

ヨルダン・ハシュミット王国
職業訓練技術学院プロジェクト
在外事後評価報告書

2006年3月

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独立行政法人国際協力機構
ヨルダン事務所

ヨル事
JR
06-02

在外事後評価調査結果要約表

評価実施部署：ヨルダン事務所

1. 案件の概要																													
国名：ヨルダン・ハシェミット王国	案件名：職業訓練技術学院プロジェクト																												
分野：職業訓練	協力形態：プロジェクト方式技術協力（現：技術協力プロジェクト）																												
所轄部署：社会開発部 社会開発協力第二課	協力金額：11 億 1,800 万円																												
協力期間	(R/D)： 1997 年 10 月 1 日 ～2002 年 9 月 30 日																												
	先方関係機関：労働省、職業訓練公社（VTC） 日本側協力機関：厚生労働省、雇用・能力開発機構																												
他の関連協力：TCTP（アラブ諸国を対象とした CAD/CAM コース）2003 年－2005 年																													
1-1 協力の背景と概要																													
<p>ヨルダンでは、安定的な経済発展のため、投資促進、工業団地の建設等、工業振興政策をとり、国際競争力の強化を目指して労働者の生産性、製品水準の向上、労働市場のニーズに十分対応しうる人材の育成のための教育・職業訓練の充実を開発計画の主要目標と位置付けている。このような背景のもと、労働省傘下の職業訓練公社（VTC）は、首都アンマンに金属・機械加工分野の職業訓練施設を新たに建設し、そこで実施する職業訓練にかかる技術協力を我が国に要請してきた。</p> <p>本プロジェクトは、職業訓練技術学院（STIMI）において、金属・機械加工分野の質の高い技能者が育成されるようになることを目的として、同学院の運営・管理体制が確立し、機械、塑性加工、溶接の3科において、職業訓練のために必要な機材を整備し、訓練指導員の能力を向上させ、適切な訓練コースを実施するために、1997 年 10 月 1 日より 5 年間の協力を開始した。</p>																													
1-2 協力内容																													
<p>(1) 上位目標：金属・機械加工分野で雇用される質の高いヨルダン人技能者の数が 2007 年までに増加する。</p> <p>(2) プロジェクト目標：ヨルダン国職業訓練技術学院において、金属・機械加工分野の質の高い技能者が育成される。</p> <p>(3) アウトプット（成果）：</p> <ol style="list-style-type: none"> ① 学院の運営・管理体制が確立される。 ② 金属・機械加工分野の職業訓練のために必要な機材が整備される。 ③ 学院において訓練指導員の能力が向上する。 ④ 適切な金属・機械加工分野（溶接、塑性加工、機械加工）で適切な訓練コースが実施される。 <p>(4) 投入（プロジェクト終了時）</p> <p>日本側：</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">長期専門家派遣</td> <td style="width: 10%;">12 名</td> <td style="width: 30%;">機材供与</td> <td style="width: 30%;">4 億 8,100 万円</td> </tr> <tr> <td>短期専門家派遣</td> <td>13 名</td> <td>ローカルコスト負担</td> <td>3,000 万円</td> </tr> <tr> <td>研修員受入</td> <td>21 名</td> <td></td> <td></td> </tr> <tr> <td colspan="3"></td> <td style="text-align: right;"><u>総額 8 億 400 万円</u></td> </tr> </table> <p>相手国側：</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">カウンターパート配置</td> <td style="width: 10%;">31 名</td> <td style="width: 30%;">学校建設費</td> <td style="width: 30%;">約 2 億円</td> </tr> <tr> <td></td> <td></td> <td>ローカルコスト負担</td> <td>1 億 1,400 万円</td> </tr> <tr> <td colspan="3"></td> <td style="text-align: right;"><u>総額 3 億 1,400 万円</u></td> </tr> </table>		長期専門家派遣	12 名	機材供与	4 億 8,100 万円	短期専門家派遣	13 名	ローカルコスト負担	3,000 万円	研修員受入	21 名						<u>総額 8 億 400 万円</u>	カウンターパート配置	31 名	学校建設費	約 2 億円			ローカルコスト負担	1 億 1,400 万円				<u>総額 3 億 1,400 万円</u>
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2. 評価調査団の概要																													
調査者	(担当分野：氏名、所属先、職位) JICA ヨルダン事務所 Quality Consultant																												

調査期間	2005年10月26日～2006年1月26日	評価種類：在外事務所事後終了時評価
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3. 評価結果の概要

3-1 評価結果の要約

(1) インパクト

STIMIにおける過去3年間の学生数は減少傾向にあり、具体的には36%のマイナスを示した。他方、関連企業に対するインタビューでは、STIMIが専門とする金属加工分野、すなわち機械、塑性加工、溶接の各職能における人材ニーズは確認されていることから、労働市場における需給のギャップが存在する。これは、主にヨルダン国民の「労働」に対する社会・文化的な影響によるところが大きく、具体的には高学歴偏重の風潮に加え、いわゆる3K的な労働を避ける傾向が近年強まっていることに起因する。しかし、STIMI卒業生の高い就職率(約90%)を鑑みると、本プロジェクトの上位目標である、「金属加工分野での質の高いヨルダン人技術者の育成に貢献する」ことは十分とはいえないものの、ある程度達成したと思われる。

また、日本人専門家に直接指導を受けたり、本邦研修に参加した指導員が中心となり、他の指導員への技術移転が行われているが、二次的な効果として指導員の勤務態度や業務への取り組み姿勢の肯定的な変化が見られる。

(2) 自立発展性

● 制度・組織的側面

政策面では、当該国が2005年に発表した国家アジェンダの中でも主要経済分野における産業人材の育成と失業率の改善が明確に記されていることから、政策上の整合性については確保されている。

また、今次調査により、職業訓練技術学院(STIMI)の管理・運営体制はよく整備されており、例えば年間事業計画を自ら策定し、これに沿った事業を展開している。また、予算に関しては、計画策定・実施・報告という一連の流れに沿って適切に運用しており、組織としての能力は高いレベルを維持しているといえる。

STIMIの訓練事業をより効果的に実施する目的で、民間企業の代表者などから成る諮問委員会が設置されており、事業の透明性確保や運営改善に寄与している。また、STIMIは校長の強いリーダーシップのもと堅実な事業を行っており、年間事業実施計画や予算計画を策定し、これに基づいた評価を独自に行うなど組織的な自立発展性も高い。

また、人材育成面でもSTIMIは指導員の技能や質的向上を図るためのメカニズムを構築しており、指導員の要望に応じて、内外の研修を実施している。

さらに、STIMIは提携企業と協働で企業内実習制度を導入しており、これを通じて民間企業との良好な関係を築き、労働市場の技能ニーズに対応するメカニズムを構築している。なお、STIMIの学生の多くは、訓練終了後、企業内実習を受けたこれら企業に就職していると報告されている。

但し、STIMIの人事関連や事業実施に係る権限は限定的な範囲に留まることから、この上位機関である職業訓練公社(VTC)からの権限委譲が適正な範囲で行われ、組織としての持続的な発展がより高いレベルで達成されることが求められている。

なお、過去3年間にSTIMIを離れた指導員は僅か10名に留まることから、技術移転の定着率は高いと思われる。

● 財政的側面

STIMIはその財源を中央省庁である職業訓練公社(VTC)からの配分に依存している。一方で、学生からの授業料(40JD)や企業等から委託された生産活動、或いは企業の従業員の技能グレードアップを目的とした在職者訓練の実施による収入は、VTCに徴収される仕組みとなっている。

なお、STIMIの年間予算は公表されておらず、財務報告もなされていないため、国民に対する説明責任を果たしているとはいえないのが現状である。但し、自己収入活動による収入に関しては公表されており、過去5年間で年平均7,690JDの実績がある。また、STIMIへのインタビューによると、機材のメンテナンスや訓練に係る材料費は、必要に応じて、年間凡そ850JDから3,000JDの範囲内でVTCから配分されており、これまでのところ財政的課題に直面した経験はない。

このように予算配分とその執行に関しての不透明さは指摘される場所であるが、例えばプロジェクト終了後2003年から2005年にかけてSTIMIで実施された「アラブ諸国を対象としたCAD/CAMコース」第三国研修の予算計画、執行、精算といった財務管理は、他の機関で実施されている第三国研修のそれと比較して際立って優秀であることから、財務管理に関する組織能力は高いことが伺える。

STIMIは自己収入活動に関する実績や経験があることから、今後はこの収入を自ら執行・管理できるような制度を構築し、組織の財政面での持続性を高めていくことが求められている。

• 技術的側面

先に記したように、プロジェクトで導入した殆どの機材に関しては、各担当指導員の責任で保守・管理が行われており、幾つかの機材は導入当初の性能を維持している。また、プロジェクト終了後も VTC より不定期ではあるものの機材の補充も行われている。STIMI 卒業生の就職率の高さ (90%)、或いは卒業生の就職先企業における高いパフォーマンスの評価からも、市場が求める職業訓練プログラムが実施されていることが確認できる。

また、STIMI は、卒業生のフォロー・アップ活動を通じて企業等から技能ニーズを吸収し、限られた範囲ではあるものの、これを踏まえたカリキュラムや教材の改定を定期的に行っている。このことから、STIMI の技術的側面における持続発展性は高いといえる。

更に、プロジェクトで導入された機材の殆どは、担当の指導員によって適切に管理・活用されており、幾つかの機材は導入当時の機能を維持している。なお、卒業生の就職先企業へのインタビューによれば、経営者は概ね卒業生の技術レベルに満足している結果であることから、STIMI におけるカリキュラムおよびそれに基づいた機材の配置は、現在の金属加工分野の労働市場水準に適合しているといえる。

3-2 プロジェクトの促進要因

(1) インパクト発現を促進した要因

STIMI の卒業生の就職先である地元企業を対象にしたインタビュー調査によると、金属加工分野の人材ニーズは微増傾向にあることが確認されている。また、何人かの指導員は、近代的な専門知識と十分な経験を兼ね備え、その定着率も高い上、定期的な技術補完研修の受講と地元企業の交流により、新しい技術を習得しており、このような労働市場ニーズを踏まえた職業訓練を通じ、産業人材の育成、ひいては産業の発展に少なからず貢献している。

(2) 自立発展性強化を促進した要因

STIMI 校長の強いリーダーシップのもと、諮問委員会、VTC および労働市場との良好な関係構築と有機的な連携体制の確立が組織としての持続性を高めている。さらに民間との連携の中で、企業等の技能ニーズを確定し、これをプログラムに反映できる体制が確立されていることで、柔軟性の高い訓練の実施に繋がったものと思われる。なお、アラブ諸国向けの第三国研修がプロジェクト終了後すぐに開始されたことにより、STIMI が運営能力をさらに向上させることに繋がった。

3-3 プロジェクトの阻害要因

(1) インパクト発現を阻害した要因

訓練修了生へのインタビューによると、その殆どが卒業後は工学系高等教育への進学を希望していたことが判明した。このことから社会的な風潮として、一般的に職業訓練のコースを選好する学生は少なく、職業訓練は大学受験に失敗した学生にとっての第 2 選択肢でしかない。これに関し、現在の制度では職業訓練ラインから、大学等の高等教育に進学することが事実上不可能であり、このことも学生数減少の要因となっている。また、プロジェクト実施中は、卒業証明書に JICA の証印が押されていたが、プロジェクト終了後はこの証印のない修了書が卒業生に授与されており、これが社会における STIMI 卒業生の印象を悪くする要因として指摘されている。

(2) 自立発展性強化を阻害した要因

ある領域では旧態依然とした組織体質が残っている。特に人事評価や予算配分などはそのパフォーマンスに基づいて評価されておらず、また評価を行うための基準も明確に定められていない。一般的に STIMI などの職業訓練機関の指導員の給与は他の公務員と比較して低く、社会的地位も低いことも自立発展性を阻害する要因として挙げられる。

また、学生数減少の 1 つの要因として、STIMI の広報活動が適切に行われてこなかったことが挙げられる。これに加え、ヨルダン社会では、伝統的に金属加工のような泥臭い「仕事」よりもむしろ事務職などのホワイト・カラーを選好する傾向が強いことも学生数減少の要因となっている。

結論としては、職業訓練や産業発展を通じた雇用拡大という政策的整合性が認められ、金属加工分野における労働市場需要と卒業生の就職率の高さも確認できていることから、プロジェクトによる一定のインパクトは発現されたものと思料するが、他方、当該国の社会的風潮による技術系職種軽視の影響もあり、プロジェクト投入と裨益者である訓練生数を鑑みると、費用対効果が高いとは言えないのが現状である。また、自立発展性に関しては、日本人専門家がカウンターパートに対し技術面のみならず、業務に対する姿勢や運営面でも技術移転を行なったこと、またプロジェクト終了後、間を空けずに第三国研修を実施したことが、組織・制度的、財政的、技術的のいずれの側面においても強化された要因として挙げられる。

3-4 結論

一般的に STIMI の卒業生は、ヨルダン国の金属加工分野でトップクラスの理論的知識及び実的な技能を身につけており、産業界からの評価は総じて高い。このことは、卒業生の就職先企業を対象としたアンケート調査の結果からも明らかであり、また就職率の高さからも伺える。さらに、STIMI 校長を中心とした組織運営体制も整備されており、限られた範囲内ながら独自で事業改善に取り組んでいる姿勢もみられ、いまだ改善の余地はあるものの組織能力は高い。また、指導員の技術レベルも内外の研修や企業との関係構築によりある程度グレード・アップされており、その定着率も高い。またプロジェクトで導入された機材も多少時代に取り残されつつあるものの、可能な範囲でよく整備され活用されているといえる。

他方、産業界からのニーズは確認されているものの、STIMI の学生数は減少傾向にあり、その主な理由としては、ヨルダン国民の「労働」に対する文化社会的な影響によるところが大きく、具体的には高学歴偏重の風潮に加え、いわゆる 3K 的な労働を避ける傾向が近年強まっていることが挙げられる。学生数の減少のもう 1 つの理由として、STIMI の広報活動が適切に行われてこなかったことが挙げられている。また、ヨルダン国はいまだ中央集権的な体制が一般的であり、STIMI の事業、予算、人事などに関する権限の殆どが VTC に掌握されている。さらに、プロジェクトで導入された機材も稼働率が高いと報告されているが、年間予算は限られたものであり、使用年数の経過とともに必要となるメンテナンス費用の確保が年々厳しくなっているのも事実である。

3-5 提言（当該プロジェクトに関する具体的な措置、提案、助言）

STIMI は市場の開拓に一層力を入れるべきであり、この具体的な方策としては、広報の強化が有益と思われる。また、STIMI は定期的に金属加工分野の市場ニーズを調査し、職工レベルの訓練プログラムの進化・発展にフィードバックすべきである。また、STIMI の指導員は、企業内実習を行う訓練生の業務成績を評価するため、より頻繁に企業等への訪問を行うべきである。さらに、STIMI は機材のメンテナンスとその修理部品のための予算を必要十分に確保すべきである。最後に、市場のニーズを鑑みると、配管と金具溶接の訓練プログラム実施に向けての計画を策定することが望まれる。

3-6 教訓（当該プロジェクトから導き出された類似プロジェクトの発掘・形成、実施、運営管理に参考となる事柄）

プロジェクト終了後間を空けず、第三国研修をある程度実施機関に裁量権を与えつつ実施したことが、当該組織の能力構築に貢献したと思われる。また、日本人専門家が単に技術移転のみならず、運営改善的な指導をカウンターパートに対して行なったことが、組織能力の強化に繋がったと思われる。

3-7 フォローアップ状況

2003 年から 2005 年にかけて STIMI にてアラブ諸国を対象とした CAD/CAM コースの第三国研修を実施している。その中で、(日本人)講師派遣を通じて、機材のメンテナンスや教材のアップグレードに貢献している。また、2006 年度には、STIMI の上位機関である VTC 本部及び VTC 傘下の訓練校を対象とした運営改善の技術協力プロジェクトを開始予定。

Evaluation Summary

Evaluation conducted by: JCIA Jordan Office

1. Outline of the Project	
Country: Hashemite Kingdom of Jordan	Project title: Specialized Training Institute for Metal Industries Project (STIMI)
Issue/Sector: Vocational Training	Cooperation Scheme: Technical Cooperation
Division in charge: 2 nd Division of Social Development, Social Development Department	Total cost : <u>11.18 billion</u> yen
Period of Cooperation: (R/D) Oct 1997 – Sep 2002	Partner Country's Related Organisation(s): VTC and STIMI
	Supporting Organisation in Japan: Employment and Human Resource Development Organization in Japan
	Related cooperation: TCTP (CAD/CAM Course for Arab Countries) 2001 – 2005
<p>1-1. Background of the Project</p> <p>Due to the unemployment situation in Jordan, Vocational Training Corporation (VTC) was urged by the government of Jordan to play a more important role in Vocational training. Based on this, In February 1994 the government of Jordan made a request to Japan for implementation of a project-type technical cooperation for the establishment and operation of a new vocational training centre in the field of metal works and machinery. In response to this request, the Japanese government conducted three studies in 1995 and 1996, Using the results of these studies, Japan dispatched an implementation consultation study team to Jordan in April 1997, and in October of the same year it commenced a five-year project. This project initiated with the purpose of enabling VTC to provide improved training at STIMI for local skilled labour in the fields of metal works and machinery.</p> <p>1-2. Project overview</p> <p>The project has been implemented based on a project Design Matrix (PDM) which has been revised since the Project started. The original (PDM) was reviewed by the Japanese Consultation Team sent by JICA and Jordanian authorities concerned of the Project and revised slightly in August 2000.</p> <p>(1) Overall goal</p> <p>To satisfy the demands of local metal-working and machinery industries for local skilled labour in Jordan</p> <p>(2) Project Purpose</p> <p>To enable the Vocational Training Corporation (VTC) to bring up higher quality of skilled labour in the fields of metal-working and machinery at the specialized Training Institute for Metal Industries (STIMI).</p> <p>(3) Outputs</p> <p>a] To establish the organization of management and administration in the Institute.</p> <p>b] To provide the necessary machinery and equipment for training in the fields of metal working and machinery.</p> <p>c] To improve capability of the instructors at the Institute.</p> <p>d] To implement adequate training courses in the fields of metal working and machinery.</p>	
<p>Inputs (at the time of Project Termination):</p> <p>Japanese side</p> <p>(1) Dispatch of Experts</p> <p style="padding-left: 20px;">① long-term experts: 12 persons</p> <p style="padding-left: 20px;">② Short-term experts: 13 persons</p> <p>(2) Training of counterpart personnel in Japan: 21 persons</p> <p>(3) Provision of machinery and equipment: 4.81 billion yen</p> <p>(4) Local cost: 30 million yen</p> <p>Total cost: 8.04 billion yen</p> <p>(Jordan side):</p> <p>(1) The land for the Institute buildings</p> <p>(2) The design and the construction of the Institute buildings and facilities: about 2 billion yen</p>	

(3) Assignment of Jordanian full-time counterpart personnel: 31 personnel
 (4) Expenses necessary for the implementation of the project.: 1.14 billion yen
 Total cost: 3.14 billion yen

2. Evaluation team

(1) Eng. Rashid Abu Asbeh	Senior Team Leader
(2) Mr. Amjad IStitiyeh	Senior Consultant
(3) Ms. Eman Balout	Senior Consultant
(4) Mr. Jalal Hassan	Surveyor

Member of Evaluation Team	JICA Jordan Office Quality Consultant Office.
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Period of Evaluation	26 October 2005 – 26 January 2006	Type of Evaluation: Ex-post evaluation
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3. Results of Evaluation

3-1. Summary of Evaluation Results

(1) Impact

The overall goal of the project is to satisfy demands of local-working and machinery industries for local skilled labour in Jordan.

Through the analysis of the data received from STIMI, it was revealed that the total number of students enrolled in Craftsman level training programs declined down from 71 students in 1999 to 58 students in 2000 at a rate of -18%. Following the year of 1999, this figure continually decreased to reach 53 and 45 in 2001 and 2002, respectively.

However, in 2003 the number of STIMI's students got a hold of the highest growth rate over the time period from 1999 to 2005, where it remarkably jumped to 89 students representing a positive rate of 97%.

By the year 2004 and 2005, decline rates of 25% and 14%, respectively, were recorded in the number of students that are enrolled in STIMI where they came down to 66 and 57 students. From the instructors' point of view, the main reasons underlying these trends are as follows:

- Absence of Japanese experts.
- Local community culture towards metal industry graduates.
- SITMI's location "Lack of transportation".
- Lack of marketing resources required to promote STIMI among potential students.
- Higher education programs in the field of metal industries are not provided either by any vocational centers nor public universities or private universities in Jordan. Consequently, this fact has a direct impact on the future career path of students, who are planning to join STIMI, as they will not be able to continue their higher education, upon graduation from STIMI. This will have adverse effect on promoting them for higher jobs in the future. Therefore, many of the potential students may decide not to enrol in STIMI due to the said fact.

The average number of the total trainees enrolled in Craftsman Level training program at STIMI was 63 students over the time period from 1999 to 2005.

Amongst the training programs studied at STIMI, Pipe Welding and Machinery occupied the highest numbers of attracting students with an average number of about 23 students for each specialization per an academic year, followed by Sheet Metal Processing and then Metal Casting and Forging with an average of 13 and 4 students, respectively.

It is worth mentioning that STIMI provides scholarships for three students from the local community who cannot afford the study expenses at STIMI.

Over the same period, a total of 278 students graduated from STIMI. Graduates from machinery workshop maintained the highest share (36%) followed by Pipe Welding workshop (31%). The remaining (24% and 9%) was maintained by Sheet Metal Processing workshop and Casting and Forging workshop, respectively, over the same period.

To develop the skills of trainees, STIMI provides On-The-Job-Training (OJT) for its students through a program of internship with the local industrial firms for a period span of six months. The rate of employment for trainees graduated from Craftsman level training programs is estimated at 90%. where 63% of the graduate students

stated that their graduation from STIMI helped them to find a job; on the other hand, 37% of them didn't recognize such a thing.

Out of the graduates' survey the following main results were revealed:

- 67% of the graduates recognized that there has been a noticeable improvement in their technical knowledge after graduation from STIMI.
- 76% of the graduates have gained considerable improvement in their working skills.
- 88% of the graduates believe that STIMI has qualified and capable instructors.
- 93% of the graduate students believed that STIMI's available facilities and equipment satisfy their training needs.
- 73% of the graduates believe that STIMI training courses satisfy the industry needs.
- 76% of the graduates' general rate of STIMI was very good and above.
- Regarding the tuition fees charged by STIMI, 54% of the graduated students believed that they are inexpensive, 41% moderate, and just 5% of the graduates rated them as expensive.
- 58% of the graduates are still staying in touch with STIMI after graduation, while the remaining 42% have not unfortunately established any type of contact upon leaving STIMI.

A list of all trainees graduated from STIMI is documented and updated continually. In addition to this, the instructors, from time to time, are contacting the employers to follow up and get feedback on the performance of STIMI's students.

In its aim to utilize the available capacity, STIMI has got the approval from JICA to conduct specialized training courses for trainees from neighbouring Arab Countries in the field of Metal works and machinery. Over the last four years, an average of 15 trainees attended this course each year.

On the other hand, Local labours currently operating in the field of Metal Industries is another promising targeted group for STIMI. To this end, STIMI is delivering upgraded training programs that are customized according to the requirements and needs of this group. Over the years from 1999 to 2005, the fluctuation of the number of trainees who completed Upgraded training courses occurred at a stable trend. Approximately, 55 trainees attended, per year, on average.

With respect to training materials, the top management of STIMI and instructors of each workshops are fully aware of the importance of working continuously on reviewing, editing, and developing the contents of teaching materials and textbooks according to the rapidly changing requirements of Jordanian Metal Industry, as well as the received feedback from the industrial firms on the level of performance of STIMI's graduates.

Many developments have occurred in STIMI throughout the last few years, but the most important ones are the following:

- Upgrading CAD/CAM training program,
- Using AutoCAD instead of hand drawing,
- Delivering several upgraded training programs in the field of metal industry for trainers from Arab neighbouring countries, and
- Providing technical advice for local private industrial firms in the field of material testing and machinery.

A simple comparison between STIMI and two of its main competitors, namely: Wadi Al-Seer College and Abd-Al-Hameed Sharaf School was carried out, the main revealed results were as follow:

- Employees' evaluation: Abd AL Hameed Sharaf School implement the best practice by continuously evaluates its employees on monthly basis, while the case for STIMI is to carry out yearly evaluation following the instructions of C.S.B.
- Promotional Media: STIMI uses several promotional tools such as Newspapers, brochures and Public Relations, study tours is another useful tool that is used by Wadi Al Seer College and could be used by STIMI as well. Abd Al Hamid Sharaf School doesn't use any promotional media tools.
- Market research: Non of the three institutions carry out any systematic and scientific market research to identify market needs and trends and they depend only on personal experience and knowledge of instructors.
- Costing System: Both Abd Al Hameed Sharaf School and Wadi Al Seer College has costing system in place while STIMI doesn't have.
- Maintenance plans: In Both Abd Al Hameed Sharaf School and Wadi Al Seer College, preventive and corrective maintenance activities conducted by instructors themselves, while STIMI doesn't have any preventive maintenance plans implemented yet.

Furthermore, STIMI has successfully built and maintained excellent relationships with its stakeholders, mainly, local industrial firms and the concerned governmental bodies such as Ministry of Planning and International

Cooperation, Ministry of Education, and Ministry of Labor.

There is an increasing demand from industrial firms operating in the local metal industry that have approached STIMI seeking for technical advice, on one hand, and to benefit from its technology and state-of-the-art machinery, on the other hand.

Out of the employers' survey the following main results were revealed:

- 63% of the employers were satisfied with the technical knowledge acquired by STIMI's graduates.
- 54% of the employers believed that the graduates have the required skills to be successfully enrolled in the labor market.
- 54% of the employers believed that STIMI satisfy the industry needs. On the other side, 45% of surveyed employers declared that STIMI is good and could further improve its capabilities to satisfy the industry needs and requirements.
- 91% of the employers in general rated STIMI as very good and above.
- The technical knowledge of STIMI's graduates is higher than that of other students graduated from similar institutes. However, they are still in a mass need of gaining skills that are more practical.
- STIMI has not satisfactorily fulfilled the market needs in the area of Pipe Fabrication and Tag Welding.
- There is a pressing need to deliver training programs for technician level.
- English language skills for most of STIMI's graduated students are not up to standard.

(2) Sustainability

Organizational Aspects

To guarantee highly smooth and effective operations of STIMI, an advisory committee was formed that aims at moving STIMI on the right track.

A dynamic organization structure for STIMI has been set reflecting the actual core and support business functions and sections. And detailed job description were developed for all positions.

Currently, STIMI employed 31 person out of which 16 are instructors. This give a ratio of students to instructors to be 4:1, Which is much lower than STIMI's standard of 12:1.

STIMI attracts highly qualified and experienced instructors through following competitive recruitment procedures in compliance with CSB standards and VTC by-laws. New instructors are receiving systematic orientation training program consisting of 12 training sessions to introduce them to the internal management systems and to be familiar with the nature of activities that will be assigned to them later on.

The level of instructors' performance is evaluated at end of each year of service by the top management according to CSB rules and regulations. Moreover, it is important to mention that the staff's turn over was very low over the last years (only 10 employees left STIMI).

To enhance working conditions, STIMI management follow the open door policy and they signed an agreement with a local insurance firm to provide its employees with medical insurance against working injuries.

Based on the results of the diagnostic visits and the analyses of data received, it could be said STIMI has organizational sustainability that will enable it to continue, prosper and move towards achieving its strategic direction.

Financial Aspects

The main financial sources of STIMI come from the allocated budget from Vocational Training Corporation (VTC), training tuition fees, and revenues generated from production activities. Where the average total annual revenues of production activities were JD 7,690 over the past five years.

However, STIMI's budget can't be clarified as it is incorporated with the VTC yearly financial budget.

Based on the results of the diagnostic visits and the analyses of data received, it could be said STIMI has financial sustainability that will enable it to continue , prosper and move towards achieving its strategic direction.

Technical Aspects

Installation of all the required machinery and equipment has been carried out according to the project's plan of action. All machinery and equipment available in the three workshops were installed in an appropriate manner where enough space is provided to ease up the process of handling and movements. Furthermore, filters are installed at each workshop to reduce any potential pollutants emissions in the neighbourhood.

Most of, if not all, the installed equipment and machinery are in a healthy operational conditions as each instructor is held accountable for continuously performing the necessary corrective maintenance activities for the machinery and equipment they are using during the training program period. However, until the date of preparing this report, preventive maintenance schedules are not set yet by STIMI.

Unfortunately, a list of approved suppliers for spare parts dealing with STIMI is not documented until now. This, to a certain extent, might result in purchasing some needed materials that are not up to the internal quality standards adopted by STIMI.

STIMI has a clear mechanism to improve the skills and quality of its instructors by providing them with proper and required training programs, starting from providing orientation training for the new instructors. Annual training needs analysis is a useful tool used by STIMI's top management in order to identify the arising training needs of its instructors. According to these analyses, a comprehensive training plan is prepared annually. Training of the Trainers (TOT) programs are delivered to the instructors on continuous basis by well-experienced experts either from STIMI or neighbouring countries.

Due to the fact that the necessary technical experience in the field of metal works was completely transferred by Japanese experts to STIMI's instructors, it could be said that the current instructors have acquired the technical knowledge and skills essential for delivering craftsman level training programs.

Out of the instructors' survey the following main results were revealed:

- 64% of the instructors indicated that a very good improvement has happened in their training skills after joining STIMI.
- 93% of the instructors declared that STIMI facilities and equipment have satisfied the market needs.
- 79% of the instructors rated STIMI in general as very good and above.

Based on the results of the diagnostic visits and the analyses of data received, it could be said STIMI has technical sustainability that will enable it to continue , prosper and move towards achieving its strategic direction.

3-2. Factors that have promoted project

The entire involvement of Japanese experts has been instrumental in establishing and developing STIMI. Besides, due to the close relationship with VTC, STIMI has a direct access to the resources and capabilities of VTC which help it to render distinguished level of training services to the market. The tuition fees of STIMI is highly inexpensive compared to other similar institutes.

STIMI has a team of high-profile instructors who had a valuable chance to get systematic and wealthy technical training from the Japanese experts throughout the different stages of the project.

3-3. Factor that have inhibited project

Jordan lacks experienced trainers who are specialized in delivering training in the area of machinery and equipment maintenance. This, to a certain degree, might limit the ability of STIMI instructors to carry out the necessary maintenance activities for some types of machinery and equipment particularly those equipment that the instructors are not familiar with.

Despite the high importance of marketing campaigns, STIMI Lacks marketing capabilities and efforts needed to promote it among targeted groups. This directly affected the STIMI training capacity, which is not fully utilized.

STIMI graduates cannot continue their higher education as neither STIMI nor any other vocational institute in Jordan offer higher education programs in the field of metal works and machinery, and they did not hold High General Secondary Certificate, which approved that they succeed on Ministry of Education special exam for these students.

Salaries paid for STIMI's instructors are lower than that salaries provided to other instructors particularly in the GCC.

There is only one CNC machine installed at STIMI which is considered not sufficient to meet the market demand, so this dose not gave the chance to every single student to train and gain enough experience.

3-4. Conclusions

STIMI's graduates are equipped with first class theoretical knowledge and distinguished practical experience which definitely assist them to find a good job opportunity in a short time after graduation. The rate of employment for graduated of craftsman level who is around 90%.

The instructors have outstanding technical skills and knowledge required to deliver the craftsman level training programs. Also, the curricula, teaching material, and textbooks are subject to a continuous process of improvement taking into consideration the requirements and needs of the local market.

However, insufficient consideration is given to marketing related issues and activities within STIMI. This could be a direct reason underlying the decline in STIMI's share of market and the noticeable decline of 36% of the number of students joined STIMI.

3-5. Recommendations

STIMI should intensify its marketing efforts among current and potential served market segments. Promotional campaigns and public relations are useful tools that could be used by STIMI in this regard. Therefore, STIMI is required to conduct periodical market research on the industry needs and requirements in the field of metal works and machinery to improve the craftsman level training courses.

Also, STIMI's instructors are required to pay more systematic field visits to the employers with the purpose of checking up on the quality of OJT trainees' performance.

Furthermore, it is strongly advisable that STIMI allocates enough budget for maintenance activities and spare parts of equipment. Lastly, it is highly recommended that STIMI conduct a business plan for delivering training programs in the area of Pipe Fabrication and Tag Welding.

3-6. Lessons Learned

STIMI becomes as a regional centre for neighbour Arab countries for example, Third -country's training program (TCTP) from 2001 to 2005, which conducted in it. Improve management skills because JICA keeping co-operate with SIMI's even the project is end.

Japan International Cooperation Agency
"JICA"

EX-POST EVALUATION STUDY
FOR SPECIALIZED TRAINING INSTITUTE FOR
METAL INDUSTRIES PROJECT

Final Evaluation Report

March 2006

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List of Abbreviations

CNC	Computer Numerical Control
CSB	Civil Service Bureau
GCC	Gulf Cooperation Countries
JD	Jordanian Dinar
JICA	Japanese International Cooperation Agency
OJT	On-the-Job-Training
SMART	Is an acronym for the following characteristics of a service standard: <ul style="list-style-type: none">▪ Specific▪ Measurable▪ Achievable▪ Realistic▪ Timetable
STIMI	Specialized Training Institute for Metal Industries
TOT	Training Of Trainers
VTC	Vocational Training Corporation

EX-Post Evaluation Results

1] The Outline of the Ex-Post Evaluation Study

1-1 Background and Purpose of the Study

Japan International Cooperation Agency (JICA) decided to conduct an ex-post evaluation study of the project for "**Specialized Training Institute for Metal Industries Project**", implemented under the Japan Technical Cooperation scheme during 1997 -2002. The ex-post evaluation study has two main objectives: a] To extract lessons-learned and recommendations to improve future JICA planning and implementation capacity through evaluating mainly the impact and the sustainability of the project; b] To meet the accountability of JICA to the Japanese tax payers as well as the people of the Hashemite Kingdom of Jordan through publicizing the results of evaluation.

1-2 Evaluators(s) and schedule of the Study

Table (1) Evaluators

#	Name	TOR
1-	Eng. Rashid Abu Asbeh	Senior Team Leader
2-	Mr. Amjad IStitiyeh	Senior Consultant
3-	Ms. Eman Balout	Senior Consultant
4-	Mr. Jalal Hassan	Surveyor

Schedule of the Study

- 1] Signing Contract Agreement: October 26,2005
- 2] Field Survey : From 1st November until 1st December, 2005
- 3] Data Analysis : 1st December, 2005
- 4] Draft Report : 15 January. 2006

2] Evaluation Plan

2-1 Outline of the Project

VTC was establishing in 1976 as a semi-autonomous organization under the supervision of a tripartite Board of Directors. The Board is chaired by the Minister of Labor with membership representing the government, employers and labor unions. VTC provides the chances for the vocational training to prepare the technical labor force and raise their efficiency in the various specialties and levels of the vocational training other than academic.

The innovation of the system and expansion of vocational education and training are among the principal objectives of the Plan for Economic and Social Development 1993-1997. The Plan also indicated the necessity of creation of new training centers and the expansion of vocational training. In addition to this, due to the unemployment situation in Jordan, VTC was urged by the Government of Jordan to play a more important role in vocational training.

Based on this, in February 1994 the government of Jordan made a request to Japan for implementation of a project-type technical cooperation for the establishment and operation of a new vocational training center in the field of metal works and machinery. In response to the request, the Japanese government conducted three studies in 1995 and 1996. Using the results of these studies, Japan dispatched an implementation consultation study team to Jordan in April 1997, and in October of the same year, it commenced a five-year project. This project initiated with the purpose of enabling VTC to provide improved training at STIMI for the local skilled labor in the fields of metal works and machinery.

1] Project Objective

(1) Overall Goal:

To satisfy the demands of local metal-working and machinery industries for local skilled labor in Jordan.

2] Project Purpose:

To enable the Vocational Training Corporation (hereinafter referred to as "VTC") to bring up higher quality of skilled labor in the fields of metal working and machinery at the specialized Training Institute.

2] Output of the Project

- 1] To establish the organization of management and administration in the Institute.
- 2] To provide the necessary machinery and equipment for training in the fields of metal working and machinery.
- 3] To improve capability of the instructors at the Institute.
- 4] To implement adequate training courses in the fields of metal working and machinery.

3] Activities of the Project

- (1)-1 To put Administrative, Technical and Accounting staff in position.
 - 2 To prepare an annual budget plan and carry out it according to the plan.
 - 3 To formulate an annual plan of operation

- (2)-1 To make a plan for preparation of facilities, machinery and equipment.
 - 2 To install facilities, machinery and equipment according to the plan.
 - 3 To implement adequate maintenance of the facilities, machinery and equipment.

- (3)-1 To conduct a method of operation for the machinery.
 - 2 To conduct development of teaching material.
 - 3 To conduct a method of class preparation.
 - 4 To conduct a method of training evaluation.
 - 5 To conduct curriculum development.

- (4)-1 To make each course curriculum based on the results of investigation of industrial needs.
 - 2 To develop teaching materials.
 - 3 To advertise for trainees.
 - 4 To investigate the evaluation of the course contents by graduates and relevant industries.

2-2 Stakeholders and Study Methods

Table (2) Stakeholders and Study Methods

Study target (Respondent)*	Study Method	Remarks
Policy maker in VTC	Questionnaire by letter Interview	-
STIMI management	Questionnaire by letter Interview	-
STIMI instructors	Questionnaire Survey Focus Group	Total instructors number is 16.
Competitors (providers of similar training – e.g. colleges and other schools providing training in the same fields)	Interview	-

Cont. ../ Table (2) Stakeholders and Study Methods

Study target (Respondent)*	Study Method	Remarks
Companies recruited STIMI graduates	Questionnaire Survey	We cover only 13 company out of 20 this refers to: <ul style="list-style-type: none"> - Some companies recruit more than one graduate. - Some graduates work in small workshops, which have no phone number. - Some graduates are job-less or changed their current work or working in projects. - Some companies refused to give us information.
STIMI graduates working for companies	Questionnaire survey by phone.	We cover 85 out of 155 this refers to: <ul style="list-style-type: none"> - 34 wrong/changing phone numbers. - 30 with-drown, - 2 Failed - 4 expelled

* List of Interviewees "annex number 9".

3] Study Results

3-1 Sustainability

3-1-1 Organizational Aspects

STIMI is the first institute in Jordan specialized in delivering training programs in the field of Metal Industries. To guarantee highly smooth and effective operations of STIMI, an advisory committee was formed that aims at moving STIMI on the right track and directing it towards achieving successfully the stated objectives and targets as planned. STIMI's top management develops both budget plan and plan of operations on annual basis.

A dynamic organization structure for STIMI has been set reflecting the actual core and support business functions and sections of STIMI in line with the emerging needs of the industry.

Also, detailed job descriptions were developed accordingly for all posts appeared on STIMI's organization chart. This aims at providing a reference for all employees concerning their duties, responsibilities, authorities, formal reporting relationships, etc.

Currently, STIMI has 31 employees (10 Administrative Department, 16 Instructors, 5 Support Staff). All the instructors are permanent employees who are recruited in accordance with Civil Service Bureau (CSB) rules and regulations. Out of the 16 instructors, 7 have Bachelor Degree in Mechanical Engineering, while the remaining 9 instructors have Diploma Degree.

STIMI has four specialized training workshops, namely: Machinery workshop, Pipe Welding workshop, Sheet Metal Processing workshop, and Metal Casting and Forging workshop.

Table (3) shows the number of instructors in each workshop along with the number of trainees for year 2005.

**Table (3) Instructors and Students
Enrolled in STIMI by Specialization in 2005**

Workshops	No. of Instructors	No. of Trainees
Pipe Welding	4	36
Machinery	9	17
Sheet Metal Processing	3	4
Total	16	57

Based on the data presented in the table above, the number of trainees per instructor in each training workshop was as follows:

Table (4) Trainees per Instructor Ratio in 2005

Workshops	Average No. of Trainees / Instructor
Pipe Welding	9
Machinery	2
Sheet Metal Processing	1

From the table above, it could be concluded that the trainees per instructor ratio for all the three specializations are highly lower than the standard ratio for STIMI (12:1).

STIMI pays a keen attention to review, amend, and develop the contents of teaching materials, textbooks, and job sheets in order to meet the requirements and needs of the market.

Open – door policy is applied at all levels of management where no doors are allowed to be closed which aims at giving employees the impression that top management is conveniently accessible at any time and willing to hear their problems and suggestions.

In order to enhance the working conditions and retain its employees, STIMI signed an agreement with a local insurance firm to provide its employees with a medical insurance coverage against any potential work injuries.

STIMI attracts highly qualified and experienced instructors through following competitive recruitment procedures in compliance with CSB standards and VTC by-laws.

New instructors are receiving systematic orientation training program consisting of 12 training sessions to introduce them to the internal management systems and to be familiar with the nature of activities that will be assigned to them later on.

Annual training needs analysis is a useful tool used by STIMI’s top management in order to identify the arising training needs of its instructors. According to these analyses, a comprehensive training plan is prepared annually.

STIMI has a clear mechanism to improve the skills and quality of its instructors by providing them with proper and required training programs either internally and/or externally. Training of the Trainers (TOT) programs are delivered to the instructors on continuous basis by well-experienced experts either from STIMI or neighboring countries.

Due to the fact that the necessary technical experience in the field of metal works was completely transferred by Japanese experts to STIMI’s instructors, it could be said that the current instructors have acquired the technical knowledge and skills essential for delivering craftsman level training programs.

The level of instructors’ performance is evaluated at end of each year of service by the top management according to CSB rules and regulations.

Employees' turnover is very low at STIMI. Over the previous five years, a slight decrease was reported in the number of STIMI's staff where it declined from 41 employees in 2002 to 31 employees in 2005 (1 employee moved to VTC headquarter, 1 employee is continuing his study in Japan, 1 employee retired, 1 employee passed away, 1 employee resigned, and 4 employees moved to another VTC centers) in 2005.

The support of STIMI to improve the instructions capabilities was evaluated in terms of the following aspects/ factors:

- Updating of technical training.
- Improvement in the instructors' training skills.
- To what extent do STIMI facilities and equipment "machines" fulfill training and market needs?
- Instructors' general rate of STIMI.

Table (5) shows the summary of the results of the instructors' survey.

Table (5) Brief Results of the Instructors Survey

Factor	Excellent	V. Good	Good	Poor
Update of Technical Training	21%	14%	57%	7%
Training Skills Improvement	14%	50%	21%	14%
STIMI facilities satisfy training needs	57%	36%	7%	-
The Instructors' General Rate STIMI	50%	29%	14%	7%

As shown in table (5), the main results could be summarized as follow:

- 35% of the instructors rated the efforts exerted by STIMI to update the technical training as very good and above, and the response of 57% of them was good which indicated that they believe that it could be improved.
- 64% of the instructors indicated that a very good improvement has happened in their training skills after joining STIMI.
- 93% of the instructors declared that STIMI facilities and equipment have satisfied the market needs.
- 79% of the instructors rated STIMI in general as very good and above, where the response of 50% of them was excellent.

With respect to the instructors' salaries, all of the surveyed instructors mentioned that their current salaries are much lower than those paid for other instructors working in similar institutions especially in Gulf Cooperation Countries (GCC). Keep in mind that these markets usually attract the Jordanian work force in different areas and have higher level of standard of living and the fact that STIMI follows CSB's regulations and procedures in recruiting instructors. Information on total salaries (basic salaries and other allowances) provided by STIMI to its 14 instructors are illustrated in table (6).

Table (6) Paid Salaries for STIMI's Instructors

No. of Employees	Total salary (JD)
1	500
2	450
3	400
4	370
5	360
6	350
7	330
8	325
9	300
10	260
11	260
12	260
13	260
14	250

Furthermore, the interviewed instructors delivered a set of useful points that should be taken into account by STIMI. The main remarks can be summarized as follows:

- The instructors are still in need to receive thorough training from Japanese experts on how to professionally carry out maintenance activities for some types of installed machinery at STIMI especially CNC machines.
- A systematic mechanism that allows job rotation among instructors is not implemented by STIMI. This approach, if implemented, will enrich the knowledge they acquired and help in facing any emerging replacement needs that may occur due to absenteeism or any other relevant reasons.
- Lack of financial resources necessary for marketing and promoting STIMI locally and/or regionally to attract more students and make STIMI more sustainable.
- A clear system for getting continual feedback on employees' suggestions and recommendations to improve the quality of work in STIMI is not designed.
- Some delay occurred in receiving particular types of raw materials.
- A documented maintenance system and procedures is not in place yet.

3-1-2 Financial Aspects

The main financial sources of STIMI come from the allocated budget from Vocational Training Corporation (VTC), training tuition fees, and revenues generated from production activities made for other vocational institutes and industrial firms in Jordan.

Top management sets a separated budget for each of STIMI's sections covering its forecasts of the expected revenues and expenses for the coming year. Sections' budgets are then consolidated together in one general budget to be submitted to VTC for approval and budgeting purposes. However, STIMI's budget can't be clarified, unfortunately, as it is incorporated with the VTC yearly financial budget.

The tuition fees per an academic semester are determined at JD 40 plus a refundable amount of JD 10 as insurance expenses per student.

Looking at the production activities, the average total annual revenues were JD 7,690 over the past five years. Table (7) shows the total revenues generated from production activities during 2001- 2005.

**Table (7) Production Activities Revenues
For the Period (1999-2005)**

	2001	2002	2003	2004	2005	Average
Total Revenues of Production Activities (JD)	1,484	3,149	1,825	18,662	13,332	7,690

Equipment maintenance expenses range with a low of JD 850 and a high of JD 3,000 per a year of operation.

3-13 Technical Aspects

STIMI was established in the year of 1997 as a result of cooperation between the VTC–Jordan and JICA.

STIMI aims strategically to improve the working force in the field of metal industries by supplying this field with high skilled labors and through conducting upgraded specialized training courses for labors who are currently working in the industry.

Since its establishment, STIMI has delivered several training programs for the craftsman level in the following areas:

- Computer Numerical Control (CNC),
- Mechanical Drawing,
- Machinery,
- Material testing,
- Heat Treatment,
- Welding,
- Sheet Metal Processing,
- Metal Painting,
- Metal Casting, and
- Metal Forging.

As for the craftsman level training courses, the total training capacity for STIMI is 60 students per academic semester provided that no more than 20 students could be enrolled in each workshop.

Regarding the training period, each student has to completely spend 18 months inside STIMI divided into three equal academic semesters. The first and second semesters aim mainly at providing students with the required theoretical preparation and knowledge in the field of study they choose. Through the third semester, students have a golden opportunity to get six months of continuous OJT in specialized local industrial firms through which they could utilize and enhance their knowledge and skills and preliminarily experience the practical life before graduating from STIMI.

There is an increasing demand from industrial firms operating in the local metal industry that have approached STIMI seeking for technical advice, on one hand, and to benefit from its technology and state-of-the-art machinery, on the other hand.

To ensure the provision of excellent training services, a wide spectrum of needed machines and equipment was delivered and actually installed at STIMI as planned according to the project's plan of action. The list of equipment and machinery installed at STIMI is shown in annex (7).

Most of, if not all, the installed equipment and machinery are in a healthy operational conditions as each instructor is held accountable for continuously performing the necessary maintenance activities for the machinery and equipment they are using during the training program period.

All machinery and equipment available in the three workshops were installed in an appropriate manner where enough space is provided to ease up the process of handling and movements. Furthermore, filters are installed at each workshop to reduce any potential pollutants emissions in the neighborhood.

Until the date of preparing this report, preventive maintenance schedules are not set yet by STIMI. However, the instructors of each workshop are highly committed to carrying out the corrective maintenance activities required to ensure efficient operation of machinery and equipment under their accountability.

Unfortunately, a list of approved suppliers for spare parts dealing with STIMI is not documented until now. This, to a certain extent, might result in purchasing some needed materials that are not up to the internal quality standards adopted by STIMI.

3-2 Impact of the Project

***Overall Goal:** To satisfy the demands of local metal-working and machinery industries for local skilled labor in Jordan.*

According to the project's approved design matrix, the overall goal should be investigated and verified through measuring and analyzing the number of local skilled labor employed by metal working and machinery industries from 1999 to 2005. To this end, the Quality team of consultants paid a field visit to the concerned party at Department of Statistics in order to obtain such data. However, the concerned party declared that the data available currently in their hands are so general and indicate only the total number of labors operating in the industrial sector as a whole without clarifying the distribution of labor by each sub-sector categorized under the umbrella of the industrial sector in Jordan.

Built on this fact, both the demand and supply of local metal-working and machinery industries for local skilled labor in Jordan and to what extent STIMI has contributed in satisfying the market needs could not be investigated.

Project Purpose: To enable VTC to bring up higher quality of skilled labor in the fields of metal working and machinery at STIMI.

Through the analysis of the data received from STIMI, it was revealed that the total number of students enrolled in Craftsman level training programs declined down from 71 students in 1999 to 58 students in 2000 at a rate of -18%. Following the year of 1999, this figure continually decreased to reach 53 and 45 in 2001 and 2002, respectively.

However, in 2003 the number of STIMI's students got a hold of the highest growth rate over the time period from 1999 to 2005, where it remarkably jumped to 89 students representing a positive rate of 97%.

By the year 2004 and 2005, decline rates of 25% and 14%, respectively, were recorded in the number of students that are enrolled in STIMI where they came down to 66 and 57 students. From the instructors' point of view, the main reasons underlying these trends are as follows:

- Absence of Japanese experts.
- Local community culture towards metal industry graduates.
- SITMI's location "Lack of transportation".
- Lack of marketing resources required to promote STIMI among potential students.
- Higher education programs in the field of metal industries are not provided either by any vocational centers nor public universities or private universities in Jordan. Consequently, this fact has a direct impact on the future career path of students, who are planning to join STIMI, as they will not be able to continue their higher education, upon graduation from STIMI. This will have adverse effect on promoting them for higher jobs in the future. Therefore, many of the potential students may decide not to enroll in STIMI due to the said fact.

The average number of the total trainees enrolled in Craftsman Level training program at STIMI was 63 students over the time period from 1999 to 2005. Statistics on the total number of STIMI's students enrolled in Craftsman level training courses and their growth rate throughout the past seven years are shown in table (8).

**Table (8) Students Enrolled in STIMI
For the Period (1999-2005)**

Specialization	1999	2000	2001	2002	2003	2004	2005	Total	Average
Machinery	17	18	17	18	38	32	17	157	22
Sheet Metal Processing	17	16	15	10	19	10	4	91	13
Pipe Welding	20	17	18	17	32	24	36	164	23
Metal Casting & Forgoing	17	7	3	0	0	0	0	27	4
Total	71	58	53	45	89	66	57	439	63
Growth Rate	-	-18%	-8%	-15%	97%	-25%	-14%	-	-

Amongst the training programs studied at STIMI, Pipe Welding and Machinery occupied the highest numbers of attracting students with an average number of about 23 students for each specialization per an academic year, followed by Sheet Metal Processing and then Metal Casting and Forging with an average of 13 and 4 students, respectively.

It is worth mentioning that STIMI provides scholarships for three students from the local community who cannot afford the study expenses at STIMI.

Over the same period, a total of 278 students graduated from STIMI distributed as shown in table (9). For the four specializations of Craftsman level training courses, a total of 278 trainees graduated from STIMI between the years 1999 to 2005. Graduates from machinery workshop maintained the highest share (36%) followed by Pipe Welding workshop (31%). The remaining (24% and 9%) was maintained by Sheet Metal Processing workshop and Casting and Forging workshop, respectively, over the same period.

The rate of employment for trainees graduated from Craftsman level training programs is estimated at 90%.

Table (9) Graduated Students from STIMI for the Period (1999-2005)

	Machinery	Pipe Welding	Sheet Metal Processing	Meta Casting & Forging	Total
Total No. of Graduated STIMI Students	101	86	66	25	278

A list of all trainees graduated from STIMI is documented and updated continually. In addition to this, the instructors, from time to time, are contacting the employers to follow up and get feedback on the performance of STIMI's students. Furthermore, STIMI has successfully built and maintained excellent relationships with its stakeholders, mainly, local industrial firms and the concerned governmental bodies such as Ministry of Planning and International Cooperation, Ministry of Education, and Ministry of Labor.

➤ Table (10) shows the summary of the results of the graduates' survey.

**Table (10) Brief Results of
The Graduates Survey**

Factor	Excellent	V. Good	Good	Poor
Technical Knowledge Improvement	32%	35%	32%	1%
Work Skills Improvement	48%	28%	24%	-
Trainers' Qualifications and Capabilities	73%	14%	11%	1%
STIMI facilities satisfy training needs	68%	25%	4%	3%
STIMI satisfy industry needs	34%	39%	24%	3%
The Graduates' General Rate STIMI	49%	27%	22%	3%

As can be seen from the table above, the following results revealed from the field survey:

- 67% of the graduates recognized that there has been a noticeable improvement in their technical knowledge after graduation from STIMI.
- 76% of the graduates have gained considerable improvement in their working skills upon graduation while the remaining 24% didn't experience such an improvement.
- 88% of the graduates believe that STIMI has qualified and capable instructors.
- 93% of the graduate students believed that STIMI's available facilities and equipment satisfy their training needs, whereas 68% of them rated the facilities as excellent.
- 73% of the graduates believe that STIMI training courses satisfy the industry needs.
- 76% of the graduates' general rate of STIMI was very good and above.

Regarding the tuition fees charged by STIMI, 54% of the graduated students believed that they are inexpensive, 41% moderate, and just 5% of the graduates rated them as expensive.

Through the field survey, 58% of the graduates are still staying in touch with STIMI after graduation, while the remaining 42% have not unfortunately established any type of contact upon leaving STIMI.

63% of the graduate students stated that their graduation from STIMI helped them to find a job; on the other hand, 37% of them didn't recognize such a thing.

In its aim to utilize the available capacity, STIMI has got the approval from JICA to conduct specialized training courses for trainees from neighboring Arab Countries in the field of Metal works and machinery. Over the last four years, an average of 15 trainees attended this course each year. Detailed statistics on the number of trainees participated in the 3rd Country Training Program over the period from 2002 to 2005 are shown in table (11).

Table (11) Trainees Participated in 3rd Country Training Program for the Period (1999-2005)

	2002	2003	2004	2005
3 rd Country Training Program	16	15	16	12

On the other hand, Local labors currently operating in the field of Metal Industries is another promising targeted group for STIMI. To this end, STIMI is delivering upgraded training programs that are customized according to the requirements and needs of this group. Over the years from 1999 to 2005, the fluctuation of the number of trainees who completed Upgraded training courses occurred at a stable trend. Approximately, 55 trainees attended, per year, on average. The number of trainees attended the upgraded technical courses over the same time period is illustrated in the table (12).

Table (12) Trainees Participated in Upgraded Technical Programs for the Period (1999-2005)

	1999	2000	2001	2002	2003	2004	2005	Total	Average
Upgrading Technical Course	8	75	29	83	67	66	55	383	55

With respect to training materials, the top management of STIMI and instructors of each workshops are fully aware of the importance of working continuously on reviewing, editing, and developing the contents of teaching materials and textbooks according to the rapidly changing requirements of Jordanian Metal Industry, as well as the received feedback from the industrial firms on the level of performance of STIMI's graduates.

Many developments have occurred in STIMI throughout the last few years, but the most important ones are the following:

- Upgrading CAD/CAM training program,
- Using AutoCAD instead of hand drawing,
- Delivering several upgraded training programs in the field of metal industry for trainers from Arab neighboring countries, and
- Providing technical advice for local private industrial firms in the field of material testing and machinery.

To develop the skills of trainees, STIMI provides On-The-Job-Training (OJT) for its students through a program of internship with the local industrial firms for a period span of six months.

Table (13) shows the summary of the results of the employers' survey.

**Table (13) Brief Results of
The Employers Survey**

Factor	Excellent	V. Good	Good	Poor
Technical Knowledge of Graduates	18%	45%	36%	-
Skills of Graduates	18%	36%	36%	9%
STIMI satisfy industry needs	18%	36%	45%	-
The employers' General Rate STIMI	9%	82%	9%	-

Based on the data presented in the table above, the following conclusions can be drawn:

- 63% of the employers were satisfied with the technical knowledge acquired by STIMI's graduates, where only 18% of them rated the technical knowledge of the graduates as excellent.
- 54% of the employers believed that the graduates have the required skills to be successfully enrolled in the labor market.
- 54% of the employers believed that STIMI satisfy the industry needs among which 18% of them rated STIMI's ability to fulfill the industry needs as excellent. On the other side, 45% of surveyed employers declared that STIMI is good and could further improve its capabilities to satisfy the industry needs and requirements.
- 91% of the employers in general rated STIMI as very good and above.

The results of the field survey revealed that 82% of the employers have maintained their relationships with STIMI.

It would be worthy to mention that 82% of the interviewed companies pointed out that there is a high market demand for delivering technician level training course.

Furthermore, the surveyed employers pointed out a group of useful points that should be taken into consideration by STIMI. Following are the main remarks:

- In fact, the technical knowledge of STIMI's graduates is higher than that of other students graduated from similar institutes. However, they are still in a mass need of gaining skills that are more practical.
- The training period of CNC program should be longer.
- STIMI has not satisfactorily fulfilled the market needs in the area of Pipe Fabrication and Tag Welding.
- There is a pressing need to deliver training programs for technician level.
- Graduates need more direction from STIMI regarding their future career path.

- English language skills for most of STIMI's graduated students are not up to standard.

With respect to the plans, STIMI is seriously studying the need for undertaking a project, in partnership with JICA, with view to upgrading the capabilities of STIMI to deliver training program for technician level.

In table (14), a simple comparison between STIMI and two of its main competitors, namely: Wadi Al-Seer College and Abd-Al-Hameed Sharaf School in terms of:

1. No. of graduates over the period from 2002 to 2005.
2. Rate of employment for graduates.
3. Method of selecting instructors.
4. Instructors' qualifications.
5. Method of evaluation of instructors' performance.
6. Method of development of skills and capabilities of instructors.
7. Training programs delivered.
8. Training capacity.
9. Promotional tools used.
10. Method of revising training material.
11. Tuition fees.
12. Main stakeholders.
13. Frequency to assess the market needs.
14. Availability of costing system.
15. Equipment and facilities maintenance activities.

Table (14)
Comparison between STIMI and the Major Competitors

Competitive Factors	Abed Al-Hameed Sharaf School	Wadi Al-Seer College	STIMI
No. of graduates from 2002 to 2004	Fabrication (3,11,16) Machinery (18.16.16)	Not available	Machinery (101) Pipe Welding (86) Sheet Metal Processing (66)
Rate of employment for graduates	N/A	87%	90%
Method of selecting instructors	According to formal recruitment procedures of Civil Service Bureau	Potential instructors should sit for formal technical examination, interview with the technical committee, personal interview with the regional manager, and then the decision of employment will be taken.	According to formal recruitment procedures of Civil Service Bureau and VTC by-laws.
Instructors qualifications	B.Sc and/or Diploma in Mechanical Engineering or equivalent	At least, instructors have to hold diploma in the relevant field with 5 years of experience.	7 instructors hold B.sc in Mechanical Engineering and 9 Diploma in the same field.
Evaluation of instructors performance	The level of performance of instructors is appraised monthly and yearly by the school manager.	Instructors have to pass vocational training program (4-6 weeks)	The level of instructors' performance is evaluated on annual basis according to C.S.B system.
Development of skills and capabilities of instructors	This is done through attending training programs in local universities.	Instructors get training from the college experts and frequently participate in training courses conducted by other vocational training centers in Germany and Sweden	Annual training plan is developed yearly to enhance the skills of the instructors. Also, TOT programs are provided continually to the instructors.
Major training programs delivered	Machinery, Metal Welding, and Metal Sheet Processing	Welding and Fabrication	Machinery, Pipe Welding, Sheet Metal Processing, Metal Casting & forging.

Cont...../ Table (14)
Comparison between STIMI and the Major Competitors

Competitive Factors	Abed Al-hameed Sharaf School	Wadi Al-Seer College	STIMI
Training capacity per course	25 – 30 students	18 students	20 students
Promotional media used	N/A	Newspapers, brochures, and study tours	Newspapers, brochures, Public Relations
Method of revising training courses material	According to the requirements of Ministry of Education and the market needs	A technical committee is formed to accomplish such a goal with keeping in mind the requirements and needs of the local metal industry.	Method of revising training courses material
Tuition fees	JD 6-15	JD 10	JD 40 (each semester)
Main stakeholders	10 th grade students, private sector, Ministry of Education	High General Secondary Students	High General Secondary students, VTC, JICA, local industrial firms, Ministry of Education, Ministry of Labor, Ministry of Planning & International Cooperation.
Type of contact with stakeholders	N/A	Supervisors have direct contacts with those employers who are dealing with the college. In addition, a letter of invitation is sent regularly to a representative sample of employers to make field visits to the college to get their feedback on graduates.	Top management stays in close touch with different types of STIMI's stakeholders. And the instructors make personal visits for the employers to follow up on the performance of the OJT students.
Method of revising training courses material	According to the requirements of Ministry of Education and the market needs	A technical committee is formed to accomplish such a goal with keeping in mind the requirements and needs of the local metal industry.	According to market needs, requirements and feedback received from the employers.

Cont.../ Table (14)
Comparison between STIMI and the Major Competitors

Competitive Factors	Abed Al-hameed Sharaf School	Wadi Al-Seer College	STIMI
Assessment of market needs	Not done	No systematic researches are carried out to investigate the market needs. However, personal experience and knowledge of instructors is used instead to assess the requirements of the market.	No systematic researches are carried out to investigate the market needs. However, personal experience and knowledge of STIMI's top management and instructors is used instead to assess the requirements of the market.
Availability of costing system	Yes	Yes	No
Maintenance of equipment and facilities	Preventive and corrective maintenance activities conducted by instructors themselves.	Preventive and corrective maintenance activities conducted by instructors themselves.	Corrective maintenance activities conducted by instructors themselves. However, preventive maintenance system is not in place yet

Based on the data presented in table (14), the following conclusions could be drawn:

- Employees evaluation: Abd AL Hameed Sharaf School implement the best practice by continuously evaluates its employees on monthly basis, while the case for STIMI is to carry out yearly evaluation following the instructions of C.S.B.
- Promotional Media: STIMI uses several promotional tools such as Newspapers, brochures and Public Relations, study tours is another useful tool that is used by Wadi Al Seer College and could be used by STIMI as well. Abd Al Hamid Sharaf School doesn't use any promotional media tools.
- Market research: Non of the three institutions carry out any systematic and scientific market research to identify market needs and trends. However, personal experience and knowledge of STIMI's top management and instructors is used instead to assess the requirements of the market and the same is implemented by Wadi Al Seer College.
- Costing System: Both Abd Al Hameed Sharaf School and Wadi Al Seer College has costing system in place while STIMI doesn't have. It is valuable if STIMI consider this in the future to estimate competitive tuition fees
- Maintenance plans: In Both Abd Al Hameed Sharaf School and Wadi Al Seer College, preventive and corrective maintenance activities conducted by instructors themselves, while STIMI doesn't have any preventive maintenance plans implemented yet. With respect to corrective maintenance it is carried out by the instructors them selves. In this regard, STIMI should consider working on having preventive maintenance schedule and put them into implementation.

3-3 Analysis of Factors of Impact and Sustainability

Promoting Factors on Sustainability

- The entire involvement of Japanese experts in establishing and developing STIMI.
- STIMI is the first institute of its kind in Jordan.
- Benefiting from the VTC resources.
- Tuition fees of STIMI are highly inexpensive compared to other similar institutes.

Promoting Factors on Impact

- The demand for training in the area of metal industry is increasing continuously.
- Availability of high-profile instructors at STIMI.
- Around 90% of STIMI's graduates are employed by local firms.
- High quality of trainees graduated from STIMI.

Inhibiting Factors on Sustainability

- Lack of marketing capabilities and efforts needed to promote STIMI among targeted groups.
- Students face some difficulties in getting transportation vehicles to reach STIMI.
- Unavailability of experienced people in Jordan who are capable of delivering specialized training on how to maintain machinery and equipment. (especially CNC machines)
- Salaries paid for STIMI's instructors are extremely low in comparison to those salaries provided by other institutes particularly in the GCC.
- The concept of "Job Rotation" is not applied.

Inhibiting Factors on Impact

- A considerable percentage of STIMI graduates intend to continue their higher education in the field of metal works and machinery, but this is not possible for them currently due to the fact that neither STIMI nor any other vocational institute in Jordan offer higher education programs in such fields.
- The first and second generation of STIMI's graduates received a craftsman level certification that is stamped by JICA. However, such practice is not implemented nowadays which has, to a certain level, negatively affected the image, reputation and credibility of graduates.
- There is only one CNC machine installed at STIMI which is considered not sufficient to meet the market demand.
- STIMI training capacity is not fully utilized.

3-4 Conclusions

After thorough analyses of the results from the study, the following conclusions have been drawn:

- STIMI is the first training center for metal works and machinery in Jordan.
- Instructors have outstanding technical skills and knowledge required to deliver the craftsman level training programs. This is clear from the graduates' survey where 88% of the sample obviously said that the STIMI's instructors are highly qualified and have distinguished technical capabilities in the field of metal works.
- The curricula, teaching material, and textbooks are subject to a continuous process of improvement taking into consideration the requirements and needs of the local market.
- The employees' turnover rate is at its minimum level as just 10 employees left STIMI since its establishment for different reasons among which only one was resigned.
- Annual budget plan and plan of operations are developed regularly and is the direct responsibility of the STIMI's top management to ensure efficient supervision and control of operations.
- STIMI is keen on improving the technical knowledge and skills of its instructors by providing them with the necessary training programs.
- During the training period, STIMI's graduates are equipped with first class theoretical knowledge and distinguished practical experience which definitely assist them to find a good job opportunity in a short time after graduation. Roughly speaking, the rate of employment for graduated students of craftsman level who have joined the practical life is very high (around 90%).
- The required machinery and equipment for delivering craftsman level were provided and installed completely at STIMI.
- As all machinery and equipment installed at STIMI are new, the current maintenance activities are related to corrective maintenance only. However, there is an increasing need for setting preventive and routine maintenance plans to ensure smooth, effective, and sustainable business operations of STIMI.
- The number of trainees studying in STIMI has witnessed a gradual decline during the time from 2003 to 2005 where it declined from 89 students to 57 students at a negative rate of 36%.
- Insufficient consideration is given to marketing related issues and activities within STIMI. This could be a direct reason underlying the decline in STIMI's share of market and the noticeable decline of 36% of the number of students joined STIMI.

4] Recommendations

Taking the whole results of the study into consideration, following are the main recommendations to be carried out by STIMI:

- Periodical market research on the industry needs and requirements in the field of metal works and machinery is extremely required to improve the craftsman level training courses.
- STIMI's instructors are required to pay more systematical field visits to the employers with the purpose of checking up on the quality of OJT trainees' performance.
- It is strongly advisable that STIMI allocates sufficient budget for maintenance activities and spare parts of equipment.
- Due to the importance of acquiring English language skills, STIMI is recommended to open new subject for trainees to study and attend an English course during their training period.
- STIMI should intensify its marketing efforts among current and potential served market segments. Promotional campaigns and public relations are useful tools that could be used by STIMI in this regard.
- It is greatly recommended to constantly and heavily invest in developing and upgrading the skills and capabilities of STIMI's instructors to keep them up with the latest trends and best practices in the field of metal industry.
- Production of new teaching materials and textbooks is one of the vital keys to ensure the prosperity and sustainability of STIMI.
- It is highly recommended that STIMI conduct a business plan for delivering training programs in the area of Pipe Fabrication and Tag Welding.
- A set of Specific, Measurable, Achievable, Realistic, Timetable (SMART) service standards should be set for each service rendered by STIMI. These service standards represent the published level of service quality STIMI is promising to deliver to its stakeholders.

Annex (1): Sample Questionnaire Administrated for Policy Maker in VTC

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Policy Maker in VTC

Date:

Name of Interviewer:

Objectives and continuous improvement Questions:

1- Please clearly present STIMI objectives, targets, and programs:

2- What are the measures taken to achieve those objectives and targets?

3- To what extent has STIMI achieved those objectives and targets?

4- Please give brief description of future plans and what has been done to insure continuous improvement:

5- What is the justification to deliver Technician level?

Instructor's questions:

1- How do you select the instructors?

3- How do you evaluate the instructors (Yearly, after courses, others)?

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Policy Maker in VTC

4- How do you improve instructor's capabilities and skills (examples on internal and external training?)

5- How do STIMI assess industry and labor market needs?

5- What type of Feedback dose STIMI get from market (in details)?

Financial Information:

1- Please describe your financial Control System and budgeting?

Comments and Remarks:

a- _____
b- _____
c- _____

Annex (2): Sample Questionnaire Administrated for STIMI's Management

Evaluation Study for Specialized Training Institute for Metal Industries Projects
STIMI Management Questionnaire

Date: 21/11/2005
Name of Interviewer:

General Information:

1- Date of STIMI establishment and start of Training:

Number of Employees:
Management:
Instructors:
Workers /Drivers
Total:

2- Is there an implemented Organization Structure

Yes No

Remarks:

3- Do you have Job Descriptions?

Yes No

Remarks:

Objectives and continuous improvement Questions:

1- Please clearly present STIMI objectives, targets, and programs:

2- What are the measures taken to achieve those objectives and targets?

3- To what extent has STIMI achieved those objectives and targets?

Evaluation Study for Specialized Training Institute for Metal Industries Projects
STIMI Management Questionnaire

4- Please give brief description of future plans and what has been done to insure continuous improvement:

5- Do you have a corrective and preventive system (please describe and present results, e.g. problem list and solution programs):

6- Please illustrate the development of number of graduates per year as from 2002, and employment rate

Instructor's questions:

1- How do you select the instructors?

2- What are the instructor's qualifications?

3- How do you evaluate the instructors (Yearly, after courses, others)?

4- How do you improve instructor's capabilities and skills (examples on internal and external training?)

5- Do you have turnover between the instructors's? If the answer yes? Why? How many instructors' do u loss?

Evaluation Study for Specialized Training Institute for Metal Industries Projects
STIMI Management Questionnaire

Not that much, but if their related to Lower salaries. Total number We loss 10
instructor's as follows:

Training courses questions:

1- What are the major courses given by STIMI?

2- What is STIMI total capacity per course?

3- How do you announce and circulate courses?

4- How do you approve, amend, develop, and change training courses materials?

5- What are the fees as per course?

Contacts and feedback:

1- Who are STIMI Stakeholders?

Evaluation Study for Specialized Training Institute for Metal Industries Projects
STIMI Management Questionnaire

2- What type of contacts dose STIMI have with Stakeholders, specially Metal Industries and Graduates?

3- How do STIMI assess industry and labor market needs?

4- What type of Feedback dose STIMI get from market (in details)?

Financial Information:

1- Please describe your financial Control System and budgeting?

2- Do you have a costing system please describe?

3- How do you calculate tuition fees?

4- Show STIMI balance during the past years?

Machines equipments and facility:

1- Describe the methodology used to maintain STIMI equipments and facilities?

Evaluation Study for Specialized Training Institute for Metal Industries Projects
STIML Management Questionnaire

3- Assessment of equipments and taking pictures?

Comments and Remarks:

a- _____

b- _____

c- _____

Annex (3): Sample Questionnaire Administrated for STIMI's Instructors Survey

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Instructors Questionnaire

Date: / /

Name of Instructor: -----

Tuition Course Titles: -----

a- _____

b- _____

c- _____

Academic Qualification:

a- _____

b- _____

Experience

a- _____

b- _____

Date of Employment at STIMI: / /

Salary: -----

Please give answers on the followings:

How do you evaluate the support of STIMI to improve of your Instruction capabilities in the following areas?

1- Update of Technical Training:

Excellent

V. Good

Good

Poor

Notes:

2- Training Skills Improvement:

Excellent

V. Good

Good

Poor

Notes :

3- Is your salary comparing with other training institutions?

Higher

The Same

Lower

Notes:

4- To what extent dose STIMI facilities and equipments "machines" fulfill Training and market needs?

Excellent

V. Good

Good

Poor

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Instructors Questionnaire

Notes :

If your answer is Good or Poor what are the major facilities and equipments "machines" that doesn't fulfill Training and market needs, and how?

a- _____
b- _____
c- _____

In General how do you rate STIMI comparing to other institutions?

Excellent V. Good Good Poor

Notes :

Comments and Remarks

a- _____
b- _____
c- _____

Annex (4): Sample Questionnaire Administrated for STIMI's Competitors Survey

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Competitors Questionnaire

Date:

Name of Interviewer:)

1- Please illustrate the development of number of graduates per year as from 2002, and employment rate

Instructor's questions:

1- How do you select the instructors?

2- What are the instructor's qualifications?

3- How do you evaluate the instructors (Yearly, after courses, others)?

4- How do you improve instructor's capabilities and skills (examples on internal and external training?)

Training courses questions:

1- What are the major courses you give?

2- What is your total capacity per course?

3- How do you announce and circulate courses?

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Competitors Questionnaire

4- How do you approve, amend, develop, and change training courses materials?

5- What are the fees as per course?

Contacts and feedback:

1- Who are your Stakeholders?

2- What type of contacts dose you have with Stakeholders, specially Metal Industries and Graduates?

3- How do you assess industry and labor market needs?

4- What type of Feedback dose you get from market (in details)?

Financial Information:

1- Do you have a costing system please describe?

2- How do you calculate tuition fees?

Machines equipments and facility:

1- Describe the methodology used to maintain your equipments and facilities?

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Competitors Questionnaire

Comments and Remarks:

a- _____

b- _____

c- _____

*Annex (5): Sample Questionnaire Administrated for the
Survey of Companies that Recruited STIMI's Graduates*

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Companies Questionnaire

Date:

Name of Factory:

Number of Graduates employed : (1)

Job Titles of Graduates and there salaries?

Job Title	Salary

Please give answers on the followings:

1- The Technical knowledge of Graduates compared to other training institutions?

Excellent V. Good Good Poor

Notes:

2- The Skills of Graduates compared to other training institutions?

Excellent V. Good Good Poor

Notes:

3- To what extent dose the graduates from STIMI satisfy the industry needs?

Excellent V. Good Good Poor

Notes:

4- If your answer is Good or Poor what are the major unfulfilled needs:

a- _____

b- _____

c- _____

5- Do you have any contacts with STIMI?

Yes No

If Yes what type of contact with STIMI you have?

a- _____

b- _____

6- In General how do you rate STIMI Graduates?

Excellent V. Good Good Poor

Notes:

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Companies Questionnaire

7- Is there any market needs for Technician level? Why?

Comments and Remarks

a- _____
b- _____
c- _____

Annex (6): Sample Questionnaire Administrated for STIMI's Graduates Survey

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Graduates Questionnaire

Date: / /
Name of Graduate: _____
Course Title: _____

Please give answers on the followings:

1- The improvement of your Technical knowledge before and after Graduation?
 Excellent V. Good Good Poor

Notes :

2- The improvement of your Work skills before and after Graduation?
 Excellent V. Good Good Poor

Notes :

3- The capabilities and qualifications of Trainers?
 Excellent V. Good Good Poor

Notes :

4- How do you rate the Fees of Training?
 Inexpensive Moderate Expensive

Notes :

5- To what extent dose STIMI facilities and equipments "machines" satisfy your training needs?

Excellent V. Good Good Poor

Notes :

6- If your answer is Good or Poor what are the major facilities and equipments "machines" that are missing or not satisfactory?

a- _____

b- _____

c- _____

7- Do you have any contacts with STIMI after your graduation?

Yes No

Evaluation Study for Specialized Training Institute for Metal Industries Projects
Graduates Questionnaire

8- If Yes what type of contact with STIMI you have?

- a - _____
b - _____

9- Has your graduation from STIMI help you find a job?

- Yes No

Notes:

10- If Yes where do you work?

11- What is your monthly Salary?

12- To what extent dose the training at STIMI satisfy the industry needs?

- Excellent V. Good Good Poor

Notes :

13- If your answer is Good or Poor what are the major unfulfilled needs?

- a- _____
b- _____
c- _____

14- In General how do you rate STIMI?

- Excellent V. Good Good Poor

Comments and Remarks:

- a- _____
b- _____
c- _____

Annex (7): The list of machinery and equipment installed in STIMI

Welding Workshop

Item No.	Description	Qty.
1	Computer	1
2-	Dryer	2
3-	AC Welding Machine	14
4-	Shearing Machine	1
5-	DC Welding Machine	12
6-	Oxy Acetylene station	1
7-	Argon Cylinder	6
8-	CO2 Cylinder	6
9-	Hand Grinding Tool	14
10-	Reciprocating Hack Saw	1
11-	MIG-Welding Machine	3
12-	DIG-Welding Machine	6
13-	Plasma Cutting Machine	1
14-	MAG-Welding Machine	3
15-	Automatic Oxy Acetylene Cutter	1
16-	Shaping Machine	1
17-	Genera or Welding Machine	1
18-	Double Grinding Machine	1
19-	Giber Cutting Machine	2
20-	Radial Drill	2
21-	Beveling Machine	1
22-	Video Cassette	1
23-	Projector	1
24-	Compressor	1
25-	Digital Avometer	2
26-	Hand Drilling Tool	1
27-	Pot Welding Machine	1
28-	Pipe Cutter	1
29-	Welding Machine – 1 phase	1
30-	Land Cutter	1
31-	Altra Sound Instrument for Welding Inspection	3
32-	--- Bending Machine for Welding Inspection	1
33-	X-Ray Unit	1
34-	Water Pressure Testing Machine	2
35	Magnetic Particles Testing Machine	1

Machinery Workshop

Item No.	Description	Qty.
1-	Lathe Machine	4
2-	Milling Machine	3
3-	Shaping Machine	1
4-	Reciprocating Hack Swing Machine	1
5-	Upright Drilling Machine	4
6-	Service Grinding Machine	1
7-	Tool Service Grinding Machine	1
8-	Double Head Grinding Machine	1
9-	Air Welding Machine	1
10-	Hand Drilling Machine	1
11-	Hand Grinding Machine	1

CNC Workshop

Item No.	Description	Qty.
1-	CNC Lathe Machine	1
2-	Machining Center	1
3-	EDM Machine	1

Heat Treatment Workshop

Item No.	Description	Qty.
1-	Non-Oxidizing Furnace	1
2-	Hardening Furnace	1
3-	Hardening Furnace	1
4-	Tempering Furnace	1
5-	Electric Oil Heater	1
6-	Suction Filter	1
7-	Suction Filter	1
8-	Cooling Media	1

Sheet Metal Workshop

Item No.	Description	Qty.
1-	NC Shearing Machine	1
2-	Shearing Machine	1
3-	Mag Welding Machine	1
4-	Tig Welding Machine	1
5-	Micro Tig Welding Machine	1
6-	Are Welding Machine	1
7-	Are Welding Machine	2
8-	Spot Welding Machine	1
9-	Corner Shear	1
10-	Gas Wilding Station	4
11-	Crank Press Machine	1
12-	Press Break Machine	1
13-	Foldi	2
14-	Circle Shear	1
15-	Air Compressor	1
16-	Three Roll Binding Machine	1
17-	Power Three Roll Binding Machine	1
18-	Vibration Shearing Machine	1
19-	Upright Drilling Machine	1
20-	Band Sewing Machine	1
21-	Liver Sheer	1
22-	Universal Shear	1
23-	Plasma Cutting Machine	1
24-	Foot Shear	2
25-	Grinding Cutting Machine	1

**Material Testing Laboratory
Instruments Available**

Item No.	Description	Qty.
1-	X- Ray Chemical Composition Quant meter	1
2-	Carbon – Sulfur Determinator	1
3-	Micro-Structure Analysis Microscope	2
4-	Hardness Tester	5
5-	Universal Testing Machine-Tensile, Compression, and Bending tests	1
6-	Impact Testing Machine	1
7-	Surface Roughness Testing Instrument	1
8-	Samples Micro-Cutter	1
9-	Samples Polisher	1

Annex (9): List of Interviewees

No.	Interviewees	Name
1-	Policy Maker on VTC	Eng. Ismal AL-Hndawy
2-	STIMI management	Eng. Ibrahim Qattash
3-	STIMI Instructors	1- Mr. Mohamed AL-Ghamat
		2- Mr. Khaled Hamad
		3- Ahmad Abu Swan
		4- Eng. Waleed AL-Tantawy
		5- Mr. Fawzy Mbark
		6- Mr. Ibrahim Nasar
		7- Adnan Rouby
		8- Samr Ab-Dawas
		9- Ahmad AL-Nubany
		10- Eng. Wa'l AL-M'any
		11- Eng. Osama AL-Mr'y
		12- Eng. Esam AL-Shami
		13- Eng. Wahed AL-Sa'h
		14- Eng. Sameer Barhm
4-	Competitors (Providers of similar training)	1- UNRWA College Wadi Al- Seer College Mr. Abed Al-Kareem Khader
		2- Abed Al-Hameed Shaaraf School Mr. Sami AL-Shahwan
		National Center for Human Recourses Development "NCHRD"
		Mr. Mnther Al-Kaialy
5-	Companies recruited STIMI graduates	1- Al-Mss Intentional Co.
		2- General Industrial Engineers Co.
		3- Shami Engineering Industries
		4- M'anny Group
		5- Moulds Technology Co.
		6- AL-Al'almya Universal for Sheet Metal Processing.
		7- Petrol Co.
		8- The Arab Potash Co.
		9- Ayoubil for metal Industries Co.
		10- Saweissig Jordan

No.	Interviewees	Name
		11- Jordanian Kitchens Industrial Co.

6-	STIMI graduates working for Companies	1- Osama AL_Badawy 2- Mohamed Shna'h 3- Mahmoud Bakr 4- Fadi Kokas 5- Mohamed AL-A'tee 6- Murad Rammadn 7- Khaleed Shana'h 8- M'taz AL-Srayra 9- Ali Aktham Saleh 10- Mohmad AL-Nady 11- Yagof Mahoued 12- Sa'd Abu Dawla 13- Hamza AL-Dkhel 14- Mostafa A'lan 15- Me'ad Jarar 16- Mohamed Omer 17- Anas Abu N'meh 18- Mohamed Isma'l 19- Mashhoer AL-"rame 20- Hamzeh Salman 21- Mustafa AL-tauba 22- Belal AL-khateeb 23- Rakan Baker 24- Jossef AL_Hmoued 25- Shokry AL-Dowek 26- Ahmed Anwar 27- Fadi Sadqa 28- Mohaned Khalefa 29- Mohamed Rubby 30- Abed Al-Rahman 31- Mahomoud Draaz 32- Abed AL-Rahman Sbetan 33- Hassan Moustfa 34- Mohammed Moustafa 35- Barakat Abu Sawan
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No.	Interviewees	Name
		36- Fadiy Abed AL-kadeer 37- Haythem AL-shwbaky 38- Ahmaed Abu Rmaleh 39- Amro Mash'al 40- Haney Sarha 41- Mohamed Mostafa 42- Waseem Asma'el 43- Mohamed Abed AL-kadeer 44- Ahemed Hamash 45- Emad Abu Adeak 46- Belal A'laway 47- Obedeh Abu Shanab 48- Mohamed Abu Dieh 49- Mousa Jabra 50- Hamzeh Al-Sayeh 51- Omer ALtawalbeh 52- Mahmouded Khadeer 53- O'deh Al-Kadoor 54- Mohamed Al-Jamal 55- Mohamed Abu Syam 56- Hussan AL-Dajan 57- Na'em Ab- Mahfoed 58- Ibrahim Esma'el 59- Ibrahim Esma'el 60- Hameza AL-'abasy 61- Mohamed AL-mgkraby 62- Mohamed AL-laham 63- Mahmouded AL-ghareeb 64- Wasem AL-Hadadeen 65- Tha'er Ghnaem 66- Mohamed Mneeb 67- Yaseer Yousef Hasan Rashid 68- Mohammad Yousef Hasan Rashid 69- Murad Mohammad Thaher Abu- Zaid 70- Maher Mamdoh Abdullateef Al' Auteebi 71- Khalaf 'Mohammad Fares' Khalaf Al'Enzee 72- Mohammad Ali Mustafa Abu – Deyeh 73- Ala'a Ebrahim Mahmood Saleh 74- Mohammad Abdullah Azu Al zamree 75- Eiad Mohammad Abdullah Al- Tarawneh 76- Aumar Esmaeel Husain Badr 77- Mohammad Ali Saleh Alian 78- Ausama Wa'el Ahmad Al Turaefee 79- Mohammad Mustafa Mohammad Ezmeqna 80- Ibrahim ALmeer 81- Hsam AL-Hgazeedn 82- Ma'n Al-mdant 83- Mahomed Sallah

Third Party Review by External Expert

On

**The Ex-post Evaluation Study
on
Specialized Training Institute for Metal Industries (STIMI) project
at Vocational Training Corporation in Jordan**

March, 2006

**Comments of the Third Party Review by External Expert on The Ex-post Evaluation
Study on
Specialized Training Institute for Metal Industries (STIMI)**

The findings of the ex-post evaluation study for STIMI project show that the overall goal and purpose of the project were successfully achieved. The output expected results from the project, as presented in the evaluation report, were all achieved at a very good degree. The organization and administration of the institute is effective. The necessary machinery and equipment were supplied and installed and the level of its utilization is high. The instructor's capacities and skills are good and up-to-date and the training courses delivered for metal working are meeting the student's needs and employers.

Accordingly, the collective achievement of the multiple output results, as stated in the study, has produced institutional outcomes represented by the continuous demand from industry for STIMI graduates. Undoubtedly, the accumulated outputs and outcomes throughout the last years lead to clear impact on industry and VTC. IT is clear that STIMI project responded to the demand of the partner country Jordan, and the labour market requirement specific to satisfying the needs of local metal-working and machinery industries for skilled labour as shown from the employment rates of STIMI graduates that is around 90%.

At the same time, this project was also in line of Japanese policy on ODA, which emphasized on the enhancing the capacities of developing countries in the supply side institutions to develop and deliver training programs that meet labour market requirements of skilled workforce.

The sustainability of the project show overall positive indicators, according to the study report. However this aspect will need much more attention from VTC in the fields of promotion and marketing of STIMI within the labour market and local communities, the necessary for a maintenance strategy, tools, spare parts and qualified cadre.

The study also recommends a process for revision of the current terminal craftsman level training at STIMI in order to elevate it to be transferable to higher levels and also to enhance the skills of instructor in the fields of maintenance and machinery training. This will encourage enrolment of students and better input students' quality.

The study also recommended more industry cooperation and involvement in a market oriented research, and the need for the development of a business plan for the STIMI sub-programs for the purpose of upgrade of curricula, text books, instructors skills and teaching materials.

Concerning to the evaluation process, it is unquestionable that the evaluation process was conducted satisfactorily and objectively. The found results, conclusions and recommendation were also reasonable and acceptable.

Munther Kayyali

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Third Party Review by External Expert

The Ex-post Evaluation Study on: Specialized Training Institute for Metal Industries

** This Third Party Review by External Experts is to examine the end-product (an evaluation report and a summary sheet) of ex-post evaluation of the above-mentioned project in light of its structure, verification procedure and overall consistency. It is to be noted that the review is not to question the validity of the evaluation results per se.*

** On the leftmost column of each item, the rating from A as 'excellent', B as 'good', C as 'acceptable' and D as 'unacceptable'.*

Reference page No.
of 'JICA Project
Evaluation Guideline'

1 Evaluation Framework

B	(1) Time Frame of Evaluation Study	97
Viewpoint	Necessary field survey activities such as data collection and discussion with counterparts are appropriately set within the time frame of the evaluation study. Time frame also contains preparations such as distribution of questionnaires, and are appropriate in terms of timing, length and schedule of the evaluation study.	
B*	(2) Study Team	107
Viewpoint	Team members are assigned on an impartial basis, and are with balanced specialty.	
	*(2) The professional expertise and Background relevant to the field of the study is not clearly stated in the study.	

2 Data Collection and Analysis

C*	(1) Evaluation Questions	51
Viewpoint	Evaluation questions are in line with evaluation purposes and set properly in the evaluation grid. General questions as to the five evaluation criteria are narrowed down to more specific sub questions to identify necessary information/data to be collected.	
C*	(2) Data Collection	72
Viewpoint	Data collection is conducted based on the evaluation grid, and is sufficient for obtaining answers for evaluation questions. Additional information is collected for unexpected and newly confronted questions during the process.	
C	(3) Measurement of Results	61
Viewpoint	Achievement level of overall goal is examined on the basis of appropriate indicators, being compared with targets.	
C	(4) Examination of Causal Relationship	62
Viewpoint	The causal relationships whether the effects for the beneficiaries resulted from the project is examined either in a qualitative or quantitative manner (i.e. Are the effects at the overall goal level caused by the project intervention?)	
Comment	*(1) Evaluation questions and are not attached (Annexes from 1 to 6) to the Evaluation Report neither the evaluation grid is presented at which the five evaluation criteria should be narrowed down to more specific sub-questions. The study did not present the framework for the ex-post evaluation.	*(2) Data collection is not clear to be done in accordance with the evaluation Grid. It is difficult to judge if it is sufficient to obtain answers for evaluation questions on Impact and sustainability according to evaluation grid evaluation questions (not attached to the evaluation report). The study did not introduce to the reader the link between the evaluation Grid and the data collection and the evaluation methodology.

3 Evaluation Results

C	(1) Impact	57, 85-86
Viewpoint	Perspectives for evaluation of 'Impact' (e.g. achievement level of the overall goal, causal relationships between the outcome of the project and overall goal, ripple effects) are substantially covered. Grounds for judgment are clearly stated in a convincing manner.	
C	(2) Sustainability	58, 85-86
Viewpoint	Perspective for evaluation of 'Sustainability' (e.g. probability of activities to be continued and outcomes to be produced in terms of 1) policies and systems, 2) organizational and financial aspects, 3) technical aspects, 4) Society, Culture and environment and) are substantially covered. Grounds for judgment are clearly stated in a convincing manner.	
C*	(3) Factors Promoting Sustainability and Impact	85-86
Viewpoint	Promoting factors on 'Impact' and 'Sustainability' are analyzed properly based on the information obtained through evaluation process.	
C	(4) Factors Inhibiting Sustainability and Impact	85-86
Viewpoint	Inhibiting factors on 'Impact' and 'Sustainability' are analyzed properly based on the information obtained through evaluation process.	
C	(5) Recommendations	87-88
Viewpoint	Recommendations are made thoroughly based on the information obtained through the process of data analysis and interpretation. Recommendations are specific and useful for feedbacks and follow-ups, preferably being prioritized with a time frame.	
C*	(6) Lessons Learned	87-88
Viewpoint	Lessons learned are derived thoroughly based on the information obtained through the process of data analysis and interpretation. Lessons learned are convincing and useful for feedbacks, being generalized for wider applicability.	
Comment	* (3) Some factors promoting sustainability stated in the report are not relevant to sustainability.	* (6) Lessons learned are stated in general in the executive summary. This may not be considered specific to the STIMI project. More elaboration on lessons learned could be done based on the variety and useful information obtained.

4 Structure of Report

B	(1) Writing Manner	89,103
Viewpoint	Logical structure and major points are clearly described in an easily understandable manner.	
C	(2) Presentation of Primary Data and Utilization of Figures	89,103
Viewpoint	Sufficient primary data such as on the target, contents and results of interviews and questionnaires are presented properly in the report. Figures and tables are utilized effectively to present statistics and analysis results.	
Comment		

5 Overall Review based on 'Criteria for Good Evaluation'

C	(1) Usefulness	13-14
Viewpoint	In light of the effective feedback to the decision-making of the organization, clear and useful evaluation results are obtained.	
B	(2) Impartiality and Independence	13-14
Viewpoint	Evaluation is impartially conducted in a neutral setting	
B	(3) Credibility	13-14
Viewpoint	In light of the specialties of evaluators, transparency of the evaluation process and appropriateness of the criterion of judgment, evaluation information are credible.	
D*	(4) Participation of Partner Countries	13-14
Viewpoint	Partner countries' stakeholders participate actively in the process of evaluation, not just provide information.	

Comment * (4) No clear statement about the World Bank participation in the supply of equipment to STIMI project and no further quantitative and qualitative analysis was conducted by the study regarding the partner countries stakeholders participation in the process of evaluation.

5 Overall Comment

1. The Ex-post evaluation reports overall rating is considered acceptable. It provides useful information regarding the current status of the output results expected from establishing STIMI project by JICA.
2. The overall framework for the evaluation methodology was not clearly and satisfactorily presented in the evaluation report.
3. The output results were clearly presented in the report but with no clear link to the impact and sustainability implications and how these results contribute to the achievement of Impact and how it could sustain the project outcomes.
4. The analysis of the employers survey in table 10, page 49 is not fully clear, the quantitative analysis following the table is not supported by directly available data in the table 10.
5. The financial analysis provides useful information, However, it does not show the cost per student compared to standards. The study does not show relevant running, operational and maintenance costs and the economic efficiency of the STIMI.
6. The study does not show whether a strategic or a business plan for STIMI is available. It also does not describe the (positioning) of STIMI within the overall organizational structure of the VTC and within the strategy of VTC. A basic and a direct effect on Impact and sustainability of the project could be drawn out from such description and information.
7. The study did not answer questions related to the changing requirements of the market needs in the fields of machinery, metal processing and welding and how is STIMI planning to respond o it.
8. The study did not provide full answers related to procedures necessary for VTC to deliver Technician level training coursers and the implications around the issuance of the Technician level certificate.

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