

Strengths: There is a secure salary financial status.

Weaknesses: The College has very little flexibility or control of funding. Salaries and maintenance budgets are centrally determined and controlled by the MOHE. This makes it difficult to move from a supply driven to a demand driven state and may preclude providing training to meet local needs. Although the college can accept donation, they have not received any (they have opened a special account to accept these donations). There is also considerable funding available from the Ministry for Trade and Industry (MTI) for short term in- service training for workers, but the Colleges do not apply for these funds partially because the flexibility to respond. There is a potential for conflicts between the production (to earn money) and training, and a major portion of the funds generated are not currently retained at the colleges.

Corporate Branding: The College has logos for the College and the Quena Technical Institute. There are no college promotional/marketing materials except the student bulletin previously cited. The college does not have to compete for students as they are admitted by the MOHE. No course catalog exists.

Strengths: College is guaranteed student enrollment and does not have to compete for students.

Weaknesses: Students are admitted centrally so the college does not develop a corporate brand to attract them.

III Administration and Institutional Support

Management Team: All technical colleges are public institutions and all staff have civil service status and are hired centrally by the Ministry of Higher Education (MOHE). Teachers must possess a B.Sc. degree or equivalent. Work experience is not required to teach. Officials indicated that the College is finding it difficult to hire qualified technicians for laboratories and workshops. The college's organizational chart which list employees by institute and type employment can be found in the Annex 2. In the by-laws written job descriptions for the College Director and Vice Directors (2) and the Institute Director and Vice Directors (2) are included. Teaching staff have defined teaching load. The College is preparing draft by-laws for decentralization for consideration by the MOHE and hope to finalize this summer.

Strengths: Employees of technical colleges have job security and do not have to be concerned about dismissal.

Weaknesses: Centralized hiring limits flexibility of the local technical college to staff according to local needs. Civil service salaries do not provide incentives for job satisfaction and make it difficult to make necessary staff changes (hiring, dismissal, rewarding, etc). The Board of Trustees meet infrequently, minutes of meetings were not available and local administrators were not able to cite major actions of the Board.

Rules and regulations: State public rules, regulations and policies apply to the College. This applies to admissions policies and regulations as well as student policies and responsibilities related to admissions and studies therefore local policy for these areas is not allowed. The college communicates policies, regulations and procedures to students through teachers and through a bulletin for students.

Strengths: State public rules provide adequate reference that provides a uniform system through the technical colleges.

Weaknesses: There is no facility to generate local rules and regulations to meet local needs. At present there are no approved plans/bylaws for decentralization to support development of rules and regulations to meet local needs. The College has not provided suggested bylaws to support decentralization as requested by the MOHE. There appears to be a lack of knowledge and guidance from the MOHE to Colleges as to what form the bylaws should take, and which areas they should address (i.e. governance, finance, management, personnel management, governance, student selection, curriculum design, evaluation, etc.).

Student Admissions Process: The College indicates their capacity is defined by the MOHE, and students are assigned by MOHE. Students completing technical secondary school or general secondary school are allowed to list their priorities for advanced study in the Technical College. The process of admitting students is done centrally by the MOHE considering the students' grade point average. The college must have approval of the MOHE to change curriculums.

Strengths: The possibility of program change exists when needed. A process for these changes exists.

Weaknesses: Programs and related curriculum is determined and changed centrally by the MOHE. This does not always take local market needs into consideration.

The number of students assigned is often more than College capacity which causes overcrowding. Students may be allocated to individual institutes and specialties, based on secondary school grades or lack of capacity in a particular specialty at the College, which may result in assignment to areas which do not meet student interests or needs or do not reflect the training taken at the Secondary Technical School level.

Records: Records are mainly paper records. The College is developing a management information system which will be connected to the MOHE and should cover student and administration records. Student can access their records and obtain transcripts of their work for a fee.

Strengths: There is a system for keeping records. College is starting to develop a management information system.

Weaknesses: Delay in developing an electronic system and backup systems of records.

IV Curriculum

Status: Development of the syllabi for all curricula for the Technical Colleges is done at the national level under the direction of the Ministry of Higher Education. A team is created to develop the syllabus for each program to be offered. The typical team consists of a professor, an employer, and a teacher from a technical college. Some teams may have more than one member from each of these positions. For most of the industrial specializations (air conditioning and refrigeration, electricity, etc.). The committees begin their work with the Egyptian national skill standards that have been developed by the Industrial Training Council (see discussion below under Section VIII).

The syllabi committees establish the objectives of programs and determine the percentage of instruction to be delivered in theory and practice. The syllabi that these teams create are taught in all technical colleges. Faculty at the local level may suggest changes in the syllabi, but all suggestions must be referred to the appropriate national committees for review.

It is the responsibility of teachers at the technical colleges to develop the content for the syllabi, but they do not have copies of the skill standards. Almost all of the textbooks for the programs are written by two teachers from the technical colleges. The Ministry of Higher Education chooses these teachers. Teachers at the three colleges visited complained that some of the authors who are selected do not have wide knowledge of the content areas for their textbooks. Most of these texts do not receive an independent review to ensure their accuracy. Several examples of inadequate textbooks were shown to us. The topic for a text in commercial studies, for example discussed communication methods. It was published in 2007, but makes no reference to the Internet or e-mail.

Strengths: Centralized development of syllabi ensures that framework for a given program area is uniform across the country. National skill standards provide a solid basis for a syllabus. Centralized development also makes it possible to identify individuals who are expert to serve on the syllabi committees.

Weaknesses: A small committee, typically three people, regardless of their level of expertise, is unlikely to reflect the full range of knowledge within a given occupational area. A standardized syllabus does not allow local modifications to meet local needs. Local teachers and trainers often have difficulty developing the content for the syllabi. There is little on-job-training for students nor is it an integral part of the curriculum. There is no entrepreneurship training integrated into the curriculum, even though the majority of employment opportunities are in the small informal or formal sector, both being an integral part of the supply chain for large enterprises

V. Faculty Competence

Status: Teacher Preparation: Instructional Staff at technical Colleges do not often have work experience in their field of instruction. Typically teachers begin their careers following graduation from a university. One must be a graduate of an arts, sciences, engineering, or information technology faculty to receive the title of "Teacher" in a technical institute, which means they teach the theory of a given occupation in lecture classes. They are engineers and in

most cases have not received preparation in pedagogy. Trainers are responsible for the practical instruction in the workshops. Any trainers who are hired under the Higher Education Enhancement Project (HEEP) must have a four-year degree from an engineering, information technology, or technical-vocational education faculty. Technicians also provide instruction in the workshops. There are no higher education degree requirements for technicians, but they must have graduated from a vocational-technical high school.

Status: Teaching Methodology: Teachers lecture on the theory while trainers and technicians provide hands-on practice. Lectures were not observed at South Valley College. The workshops visited had the equipment the college had received from the HEEP installed and operating. However, that the trainers had not received training and had to learn how to use the equipment by reading the manuals. This was difficult because the manuals are in English. The trainers have some understanding of English but often had to call upon the teachers of English as a second language for assistance. There were few students in the workshops. Students do not attend classes on Thursday so they can travel to their homes for the weekend. Those in attendance were organized into small groups to share the equipment. In the computer laboratory, however, there was one computer for each student in attendance.

Status: Faculty Continuing Education: Technical College contract trainers who do not have their degree from an education faculty are given six days of training in pedagogy. This training is a requirement for promotion. Teachers and trainers reported that they participated in training opportunities provided by the Ministry of Higher Education and did self study. The teachers and trainers had received professional development in the new syllabi that were developed by the HEET at the time of the AED visit.

Technical education must be participative. A student does not learn how to align the wheels of a car or type a business letter by hearing a lecture or reading book. These tasks must be demonstrated and students must acquire the hands-on experience that develops manipulative skills. The small number of workstations in the South Valley workshops made it difficult to obtain the amount of practice necessary for skill acquisition.

Strengths: The four year degree requirement ensures that entrants into the teaching profession have a broad theoretical background in the occupations that they teach. Trainers who have graduated from a vocational-technical education faculty also have received preparation in the pedagogy appropriate for practice instruction. South Valley is making effective use of most of the equipment it has received from the HEEP. The teachers and trainers taught themselves to use this equipment by study of the manuals. Students in each of the workshops were actively engaged with the equipment that was ready for use.

Weaknesses: Little or no occupational experience is a weakness of the current method of teacher preparation. Teachers teach what they have been taught, not necessarily the skills needed to be a proficient worker. Actual experience in an occupation provides a perspective that cannot be gained by studying that occupation. There is a wide gap between understanding how a car runs and being able to diagnose and repair a car that is not running. Some of these skills can be learned through study in a formal setting but actual experience performing tasks in the labor market improves one's ability to teach.

Separation of instruction in theory and practice occurs in many countries, but in our judgment results in less effective instruction. Practice should be grounded in the theory that underlies it, and this is facilitated if the same instructor delivers both

VI. Facilities and Equipment

Planning and Design. Plans for refurbishments are prepared through the General Administration for Management (GAM), via external consultants. Plans for new buildings are generated through the General Administration for Engineering Affairs (GAEA) by external consultants. They often contract with outside professionals. Note: In a few cases, HEEP plans are done with external consultants. Specifications for 1) classrooms, 2) laboratories, 3) workshops, and 4) administration and support spaces are available only for private institutes. The AED Team could not analyze the baseline conditions of the technical colleges because of the lack of Drawings and Specifications or because they were not submitted to our team in a reasonable time. Funds for design and planning are insufficient in nearly all cases to provide the level of documentation necessary to assure coordinated planning of refurbishments and for new construction.

Strengths: This process assures consistency and control. The use of outside professionals exposes the design process to fresh ideas and, if properly monitored, control of costs.

Weaknesses: This separation from the end user (the colleges themselves) often does not give them the product they want. The common complaint is that the technical colleges have no input in the programming or design process. They are simply told what they are getting. The discrepancy between what is installed vs. what was planned could be understood to accommodate the needs of particular instructors but in many cases, clearances to ensure safety or efficient operation of equipment are violated. These unsafe conditions project an indifference to the welfare of the students.

The Construction Process. Contractor selection and construction oversight is done by GAEA together with their consultant. GAEA hires outside consultants in nearly all cases where the work is in outlying areas. The completed construction is accepted by GAEA, but payment authorization lies solely under the authority of the Head of the Central Administration for Engineering (CAE) or his representative.

Strengths: This assures control and standardization of construction procedures throughout the country. Contractors know what to expect from the tendering of these projects, which should equate to lower costs.

Weaknesses: The view of the Consultants, and of those interviewed regarding this aspect was that the concentration of approval authority (under the Head of CAE) creates a processing bottleneck, as the CAE is also responsible for ongoing maintenance projects. Modifications to reflect the needs of client colleges are not considered. They simply have no input on scope of work, site layout, materials or finishes or accommodation of new technology.

Space and Equipment. The massive shortage of teaching staff and lack of laboratory technicians confirms the critical need to make spaces as efficient as possible; however, equipment in labs and workshops is not as shown on the Plans.

Considerable amount of new equipment has not been installed, although some of it has been on site for as much as a year. Rationale is that the supplier has not yet checked out the equipment; thus, it cannot be used until checkout is complete.

Medical facilities for students are in a minimal state. In a number of cases, electrical power supply to equipment has been installed in an unsafe manner. Unused building capacity is an issue; e.g., obsolete programs have simply been abandoned, leaving the rooms silent with obsolete equipment, rather than removing the old equipment and refurbishing to meet current needs.

Strengths: Top floor workshops and labs have clerestory windows—an excellent design for indirect light. Forming and Traditional Machining Workshop provides 4-6 sq m of workspace per student. Using that allowable space per student meets most usability standards. Hard surfaced floors and walls provide easy maintenance and longevity.

Weaknesses: Lack of equipment maintenance and maintenance technicians. The lack of sufficient electrical power outlets and non-functioning internet laboratories constricts the potential of laboratory and workshop instruction. Medical clinic does not have capability to readily treat accident or burn victims while waiting transport to hospital. Multiple injuries, particularly victims of shock, would largely go untreated due to lack of supplies, sufficient beds and isolation facilities. See attached photos for clarification.

Some workshops lack water supply and/or electrical and breakers to serve equipment. Fenestration not planned to reflect proposed use of interior space; e.g., a bank of windows at side/front of classroom which had to be curtained off to cut interior glare.

Records and Storage. There are no criteria for classroom storage. However, each workshop and laboratory must have sufficient storage to secure supplies and equipment.

Strengths: Plans available will be invaluable for planning, future modifications and budgeting and cost estimates.

Weaknesses: Documentation (Plans) lacking or inconsistent with what's actually in place. This partial record-keeping procedure defeats the purpose of documentation. It requires re-measuring, re-checking and the host of other tasks that must be accomplished to assure the validity of the record itself.

VII. Program Accountability and Evaluation

Quality Assurance: The college and institutes are beginning to develop a quality assurance system as contained in the HEEP project. Each institute has a quality assurance unit and committee. Each committee consists of four staff members and an administrator. Through the quality assurance system committee members attended quality assurance workshops and provided training for additional staff members. The institutes have developed course specifications and are going to produce course reports and action plans for course and program development for the coming year. In addition tools have been developed for the quality assurance process including templates for student, staff and stakeholder surveys. The quality assurance system started recently (January, 2008) includes plans for internal assessment and data analysis and control of nonconformance. However this is not completed at this time.

Strengths: A quality assurance system has been initiated and work has started at the college and institute levels. It appears to be comprehensive and provides for staff involvement and input.

Weaknesses: There is a lack of widespread understanding and support of the quality assurance system by the staff and administrators.

Continuous Quality Improvement

Although a will was expressed for continuous improvement, there is not a system for continuous quality improvement in the management and operations areas. Due to centralization, college/institute management does not have the power or incentives to change current systems.

Strengths: Management appears to be aware of the need for improvement and is willing to achieve it.

Weaknesses: Absence of a system for continuous quality improvement. Centralization of management and operations functions reduces power for change at local level

Teacher and Learning Assessment. The methods used at the Technical Colleges for teacher assessment include observations of teaching performance, student test performance and student feedback. The Quality Assurance and Accreditation Committee have developed for the Ministry of Higher Education procedures for teacher assessment that incorporate, and in many ways, exceed prevailing international standards.

Learning evaluation practices used at the Technical Colleges include short quizzes, longer exams, and an end of term exam. The use of a nationwide, end of program examination, which is required in Egypt, is not as common. Colleges set examination for first year completers, while graduate examinations are set by the MOHE.

Strengths: The Quality Assurance and Accreditation Handbook provide a comprehensive guide for assessment of colleges, including the quality of their teachers. It includes templates for all

phases of an institutional assessment and instructions for their use. Egyptian methods of evaluating student learning are consistent with international standards.

Weaknesses: The reviews did not see any major weakness in the quality assurance methods that have been developed, but saw little evidence that these methods are being used in the Colleges visited. This is a new initiative in Egypt and will take many years to be implemented. Assessment of knowledge and performance did not appear to be linked directly to original skill standards, or use the assessments developed by the NSSP.

VIII. Skill Standards

The National Skills Standards Project (NSSP), located at the Social Fund developed skill standards and assessment materials for the past several years. The NSSP is closed however the Industrial Training Council is continuing the process. The objective has been to set standards equivalent to those of the European Union (a National Qualification Framework project has been initiated by the European Training Foundation from the EU at the Ministry of Manpower). The Egyptian standards are based on analyses and comparisons of the standards that are used in such countries as Scotland, France, Germany, Denmark, Canada, and Jordan. For most occupations, five competency levels are specified. In Egypt these levels were roughly defined for us as laborer, skilled worker, master worker (supervisor of skilled workers), engineer, and professor. It is the goal of the Ministry of Higher Education Technical College Unit to have curriculum which will teach the knowledge and skills required by a level three master worker. Over 200 standards, for over 100 occupations have been developed for industrial specialties. These standards have been provided to the Ministry of Higher Education for use in syllabus development. Unfortunately, these standards have not been provided to the technical colleges for use in development of content for the syllabi.

For those specializations in commerce, tourism, and social service, for which national skill standards are not available, workshops are conducted with employers. The employers are asked to describe the skills needed by their employees. The initial NSSP standards used a Functional Analysis approach, but a structured process is not used in the workshops.

Strengths: The existing skill standards provide a strong foundation for syllabi development. Many developed countries have adopted a similar approach. The existing NSSP standards appear to have been carefully developed and are of high quality.

Weaknesses: The teachers and trainers at the college level do not have the national skill standards for use in development of the content for the syllabi. An examination of the Level 3 skill standards on which the Colleges are to base their curriculum, are in general beyond the current level of instruction at the Colleges. This has multiple causes including, but not limited to, instructors who themselves do not have level three skills or work experience, lack of basic equipment and facilities which are key to developing more advanced skills on new equipment provided by HEEP. A major over riding problem is the overcrowding in classes resulting in "observation" rather than "doing".

IX. Design and Delivery of Programs Meeting Industry Needs

Technical colleges should strive to ensure their programs of study meet the needs of the labor markets that they serve. South Valley is located near the High Dam and offers programs generally appropriate for this area including high voltage electricity, irrigation, and aluminum, as well as air conditional/refrigeration, commercial and social service programs

Strengths: The programs offered at Upper Valley appear to generally respond to the needs of its labor market.

Weaknesses: Decisions as the types of programs to be offered are made at the national level and do not draw upon a variety of information sources. Systematic follow-ups are not conducted to determine if graduates obtain employment in the fields in which they have been trained. No surveys are conducted with employers to determine the occupations for which they are having the most difficulty finding qualified workers. Faculty has no input into the kinds of programs that should be added or discontinued.

While there tends to be a pattern of specialties in the institutes which reflects the sector needs the proportions are not always appropriate and as a result students are sometimes diverted to other skill areas where the sector demand is less.

Colleges do not attempt to provide in service training for workers, for which funding is available from the Skill Development Project at MTI. , This will increasingly be a shortfall as Colleges obtain modern equipment under HEEP.

Colleges do not appear to be developing or using performance and knowledge assessments available from NSSP which are based on skill standards, but rather use MOHE assessments based on curricula.

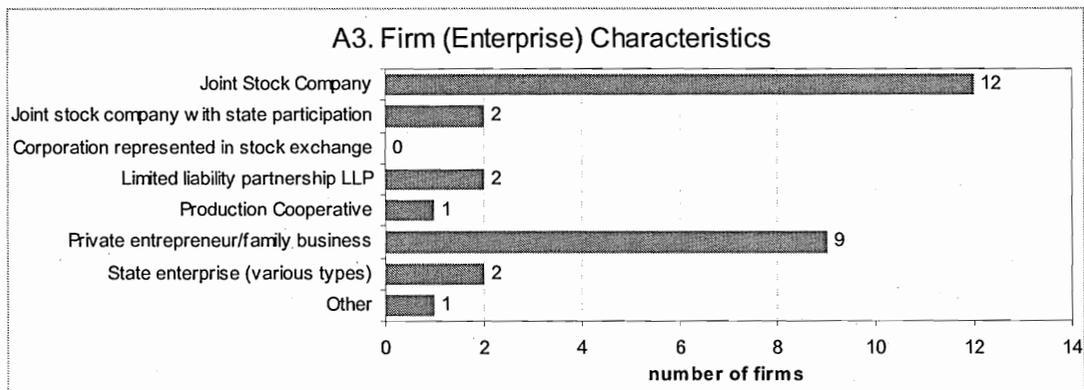
The Board of Trustees is basically dysfunctional. There is little On-Job-Training organized for students in the summer or during the year.

X Employer Survey Findings

Note: due to the small sample size caution should be taken in interpreting the results, not attempt has been made to draw conclusions, and the data should primarily be used as anecdotal information.

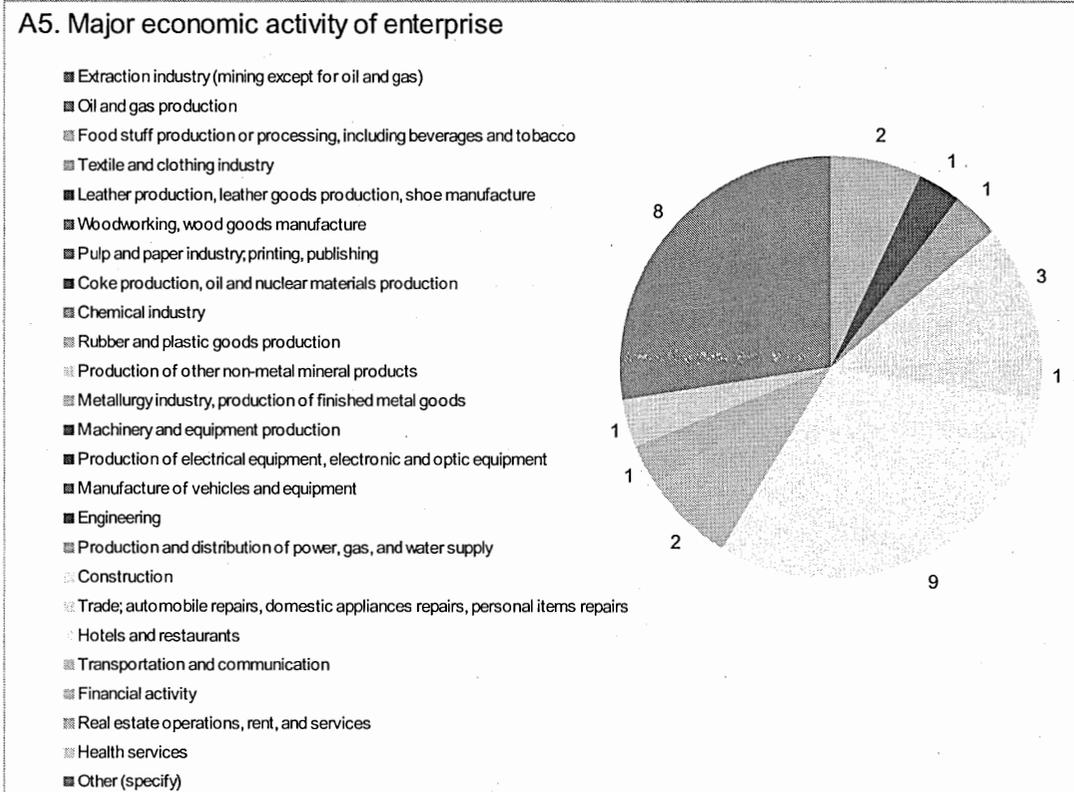
III. Results of the Survey ⁵³

- 1- **Characteristics of Firms in the Survey.** Forty-two percent of the enterprises were joint stock companies, 31% were private entrepreneurs, and all were established with local vs. foreign capital.

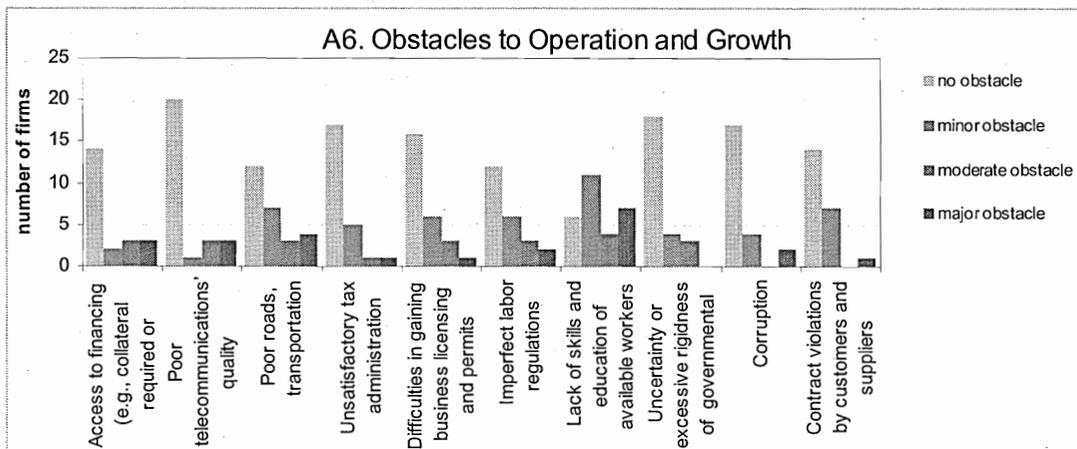


⁵³ Note that the letters/numbers on the charts refer to individual questions on the survey which is included in the annex of this report.

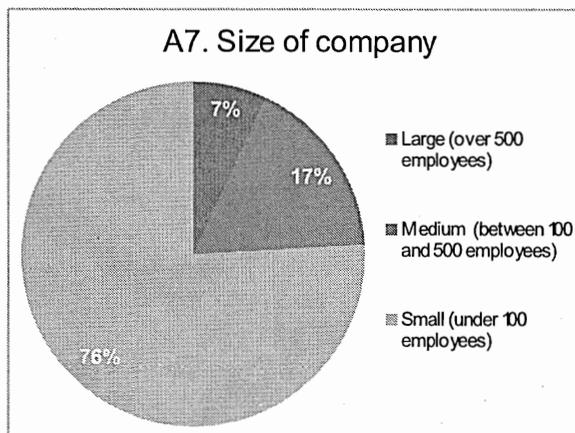
- 2- **Sectors represented by enterprises in the survey.** A wide variety of sectors were represented by enterprises involved in the survey, with a fair number in production. This variety helped ensure that the results were representative of overall employment issues.



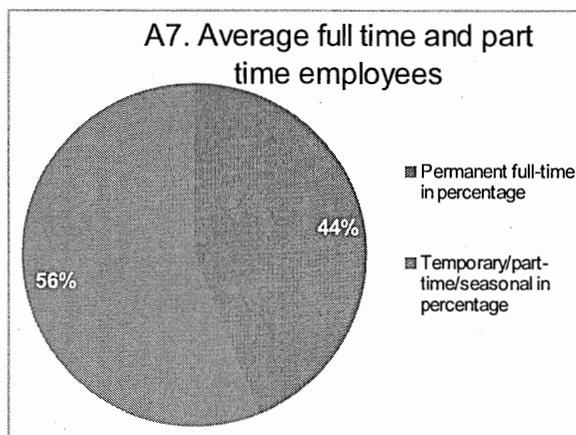
- 3- **The obstacles to operation and growth of enterprises.** Enterprises listed the lack of skills and education of available to workers as one of the major obstacles to growth.



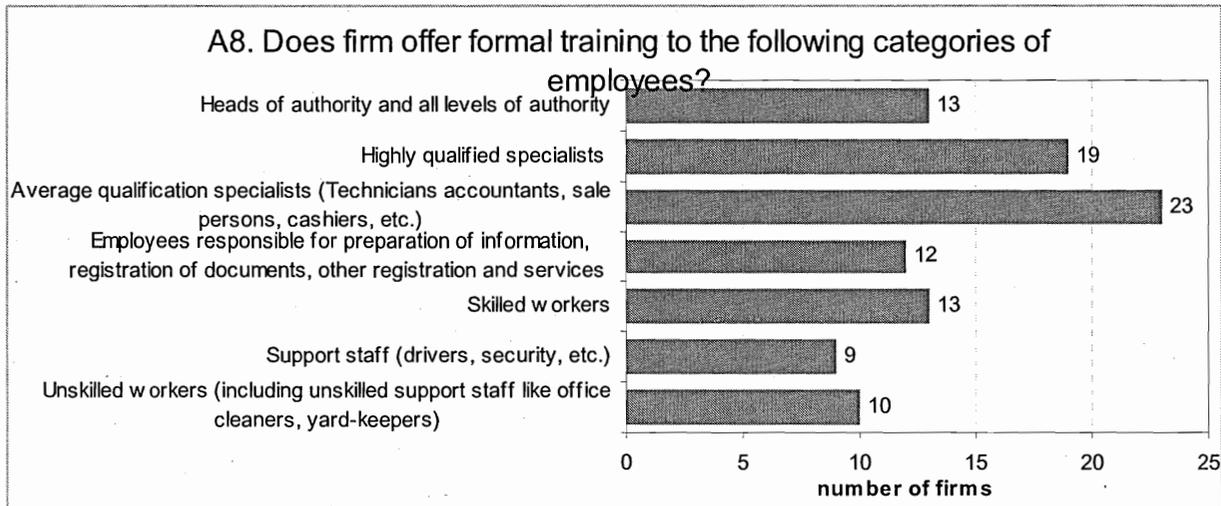
- 4- **Size of enterprises in the survey.** Seventy-six percent of the enterprises were small, which is significant and important to the results of the survey as these firms generate the largest amount of employment in most countries.



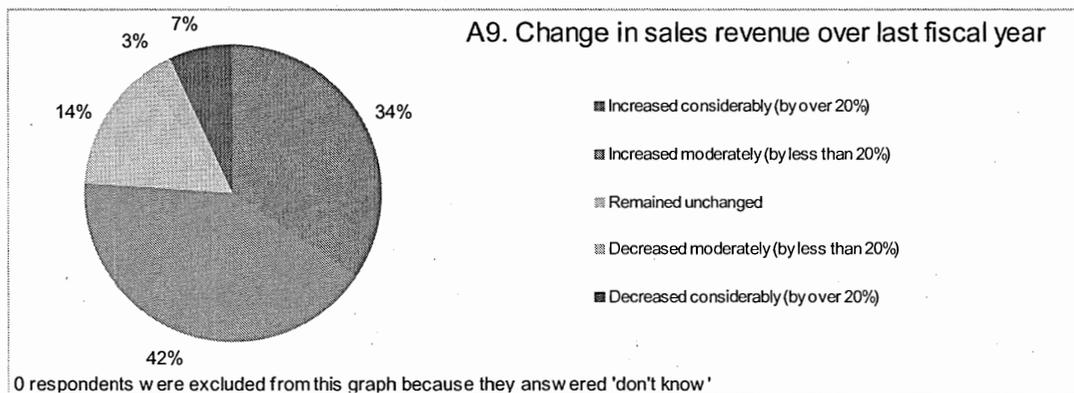
- 5- **Profile of full and part time employees.** The proportion of full-time to part-time employees is similar, which is reflected in the employment of MTC graduates (a high proportion of graduates who are employed are in part-time work).

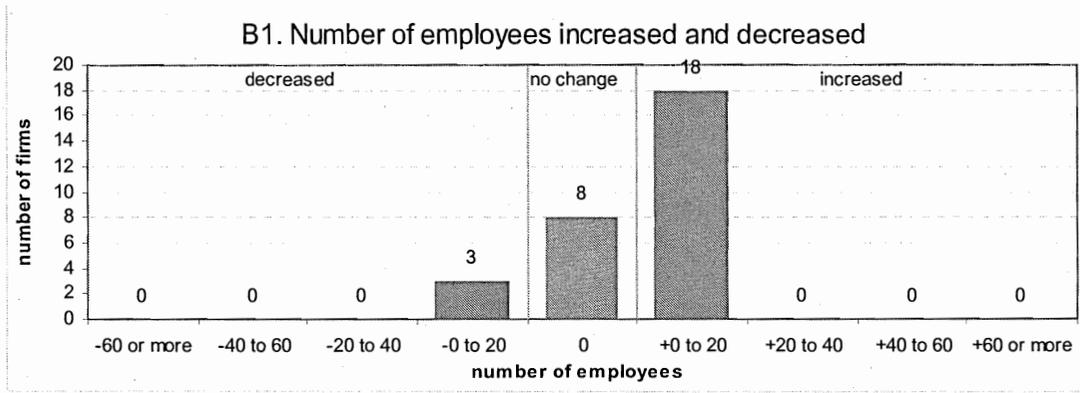
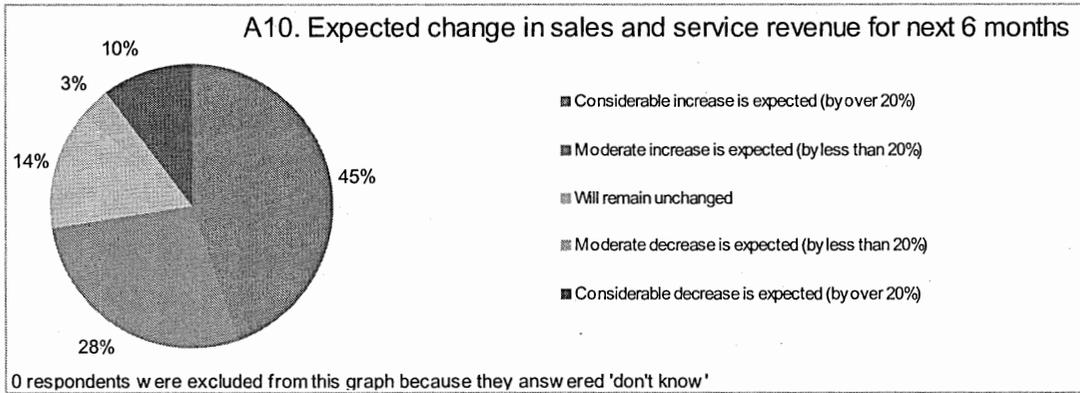


- 6- **The provision of training by enterprises.** A considerable proportion of enterprises do offer training for their employees, particularly for technicians and skilled workers. Given this trend, it should be possible for MTCs to arrange short term on-job-training for their students.

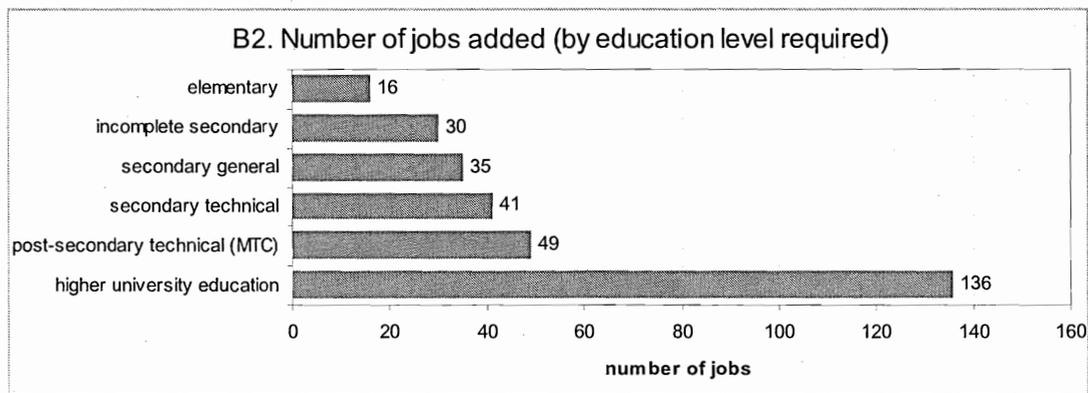


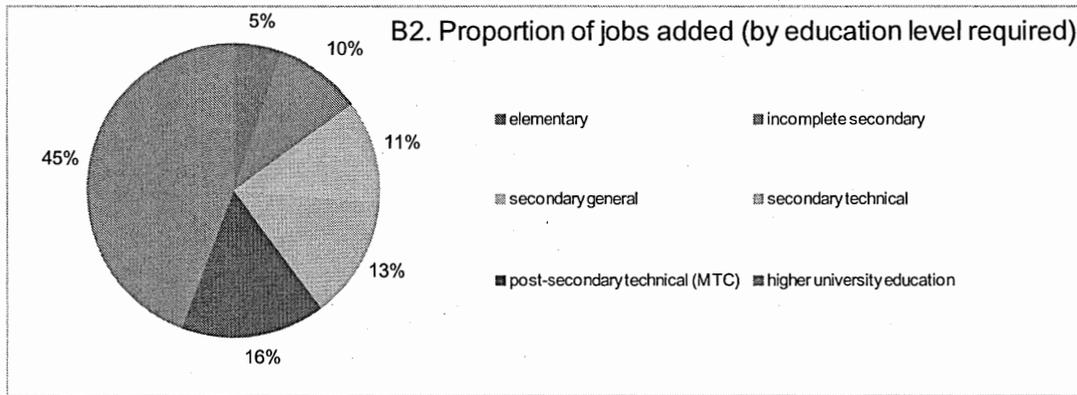
- 7- **Growth and investment by enterprises.** A considerable proportion of enterprises indicate that their revenue increased during the past year, and they expect a similar pattern in the coming months. This growth is being translated into growth of employment in these firms which is a be a positive factor for MTC graduates/



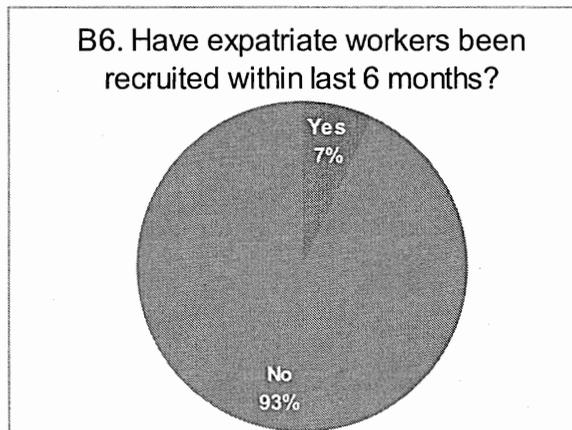


8- **The nature of employment in enterprises.** The greatest proportion of employees hired are from universities (45%) and Middle Technical Colleges (16%). The figures appear to indicate a demand for individuals with College education.

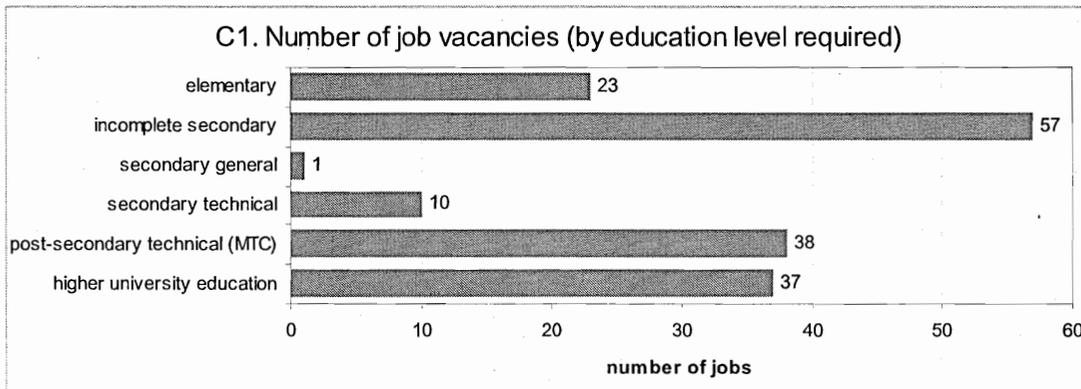


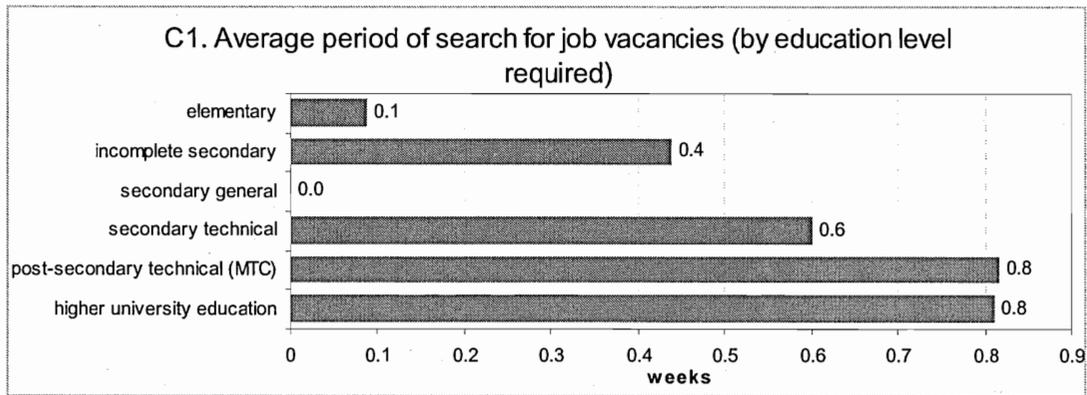


9- **Hiring of expatriate workers by enterprises.** Very few enterprises are hiring expatriate workers.

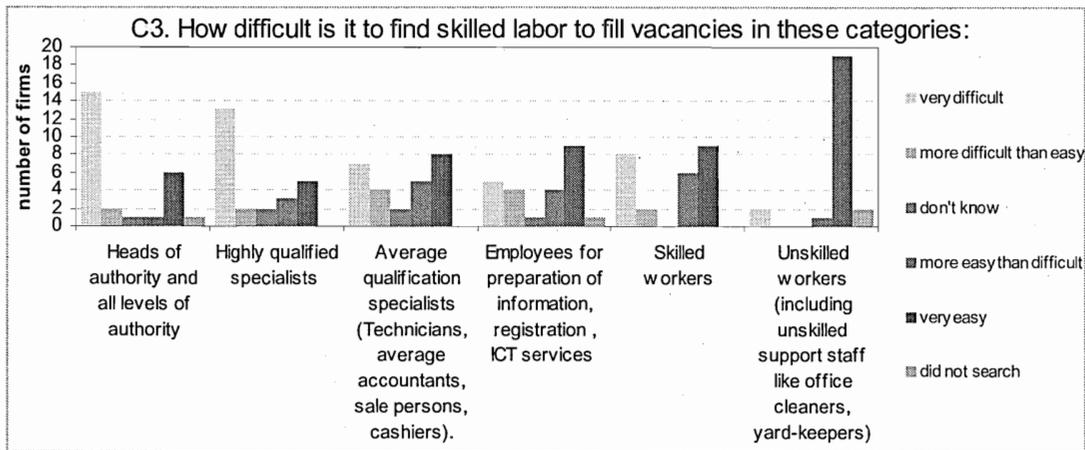


10- **The profile of current vacancies in enterprises.** Enterprises indicate that they are primarily looking for new employees with incomplete secondary education and college education to fill current vacancies; and that the average number of weeks required to fill college level vacancies is about two months.

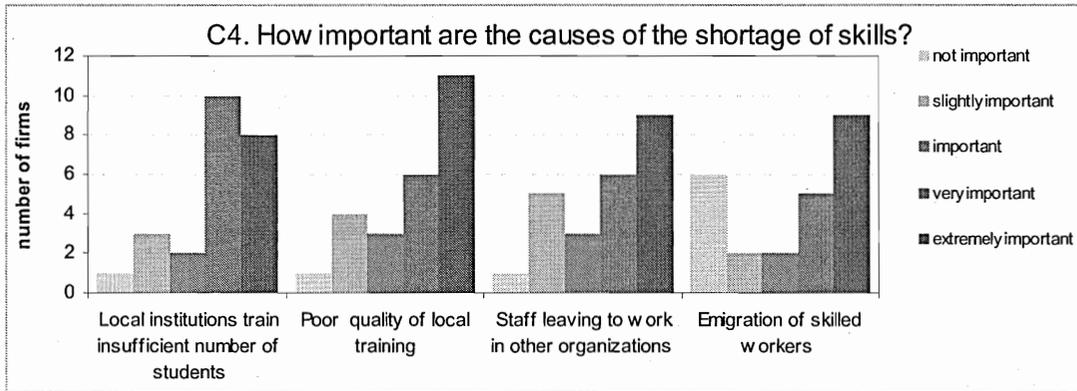




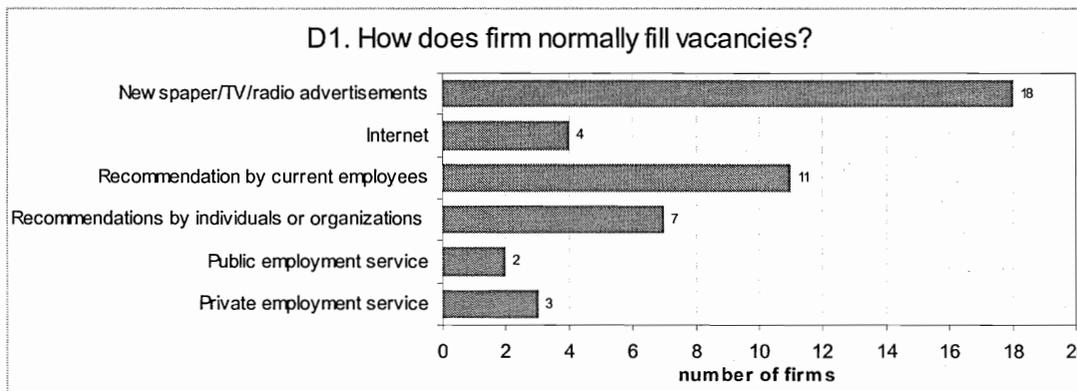
11- Difficulty in filling vacancies at enterprises. The most difficult types of vacancies to fill are positions for highly qualified specialists and skilled workers – the objective of MTC training programs.



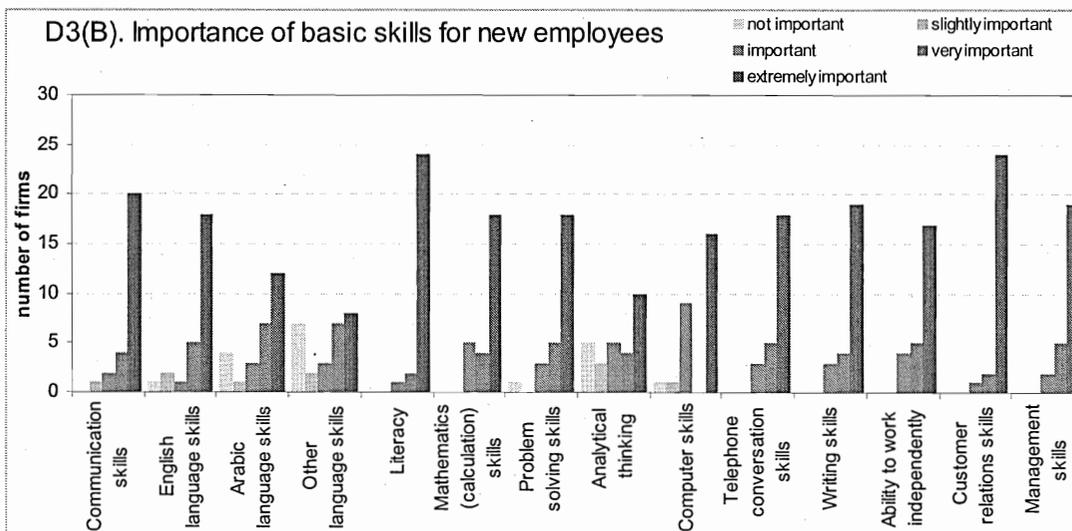
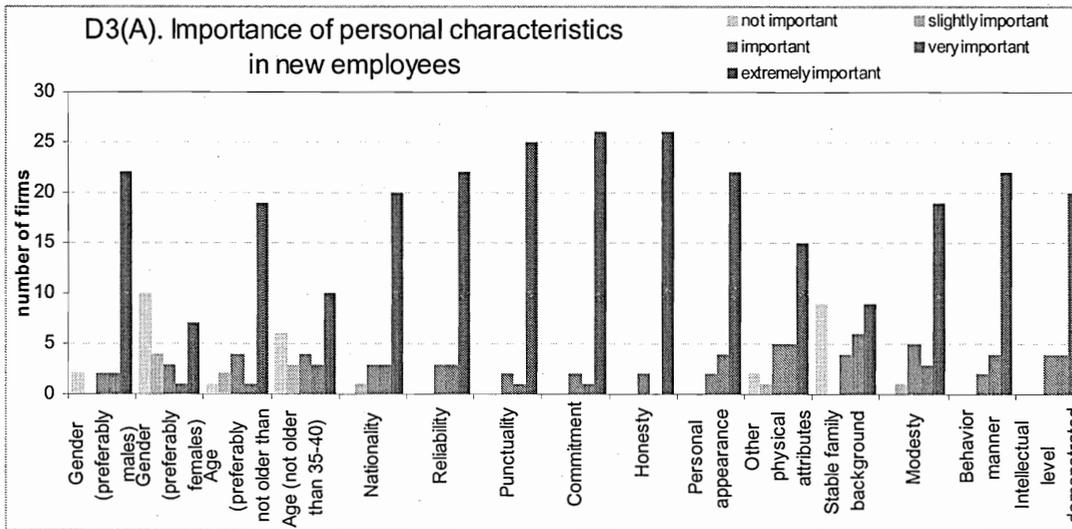
Primary reason of shortage of skills: Enterprises state that there are multiple reasons for the skill shortage, but the lack of both quantity and, in particular, quality of local training are the most important factors. These reasons speak directly to the importance of increasing both quality and quantity of MTC programs.



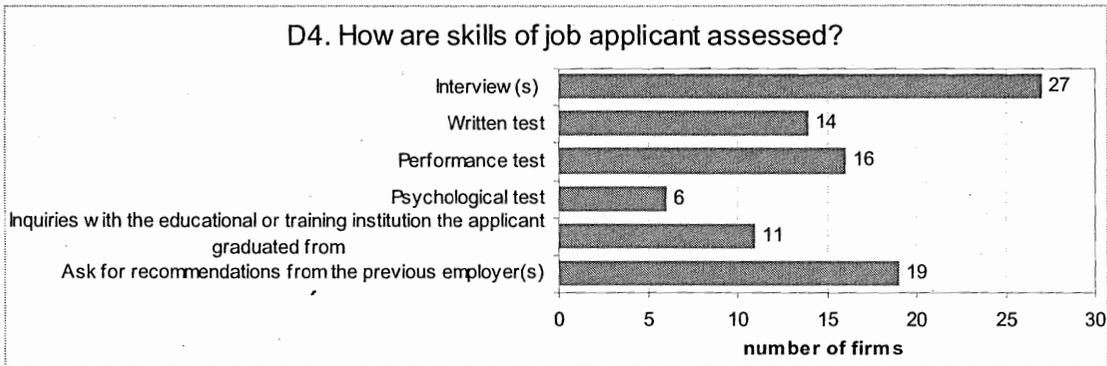
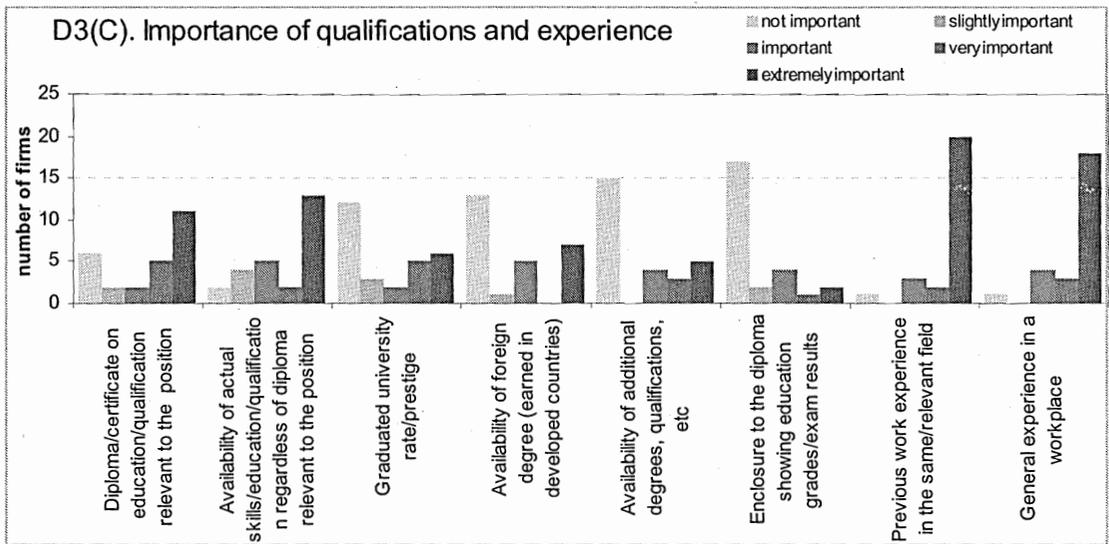
12- Methods used by enterprises to fill vacancies: The primary ways enterprises recruit employees are via media, recommendations from employers, and from other organizations. This provides MTC with information on how to assist graduates with job search and emphasizes the need for MTCs to try to get all students into on-job-training during the time they are at MTCs.



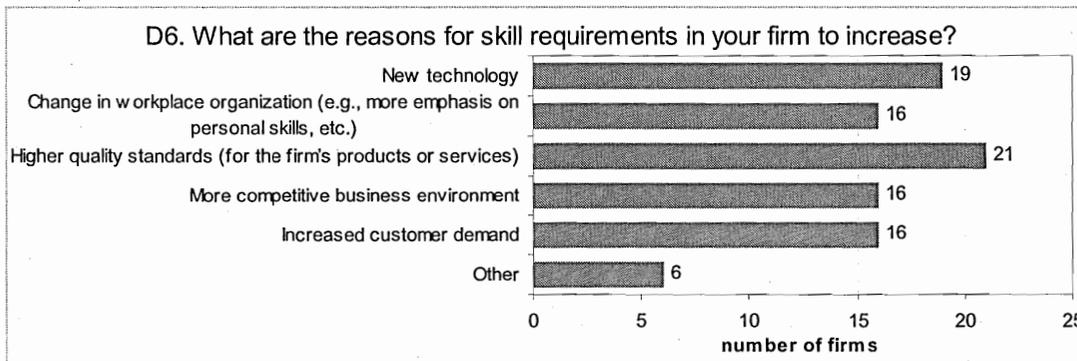
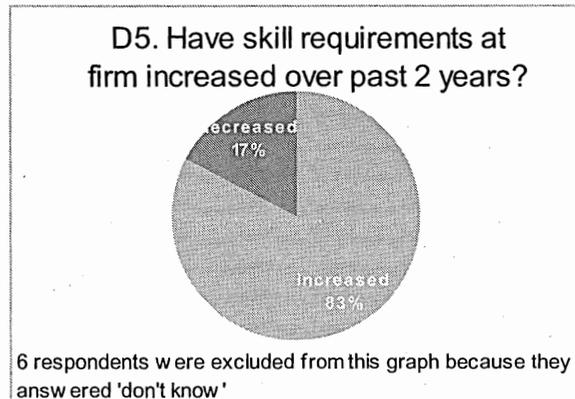
13- What personal and basic skills do enterprises consider most important? Enterprises indicate that reliability, punctuality, commitment, honesty, and behavior are key personal characteristics. Literacy, customer regulations, management, and computer skills and the ability to work independently are among the needed skills. These areas need emphasis in MTC training programs.



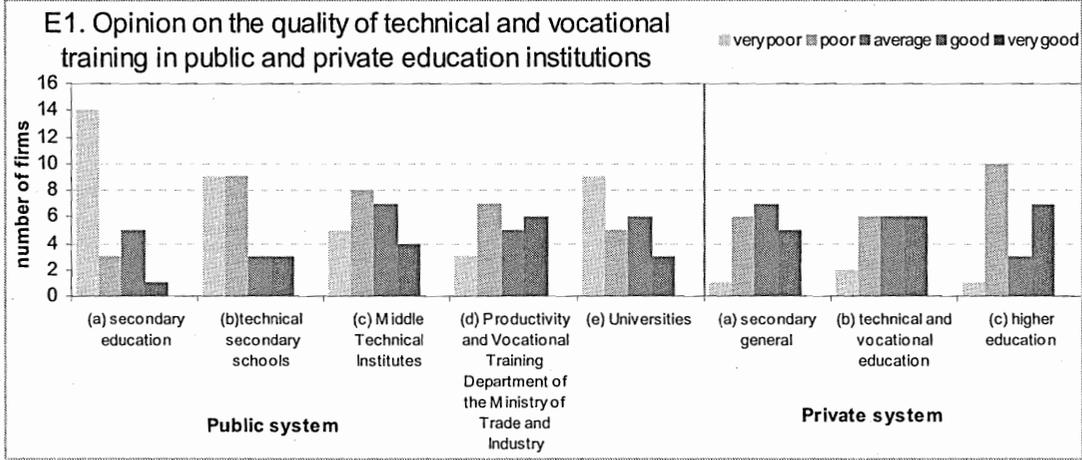
14- How important are technical skill qualifications and how do enterprises assess these qualifications when hiring workers? Previous general work experience and experience in the sector are the most important factors, followed by certification from institutions. However, the availability of skills (regardless of certification) is more important than having certification from a training institution. Employers primarily assess skills by interviews, performance tests, or recommendations from employers. These trends emphasize the need for MTCs to provide practical as well as theory training, and if at all possible, provide on-job-training for students during their training period.



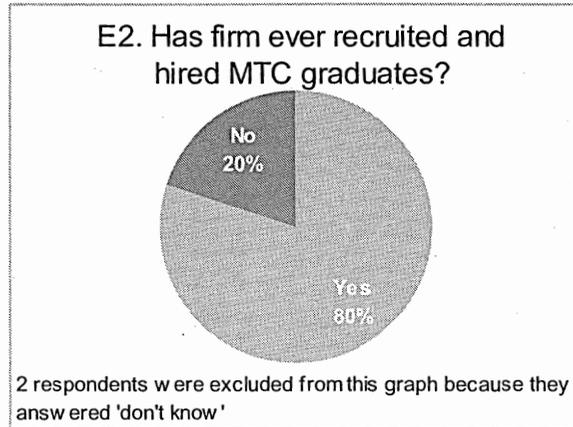
15- Have skill requirements changed over the past two years and what factors are affecting skill requirements? Eighty-three percent of enterprises indicate that skill requirements have increased, and the three primary reasons are increases in technology, competition, customer demand, and need for increased quality of goods and services. These factors have direct implications for the quality/content of MTC training.

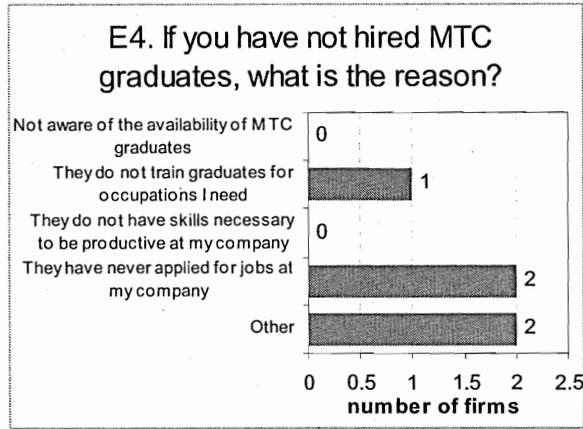


16- How do enterprises rate training programs provided by public and private institutions? In general, enterprises do not rate training provided by public and private training institutions very high, which reflects their responses to other questions in the survey. Employers rate the Ministry of Trade and Industry Centers higher than MTCs.

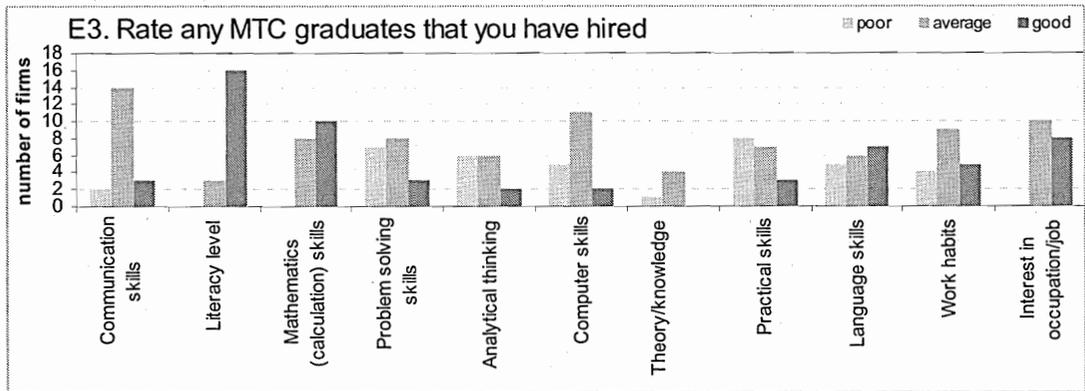


17- Have the enterprises hired MTC graduates, and if they have not hired MTC graduates why not? Eighty percent of the enterprises surveyed have hired MTC graduates, and the reasons for not hiring graduates are that MTC graduates have not applied to the enterprise for work.





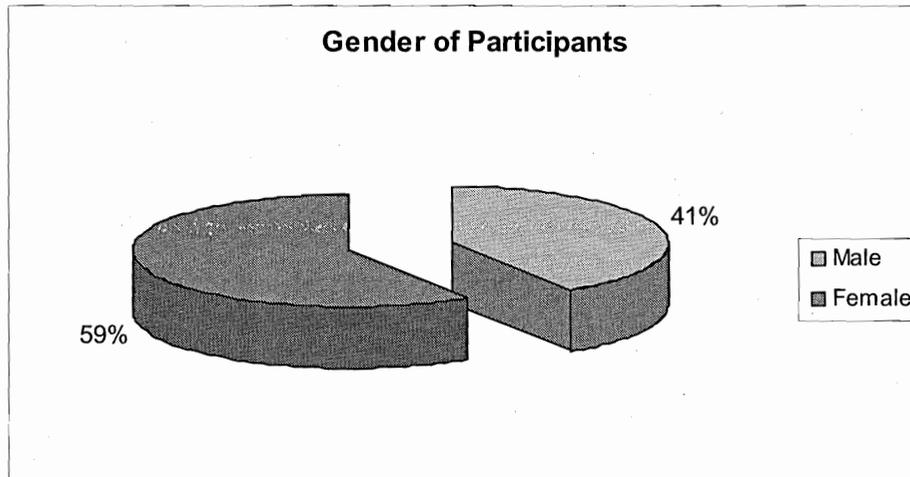
18- How do enterprises that have hired MTC graduates rate graduates. Most enterprises indicate that graduates are quite literate and good in mathematics. However, few enterprises rate MTC graduates very high in analytical skills, theory/knowledge, and practical skills. These findings have direct implications for MTCs.



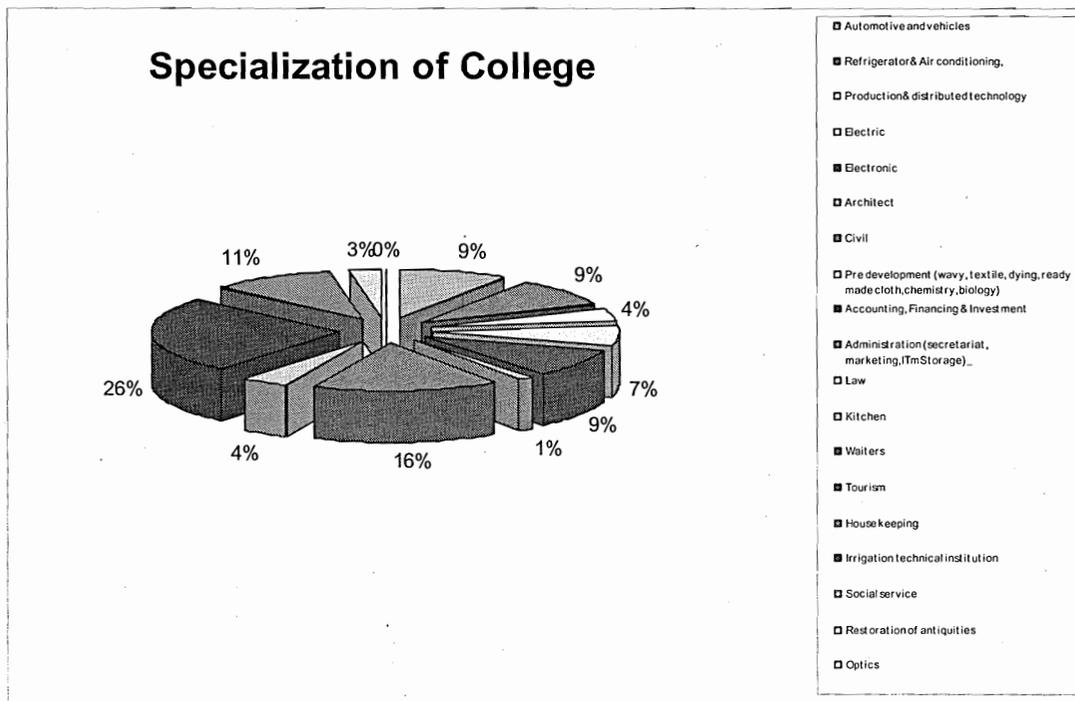
XI. Graduate Survey Findings at South Valley

Note: due to the small sample size caution should be taken in interpreting the results, no attempt has been made to draw conclusions, and the data should primarily be used as anecdotal information.

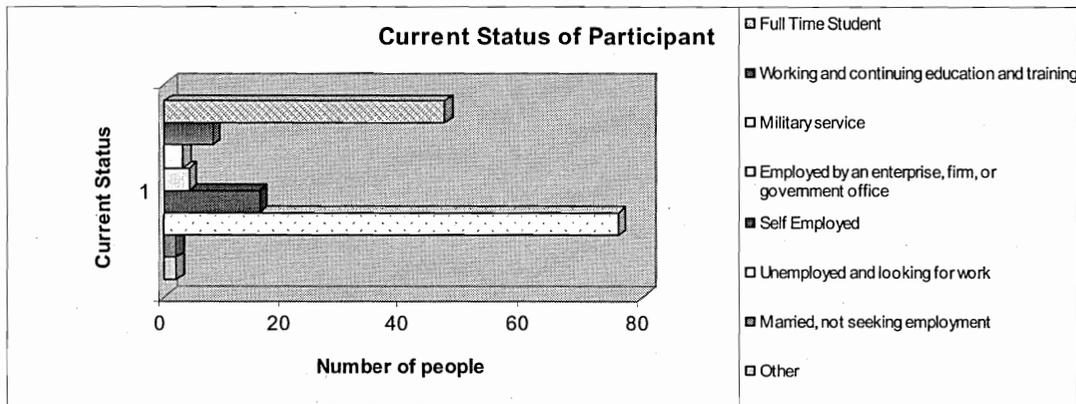
1- Gender of the survey participants.



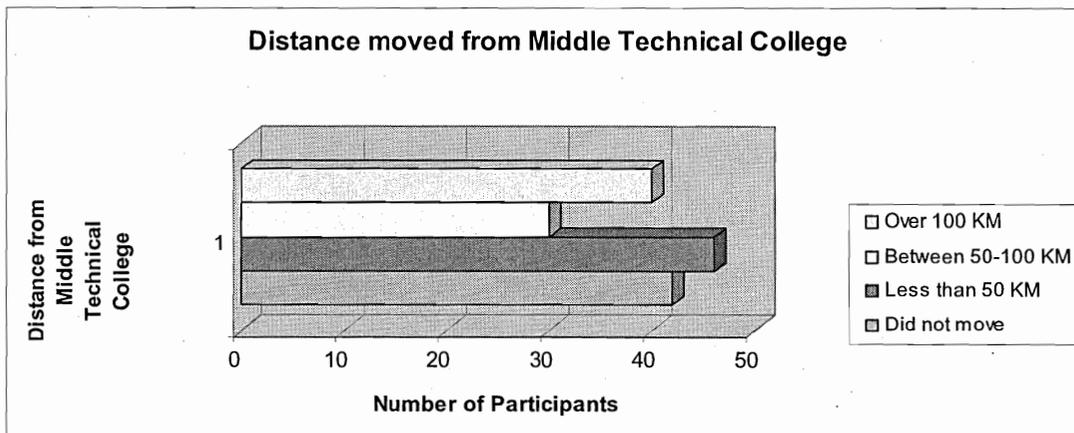
2- The College training specialization of the participants



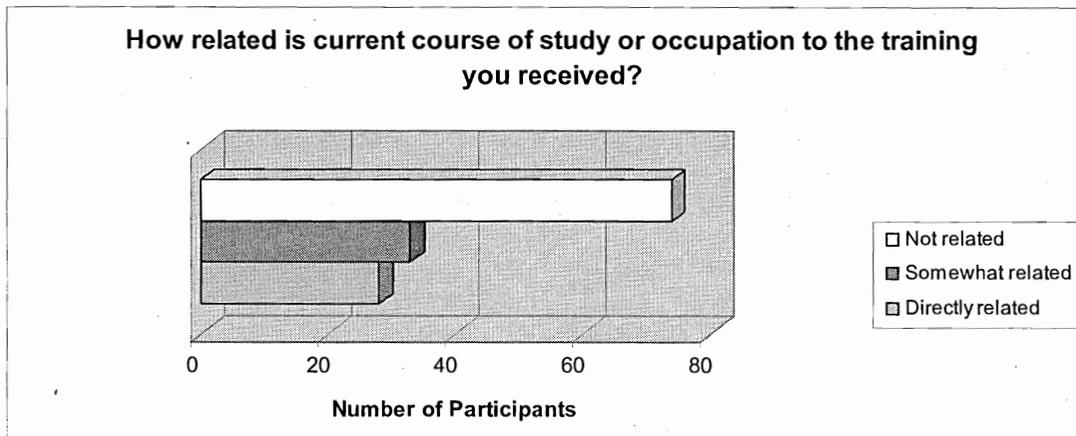
3- The current status of the 2007 graduates



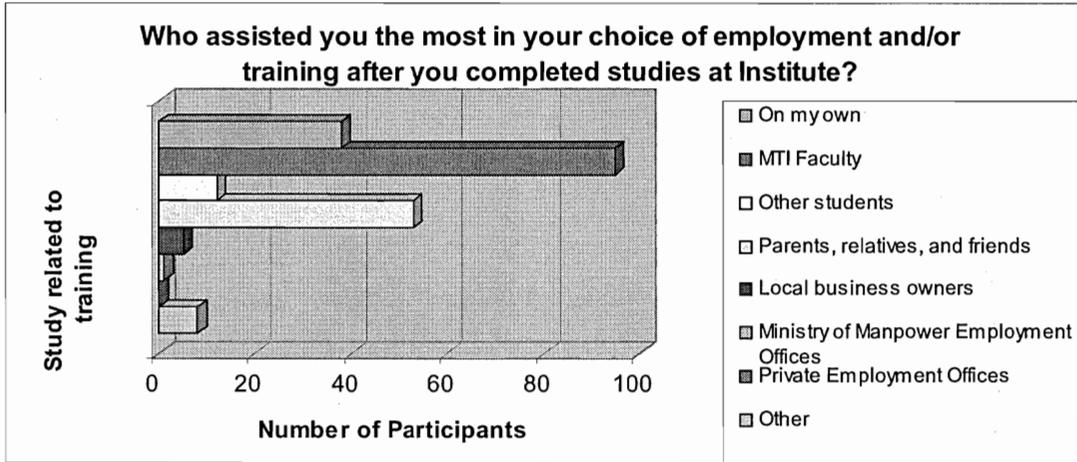
4- Distance moved after graduation from MTC



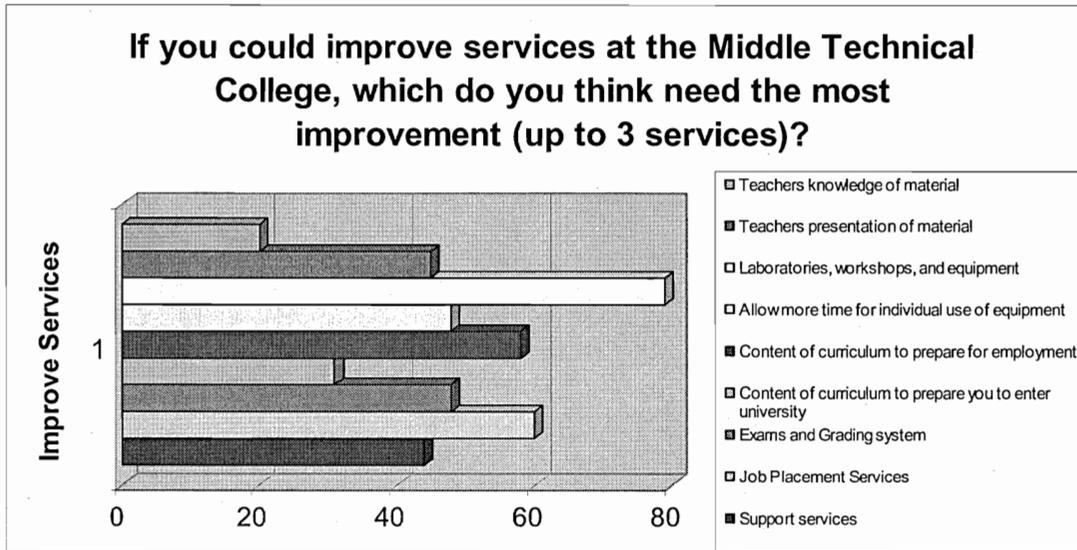
5- Relation of course of study or occupation to the training received in MTC



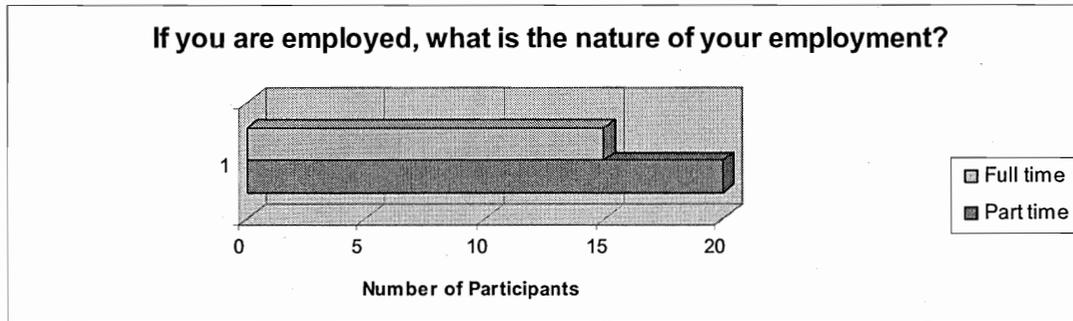
6- Who assisted graduates in their choice of employment and/or training after completed studies at the College



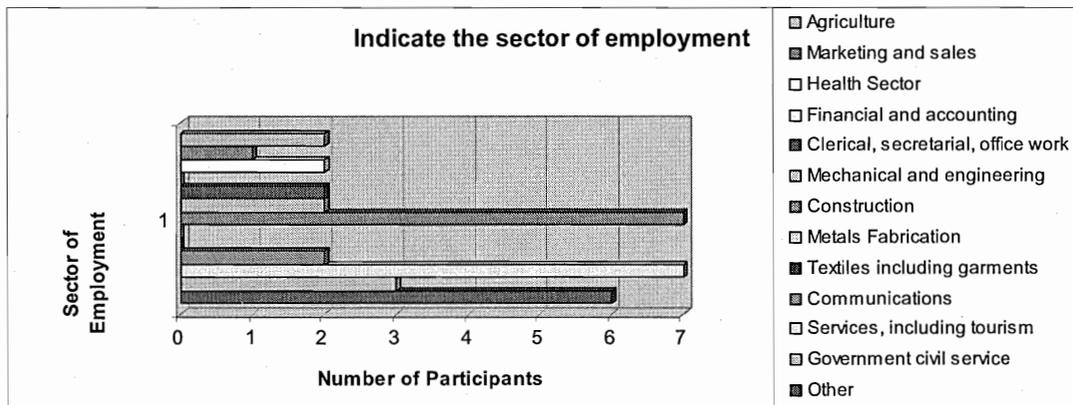
7- What services need the most improvement at the Middle Technical Colleges (graduates were asked to list up to three services).



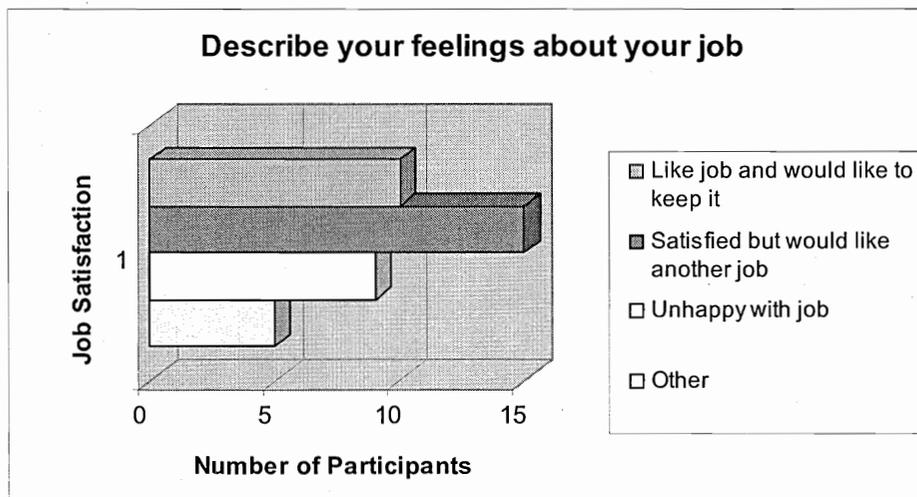
8- The nature of employment



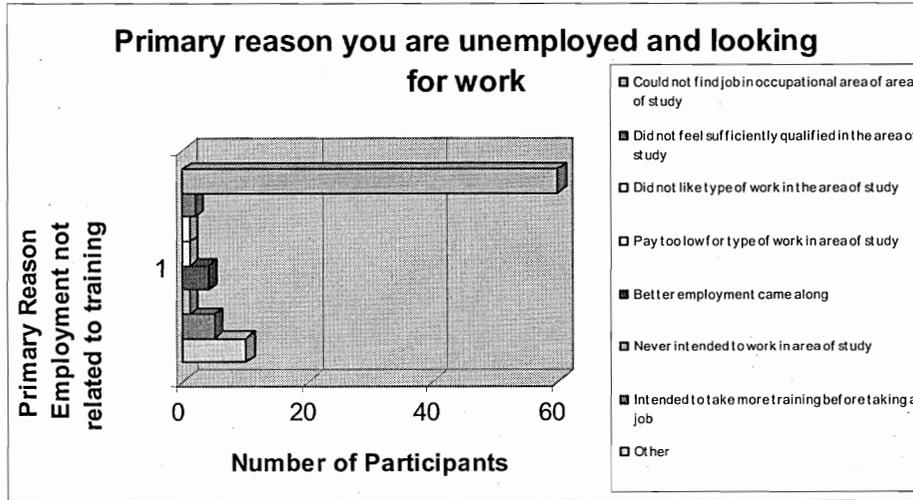
9- Sector of employment



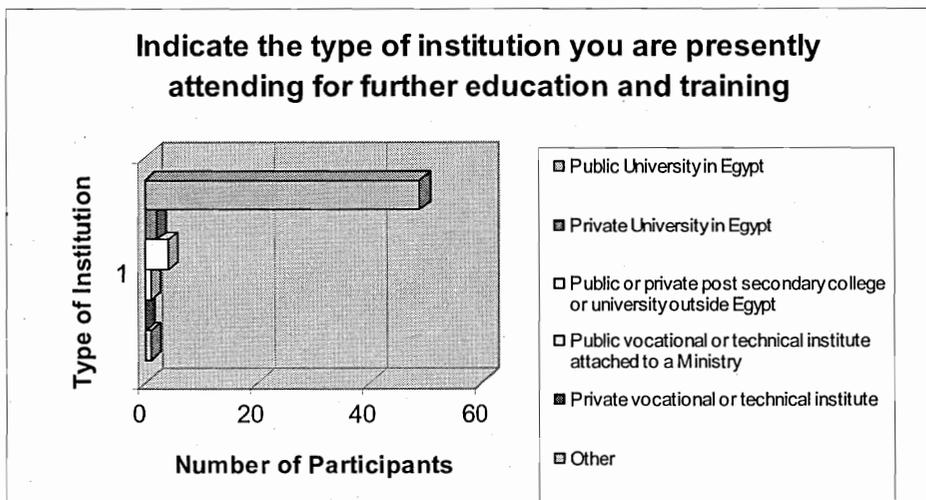
10- Satisfaction of the job



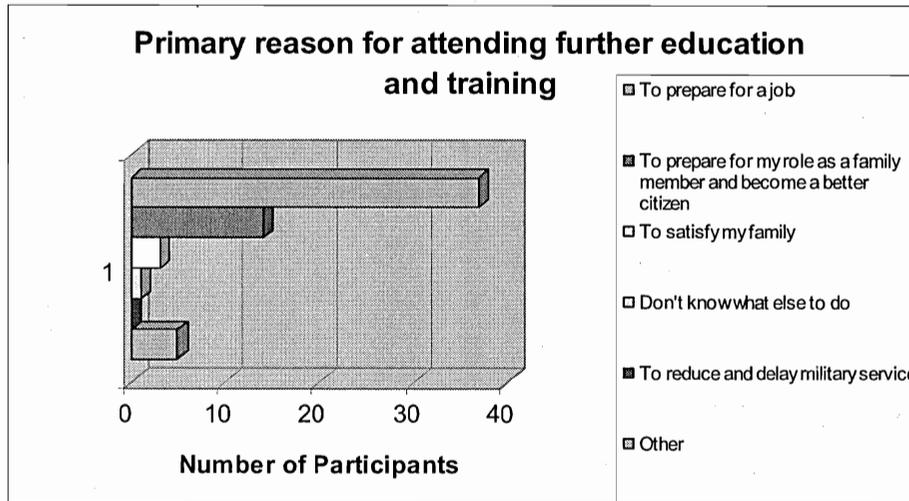
11- Primary reason of unemployment



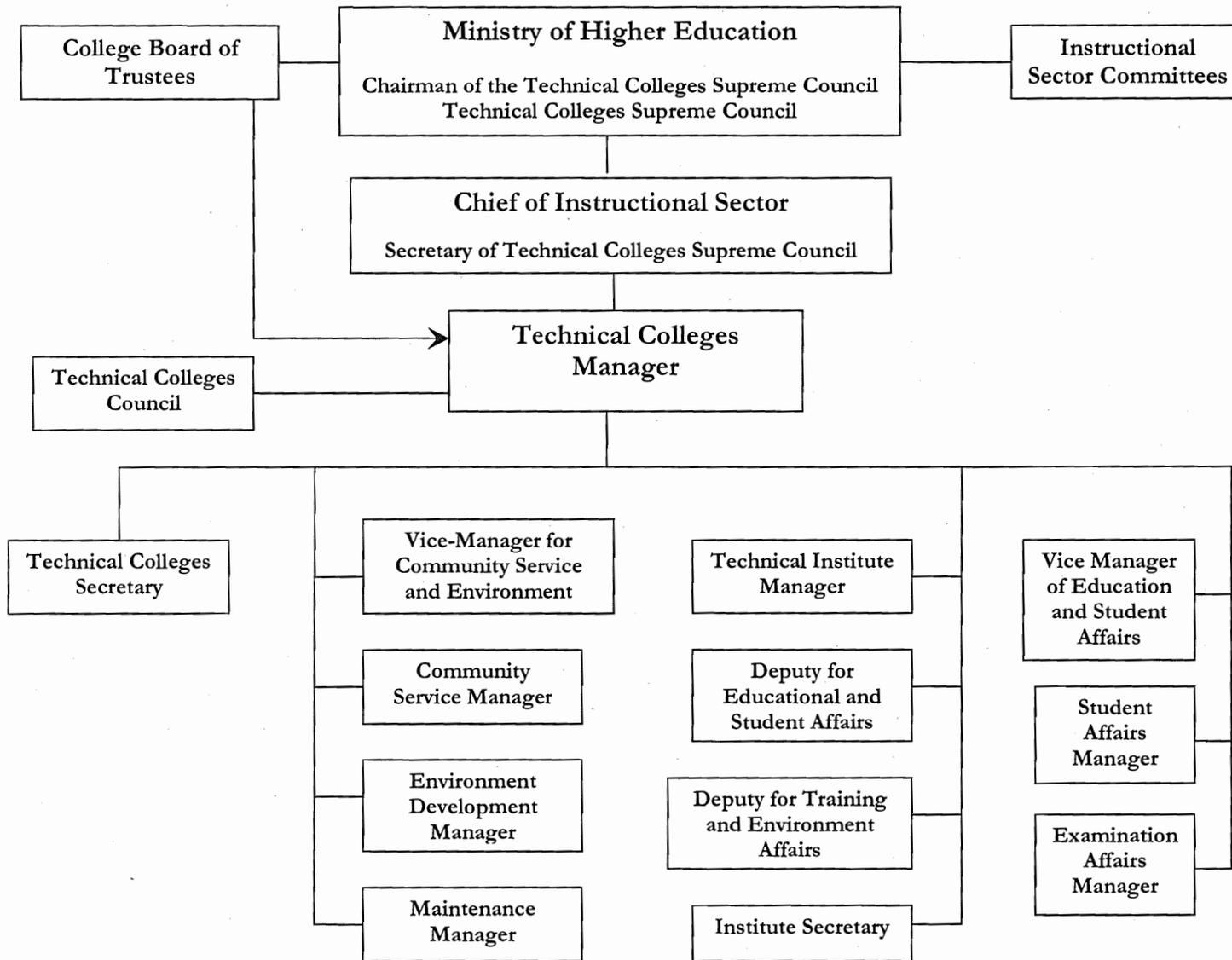
12- Type of institution attending for further education



13- Primary reason for attending further education



XII. Organization Chart



XIII: South Valley Technical College Staff

| فئة | | مردم | | دفعاتها من |
|------|------|------|------|------------------------|
| مردم | مردم | مردم | مردم | |
| 3 | 1 | 1 | | يدام ح عجن موزون لها |
| -- | 1 | -- | 4 | لها علس مود |
| -- | 8 | 8 | 5 | لها علس |
| -- | 9 | -- | 6 | لها علس |
| 1 | 5 | -- | 8 | لها قديس علس |
| -- | 13 | -- | 3 | رصدق لهدرنتلها ميديت |
| -- | 14 | 9 | 3 | ناورا علس |
| -- | 11 | -- | 6 | ناورا علس |
| 1 | -- | -- | 11 | لها علس لهدرنتلها مودخ |

ANNEX J

UNESCO/ILO Revised Recommendations on Technical and Vocational Education

- I. Scope
- II. Technical and vocational education in relation to the educational process: objectives
- III. Policy, planning and administration
- IV. Technical and vocational aspects of general education
- V. Technical and vocational education as preparation for an occupational field
 - o Organization
 - o Programme content
- VI. Technical and vocational education as continuing education
- VII. Guidance
- VIII. The learning process
- IX. Staff
 - o Teaching staff
 - o Administrative and guidance staff
- X. International cooperation

The General Conference,

Recalling 154 EX/Decision 4.3 (May 1998) to incorporate the major themes originally envisaged for the third consultation on the implementation of the Revised Recommendation concerning Technical and Vocational Education into the agenda of the Second International Congress on Technical and Vocational Education,

Recognizing the value of the recommendations of the Second International Congress on Technical and Vocational Education (Seoul, April 1999) reflecting the emerging challenges of the twenty-first century, an era of globalization and revolution in the field of information/communication technology, and that these recommendations will therefore guide a new orientation of "technical and vocational education and training (TVET) for all throughout life" so as to meet the new demands of achieving the objectives of a culture of peace, environmentally sound sustainable development, social cohesion and citizenship of the world,

Recalling also 30 C/Resolution 14, which invited the Director-General to prepare an updated version of the Revised Recommendation concerning Technical and Vocational Education taking into account the new trends identified by the Second International Congress on Technical and Vocational Education, to submit the new draft version to all Member States during the 2000-2001 biennium for consultation, and to submit it together with a proposal for the modalities of future consultations on its implementation to the General Conference at its 31st session for approval,

Having examined document 31 C/22 and the draft Revised Recommendation concerning Technical and Vocational Education (2001) annexed thereto,

1. Adopts the Revised Recommendation concerning Technical and Vocational Education (2001) this second day of November 2001;
2. Invites the Director-General to conduct future consultations with Member States concerning its implementation, together with the five-yearly assessments of the follow-up to the Seoul Congress;
3. Recommends that when developing and improving technical and vocational education, Member States should take whatever legislative or other steps may be required to give effect, within their respective territories, to the principles set forth in this Recommendation;
4. Further recommends that Member States should bring this Recommendation to the attention of the authorities and bodies concerned with technical and vocational education;
5. Also recommends that Member States should submit to it, together with the five-yearly assessments of the follow-up to the Seoul Congress, reports on the action they have taken to give effect to the Recommendation.

I. Scope

1. This Recommendation applies to all forms and aspects of education that are technical and vocational in nature, provided either in educational institutions or under their authority, by public authorities, the private sector or through other forms of organized education, formal or non-formal, aiming to ensure that all members of the community have access to the pathways of lifelong learning.
2. For the purposes of this Recommendation "technical and vocational education" is used as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Technical and vocational education is further understood to be:
 - a. an integral part of general education;
 - b. a means of preparing for occupational fields and for effective participation in the world of work;
 - c. an aspect of lifelong learning and a preparation for responsible citizenship;
 - d. an instrument for promoting environmentally sound sustainable development;
 - e. a method of facilitating poverty alleviation.
3. Technical and vocational education, being part of the total educational process and being a right as described in Article 26 of the Universal Declaration of Human Rights, is included in the term "education" as defined in the Convention and the Recommendation against Discrimination in Education adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization at its 11th session (1960) and the Convention on Technical and Vocational Education adopted by the General Conference at its 25th session (1989). The provisions of these documents are therefore applicable to it.
4. This Recommendation should be understood as setting forth general principles, goals and guidelines to be applied by each individual country according to its socio-economic needs and available resources in a changing world, with a view also to enhancing the status of technical and vocational education. The application of the provisions and the timing of the implementation will depend upon the specific conditions, and constitutional provisions existing in a given country.

II. Technical and vocational education in relation to the educational process: objectives

5. Given the immense scientific, technological and socio-economic development, either in progress or envisaged, which characterizes the present era, particularly globalization and the revolution in information and communication technology,

technical and vocational education should be a vital aspect of the educational process in all countries, and in particular should:

- a. contribute to the achievement of the societal goals of greater democratization and social, cultural and economic development, while at the same time developing the potential of all individuals, both men and women, for active participation in the establishment and implementation of these goals, regardless of religion, race and age;
 - b. lead to an understanding of the scientific and technological aspects of contemporary civilization in such a way that people comprehend their environment and are capable of acting upon it while taking a critical view of the social, political and environmental implications of scientific and technological change;
 - c. empower people to contribute to environmentally sound sustainable development through their occupations and other areas of their lives.
6. Given the necessity for new relationships between education, the world of work and the community as a whole, technical and vocational education should exist as part of a system of lifelong learning adapted to the needs of each particular country and to worldwide technological development. This system should be directed to:
- a. abolishing barriers between levels and areas of education, between education and the world of work, and between school and society through:
 - i. the appropriate integration of technical/ vocational and general education at all levels;
 - ii. the creation of open and flexible educational structures;
 - iii. the taking into account of individuals' educational needs, the evolution of occupations and jobs recognizing work experience as a part of learning;
 - b. improving the quality of life by creating a learning culture that permits individuals to expand their intellectual horizons, to acquire and to constantly improve professional skills and knowledge, and to engage positively in society to utilize the fruits of economic and technological change for the general welfare.
7. Technical and vocational education should begin with a broad base which facilitates horizontal and vertical articulation within the education system and between school and the world of work, thus contributing to the elimination of all forms of discrimination, and should be designed so that it:
- a. is an integral part of everyone's basic general education in the form of initiation to technology, the world of work, and human values and standards for responsible citizenship;

- b. may be freely and positively chosen as the means by which people develop talents, interests and skills leading to an occupation in various sectors or to further education;
 - c. allows access to other aspects and areas of education at all levels, including institutions of higher learning, by being grounded in a solid general education and, as a result of the integration mentioned in paragraph 6(a), containing a general education component through all stages of specialization;
 - d. allows transfers from one field to another within technical and vocational education;
 - e. is readily available to all and for all appropriate types of specialization, within and outside formal education systems, and in conjunction or in parallel with training in order to permit educational, career and job mobility at the minimum age at which the general basic education is considered to have been acquired, according to the education system in force in each country;
 - f. is available on the above terms and on a basis of equality to women as well as men, and where the learning and working environment is made suitable for the participation of girls and women by removing overt and covert bias and discrimination and seeking strategies for motivating girls and women to take an interest in vocational and technical education;
 - g. is available to people with disabilities and to socially and economically disadvantaged groups such as immigrants, refugees, minorities (including indigenous peoples), demobilized soldiers in post-conflict situations, and underprivileged and marginalized youth in special forms adapted to their needs in order to integrate them more easily into society.
8. In terms of the needs and aspirations of individuals, technical and vocational education should:
- a. permit the harmonious development of personality and character, and foster spiritual and human values, the capacity for understanding, judgement, critical thinking and self-expression;
 - b. prepare the individual for lifelong learning by developing the necessary mental tools, technical and entrepreneurial skills and attitudes;
 - c. develop capacities for decision-making and the qualities necessary for active and intelligent participation, teamwork and leadership at work and in the community as a whole;
 - d. enable an individual to cope with the rapid advances in information and communication technology.

III. Policy, planning and administration

9. Policy should be formulated and technical and vocational education administered in support of the general objectives adopted for the educational process as well as for national and, if possible, the regional social and economic requirements of the present and the future, and an appropriate legislative and financial framework adopted. Policy should be directed to both the structural and the qualitative improvement of technical and vocational education as stipulated in Article 2 of the Convention on Technical and Vocational Education (1989) and further described in the recommendations of the Second International Congress on Technical and Vocational Education (1999):
 - a. Although governments carry the primary responsibility for technical and vocational education, in a modern market economy technical and vocational education policy design and delivery should be achieved through a new partnership between government, employers, professional associations, industry, employees and their representatives, the local community and non-governmental organizations (NGOs). This partnership must create a coherent legislative framework to enable the launching of a national strategy for change. Within this strategy the government, apart from actually providing technical and vocational education, can also provide leadership and vision, facilitate, coordinate, establish quality assurance and ensure that technical and vocational education is for all by identifying and addressing community service obligations.
 - b. Technical and vocational education is best served by a diversity of public and private providers. The appropriate mix can be found in many ways, with the responsibility of governments being to facilitate choice while ensuring quality.
 - c. Government and the private sector should recognize that technical and vocational education is an investment, not a cost, with significant returns, including the well-being of workers, enhanced productivity and international competitiveness. Therefore funding for technical and vocational education should be shared to the maximum extent possible between government, industry, the community and the learner, with government providing appropriate financial incentives. Furthermore, the governments of least developed countries in particular should seek bilateral and multilateral capacity-building cooperation in technical and vocational education.
 - d. Within governments, there are often shared and overlapping responsibilities for various elements of technical and vocational education among departments and agencies. It is desirable that governments streamline their own public institutional framework to the maximum extent possible to coordinate the national technical and vocational education effort, create an effective partnership with the private sector, and promote technical and vocational education for the benefit of all stakeholders.

10. Particular attention should be given to planning the development and expansion of technical and vocational education by:
 - a. giving high priority to technical and vocational education in national development agendas as well as in plans for educational reform;
 - b. evaluating national short-term and long-term needs;
 - c. providing appropriate current and future allocations of financial resources;
 - d. establishing a national body responsible for coordinating planning in technical and vocational education based on analysis of statistical data and projections to facilitate complementarities between educational policy planning and employment policy.
11. Planning should respond to national and, if possible, regional, economic and social trends, to projected changes in demand for different classes of goods and services, and for different types of skills and knowledge in such a way that technical and vocational education may easily adapt to the evolving scientific, technological and socio-economic changes. This planning should also be coordinated with current and projected training action and the evolution of the world of work in both urban and rural areas.
12. While the education authorities should have primary responsibility, the following groups of relevant stakeholders should be actively associated in policy formulation and in the planning process; corresponding structures, both national and local, taking the form of public agencies or consultative or advisory bodies, should be created to permit this:
 - a. public authorities responsible for planning economic and social policy, labour and employment, and for the manufacturing and service sectors;
 - b. representatives of non-governmental organizations within each occupation sector from among employers and workers as well as of the informal economy, small enterprise owners and entrepreneurs;
 - c. authorities or bodies responsible for out-of-school education and training;
 - d. representatives of those responsible - both in public education and in State-recognized private education - for executing educational policy, including teachers, examining bodies and administrators;
 - e. parents', former pupils', students' and youth organizations;
 - f. representatives from the community at large.
13. Policies for the structural improvement of technical and vocational education should be established within the framework of broad policies designed to implement the principle of lifelong education through the creation of open, flexible and complementary structures for education, training and educational and vocational guidance, considering the provisions of modern information technology in education

regardless of whether these activities take place within the system of formal education or outside it. In this respect, consideration should be given to the following:

- a. multi-purpose secondary education offering diversified curricula linking education to the world of work;
 - b. having institutions of higher learning offering flexible admission and programmes ranging from short specialized ones to longer full-time programmes of integrated studies and professional specialization;
 - c. establishing a system of equivalencies whereby credit is given for completion of any approved programme, and recognition is granted to educational and/or professional qualifications and work experience;
 - d. providing articulation and pathways between technical and vocational education and programmes of higher education for the benefit of those learners who may wish to continue their education.
14. Policy should be directed to ensuring high quality so as to exclude discrimination between the different educational streams. In this respect, special efforts should be made to ensure that national technical and vocational education seeks to meet international standards.
15. In order to ensure quality, responsible national authorities should establish criteria and standards, subject to periodic review and evaluation, applying to all aspects of technical and vocational education, including, to the greatest extent possible, non-formal education for:
- a. all forms of recognition of achievement and consequent qualification;
 - b. staff qualifications;
 - c. ratios of teaching and training staff to learners;
 - d. the quality of curricula and teaching materials;
 - e. safety precautions for all learning and training environments;
 - f. physical facilities, buildings, libraries, workshop layouts, quality and type of equipment.
16. National policy should foster research related to technical and vocational education, with particular emphasis on its potential within lifelong learning, and directed to its improvement and relevance to the prevailing socio-economic context. This research should be carried out at national and institutional levels, as well as through individual initiative. To this end:
- a. special emphasis should be placed on curriculum development, research concerning teaching and learning methods and materials, and, where the need exists, on technologies and techniques applied to development problems;
 - b. financial resources and physical facilities from public and/or private sources should be made available to institutions of higher education, specialized research institutions and professional organizations for applying the results of

- this research on an experimental basis in representatively selected institutions for technical and vocational education;
- c. the positive results of research and experimentation should be widely disseminated using all available media, especially information and communication technology;
 - d. the effectiveness of technical and vocational education should be evaluated using, among other data, relevant statistics including those concerning part-time enrolments, drop-out rates and placement in wage- and self-employment;
 - e. research efforts to humanize working conditions should be emphasized.
17. Administrative structures should provide for evaluation, supervisory and accreditation services to ensure the rapid application of new research findings and to maintain standards:
- a. evaluation services as a whole should ensure the quality and smooth operation of technical and vocational education by continuous review and action directed to monitoring progress and maintaining standards through constant improvement of staff, facilities, programmes and, most importantly, student achievement;
 - b. supervisory services for the staff should encourage improvement in the quality of teaching by providing guidance and advice and recommending continuing education;
 - c. all technical and vocational education programmes, including those offered by private bodies, should be subject to approval by the public authorities;
 - d. individual institutions should have the autonomy to design their programmes with the involvement of business and industry to suit local needs.
18. Particular attention should be given to the material resources required for technical and vocational education. Priorities should be carefully established with due regard for immediate needs and the probable directions of future expansion in consultation with representatives from the world of work:
- a. institutional planning should be directed to ensuring maximum efficiency and flexibility in use;
 - b. the planning, construction and equipping of facilities should be carried out in collaboration with specialists from industry, teachers and educational architects, and with due regard for the purpose of the facilities, prevailing local factors and relevant research;
 - c. adequate funds should be allocated for recurrent expenditure for supplies and maintenance and repair of equipment;
 - d. institutions should be given greater autonomy in their administration and financial management.

IV. Technical and vocational aspects of general education

19. An initiation to technology and to the world of work should be an essential component of general education. An understanding of the technological nature of modern culture and an appreciation of work requiring practical skills should thereby be acquired. This initiation should be a major concern in educational reform and democratization. It should be a required element in the curriculum, beginning in primary education and continuing through the early years of secondary education.
20. Opportunities for general technical and vocational initiation should continue to be available to those who wish to avail themselves of it within the education system and outside it in places of work or the community at large.
21. Technical and vocational initiation in the general education of youth should fulfil the educational requirements of all spheres of interest and ability. It should mainly perform three functions:
 - a. to broaden educational horizons by serving as an introduction to the world of work, and the world of technology and its products through the exploration of materials, tools, techniques, and the process of production, distribution and management as a whole, and to enrich the learning process through practical experience;
 - b. to orient those with the interest and ability in technical and vocational education towards preparation for an occupational field or training outside the formal education system;
 - c. to promote in those who will leave formal education with no specific occupational aims or skills; attitudes and thought processes likely to enhance their aptitudes and potential, to facilitate the choice of an occupation and access to a first job, and to permit them to continue their vocational training and personal development.
22. General technical and vocational studies in schools, having great importance for the orientation and education of youth programmes, should include an appropriate balance between theoretical and practical work. Such a programme of studies should be drawn up in collaboration with the professional community and with those responsible for technical and vocational education. These programmes should:
 - a. be based upon a problem-solving and experimental approach, and involve experience in planning methods and decision-making;
 - b. introduce the learner to a broad spectrum of technological fields and to productive work situations;
 - c. develop a certain command of valuable practical skills such as tool use, repair and maintenance and safety procedures, and a respect for their value;
 - d. develop an appreciation of good design, craftsmanship and quality;

- e. develop the ability to function as a team member and to communicate technical information;
 - f. be closely related to the local environment without, however, being limited to it.
23. Technical and vocational initiation programmes in general educational enrichment for youth and adults should be directed to enabling those engaged in working life to:
- a. understand the general implications of technical change, its impact on their professional and private lives, and how to adapt to these changes;
 - b. use practical skills for improving the home and community environment, and thus the quality of life and productive leisure-time activities;
 - c. inculcate an awareness of the possible impact of technology on the environment, and of the concept of sustainable development.

V. Technical and vocational education as preparation for an occupational field

24. Given the disparities that may exist between formal education, whether secondary or tertiary, and the employment and career opportunities available, the highest priority should be given to technical and vocational education. Consequently the structure and content of traditional education, whether general or technical and vocational, should be adapted accordingly through:
- a. the diversification of secondary education in the later stages so that it may be pursued in conjunction with employment or training, or may lead to employment or to higher education, thereby offering to all youth educational options corresponding to their needs and abilities;
 - b. the development of educational structures and programmes on all levels centered on organized and flexible interchange between educational institutions (including universities), training institutions and the world of work.
25. Technical and vocational education as preparation for an occupational field should provide the foundation for productive and satisfying careers and should:
- a. lead to the acquisition of broad knowledge and generic skills applicable to a number of occupations within a given field so that the individual is not limited in his/her choice of occupation and is able to transfer from one field to another during his/her working life;
 - b. at the same time offer both a thorough and specialized preparation for initial employment, including self-employment, and also training within employment;
 - c. provide the background in terms of knowledge, skills and attitudes for continuing education at any point in the individual's working life.
26. Premature and narrow specialization should be avoided:

- a. in principle, the age of 15 should be considered the lower limit for beginning specialization;
 - b. a period of common studies providing basic knowledge and generic skills should be required for each broad occupational sector before a special branch is chosen.
27. Technical and vocational education programmes should be designed as comprehensive and inclusive systems to accommodate the needs of all learners with special emphasis on motivating girls and women. Their equal access and participation should be ensured by:
- a. appropriate legislative measures;
 - b. widespread dissemination of information concerning opportunities;
 - c. gender-sensitive guidance and counseling;
 - d. other incentives relevant to the local context.
28. Special provision should be made for out-of-school and unemployed youth and children of socially disadvantaged groups such as minorities, migrant workers, refugees, etc. with little or no primary education, as well as for those not entering education or training programmes after completion of compulsory schooling, in order that they may acquire skills for wage- or self-employment.
29. Given the necessity of integrating people who are disadvantaged due to physical and intellectual disabilities into society and its occupations, the same educational opportunities should be available to them as to those without disabilities in order that they may achieve qualification for an occupation to realize their potential and optimize their participation in the work force; special measures or special institutions may be required.

Organization

30. Technical and vocational education as preparation for an occupational field should be organized on a national or provincial/local basis, so as to respond positively to overall social, economic and educational requirements and to the needs of different groups of the population without discrimination.
31. Several organizational patterns of technical and vocational education, including full-time, part-time, open and distance learning options, could exist within each country. The following patterns should be considered:
- a. full-time programmes including general education and practical training, provided in an educational establishment, either comprehensive or specialized;
 - b. part-time programmes such as the following, in which general education and theoretical and broad practical aspects of the occupational field are given in an educational establishment, while specialized practical training is acquired during work in the chosen occupation:

- i. the day-release system, providing for workers and apprentices to attend an educational establishment one or two days a week;
 - ii. the sandwich system, under which periods in an educational institution alternate with training periods in a factory, farm, business establishment or other undertaking;
 - iii. the block-release system, whereby workers are released to attend courses of 10 to 15 weeks per year;
 - c. open and distance education programmes provided through:
 - i. correspondence;
 - ii. special radio and television broadcasting;
 - iii. the Internet and other computer-based media.
32. The responsible authorities should encourage part-time education; therefore:
- a. these programmes could be available after completion of minimum compulsory or required schooling, and should continue to be available throughout life;
 - b. the qualifications acquired by this means should be equivalent to those acquired by full-time education;
 - c. the practical training conducted by employers should be as broad as possible, and should aim to meet international standards.
33. In view of the increasing requirement for qualified middle-level personnel and the increasing numbers completing secondary education or its equivalent, the development of technical and vocational programmes at a tertiary level should be given high priority, by both public and private providers. The following patterns should be considered:
- a. a period of one to two years of guided work experience followed by part-time or full-time programmes of specialization;
 - b. part-time and/or evening programmes;
 - c. full-time programmes as an extension to those given in specialized secondary or tertiary institutions;
 - d. programmes offered through open and distance learning.
34. In view of the high cost of equipment, its usage should be organized to yield optimum benefit. This could be achieved as follows:
- a. centralized or mobile workshops and libraries could be used to serve several educational institutions;
 - b. when educational institutions close for the evenings and vacations, their classrooms and workshops should be utilized for continuing education and non-formal training programmes;

- c. workshops and laboratories should also be used to instill the culture of maintenance and respect for safety standards;
 - d. enterprises should be encouraged to make their equipment and facilities available for practical training.
35. Enterprises should be actively involved in the theoretical and practical training of those preparing for occupations in their particular sector, and should interact with educational institutions regarding the organization of such training.

Programme content

36. All programmes of technical and vocational education as preparation for an occupational field should:
- a. aim at providing scientific knowledge, technical versatility and a cluster of core competencies and generic skills required for rapid adaptation to new ideas and procedures and for steady career development;
 - b. be based on analyses and forecasts of occupational requirements by national education authorities, employment authorities, occupational organizations and other stakeholders;
 - c. include an appropriate balance between general subjects, science and technology, as well as subjects such as computer literacy, information and communication technology, the environment and studies of both the theoretical and practical aspects of the occupational field;
 - d. stress developing a sense of values, ethics and attitudes to prepare the learner for self-reliance and responsible citizenship.
37. In particular, programmes should:
- a. be interdisciplinary in character, as many occupations now require two or more traditional areas of study;
 - b. be based on curricula designed around core knowledge, competencies and skills;
 - c. include studies of the social and economic aspects of the occupational field as a whole;
 - d. include an interdisciplinary perspective to equip students to work in the changing employment environment, and incorporate a multicultural perspective, which may include the study of a foreign language as preparation for international employment;
 - e. include the study of at least one foreign language of international use, which, while conducive to a higher cultural level, will give special emphasis to the requirements of communication, the acquisition of a scientific and technical

- vocabulary, and the need to prepare for international employment and multicultural working environments;
- f. include an introduction to organizational, planning and entrepreneurial skills;
 - g. emphasize instruction in safe and environmentally sound procedures relative to the materials and equipment used in a given occupational field, the importance of safe working conditions, and the health aspects relative to the occupation as a whole, including emergency and first-aid training.
38. While based on the above general principles and components, and thus pursuing in all cases broader educational aims, programmes in their practical aspect should be designed taking into account special occupational requirements, especially in "new" professions and those undergoing change, and particularly the use of the new information and communication technology as a tool for enhancing the effectiveness of all vocations, including those considered traditional.
39. Technical and vocational education programmes leading to university qualification, while encouraging research and offering high-level specialization, should be developed with particular attention to:
- a. the inclusion of components directed to developing attitudes whereby those with broad responsibilities in technological fields constantly relate their professional tasks to broader social and ethical goals;
 - b. preparing the learner more generally for life and the world of work, bearing in mind that technical and vocational education is for economic, personal and social benefit.
40. Programmes of technical and vocational education as preparation for occupations within the agricultural sector should be designed in accordance with the overall social and economic requirements of sustainable development in rural areas.
41. Where lack of resources is a serious constraint, priority should be given to developing programmes for areas experiencing skilled human resource shortages, taking into consideration the projected needs for national economic development and the corresponding labour market growth.
42. Programmes preparing for occupations in small industry, individual farming or the artisan trades, particularly for self-employment, should include entrepreneurship and elementary information and communication technology studies to enable those engaged in such occupations to take responsibility for production, marketing, competent management and the rational organization of the enterprise.
43. Programmes leading to occupations in the business, commercial and service sector, including the tourism and hospitality industries, should consist of:
- a. training in the methods and skills developed as a result of the application of computer-based technology to business and office management, and particularly to the acquisition and processing of information;

- b. training in the organizational and management skills required for the smooth operation of enterprises;
 - c. an introduction to marketing and distribution procedures.
44. Special attention should be given to developing programmes for preparing personnel at all levels for the social services system (e.g. community and family work, nursing and paramedical occupations, nutrition and food technology, home economics and environmental improvement). Those programmes should:
- a. orientate the special occupational field to raising standards of living in terms of nutrition, clothing, housing, medical services, the quality of family life and that of the environment;
 - b. be adapted to the special requirements of local conditions, in particular those of climate and geography, materials available, community organization, and social and cultural patterns.

VI. Technical and vocational education as continuing education

45. The development and expansion of technical and vocational education as continuing education, both within and outside the formal education system, with either public or private funding, and within the framework of lifelong learning, should be a priority objective of all educational strategies. Broad provision should be made for allowing everyone, whatever their prior qualifications, to continue both their professional and general education by facilitating seamless pathways for learners through articulation, accreditation and recognition of all prior learning and relevant work experience. Technical and vocational education should develop close interfaces with all other education sectors to facilitate seamless pathways for learners with an emphasis on articulation, accreditation and recognition of prior learning. Within this spectrum, technical and vocational education has a responsibility to ensure a sound initial education and training aimed at learning to learn, the most precious skill for all citizens, both young and adult.
46. In addition to permitting adults to make up deficiencies in general or vocational education, which has often been its sole objective, continuing education should now:
- a. offer possibilities for personal development and professional advancement by providing flexibility in programme administration and curriculum design to facilitate smooth lifelong learning and ensure continuous entry, exit and re-entry points;
 - b. permit the updating and renewal of knowledge and practical abilities and skills in the occupational field;
 - c. enable individuals to adapt to technological changes in their occupation or to enter another occupation;

- d. be available throughout the individuals' working life without restriction with regard to age, sex, prior education and training or position, recognizing work experience as a substitute for prior learning;
 - e. be available to the increasing numbers of the aged population;
 - f. be broad in scope, including general education elements and contemporary cross-cutting areas.
47. The appropriate authorities should be encouraged to provide the basic conditions for continuing technical and vocational education, such as providing for paid educational leave and other forms of financial aid.
48. Continuing technical and vocational education should be actively encouraged through:
- a. widespread dissemination of information concerning the programmes available and ways of taking advantage of existing opportunities, including full use of the mass media and the Internet;
 - b. recognition of successful completion of programmes by increased remuneration and professional advancement, with the involvement of employers and professional associations.
49. Organizers of continuing technical and vocational education should consider the following flexible forms of delivery:
- a. courses and training offered during working hours at the workplace;
 - b. part-time courses utilizing existing secondary and tertiary technical and vocational education institutions;
 - c. evening and weekend courses;
 - d. correspondence courses;
 - e. courses on educational radio and television and the Internet;
 - f. short professional "refresher" courses.
50. The following forms of study/training leave from work should be considered:
- a. day release;
 - b. block release of varying lengths;
 - c. release for one or more hours during the working day.
51. Programmes of continuing technical and vocational education should:
- a. be designed and delivered to suit the special requirements of adults using flexible teaching methods that recognize already acquired expertise;
 - b. be designed for individually paced learning;
 - c. be programmed to accommodate the potential that information and communication technology has to offer.

52. Provision should be made for the particular requirements of special groups:
 - a. to enable women completing maternity leave to update their knowledge and professional skills for re-entering the workforce;
 - b. to enable older workers and the unemployed to adapt to new occupations;
 - c. to provide minorities, foreign workers, migrants, refugees, indigenous people and people with disabilities with training programmes to help them to adapt to working life;
 - d. to enable other marginalized and excluded groups, such as early school leavers, out-of-school youth and demobilized soldiers in post-conflict situations to re-enter the mainstream of society.
53. Continuing technical and vocational education programmes through the distance learning mode should be promoted for the benefit of those disadvantaged by distance and location, such as individuals in rural communities and those engaged in seasonal work.

VII. Guidance

54. Guidance should be viewed as a continuous process spanning the entire education system, and should be directed towards aiding all to make conscious and positive educational and occupational choices. It should ensure that individuals are provided with the prerequisites:
 - a. to become aware of their interests, abilities and special talents, and to help them frame a plan for life;
 - b. to pursue courses of education and training designed to realize their potential and fulfill their life plans;
 - c. to acquire flexibility in decision-making concerning their occupations, in the initial and later stages, for developing a satisfying career;
 - d. to facilitate transitions back and forth as needed, between education, training and the world of work.
55. Guidance should take into account the needs of industry, the individual and the family while preparing students and adults for the real possibility of frequent career changes, which could include periods of unemployment and employment in the informal sector, to be achieved through:
 - a. close liaison and coordination between lifelong learning, training, the workplace and placement services;
 - b. ensuring that all necessary information concerning the world of work and career opportunities is available, and actively disseminated using all available forms of communication;

- c. ensuring that those engaged in work have access to information concerning continuing education and training as well as other work opportunities.
56. While emphasizing the needs of individuals, guidance should be accompanied by information that gives them a realistic view of the opportunities available, including trends in the labour market and employment structures, the environmental impact of various occupations, and what may be expected in terms of remuneration, career advancement and occupational mobility.
57. Particular attention should be given to guidance for girls and women to ensure that:
 - a. guidance is gender-inclusive and covers the whole range of education, training and employment opportunities;
 - b. girls and women are encouraged and motivated to take advantage of the opportunities available;
 - c. girls and women are encouraged to pursue subjects such as mathematics and science, which are prerequisites for vocational education and training programmes.
58. Guidance in the formal schooling context should promote technical and vocational education as a viable and attractive choice for young people. It should:
 - a. cover a broad range of occupations, include supplementary visits to workplaces, and make the student aware of the eventual necessity of choosing an occupation and the importance of ensuring that this choice is made as rationally as possible;
 - b. assist students and their parents/guardians in making a positive choice concerning educational streams, and encourage learners to keep open a wide range of options so as to increase their learning and occupational flexibility.
59. Guidance in technical and vocational education as preparation for an occupational field should:
 - a. inform students of the various possibilities open in the particular field of interest, the educational background required, and the subsequent possibilities for continuing education and further training;
 - b. encourage students to choose educational programmes that will not limit their later employment options;
 - c. follow the students' progress through their educational programmes;
 - d. supplement the programmes by short periods of work experience and study of real work situations.
60. For individuals engaged in continuing technical and vocational education as a part of their lifelong learning, guidance should:
 - a. help to choose the programme best suited to their needs;
 - b. enable them to make effective choices regarding their entry into suitable levels of specialization.

61. Guidance should take into account:
 - a. economic, social, technological, cultural and family factors influencing the learners' attitudes, expectations and choice of career;
 - b. results of testing, including aptitude tests;
 - c. educational achievements and/or work experience;
 - d. opportunities and prospects in the occupational sector of interest;
 - e. individual preferences and special needs, including medical conditions, physical limitations and disabilities.
62. Guidance systems need to be accountable to the beneficiaries and sponsors of the service. Quality assurance and long-term results should be continually monitored at national and institutional levels through:
 - a. accurate records of clients, needs addressed, programmes and interventions used and resultant employment including self-employment;
 - b. a system of evaluation both of staff performance and of the methods used to determine the long-term effects of guidance and the degree of self-reliance of beneficiaries.

VIII. The learning process

63. The challenges facing technical and vocational education in the twenty-first century demand learner-centered innovative and flexible approaches including a reoriented curriculum to take account of new subjects and issues such as technology, the environment, foreign languages and cultures, entrepreneurship and the requirements of rapidly growing service industries.
64. Theory and practice should form an integrated whole and be presented in a manner that motivates the learners. Experience in the laboratory, workshop and/or enterprises should be linked to mathematical and scientific foundations, and conversely, technical theory, as well as the mathematics and science underlying it, should be illustrated through their practical applications.
65. Full use should be made of contemporary educational technology, particularly the Internet, interactive multimedia materials, audiovisual aids and mass media, to enhance the reach, cost-effectiveness, quality and richness of programmes, especially in the promotion of self-learning.
66. The methods and materials used in technical and vocational education should be carefully adapted to the learners' needs. In this respect:

- a. where the language of instruction differs from the native language, teaching materials should make maximum use of numerical and graphical representation, written material being kept to a minimum;
 - b. where materials developed in one country are adapted for use in another, this adaptation should be carefully made with due regard to local factors;
 - c. considering, however, the increasing mobility of labour, the acquisition of foreign language skills should be considered a vital aspect of the curriculum.
67. Machines and equipment used in workshops in educational institutions should be geared to the needs of the workplace, and should simulate it as closely as possible. Learners should be capable of operating and maintaining the equipment.
 68. Evaluation/assessment should be an integral part of the teaching and learning process, and its major function should be to ensure the availability of appropriate programmes for the development of learners in accordance with their interests and capacities, and competence in the world of work.
 69. The learners' performance should be evaluated/ assessed on an overall basis that considers class participation, interests and attitude, aptitude for acquiring practical skills and competencies, and relative progress, allowance being made for aptitudes and examinations and other tests.
 70. Learners should participate in the evaluation/ assessment of their own progress, and this system should have an in-built feedback mechanism to identify and correct learning problems.
 71. Continuous evaluation of the teaching and learning process, including formative assessment, should be undertaken with the participation of teachers, supervisors, learners and representatives from the occupational fields concerned to ensure that the programme is effective and that the knowledge and skills imparted meet the needs of the workplace, and include recent developments in the field of study.

IX. Staff

72. To ensure the high quality of technical and vocational education, priority should be given to the recruitment and initial preparation of adequate numbers of well-qualified teachers, instructors/ trainers, administrators and guidance staff, and to the provision of continuous professional upgrading throughout their career, and other facilities to enable them to function effectively.
73. The emoluments and conditions of service which are offered should compare favorably with those enjoyed by persons with similar qualifications and experience in other occupational sectors. In particular, promotions, salaries and pension scales for technical and vocational education staff should take into account any relevant experience acquired in employment outside the educational sector.

Teaching staff

74. All teachers in technical and vocational education, including instructors/trainers who teach practical skills, should be considered an integral part of the teaching profession, and should be recognized as having the same status as their colleagues in general education. In this regard:
 - a. the Recommendation concerning the Status of Teachers adopted by the Special Intergovernmental Conference on the Status of Teachers on 5 October 1966 is applicable to them especially as regards the provisions concerning preparation for a profession, continuing education, employment and career, the rights and responsibilities of teachers, conditions for effective teaching and learning, teachers' salaries, and social security;
 - b. arbitrary distinctions between teachers in specialized technical and vocational institutions and those in general education institutions should be eliminated.
75. Technical and vocational education teachers, on a full-time or part-time basis, should possess the appropriate personal, ethical, professional and teaching qualities, and a strong initial preparation that will enable them to operate in and adapt to an ever-changing scientific, technological and social environment.
76. Teachers of technical and vocational subjects in general education should:
 - a. be familiar with a broad range of specialties;
 - b. develop the ability to relate these to each other as well as to the larger social, economic, environmental, historical and cultural context;
 - c. where these subjects serve primarily an occupation or educational orientation function, be able to give guidance.
77. Teachers of technical and vocational education for occupational fields should have relevant qualifications so that:
 - a. if the occupational field requires primarily practical skills, they should have significant experience in the exercise of these skills;
 - b. if learners are to be prepared for technician or middle-management positions, teachers should have a thorough knowledge, preferably acquired through appropriate practical experience, of the special requirements of this type of position;
 - c. if the occupational field requires research and theoretical analysis, e.g. an engineering field, teachers should have a background in research methods.
78. Teachers in technical and vocational education as continuing education should, in addition to the special preparation for teaching adults, have an adequate knowledge of the working environment of the learners, and be able to provide distance and individually paced education and training.

79. Skilled professionals working outside education should be invited to teach in schools, universities or other educational institutions in order to link the world of work more closely to the classroom.
80. Teachers of general subjects in technical and vocational education institutions, in addition to qualifications in their own field, should have an appreciation of the nature of the learners' specialized technical and vocational education programme.
81. Preparation for technical and vocational teaching should preferably be offered as a tertiary programme, requiring completion of secondary education or its equivalent for entrance. All programmes should be designed with the following objectives in mind:
 - a. to maintain standards of education and professional preparation in effect for the teaching profession as a whole and to contribute to raising these overall standards;
 - b. to develop in future teachers the ability to teach both the theoretical and the practical aspects of their field, with special emphasis on the need to use, whenever possible, the information and communication technologies;
 - c. to develop in future teachers the responsibility for keeping up to date with trends in their field, as well as with the related work opportunities;
 - d. to develop in future teachers the ability to guide learners with special needs;
 - e. to ensure that future teachers are equipped, by means of supplementary training, to teach other subjects related to their primary subject.
82. Flexible training and retraining programmes, combining instruction on the campus and in the workplace, must be adapted to suit the concerned subjects and the needs of the learners and the workplace by developing new and appropriate instruments of assessment, accreditation and articulation, and certification standards.
83. When local conditions prevent future teachers from receiving practical work experience in their training, the teacher-training institution should attempt to simulate workplace conditions as part of the curriculum.
84. The professional preparation of all technical and vocational teachers should include the following elements in pre-service training and in-service upgrading programmes:
 - a. educational theory in general and particularly as it applies to technical and vocational education;
 - b. educational psychology and sociology relevant to the subjects/fields to be taught by the future teachers;
 - c. classroom management, special teaching methods appropriate to the subjects/fields of the future teachers and methods of evaluating/assessing the students' work;
 - d. training in the choice and use of contemporary teaching techniques and aids, including information/communication technologies;

- e. training in how to create and produce appropriate teaching materials, including modular and computer-aided instructional materials, whenever such materials are in short supply;
 - f. a period of supervised practice teaching before appointment to a post;
 - g. an introduction to educational and occupational guidance methods as well as to educational administration;
 - h. planning the instructional environment of practical classes and laboratories and managing/maintaining these facilities;
 - i. a sound training in safety, with emphasis on teaching safe working practice and setting a good working example.
85. Staff responsible for the preparation of technical and vocational teachers should have obtained advanced qualifications in their field:
- a. teacher-educators responsible for special technical and vocational fields should have qualifications in their field equivalent to those of special subjects staff in other higher education institutions and programmes, including advanced degrees and employment experience in related occupational fields;
 - b. teacher-educators responsible for the pedagogical aspect of teacher preparation should themselves be experienced teachers in technical and vocational education, and should possess advanced qualifications in education.
86. Staff responsible for the preparation of technical and vocational teachers should be actively engaged in technical research and analyses of work opportunities in their field. Provision should be made for this in terms of a reasonable teaching load, and access to appropriate facilities.
87. Teaching staff should be encouraged to continue their education and training, whatever their specialized field, and should have the necessary means to do so. Lifelong learning should be made available in a wide range of facilities, and should include:
- a. continuous review and updating of knowledge, competencies and skills;
 - b. continuous updating of specialized professional skills and knowledge;
 - c. periodic work experience in the relevant occupational sector.
88. When questions of promotion, seniority and status are considered, teachers' achievements in continuing education and training as well as relevant work experience should be taken into account.

Administrative and guidance staff

89. Administrators of technical and vocational education programmes should be equipped with the following qualifications:
- a. teaching experience in a field of technical and vocational education;

- b. some work experience in one of the fields taught in the programme;
 - c. a broad vision of technical and vocational education as a vital element in personal, social and economic development;
 - d. knowledge of administrative techniques and procedures.
90. The heads of technical and vocational education establishments should devote a significant portion of their time to the educational and scientific aspects of their work. Sufficient staff should be available to provide the following services:
- a. counselling and guidance for candidates and students;
 - b. the preparation, supervision and coordination of all practical work and experiments;
 - c. the maintenance of instruments, apparatus and tools in workshops and laboratories;
 - d. academic support services such as libraries, information and communication technology centres and information resource centres.
91. Administrators should keep up to date with new administrative techniques and trends, especially through relevant lifelong learning programmes. They should receive special training in the methods and problems associated with the specific features of technical and vocational education programmes, such as flexible entry and re-entry patterns, continuous training in the workplace, and relevance to the needs of the world of work. This preparation should include:
- a. management methods appropriate to educational administration, including techniques that utilize information and communication technologies;
 - b. financial planning methods that facilitate the allocation of available resources, given the objectives and priorities of the various programmes, and ensure their efficient utilization;
 - c. contemporary human resources management and development methods.
92. Guidance staff should receive special preparation for their tasks. They should be equipped to make objective assessments of aptitude, interest and motivation, and have up-to-date information concerning education and work opportunities. They should acquire a direct knowledge of the economy and the world of work through systematically organized visits to enterprises and training periods in enterprises. Guidance staff should be provided with facilities - including the opportunity for practical experience - to keep up with new information and methods of guidance. Most importantly, they should bear in mind the concept that technical and vocational education must be available to all as part of the lifelong learning process. It must contribute to personal and economic development and responsible citizenship.

X. International cooperation

93. Member States should give priority to international cooperation between the North and South, as well as between countries of the South, with the assistance of concerned international organizations, to renovate and sustain technical and vocational education systems, with particular emphasis on the following:
- a. the need for developing countries to take ownership of technical and vocational education and to increase their budget for this sector of education;
 - b. the efficient coordination, within any given country, of international assistance activities;
 - c. enhancing the sharing of intellectual property, including through research and development, for the benefit of learners in all countries and situations;
 - d. recognition by all stakeholders, including international financial authorities, of the contribution of technical and vocational education to the maintenance of peace and stability and to the prevention of social dysfunction, and the need to incorporate support for this sector of education in their assistance to recipient countries.
94. Member States should take special measures to make technical and vocational education accessible to foreigners (in particular migrants and refugees) and their children living within their territory. Such measures should take into account the special needs of such persons in the host country, as well as in the event of their return to their country of origin.
95. There is significant scope for countries to share their experience in technical and vocational education. There is a need for mutual cooperative assistance between all countries, regardless of their state of development. Provision should be made at the national, regional and international levels for the regular exchange, making use of contemporary information and communication technologies, of information, documentation, and materials obtained from research and development, in particular:
- a. publications concerning comparative education, psychological and pedagogical problems affecting general and technical and vocational education, and current trends;
 - b. information and documentation concerning curriculum development, methods and materials, study opportunities abroad, and employment opportunities, including human resource requirements, working conditions and social benefits;
 - c. ideas, innovations and new teaching/ learning/training materials;
 - d. mass media programmes of an informational or pedagogical character.

96. Regional cooperation should be encouraged among countries having a common cultural heritage and/or facing common problems in the development or extension of technical and vocational education through:
- a. periodic meetings at the ministerial level and the establishment of a mechanism to review policies formulated and actions taken;
 - b. the creation of joint facilities for higher level research, the development of prototype materials and equipment, and the preparation of staff for the training of teachers where the costs of such facilities are too high to be sustained by any one country.
97. The development of teaching and learning materials which use the information and communication technologies and are suitable for international or regional use should be considered a priority area. These materials should contribute to the progressive establishment and recognition of common standards for professional competencies/qualifications acquired through technical and vocational education. Moreover, such teaching and learning materials should encourage deliberate international collaborative teaching and learning among institutions.
98. Member States should encourage the creation of a climate favorable to international cooperation with a view to capacity-building in developing countries, especially in the areas of acquisition, adaptation and application of technology, through:
- a. fellowship and exchange programmes for teachers/trainers, students and administrators/ managers;
 - b. establishing sustained cooperation between similar institutions in different countries, such as through twinning arrangements;
 - c. provision of work experience abroad, particularly when opportunities at home are limited;
 - d. encouraging countries to present and make known their educational programmes outside their national boundaries.
99. To facilitate international cooperation, Member States should, through the exchange of good practices and methods, aim to apply relevant and appropriate internationally recommended standards and norms relating in particular to:
- a. systems of assessment/evaluation;
 - b. scientific and technical symbols;
 - c. occupational qualifications and certification;
 - d. equipment and technical standards;
 - e. information processing;
 - f. equivalencies of qualifications implying standardization of curricula and testing, including aptitude tests;
 - g. occupational safety and security through testing of materials, products and processes;

h. environmental protection and conservation.

100. Internationally recommended standards and norms should be continuously evaluated through sustained research on and monitoring of the effectiveness of their application in each country, with a view to enabling countries to use lifelong technical and vocational education as a means of narrowing the disparities between the North and the South and as a bridge to a more prosperous and peaceful future in the twenty-first century.