

トルコ共和国
中央アジア・中東向け
自動制御技術普及プロジェクト
終了時評価調査報告書

平成27年6月
(2015年)

独立行政法人国際協力機構
トルコ事務所

トル事
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15-003

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序 文

独立行政法人国際協力機構は、トルコ共和国政府と締結した討議議事録（R/D）に基づき 2012 年 5 月から、技術教育プロジェクト「中央アジア・中東向け自動制御技術普及プロジェクト」を 3 年間実施しました。

当機構は、本プロジェクトの協力期間が 2015 年 4 月で終了するのを前に、トルコ側と合同で、これまでの活動実績や目標達成状況について総合的な評価を行うとともに、今後の方向性を協議するため、2014 年 9 月 15 日から 9 月 28 日までの間、終了時評価調査を実施しました。

本報告書は、本調査におけるトルコ政府関係者との協議及び評価調査結果などを取りまとめたものであり本プロジェクト並びに関連する国際協力の推進に活用されることを願うものです。

終わりに、本調査にご協力とご支援を頂いた関係者の皆様に対し、心より感謝の意を表します。

平成 27 年 6 月

独立行政法人国際協力機構
トルコ事務所長 遠藤 真由美

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プロジェクト位置図



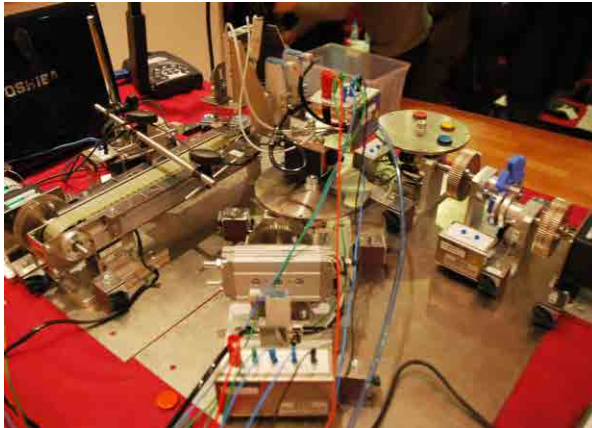
写 真



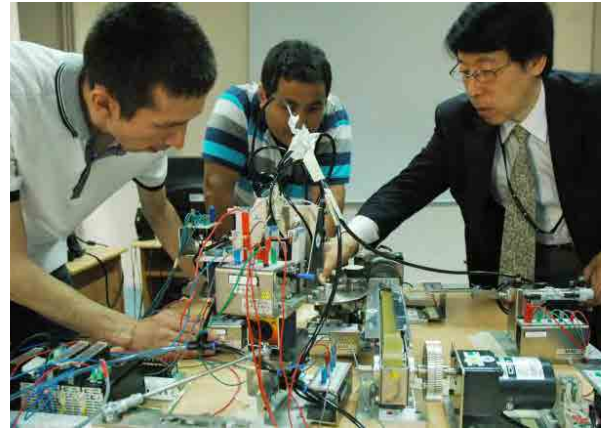
マズハルゾルル工業高校附属教員研修センター



教員研修センター内部



2013年に供与された日本製 IAT 教育機材



専門家による供与機材を使った指導



C/P の指導の下に IAT 技術を学ぶ研修生ら



合同調整委員会 (JCC)

略 語 表

略 語	正式名称	日本語
CFT	Country Focused Training	国別研修
C/P	Counterpart	カウンターパート
GDVTE	General Directorate of Vocational and Technical Education	技術教育・職業訓練総局
GT	Group Training	合同研修
IAT	Industrial Automation Technology	自動制御技術
JCC	Joint Coordination Committee	合同調整委員会
JICA	Japan International Cooperation Agency	独立行政法人国際協力機構
M/M	Minutes of Meeting	協議議事録
MM	Man Month	人月
MoNE	Ministry of National Education	国民教育省
MZTVH	Mazhar Zorlu Technical and Industrial Vocational High School	マズハルゾルル工業高校
OVI	Objectively Verifiable Indicator	業務指標
PDM	Project Design Matrix	プロジェクト・デザイン・マトリックス
PO	Plan of Operations	業務計画
R/D	Record of Discussions	討議議事録
SPREAD	The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department	自動制御技術教育普及計画強化プロジェクト
TCTP	Third Country Training Program	第三国研修
TIKA	Turkish Cooperation and Coordination Agency	トルコ国際協力調整庁
TTC	Teacher Training Center	教員研修センター
TTVH	Konak Nevvar Salih İşgören Hotel Management and Tourism Vocational High School	イズミール観光専門高校
WBTSS	Web-Based Training Support System	ウェブを活用した研修支援システム

■為替換算

EUR1 = JPY136.9

USD1 = JPY103.77

TRY1 = JPY48.06

(JICA rate for September, 2014)

終了時評価調査結果要約表

1. 案件の概要	
国名：トルコ共和国	案件名：トルコ国中央アジア・中東向け自動制御技術普及プロジェクト
分野：教育-職業訓練・産業技術教育	援助形態：技術協力プロジェクト
所轄部署：JICA トルコ事務所	協力金額（評価時点）：224,317 千円
	協力相手先機関：国民教育省（MoNE） 技術教育・職業訓練総局（GDVTE）
協力期間：2012年2月～2015年4月	日本側協力機関：なし
1-1 協力の背景と概要	
<p>トルコ共和国（以下、「トルコ」と記す）では、1990年以降の製造業の急速な拡大に伴い、製造業技術者、特に中堅技術者の質的、量的ニーズを満たすことが急務とされ、トルコ政府は本分野の人材育成を開発計画の重点課題と位置づけ、取り組んできた。このような政策を受け、教育システムの向上にかかる取り組みも進められてきたが、産業界からのニーズが高まり、更なる人材育成強化が喫緊の課題となった。このような背景の下、トルコ国民教育省（Ministry of National Education：MoNE）はわが国の支援を受けて、2001年から2006年にかけて、自動制御技術を備えた人材の育成のための技術協力プロジェクト「自動制御技術教育改善計画」を実施し、アナトリア西部のアナトリア職業高校イズミール校及びアナトリア中部に位置する同高コンヤ校に自動制御技術（Industrial Automation Technology：IAT）学科を設立した。</p> <p>この成果を受けて、同省では、国内各地のアナトリア職業高校20校にIAT学科を新設した。さらに、イズミール校の附属施設として、IATトレーナー養成のための教員研修センター（Teacher Training Center：TTC）も設立するに至った。これらの拠点校やTTCでの研修を基に、国内における産業人材技術教育の普及に取り組んでいる。</p> <p>上述プロジェクトが終了を迎えるころ、トルコでは「第9次開発計画（2007～2013年）」が策定され、同計画においても「人的資源の開発」が主要目標の1つに掲げられ、引き続き当該分野への取り組みが重視されることとなった。このような背景もあり、前身プロジェクトの成果を受けて2007年から2010年にかけて、技術協力プロジェクト「自動制御技術教育普及計画強化プロジェクト（The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department：SPREAD）」を実施し、TTCにおける教員研修の実施体制整備を進めた。TTCでは、各地に新設されたIAT学科のために、16コースの教員研修カリキュラムとシラバス教材などを開発したほか、2010年のプロジェクトの終了時評価までに、国内の職業高校から727名を対象とする教員研修を実施した。TTCではその後も独自にe-learningシステムの導入や民間企業の従業員を対象とした実務者研修を行い、産業技術に携わる教員研修の実施・運営体制の強化を図った。</p> <p>これまでのJICAとの協力を基に、MoNEはTTCにおける研修を通して、トルコ周辺国の技術教育・職業訓練能力向上をめざし、中央アジアや中東地域への展開を検討。IAT（電気・電子技術、メカトロニクス、機械技術、ICTを含む）職業訓練校教員を対象にした研修を計画した。トルコ政府の要請を受けた日本国政府が、2011年11月にJICA詳細計画策定調査団を派遣して技術協力のフレームワークをトルコ政府と合意した。国内では、MoNEがトルコ国際協力調整庁（Turkish Cooperation and Coordination Agency：TIKA）にプロジェクト実施に係る協力を要請し、トルコ国中央アジア・中東向け自動制御技術普及プロジェクト（以下、「本プロジェクト」）は2012年2月に開始に至り、2015年4月まで実施されることとなっている。</p>	

1-2 協力内容

- (1) 上位目標：対象国で IAT に関する技術教育・職業訓練能力が向上する。
- (2) プロジェクト目標：対象国教員の IAT に関する技術教育・職業訓練能力が向上する。
- (3) 成果（アウトプット）
 - 1) ターゲット・グループの研修が適切に計画される。
 - 2) ターゲット・グループに対して効果的に研修が実施される。
 - 3) フォローアップシステムが構築される。
- (4) 投入（2012年2月～終了時評価時点）
 - 日本側：
 - ・日本人専門家：専門家5名（合計29.6人/月）
 - ・本邦研修：合計3名
 - ・供与機材：66,507ユーロ（約910万円）相当
 - ・プロジェクト運営費：100万トルコリラ（約4,820万円）
 - トルコ側：
 - ・プロジェクト要員：プロジェクト・ディレクター（1名）、プロジェクト・マネジャー（1名）、常時5名～7名のカウンターパート（Counterpart：C/P）、並びにTIKAより1名が合同調整委員会（Joint Coordination Committee：JCC）委員、1名～3名の職員がプロジェクトの支援にあたった。
 - ・プロジェクト施設：プロジェクト事務所スペースと実験室5室
 - ・プロジェクト資機材：合計301,046.35トルコリラ（約1,450万円）相当
 - ・プロジェクト運営費：829,536トルコリラ（約3,990万円）

2. 終了時評価調査団の概要

調査者	担当分野	氏名	所属
	総括	植木 雅浩	JICA トルコ事務所次長
	協力企画1	近内 みゆき	JICA トルコ事務所企画調査員
	協力企画2	エミン・オズダマル	JICA トルコ事務所シニアプログラムオフィサー
	評価分析	津曲 真樹	有限会社アイエムジー・パートナー

調査期間：2013年9月15日～27日

評価種類：終了時評価

3. 調査結果の概要

3-1 調査結果の要約

(1) 成果の達成状況

成果1「ターゲット・グループの研修が適切に計画される」に係る指標は、それらすべてが終了時評価時点までに満たされていることから、成果1は達成されたと考えられる。終了時評価（2014年9月実施）の時点で、いまだ4コースの研修の実施を控えている段階である。しかしこれまでの実績から、それぞれの指標を満たす可能性が高いことから、成果2「ターゲット・グループに対して効果的に研修が実施される」は達成される見込みである。

TTC側では、ウェブベースの情報システムとフォローアップ調査の実施に対し、十分な準備が行われた。しかし、実際にシステムが機能するようになるには、研修効果の評価に

係るデータ収集の段階で研修参加者の関与が不可欠であるが、実際の関与は十分とはいえない状態である。言語の壁やインターネット接続の問題などを乗り越えることが課題だが、この状況は安易に好転するものでないことが明白である。そのため、成果 3「フォローアップシステムが構築される」の達成見込みは、研修参加者がどの程度フォローアップに関与するかのレベルに準じる。

(2) プロジェクト目標の達成見込み

国別研修の対象国別に設定された国別指標、並びに合同研修に参加したグループに対する合同研修用指標が満たされる可能性は一様でなく、カザフスタンとパキスタンについては高い一方で、アゼルバイジャンについては低く、合同研修においては中程度である。そのため、プロジェクト目標「対象国教員の IAT に関する技術教育・職業訓練能力が向上する」の全体としての達成可能性は中程度である。

(3) 上位目標の達成見込み

指標の達成には、投入資源（金銭的、技術的、及びロジスティックスの観点から）が必要である。それらは、参加国自体の MoNE の取り組み、あるいは外部リソースによる支援を通じたもののいずれかによる。インパクトが発現しつつある事例として、カザフスタンが挙げられる。同国では本プロジェクトのパイロット校が、日本の中小企業のカザフスタンへの進出を支援する日本政府による資金や、世界銀行によるカザフスタン教育機関に対する支援等別のリソースを獲得したことが成果発現に影響している。4 校のパイロット校のうち 3 校において、IAT コースが開始されており、設備購入の準備も進められている。そのような補完的支援の大部分は、プロジェクトによって仲介され、プロジェクト活動の一部としてカザフスタンへの働きかけが行われたものである。上位目標「対象国の IAT に関する技術教育・職業訓練能力が向上する」達成のために必要とされるこの種の補完的支援は、プロジェクト期間終了後に他の参加国に対して提供されることはない。そのため、上位目標（基本的に、実施機関自体によるプロジェクト期間「後」の取り組みによって達成される目標）の達成見込みは中程度である。

3-2 評価結果の要約

(1) 妥当性：高い

本プロジェクトの妥当性は、①トルコ政府の、特に近隣国に対する国際協力に係る政策との整合性、②MoNE の産業技術教育・職業訓練に係る戦略・方向性との整合性、③参加国のニーズとの整合性、④日本の ODA 政策との整合性、⑤日本の協力が有する経験や技術の比較優位から、高いと評価される。

(2) 有効性：中程度

指標が規定するプロジェクト目標達成の見通しは、カザフスタンとパキスタンについては高く、アゼルバイジャンは低く、合同研修対象国については中程度と混在していることから、プロジェクト全体としての有効性は中程度と評価される。指標達成度がより高いカザフスタンとパキスタンの場合は、成果 1 におけるエクゼクティブマネジャー及び技術教育・職業訓練教育分野の管理職を対象とした国別研修が、その後の活動に対する参加国の MoNE 上層部の関与につながっている。なかでもカザフスタンの場合は、プロジェクト成果の達成が、IAT パイロット校に対するプロジェクトの外からの投入資源や取り組みと同

時進行で進んでいた。その例が、日本の中小企業のカザフスタンへの進出を支援する日本政府による資金の、本プロジェクトのパイロット校への供出や、世界銀行によるカザフスタン教育機関に対する支援である。

さらに、成果3によって示されたのは、C/Pと参加者間が直接やり取りできるコミュニケーション手段がなければ、達成の見込みはより限定的になるということである。研修参加者の応募手続きは、TIKAが担っていたが、国別の事情に影響されることがあり、時に技術要件を満たさない候補者が採用されるケースに至った。

(3) 効率性：高い

投入と成果の関連性を、以下の5つの観点にかんがみるとプロジェクトが結果を導いた点から、プロジェクトの効率性は高い。

1) 投入と成果の関連性

研修スケジュールはトルコの年間スケジュールに沿って作成された。参加国によって会計/事業年度が異なる場合があることを考慮すると、その実態を踏まえて研修実施に最適な時期を見極めることができれば、投入と成果の関係における効率性を更に向上させることができた可能性がある。しかし、年間スケジュールについては、事前に十分に練られ、必要に応じてJCCとの綿密な協議の下で十分な調整を行い、投入を成果に転換させた。期待どおりに投入が成果に転換されなかった唯一の課題点は、(調査に対する無回答など) C/Pが研修を受けた、もしくはこれから研修を受ける参加者との直接的なコミュニケーションチャンネルをもてなかった場合に発生した。

2) 成果レベルの達成

プロジェクトの開始時点で設定された重要な前提条件(「国別研修対象国におけるニーズ調査の結果として、当該国政府が調査チームの推奨する対象機関と内容を承認する」並びに「研修内容の特定化に関する協議が、合同研修対象国間で実施される」)は、成果の産出を支える条件として大方満たされた。

3) 日本による投入の適切さ

投入は予定どおりに実行された。しかし、計画段階では予測されなかった状況(先行プロジェクト時代のC/Pの多くの離脱により、本プロジェクトの開始時点でC/P規模が約25名から7名まで減少し、その数はさらにマズハルゾルル工業高校(Mazhar Zorlu Technical and Industrial Vocational High School : MZTVH)の人材要請により5名にまで減少した)を考慮し、効果的なプロジェクトの実施のため追加の投入が求められた。この関連で、カリキュラムデザインの指導を行う短期専門家が投入された。この投入は日本側とトルコ側の双方から高く評価され、このような介入がプロジェクトのより早い時点で行われればなお効果的であった、という意見が述べられた。

4) トルコ側による投入の適切さ

トルコ側もまた、プロジェクト活動を支援するための投入資源の確保に努めた。最も困難を伴ったのは、C/Pの配置であった。TTCにおいて計画された活動に必要な人材は、年間当たり77.7人/月と算出され、7名のフルタイムの人材配置が求められた。しかし、この仕事量を5名のC/Pが担うこととなり、1名のフルタイムの職員よりも負担の多い状態のなかで、各自が責任をもって業務にあたった。

トルコ側はまた、初年度と第2年度において、TIKAの予算より資機材の調達も行った。あらかじめ予測できなかった状況により、第3年度用として計上された50,000トルコリラ(約240万円)はまだ支出されていない。MoNEとTTCによると、近い将来にこ

の予算も執行される見通しである。

5) 関係機関が当初締結したコスト負担割合の遵守

一般的に、R/Dにおいて締結されたコスト負担割合に関する同意である、「JICAの負担分はコスト全体の70%を超えないこと」について遵守されており、2014年9月までのJICAによる貢献は全コスト（実績値に基づく）の55%である。

(4) インパクト：中程度

カザフスタンにて発現しつつあるインパクトとして、プロジェクトとは別の投入資源が成果を産出するために獲得されている（日本の中小企業のカザフスタンへの進出を支援する日本政府による資金の、本プロジェクトのパイロット校への供出や、世界銀行によるカザフスタン教育機関に対する支援にパイロット校が含まれた等）。4校のパイロット校中3校においてIATコースが開始され、機材購入の手配が現在進められている。そのような補完的支援の大部分は、プロジェクトによって仲介され、プロジェクト活動の一部としてカザフスタンへの働きかけが行われたものである。授業自体は既に進行中であるが、コースを通じて提供される知識と技能の質を確保するために、本プロジェクトのトルコC/Pを第三国専門家として派遣することが、MoNE、TIKA、及びJICA間の協議にて合意されている。現在準備が進められており、実現すれば上位目標の達成に貢献することが期待される。

この種の追加的支援は、プロジェクトが同様の、積極的な働きかけを他の参加国へ行わない限り、プロジェクト期間の終了後に他の参加国に対して提供されることはない。そのため、上位目標（基本的に、実施機関自体によるプロジェクト期間「後」の取り組みによって達成される目標）の達成見込みは中程度である。

(5) 持続性：中程度

下記の観点を総合的にかんがみ、プロジェクトが達成した成果が持続する可能性は中程度と評価される。

1) 制度面

プロジェクトに係るそれぞれの役割と責任については、R/Dに明示されており、次のように、MoNE、TIKA、TTCの間で理解されている。MoNEは、プロジェクトの実施と管理に関する全体的な責任を担い、すべての利害関係者に対する全体的な調整もその責任の範疇として管理する。TIKAは、対象国の出先事務所との調整により、参加者と関連機関との連絡役として、研修の実施に係る調整を行う。TTCは、研修の企画と実施の担当、並びに参加者に対して、研修後のそれぞれの国での実務に資するためのフォローアップの提供を行う。しかし、国際研修プログラムの実施では、期待される結果を導くために設定された過程を完全にコントロールできないことが多く、繁雑な対応が求められることを、それぞれの関係者が十分に把握したうえで対応する準備ができていたかは明白ではない。

各組織にはそれぞれの任務領域があり、その制約により、新たなニーズに対し柔軟な対応ができないことがある。例えば、技術的な問題の対処を行うのはTTCがふさわしいが、同組織は共通の言語を有しない海外の研修参加者とコミュニケーションをとる立場になく、またその能力も不十分である。そのような状況では、プロジェクト備上の通訳による介在が必要となった。将来的にもこのような煩雑さは残ることから、課題の1つ1つを協働による努力によって対処していることは評価されるが、プロジェクト完了後の制度面の持続性確保の観点から不安が残る。

2) 技術面

本プロジェクトを通し C/P は、教員のための IAT 研修の計画、実施、モニタリングそして改善における調整・管理・運営面の能力を強化させた。一般的に 1 つのコースが試行され、改良され、そして標準化されるまでには、およそ 3 回の実施を要する。IAT の基礎、中級、上級コースから成る、十分に練られた研修パッケージを C/P が提供できるようになるには、特に、上級コースに関しては経験が少ないことから、上級を含め更に数回のサイクルの施行が望ましい。プロジェクトを通じて、彼らの IAT 分野の指導者としての専門性は、周辺国で比較優位をもつものであり、トルコにとって重要な財産となるということが証明された。その知識は、トルコ政府が掲げる、製造業における国際競争力の強化のための能力向上ビジョンに貢献できるものである。そのためにも、彼らの有する専門知識が近隣諸国とのやり取りのなかで活用され続け、その過程で生まれる結果が国内における更なるイノベーションに注がれ、トルコの競争力向上につながることを望まれる。

3) 財務面

予算に計上された資金は、大方確保されている。財政面の持続性には、継続的な努力が求められる。

4) プロジェクトが達成する成果の持続性に影響を与える、その他の要因

プロジェクトの期間中、TTC の持続可能性に関する徹底的な協議が行われた。現時点では、MZTVH 付属のサービス提供機関としての位置づけは、プロジェクト期間後も継続されることと見込まれる。TTC に対するニーズは、その目的が自国の国内研修、あるいはトルコ政府の国際協力を強化するという国家政策の実施部門としてであっても、継続すると予測される。ゆえに、TTC の維持は、共通アジェンダとして優先されるべきである。

3-3 結論

本プロジェクトの妥当性は、①トルコ政府の、特に近隣国に対する国際協力に係る政策との整合性、②MoNE の産業技術教育・職業訓練に係る戦略・方向性との整合性、③参加国のニーズとの整合性、④日本の ODA 政策との整合性、⑤日本の協力が有する経験や技術の比較優位から、高いと評価される。

指標が規定するプロジェクト目標の達成の見通しが、カザフスタンとパキスタンについては高く、アゼルバイジャンは低く、合同研修対象国については中程度というように混在していることから、プロジェクト全体としての有効性は中程度と評価される。

効率性は、①本プロジェクトの投入の結果、成果をもたらせていること、②成果の達成度、③日本による投入の適切さ、④トルコによる投入の適切さ、並びに⑤関係機関が当初締結したコスト負担割合の遵守により、高い。

国別研修の対象国別に設定された国別指標、並びに合同研修に参加したグループに対する合同研修用指標が満たされる可能性は一律でないことから、プロジェクト目標の全体としての達成可能性は中程度であり、よって、インパクトは中程度である。

プロジェクトの持続性もまた中程度であり、これは実施機関の現在の制度面、技術面そして財政面に対する総合的な評価に基づくものである。

3-4 提言

(1) 技術面の持続性を担保するための、十分に練られた IAT 研修コースパッケージを通して

のフォローアップ（MoNE、TIKA、JICA、TTC 向け）

終了時評価の過程において、プロジェクトによって生みだされた成果の技術面における持続性は、プロジェクトにかかわったすべての関係者にとって最も重要な共通アジェンダであることが明らかになった。そして、プロジェクトの完了までに上級コースの実施が 1 回しか計画されていないことに関して、懸念の声が聞かれた。その理由として、IAT 研修コースパッケージ（基礎、中級、上級）を構築するためには、1 回の開講では上級コースのプログラムを十分にテストし、また改良することができない可能性が指摘された。

そのような事情を踏まえ、終了時評価団はあらかじめ合意された基準（例えば、IAT 部門設立を後押しするための投入資源を国内に有するかどうか等）に基づいて、プロジェクトが培った技術面の持続性を担保するために、研修プログラムを試行の段階から改良できるよう、参加国のうち選定された国を対象とする追加研修の企画・実施を行うべく、プロジェクトを一定期間延長することを提言する。この提言は、MoNE の事業計画に含まれている、TTC が 2015 年 4 月より実施する現職職員研修の妨げにならないことを、評価団は C/P と確認済みである。この提言を実現可能な形に落とすために、各機関それぞれ以下を検証し、近い将来 JCC にて活動手順を合意することが求められる。

- **TIKA**：既に終了時評価団に確約しているとおり、プロジェクト参加国に打診し、追加研修に関するそれぞれのニーズや参加意思等に関するフィードバックを収集する。（パキスタン、パレスチナ、カザフスタンについては、既に **TIKA** の現地事務所によって、IAT プログラムは非常に有益というフィードバックが得られている。さらに、カザフスタンとパキスタンの政府関係者からは、上級コース研修のニーズも伝えられている。）
- **TTC**：**TIKA** が収集したフィードバックに基づき、既に計画されている 2015 年度の現職職員研修に加え、各国のフォローアップ研修の実施に要する時間と実施時期について概要をまとめる。
- **MoNE**：上記 **TTC** の分析による見通しに基づき、プロジェクトによるフォローアップ研修を実施可能とするスケジュールを決定する。
- **JICA**：上記の **TTC** の分析による見通しに基づき、フォローアップに必要な投入資源、及び **JICA** が提供可能な予算を算出する。
- **JCC**：上記事項につき協議し、フォローアップに係る合意を形成する。

(2) 言語/その他の理由でアクセスが難しい参加者との研修終了後のコミュニケーション（TTC、TIKA 向け）

研修参加者帰国後に行われるウェブを使用したフォローアップの過程で、C/P が数多くの課題を経験した。主に、C/P と参加者間の共通言語の欠如や、参加者側の国内におけるインターネット規制などのアクセスにかかわる課題が挙げられる。そのため、残りの研修コースについて、そのようなリスクの高い参加者については、①TTC で当該者のプログラムを担当する C/P、②TIKA 本部の担当者、③当該者の本国の TIKA 事務所の窓口担当者、による支援システムが構築されるべきである。また、これらの関係者がトルコ側と当該国の間に参加者のためのネットワークを構築していることを事前に参加者に知らせ、だれがこれらのメンバーかについて、連絡先とともに伝えるべきである。

また **TTC** 到着後は、C/P は参加者と研修終了後のコミュニケーション方法について協議すべきである。研修後のコミュニケーションを着実に維持するためには、このようなネットワークが有益であることを認識してもらう必要がある。

(3) 第三国専門家の派遣（MoNEによるTIKA、JICA、TTCとの調整）

研修参加者が帰国後、実際に授業を行う際の知識と技能の質を確保するため、JCCの助言の下、本プロジェクトのトルコC/Pを第三国専門家として派遣することが計画されており、2015年初旬に実施見込みである。この派遣の実現は画期的な出来事であり、プロジェクトを通してC/Pがどれほどの知見・能力を備えたかを証明するものである。プロジェクトの具体的な結果の証しとするためにはMoNEのリーダーシップの下で入念な事前準備が求められる。

3-5 教訓

・ウェブベースのリソースの活用（成果3に関連）

ITに依存した情報共有システムに対する需要が今後も増加するなかで、プロジェクトの受益者がITに詳しく、サービスに対し容易にかつ安価でアクセスすることができ、また双方のコミュニケーションを可能にする共通言語があるかに注意を払うべきである。

・研修終了後のフォローアップ策定（成果3と関連）

研修終了後に双方向のコミュニケーションを継続させるためには、関係継続の利点について共通の認識をもつことが重要である。

・参加国における高位の意思決定権者の理解と早期の関与の必要性（プロジェクト目標に関連）

パキスタンの事例が示唆するように、早い時点における高位の意思決定権者のコミットメントにより、その後の円滑なオペレーションが可能となる。

・上位目標の適用性（上位目標に関連）

プロジェクトでいうところの上位目標は、プロジェクトが達成したことを促進するために実践機関の努力により導き出される、（プロジェクト終了後3～5年という）長期的に予想される取り組み成果を指すものである。本プロジェクトの上位目標は、本目標の実現のためには実質的な前提条件となる、大規模な投入（例として、IAT機材の購入）を考慮に入れていない。

・三角協力を支援するための、第三国内の投入資源の動員（全般）

トルコのような新興国において第三国支援を行う際、支援の授受の関係は協働パートナーの関係へと変化している。そこでは、二国間協力では明確な、援助提供側に対する受け手側の直接的な説明責任は確立されない。JICAは当該国事務所が窓口となり、プロジェクト実施機関に対して支援を提供する一方、実施機関はその先の第三国の受益者に支援を提供する。その第三国の受益者に対してJICA当該国事務所は直接コンタクトするアクセスを有しない。本プロジェクトでは、対象国内で獲得できる投入資源を動員して運営した。JICAの各国別事務所の支援による二国間の枠組みに加えて、カザフスタンの例のように、プロジェクトではその他の資金源（世界銀行や日本外務省）にアクセスし、対象国の機関の支援と組み合わせた。

Summary of Terminal Evaluation

1. Outline of the Project	
Country: Turkey	Project Title: The Industrial Automation Technology (IAT) Extension Project for Central Asian and Middle East Countries in The Republic of Turkey
Issue/Sector : Education-Technical and Vocational Education and Training	Cooperation Scheme : Technical Cooperation
Division in Charge: JICA Turkey Office	Total Cost: 224,317,000 yen (As of evaluation)
Period of Cooperation: February 2012 – April 2015 (Three years and three months)	Partner Country’s Implementing Organization: General Directorate of Vocational and Technical Education (GDVTE), Ministry of Nation Education (MoNE)
	Supporting Organization in Japan: N/A
<p>1.1 Background of the Project</p> <p>The Government of the Republic of Turkey has focused on implementing policy measures to strengthen its global competitiveness of manufacturing industries, and to introduce advanced technology and promote capital intensive industries to enable the delivery of high valued products and services since the 1990s. The Government of the Republic of Turkey has in conjunction prioritized the improvement and strengthening of technical and vocational education schools so as to supply the labor market with capable technicians and skilled human resource. In this context, the Project “Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools” was successfully carried out jointly by the General Directorate of Vocational and Technical Education (GDVTE) of MoNE and JICA from 2001 to 2006 with the aim of establishing IAT departments with international standard. Through the project, IAT departments were established at Anatolian Technical High Schools in Izmir and in Konya respectively.</p> <p>Following the successful implementation of the above-mentioned project, MoNE subsequently set up IAT departments in 20 schools. In addition, the Teachers Training Center (TTC) was established at Mazhar Zorlu Technical and Industrial Vocational High School (MZTVH) in Izmir in 2006 with the aim of developing the teaching staff who will work at the IAT departments of the 20 schools. Founded on the training provided at these schools as well as at the TTC, nationwide extension of the industrial human resources technology education progressed.</p> <p>By the completion of the afore-mentioned project, “Ninth Development Plan of Turkey (2007-2013)” was formulated as the country’s national development policy, re-emphasizing the importance of strengthening human development axis. This emphasis led to the technical cooperation “The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department” (SPREAD) (2007-2010) which established teacher training implementation system at MZTVH TTC. During the life of the project, TTC developed teacher training curriculum as well as syllabus for 16 courses, and conducted training for 727 teachers drawn from the technical schools nationwide by 2010. After the completion of the project, TTC further expanded its implementation and management system for teacher training on industrial technology, by introducing e-learning and training for practitioners of private companies.</p> <p>Against such backgrounds, the Government of the Republic of Turkey, gaining confidence through these successful initiatives, decided to transfer the knowledge and experiences acquired through the</p>	

above-mentioned projects to vocational and technical teachers of IAT (including electric-electronics, mechatronics, mechanics, and ICT) fields in the countries in Central Asia and Middle East regions by means of providing training at TTC of MZTVH. In response to the request by the Government of the Republic of Turkey to the Government of Japan (GoJ) for assistance, JICA dispatched the detailed planning survey team to Turkey in November 2011, and agreed on the framework for this technical cooperation. Within the country MoNE requested support from Turkish Cooperation and Coordination Agency (TIKA) for project implementation. The Project was then launched in February 2012 and is scheduled to continue through April 2015.

1.2 Project Overview

(1) Overall Goal of the Project:

Technical education and vocational training capacity on IAT of target countries is enhanced.

(2) Project Purpose:

Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.

(3) Outputs

- 1) Training for target group is appropriately planned.
- 2) Training for target group is effectively provided.
- 3) Follow-up system is established.

(4) Inputs (As of the Terminal Evaluation)

Japanese side:

- Japanese Experts: A total of 5 Experts (a total of 29.6M/M)
- C/P Training in Japan: A total of 3 C/Ps
- Equipment: EUR 66,507 (approximately JPY 9.1 million)
- Operational Expenses: TRY 1 million (JPY 48.2 million)

Turkish Side :

- C/Ps: 1 Project Director, 1 Project Manager, 5 to 7 IAT Trainers at a time
- Facilities: office space at TTC as well as five laboratories
- Operational Expenses: TRY 829,536 (approximately JPY 39.9 million)

2. Evaluation Team

Members of Evaluation Team (Japanese side)	[Leader]	Mr. Masahiro UEKI, JICA Turkey Office
	[Evaluation Planning]	Ms. Miyuki KONNAI, JICA Turkey Office
	[Evaluation Planning]	Dr. Emin ÖZDAMAR, JICA Turkey Office
	[Evaluation Analysis]	Dr. Maki TSUMAGARI, IMG Inc.
Evaluation Period	September 15th to 27th, 2014	Type of Evaluation : Terminal Evaluation

3. Results of Evaluation

3.1 Confirmation of Results

(1) Achievements of Outputs

All the indicators set for Output 1 (“Training for target group is appropriately planned”) have been met by the time of the Terminal Evaluation and thus Output 1 is considered achieved.

Four training courses are yet to be conducted between the Terminal Evaluation (September 2014) and the completion of the Project period. However, based on the following high prospects for meeting each indicator, the achievement of Output 2 (“Training for target group is effectively provided”) is deemed

probable.

On the part of TTC, thorough preparation for the web-based information system as well as for the administration of the follow-up survey have been managed. However, for the system to be established for actual functioning, engagement of trained participants is essential, so that data for training impact assessment is gathered. As overall level of such engagement of the trained participants have been far from adequate, and this trend cannot be turned around easily due to already identified difficulties (such as language and internet connection barriers), the prospect for achieving Output 3 (“Follow-up system is established”) is limited to the extent of the responses by the trained participants.

(2) Prospect for Achieving the Project Purpose

The prospect for meeting the determined Country Focused Training (CFT) or Group Training (GT) indicators is mixed, with high potential for Kazakhstan and Pakistan, while low for Azerbaijan and medium for GT countries. Therefore, the overall prospect for achieving the Project Purpose (“Technical education and vocational training capacity of teachers in IAT in target countries is enhanced”) is fair.

(3) Prospect for Achieving the Overall Goal

The achievement of the indicator will require resource input (financial, technical, and logistical), either by own effort of the participating countries’ Ministry of Education or through support by external sources. One emerging case is Kazakhstan, where additional/separate larger context input (e.g. Japanese Government resource for supporting small/medium sized business acquired in Kazakhstan channeled to the pilot institutions of this Project, World Bank assistance to educational institutes in Kazakhstan included the pilot colleges, etc.) has been secured to produce emerging results: At three out of the four pilot institutions, IAT course has started, with equipment purchase arrangement in process. Large part of accessing such further support has been arranged by the Project, reaching out to Kazakhstan as a part of Project activities. This kind of additional handholding required for meeting the Overall Goal (“Technical education and vocational training capacity on IAT of target countries is enhanced”) will not be available to the other participating countries at post-completion stage of the Project period. Therefore, the prospect for achieving the Overall Goal (which is by default a goal for the implementing agency to achieve by own effort AFTER the Project period) against the preset indicator is fair.

3.2 Summary of Evaluation Results

(1) Relevance: High

The relevance of the Project is evaluated as high based on its close alignment with (1) Government policy of the Republic of Turkey, particularly that pertaining to their own international cooperation agenda to the neighboring countries, (2) strategic plan/direction of MoNE in regard to TVET, (3) the needs of the participating countries, (4) the Japan’s ODA Policy, and (5) comparative empirical and technological advantage of Japan’s cooperation.

(2) Effectiveness: Fair

The effectiveness of the Project is assessed as fair, for the prospect for meeting the Project Purpose as determined by the indicators is mixed, with high potential for Kazakhstan and Pakistan, while low for Azerbaijan and medium for GT countries. For stronger achievers, Kazakhstan and Pakistan, CFT for Executive Managers as well as that for TVE Managers under Output 1 paved a way to secure high level

engagement of the participating countries' Ministry of Education for later activities. Particularly for Kazakhstan, it is evident that the successful achievement of the Outputs coincided with parallel inputs and efforts that were drawn to the IAT pilot colleges from other sources, such as Japanese Government scheme for supporting small/medium sized business connected with the Project's IAT pilot colleges and World Bank assistance to educational institutes in Kazakhstan.

In addition, Output 3 signified that without direct/effective interface for communication between the C/P and the participants, the prospect for achieving it is limited at most. Application process for the training participants had to be conducted as logistical and administrative matter led by TIKA. However, country specific situations added difficulty for enforcing technical relevance in the selection, resulting in the recruitment of less than ideal candidates in some cases.

(3) Efficiency: High

The Efficiency of the Project is evaluated as high in view of the five dimensions of Input-Output relationships that the Project managed for results.

1) Causality of Inputs and Outputs

The training schedule was prepared in accordance with the Turkish calendar. Given participating countries might be dictated by different budget/academic calendars, a diagnostic analysis on the best timing could have increased the efficiency of Input-Output relationship. Yet, annual schedule, planned well in advance and adjusted where necessary in close consultation with JCC has run satisfactorily, and converted inputs into outputs. The only bottleneck or leakage (such as no-response to the survey) arose where C/P do not have direct communication channel with the trained/to-be-trained participants to ensure input is converted into outputs.

2) Achievements of Outputs

The important assumptions set for the Project at the launch ("As results of the need survey in CFT target countries, local government agreed the target institution and content recommended by the survey team" and "A discussion for training content identification was implemented among the GT target countries") largely held to support the Outputs to be produced.

3) Appropriateness of Inputs by Japan

The planned input was disbursed. However, in light of the evolving situations not foreseen at the planning stage (e.g. departure of many C/P from the preceding Project, that shrunk the C/P cohort down from around 25 personnel to seven at the Project start, which was further reduced to five due to staffing needs of the MZTVH), additional input was required for effective execution of the Project. In this relation, a short term expert on curriculum design was arranged. This input was highly valued by both the Japanese and Turkish sides with a remark that it would have been even more effective if this intervention was possible earlier in the course of the Project.

4) Appropriateness of Inputs by the Turkish side

Turkish side also made the effort in securing resources to support the Project activities. The most challenging part of the resource acquisition related to the C/P assignment. Manpower needs to meet the planned activities at TTC was calculated at 77.7 MM/year requiring seven full time personnel. Yet, five C/P had to shoulder this load, each responsively performing more than one person's full time job.

Turkish side contributed also to procure some equipment/supplies in the first and second year from TIKA budget. Due to unforeseen circumstances, however, the third year applicable budget of TRY 50,000 (approximately JPY 2.4 million) has not been disbursed. MoNE and TTC are expecting to spend this

allocated amount in the near future.

5) Adherence of each participating agency to the pre-determined contribution ratio

Overall, the original agreement for cost sharing signed in R/D that reads “Shared portion of JICA shall not exceed seventy percent (70%) of the total amount” was adhered with JICA having contributed 55% of the total cost (on actual basis) up to September 2014.

(4) Impact: Fair

One significant impact being emerged is with Kazakhstan, where additional/separate larger context input (e.g. Japanese Government resource for supporting small/medium sized business acquired in Kazakhstan channeled to the pilot institutions of this Project, World Bank assistance to educational institutes in Kazakhstan included the pilot colleges, etc.) has been secured to produce emerging results: At three out of the four pilot institutions, IAT course has started, with equipment purchase arrangement in process. Large part of accessing such further support has been arranged by the Project, reaching out to Kazakhstan as a part of Project activities. While classes are already in progress, to ensure quality in the knowledge and skills to be offered at the course administration, MoNE, TIKA, and JICA have discussed and agreed on the dispatch of the Project’s Turkish C/P to Kazakhstan as Third Country Experts. The arrangement is in the pipeline and when materialized, is anticipated to positively impact the achievement of the Overall Goal. It is reported that, Pakistani participants of the Project training are also willing to receive dispatch of Project’s Turkish C/P to Pakistan as Third Country Experts. In addition, Pakistani Government is eager to launch legislation process for establishing centralized vocational school.

This kind of additional handholding required for meeting the Overall Goal will not be available to the other participating countries at post-completion stage of the Project period unless the Project can provide similar, proactive reach out to the rest of the participating countries. Therefore, the prospect for achieving the Overall Goal (which is by default a goal for the implementing agency to achieve by own effort AFTER the Project period) against the preset indicator is fair, suggesting the Project impart to be fair.

(5) Sustainability: Fair

A comprehensive assessment, as described below, warrants a rating of fair for the sustainability of Project achievements.

1) Institutional Aspect

Roles and responsibilities of the responsible parties of the Project were defined in R/D and understood among MoNE, TIKA, and TTC: MoNE to take the overall responsibility of the management and implementation of the Project, including the overall coordination among all the stakeholders; TIKA to coordinate the implementation of training, including coordination with its target country offices to liaise with the participants and their institutions; TTC to develop and deliver training, as well as to provide post-training follow up to the participants for later, in-country work. However, it is uncertain if the respective parties were fully aware of and ready to commit in the complexities involved with managing international training programs for which they do not have full control for envisaged results.

Each organization has own mandate that restricts them from flexibly and directly responding to the evolving needs that have popped up during the course of the Project. For example, while technical issues are best dealt by the TTC, they are not in a position neither have the ability to communicate with some participants with whom they do not share a common language. Such situations required the interface by translator(s) procured as a part of Project activities. Going forward, such complexities will remain, and

while each challenge has been managed by the concerted efforts, pose a question on how institutional sustainability will be ensured beyond Project period.

2) Technical Aspect

Through the Project, C/P strengthened coordinative, managerial, and administrative capacity in planning, delivering, monitoring, and improving IAT training for trainers. Except for the Advanced Course, the trainers have accumulated solid expertise for course administration. Since it typically takes multiple cycles of running a course for its program to be tested, refined, and standardized, for the C/P to become able to offer a full-fledged IAT training package of Basic, Intermediate, and Advanced Courses, running multiple cycles of courses, particularly those of the Advanced where there is less track record, would be preferable in order to build up technical sustainability. It has proven through the Project that their expertise as instructors of IAT field is of international value, which in turn is an important asset for Turkey as they can contribute to the capacity enhancement vision of the Turkish Government in strengthening its global competitiveness in manufacturing industries. It is hoped that their expertise will be utilized while maintaining exposure to the neighboring countries, so that findings from international exposure will feed into further innovation in the country also to enable Turkey to hold its competitive edge.

3) Financial Aspect

Most of the funding that was budgeted has been secured. Continued effort is sought to ensure financial sustainability.

4) Other factors that will affect the sustainability of the Project achievements

During the Project period, exhaustive discussions were held regarding sustainability of TTC. As of now, its status as an attached service entity to MZTVH is anticipated to continue beyond the Project period. The needs for their service, either domestic for in-service training, or international, as an implementation arm to realize Turkish Government's national policy that emphasizes international cooperation, is anticipated to continue, and therefore, the sustenance of this entity should be a common agenda to be prioritized.

3.3 Conclusion

The relevance of the Project is evaluated as high based on its close alignment with (1) Government policy of the Republic of Turkey, particularly that pertaining to their own international cooperation agenda to the neighboring countries, (2) strategic plan/direction of MoNE in regard to TVET, (3) the needs of the participating countries, (4) the Japan's ODA Policy, and (5) comparative empirical and technological advantage of Japan's cooperation. The effectiveness of the Project is assessed as fair, for the prospect for meeting the Project Purpose as determined by the indicators is mixed, with high potential for Kazakhstan and Pakistan, while low for Azerbaijan and medium for GT countries. The efficiency of the Project is evaluated as high in view of the five dimensions of input-output relationships that the Project managed for results: (1) causality of inputs and outputs; (2) achievements of outputs; (3) appropriateness of inputs by Japan; (4) appropriateness of inputs by the Turkish side; and (5) adherence of each participating agency to the pre-determined contribution ratio. The prospect for achieving the Overall Goal against the preset indicator is fair, which in turn warrants a rating of fair for the Project impact. Project sustainability is also considered fair, based on a comprehensive assessment of the implementing agency's current institutional, technical, and financial aspects.

3.4 Recommendations

- (1) Follow-up to secure technical sustainability through full-fledged IAT training course package
(To MoNE, TIKA, JICA, TTC)

In the course of evaluation study, technical sustainability of the Project produced achievements has emerged as the utmost important common agenda of all the parties involved with the Project. A concern has been raised that given only one Advanced Course is scheduled before the completion of the Project, it might not allow the Project to fully test and refine the Advanced Course Program to make a full-fledged IAT training course package (i.e., Basic, Intermediate, and Advanced Courses).

In light of such revelation, the Terminal Evaluation Team recommends the Project to be extended for certain period of time to accommodate sufficient time to organize and deliver additional trainings (that include Advanced) to select countries based on the pre-agreed criteria (e.g. such as in-country resource availability to found IAT departments) so that the tested and refined program will ensure the sustainability of the technical expertise established by the Project. The Terminal Evaluation Team confirmed with C/P that this recommendation does not interfere with the MoNE plan for the TTC to provide in-service training from April 2015 and considers such strengthening will add benefit to the quality enhancement of the in-service training they will be tasked to deliver. In order to sketch out that this recommendation is feasible, each party is requested to review the following and agrees course of actions at JCC in the nearest future possible:

- TIKA: As have already promised to the Terminal Evaluation Team, collect feedback from the Project participating countries on their further needs and preparedness for additional training opportunity. (Feedback received thus far: Pakistan, Palestine and Kazakhstan Program Coordination Offices of TIKA informed that, the IAT programs were found very beneficial. Kazakhstan and Pakistan officials informed the TIKA Program Coordination Offices that they would like to continue the training courses in advance level.)
- TTC: Based on feedback obtained by TIKA, sketch out, on top of already scheduled 2015 in-service training, how much time and when such follow-up training activities can be scheduled.
- MoNE: Based on the analysis prepared by TTC above, determine when Project related follow-up training can be conducted, schedule wise, into TTC's 2015 calendar for in-service training that is planned under the supervision of MoNE.
- JICA: Based on the analysis prepared by TTC above, calculate resource requirement for the follow-up as well as how much can be provided by JICA.
- JCC: Discuss points mentioned above, and come up with an agreement for the follow-up.

- (2) Post-training communication with the participants with language/access challenges
(To TTC, TIKA)

Numerous challenges (primarily due to lack of common language between C/P and the participants and/or easy access to the internet on the part of the participants) have been experienced by the C/P for conducting web based follow-up survey after the participants return to respective countries. For the remainder of the training courses, therefore, participant-specified, support system consisting of (1) TTC C/P in charge of the participant's program, (2) TIKA Headquarter representative, and (3) the first-window-of-contact person at TIKA Office in the target country will merit for high risk participants. In order to ensure that the participant is aware that he/she is assisted by these three representatives who are networked between Turkey and his/her own country, pre-departure information should include who

these people are with which numbers/e-mail addresses. Then upon arrival at TTC, C/P should discuss with the participant the most preferred arrangement for his/her post-training communication. To ensure he/she will maintain communication post-training, the value of further networking with the IAT instructor and TTC should be made clear, as a resource for further consultation.

(3) Dispatch of the Third Country Expert(s)

(MoNE to coordinate TIKA, JICA, and TTC)

In consultation with JCC, dispatch of Project C/P to Kazakhstan as the Third Country Expert(s) is being planned to provide technical support in ensuring quality in the knowledge and skills offered in the courses created based on the Project's training, and is anticipated to take place in the early part of 2015. Realization of this dispatch will be an epoch-making event, endorsing how capacitated C/P are through the Project. As the Project's overall coordinator among all the stakeholders, leadership of MoNE in moving the preparation and materializing fruitful implementation is sincerely sought as a proof of the Project's tangible outcome.

3.5 Lessons Learned

- Utilization of Web based resources (Output 3 related): While demand for IT dependent information sharing system is expected to continue increasingly, caution should be paid if the beneficiary of the Project are IT literate, have easy and not-costly access to the service, and there are common language to enable direct communication.
- Crafting of post-training follow up (Output 3 related): For bidirectional communications to last post-training, it will be important to pre-plan and advocate the benefit of sustaining the connection, such as for receiving informed feedback, etc.
- Early acquisition of institutional commitment for the third country participation (Project Purpose related): As the case of Pakistan suggests, acquiring high profile commitment early on enforces smooth operation in later stages (assuming that the persons either stay in the important positions or move to places with even more influences).
- Applicability of Overall Goal (Overall Goal related): By definition, Project's Overall Goal should refer to anticipated longer term (3-5 years after the Project completion) effects that will be derived by the effort of the implementing agency due to furtherance of Project achievements. The Overall Goal of this Project did not factor in the necessity of large scale resource input (e.g. for purchasing IAT equipment) that is essentially a pre-requisite for the realization of the Goal.
- Mobilization of third countries' in-country resources to support triangular cooperation: (overall): As more aid recipient countries graduate from its status and moves to occupy a donor position in aid community, grant giving and receiving relationship changes into more of partnership to collaborate in support of third country assistance. There, clear, one-on-one accountability of receiving aid that is available to bilateral cooperation cannot be established, as while JICA provides support to the implementing agency JICA might not have direct access to the third-country beneficiaries to seek accountability for the support provided. This Project, sought to manage nine-country-involved implementation by mobilizing third countries' in-country resources: In addition to bilateral arrangement with the target countries by the help of respective JICA country offices, the Project tapped other funding sources (e.g. World Bank, Ministry of Foreign Affairs of Japan), and tied them to support the institutions that send trainees to the Project.

第1章 終了時評価調査の概要

1-1 終了時評価の背景と目的

1-1-1 終了時評価の背景

トルコ国中央アジア・中東向け自動制御技術普及プロジェクト（以下、「本プロジェクト」と記す）は、自動制御技術（Industrial Automation Technology : IAT）分野に係る技術教育・職業訓練の能力向上を目的とする技術協力であり、その対象国は国別研修対象のアゼルバイジャン、カザフスタン、パキスタン、並びにグループ研修対象のウズベキスタン、アフガニスタン、キルギスタン、パレスチナ、タジキスタン、トルクメニスタンである。

トルコ共和国（以下、「トルコ」と記す）の要請を受けて独立行政法人国際協力機構（以下、「JICA」と記す）が2011年11月に詳細計画策定調査を実施し、協力のフレームワークについてトルコ政府と合意し、11月28日にその内容を示した協議議事録（Record of Discussions : R/D）の署名交換を行った。同 R/D に基づき、2012年2月に国民教育省（Ministry of National Education : MoNE）を実施機関とし、トルコ国際協力調整庁（Turkish Cooperation and Coordination Agency : TIKA）と JICA を協力機関としてプロジェクトが開始された。MoNE 所掌下のマズハルズル工業高校（Mazhar Zorlu Technical and Industrial Vocational High School : MZTVH）の附属施設として設立された、IAT トレーナー育成のため教員研修センター（Teacher Training Center : TTC）がプロジェクトサイトとなり、同校の教員がカウンターパート（Counterpart : C/P）となった。

2015年4月のプロジェクト終了を控え、プロジェクト活動の実績、成果を評価、確認するとともに、今後の類似事業の実施にあたっての教訓を導くことを目的として、上記 R/D に基づいて、両国の代表者からなる合同終了時評価調査団（以下、「調査団」と記す）により終了時評価が実施された。

1-1-2 終了時評価の目的

終了時評価調査の目的は、以下のとおりである。

- (1) プロジェクト・デザイン・マトリックス（Project Design Matrix : PDM）第2版（付属資料6「プロジェクト・デザイン・マトリックス（PDM）第2版」を参照）に基づいて、投入と成果の達成度、プロジェクト期間終了までのプロジェクト目標達成見込みとプロジェクト終了後3～5年での上位目標達成見込みを確認する。
- (2) プロジェクト活動実施における貢献要因と阻害要因を検証する。
- (3) 評価5項目（妥当性、有効性、効率性、インパクト、持続性）の視点から総合的な評価を実施する（2-2「評価の基準」を参照）。
- (4) プロジェクトの更なる改善に向けた提言を導出し、同様の JICA プロジェクトで参考となる教訓を明らかにする。
- (5) プロジェクトの方向性を協議・合意し、協議の結果に基づいて、終了時評価調査報告書

を作成する。

1-2 終了時評価調査団員と調査日程

1-2-1 終了時評価調査団員

(1) 日本側

担当分野	氏名	所属
総括	植木 雅浩	JICA トルコ事務所次長
協力企画1	近内 みゆき	JICA トルコ事務所企画調査員
協力企画2	エミン・オズダマル	JICA トルコ事務所シニアプログラムオフィサー
評価分析	津曲 真樹	有限会社アイエムジー・パートナー

(2) トルコ側

担当分野	氏名	所属
部長	Ms. Şennur ÇETİN	国民教育省技術教育・職業訓練総局
部長	Dr. Mehmet YILMAZ	トルコ国際協力調整庁外務・パートナーシップ部
校長代行	Mr. Yusuf VURAL	マズハルゾルル工業高校
コーディネーター / IAT トレーナー	Mr. Gürcan BILDIR	マズハルゾルル工業高校附属教員研修センター

1-2-2 終了時評価調査日程

終了時評価調査は2014年9月15日から27日の期間で実施された（付属資料2「調査日程」を参照）。

1-3 プロジェクトの概要

1-3-1 プロジェクトの背景

トルコでは、1990年以降の製造業の急速な拡大に伴い、製造業技術者、特に中堅技術者の質的、量的ニーズを満たすことが急務とされ、トルコ政府は本分野の人材育成を開発計画の重点課題と位置づけ、取り組んできた。このような政策を受け、教育システムの向上にかかる取り組みも進められてきたが、産業界からのニーズが高まり、更なる人材育成強化が喫緊の課題となった。このような背景の下、トルコ国民教育省（MoNE）はわが国の支援を受けて、2001年から2006年にかけて、自動制御技術を備えた人材の育成のための技術協力プロジェクト「自動制御技術教育改善計画」を実施し、アナトリア西部のアナトリア職業高校イズミール校及びアナトリア中部に位置する同高コンヤ校に自動制御技術（IAT）学科を設立した。

この成果を受けて、同省では、国内各地のアナトリア職業高校20校にIAT学科を新設した。さらに、イズミール校の附属施設として、IATトレーナー養成のための教員研修センター（TTC）も設立するに至った。これらの拠点校やTTCでの研修を基に、国内における産業人材技術教育の普及に取り組んでいる。

上述プロジェクトが終了を迎えるころ、トルコでは「第9次開発計画（2007～2013年）」が策定され、同計画においても「人的資源の開発」が主要目標の1つに掲げられ、引き続き当該

分野への取り組みが重視されることとなった。このような背景もあり、前身プロジェクトの成果を受けて 2007 年から 2010 年にかけて、技術協力プロジェクト「自動制御技術教育普及計画強化プロジェクト（The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department : SPREAD）」を実施し、アナトリア職業高校イズミール校¹ TTC における教員研修の実施体制整備を進めた。TTC では、各地に新設された IAT 学科のために、16 コースの教員研修カリキュラムとシラバス教材などを開発したほか、2010 年のプロジェクトの終了時評価までに、国内の職業高校から 727 名を対象とする教員研修を実施した。TTC ではその後も独自に e-learning システムの導入や民間企業の従業員を対象とした実務者研修を行い、産業技術に携わる教員研修の実施・運営体制の強化を図った。

これまでの JICA との協力を基に、MoNE は TTC における研修を通して、トルコ周辺国の技術教育・職業訓練能力向上をめざし、中央アジアや中東地域への展開を検討。IAT（電気・電子技術、メカトロニクス、機械技術、ICT を含む）職業訓練校教員を対象にした研修を計画した。トルコ政府の要請を受けた日本国政府が、2011 年 11 月に JICA 詳細計画策定調査団を派遣して技術協力のフレームワークをトルコ政府と合意した。国内では、MoNE が TIKA にプロジェクト実施に係る協力を要請し、本プロジェクトは 2012 年 2 月に開始に至り、2015 年 4 月まで実施されることとなっている。

1-3-2 プロジェクトの要約

上位目標	対象国で IAT に関する技術教育・職業訓練能力が向上する。
プロジェクト目標	対象国教員の IAT に関する技術教育・職業訓練能力が向上する。
成果	(1) ターゲット・グループの研修が適切に計画される。 (2) ターゲット・グループに対して効果的に研修が実施される。 (3) フォローアップシステムが構築される。
実施期間	2012 年 2 月～2015 年 4 月（3 年 3 カ月）
実施機関	国民教育省（MoNE）

1-4 団長所感

評価 5 項目の観点からの評価結果や提言・教訓は前章までに詳述してあるので、ここで改めて触れることはしない。これらとは別に、これまで本プロジェクトにかかわってきた立場から提言や教訓を導き出してみたい。

JICA は 2001 年にトルコの自動制御技術（IAT）分野における技術協力を開始し、以来、アナトリア職業高校イズミール校を中心として現在に至るまで継続的に実施してきた。日本の IAT をトルコに普及させるため、本プロジェクトに先立って 2 つの技術協力プロジェクトを実施し、およそ 12 億円を投じて IAT の実習で必要となる機材や実演ユニットを供与するとともに、IAT 教育に従事する日本人教員や技術者を専門家としてトルコに派遣し、同校での技術者育成能力を高めた。さらにはカウンターパート（C/P）であるトルコ人教員に研修を施すために日本に送り、日本における IAT の教育メソッドの習熟を図った。このような長期にわたる技術協力の結果、C/P の技術

¹ 本プロジェクトでは「マズハルゾルル工業高校」名称を使用。

能力が高まったことはいうまでもないが、さらに大きな効果として日本に対する絶対的な信頼や深い愛情が根づくことにもつながった。イズミール校の付属施設である教員研修センター(TTC)内の廊下には至るところに日本の風景写真が飾られているが、これらはC/P自身が研修で日本を訪れたときのものであり、彼らにとってはいつまでも忘れることのできない大切な思い出である。今でも流暢に日本を話すことができるC/Pもいる。

本プロジェクトは開始当初からこのような人的アセットに恵まれた。5名のC/P全員が以前の技術プロジェクトの時点から関与しており、本プロジェクトに対しても高い意欲をもって参加したことが、プロジェクト目標達成に大きく貢献したことを挙げておきたい。一方で、このように高次のレベルにまで至っている人的アセットの継続的なケアやメンテナンスも今後考えていかなければならない課題である。プロジェクト終了後もC/Pと定期的に接触して、フォローアップ協力を活用した追加投入を行ったり人的な交流を活発にしたりするなど、良好な関係を維持していくことが望まれる。

国民教育省(MoNE)においても人的アセットに恵まれた。2014年7月に同省を退官したYucel Yuksel氏は、JICAがイスタンブールで実施した「ツヅラ職業技術訓練高校プロジェクト」(1987～92年)にプロジェクトマネジャーとして参画して以来、JICAプロジェクトに深く関与してきた。本プロジェクトを含む一連のIATプロジェクトでは、MoNE本省のプロジェクト担当部長として関与し、JICA側とMoNE側の間の意思疎通を仲介する重要な役割を果たした。しかしながら同氏退官後のMoNE担当部局内は、過去にJICAプロジェクトを経験したことがない職員ばかりとなってしまい、JICAそのものに対するMoNEの理解が一時的に低下したことは否めない。過去の協力によって構築された人的アセットがいかに重要かが分かる結果となった。JICAがTTCに対して何らかの協力を行うためにはMoNEの理解を得なければならないため、本プロジェクトの延長にあたっては、JICAに対するMoNEの理解を促進させるための方策も併せて取る必要がある。

最後に本プロジェクトの直接の目的ではないが、本プロジェクトを通じて得られた知見や経験を国内の教育現場に還元することはトルコにとっても有益なはずである。今回の終了時評価とは別に、「自動制御技術教育普及計画強化プロジェクト(SPREAD)」(2007～10年)で協力対象となっていたマラティア校を訪問する機会があり、同プロジェクトのC/PでもあったIAT科長と面談した。彼らはプロジェクト終了後にも教材や指導法にも独自の工夫を施し成功していると自負しているものの、それらをMoNEやTTC、更には他校に対してフィードバックする場がないことを嘆いていた。例えばTTCとSPREADの対象校が一堂に会し、TTCは本プロジェクトの教訓を、対象校からは成功事例を紹介し、それらを踏まえて現場レベルでの今後のIAT教育のあり方を議論するようなセミナーが開催できれば、お互いの教訓を吸収し合い日々の指導に反映させることで、よりよいものへと改善させることも可能になろう。人的つながりが希薄になっていたSPREAD関係者との関係維持のためにも有効な手段と思われる。

第2章 終了時評価調査の方法

2-1 終了時評価の概要

本終了時評価調査は「新 JICA 事業評価ガイドライン 第1版(2010年)」に基づき、以下の手順で実施された。

ステップ1: 評価設問並びに評価に必要なデータや情報を整理した評価グリッドを作成する

ステップ2: 評価に必要なデータ並びに情報を収集する

ステップ3: PDM 第2版に基づいて、プロジェクトの実績(投入の実績、活動の実績、成果の達成度、プロジェクト目標・上位目標の達成度・見込み)と実施プロセスを整理、確認する

ステップ4: プロジェクト成果の発現を導いた、もしくは阻害することとなった要因(プロジェクトのデザインや実施プロセスにかかわるものを含む)を分析する

ステップ5: 2-2「評価の基準」にて規定される5項目評価の観点から、プロジェクトを分析する

ステップ6: 分析から提言を導出する

ステップ7: 評価結果(案)を関係者と共有し、プロジェクトの将来的な方向を議論する

ステップ8: 評価結果について、日本側とトルコ側の共通の見解を構築する

2-2 評価の基準

評価5項目の主な視点は次のとおりである。

(1) 妥当性

プロジェクト目標や上位目標が、トルコの開発政策や MoNE 並びに TTC の戦略計画、並びにわが国の援助政策との整合性がとれているか、ターゲット・グループのニーズと合致しているかなど、プロジェクトの正当性・必要性を検証、判断する。

(2) 有効性

プロジェクト目標が計画どおり達成されるか、プロジェクト目標の達成が成果の達成によって引き起こされるものかなどにより、プロジェクトの実施によってターゲット・グループに便益がどのようにもたらされているかを検証し、判断する。

(3) 効率性

プロジェクトが効果的に投入資源を活用したかという観点から、投入実績と成果達成の状況を踏まえて、投入(インプット)がどのように効率的に成果(アウトプット)に転換されたかを検証・評価する。

(4) インパクト

上位目標達成の見込みとプロジェクト実施によりもたらされる長期的・間接的な効果や波及効果の有無を検証し、判断する。

(5) 持続性

政策・制度面、組織面、財務面、技術面の観点から、プロジェクト終了後、プロジェクトで発現した効果がどのように定着・持続するかについて、検証・評価する。

2-3 評価グリッドとデータ収集方法

(1) 評価グリッド

本終了時評価では準備作業として本プロジェクトに関する既存資料をレビューしたうえで、評価5項目にかかわる詳細な評価設問と評価指標・データ収集方法等を記述した評価グリッド案（付属資料5「評価グリッド」を参照）を作成した。評価グリッドは、(1) プロジェクトの実績、(2) 実施プロセス、(3) 5項目による評価、から構成される。

(2) データ収集方法

以下の情報とデータが本合同評価の情報源として活用された。

- 1) ①日本人専門家向け、②実施機関向け（MoNE向け2種）、③TIKA向け、④プロジェクト・マネジャー向け、⑤C/P向けの計6種類に分けて作成し、事前に配付した質問票に基づく、面接調査（付属資料3「主要面談者リスト」を参照）
- 2) PDM、活動計画（PO）等のプロジェクト基礎資料
- 3) 日本側・トルコ側の投入とプロジェクト活動にかかわる記録（付属資料4「投入実績」を参照）
- 4) TTCの現場視察
- 5) プログレス・レポート（各年次、和文・英文）等、プロジェクト作成による進捗管理報告資料
- 6) 政策文書など、プロジェクトの妥当性や持続性を裏づける資料

第3章 プロジェクトの実績と実施プロセス

3-1 プロジェクトの実績

3-1-1 投入

(1) 日本側

日本側はプロジェクトに対し、以下の投入を行った（詳細は付属資料4「投入実績」を参照）。

1) 日本人専門家（付属資料4「投入実績」の「3-1-1 専門家派遣」を参照）

プロジェクト開始からプロジェクト終了時評価までに、合計5名の専門家が派遣されている。表-1に専門家の数、専門分野、派遣期間を示す。

表-1 日本人専門家の派遣分野と期間

派遣分野	人数	派遣期間 (人月)
総括/研修マネジメント/カリキュラム作成 1	1	13.50
カリキュラム作成 2	1	7.00
研修マネジメント/機材指導	1	1.27
業務調整/研修マネジメント補助	1	6.76
業務調整/研修マネジメント補助 (2014/9/17 交代)	1	1.07
計	5	29.60

注：2014年8月までは実績値、それ以降は計画値。JICA 備上のインストラクション・デザイン講師を含まず。

2) 本邦研修（付属資料4の「3-1-2 本邦研修」を参照）

日本側は MoNE の管理職合計3名を対象として、2013年11月に「日本における IAT のための人材開発に係るフィールド見学」本邦研修を実施した。

3) 供与機材（付属資料4の「3-1-3 供与機材」を参照）

プロジェクトの効果的な実施を支援するために、合計66,507ユーロ（約910万円）に相当する機材が日本側から投入された。

4) 日本側運営費（付属資料4の「3-1-4 プロジェクト運営費」を参照）

プロジェクト開始以来、2014年9月までに合計100万トルコリラ（約4,820万円）のプロジェクト運営費が投入されている。

(2) トルコ側

トルコ側はプロジェクトに対し、以下の投入を行った。（詳細は付属資料4の「3-2 トルコ側投入実績」を参照）

1) プロジェクト要員（C/P）（付属資料4の「3-2-1 C/P 配置」並びに「3-2-2 TIKA 担当者の配置」を参照）

トルコ側は、MoNE よりプロジェクト・ディレクター（1名）、TTC よりプロジェクト・マネジャー（1名）、並びに常時5～7名の職員をC/Pとして配置した。また、TIKA より

1名が合同調整委員会委員として任命されるとともに、1～3名の職員がプロジェクトの支援にあたった。

2) プロジェクト施設

トルコ側より日本人専門家用のプロジェクト事務所スペース並びに実験室5室が提供された。

3) 供与機材（付属資料4の「3-2-3 供与機材」を参照）

プロジェクトの効果的な実施を支援するために、合計301,046.35トルコリラ（約1,450万円）に相当する機材がトルコ側から投入された。

4) トルコ側運営費（付属資料4の「3-2-4 プロジェクト運営費」を参照）

トルコ側はプロジェクト運営費として、2014年9月までに829,536トルコリラ（約3,990万円）²を負担した。

3-1-2 成果の達成状況

3つの成果（アウトプット）に係る各指標の達成度は、終了時評価時点で次のとおりである。

(1) 成果1の達成状況

成果1：ターゲット・グループの研修が適切に計画される。
指標1-1. 国別研修の対象国別に、適切な研修目標が設定される。
指標1-2. 合同研修の適切な研修目標が設定される。
指標1-3. 国別研修の適切な研修計画が作成される。
指標1-4. 合同研修の適切な研修計画が作成される。

以下に記すように、成果1に係る指標はそれらすべてが終了時評価時まで満たされていることから、**成果1は達成されたと考えられる。**

「指標1-1. 国別研修の対象国別に適切な研修目標が設定される」に関して、2012年6月に実施された国別研修対象国（パキスタン、カザフスタンとアゼルバイジャン）に対するニーズ調査により、当事者政府と協議したうえで、その国に特化した3年間のプログラムが作成された。TTCによるIAT研修に関する合意文書に署名しているのはパキスタンのみであるが、ニーズ調査の結果はカザフスタン教育科学省とアゼルバイジャン教育省に対して提出され、受理された。なお、ウズベキスタンに係るニーズ調査はキャンセルされたが、ウズベキスタンから技術教官を合同研修に招へいするための合意が得られた。アゼルバイジャンの研修対象は2013年11月に開催された第5回合同調整委員会（Joint Coordination Committee：JCC）にて修正され、（IAT基礎と中級コースに同じ参加者が参加する代わりに）IAT基礎コースを2回実施して、別の参加者を募ることとなった。アゼルバイジャン教育省のコミットメントが限定的であることに由来し、そのコミットメントレベルに足並みを揃えるための対応という背景がある。

「指標1-2. 合同研修の適切な研修計画が設定される」については、技術教育・職業訓練分野の管理職に就く4名が、2012年11月に開催された初の合同研修コースに対象国より派遣された。研修を通して、その後のコースで指導される内容に対するニーズ並びに目標候補が特定され、指導コンテンツが開発された。

² この金額には、TIKAによる供与機材費101,046トルコリラが含まれる。

「指標 1-3. 国別研修の適切な研修計画が作成される」については、2012 年のニーズ調査の間に、アゼルバイジャン、カザフスタン、パキスタン用の研修計画が更に練られて、それぞれの国の教育省の代表者との合意が得られた。

同様に、「指標 1-4. 合同研修の適切な研修計画が作成される」については、2012 年に合同研修のために設定された目標に基づいて、研修計画や IAT 基礎コース用のスケジュールが開発された。

(2) 成果 2 の達成状況

成果 2：ターゲット・グループに対して効果的に研修が実施される。

指標 2-1. 70%の国別研修・合同研修の参加者が、研修内容、研修運営、宿泊サービスについて満足している。
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指標 2-2. 80%以上の国別研修参加者が、70%以上の学習成績を達成する。

指標 2-3. 80%以上の合同研修参加者が、70%の学習成績を達成する。

終了時評価（2014 年 9 月実施）の時点で、いまだ 4 コースの研修の実施を控えている段階である。しかし以下に記すように、それぞれの指標を満たす可能性が高いことから、**成果 2 は達成される見込みである。**

「指標 2-1. 70%の国別・合同研修の参加者が、研修内容、研修運営、宿泊サービスについて満足している」については、宿泊に関する項目以外では、参加者の満足度が指標に達する結果となっており（例として、2014 年 3 月現在、全 9 コース中 8 つのコースにて、参加者の 80%以上がその内容とコースの管理方法に満足していると回答している）、準備されたコースが質、妥当性、及び実施方法において参加者の期待を上回るものであったことを裏づけるものであった。パキスタン用の国別研修中級コースの評価においては、宿泊について満足と答えた参加者は 20%のみにとどまった。この結果の主たる要因は、MZTVH からイズミール観光専門高校への、TTC 宿泊マネジメントの移行時期にあたったことで、サービスの質が確立される途上であったことによる。引き継ぎより 1 年以上が経過したが、その間プロジェクトは継続してサービス提供の品質管理や施設維持にかかわる指導を行っている。現時点の高い稼働率は、残りのコース評価の一部として宿泊に関する評価が実施される際に、本指標を満たす結果が出るであろうことを示唆する。

「指標 2-2. 80%の国別研修参加者が、70%以上の学習成績を達成する」に関しては、2014 年 3 月までに技術教育・職業訓練分野の教員を対象とした国別研修が 4 回実施された。しかし、研修成績評価（Ver.3）については、その内容が本指標の設定後に作成されたため、すべての国別研修中、Ver.3 に則って評価されたのは一度である。この評価は、JICA 派遣のインストラクション・デザイン講師による指導を受けて、参加者の段階的発達及びまたは日々の研修における課題を一日の終わりの振り返りを通じて把握し、そのデータに基づいて C/P が個々の参加者の翌日の研修に必要な調整を行うことを確実にしている。このような仕組みによって、残りの 2 つの研修における参加者の成果が綿密に監督・支援できると期待される。

同様に、「指標 2-3. 80%以上の合同研修参加者が、70%の学習成績を達成する」は、指標達成が予測される。研修成績評価（Ver.3）が本指標の変更後に作成された事情から、2014

年3月までに実施された技術教育・職業訓練分野の教員のための合同研修2回のうち、Ver.3に則って評価されたのは一度である。これから開催される2回の合同研修（2014年11月と1月）については、研修成績評価（Ver.3）に基づいて評価が行われ、その結果について、更なる結論を引き出すためにモニタリングが行われる予定である。指標2-2に関連して前述しているように、本評価はJICA派遣のインストラクション・デザイン講師による指導を受けて、参加者の段階的発達及びまたは日々の研修における課題を、一日の終わりの振り返りを通じて把握し、そのデータに基づいてC/Pが個々の参加者の翌日の研修に必要な調整を行うことを確実にしている。このような仕組みによって、残りの2回の合同研修における参加者の成果を綿密に監督・支援できると期待される。

(3) 成果3の達成状況

成果3：フォローアップシステムが構築される。
指標3-1. ウェブベースの情報システムが構築され、インストールされ、研修コースにおいて導入される。
指標3-2. 国別研修対象国について、2年次と3年次に研修効果が適切に評価され、分析されることによって国別研修の改善点が提案される。
指標3-3. 合同研修対象国について、2年次と3年次に研修効果が適切に評価され、分析されることによって合同研修の改善点が提案される。

TTC側では、ウェブベースの情報システムとフォローアップ調査の実施に対し、十分な準備が行われた。しかし、実際にシステムが機能するようになるには、研修効果の評価に係るデータ収集の段階での研修参加者の関与が不可欠であるが、実際の関与は十分とはいえない状態である。システムをうまく機能させるには、言語の壁やインターネット接続の問題などを乗り越えることが課題だが、この状況は安易に好転されるものでないことが明白である。そのため、**成果3の達成見込みは、研修参加者がどの程度フォローアップに関与するかのレベルに準じる。**

「指標3-1. ウェブベースの情報システムが構築され、インストールされ、研修コースにおいて導入される」は終了時評価の時点で達成されたと考えられる。開発されたウェブベースの研修支援システムであるWBSS（Web-Based Training Support System）は、今日まですべての参加者に対して研修中に導入されており、これから実施される研修すべてにおいて、同様の対応が計画されている。しかし、パキスタン参加者以外では、この基盤がほとんど活用されていない。その理由は、英語の能力不足やインターネットへのアクセスの問題、インターネット使用の不慣れ等にあると考えられる。

一方で、「指標3-2. 国別研修対象国について、2年次と3年次に研修効果が適切に評価され、分析されることによって国別研修の改善点が提案される」が達成される見込みは中程度である。3つの国別研修を対象としてフォローアップ期間に実施された、モニタリング調査の回収率は68%であった（37名の参加者中25名）。この結果は、カザフスタンの参加者が中級コース履修のためにTTCを再訪した時点で提出された8回答を含んでいる。この回答状況は、研修参加者が自ら率先して対応することを前提とするフォローアップ活動を、C/Pが実施することの難しさを示している。

同様に、「指標 3-3. 合同研修対象国について、2 年次と 3 年次に研修効果が適切に評価され、分析されることによって合同研修の改善点が提案される」が達成される見込みも中程度である。合同研修に関するアンケート調査への回答率は、既に行われた 1 回の結果では 55%（11 名中 6 名）であった。国別研修において確認された言語やインターネットアクセスの障壁に加えて、合同研修における課題はその準備に帰するものである。参加者は、自分の義務はあくまで基礎コースに一度参加することであり、フォローアップを通じた継続的な関係がもたらす利点に対して、明確に認識していない可能性がある。プロジェクトとしてこのモニタリングは継続して行われるが、研修後の参加者とのコミュニケーションにかかわる課題は継続すると予測される。そのため、研修後のフォローアップに積極的に参加する意義については、参加者がコースを受講している期間中に明確に伝達し、そのような継続的なかわりが、研修を通じて習得した技術を将来にわたってサポートするものである、という展望を与える必要がある。

3-1-3 プロジェクト目標の達成見込み

<p>プロジェクト目標: 対象国教員の IAT に関する技術教育・職業訓練能力が向上する。</p> <p>指標</p> <p>A. 国別研修：カザフスタン</p> <p>A-1：技術教育・職業訓練にかかわる管理職が、IAT 導入の手順と方法を理解している。</p> <p>A-2：最低 4 校の技術教育・職業訓練校が IAT 導入のためのパイロット校として選定される。</p> <p>A-3：それぞれのパイロット校から最低 3 名の教員がチームとして、IAT 基礎・中級コースの研修を指導できるようになる。</p> <p>A-4（パイロット校にて）TTC での研修を基に IAT 基礎プログラムが開発される。</p> <p>B. 国別研修：パキスタン</p> <p>B-1：技術教育・職業訓練にかかわる管理職が、学校への IAT 導入の手順と方法を理解している。</p> <p>B-2：TTC での研修のため、3 つ以上の教育機関が選ばれる。</p> <p>B-3：10 名の教員が、TTC の基礎・中級・上級コースにて研修を受ける。</p> <p>C. 国別研修：アゼルバイジャン</p> <p>C-1：技術教育・職業訓練にかかわる管理者が、学校への IAT 導入の手順と方法を理解している。</p> <p>C-2：最低 1 校の IAT 導入のためのパイロット校が選定される。</p> <p>C-3：TTC にて、20 名の教員が、TTC の IAT 基礎コースにて研修を受ける。</p> <p>D. 合同研修（ロシア語コース：キルギス、タジキスタン、トルクメニスタン、ウズベキスタン、英語コース：アフガニスタン、パレスチナ）</p> <p>D-1：技術教育・職業訓練にかかわる管理者が、学校への IAT 導入の重要性を認識している。</p> <p>D-2：対象国各国 10 名が TTC の IAT 基礎コースにて研修を受ける。</p>

国別研修の対象国別に設定された国別指標、並びに合同研修に参加したグループに対する合同研修用指標が満たされる可能性は一律でなく、カザフスタンとパキスタンについては高い一方で、アゼルバイジャンについては低く、合同研修においては中程度である。そのため、プロジェクト目標の全体としての達成可能性は中程度である。

A. 国別研修：カザフスタン

カザフスタンに対しては、プロジェクト目標の達成を測るために 4 指標が設定された。その達成状況は以下のとおりである。

指標 A-1：技術教育・職業訓練にかかわる管理職が、IAT 導入の手順と方法を理解している。→達成。

9名の技術教育・職業訓練にかかわる管理職が、2012年11月に実施された、国別研修のエクゼクティブマネジャーコース、及び技術教育・職業訓練分野の管理職コースを受講し、それらを通じて取得された知識を基に、それぞれの学校において IAT を導入するための活動計画を作成した。提案書は、カザフスタン教育科学省に提出された。

指標 A-2：最低 4 校の技術教育・職業訓練校が IAT 導入のためのパイロット校として選定される。→達成。

カザフスタン教育科学省は、IAT 導入のためのパイロット校として 4 つの技術教育・職業訓練カレッジ（アルマティ州立ポリテクカレッジ、アルマティ州立電気・電子カレッジ、タルディコルガン産業カレッジ、ジャンブルポリテクカレッジ）を選定した。

指標 A-3：それぞれのパイロット校から最低 3 名の教員がチームとして、IAT 基礎・中級コースの研修を指導できるようになる。→達成。

2013年6月、パイロット校4校からそれぞれ3名の教員が IAT 基礎コースを受講し、無事プログラムを修了した。中級コースが開始する時点（2014年6月）で、うち2名（アルマティ州立ポリテクニクカレッジ、タルディコルガン産業カレッジより各1名）がそれぞれ別のポジションへ配置換えとなった。トルコにおける TTC の中級コース受講に先立ち、ナザルバエフ大学で開講されている基礎コースを受講して遅れを取り戻すことを条件に、これらの空いた枠は、それぞれの機関の技術系職員が埋めることとなった。これによって、本指標達成のための条件は整った。

指標 A-4：（パイロット校にて）TTC での研修を基に IAT 基礎プログラムが開発される。→終了時評価（2014年9月）の状況から、本指標が達成される見込みは高い。

プロジェクト参加機関4校中3校（アルマティ州立電気・電子カレッジ、タルディコルガン産業カレッジ、ジャンブルポリテクニクカレッジ）に対し、カザフスタン教育科学省からコース提供についての認可が下り、続いてコースプログラムの開発を経て、コース開始に至った。コースの申請が教育科学省による審査段階にあるアルマティ州立ポリテクニクカレッジとともに、アルマティ州立電気・電子カレッジ、ジャンブルポリテクニクカレッジが、IAT の設備調達の申請について、教育科学省による審査結果を待っている段階である。タルディコルガン産業カレッジについては、既に設備投資のための資金を確保しており、現在準備が進められている。1年目の理論に関するクラスは開始しており、その内容は2年目のラボでの実習につながるものであることから、設備の調達はそれまでに完了することが期待される。コースを通じ

て提供される知識と技能の質を確保するために、本プロジェクトのトルコ C/P の派遣が 2015 年 4 月に計画されている。

B. 国別研修：パキスタン

パキスタンに対しては、プロジェクト目標の達成を測るために 3 指標が設定された。その達成状況は以下のとおりである。

指標 B-1：技術教育・職業訓練にかかわる管理職が、学校への IAT 導入の手順と方法を理解している。→達成。

合意覚書は、プロジェクトニーズ調査ミッションチームとパキスタン政府専門技術教育大臣である Qumar Zaman Ch 氏との間で締結された。加えて、2012 年 11 月に実施された国別研修エクゼクティブマネジャーコースには、2 名のシニアレベルの管理者が参加した。参加者は、TTC における国別研修に適切な技術教育・職業訓練にかかわる管理職教員を選出することで同意し、初めのコースとなる IAT 基礎コースは、無事に 2012 年 12 月に実施された。

指標 B-2：TTC での研修のため、3 つ以上の教育機関が選ばれる。→達成。

IAT の基礎コース（2012）と中級コース（2013）に講師を派遣する機関として、以下の 7 校が選出された：在イスラマバード全国職業訓練局（NTB）、在バルチスタン州クエッタ技術訓練センター、在アザド・カシミール州ミルプール政府職業訓練機関、在アザド・カシミール州ラワラコット政府技術カレッジ、在ペシャワール政府職業訓練機関、在シンド州技術教育・職業訓練庁（STEVTA）、在北西辺境州チャルサダ、タンギ政府職業訓練機関。

指標 B-3：10 名の教員が、TTC の基礎・中級・上級コースにて研修を受ける。→指標達成の見込みは高い。

コース開始に先立ち実施されたニーズ調査の際、パキスタン政府は同一の機関の同じ参加者をトルコでの 3 年間にわたるプロジェクトを通じて派遣することに同意した。続いて、パキスタン人の教員が 2012 年 12 月に開催された IAT 基礎コースに参加した。2013 年 11 月には、同じ参加者が IAT 中級コースに参加した。上級コースは 2014 年 12 月に予定されており、同一の参加者達が再び TTC を訪れる見通しである。

C. 国別研修：アゼルバイジャン

アゼルバイジャンに対しては、プロジェクト目標の達成を測るために 3 指標が設定された。その達成状況は以下のとおりである。

指標 C-1：技術教育・職業訓練にかかわる管理者が、学校への IAT 導入の手順と方法を理解している。→達成。

アゼルバイジャンからは、2012 年 11 月に開催された、国別研修エクゼクティブマネジャーコースと技術教育・職業訓練にかかわる管理職コースに計 8 名の管理者が参加した。同研修で得た知識を基に技術教育・職業訓練にかかわる管理職はそれぞれの学校において、IAT プログラムを導入するための活動計画を練った。提案書はアゼルバイジャンの教育省に提出された（注：しかし、活動計画の進行状況に関する詳細は報告されていない）。

指標 C-2：最低 1 校の IAT 導入のためのパイロット校が選定される。→指標が満たされる見込みは低い。

2012 年 6 月のニーズ調査で、アゼルバイジャンの職業訓練総局長は IAT のパイロット校の設立の可能性にふれた。しかし、2013 年 9 月の基礎コースの参加者は複数の技術教育・職業訓練校から集められており、IAT のパイロット校からの参加はなかった。

2014 年 9 月時点で、この状況に関する新たな展開については確認されていない。

指標 C-3：TTC にて、20 名の教員が、TTC の IAT 基礎コースにて研修を受ける。→指標が満たされる見込みは不透明である。

2013 年、9 名の教員が TTC での研修に参加した。2014 年 10 月の基礎コースには、更に 10 名の教員の参加が求められる。しかし、本終了時評価の時点（2014 年 9 月）では、10 名の応募者中、資格基準を満たしているのは 5 名の状況であった。したがって、プロジェクトの指標を満たす形でコースを実施するため、資格基準を満たす候補者の獲得のための更なる努力が続けられている。このミスマッチの問題は、プロジェクトにおける課題となっている。プロジェクト側は、TIKA の調整協力を得て、研修の参加に最適な候補者を採用すべく最善を尽くしているが、同国には IAT に関連した機関が存在しないことから、近似の関連経歴をもつ専門家として、コンピュータサイエンスの分野から人材が集められているようである。

D. 合同研修

合同研修に対しては、プロジェクト目標の達成を測るために 2 指標が設定された。その達成状況は以下のとおりである。

指標 D-1：技術教育・職業訓練にかかわる管理者が、学校への IAT 導入の重要性を認識している。→指標の達成度は中程度である。

2012 年 11 月の技術教育・職業訓練にかかわる管理職用の合同研修には 8 名の管理者が参加した。内訳はキルギスタンより 2 名、タジキスタンより 2 名、トルクメニスタンからはゼロ、そしてアフガニスタンとパレスチナからそれぞれ各 2 名であった。続いて、計 18 名の技術教育・職業訓練にかかわる管理職教員が IAT の基礎コースに参加し、その参加者はキルギスタン、タジキスタン、トルクメニスタン、ウズベキスタン、及びパレスチナからであった（当初の予定では 24 名）。しかし、アフガニスタンからの技術教育・職業訓練にかかわる教員に関しては、申請者が関連経歴を有さず、資格要件を満たしていなかったことから受け入れに結びつかなかった。アフガニスタンとのフォローアップについては、TIKA を通して行うことが合意された。しかし、今日までに具体的なステップについての協議に至っていないことから、アフガニスタンのプロジェクト参加の可能性は、先方の国内事情によって、ない模様である。

指標 D-2：対象国各国 10 名が TTC の IAT 基礎コースにて研修を受ける。→2014 年 11 月並びに 2015 年 1 月に開催される基礎コースの準備状況と、アフガニスタンからの参加が依然として不透明な点から、本指標が満たされる可能性は中程度である。

3-1-4 上位目標の達成見込み

上位目標：対象国の IAT に関する技術教育・職業訓練能力が向上する。

指標 1. IAT 試行プログラムが、研修参加者の所属機関に導入される ³ 。
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指標の達成には、投入資源（金銭的、技術的、及びロジスティックスの観点から）が必要である。それらは、参加国自体の教育省の取り組み、あるいは外部リソースによる支援を通じたもののいずれかによる。インパクトが発現しつつある事例としてカザフスタンが挙げられる。同国では本プロジェクトのパイロット校が、日本の中小企業のカザフスタンへの進出を支援する日本政府による資金や、世界銀行によるカザフスタン教育機関に対する支援等、別のリソースを獲得したことが成果発現に影響している。4校のパイロット校のうち3校において、IATコースが開始されており、設備購入の準備も進められている。そのような補完的支援の大部分は、プロジェクトによって仲介され、プロジェクト活動の一部としてカザフスタンへの働きかけが行われたものである。上位目標達成のために必要とされる、この種の補完的支援は、プロジェクト期間の終了後に他の参加国に対して提供されることはない。そのため、上位目標（基本的に、実施機関自体によるプロジェクト期間「後」の取り組みによって達成される目標）の達成見込みは中程度である。

3-2 プロジェクトの実施プロセス

3-2-1 活動の実施と活動におけるオーナーシップ

TTC では、C/P は卓越した専門知識のみならず、専門的なサービス提供に対する高いモラルと責任を有し、絶え間なく改善を志向している。また、研修プログラムの準備やコースの提供、プロジェクト履行の改善を目的としたフォローアップにおいて、ベストを尽くしている。成果をもたらすための彼らの取り組みにおいて、専門分野を超えた壁となったのは、インターネットへのアクセスがより限定された（物理的なアクセスに限らず、それ以外に存在する可能性のある、文化的ないしは習慣的な障壁を含む）国の参加者との、共通の言語手段をもたないなかでのコミュニケーションである。これは、プロジェクト活動の一部として強化される必要があると JCC で協議のうえ同意された点である。計画された活動が効果的に実施されるためには、用紙を送付してそれらを回収するといった単純なやりとりを越えた、より能動的な働きかけが求められることが明白となった。すべての関係者がそれぞれの権限の枠内における役割を果たしたことは明確であるが、このような課題（フォローアップの調査に対する回答なし等）がプロジェクトにおける活動のスムーズで効果的な実施を妨げていた。

3-2-2 プロジェクト管理

署名された討議議事録 (R/D) (2011年11月28日付)によると、プロジェクトの構造上、国をまたがる調整については、「対象国の TIKA 職員」が「対象国の JICA 職員」とともに提供する「協調支援」によって対応されることを前提としていた。それは、これらの職員がプロジェクトの要員としてみなされたことを意味する。しかし、対象国が抱える状況が円滑な（トルコ対日本などの二国間とは異なる）三角協力を実現するための障害となる場合もあった。

³ Trial IAT program(s) is/are introduced to the participant's institution.

第4章 評価結果

4-1 5項目による評価

4-1-1 妥当性：高い

以下の5つの観点から、本プロジェクトの妥当性は高いと評価される。

(1) トルコ政府の、特に近隣国に対する国際協力に係る政策との整合性

本プロジェクトは、トルコの国家開発計画である「第9次開発計画（2007～2013年）」に沿って計画、実施された。その後継政策である「第10次開発計画（2014～2019年）」も周辺国との経験共有を通じた国際協力を重視していることから、本プロジェクトは同国の国家政策の実施例とも位置づけられる。

(2) MoNEの戦略計画、並びに同省の産業技術教育・職業訓練に係る方向性との整合性

政府の法令にて、産業技術教育・職業訓練分野における国内並びに国際プロジェクトの推進が謳われていることから、同教育サブセクターの方向性と本プロジェクトは高い整合性を誇る。

(3) 参加国のニーズとの整合性

プロジェクトが対象とする参加国は、アフガニスタン、アゼルバイジャン、カザフスタン、キルギスタン、パキスタン、パレスチナ、タジキスタン、トルクメニスタン、及びウズベキスタンである。これらの国々の状況とプロジェクトとの整合性は、プロジェクトの計画段階で、それぞれの国家政策に照らして検討された。プロジェクトの開始後、各国がプロジェクトへの参加から最大のメリットを得られるよう、これらの国々に対し、特定の事情を酌んだ取り決めを行うため、プロジェクトが調査団を派遣した。その結果、1) アゼルバイジャン、カザフスタン、パキスタンに対する国別研修、2) ウズベキスタン、アフガニスタン、キルギスタン、パレスチナ、タジキスタン及びトルクメニスタンに対する合同研修（さらには、言語に特化したサブグループとして、ロシア語と英語のグループを設定）等が取り決められた。これらは、IAT研修における既存能力の異なる段階、及び各国がもつそれぞれのニーズに対する方向性を反映するものであった。

(4) 日本のODA政策との整合性

本プロジェクトは、中央アジア及び中東に対する、新興ドナー国としてのトルコを支援する、日本のODA政策の先駆的なケースである。共同プロジェクトと技術協力の推進を目的として2012年1月にJICAとTIKAの間で業務協力覚書(MOU)が締結されたことは、トルコの技術協力のための日本-トルコのパートナーシップとしての、本プロジェクトの重要性の証しでもある。

(5) 日本の経験や技術の比較優位

既述の「自動制御技術教育改善計画（2001～2006年）」や、「自動制御技術教育普及計画強化プロジェクト（SPREAD）（2007～2010年）」といった、既に完了したプロジェクトを通じて、IATの職業訓練指導の分野における日本の技術的専門知識が、トルコの関係者に

とって重要な領域として認識されている。この認識は、2013年11月に実施されたC/Pの本邦研修で更に高められている。同研修のなかでMoNEのシニアマネジャーは、日本で実施されている、実験的でプロジェクトベース、かつ問題解決に重点を置いた、技術分野に関する職業教育を目の当たりにした（付属資料4の「3-1-2 本邦研修（2013年11月16～24日）」参照）。

4-1-2 有効性：中程度

指標が規定するプロジェクト目標の達成の見通しは、カザフスタンとパキスタンについては高く、アゼルバイジャンは低く、合同研修対象国については中程度というように混在していることから、プロジェクト全体としての有効性は中程度と評価される。指標達成度がより高いカザフスタンとパキスタンの場合は、成果1におけるエクゼクティブマネジャー及び技術教育・職業訓練教育分野の管理職を対象とした国別研修が、その後の活動に対する参加国の教育省上層部の関与につながっている。なかでもカザフスタンの場合は、プロジェクト成果の達成が、IATパイロット校に対するプロジェクトの外からの投入資源や取り組みと同時進行で進んでいた。その例が、日本の中小企業のカザフスタンへの進出を支援する日本政府による資金の、本プロジェクトのパイロット校への供出や、世界銀行によるカザフスタン教育機関に対する支援である。

さらに、成果3によって示されたのは、C/Pと参加者間が直接やり取りできるコミュニケーション手段がなければ、達成の見込みはより限定的になるということである。研修参加者の応募手続きは、TIKAが担っていたが、国別の事情に影響されることがあり、ときに技術要件を満たさない候補者が採用されるケースに至った。

プロジェクトが研修参加者に対して行った聞き取りによれば、プロジェクト目標の達成レベルが高いケース（カザフスタンとパキスタン）では、重要な前提条件⁴がほぼ満たされていることが確認された。カザフスタンでは、4校のパイロット校中3校において既にTTC研修の結果に基づいたIATコースが開始されており、関連した機材も調達段階にある。パキスタンでもいくつかの機関においてIATの研修が始まっている。

4-1-3 効率性：高い

投入と成果の関連性を、以下の5つの観点にかんがみるとプロジェクトが結果を導いた点から、プロジェクトの効率性は高い。

(1) 投入と成果の関連性

研修スケジュールはトルコの年間スケジュールに沿って作成された。参加国によって会計/事業年度が異なる場合があることを考慮すると、その実態を踏まえて研修実施に最適な時期を見極めることができれば、投入と成果の関係における効率性を更に向上させることができた可能性がある。しかし、年間スケジュールについては、事前に十分に練られ、必要に応じてJCCとの綿密な協議の下で十分な調整を行い、投入を成果に転換させた。期待どおりに投入が成果に転換されなかった唯一の課題点は、（調査に対する無回答など）C/P

⁴ 「機材が参加者の所属機関によって調達される」「自動制御カリキュラムが当該国の教育省によって認可される」「トルコで研修を受けた教師たちが、それぞれの国で新しいカリキュラムに基づく指導に従事する」

が研修を受けた、もしくはこれから研修を受ける参加者との直接的なコミュニケーションチャンネルをもてなかった場合に発生した。

(2) 成果レベルの達成

以下の、プロジェクトの開始時点で設定された重要な前提条件は、成果の産出を支える条件として大方満たされた。

- ・ 国別研修対象国におけるニーズ調査の結果として、当該国政府が調査チームの推奨する対象機関と内容を承認する。
- ・ 研修内容の特定化に関する協議が、合同研修対象国間で実施される。

(3) 日本による投入の適切さ

投入は予定どおりに実行された。しかし、計画段階では予測されなかった状況（先行プロジェクト時代の C/P の多くの離脱により、本プロジェクトの開始時点で C/P 規模が約 25 名から 7 名まで減少し、その数は更に MZTVH の人材要請により 5 名にまで減少した）を考慮し、効果的なプロジェクトの実施のため追加の投入が求められた。この関連で、カリキュラムデザインの指導を行う短期専門家が投入された。この投入は日本側とトルコ側の双方から高く評価され、このような介入がプロジェクトのより早い時点で行われればなお効果的であった、という意見が述べられた。

本邦研修としては、「日本における IAT のための人材開発に係るフィールド見学」として、MoNE 技術教育・職業訓練総局（GDVTE）のマネジャーを対象とした 9 日間（2013 年 11 月 16 日～24 日）の研修が実施された。MoNE のマネジャーにとって本研修は、日本の IAT の実施状況と指導に係るアプローチのみならず、JICA の国際協力活動の運営について見聞を拓ける機会となった。研修参加者のフィードバックは、本研修がプロジェクト・ディレクターや本プロジェクトに密接にかかわるその他の MoNE マネジャーらにインパクトを与え、プロジェクトが置かれた環境に対する彼らの理解の醸成に役立ったことを裏づけるものである。

TTC の C/P は、過去 10 年間にわたって彼らの指導活動のために調達された日本の機材（オムロンなど）を非常に高く評価している。当初、本プロジェクトのために日本の機材を調達する計画はなかった。しかし、短期専門家の助言によって調達に至り、指導のうえで大きく役立っていることが報告された。調達された IAT システムは、部分ごとに解体し再度組み立てることができるなど、汎用性が高い点が評価の一因である。

(4) トルコ側による投入の適切さ

トルコ側もまた、プロジェクト活動を支援するための投入資源の確保に努めた。投入資源の確保において最も困難を伴ったのは、C/P の配置であった。TTC での活動に必要な人材は、年間当たり 77.7 人/月と算出され、7 名のフルタイムの人材配置が求められた。しかし、この仕事量を 5 名の C/P が担うこととなり、負担の多い状態のなかで、各自が責任をもって業務にあたった。

トルコ側はまた、初年度と第 2 年度において、TIKA の予算より資機材の調達も行った。あらかじめ予測できなかった状況により、第 3 年度用として計上された 50,000 トルコリラ

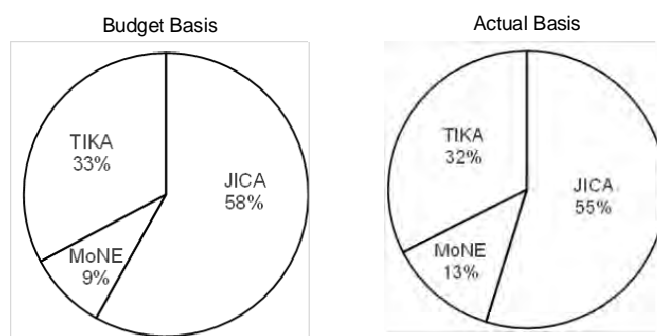
(約 240 万円) はまだ支出されていない。MoNE と TTC によると、近い将来にこの予算も執行される見通しである。

(5) 関係機関が当初締結したコスト負担割合の遵守

全般的に、R/D において締結されたコスト負担割合に関する同意である、「JICA の負担分はコスト全体の 70%を超えないこと」については遵守されており（表－1 参照）、2014 年 9 月までの JICA による貢献は全コスト（実績値に基づく）の 55%である。

表－1 2014 年 9 月までのコスト負担内訳（単位：トルコリラ）

		JICA	MoNE	TIKA	TOTAL
2012	Budgeted	329,570.0	22,400.0	216,308.0	568,278
	Actual	358,311.0	44,100.0	186,340.0	588,751
2013	Budgeted	815,325.0	161,600.0	362,310.0	1,339,235
	Actual	469,685.6	161,600.0	276,975.0	908,261
2014	Budgeted	221,870.0	28,000.0	192,640.0	442,510
	Actual	175,532	28,800	131,720	336,052
BUDGET BASIS					
SUB-TOTAL		1,366,765	212,000	771,258	2,350,023
COST SHARING RATIO		58%	9%	33%	
BASED ON ACTUAL					
SUB-TOTAL		1,003,528.6	234,500.0	595,035.0	1,833,064
COST SHARING RATIO		55%	13%	32%	



4-1-4 インパクト：中程度

カザフスタンにて発現しつつあるインパクトとして、プロジェクトとは別の投入資源が成果を産出するために獲得されている（日本の中小企業のカザフスタンへの進出を支援する日本政府による資金の、本プロジェクトのパイロット校への供出や、世界銀行によるカザフスタン教育機関に対する支援にパイロット校が含まれた等）。4校のパイロット校中3校において IAT コースが開始され、機材購入の手配が現在進められている。そのような補完的支援の大部分は、プロジェクトによって仲介され、プロジェクト活動の一部としてカザフスタンへの働きかけが行われたものである。授業自体は既に進行中であるが、コースを通じて提供される知識と技能

の質を確保するために、本プロジェクトのトルコ C/P を第三国専門家として派遣することが、MoNE、TIKA、及び JICA 間の協議にて合意されている。現在準備が進められており、実現すれば上位目標の達成に貢献することが期待される。

この種の追加的支援は、プロジェクトが同様の、積極的な働きかけを他の参加国へ行わない限り、プロジェクト期間の終了後に他の参加国に対して提供されることはない。そのため、上位目標（基本的に、実施機関自体によるプロジェクト期間「後」の取り組みによって達成される目標）の達成見込みは中程度である。

4-1-5 持続性：中程度

下記の観点を総合的にかんがみ、プロジェクトが達成した成果が持続する可能性は中程度と評価される。

(1) 制度面

プロジェクトに係るそれぞれの責任の役割と責任については、R/D に明示されており、次のように、MoNE、TIKA、TTC の間で理解されている。MoNE は、プロジェクトの実施と管理に関する全体的な責任を担い、すべての利害関係者に対する全体的な調整もその責任の範疇として管理する。TIKA は、対象国の出先事務所との調整により、参加者と関連機関との連絡役として、研修の実施に係る調整を行う。TTC は、研修の企画と実施の担当、並びに参加者に対して、研修後のそれぞれの国での実務に資するためのフォローアップの提供を行う。しかし、国際研修プログラムの実施では、期待される結果を導くために設定された過程を完全にコントロールできないことが多く、複雑な対応が求められることを、それぞれの関係者が十分に把握したうえで対応する準備ができていたかは明白ではない。

各組織にはそれぞれの任務領域があり、その制約により、新たなニーズに対し柔軟な対応ができないことがある。例えば、技術的な問題の対処を行うのは TTC がふさわしいが、同組織は共通の言語を有しない海外の研修参加者とコミュニケーションをとる立場になく、またその能力も不十分である。そのような状況では、プロジェクト備上の通訳による介在が必要となった。将来的にもこのような煩雑さは残ることから、課題 1 つ 1 つを協働による努力によって対処していることは評価されども、プロジェクト完了後の制度面の持続性確保の観点から不安が残る。

(2) 技術面

本プロジェクトを通して C/P は、教員のための IAT 研修の計画、実施、モニタリングそして改善における調整・管理・運営面の能力を強化させた。上級コース⁵を除いて、C/P はコース管理において確立された専門知識を蓄積した。一般的に 1 つのコースが試行され、改良され、そして標準化されるまでには、およそ 3 回の実施を要する。IAT の基礎、中級、上級コースから成る、十分に練られた研修パッケージを C/P が提供できるようになるには、特に、上級コースに関しては経験が少ないことから、上級を含め更に数回のサイクルの施行が望ましい。プロジェクトを通じて、彼らの IAT 分野の指導者としての専門性は、周

⁵ 2014 年 12 月にパキスタンを対象として開催される国別研修が該当する。

辺国で比較優位をもつものであり、トルコにとって重要な財産となるということが証明された。その知識は、トルコ政府が掲げる、製造業における国際競争力の強化のための能力向上ビジョンに貢献できるものである。そのためにも、彼らの有する専門知識が近隣諸国とのやり取りのなかで活用され続け、その過程で生まれた結果が国内における更なるイノベーションに注がれ、トルコの競争力向上につながることを望まれる。

(3) 財務面

予算に計上された資金は、大方確保されている。財政面の持続性には、継続的な努力が求められる。

(4) プロジェクトが達成する成果の持続性に影響を与える、その他の要因

プロジェクトの期間中、TTCの持続可能性に関する徹底的な協議が行われた。現時点では、MZTVH 付属のサービス提供機関としての位置づけは、プロジェクト期間後も継続されることと見込まれる。TTCに対するニーズは、その目的が自国の国内研修、あるいはトルコ共和国政府の国際協力を強化するという国家政策の実施部門としてであっても、継続すると予測される。ゆえに、TTCの維持は、共通アジェンダとして優先されるべきである。

4-2 結論

本プロジェクトの妥当性は、(1) トルコ政府の、特に近隣国に対する国際協力に係る政策との整合性、(2) MoNEの産業技術教育・職業訓練に係る戦略・方向性との整合性、(3) 参加国のニーズとの整合性、(4) 日本のODA政策との整合性、(5) 日本の協力が有する経験や技術の比較優位から、高いと評価される。

指標が規定するプロジェクト目標の達成の見通しが、カザフスタンとパキスタンについては高く、アゼルバイジャンは低く、合同研修対象国については中程度というように混在していることから、プロジェクト全体としての有効性は中程度と評価される。

効率性は、(1) 本プロジェクトの投入の結果、成果をもたらしていること (2) 成果の達成度、(3) 日本による投入の適切さ (4) トルコによる投入の適切さ、並びに (5) 関係機関が当初締結したコスト負担割合の遵守により、高い。

国別研修の対象国別に設定された国別指標、並びに合同研修に参加したグループに対する合同研修用指標が満たされる可能性は一様でないことから、プロジェクト目標の全体としての達成可能性は中程度であり、よって、インパクトは中程度である。

プロジェクトの持続性もまた中程度であり、これは実施機関の現在の制度面、技術面そして財政面に対する総合的な評価に基づくものである。

第5章 提言と教訓

5-1 提言

終了時評価団は、調査結果に導かれた以下の点がプロジェクトの残りの期間に対応されるよう、どの関係者が一番その対応にふさわしいかを注記のうで提言する。

5-1-1 技術面の持続性を担保するための、十分に練られた IAT 研修コースパッケージを通してのフォローアップ (MoNE、TIKA、JICA、TTC)

終了時評価の過程において、プロジェクトによって生みだされた成果の技術面における持続性は、プロジェクトにかかわったすべての関係者にとって最も重要な共通アジェンダであることが明らかになった。そして、プロジェクトの完了までに上級コースの実施が1回しか計画されていないことに関して、懸念の声が聞かれた。その理由として、IAT 研修コースパッケージ（基礎、中級、上級）を構築するためには、1回の開講では上級コースのプログラムを十分にテストし、また改良することができない可能性が指摘された。

そのような事情を踏まえ、終了時評価団はあらかじめ合意された基準（例えば、IAT 部門設立を後押しするための投入資源を国内に有するかどうか等）に基づいて、プロジェクトが培った技術面の持続性を担保するために、研修プログラムを試行の段階から改良できるよう、参加国のうち選定された国を対象とする追加研修の企画・実施を行うべく、プロジェクトを一定期間延長させることを提言する。この提言は、MoNE の事業計画に含まれている、TTC が 2015 年 4 月より実施する現職職員研修の妨げにならないことを、評価団は C/P と確認済みである。この提言を実現可能な形に落とすために、各機関それぞれ以下を検証し、近い将来 JCC にて活動手順を合意することが求められる。

・ TIKA

既に終了時評価団に確約しているとおり、プロジェクト参加国に打診し、追加研修に関するそれぞれのニーズや参加意思等に関するフィードバックを収集する。（パキスタン、パレスチナ、そしてカザフスタンについては、既に TIKA の現地事務所によって、IAT プログラムは非常に有益だというフィードバックが得られている。さらに、カザフスタンとパキスタンの政府関係者からは、上級コース研修のニーズも伝えられている。）

・ TTC

TIKA が収集したフィードバックに基づき、既に計画されている 2015 年度の現職職員研修に加え、各国のフォローアップ研修の実施に要する時間と実施時期について概要をまとめる。

・ MoNE

上記の TTC の分析による見通しに基づき、プロジェクトによるフォローアップ研修を実施可能とするスケジュールを決定する。

・ JICA

上記の TTC の分析による見通しに基づき、フォローアップに必要な投入資源、及び JICA が提供可能な予算を算出する。

・ JCC

上記の事項につき協議し、フォローアップに係る合意を形成する。

5-1-2 言語/その他の理由でアクセスが難しい参加者との研修終了後のコミュニケーション (TTC、TIKA)

研修参加者の帰国後に行われる、ウェブを使用したフォローアップの過程で、C/P が数多くの課題に直面した。主に、C/P と参加者間の共通言語の欠如や、参加者側の国内におけるインターネット規制などのアクセスにかかわる課題が挙げられる。よって、残りの研修コースについて、そのようなリスクの高い参加者については、(1) TTCで当該者のプログラムを担当するC/P、(2) TIKA 本部の担当者、(3) 当該者の本国の TIKA 事務所の窓口担当者、による支援システムが構築されるべきである。また、これらの関係者がトルコ側と当該国の間に参加者のためのネットワークを構築していることを事前に参加者に知らせ、だれがこれらのメンバーかについて、連絡先とともに伝えるべきである。

また TTC 到着後は、**C/P は参加者と研修終了後のコミュニケーション方法について協議すべきである。**研修後のコミュニケーションを着実に維持するためには、このようなネットワークが有益であることを認識してもらう必要がある。

5-1-3 第三国専門家の派遣 (MoNE による TIKA、JICA、TTC との調整)

研修参加者が帰国後、実際に授業を行う際の知識と技能の質を確保するため、JCC の助言の下、本プロジェクトのトルコ C/P を第三国専門家として派遣することが計画されており、2015 年の初旬に実施される見込みである。この派遣の実現は画期的な出来事であり、プロジェクトを通して C/P がどれほどの知見・能力を備えたかを証明するものである。プロジェクトの具体的な結果の証しとするためには、MoNE のリーダーシップの下で入念な事前準備が求められる。

JCC の合意によって、プロジェクトによって産出された成果が、IAT によって導かれるトルコ並びにその近隣諸国の将来の更なる技術的前進を形づくる出発点となることが期待される。

5-2 教訓

以下は、本プロジェクトから導かれる、JICA の類似案件の参考に資する教訓である。

・ウェブベースのリソースの活用 (成果 3 に関連)

IT に依存した情報共有システムに対する需要が今後も増加するなかで、プロジェクトの受益者が IT に詳しく、サービスに対し容易にかつ安価でアクセスすることができ、また双方のコミュニケーションを可能にする共通言語があるかに注意を払うべきである。

・研修終了後のフォローアップ策定 (成果 3 と関連)

研修終了後に双方向のコミュニケーションを継続させるためには、関係継続の利点について共通認識をもつことが重要である。

・参加国における高位の意思決定権者の理解と早期の関与の必要性 (プロジェクト目標に関連)

パキスタンにおけるケースが示唆するように、早い時点における高位の意思決定権者のコミットメントにより、その後の円滑なオペレーションが可能となる。

・上位目標の適用性 (上位目標に関連)

プロジェクトでいうところの上位目標は、プロジェクトが達成したことを促進するために実践機関の努力により導き出される、(プロジェクト終了後 3~5 年という) 長期的に予想される取り組み成果を指すものである。本プロジェクトの上位目標は、本目標の実現のためには実質的な前提条件となる、大規模な投入 (例として、IAT 機材の購入) を考慮に入れていな

い。

- 三角協力を支援するための、第三国内の投入資源の動員（全般）

トルコのような新興国において第三国支援を行う際、支援の授受の関係は協働パートナーの関係へと変化している。そこでは、二国間協力では明確な、援助の提供側に対する受け手側の直接的な説明責任は確立されない。JICAは当該国事務所が窓口となり、プロジェクトの実施機関に対して支援を提供する一方で、プロジェクト実施機関はその先の第三国の受益者に支援を提供する。その第三国の受益者に対して、JICA 当該国事務所は、直接コンタクトするアクセスを有しない。本プロジェクトでは、9 カ国が関与するプロジェクト実施を対象国内で獲得できる投入資源を動員して運営した。JICA の各国別事務所の支援による二国間の枠組みに加えて、カザフスタンの例のように、プロジェクトではその他の資金源（世界銀行や日本外務省）にアクセスし、対象国の機関の支援と組み合わせた。

付 属 資 料

1. 協議議事録（ミニッツ）
2. 調査日程
3. 主要面談者リスト
4. 投入実績
5. 評価グリッド
6. プロジェクト・デザイン・マトリックス（PDM）第2版

**MINUTES OF MEETING
BETWEEN
THE AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE REPUBLIC OF TURKEY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE INDUSTRIAL AUTOMATION TECHNOLOGY (IAT)
EXTENSION PROJECT FOR CENTRAL ASIAN AND MIDDLE EAST
COUNTRIES IN THE REPUBLIC OF TURKEY**

For the purpose of conducting Terminal Evaluation of “The Industrial Automation Technology (IAT) Extension Project for Central Asian and Middle East Countries in the Republic of Turkey (hereinafter referred to as “the Project”), a Joint Evaluation Team (hereinafter referred to as “the Team”) was formulated for the duration of September 15th to 27th, 2014. The Japanese Team, organized by the Japan International Cooperation Agency (hereinafter referred to as “JICA”), was headed by Mr. Masahiro UEKI, Senior Representative of JICA Turkey Office, and the Turkish Team, organized by General Directorate of Vocational and Technical Education, Ministry of National Education (hereinafter referred to as “MoNE”), was led by Ms. Şennur ÇETİN, Head of Department.

During the evaluation, the Team conducted field survey, exchanged views, and had a series of discussions with personnel concerned with the Project. As a result of the evaluation, the Team agreed to report to their respective Governments the matters documented in the Terminal Evaluation Report as per attached.

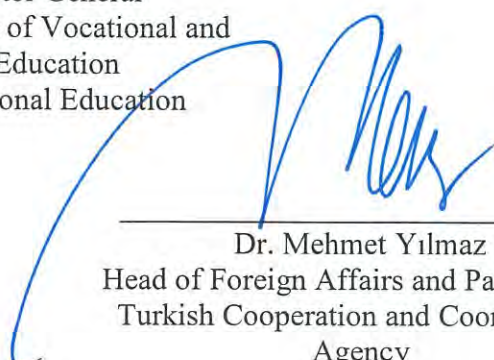
Ankara, September 26, 2014



Mr. Osman Yıldırım
Acting Director General
General Directorate of Vocational and
Technical Education
Ministry of National Education



Mr. Masahiro Ueki
Senior Representative
JICA Turkey Office



Dr. Mehmet Yılmaz
Head of Foreign Affairs and Partnerships
Turkish Cooperation and Coordination
Agency

Joint Terminal Evaluation Report

on

**The Industrial Automation Technology (IAT)
Extension Project for Central Asian and Middle East
Countries in The Republic of Turkey**

September 26, 2014

List of Abbreviations and Acronyms

Abbreviation	Official Name
CFT	Country Focused Training
C/P	Counterpart
GDTVE	General Directorate of Vocational and Technical Education
GT	Group Training
IAT	Industrial Automation Technology
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
M/M	Minutes of Meeting, Man Month
MoNE	Ministry of National Education
MZTVH	Mazhar Zorlu Technical and Industrial Vocational High School
OVI	Objectively Verifiable Indicator
PDM	Project Design Matrix
PO	Plan of Operations
R/D	Record of Discussion
SPREAD	The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department
TCTP	Third Country Training Program
TIKA	Turkish Cooperation and Coordination Agency
TTC	Teachers Training Center
TTVH	Konak Nevvar Salih İşgören Hotel Management and Tourism Vocational High School
WBTSS	Web-Based Training Support System

Exchange Rate

EUR1 = JPY136.9

USD1 = JPY103.77

TRY1 = JPY48.06

(JICA rate for September, 2014)

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1. Introduction

1-1. Background and Purpose of the Evaluation

(1) Background of the Evaluation

The Industrial Automation Technology (IAT) Extension Project for Central Asian and Middle East Countries (the “Project”) is a technical cooperation with the aim of enhancing the technical education and vocational training capacity on the IAT of the target countries: Azerbaijan, Kazakhstan and Pakistan for the country-focused training, and Uzbekistan, Afghanistan, Kyrgyzstan, Palestine, Tajikistan and Turkmenistan for the group training.

In response to the request from the Government of the Republic of Turkey, the Japan International Cooperation Agency (JICA) dispatched a Detailed Planning Survey Team in November 2011 and concluded an agreement on cooperation framework, whose details were documented in Record of Discussions (R/D) and signed in November 28, 2011. Based on the signed R/D, the Project was launched in February 2012 with Ministry of National Education (MoNE) as Implementing Agency and TIKA and JICA as Supporting Agencies. Teacher Training Center (TTC) of Mazhar Zorlu Technical and Industrial Vocational High School (MZTVH) under the jurisdiction of MoNE is the site of the Project with its teachers as Counterpart (“C/P”).

Prior to the Project completion in April 2015, as per R/D signed by both governments, the terminal evaluation of the Project was conducted by the Joint Terminal Evaluation Team (“the Terminal Evaluation Team”), comprised of representatives from both sides, with the objective of assessing and confirming Project’s performance and effects, as well as drawing lessons for similar future activities.

(2) Purpose of the Evaluation

The purposes of the evaluation are as follows:

- 1) To confirm the achievement levels of Inputs and Outputs and the prospect for the Project Purpose to be achieved by the end of the project period, and the Overall Goals within three to five years after the project completion, based on the Project Design Matrix (PDM) version 2 (see Annex 5);
- 2) To identify factors or issues that have promoted or hindered the implementation of project activities;
- 3) To conduct a comprehensive evaluation from the viewpoints of five evaluation criteria; Relevance, Effectiveness, Efficiency, Impact and Sustainability (see 2-2 “Criteria of the Joint Terminal Evaluation” for their definitions);
- 4) To draw recommendations of the measures to be taken for the Project’s further improvement

and identify lessons learned to be referred to by similar JICA projects; and

- 5) To discuss and agree on the direction of the Project and prepare a joint terminal evaluation report based on the results of the discussions.

1-2. Members and Schedule of the Evaluation

(1) Members of the Evaluation

The members of the Terminal Evaluation Team are as follows:

1) Japanese Side

Name	Title	Position/Organization
Mr. Masahiro UEKI	Leader	Senior Representative JICA Turkey Office
Ms. Miyuki KONNAI	Evaluation Management 1	Project Formulation Adviser JICA Turkey Office
Dr. Emin ÖZDAMAR	Evaluation Management 2	Senior Program Officer JICA Turkey Office
Dr. Maki TSUMAGARI	Evaluation and Analysis	Partner, IMG Inc.

2) Turkish Side

Name	Title	Organization
Ms. Şennur ÇETİN	Head of Department	General Directorate of Vocational and Technical Education, MoNE
Dr. Mehmet YILMAZ	Head of Department	Foreign Affairs and Partnerships Department, TIKA
Mr. Yusuf VURAL	Acting Principal	Mazhar Zorlu Technical and Industrial Vocational High School
Mr. Gürcan BILDIR	Coordinator/IAT Trainer	Mazhar Zorlu Technical and Industrial Vocational High School/TTC

(2) Schedule of the Evaluation

The Evaluation was conducted from September 15th to 27th, 2014 (see Annex 1 for the Evaluation Schedule).

1-3. Outline of the Project

(1) Background of the Project

The Government of the Republic of Turkey has focused on implementing policy measures to strengthen its global competitiveness of manufacturing industries, and to introduce advanced technology and promote capital intensive industries to enable the delivery of high valued products and services since the 1990s. The Government of the Republic of Turkey has in conjunction prioritized the improvement and strengthening of technical and vocational education schools so as to

supply the labor market with capable technicians and skilled human resource. In this context, the Project “Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools” was successfully carried out jointly by the General Directorate of Vocational and Technical Education (GDVTE) of MoNE and JICA from 2001 to 2006 with the aim of establishing IAT departments with international standard. Through the project, IAT departments were established at Anatolian Technical High Schools in Izmir and in Konya respectively.

Following the successful implementation of the above-mentioned project, MoNE subsequently set up IAT departments in 20 schools. In addition, the Teacher Training Center (TTC) was established at Izmir MZTVH in 2006 with the aim of developing the teaching staff who will work at the IAT departments of the 20 schools. Founded on the training provided at these schools as well as at the TTC, nationwide extension of the industrial human resources technology education progressed.

By the completion of the afore-mentioned project, “Ninth Development Plan of Turkey (2007-2013)” was formulated as the country’s national development policy, re-emphasizing the importance of strengthening human development axis. This emphasis provided a ground for project concerned areas to be further up-taken, and led to the technical cooperation “The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department” (SPREAD) (2007-2010) which established teacher training implementation system at Izmir MZTVH TTC. During the life of the project, TTC developed teacher training curriculum as well as syllabus for 16 courses, and conducted training for 727 teachers drawn from the technical schools nationwide by the time of its terminal evaluation conducted in 2010. After the completion of the project, TTC further expanded its implementation and management system for teacher training on industrial technology, by introducing e-learning and training for practitioners of private companies.

Against such backgrounds, the Government of the Republic of Turkey, gaining confidence through these successful initiatives, decided to transfer the knowledge and experiences acquired through the above-mentioned projects to vocational and technical teachers of IAT (including electric-electronics, mechatronics, mechanics, and ICT) fields in the countries in Central Asia and Middle East regions by means of providing training at TTC of Izmir MZTVH. In response to the request by the Government of the Republic of Turkey to the Government of Japan (GoJ) for assistance, JICA dispatched the detailed planning survey team to Turkey in November 2011, and agreed on the framework for this technical cooperation. Within the country MoNE requested support from Turkish Cooperation and Coordination Agency (TIKA) for project implementation. The Project was then launched in February 2012 and is scheduled to continue through April 2015.

(2) Summary of the Project

Overall Goal	Technical education and vocational training capacity on IAT of target countries is enhanced.
Project Purpose	Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.
Project Outputs	<ol style="list-style-type: none">1. Training for target group is appropriately planned.2. Training for target group is effectively provided.3. Follow-up system is established.
Project Period	From February 2012 to April 2015 (Three years and 3 months)
Implementing Agency	Ministry of National Education (MoNE)

2. Methodology of the Evaluation

2-1. Framework

In accordance with the *New JICA Guidelines for Project Evaluation* (the First Edition, 2010), the Terminal Evaluation Team evaluated the Project, taking the following steps:

- Step 1. Prepare an evaluation grid that lists evaluation questions, data/information necessary for evaluation and information sources;
- Step 2. Collect data and information necessary for the evaluation;
- Step 3. Assess the Project's achievements in reference to the PDM ver. 2;
- Step 4. Analyze the factors that promoted or inhibited the Project's achievements, including factors relating to the project design and the project implementation process.
- Step 5. Analyze the Project from the viewpoints of five evaluation criteria, defined in 2-2 "Criteria of the Joint Terminal Evaluation";
- Step 6. Draw recommendations from the analysis;
- Step 7. Share the preliminary evaluation results with stakeholders and discuss the future directions of the Project; and
- Step 8. Reach an agreement on the evaluation results between the Japanese and Turkish sides.

2-2. Criteria of the Evaluation

Five evaluation criteria used in the evaluation are defined as follows:

Relevance	Relevance is assessed in terms of the Project's validity in relation to the Government policy of Turkey, Strategic Plan of MoNE and TTC at the evaluation stage, Japan's Official Development Assistance (ODA) policy, and the needs of the Project beneficiaries, as well as the appropriateness of the project approach to address the needs.
Effectiveness	Effectiveness is assessed based on the prospect of achieving the Project Purpose by the end of the project period and whether this is due to the Project's Outputs.
Efficiency	Efficiency is assessed by focusing on the relationship between Outputs and Inputs in terms of timing, quality and quantity of Inputs. It measures to what extent Project Inputs have economically been converted into Outputs in consideration of the achievements of both Inputs and Outputs.
Impact	Impact is assessed based on the prospect of achieving the Overall Goals within three to five years of the project completion and the positive and negative changes to be produced, directly or indirectly as a result of project implementation.

Sustainability	Sustainability is assessed in terms of institutional, organizational, financial and technical aspects, by examining the extent to which the achievements of the Project will be maintained or further expanded by the Turkish side after the project period.
-----------------------	--

2-3. Evaluation Grid and Data Collection Methods

(1) Evaluation Grid

The Team evaluated the Project based on the evaluation questions listed in the evaluation grid (see Annex 4 for the list of evaluation questions and evaluation results of the questions.). The evaluation grid is comprised of three sections: (1) Project achievements; (2) Implementation Process; and (3) Evaluation by the Five Criteria.

(2) Data Collection Methods

The following sources of information and data were used in the joint terminal evaluation:

- 1) Interviews based on pre-distributed questionnaires with the Project's Japanese Expert (Expert), Counterpart Personnel (C/P), and other people concerned with the Project (see Annex 2 "List of Interviewees");
- 2) Documents agreed upon by both sides prior to and/or during the course of the Project implementation;
- 3) Records of inputs from both sides and activities of the Project (see Annex 3 "Inputs");
- 4) Site inspection at TTC;
- 5) Documents that provide data and information indicating the degree of achievements of the Project Outputs, Project Purpose, and Overall Goal, and
- 6) Policy documents that show the project's relevance and sustainability.

3. Performance and Implementation Process of the Project

3-1. Performance of the Project

3-1-1 Inputs

(1) Japanese Side

The Japanese side provided the following inputs to the Project (see Annex 3-1 “Inputs by the Japanese Side” for details.).

1) Assignment of Experts

The Japanese side has assigned five experts to the Project. The expertise and assigned periods of experts are the following. (see Annex 3-1-1 “Assignment of Experts”).

Table 1. Expertise and Assigned Period of Experts

Expertise	Number (Person)	Assigned period (M/M)
Chief Advisor/Training Management/Curriculum Development 1	1	13.50
Curriculum Development 2	1	7.00
Industrial Automation Technology	1	1.27
Coordinator/Training Management Assistance	1	6.76
Coordinator/Training Management Assistance (since September 17, 2014)	1	1.07
Total	5	29.60

Note: This M/M covers the actual assignment up to August and estimates from September, 2014. JICA hired lecturer on instructional design is not included.

2) Training in Japan

The Japanese side has provided one training program in Japan to three managers of MoNE in November 2013, titled “Field Observation of Human Development for IAT in Japan.” (see Annex 3-1-2 “Training in Japan”).

3) Provision of Equipment and Materials

The Japanese side has provided equipment required for the effective implementation of the Project, as listed in Annex 3-1-3 “Provision of Equipment and Materials”, which amounted to EUR 66,507 (approximately JPY 9.1 million) (see Annex 3-1-3 “Provision of Equipment and Materials”).

4) Operational Expenses by Japanese Side

The Japanese side has allocated the total amount of TRY 1 million (JPY 48.2 million) for the operational costs of project activities (see Annex 3-1-4 “Operational Expenses by Japanese Side”).

(2) Turkish Side

The Turkish side has provided the following inputs to the Project. (see Annex 3-2 “Inputs by the Turkish Side” for details.)

1) Assignment of C/Ps

The Turkish side has assigned one Project Director, one Project Manager, five to seven IAT Trainers at a time from TTC as C/P (see Annex 3-2-1 “Assignment of C/P Personnel”). Also, one representative from TIKA served on JCC assisted by one to three Experts at a time from the organization (see Annex 3-2-2 “Assignment of TIKA Representatives”).

2) Facilities

The Turkish side has provided office space at TTC as well as five laboratories.

3) Provision of Equipment and Materials

The Turkish side has provided equipment required for the effective implementation of the Project, as listed in Annex 3-2-3 “Provision of Equipment and Materials), which amounted to TRY 301,046.35 (approximately JPY 14.5 million) (see Annex 3-2-3 “Provision of Equipment and Materials”).

4) Operational Expenses by Turkish Side

The Turkish side has allocated the total amount of TRY 829,536 (approximately JPY 39.9 million for the operational costs of project activities¹ (See Annex 3-2-4 “Operational Expenses by Turkish Side”).

¹ This amount is inclusive of TIKA’s TRY101,046 contribution for equipment.

3-1-2 Achievements of Outputs

(1) Achievements of Output

Output 1: Training for target group is appropriately planned.
--

Objectively Verifiable Indicators (OVI)

OVI 1-1. Appropriate training targets are set for each country focused training country.
--

OVI 1-2. Appropriate training targets are set for group training.

OVI 1-3. Appropriate training plans are prepared for country-focused training program.
--

OVI 1-4. Appropriate training plans are prepared for group training program.
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As per discussed below, all the above mentioned indicators set for Output 1 have been met by the time of the Terminal Evaluation and thus **Output 1 is considered achieved.**

Regarding “OVI 1-1. Appropriate training targets are set for each country focused training country,” 2012 June Needs Survey for CFT target countries (i.e. Pakistan, Kazakhstan, and Azerbaijan) led to the production of the country specific three year program which were discussed with their own governments. While agreement document on IAT training at TTC was only signed by Pakistan, the results of the Needs Survey were submitted to, and received by, the Ministry of Education and Science in Kazakhstan and the Ministry of Education in Azerbaijan. The Needs Survey for Uzbekistan was canceled, but an agreement was reached to invite technical teachers from Uzbekistan to GT. The training targets for Azerbaijan were revised at the 5th JCC in November 2013 to conduct two IAT Basic Courses for different participates (in lieu of IAT Basic and Intermediate Courses to the same participants) to align with the extent of commitment of Azerbaijan’s Ministry of Education.

On “OVI 1-2. Appropriate training targets are set for group training,” 4 GT TVE managers from the target countries were invited to the first GT course in November 2012. Through the training, the needs of the contents that would be taught in the subsequent courses were identified along with possible goals, and the contents were developed.

With respect to “OVI 1-3. Appropriate training plans are prepared for country-focused training program,” during June 2012 Needs Survey, training plans for Azerbaijan, Kazakhstan, and Pakistan were expanded, and the survey team reached agreements with the representatives from the respective Ministry of Education.

Likewise, on “OVI 1-4. Appropriate training plans are prepared for group training program,” based on the targets developed for GT in 2012, training plans and a course schedule for the IAT Basic Course were developed.

(2) Achievements of Output 2

Output 2: Training for target group is effectively provided.

Objectively Verifiable Indicators (OVIs)

- OVI 2-1. 70% of the course participants are satisfied in terms of course content, course management and accommodation services in GT courses and CFT courses.
- OVI 2-2. At least 80% of participants in country focused training achieve the 70 % of the learning performance.
- OVI 2-3 At least 80% of participants in group training achieve the 70% of the learning performance.

Four training courses are yet to be conducted between the Terminal Evaluation (September 2014) and the completion of the Project period. However, based on the following high prospects for meeting each indicator, **the achievement of Output 2 is deemed probable.**

On “OVI 2-1. 70% of the course participants are satisfied in terms of course content, course management and accommodation services in GT courses and CFT courses,” other than for accommodation part of the evaluation, participants’ satisfaction has been recorded meeting the indicator (e.g. as of March 2014, eight out of the total nine courses are evaluated as satisfactory by more than 80% of the participants in course content and course management), endorsing that the quality, relevance, and the delivery of the prepared courses surpassed the expectation of the participants. In the Pakistan CFT Intermediate Course evaluation, accommodation part resulted in only 20% of the participants having been satisfied. This was due mainly to the nature of transition period of TTC accommodation management from Mazhar Zorlu Technical and Industrial Vocation High School to Alsancak Nevvar Salih Işgören Hotel Business and Tourism High school, when service quality was not yet stabilized. Over one year has passed since the handover during which time the Project continued to provide guidance and supervision to enhance service provision quality management as well as facility maintenance guidance. Current high occupancy rate suggests that the accommodation part of the evaluation that will be administered as a part of the remaining course evaluation will receive scores meeting this indicator.

In connection with “OVI 2-2. At least 80% of participants in country focused training achieve the 70 % of the learning performance,” four CFT for TVE Trainers were conducted before March 2014. However, only one was evaluated with the revised version of the Learning Performance Evaluation (ver. 3), since it was prepared after revision of this indicator. This Evaluation incorporated guidance by the JICA-dispatched lecturer on instructional design, and is designed to capture incremental progresses and/or bottlenecks of the participants’ daily learning through the end of day checking, ensuring that based on this data the C/P can accommodate necessary adjustment to the individual participant’s learning for the next day. Such a mechanism is expected to ensure close monitor of and

support to the performance of the participants in the remaining two GT and lead to the achievement of this indicator.

Likewise, “OVI 2-3. At least 80% of participants in group training achieve the 70% of the learning performance” is envisaged to be met. Two GT for TVE Trainers were conducted before March 2014, among which only one was evaluated with the revised version of the Learning Performance Evaluation (ver. 3), since it was prepared after revision of the indicator. The last two GT courses (November and December 2014) will be evaluated with the revised Learning Performance Evaluation and the result will be monitored for further conclusion. As stated already in reference to OVI 2-2., this Evaluation incorporated guidance by the JICA-dispatched lecturer on instructional design, and is designed to capture incremental progresses and/or bottlenecks of the participants’ daily learning through the end of day checking, ensuring that based on this data the C/P can accommodate necessary adjustment to the individual participant’s learning for the next day. Such a mechanism is expected to ensure close monitor of and support to the performance of the participants in the remaining two GT and lead to the achievement of this indicator.

(3) Achievements of Output 3

Output 3: Follow-up system is established.

Objectively Verifiable Indicators (OVIs)

OVI 3-1. Web-based information system is developed, installed and introduced during the training.

OVI 3-2. Training impact is properly assessed in second and third year in CFT countries, identifying the degree of utilization, its affecting factors, and recommendation(s) for improvement.

OVI 3-3. Training impact is properly assessed in second and third year in GT countries, identifying the degree of utilization, its affecting factors, and recommendations for improvement.

On the part of TTC, thorough preparation for the web-based information system as well as for the administration of the follow-up survey have been managed. However, for the system to be established for actual functioning, engagement of trained participants is essential, so that data for training impact assessment is gathered. As overall level of such engagement of the trained participants have been far from adequate, and this trend cannot be turned around easily due to already identified difficulties (such as language and internet connection barriers), **the prospect for achieving Output 3 is limited to the extent of the responses by the trained participants.**

“OVI 3-1. Web-based information system is developed, installed and introduced during the training” is considered achieved by the time of Terminal Evaluation. The developed web-based training support system -WBTSS- has been introduced during the training to all the participants to date, and the same arrangement is planned for the rest of the course offering. However, except by Pakistani participants, this platform has barely been used due probably to lack of language interface (for non-English proficient participants), access to as well as familiarity with the internet, etc.

The prospect for achieving “OVI 3-2. Training impact is properly assessed in second and third year in CFT countries, identifying the degree of utilization, its affecting factors, and recommendation(s) for improvement” is modest. Monitoring Survey has been conducted for the three CFT courses in the follow-up period, and its collection rate is 68% (25 out of 37 participants). This rate includes 8 additional responses on the Basic Course filled and submitted when the Kazakhstan participants returned for the Intermediate Course. As this response suggests, it has been very difficult for the C/P to assume self-managed follow up activities.

Similarly, the prospect for achieving “OVI 3-3. Training impact is properly assessed in second and third year in GT countries, identifying the degree of utilization, its affecting factors, and recommendations for improvement” is modest. The collection rate of the already administered one GT survey was 55% (6 out of 11). In addition to the language and internet access barriers experienced with the CFT, the challenge for the GT comes from the arrangement. From the participant perspective it is one time commitment to attend the Basic Course, from which he/she might not have a clear sense of benefit for continued association through the follow up.

While the Project is planning to continue this monitoring, the challenge of post-training communication with the participants is expected to persist, and thus importance of proactive participation in this post-training period needs to be clearly communicated while the participants are attending the course, giving them the vision for value of such connection as their future resource for the obtained technical knowledge.

3-1-3 Prospect for Achieving the Project Purpose

Project Purpose: Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.

Objectively Verifiable Indicator (OVI)

A. Kazakhstan:

1. TVE administrators are aware of what and how to introduce IAT program into the TVE.
2. At least 4 TVE colleges are selected as IAT Pilot College.
3. At least 3 teachers from each pilot college become capable of teaching basic and intermediate IAT course as team.
4. Basic IAT course program(s) is/are developed based on the training at TTC.

B. Pakistan:

1. TVE administrators are aware of what and how to introduce IAT program in their schools.
2. At least 3 or more institutions are selected for the participation to training in TTC.
3. 10 teachers are trained in Basic, Intermediate and Advance IAT course at TTC.

C. Azerbaijan:

1. TVE administrators are aware of what and how to introduce IAT program in their schools.
2. At least one institution is selected as IAT pilot college.

3. 20 teachers are trained in Basic IAT course at TTC.

D. Group Training target countries

1. TVE administrators are aware of the importance of the IAT.
2. At least 10 teachers from each country are trained in basic IAT course.

The prospect for meeting the determined per-country (for CFT) or per-group (for GT) indicators is mixed, with high potential for Kazakhstan and Pakistan, while low for Azerbaijan and medium for GT countries. Therefore, **the overall prospect for achieving the Project Purpose is fair.**

A. Kazakhstan

For Kazakhstan, four indicators were determined in support of the Project Purpose achievement. The status of their achievement is as follows:

1. “TVE administrators are aware of what and how to introduce IAT program into the TVE” - Achieved: 9 Administrators attended CFT Executive Managers Course and the TVE Managers Course, both in November 2012, and based on the knowledge obtained, developed action plans to introduce the IAT program to their schools. The proposals were submitted to the Ministry of Education and Science in Kazakhstan.

2. “At least 4 TVE colleges are selected as IAT Pilot College” - Achieved: Kazakhstan’s Ministry of Education and Science selected 4 TVE colleges as IAT pilot colleges (Almaty State Polytechnic College, Almaty State College of Energetic and Electronic Technologies, Taldykorgan College of Manufacturing Industry, and Zhambyl Polytechnic College).

3. “At least 3 teachers from each pilot college become capable of teaching basic and intermediate IAT course as team” - Achieved: In June 2013, three teachers each from the four pilot colleges attended IAT Basic Course and successfully completed the program. By the time of the Intermediate Course (June 2014), two of them (one each from Almaty State Polytechnic College and Taldykorgan College of Manufacturing Industry) had been transferred to other positions. Their slots were given to the other technical staff from the respective institutions with a condition that they will catch up by attending the Basic Course offered by Nazarbayev University prior to travelling to Turkey for the Intermediate Course at TTC. The condition was met and led to the achievement of this indicator.

4. “Basic IAT course program(s) is/are developed based on the training at TTC” were identified” - Prospect for achieving the indicator is high as per the status at the time of Terminal Evaluation (September 2014). At three out of the four Project participating institutions (i.e. Almaty State College of Energetic and Electronic Technologies, Taldykorgan College of Manufacturing Industry, and Zhambyl Polytechnic College), approval for the course offering has been obtained from the Ministry of Education and Science, followed by the development of the course program, and based

on which the course implementation has started. Including Almaty State Polytechnic College whose course application is at the Ministry of Education and Science review stage, IAT equipment procurement application is also at the Ministry of Education and Science for review for Almaty State College of Energetic and Electronic Technologies, Almaty State Polytechnic College, and Zyambyl Polytechnic College. Taldykorgan College of Manufacturing Industry has already secured budget for the equipment, and it is now being procured. While classes have started with the theoretical part in the first year, that will lead into lab work in the second year by which time equipment procurement is hoped to be complete. To ensure quality in the knowledge and skills offered through the course administration, dispatch of the Turkish C/P of this Project is being planned for April 2015.

B. Pakistan

For Pakistan, three indicators were determined in support of the Project Purpose achievement. The status of their achievement is as follows:

1. “TVE administrators are aware of what and how to introduce IAT program in their schools” - Achieved: Agreement of Memorandum was signed by the Project Needs Survey Mission Team and Mr. Qamar Zaman Ch., Secretary, Ministry of Professional Technical Training, Government of Pakistan. In addition, two high ranking administrators attended the CFT Executive Managers Course that was conducted in November 2012. The participants agreed that they will select appropriate TVE teachers for the CFT training in TTC, and the first course, IAT Basic, was successfully implemented in December 2012.

2. “At least 3 or more institutions are selected for the participation to training in TTC” - Achieved: The following 7 institutions were selected to send teachers to the Basic IAT Course (2012) and the Intermediate IAT Course (2013) – National Training Bureau (NTB), Islamabad; Technical Training Center, Quetta, Baluchistan; Govt Vocational Training Institute, Mirpur, Azad Kashmir; Government College of Technology, Rawalakot, Azad Kashmir; GVT Peshawar, Peshawar; STEVTA, Sindh; GCT Tangi, Charsadda, North West Frontier Province.

3. “10 teachers are trained in Basic, Intermediate and Advance IAT course at TTC” - Prospect for achievement of this indicator is high. During the Needs Survey before the start of the course, Pakistani Government agreed to send the same participants from the same institutions to be trained in Turkey in the course of the three year of the Project. Subsequently, Pakistani teachers participated in the Basic IAT Course in December 2012. In 2013, the same participants attended the Intermediate IAT Course in November 2013. The Advanced Course is scheduled for December 2014, and the same participants are expected to return to the TTC.

C. Azerbaijan:

For Azerbaijan, three indicators were determined in support of the Project Purpose achievement.

The status of their achievement is as follows:

1. “TVE administrators are aware of what and how to introduce IAT program in their schools” - Achieved: Eight administrators from Azerbaijan attended the CFT Executive Managers Course and the TVE Managers Course in November 2012. Based on the knowledge from the training, TVE Managers developed action plans to introduce the IAT program to their schools. The proposals were submitted to Azerbaijan’s Ministry of Education, (Note: however, no further information on the progress of the action plans has been reported.)

2. “At least one institution is selected as IAT pilot college” - Prospect for achieving the indicator is low: During the June 2012 Needs Survey, Azerbaijan’s Vocational Training Office DG mentioned the possibility of establishing an IAT pilot college. Yet 2013 September Basic Course participants were drawn from several TVE colleges, and none came from IAT pilot college. As of September 2014, no further development is confirmed.

3. “20 teachers are trained in Basic IAT course at TTC” - Prospect for achieving this indicator is uncertain: In 2013, nine teachers participated in the training at TTC. Participation of 10 other teachers in October 2014 Basic Course is sought. However, at the time of the Terminal Evaluation (September 2014) only five out of 10 applicants meet the eligibility criteria. Thus, further effort is under way to recruit the right cohort to implement the course as envisaged by the Project indicator. This issue of mismatch has challenged the Project: While the Project, with coordination support by TIKKA, has done its best to recruit the most suitable candidates for the training, the professionals who have most relevant background seem to be drawn from computer science, since the country does not have institutions related to IAT, from which to send the instructor participants.

D. Group Training target countries

For Group Training, two indicators were determined in support of the Project Purpose achievement. The status of their achievement is as follows:

1. “TVE administrators are aware of the importance of the IAT” - Achievement level of the indicator is medium. Eight administrators attended the GT TVE Managers Course in November 2012: Two from Kyrgyzstan, two from Tajikistan, zero from Turkmenistan, two from Afghanistan, and two from Palestine. Subsequently, a total of 18 TVE trainers attended the IAT Basic Courses – from Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and Palestine (Plan was 24). However, no TVE trainers were received from Afghanistan as the applicants did not possess relevant background and did not meet the candidacy requirement. Follow up with Afghanistan had been agreed through TIKKA. However, at this stage, Afghanistan participation has faded out from the Project due to the country’s domestic circumstances.

2. “At least 10 teachers from each country are trained in basic IAT course” - Prospect for achieving

the indicator is fair, based on the preparation status of November 2014 and January 2015 Basic Courses and continued uncertainty of appropriate participation from Afghanistan.

3-1-4 Prospect for Achieving the Overall Goal

Overall Goal:
Technical education and vocational training capacity on IAT of target countries is enhanced.
Objectively Verifiable Indicators (OVIs)
Trial IAT program(s) is/are introduced to the participant's institution.

The achievement of the indicator will require resource input (financial, technical, and logistical), either by own effort of the participating countries' Ministry of Education or through support by external sources. One emerging case is Kazakhstan, where additional/separate larger context input (e.g. Japanese Government resource for supporting small/medium sized business acquired in Kazakhstan channeled to the pilot institutions of this Project, World Bank assistance to educational institutes in Kazakhstan included the pilot colleges, etc.) has been secured to produce emerging results: At three out of the four pilot institutions, IAT course has started, with equipment purchase arrangement in process. Large part of accessing such further support has been arranged by the Project, reaching out to Kazakhstan as a part of Project activities. This kind of additional handholding required for meeting the Overall Goal will not be available to the other participating countries at post-completion stage of the Project period, and therefore, **the prospect for achieving the Overall Goal (which is by default a goal for the implementing agency to achieve by own effort AFTER the Project period) against the preset indicator is fair.**

3-2. Implementation Process of the Project

3-2-1. Implementation of Activities and Ownership in Implementation

At TTC, C/P, who not only possess distinguished technical expertise but also high moral and commitment in their professional service delivery, aided by never ending pursuit for betterment, strived to give their best in preparing the training programs, delivering the courses, and following up for improvement for Project execution. What is beyond their domain of business that was essential for their effort to bring results, is the communication with the participants beyond national borders where internet access might be more limited (not only as physical access but inclusive of cultural or habitual barriers that might exist) and/or language that prohibits direct communication, part of Project work discussed and agreed at JCC to be enhanced further. It turned out that the effective implementation of the planned activities require more managing, such as handholding and reaching out, than simple communication by sending out forms and collecting them. While it is clear that all the concerned parties have done their part within the scope of their mandate, glitches (e.g. no-responses to follow-up survey) hindered the smooth and effective implementation of the Project activities.

3-2-2. Project Management

The Project structure as per signed in the R/D (November 28, 2011) assumed international coordination part of the Project work is administered by “TIKA Target Country Office Staff” with “JICA Target Country Staff” providing “Coordinative Support” (p. 9), meaning these personnel are counted as actors in the Project. In some cases, country conditions became a hurdle for the parties to perform smooth triangular (i.e. as opposed to bilateral between Turkey and Japan only) collaboration.

4. Result of the Evaluation

4-1. Evaluation by the Five Criteria

4-1-1 Relevance: High

The relevance of the Project is evaluated as high based on the assessments from the five angles below:

(1) Relevance with the Government policy of the Republic of Turkey, particularly that pertaining to their own international cooperation agenda to the neighboring countries

The Project was planned and initiated in line with Turkey’s national development plan, “Ninth Development Plan of Turkey (2007-2013).” Its succeeding national policy “Tenth Development Plan (2014-2019)” also emphasizes international cooperation for development axis by sharing experiences with other countries, placing this Project an exemplary case of national policy execution.

(2) Alignment with strategic plan/direction of MoNE in regard to TVET

The government’s legislative document emphasizes pursuing national and international projects in TVET domain, endorsing that the Project is a well aligned realization of the direction of the sub-sector.

(3) Relevance with the needs of the participating countries

The participating countries as the Project’s target include the following countries: Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Pakistan, Palestine, Tajikistan, Turkmenistan, and Uzbekistan. Match of these countries for the Project had been determined during appraisal stage of the Project in reference to the national policies of the respective countries². Once it was launched, the Project

² As a part of Project formulation, JICA Turkey Office conducted needs survey and fleshed out specific and differentiated needs of the participating countries. Since this survey focused on the needs from the perspective of the industries, however, preparedness on the part of TVET institutions to initiate/upgrade IAT area were not identified to reflect into the Project design.

organized a mission to the countries to discuss specific arrangement so that each country would benefit most from the participation. The resulting arrangement, i.e. 1) Country Focused Training for Azerbaijan, Kazakhstan, Pakistan and 2) Group Training for Uzbekistan, Afghanistan, Kyrgyzstan, Palestine, Tajikistan and Turkmenistan (with further sub-grouping for language specific streams, one in Russian and the other in English) reflected different stages of existing capacity in IAT training, as well as the direction that each country holds for its needs.

(4) Relevance with the Japan's ODA Policy

The Project is a precursor of Japan's ODA policy to Turkey that emphasizes supporting Turkey's position as an emerging donor to the Central Asia and the Middle East. The Memorandum of Understanding (MOU) between JICA and Turkish Cooperation and Coordination Agency (TIKA) signed in January 2012 in order to promote the joint projects and technical cooperation projects is a testament and a proof of the Project's significance to Japan-Turkey partnership for the latter's international cooperation.

(5) Comparative Empirical and Technological Advantage of Japan's Cooperation

Evidenced by the preceding, completed projects such as "Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools (2001 to 2006)," "The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department (SPREAD) (2007-2010)", technical expertise in the area of IAT vocational training instruction has been recognized as a critical area where concerned parties in Turkey can benefit from Japanese expertise and collaboration. This point was further confirmed during the November 2013 CP training in Japan where MoNE's senior managers were exposed to the Japanese current practices that emphasizes experimental, project based, problem-solving focused vocational education for the technical areas concerned (See Annex 3-1-2 "Training in Japan").

4-1-2 Effectiveness: Fair

The effectiveness of the Project is assessed as fair, for the prospect for meeting the Project Purpose as determined by the indicators is mixed, with high potential for Kazakhstan and Pakistan, while low for Azerbaijan and medium for GT countries. For stronger achievers, Kazakhstan and Pakistan, CFT for Executive Managers as well as that for TVE Managers under Output 1 paved a way to secure high level engagement of the participating countries' Ministry of Education for later activities. Particularly for Kazakhstan, it is evident that the successful achievement of the Outputs coincided with parallel inputs and efforts that were drawn to the IAT pilot colleges from other sources, such as Japanese Government scheme for supporting small/medium sized business connected with the Project's IAT pilot colleges and World Bank assistance to educational institutes in

Kazakhstan.

In addition, Output 3 signified that without direct/effective interface for communication between the C/P and the participants, the prospect for achieving it is limited at most. Application process for the training participants had to be conducted as logistical and administrative matter led by TIKA. However, country specific situations added difficulty for enforcing technical relevance in the selection, resulting in the recruitment of less than ideal candidates in some cases.

According to the hearing by the Project to the training participants, the important assumptions³ are largely met by the stronger achievers (Kazakhstan and Pakistan): In Kazakhstan, three out of the four pilot colleges have already started the IAT course based on the TTC training results with associated equipment under procurement stage, and in Pakistan also, some of the institutions have started training on IAT.

4-1-3 Efficiency: High

The Efficiency of the Project is evaluated as high in view of the five dimensions of Input-Output relationships that the Project managed for results.

(1) Causality of Inputs and Outputs

The training schedule was prepared in accordance with the Turkish calendar. Given participating countries might be dictated by different budget/academic calendars, a diagnostic analysis on the best timing could have increased the efficiency of Input-Output relationship. Yet, annual schedule, planned well in advance and adjusted where necessary in close consultation with JCC has run satisfactorily, and converted inputs into outputs. The only bottleneck or leakage (such as no-response to the survey) arose where C/P do not have direct communication channel with the trained/to-be-trained participants to ensure input is converted into outputs.

(2) Achievements of Outputs

The important assumptions set for the Project at the launch, which were listed below, largely held to support the Outputs to be produced.

- As results of the need survey in CFT target countries, local government agreed the target institution and content recommended by the survey team.
- A discussion for training content identification was implemented among the GT target countries.

³ “Equipment are purchased by the participant institution,” “IAT Curriculum(s) is/are approved by the Ministry of Education of target countries,” and “Teachers trained in Turkey are assigned to conduct the new curriculum at each target country.”

(3) Appropriateness of Inputs by Japan

The planned input was disbursed. However, in light of the evolving situations not foreseen at the planning stage (e.g. departure of many C/P from the preceding Project, that shrunk the C/P cohort down from around 25 personnel to seven at the Project start, which was further reduced to five due to staffing needs of the MZS), additional input was required for effective execution of the Project. In this relation, a short term expert on curriculum design was arranged. This input was highly valued by both the Japanese and Turkish sides with a remark that it would have been even more effective if this intervention was possible earlier in the course of the Project.

For training in Japan, “Field Observation of Human Development for IAT in Japan,” 9-day trip for managers from General Directorate of Vocational and Technical Education (TVE), MoNE was implemented from November 16 to 24, 2013. This exposure not only exposed the MoNE managers to Japanese IAT practices and teaching approach but also to how JICA operates its aid activities. The feedback shared endorses that the training impacted Project Director and other MoNE managers closely associated with the Project, and supported to forge more informed environment to the rest of the Project implementation.

TTC trainers have highly valued Japanese equipment (e.g. OMRON) procured for their teaching activities over the course of the last 10 years (from the predecessor project time). Initially no plan was made to procure Japanese equipment for this Project. However, due to advice of the short term expert, it was arranged and is reported to have drastically contributed to teaching, as the procured system can be disassembled and re-assembled, to enable more visual conceptualization of the IAT system.

(4) Appropriateness of Inputs by the Turkish side

Turkish side also made the effort in securing resources to support the Project activities. The most challenging part of the resource acquisition related to the C/P assignment. Manpower needs to meet the planned activities at TTC was calculated at 77.7 MM/year requiring seven full time personnel. Yet, five C/P had to shoulder this load, each responsively performing more than one person’s full time job.

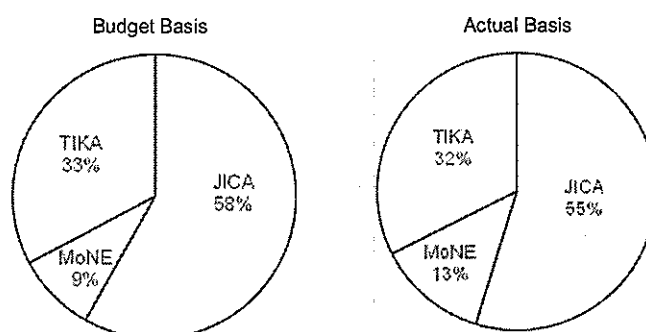
Turkish side contributed also to procure some equipment/supplies in the first and second year from TIKA budget. Due to unforeseen circumstances, however, the third year applicable budget of TRY 50,000 (approximately JPY 2.4 million) has not been disbursed. MoNE and TTC are expecting to spend this allocated amount in the near future.

(5) Adherence of each participating agency to the pre-determined contribution ratio

Overall, the original agreement for cost sharing signed in R/D that reads “Shared portion of JICA shall not exceed seventy percent (70%) of the total amount” was adhered (see Table 1) with JICA having contributed 55% of the total cost (on actual basis) up to September 2014.

Table 1: Cost sharing (up to September 2014) (TRY)

		JICA	MoNE	TIKA	TOTAL
2012	Budgeted	329,570.0	22,400.0	216,308.0	568,278
	Actual	358,311.0	44,100.0	186,340.0	588,751
2013	Budgeted	815,325.0	161,600.0	362,310.0	1,339,235
	Actual	469,685.6	161,600.0	276,975.0	908,261
2014	Budgeted	221,870.0	28,000.0	192,640.0	442,510
	Actual	175,532	28,800	131,720	336,052
BUDGET BASIS					
SUB-TOTAL		1,366,765	212,000	771,258	2,350,023
COST SHARING RATIO		58%	9%	33%	
BASED ON ACTUAL					
SUB-TOTAL		1,003,528.6	234,500.0	595,035.0	1,833,064
COST SHARING RATIO		55%	13%	32%	



4-1-4 Impact: Fair

One significant impact being emerged is with Kazakhstan, where additional/separate larger context input (e.g. Japanese Government resource for supporting small/medium sized business acquired in Kazakhstan channeled to the pilot institutions of this Project, World Bank assistance to educational institutes in Kazakhstan included the pilot colleges, etc.) has been secured to produce emerging results: At three out of the four pilot institutions, IAT course has started, with equipment purchase arrangement in process. Large part of accessing such further support has been arranged by

the Project, reaching out to Kazakhstan as a part of Project activities. While classes are already in progress, to ensure quality in the knowledge and skills to be offered at the course administration, MoNE, TIKA, and JICA have discussed and agreed on the dispatch of the Project's Turkish C/P to Kazakhstan as Third Country Experts. The arrangement is in the pipeline and when materialized, is anticipated to positively impact the achievement of the Overall Goal. It is reported that, Pakistani participants of the Project training are also willing to receive dispatch of Project's Turkish C/P to Pakistan as Third Country Experts. In addition, Pakistani Government is eager to launch legislation process for establishing centralized vocational school.

This kind of additional handholding required for meeting the Overall Goal will not be available to the other participating countries at post-completion stage of the Project period unless the Project can provide similar, proactive reach out to the rest of the participating countries. Therefore, the prospect for achieving the Overall Goal (which is by default a goal for the implementing agency to achieve by own effort AFTER the Project period) against the preset indicator is fair, suggesting the Project impart to be fair.

4-1-5 Sustainability: Fair

A comprehensive assessment, as described below, warrants a rating of fair for the sustainability of Project achievements.

(1) Institutional Aspect

Roles and responsibilities of the responsible parties of the Project were defined in R/D and understood among MoNE, TIKA, and TTC: MoNE to take the overall responsibility of the management and implementation of the Project, including the overall coordination among all the stakeholders; TIKA to coordinate the implementation of training, including coordination with its target country offices to liaise with the participants and their institutions; TTC to develop and deliver training, as well as to provide post-training follow up to the participants for later, in-country work. However, it is uncertain if the respective parties were fully aware of and ready to commit in the complexities involved with managing international training programs for which they do not have full control for envisaged results.

Each organization has own mandate that restricts them from flexibly and directly responding to the evolving needs that have popped up during the course of the Project. For example, while technical issues are best dealt by the TTC, they are not in a position neither have the ability to communicate with some participants with whom they do not share a common language. Such situations required the interface by translator(s) procured as a part of Project activities. Going forward, such complexities will remain, and while each challenge has been managed by the concerted efforts, pose a question on how institutional sustainability will be ensured beyond Project

period.

(2) Technical Aspect

Through the Project, C/P strengthened coordinative, managerial, and administrative capacity in planning, delivering, monitoring, and improving IAT training for trainers. Except for the Advanced Course⁴, the trainers have accumulated solid expertise for course administration. Since it typically takes multiple cycles of running a course for its program to be tested, refined, and standardized, for the C/P to become able to offer a full-fledged IAT training package of Basic, Intermediate, and Advanced Courses, running multiple cycles of courses, particularly those of the Advanced where there is less track record, would be preferable in order to build up technical sustainability. It has proven through the Project that their expertise as instructors of IAT field is of international value, which in turn is an important asset for Turkey as they can contribute to the capacity enhancement vision of the Turkish Government in strengthening its global competitiveness in manufacturing industries. It is hoped that their expertise will be utilized while maintaining exposure to the neighboring countries, so that findings from international exposure will feed into further innovation in the country also to enable Turkey to hold its competitive edge.

(3) Financial Aspect

Most of the funding that was budgeted has been secured. Continued effort is sought to ensure financial sustainability.

(4) Other factors that will affect the sustainability of the Project achievements

During the Project period, exhaustive discussions were held regarding sustainability of TTC. As of now, its status as an attached service entity to MZS is anticipated to continue beyond the Project period. The needs for their service, either domestic for in-service training, or international, as an implementation arm to realize Turkish Government's national policy that emphasizes international cooperation, is anticipated to continue, and therefore, the sustenance of this entity should be a common agenda to be prioritized.

4-2. Conclusion

The relevance of the Project is evaluated as high based on its close alignment with (1) Government policy of the Republic of Turkey, particularly that pertaining to their own international cooperation agenda to the neighboring countries, (2) strategic plan/direction of MoNE in regard to TVET, (3) the needs of the participating countries, (4) the Japan's ODA Policy, and (5) comparative

⁴ The first such course being organized as December 2014 CFT for Pakistan.

empirical and technological advantage of Japan's cooperation. The effectiveness of the Project is assessed as fair, for the prospect for meeting the Project Purpose as determined by the indicators is mixed, with high potential for Kazakhstan and Pakistan, while low for Azerbaijan and medium for GT countries. The efficiency of the Project is evaluated as high in view of the five dimensions of input-output relationships that the Project managed for results: (1) causality of inputs and outputs; (2) achievements of outputs; (3) appropriateness of inputs by Japan; (4) appropriateness of inputs by the Turkish side; and (5) adherence of each participating agency to the pre-determined contribution ratio. The prospect for achieving the Overall Goal against the preset indicator is fair, which in turn warrants a rating of fair for the Project impact. Project sustainability is also considered fair, based on a comprehensive assessment of the implementing agency's current institutional, technical, and financial aspects.

5. Recommendations and Lessons Learned

5-1. Recommendations

Based on the findings, Terminal Evaluation Team presents the following recommendations to be addressed by the completion of the Project, for which party/ies best positioned to take actions is/are specified:

5-1-1 Follow-up to secure technical sustainability through full-fledged IAT training course package (MoNE, TIKA, JICA, TTC)

In the course of evaluation study, **technical sustainability of the Project produced achievements** (refer to 4-1-5 “Sustainability”, “(2) Technical Aspect”) has emerged as the utmost important common agenda of all the parties involved with the Project. A concern has been raised that given only one Advanced Course is scheduled before the completion of the Project, it might not allow the Project to fully test and refine the Advanced Course Program to make a full-fledged IAT training course package (i.e., Basic, Intermediate, and Advanced Courses).

In light of such revelation, the Terminal Evaluation Team recommends the Project to be extended for certain period of time to **accommodate sufficient time to organize and deliver additional trainings (that include Advanced) to select countries based on the pre-agreed criteria (e.g. such as in-country resource availability to found IAT departments) so that the tested and refined program will ensure the sustainability of the technical expertise established by the Project.** The Terminal Evaluation Team confirmed with C/P that this recommendation does not interfere with the MoNE plan for the TTC to provide in-service training from April 2015 and considers such strengthening will add benefit to the quality enhancement of the in-service training they will be tasked to deliver. In order to sketch out that this recommendation is feasible, each party is requested to review the following and agrees course of actions at JCC in the nearest future possible:

- TIKA: As have already promised to the Terminal Evaluation Team, collect feedback from the Project participating countries on their further needs and preparedness for additional training opportunity. (Feedback received thus far: Pakistan, Palestine and Kazakhstan Programme Coordination Offices of TIKA informed that, the IAT programmes were found very beneficial. Kazakhstan and Pakistan officials informed the TIKA Programme Coordination Offices that they would like to continue the training courses in advance level.)
- TTC: Based on feedback obtained by TIKA, sketch out, on top of already scheduled 2015 in-service training, how much time and when such follow-up training activities can be scheduled.

- MoNE: Based on the analysis prepared by TTC above, determine when Project related follow-up training can be conducted, schedule wise, into TTC's 2015 calendar for in-service training that is planned under the supervision of MoNE.
- JICA: Based on the analysis prepared by TTC above, calculate resource requirement for the follow-up as well as how much can be provided by JICA.
- JCC: Discuss points mentioned above, and come up with an agreement for the follow-up.

5-1-2 Post-training communication with the participants with language/access challenges (TTC, TIKA)

Numerous challenges (primarily due to lack of common language between C/P and the participants and/or easy access to the internet on the part of the participants) have been experienced by the C/P for conducting web based follow-up survey after the participants return to respective countries. For the remainder of the training courses, therefore, participant-specified, **support system consisting of (1) TTC C/P in charge of the participant's program, (2) TIKA Headquarter representative, and (3) the first-window-of-contact person at TIKA Office in the target country** will merit for high risk participants. In order to ensure that the participant is aware that he/she is assisted by these three representatives who are networked between Turkey and his/her own country, pre-departure information should include who these people are with which numbers/e-mail addresses. Then upon arrival at TTC, the **C/P should discuss with the participant the most preferred arrangement for his/her post-training communication.** To ensure he/she will maintain communication post-training, the value of further networking with the IAT instructor and TTC should be made clear, as a resource for further consultation.

5-1-3 Dispatch of the Third Country Expert(s) (MoNE to coordinate TIKA, JICA, and TTC)

In consultation with JCC, dispatch of Project C/P to Kazakhstan as the Third Country Expert(s) is being planned to provide technical support in ensuring quality in the knowledge and skills offered in the courses created based on the Project's training, and is anticipated to take place in the early part of 2015. Realization of this dispatch will be an epoch-making event, endorsing how capacitated C/P are through the Project. As the Project's overall coordinator among all the stakeholders, leadership of MoNE in moving the preparation and materializing fruitful implementation is sincerely sought as a proof of the Project's tangible outcome.

It is hoped that the JCC agreement will become a point of departure for the Project produced achievements to further shape the future of IAT led technological advancement for Turkey and its neighboring countries.

5-2. Lessons Learned

Below are lessons drawn from the Project for reference to other JICA projects with shared characteristics:

- Utilization of Web based resources (Output 3 related): While demand for IT dependent information sharing system is expected to continue increasingly, caution should be paid if the beneficiary of the Project are IT literate, have easy and not-costly access to the service, and there are common language to enable direct communication.
- Crafting of post-training follow up (Output 3 related): For bidirectional communications to last post-training, it will be important to pre-plan and advocate the benefit of sustaining the connection, such as for receiving informed feedback, etc.
- Early acquisition of institutional commitment for the third country participation (Project Purpose related): As the case of Pakistan suggests, acquiring high profile commitment early on enforces smooth operation in later stages (assuming that the persons either stay in the important positions or move to places with even more influences).
- Applicability of Overall Goal (Overall Goal related): By definition, Project's Overall Goal should refer to anticipated longer term (3-5 years after the Project completion) effects that will be derived by the effort of the implementing agency due to furtherance of Project achievements. The Overall Goal of this Project did not factor in the necessity of large scale resource input (e.g. for purchasing IAT equipment) that is essentially a pre-requisite for the realization of the Goal.
- Mobilization of third countries' in-country resources to support triangular cooperation: (overall): As more aid recipient countries graduate from its status and moves to occupy a donor position in aid community, grant giving and receiving relationship changes into more of partnership to collaborate in support of third country assistance. There, clear, one-on-one accountability of receiving aid that is available to bilateral cooperation cannot be established, as while JICA provides support to the implementing agency, JICA might not have direct access to the third-country beneficiaries to seek accountability for the support provided. This Project, sought to manage nine-country-involved implementation by mobilizing third countries' in-country resources: In addition to bilateral arrangement with the target countries by the help of respective JICA country offices, the Project tapped other funding sources (e.g. World Bank, Ministry of Foreign Affairs of Japan), and tied them to support the institutions that send trainees to the Project.

Annex 1: Evaluation Schedule

Date		Schedule
15-Sep	Mon	11:55 Narita (TK051) → Istanbul (Evaluation Analysis) 20:00 Istanbul (TK2178) → Ankara
16-September	Tue	09:30 JICA Turkey office 14:00 MoNE Mr. Osman Yıldırım, Acting Director General, GDVTE Ms. Şennur Çetin, Head of Group, GDVTE Mr. Mehmet Yazar, Expert, GDVTE Ms. Kübra Karaibis, Assistant Expert, DVTE
		10:00 TİKA Dr. Mehmet Yılmaz, Head of Foreign Affairs and Partnerships Ms. Ayşe ÖRÜN, Expert Ms. Berna GÜRKAŞ, Expert 15:55 Ankara (TK7010) → Izmir (Evaluation Management 1, Evaluation Analysis) 19:00 Dr. Takujiro Ito (Chief Advisor)
18 September	Thu	09:00 Observation tour of the TTC facilities 10:00 Project briefing by TTC CP and Expert 13:00-16:00 Group meeting with C/P
19 September	Fri	9:00-10:00 Mr. Yusuf VURAL (PM), Principal, MZ 11:00-12:00 Mr. Hasan KORKMAZ (former PM), Deputy Director of Provincial Education Office 15:55 Izmir (TK7009) → Ankara (Evaluation Management) 16:00 Dr. Takujiro Ito (Chief Advisor)
20 September	Sat	10:20 Izmir (TK7005) → Ankara (Evaluation Analysis) Report drafting (Evaluation Analysis)
21 September	Sun	Report drafting (Evaluation Analysis)
22-September	Mon	11:00 Draft Terminal Evaluation Report discussion at JICA Office 15:00 Draft Terminal Eval Draft Report discussion with MoNE Ms. Şennur Çetin, Head of Group, GDVTE Mr. Mehmet Yazar, Expert, GDVTE Ms. Kübra Karaibis, Assistant Expert, DVTE
		Draft Terminal Evaluation Report circulated to MoNE and TIKA for review
23 September	Tue	Draft Terminal Evaluation Report Review Period (MoNE, TIKA, & JICA)
24-September	Wed	15:00 TİKA (Discussion on early responses) Ms. Ayşe ÖRÜN, Expert Ms. Berna GÜRKAŞ, Expert
		AM: Comment reflection 14:30 JICA Evaluation Team Meeting
25-September	Thu	AM: Circulation of Confirmed Evaluation Report to MoNE, TIKA, JICA 14:30 Joint Coordination Meeting (JCC) Ankara (TK2175) → Istanbul (Evaluation Analysis)
26-September	Fri	AM: Circulation of Confirmed Evaluation Report to MoNE, TIKA, JICA 14:30 Joint Coordination Meeting (JCC) Ankara (TK2175) → Istanbul (Evaluation Analysis)
27-September	Sat	01:05 Istanbul (TK052) → Narita (Evaluation Analysis)

Annex 2: List of Interviewees

1. Ministry of National Education (MoNE)

Name	Position	Roles in the Project
Mr. Osman Yıldırım	Acting Director General, GDVTE	Project Director
Ms. Şennur Çetin	Head of Department, GDVTE	Deputy Project Director
Mr. Mehmet Yazar	GDVTE	
Ms. Kübra Karaibis	Assistant Expert, GDVTE	

2. Turkish Cooperation and Coordination Agency (TIKA)

Name	Position	Roles in the Project
Dr. Mehmet Yılmaz	Head of Foreign Affairs and Partnerships Department	JCC Member
Ms. Ayşe ÖRÜN	Expert	
Ms. Berna GÜRKAŞ	Expert	

3. Department of Education, Izmir Province

Name	Position	Roles in the Project
Mr. Hasan KORKMAZ	Deputy Director	Former Project Manager (Till June 2014)

4. Mazhar Zorlu Technical and Industrial Vocational High School/Teacher Training Center

Name	Position	Roles in the Project
Mr. Yusuf VURAL	Acting Principal	Project Manager
Mr. Egemen DOGER	Head of IAT Department/Trainer	C/P
Mr. Gürcan Bildir	Coordinator/Trainer	C/P (Project Coordinator/IAT Trainer)
Mr. Murat ÖZDEVECİ	Ex-Chief of TTC/Trainer	C/P
Mr. Bülent VARDAL	Trainer	C/P
Mr. İsmail AKTAŞ	Trainer	C/P
Ms. Neslihan BILDIR	Project Assistant	Project Assistant

5. Japanese Expert

Name	Position
Dr. Takujiro Ito	Chief Advisor/Training Management/Curriculum Development 1

Annex 3: Inputs
Annex 3-1: Input by the Japanese Side

Annex 3-1-1 Assignment of Experts

Field of Expertise	Name	Dispatched period (M/M)				
		2012	2013	2014	2015	Total
Chief Advisor/Training Management/Curriculum Development 1	Takujiro ITO	5.33	3.20	3.63	1.34	13.50
Curriculum Development 2	Ayako NAKAZATO	3.00	2.00	2.00	0.00	7.00
Industrial Automation Technology	Hideki KUMAGAI	0.00	0.83	0.43	0.00	1.27
Coordinator/Training Management Assistance	Mami FUJISHIMA	3.00	2.16	1.60	0.00	6.76
Coordinator/Training Management Assistance (since September 17, 2014)	Gen FUJII				1.07	1.07
Total		11.33	8.19	7.66	2.41	29.6

Note: Covers the whole duration of the Project period based on the actual (up to August 2014) and estimate (September 2014 onwards).

Annex 3-1-2 Training in Japan: November 16-24, 2013

“Field Observation of Human Development for IAT in Japan,” 9-days trip to Japan for managers

from General Directorate of MoNE was implemented from November 16 to 24, 2013.

The main objectives of the field observation were as follows:

- 1) Obtain information regarding new trend of IAT related technologies in Japan
- 2) Observe the situation of the IAT education at TVE High Schools and Universities
- 3) Observe the standard facilities/service of the International Training Centers in Japan.

The names of the invited participants were as follows:

	Name	Title in Organization	Title in Project
1	Assoc. Prof. Dr. Ömer AÇIKGÖZ	Director General, General Directorate of Vocational and Technical Education (VTE)	Project Director (2012 and 2013).
2	Mr. Osman YILDIRIM	Group of Curricula and Teaching Materials, General Directorate of VTE	Project Director (since Jun 2014)
3	Mr. Yucel YUKSEL	Head of Department, General Directorate of VTE	Deputy Project Director

The itinerary included the following field visits and meetings:

	Name of Organization/ Lecture	Objective
1	Polytechnic University	To learn the overview of IAT education in higher education in Japan
2	Polytechnic Center	To learn about the roles and training contents of Polytechnic Center
3	Institute of National Colleges of Technology (KOSEN KIKOU)	Courtesy call
4	Tokyo National College of Technology (Tokyo KOSEN)	To learn about the roles and training contents of Tokyo KOSEN
5	Akashi National College of Technology (Akashi KOSEN)	To learn overview of the IAT education in vocational college in Japan
6	Tokyo Tech High School of Science and Technology	To learn overview of the IAT education in vocational high school in Japan
7	Factory of Denso, Denso E & TS Training Center Corporation	To see the automated industrial factory and learn about technical education in the company
8	Lecture of Japan Association for Automation Advancement	To learn the history and trend of IAT education in Japan
9	JICA Kansai	To learn the functions and services needed for International Training Center

Achievement of the training as per reported by the Project is as follows:

The three main objectives of the field observation were achieved through the visits to the IAT educational institutions, private factories, and through the lecture. The guests commented that they have learned about three major characteristics of the Japanese IAT education. One is the practical training on the automation field, second, the project based and problem-solving oriented studies, and third, the close relationship with the industry. These characteristics were not only focused in the high schools, colleges and universities; but they were emphasized in the human resource development in the private sector. One of the guests showed his surprise to the high placement rate in KOSEN and other organizations.

Annex 3-1-3 Provision of Equipment and Materials

1) Industrial Automation Composing System (2 sets)

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
1-1	Practice of Controlling Target Machine					
	Pneumatic Air Cylinder	Power (MAX): 15W, Rating torque: 120mNm, An output gear for connections: 80 ϕ module=1, Source Power: 220V/50Hz	MM-VA210	1,200	2	2,400
	Speed Control Induction Motor	Power (MAX): 15W, Rating torque: 120mNm, An output gear for connections: 80 ϕ module=1, Source Power: 220V/50Hz	MM-VA310	1,130	2	2,260
	Reversible Motor	Drive Source: Air pressure, Angle: 180°, An output gear for connections: 80 ϕ module=1	MM-VA320	930	2	1,860
	Rotary Pneumatic Air Actuator	Stroke 98mm or more, Output pin: ϕ 6mm, An output gear for connections: 80 ϕ module=1	MM-VA410	1,405	3	4,215
	Feed Screw	Stroke: 135mm, Two table position detection sensors, Output pin: ϕ 6mm	MM-VM140	2,240	2	4,480
	Slide Table	Conveyor effective length: 325mm, Belt width: 25mm, Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=1	MM-VM310	1,700	2	3,400
	Belt Conveyor	Table dimensions: 160mm, Two sensors for table position detection, Rotatory direction: CW/CCQ, An output gear for connections: 80 ϕ module=1	MM-VM320	1,590	2	3,180
	Rotary Table	Drive Source: Air pressure, Pneumatic chunk, Stroke: 30mm, Top and bottom drive: The air pressure cylinder inside diameter ϕ 15mm, Two sensor magnetism switches for top and bottom position sensing.	MM-VM330	2,250	2	4,500
	Pneumatic Air Driven Robot Arm	Tube: ϕ 20mm (inside), Stroke: 75mm, Output pin: ϕ 6mm	MM-VR110	1,880	2	3,760
1-2	Control and Supporting Units					
	2-Way Photo Electric Sensor	Transmission type Sensor dimensions: 34.8x18.6x10.8mm, Detection method: 10,000mm, Setting method: Strong magnet	MM-VS310	1,120	2	2,240

		base, Reflection type Sensor dimensions: 34.8x20x10.8mm, Detection method: Multi-reflection type Detection distance: 300mm, Setting method: Strong magnet base Source Power: 220V/50Hz				
	Connecting Rods	Shaft: Stainless steel, Highly precise ball joint, the tool for connecting units mechanically.	MM-VU310	200	2	400
					Sub-total	32,695

2) Industrial Automation Composing System (Mechanism & Application)

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
2-1	Typical Application Mechanism					
	Double Pin Geneva	Division number Geneva: 8, Geneva wheel: Wheel diameter (ϕ 110.1mm), Cam groove (10.1mm \pm 5mm), Shaft position sensor input: One micro switch, Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=1	MM-VM220	2,400	1	2,400
	Spur Gear	Input-output speed ratio: 1:3 or 3:1, Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=1	MM-VM150	1,590	1	1,590
	Rack & Pinion	Motion conversion: Translatory movement \leftrightarrow Rotational movement, Output pin: ϕ 6mm, An output gear for connections: 80 ϕ module=1	MM-VA110	1,460	1	1,460
	Crank Arm	Motion conversion: Rotational movement \leftrightarrow Translatory reciprocating motion Reciprocating stroke: 34-86mm An output gear for connections: 80 ϕ module=1	MM-VM230	2,300	1	2,300
	Lever Slider	Motion conversion: Rotational movement \leftrightarrow Translatory reciprocating motion Reciprocating stroke: 89-124mm Composition detection sensor: Two micro switches AN output gear for connections: 80 ϕ module=1	MM-VM240	1,800	1	1,800
2-2	Control and Supporting Units					

	Work Slide Guide	Shoot for work piece	MM-FW270	300	2	600
	Work Piece	Color of the work: Red, Blue, Yellow, Quality of the material: Aluminum, with magnet on the back	MM-FW130	10	10	100
	Magnetic Fixture	Magnet jig for fixing the units, 5 pieces in one set	MM-VB410	400	3	1,200
					Sub-total	11,450

3) Control Equipment (PLC)

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
3-1	Interface and Wiring Equipment					
	Terminal I/O Box (for Omron)	Input: 8 points, Output: 8 points, An input and output connector: '36 Centronics pins. It is with GND/a dummy switch Source Power: 220V/50Hz	MM-VC300	1,200	2	2,400
	Wireless with Connection Pins	Pin part: A spring lock, Pin diameter: Large ϕ 4mm, Small ϕ 2mm, Cable length: 1.5m	MM-VC190	300	3	900
	Data switch	Connection to switch up to four devices at Centronics, Connector: 36 Centronics pins, Number of switching: 1:4 or 4:1	DTSV4-CT	60	3	180
	Centronics Cable	Cable to connect Terminal I/O Box and Data Switch, Cable length: 5m	KPU-005K	39	3	117
					Sub-total	3,597

4) Motor Experiment Unit

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
4-1	Motor Control Basic Experiment					
	Stepping Motor	Hybrid Motor Full Step/Micro Step with Terminal Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=15V Logic Voltage 24V Motor Voltage	MM-VA335	1,580	1	1,580
	DC Motor	DC Motor with Terminal Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=15V Logic Voltage	MM-VA390	1,680	1	1,680

		24V Motor Voltage				
4-2	AC Servo Motor	Rating output: 0.1KW, Torque rating: 0.32N*m, Rotary speed: 3000r/min, An output gear for connections: 80φmodule=1, Source Power: 220V/50Hz	NM-VA345 OMRON	2,660	1	2,660
					Sub-total	5,920

5) Extra

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
5-1	Rotary Potentionmeter with BNC		MM-VC510	800	2	1,600
	Digital I/O Board USB Type		MM-VC310-USB	500	1	500
	Analog I/O Board with BNC		MM-VC590	600	1	600
					Sub-total	2,700

Total	56,362
KDV (18%)	10,145
Grand Total	66,507

Annex 3-1-4 Operational Expenses by Japanese Side

(TRY)

ITEMS	R/D	BUDGET (A)				ACTUAL (B)			
		AMOUNT				AMOUNT			
		2012	2013	2014 (up to Sep.)	TOTAL	2012	2013	2014 (up to Sep.)	TOTAL
I INVITATION EXPENSES									
1. AIR FARE	○	94,280	0	0		119,762	0	0	
2. TRANSPORTATION	○	6,020	0	0		14,980	0	0	
3. PER DIEM	○	37,800	107,900	43,120		35,760	85,345	37,240	
4. ACCOMMODATION	○	186,740	334,400	96,410		181,475	224,710	73,158	
5. HEALTH INSURANCE	○	4,730	0	0		3,690	0	0	
SUB-TOTAL		329,570	442,300	139,530		355,667	310,055	110,398	
II TRAINING EXPENSES									
1. TRANSLATION EXPENSES		0	373,025	82,340		0	159,630	65,134	
2. EXCURSION EXPENSES		0	0	0		0	0	0	
3. EXPENDABLE SUPPLIES		0	0	0		0	0	0	
4. CONSUMPTION MATERIAL		0	0	0		0	0	0	
5. MEETING EXPENSES		0	0	0		0	0	0	
6. PRINTING		0	0	0		0	0	0	
7. OTHERS		0	0	0		2,644	0	0	
SUB-TOTAL		0	373,025	82,340		2,644	159,630	65,134	
TOTAL		329,570	815,325	221,870	1,366,765	358,311	469,686	175,532	1,003,529

Annex 3-2: Input by the Turkish Side

Annex 3-2-1 Assignment of C/Ps

ID	Name	Affiliation	Project Function	2012年			2013年			2014年				
				Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		Q3
1	Prof. (Mr.) Ömer AÇIKGÖZ	MoNE	Project Director											
2	Mr. Osman YILDIRIM	MoNE	Project Director											
3	Ms. Şennur ÇETİN	MoNE	Deputy Project Director											
4	Mr. Yücel YÜKSEL	MoNE	Deputy Project Director											
5	Mr. Yaşar Baki ALTUNBAŞ	MoNE	Deputy Project Director											
6	Mr. Mehmet YAZAR	MoNE	Deputy Project Director											
7	Mr. Hamit DOĞAN	MZS	Project Manager											
8	Mr. Hasan KORKMAZ	MZS	Project Manager											
9	Mr. Yusuf VURAL	MZS	Project Manager											
10	Mr. Murat ÖZDEVECİ	MZS	CP											
11	Mr. Osman Egemen DÖĞER	MZS	CP											
12	Mr. Gürcan BILDIR	MZS	CP											
13	Mr. Bülent VARDAL	MZS	CP											
14	Mr. İsmail AKTAŞ	MZS	CP											
15	Mr. Mustafa NAZMAN	MZS	CP											
16	Mr. Telat GÜLER	MZS	CP											

Annex 3-2-2 Assignment of TIKA Representatives

ID	Name	Project Function	2012年			2013年			2014年					
			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		Q3	Q4
1	Dr. Mehmet YILMAZ	JCC Member												
2	Ms. Ayşe ORUN	Expert												
3	Mr. Şafak ÖZDEMİR	Expert												
4	Mr. Ömer ÖZDENÖREN	Expert												
5	Ms. Belgin ÇAĞDAŞ	Expert												
6	Mr. Ahmet DAŞTAN	Expert												
7	Ms. Berna GÜRKAŞ	Expert												

Annex 3-2-3 Provision of Equipment and Materials

Expenses for TTC	Amount (TRY)
Computer Laboratory	50,000
Furnishing for devices (Motor Control Lab.)	25,000
CNC Control Equipment	5,000
Expenses for TTC rooms	35,000
Laptop computer	5,000
XYZ Table	10,000
Expenses for conference hall	70,000
TOTAL	200,000

Expenses for TIKA	Amount (TRY)
Body Feeding with Sensor and Faulty Party Evacuation	11,562
Elektropneumatic	6,040
Horizontal piece distribution system with external gripper	16,490
Rotating manipulator and gripper	22,285
Two-axis Cartesian manipulator and holder	22,293
Others	6,962.50
SUBTOTAL	85,632.5
18% VAT	15,413.85
TOTAL	101,046.35

Annex 3-2-4 Operational Expenses by Turkish Side

(TRY)

ITEMS	R/D	BUDGET (A)				ACTUAL (B)			
		AMOUNT				AMOUNT			
		2012	2013	2014 (up to Sep.)	TOTAL	2012	2013	2014 (up to Sep.)	TOTAL
I INVITATION EXPENSES									
1. AIR FARE		0	233,950	93,840		0	130,260	72,370	
2. TRANSPORTATION		0	24,360	12,800		0	20,080	15,880	
3. PER DIEM		0	0	0		0	0	0	
4. ACCOMMODATION		0	0	0		0	0	0	
5. HEALTH INSURANCE		0	5,800	7,500		0	11,050	4,320	
SUB-TOTAL		0	264,110	114,140		0	161,390	92,570	
II TRAINING EXPENSES									
1. TRANSLATION EXPENSES	TIKA	132,740	0	0		78,500	0	0	
2. EXCURSION EXPENSES	TIKA	30,328	33,200	27,500		51,980	51,086	36,150	
3. EXPENDABLE SUPPLIES	TIKA	2,240	15,000	6,000		4,860	15,000	3,000	
4. CONSUMPTION MATERIAL	TIKA	51,000	100,000	45,000		51,000	99,500	0	
5. MEETING EXPENSES	MoNE	18,000	40,000	17,000		12,000	40,000	18,000	
6. PRINTING	MoNE	2,400	50,000	2,000		600	50,000	1,450	
7. OTHERS	MoNE	2,000	21,600	9,000		31,500	21,600	9,350	
SUB-TOTAL		238,708	259,800	106,500		230,440	277,186	67,950	
TOTAL		238,708	523,910	220,640	983,258	230,440	438,576	160,520	829,536

Annex 4: Evaluation Grid (Results of the Evaluation)

Evaluation Questions		Results
Main Questions	Sub Questions	
Prospect for Achieving the Overall Goal	<p>To what degree has the Overall Goal been achieved?</p> <p>Overall Goal: Technical education and vocational training capacity on IAT of target countries is enhanced.</p>	<p>OVI: Trial IAT program(s) is/are introduced to the participant's institution.</p> <ul style="list-style-type: none"> The achievement of the indicator will require resource input (financial, technical, and logistical), either by own effort of the participating countries' Ministry of Education or through support by external sources. One emerging case is Kazakhstan, where additional/separate larger context input (e.g. Japanese Government resource for supporting small/medium sized business acquired in Kazakhstan channeled to the pilot institutions of this Project, World Bank assistance to educational institutes in Kazakhstan included the pilot colleges, etc.) has been secured to produce emerging results: At three out of the four pilot institutions, IAT course has started, with equipment purchase arrangement in process. Large part of accessing such further support has been arranged by the Project, reaching out to Kazakhstan as a part of Project activities. This kind of additional handholding required for meeting the Overall Goal will not be available to the other participating countries at post-completion stage of the Project period, and therefore, the prospect for achieving the Overall Goal (which is by default a goal for the implementing agency to achieve AFTER the Project period) is fair.
Prospect for Achieving the Project Purpose	<p>To what degree has the Project Purpose been achieved?</p> <p>Project Purpose: Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.</p>	<p>A. Kazakhstan:</p> <p>OVI 1: TVE administrators are aware of what and how to introduce IAT program into the TVE.</p> <ul style="list-style-type: none"> Achieved: 9 Administrators attended CFT Executive Managers Course and the TVE Managers Course, both in Nov. 2012, and based on the knowledge obtained, TVE Managers developed action plans to introduce the IAT program to their schools. The proposals were submitted to the Ministry of Education and Science in Kazakhstan. (p. 3, 2nd PR). <p>OVI 2: At least 4 TVE colleges are selected as IAT Pilot College.</p> <ul style="list-style-type: none"> Achieved: Kazakhstan's Ministry of Education and Science selected 4 TVE colleges as IAT pilot colleges (Almaty State Polytechnic College, Almaty State College of Energetic and Electronic Technologies, Taldykorgan College of Manufacturing Industry, and Zyambyl Polytechnic College) (p. 3, 2nd PR). <p>OVI 3: At least 3 teachers from each pilot college become capable of teaching basic and intermediate IAT course as team.</p> <ul style="list-style-type: none"> Achieved: In June 2013, three teachers each from the 4 pilot colleges attended IAT Basic Course and successfully completed the program. By the time of the Intermediate Course (June 2014), two of them (one each from Almaty State Polytechnic College and Taldykorgan College of Manufacturing Industry) had been transferred to other positions. Their slots were given to the other technical staff from the respective institutions with a condition that they will catch up by attending the Basic Course offered by Nazarbayev University prior to travelling to Turkey for the Intermediate Course at TTC. The condition was met and led to the achievement of this indicator. <p>OVI 4: Basic IAT course program(s) is/are developed based on the training at TTC.</p> <ul style="list-style-type: none"> Prospect for achieving the indicator is high as per the status at the time of Terminal Evaluation (Sep. 2014). At three out of four Project participating institutions (i.e. Almaty State College of Energetic and Electronic Technologies, Taldykorgan College of Manufacturing Industry, and Zyambyl Polytechnic College), approval for the course offering has been obtained from the Ministry of Education, followed by the development of the course program, and based on which the course implementation has started. Including Almaty State Polytechnic College whose course application is at the Ministry of Education and Science review stage, IAT equipment procurement application is also at the Ministry of Education and Science for review for

Evaluation Questions		Results
Main Questions	Sub Questions	
		<p>Almaty State College of Energetic and Electronic Technologies, Almaty State Polytechnic College, and Zyambyl Polytechnic College. Taldykorgan College of Manufacturing Industry has already secured budget for the equipment, and it is now being procured. While classes have started with the theoretical part to be covered in the 1st year, that will lead into lab work in the 2nd year by which time equipment procurement is hoped to complete, textbook/material preparation have not caught up, and is understood as an area for the Turkish C/Ps to assist as short term experts with expected dispatch in April 2015.</p> <p>B. Pakistan:</p> <p>OVI 1: TVE administrators are aware of what and how to introduce IAT program in their schools.</p> <ul style="list-style-type: none"> Achieved: Agreement of Memorandum was signed by the Project Needs Survey Mission Team and Mr. Qamar Zaman Ch., Secretary, Ministry of Professional Technical Training, Government of Pakistan. In addition, 2 high ranking administrators attended the CFT Executive Managers Course that was conducted in Nov. 2012. The participants agreed that they will select appropriate TVE teachers for the CFT training in TTC, and the 1st course, IAT Basic, was successfully implemented in Dec. 2012. <p>OVI 2: At least 3 or more institutions are selected for the participation to training in TTC.</p> <ul style="list-style-type: none"> Achieved: Following 7 institutions were selected to send teachers to the Basic IAT Course (2012) and the Intermediate IAT Course (2013) – National Training Bureau (NTB), Islamabad; Technical Training Center, Quetta, Baluchistan; Govt Vocational Training Institute, Mirpur, Azad Kashmir; Govt College of Technology, Rawalakot, Azad Kashmir; GVT Peshawar, Peshawar; STEVTA, Sindh; GCT Tangi, Charsadda, North West Frontier Province. <p>OVI 3: 10 teachers are trained in Basic, Intermediate and Advance IAT course at TTC.</p> <ul style="list-style-type: none"> Prospect for achievement of this indicator is high. During the Needs Survey before the start of the course, Pakistani Government agreed to send the same participants from the same institutions to be trained in Turkey in the course of the 3 year of the Project. Subsequently, Pakistani teachers participated in the Basic IAT Course on 3-21 Dec., 2012. In 2013, the same participants attended the Intermediate IAT Course on 4-22, Nov., 2013. The Advanced Course is scheduled for 5-23, Jan., 2015, and the same participants are expected to return to the Course. <p>C. Azerbaijan:</p> <p>OVI 1: TVE administrators are aware of what and how to introduce IAT program in their schools.</p> <ul style="list-style-type: none"> Achieved: Eight administrators from Azerbaijan attended the CFT Executive Managers Course and the TVE Managers Course in Nov. 2012. Based on the knowledge from the training, TVE Managers developed action plans to introduce the IAT program to their schools. The proposals were submitted to Azerbaijan's Ministry of Education, <i>(Note: however, no further information on the progress of the action plans.)</i> <p>OVI 2: At least one institution is selected as IAT pilot college.</p> <ul style="list-style-type: none"> Prospect for achieving the indicator is low: During the June 2012 Needs Survey, Azerbaijan's Vocational Training Office DG mentioned the possibility of establishing an IAT pilot college. Yet 2013 Sep Basic IAT course participants were drawn from several TVE colleges, and none came from IAT pilot college. As of Sep 2014, no further confirmation is obtained through TIKa who had been requested to check in through its in-country liaison the update status at Azerbaijan's Ministry of Education.

Evaluation Questions		Results
Main Questions	Sub Questions	
		<p>OVI 3: 20 teachers are trained in Basic IAT course at TTC.</p> <ul style="list-style-type: none"> Prospect for achieving this indicator is high: In 2013, 10 teachers participated in the training at TTC. Participation of another set of 10 teachers in Oct 2014 Basic Course is probable, which will suffice the achievement of the indicator. However, the appropriateness of selection has been questioned. It is due to the professional background of the dispatched teachers who all have computer science background. It seems inevitable as the country does not have institutions related to IAT, from which to send the instructor participants. <p>D. Group Training target countries</p> <p>OVI 1: TVE administrators are aware of the importance of the IAT.</p> <ul style="list-style-type: none"> Achievement level of the indicator is medium. Eight administrators attended the GT TVE Managers Course in Nov. 2012: 2 from Kyrgyzstan, 2 from Tajikistan, 0 from Turkmenistan, 2 from Afghanistan, and 2 from Palestine. Subsequently, a total of 18 TVE trainers attended the IAT Basic Courses – from Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and Palestine (Plan was 24). However, no TVE trainers from Afghanistan as the applicants did not possess relevant background and did not meet the candidacy. Follow up with Afghanistan had been agreed through TIKA. However, to date, no specific further action has been discussed, and at this stage Afghanistan participation has faded out for the Project. <p>OVI 2: At least 10 teachers from each country are trained in basic IAT course.</p> <ul style="list-style-type: none"> Prospect for achieving the indicator is fair, based on the preparation status of Nov. 2014 and Dec. 2014 Basic Courses and continued uncertainty of appropriate participation from Afghanistan.
Achievement levels of the Outputs	To what degree has Output 1 been achieved? Output 1: Training for target group is appropriately planned.	<p>1-1 Appropriate training targets are set for each country focused training country.</p> <p><u>Means of Verification:</u> Agreement document prepared with each country during the Need Survey (as per PDM)</p> <ul style="list-style-type: none"> ✓ Achieved by Terminal Evaluation. 2012 June Needs Survey for CFT target countries- Pakistan, Kazakhstan, and Azerbaijan- led to the production of the country specific three year program which were discussed with their own governments. The agreement document on IAT training at TTC was only signed in Pakistan, however, the results of the Needs Survey were submitted to, and received by, the Ministry of Education and Science in Kazakhstan and the Ministry of Education in Azerbaijan. The Needs Survey for Uzbekistan was canceled, but an agreement was reached to invite technical teachers from Uzbekistan to GT. The training targets for Azerbaijan were revised at the 5th JCC in Nov. 2013 to conduct two IAT Basic Course for different participants (in lieu of IAT Basic and Intermediate Courses to the same participants) to align with the scope of commitment of Azerbaijan’s Ministry of Education. <p>1-2 Appropriate training targets are set for group training.</p> <p><u>Means of Verification:</u> Project progress reports (as per PDM)</p> <ul style="list-style-type: none"> ✓ Achieved by Terminal Evaluation: Four GT TVE managers from the target countries were invited to the 1st GT course in Nov. 2012. Through the training, the needs of the contents that would be taught in the subsequent courses were identified along with possible goals, and the contents were developed. <p>1-3 Appropriate training plans are prepared for country-focused training program.</p>

Evaluation Questions		Results
Main Questions	Sub Questions	
		<p><u>Means of Verification:</u> Project progress reports (as per PDM)</p> <p>✓ Achieved by Terminal Evaluation: During June 2012 Needs Survey, training plans for Azerbaijan, Kazakhstan, and Pakistan were expanded, and the survey team reached agreements with local representatives from the Ministry of Education.</p> <p>1-4 Appropriate training plans are prepared for group training program.</p> <p><u>Means of Verification:</u> Project progress reports (as per PDM)</p> <p>✓ Achieved by Terminal Evaluation: Based on the targets developed for GT in 2012, training plans and a course schedule for the IAT Basic Course were developed.</p>
Achievement levels of the Outputs	<p>To what degree has Output 2 been achieved?</p> <p>Output 2: Training for target group is effectively provided.</p>	<p>OVI 2-1. 70% of the course participants are satisfied in terms of course content, course management and accommodation services in GT courses and CFT courses.</p> <p><u>Means of Verification: Results of the Course Questionnaire (as per PDM)</u></p> <p>✓ Prospect for achieving the indicator is high. Other than accommodation part of the evaluation, participants' satisfaction has been recorded meeting the indicator (e.g. as of March 2014, eight out of the total nine courses are evaluated as satisfactory by more than 80% of the participants in course content and course management), endorsing that the quality, relevance, and the delivery of the prepared courses surpassed the expectation of the participants. From Pakistan CFT IAT Intermediate Course, the evaluation on accommodation resulted in only 20% of the participants having been satisfied. This was due mainly to the transition period of TTC accommodation management from Mazhar Zorlu Technical and Industrial Vocation High School to Alsancak Nevvar Salih Isgoren Hotel Business and Tourism High school, when service quality was not yet stabilized. Over one year has passed since the handover during which time the Project continued to provide guidance and supervision to enhance service provision quality management as well as facility maintenance guidance. Current high occupancy rate suggests that the accommodation part of the survey that will be administered as a part of the remaining course evaluation will receive scores meeting this indicator.</p> <p>OVI 2-2. At least 80% of participants in country focused training achieve the 70 % of the learning performance.</p> <p><u>Means of Verification: Results of the Course achievement tests (as per PDM)</u></p> <p>✓ Prospect for achieving the indicator is high. Four CFT for TVE Trainers were conducted before March 2014, among which only 1 was evaluated with the revised version of the Learning Performance Evaluation (ver. 3), since it was prepared after revision of this indicator. This Evaluation incorporated guidance by the JICA-dispatched lecturer on instructional design, and designed to capture incremental progresses and/or bottlenecks of the participants' daily learning through the end of day checking, ensuring that based on this data the IAT trainers can accommodate necessary adjustment to the learning of individual participants for the next day. Such a mechanism is expected to ensure close monitor of and support to the performance of the participants in the remaining two CFT and lead to the achievement of this indicator.</p> <p>OVI 2-3. At least 80% of participants in group training achieve the 70% of the learning performance.</p> <p><u>Means of Verification: Results of the Course achievement tests (as per PDM)</u></p> <p>✓ Prospect for achieving the indicator is high. Two GT for TVE Trainers were conducted before March 2014, among which only one was evaluated with the</p>

Evaluation Questions		Results
Main Questions	Sub Questions	
		<p>revised version of the Learning Performance Evaluation (ver. 3), since it was prepared after revision of the indicator. The last two GT courses will be evaluated with the revised Learning Performance Evaluation and the result will be monitored for further conclusion. As stated already in reference to OVI2-2., this Evaluation incorporated guidance by the JICA-dispatched lecturer on instructional design, and is designed to capture incremental progresses and/or bottlenecks of the participants' daily leaning through the end of day checking, ensuring that based on this data the IAT trainers can accommodate necessary adjustment to the learning of individual participants for the next day. Such a mechanism is expected to ensure close monitor of and support to the performance of the participants in the remaining two GT and lead to the achievement of this indicator.</p>
Achievement levels of the Outputs	<p>To what degree has Output 3 been achieved?</p> <p>Output 3: Follow-up system is established.</p>	<p>OVI 3-1. Web-based information system is developed, installed and introduced during the training course.</p> <p>Means of Verification: Project progress reports (as per PDM)</p> <p>✓ Considered achieved by Terminal Evaluation: The developed web-based training support system -WBTSS- has been introduced during the training to all the target participants to date, and the same arrangement is planned for the rest of the Course offering. However, except for Pakistan, this platform has barely been used due probably to the lack of language interface (for non-English based countries), access to as well as familiarity with the internet, etc.</p> <p>OVI 3-2. Training impact is properly assessed in second and third year in CFT countries, identifying the degree of utilization, its affecting factors, and recommendation(s) for improvement.</p> <p>Means of Verification: Follow up survey report for CFT countries (as per PDM)</p> <p>✓ Prospect for achieving the indicator is modest. Monitoring Survey has been conducted for the three CFT courses in the follow-up period, and its collection rate is 68% (25 out of 37 participants). This rate includes 8 additional responses on the Basic Course filled and submitted when the Kazakhstan participants returned for the Intermediate Course. As this response suggests, it has been very difficult for the CPs to assume self-managed follow up activities. While TIKA has been put to coordinate as an interface between the Turkish side and the participating country side, the challenge of smooth and active follow up for results is expected to last.</p> <p>OVI 3-3. Training impact is properly assessed in second and third year in GT countries, identifying the degree of utilization, its affecting factors, and recommendations for improvement.</p> <p>Means of Verification: Follow up survey report for GT countries (as per PDM)</p> <p>✓ Prospect for achieving the indicator is modest. The collection rate of the already administered one GT survey was 55% (6 out of 11). In addition to the language and internet access barriers experienced with the CFT, the challenge for the GT comes from the arrangement that from the participant perspective it is one time commitment to attend the Basic Course, without a clear sense of benefit for continued association through the follow up. While the Project is planning to continue this monitoring, the challenge of post-training communication with the participants is expected to persist, and seeking proactive participation in this post-training needs to be clearly communicated while the participants are attending the course, giving them the value of such connection for their future resource for technical knowledge.</p>
Achievement of Inputs	Have the Japanese side's inputs been allocated as planned?	<ul style="list-style-type: none"> The planned input was disbursed. However, in light of the evolving situations not foreseen at the planning stage (e.g. departure of many CP from the preceding Project, that shrunk the CP cohort down from around 25 personnel to seven at the Project start, which was further reduced to five due to staffing needs of the MZS), additional input was required for effective execution of the Project, either through JICA Turkey Office's separate budget line (for a short term expert on curriculum design) or with separate collaborative arrangement.

Evaluation Questions		Results
Main Questions	Sub Questions	
		<ul style="list-style-type: none"> • Personnel (Japanese the JICA Expert Team): The Japanese side has assigned five JICA Expert Team to the Project in the fields of: Chief Advisor/Training Management/Curriculum Development1, Curriculum Development 2, Industrial Automation Technology, and 2 Coordinators/Training Management Assistance that changed hands in the summer of 2014. (See Annex 3-1-1 Assignment of the JICA Expert Team). • Training in Japan The Japanese side has provided training in Japan to three managers from General Directorate of MoNE for field observation (Nov. 16-24, 2013) with the following objectives: (1) Obtain information regarding new trend of IAT related technologies in Japan, (2) Observe the situation of the IAT education at TVE High Schools and Universities, (3) Observe the standard facilities and service of the International Training Centers in Japan. (See Annex 3-1-3 Training in Japan and the Third Country). • Provision of equipment and materials: The Japanese side has provided equipment necessary for the implementation of the Project (industrial automation composing system, industrial automation composing system- mechanism & application, control equipment-PLC, motor experiment unit), which amounted to EUR 66,507 (Approximately JPY 9.1 million) (See Annex 3-1-4 Provision of Machinery and Equipment). • Operational Expenses: The Japanese side has allocated total amount of TRY 1 million (Approximately JPY 48.2 million) for the operational costs of project activities with a focus on expenses for training participants (See Annex 3-1-4 Operational Expenses by Japanese side).
	Have the Turkish side's inputs been allocated as planned?	<ul style="list-style-type: none"> • Turkish side also made the effort in securing resources to support the Project activities. The most challenging part of the resource acquisition related to the CP assignment. Manpower needs to meet the planned activities at TTC was calculated at 77.7MM/year. Yet, five CP had to shoulder this load, each heroically performing more than one person's full time job. • Counterpart personnel: The Turkish side has assigned one Project Director, one Project Manager, five to seven C/P (at a time) drawn from TTC (See Annex 3-2-1 Assignment of C/P Personnel). • Facilities: The Turkish side has provided office space for JICA Expert Team. • Local cost: The Turkish side has allocated the total amount of TRY529, 536 (approximately JPY 6.2 million) for the operational costs of project activities with a focus on training expenses (shared between MoNE and TIKA) (See Annex 3-2-2 Turkish Side's Local Costs).

SECTION II. Implementation Process

Evaluation Questions		Results
Main Questions	Sub Questions	
Implementation of Activities and Ownership in Implementation	To what degree have project activities been implemented as planned? Has the implementation agency (i.e. MoNE) demonstrated an adequate level of ownership to enhance their management capacity?	<ul style="list-style-type: none"> At TTC, the IAT trainers, who not only possess distinguished technical expertise but also high moral and commitment in their professional service delivery aided by never ending pursuit for betterment, strived to give their best in preparing the training program, delivering the courses, and following up for improvement for Project execution. What is beyond their domain of business that was essential for their effort to bring results, is the communication with the participants beyond national borders where internet access might be more limited (not only as physical access but inclusive of cultural or habitual barriers that might exist) and/or language prohibits direct communication, part of Project work discussed and agreed at JCC to be handled by TIKA. It turned out that the effective implementation of the planned activities require more handholding and reaching out than simple communication by sending out forms and collecting them. While it is clear that all the concerned parties have done their part within the scope of their mandate, glitches (e.g. no-responses to follow-up survey) hindered the smooth and effective implementation of the Project activities.
Project management	Are there any issues with the project management? Has there been an effective communication and information sharing among CP and between CP and Experts?	<ul style="list-style-type: none"> The Project structure as per signed in the RD November 28, 2011) assumed international coordination part of the Project work is administered by "TIKA Target Country Office Staff" (p.9) with "JICA Target Country Staff" providing "Coordinative Support," meaning these personnel are internalized as actors in the Project

SECTION III: Evaluation by the Five Criteria

	Evaluation Questions		Results
	Main Questions	Sub Questions	
Relevance	Relevance with the Government policy of Turkey	<p>Has the Project been in line with the priority of development policies of the Government of Turkey as well as vision, principles, and strategic plan of MoNE?</p> <p>Are they also in line with the development agendas of the participating countries?</p>	<ul style="list-style-type: none"> • Match with the national policies of Turkey, particularly that pertaining to their own international cooperation to the neighboring countries was mentioned during appraisal, and is sustained through the succeeding development plan (i.e. 10th Development Plan). • Well aligned with Turkey's support in education, incl. IAT support to Azerbaijan. As per Appraisal Report (p. 20), TTC's long term strategy includes its support as IAT capacity development training center for the neighboring countries. • 10th Development Plan (2014-2019)" also emphasizes international cooperation for development axis by sharing experiences with other countries. • The government's legislative document emphasizes pursuing national and international projects in TVET domain, endorsing that the Project is a well aligned realization of the direction of the sub-sector.
	Relevance with the needs of beneficiaries	<p>Has the Project Purpose been in line with the needs of the target group? Have the needs of the target group been high?</p> <p>Target Group: Teachers teaching IAT and related subjects in technical and vocational schools in target countries</p>	<ul style="list-style-type: none"> • As a part of Project formulation, JICA Turkey Office conducted needs survey and fleshed out specific and differentiated needs of the participating countries. Since this survey focused on the needs from the perspective of the industries, however, preparedness on the part of TVET institutions to initiate/upgrade IAT area were not identified to reflect into the Project design.
	Relevance with the Japan's ODA Policy	<p>Has the Project been in line with the Japanese Government's assistance policies for Turkey?</p>	<ul style="list-style-type: none"> • The Project is a precursor of Japan's ODA policy to Turkey that emphasizes supporting Turkey's position as an emerging donor to the Central Asia and the Middle East. The MOU between JICA and Turkish Cooperation and Coordination Agency (TIKA) signed in January 2012 in order to promote the joint projects and technical cooperation projects is a testament and a proof of the Project's significance to Japan-Turkey partnership.
	Comparative empirical and technological advantage of Japan's cooperation	<p>Do you see Japan has clear technological and empirical advantages in IAT vocational training instruction for international participants?</p>	<ul style="list-style-type: none"> • Evidenced by the preceding, completed projects such as "Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools (2001 to 2006)," "The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department (SPREAD) (2007-2010)", technical expertise in the area of IAT vocational training instruction has been recognized as a critical area where concerned parties in Turkey can benefit from Japanese expertise. • This point was further confirmed during the November 2013 CP training in Japan where MoNE's senior managers were exposed to the Japanese current practices that emphasizes experimental, project based, problem-solving focused vocational education for the technical areas concerned. • Yet, the Japanese technological advantage has not yet been fully tapped: TTC trainers have highly valued Japanese equipment (e.g. OMRON) procured for their teaching activities, but there are far more Japanese equipment choice that will support Turkey's advancement in IAT education arena.
Effectiveness	Achievement of the Project Purpose	<p>What is the prospect of achieving the Project Purpose by the end of the Project period?</p>	<ul style="list-style-type: none"> • The prospect for meeting the determined per-country (for CFT) or per-group (for GT) indicators for the Project Purpose is mixed, with high potential for Kazakhstan and Pakistan, while low for Azerbaijan and medium for GT countries. Therefore, the overall prospect for achieving the Project Purpose is medium.

	Evaluation Questions		Results	
	Main Questions	Sub Questions		
	Purpose: Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.	To what degree was the achievement of the Project Purpose attributable to the successful achievement of the Outputs?	<ul style="list-style-type: none"> For stronger achievers such as Kazakhstan and Pakistan, CFT for Executive Managers as well as that for TVE Managers under Output 1 served as critical opportunities to secure high level engagement of the participating countries' Ministry of Education. The criticality of additional factors to the Project Outputs for the achievement of the Project Purpose is clear from the Output 3: Without direct/effective interface between the IAT trainers and the participants, the prospect for achieving Output 3 is limited at most. 	
		Have the Important Assumptions for achieving the Project Purpose been fulfilled?	<ul style="list-style-type: none"> According to the hearing by the Project to the training participants, the important assumptions are largely met by the stronger achievers that are Kazakhstan and Pakistan: In Kazakhstan, three out of the four pilot colleges have already started the IAT course based on the TTC training results with associated equipment under procurement stage, and in Pakistan also, some of the institutions have started training on IAT. <p>Important Assumptions</p> <ul style="list-style-type: none"> Equipment are purchased by the participant institution. IAT Curriculum(s) is/are approved by the Ministry of Education of target countries. Teachers trained in Turkey are assigned to conduct the new curriculum at each target country. 	
	Contributing factors	To what degree has each Output been produced?	<ul style="list-style-type: none"> Output 1 is considered achieved. The achievement of Output 2 is deemed probable. The prospect for achieving Output 3 is limited. 	
		Have there been any other factors that contributed to the achievement of the Project Purpose?	<ul style="list-style-type: none"> Particularly for Kazakhstan, it is evident that the successful achievement of the Outputs coincided with parallel inputs and efforts that were drawn to the IAT pilot colleges from other sources, such as Japanese Government scheme for supporting small/medium sized business connected with the Project's IAT pilot colleges and World Bank assistance to educational institutes in Kazakhstan. 	
	Hindering factors to Effectiveness	Have there been any other factors that impeded the achievement of the Project Purpose?	<ul style="list-style-type: none"> Since application process for the training participants had to be conducted as logistical and administrative matter led by TIKA, it was difficult to enforce technical relevance in the selection, resulting in the recruitment of less than ideal candidates due to the target country conditions. 	
	Efficiency	Causality of Inputs and Outputs	Have Project activities been appropriately conducted in terms of their timing, duration, and quality to produce planned Outputs?	<ul style="list-style-type: none"> The training schedule was prepared in accordance with the Turkish calendar. Given participating countries might be dictated by different budget/academic calendars, a diagnostic analysis on the best timing could have increased the efficiency of Input-Output relationship.
		Achievement of Outputs	Has the Important Assumption for achieving the Outputs been fulfilled?	<ul style="list-style-type: none"> Mostly. <p>Important Assumptions:</p> <ul style="list-style-type: none"> As results of the need survey in CFT target countries, local government agreed the target institution and content recommended by the survey team. A discussion for training content identification was implemented among the GT target countries.
Appropriateness of Inputs by Japan		How appropriate has the assignment of Experts been in	<ul style="list-style-type: none"> The planned input was disbursed. However, in light of the evolving situations not foreseen at the planning stage (e.g. departure of many CP from the preceding Project, that shrunk the CP cohort down from around 25 personnel to seven at the Project start, 	

	Evaluation Questions		Results
	Main Questions	Sub Questions	
		terms of the number of experts, their expertise and capabilities, and the dispatched periods and timings?	which was further reduced to five due to staffing needs of the MZS), additional input was required for effective execution of the Project. In this relation, a short term expert on curriculum design was arranged. This input was highly valued by both the Japanese and Turkish sides with a remark that it would have been even more effective if intervention was possible earlier in the course of the Project.
		How appropriate has CP training in Japan and in the third countries (if applicable) been in terms of the number of participants, training contents, and the dispatched period and its timing?	<ul style="list-style-type: none"> For training in Japan, "Field Observation of Human Development for IAT in Japan," 9-days trip for managers from General Directorate of MoNE was implemented from November 16 to 24, 2013. This exposure not only exposed to the MoNE managers Japanese IAT practices and teaching approach but also to how JICA operates its aid activities. The feedback shared endorses that the training impacted Project Director and other closely associated MoNE managers of the Project, and supported to forge more informed environment to the rest of the Project implementation.
		How appropriate has the provision of equipment by the Japanese side been in terms of its quality, quantity and timing?	<ul style="list-style-type: none"> TTC trainers have highly valued Japanese equipment (e.g. OMRON) procured for their teaching activities over the course of the last 10 years (from the predecessor project time). Initially no plan was made to procure Japanese equipment for this Project. However, due to advice of the short term expert, it was arranged and was reported to have drastically contributed to teaching, as the procured system could be disassembled and re-assembled, to enable more visual conceptualization of the IAT system.
	Appropriateness of Inputs by the Turkish side	How appropriate has the assignment of CP been in terms of the number, placement (i.e. balance between their regular tasks and Project activities) ownership and level of participation?	<ul style="list-style-type: none"> Turkish side also made the effort in securing resources to support the Project activities. The most challenging part of the resource acquisition related to the CP assignment. Manpower needs to meet the planned activities at TTC was calculated at 77.7MM/year. Yet, five CP had to shoulder this load, each heroically performing more than one person's full time job.
		How appropriate has the provision of facilities and equipment by the Turkish side been?	<ul style="list-style-type: none"> Turkish side also contributed to procure some equipment/supplies in the first and second years. Due to unforeseen circumstances, however, the third year applicable budget of TRY 50,000 (approximately JPY 2.4 million) has not been disbursed. MoNE and TTC are expecting to spend this allocated amount in the near future.
Efficiency		Has the budget for the Project been appropriate in scale?	<ul style="list-style-type: none"> See Section 1: Project Achievement
	Cooperation with other organizations/projects	Has there been any effective cooperation with other organizations or projects that increased the efficiency of the Project?	<ul style="list-style-type: none"> Partnership with the private sector, universities, and industrial park to be tapped.
	Contributing or hindering factors to Efficiency	Are there any other factors that increased or decreased the efficiency of the Project?	<ul style="list-style-type: none"> CP assignment Language/internet access barriers

	Evaluation Questions		Results
	Main Questions	Sub Questions	
Impact	Prospects of achieving the Overall Goals	To what degree has the Overall Goal been achieved? Overall Goal: Technical education and vocational training capacity on IAT of target countries is enhanced.	<ul style="list-style-type: none"> One emerging case is Kazakhstan, where additional/separate larger context input (e.g. Japanese Government resource for supporting small/medium sized business acquired in Kazakhstan channeled to the pilot institutions of this Project, World Bank assistance to educational institutes in Kazakhstan included the pilot colleges, etc.) has been secured to produce emerging results: At three out of the four pilot institutions, IAT course has started, with equipment purchase arrangement in process. Large part of accessing such further support has been arranged by the Project, reaching out to Kazakhstan as a part of Project activities.
		Will the Overall Goal be achieved in 3 to 5 years after the completion of the Project? (Are the Overall Goal and verifiable indicators still valid?)	<ul style="list-style-type: none"> The prospect for achieving the Overall Goal (which is by default a goal for the implementing agency to achieve by own effort AFTER the Project period) against the preset indicator is fair. <p>Means of Verification: Trial IAT program(s) is/are introduced to the participant's institution.</p>
		Have the Important Assumptions for achieving the Overall Goals been fulfilled?	<p>Important Assumption:</p> <ul style="list-style-type: none"> A decision was taken by the local government for the establishment of the IAT department.
	Other aspects	Are there any unexpected positive and negative impacts?	<ul style="list-style-type: none"> Cases of unexpected effects
Sustainability	Institutional aspect	Have roles and responsibilities of the responsible parties of the Project been clearly defined and understood among MoNE, TTC, TIKa?	<ul style="list-style-type: none"> Roles and responsibilities of the responsible parties of the Project were defined in R/D and understood among MoNE, TTC, TIKa. However, it is uncertain if the respective parties were fully aware of the complexities involved with managing international participants with whom they might not have full control for envisaged results [CP] Sustainability from the perspective of TTC teachers "transferring the knowledge to new people".
	Financial aspect	Have the Project concerned organizations been able to secure sufficient budget to conduct its operation and management based on the annual plans developed by the Project?	<ul style="list-style-type: none"> Most of the funding that was budgeted has been secured, at times.
	Technical aspect	Have core staff of the Project concerned organizations been trained sufficiently in number and knowledge to conduct its operation and management based on the annual plans developed by the Project?	<ul style="list-style-type: none"> Through the Project, the IAT trainers (i.e. C/P) strengthened coordinative/managerial/administrative capacity in planning, delivering, monitoring, and improving IAT training for trainers. It has proven through the Project that their expertise is of international value, which in turn is an important asset for Turkey as they can contribute to the capacity enhancement vision of the Turkish Government in strengthening global competitiveness in manufacturing industries. It is hoped that their expertise will be utilized for the country while maintaining exposure to the neighboring countries, so that findings will feed into further innovation to enable Turkey to hold its competitive edge.
	Other factors that will affect the sustainability of the Project achievements	Are there any other factors that will increase or decrease the sustainability of the Project?	<ul style="list-style-type: none"> During the Project period, exhaustive discussions were held regarding sustainability of TTC. As of now, its status as an attached service entity to MZS is anticipated to continue beyond the Project period. The needs for their service, either domestic for in-service training, or international, as an implementation arm to realize Turkish Government's national policy that emphasizes international cooperation, is anticipated to continue, and therefore, the sustenance of this entity should be a common agenda to be prioritized. Target country's bureaucratic procedures play important role in acquiring relevant applications and project execution.

Annex 5: Project Design Matrix (PDM) version 2

Project Title: The Industrial Automation Technology (IAT) Extension Project for Central Asian and Middle East Countries		Duration: February 2012 – April 2015	
Implementing Agency: Ministry of National Education (MoNE)		Collaborating Agency: Turkish Cooperation and Coordination Agency (TIKA)	
Target Site: Teacher Training Center (TTC) of Izmir Mazhar Zorlu Anatolian Technical and Industrial Vocational High School			
Target Countries: 1) Country Focused Training: Azerbaijan, Kazakhstan, Pakistan and 2) Group Training: Uzbekistan, Afghanistan, Kyrgyzstan, Palestine, Tajikistan and Turkmenistan			
Target Group: Teachers teaching IAT and related subjects in technical and vocational schools in target countries			
Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Super Goal</p> <p>IAT human resources are developed in target countries.</p>	IAT department is established in at least in one of the participant's institution.	Follow up survey report	
<p>Overall Goal</p> <p>Technical education and vocational training capacity on IAT of target countries is enhanced.</p>	Trial IAT program(s) is/are introduced to the participant's institution.	Follow up survey report	<ul style="list-style-type: none"> • A decision was taken by the local government for the establishment of the IAT department.
<p>Project Purpose</p> <p>Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.</p>	<p>A. Kazakhstan:</p> <ol style="list-style-type: none"> 1. TVE administrators are aware of what and how to introduce IAT program into the TVE. 2. At least 4 TVE colleges are selected as IAT Pilot College. 3. At least 3 teachers from each pilot college become capable of teaching basic and intermediate IAT course as team. 4. Basic IAT course program(s) is/are developed based on the training at TTC. <p>B. Pakistan:</p> <ol style="list-style-type: none"> 1. TVE administrators are aware of what and how to introduce IAT program in their schools. 2. At least 3 or more institutions are selected for the participation to training in TTC. 3. 10 teachers are trained in Basic, Intermediate and Advance IAT course at TTC. <p>C. Azerbaijan:</p> <ol style="list-style-type: none"> 1. TVE administrators are aware of what and how to 	<p>A. Kazakhstan:</p> <ol style="list-style-type: none"> 1. Course implementation reports 2. Need survey report, project progress report 3. Course implementation reports 4. Impact survey report <p>B. Pakistan:</p> <ol style="list-style-type: none"> 1. Course implementation report, Impact survey report 2. Course implementation report, Project progress report 3. Course implementation report <p>C. Azerbaijan:</p> <ol style="list-style-type: none"> 1. Course Implementation report, 	<ul style="list-style-type: none"> • Equipment are purchased by the participant institution. • IAT Curriculum(s) is/are approved by the Ministry of Education of target countries. • Teachers trained in Turkey are assigned to conduct the new curriculum at each target country.

	<p>introduce IAT program in their schools.</p> <ol style="list-style-type: none"> 2. At least one institution is selected as IAT pilot college. 3. 20 teachers are trained in Basic IAT course at TTC. <p>D. Group Training target countries</p> <ol style="list-style-type: none"> 1. TVE administrators are aware of the importance of the IAT. 2. At least 10 teachers from each country are trained in basic IAT course. 	<p>impact survey report</p> <ol style="list-style-type: none"> 2. Project progress report 3. Course implementation report <p>D. Group Training target countries</p> <ol style="list-style-type: none"> 1. Course implementation report 2. Course implementation report 	
<p>Output:</p> <ol style="list-style-type: none"> 1. Training for target group is appropriately planned. 2. Training for target group is effectively provided. 3. Follow-up system is established. 	<ol style="list-style-type: none"> 1-1 Appropriate training targets are set for each country focused training country. 1-2 Appropriate training targets are set for group training. 1-3 Appropriate training plans are prepared for country-focused training program. 1-4 Appropriate training plans are prepared for group training program. 2-1 70% of the course participants are satisfied in terms of course content, course management and Accommodation services in GT courses and CFT courses. 2-2 At least 80% of participants in country focused training achieve the 70 % of the learning performance. 2-3 At least 80% of participants in group training achieve the 70% of the learning performance. 3-1 Web-based information system is developed, installed and introduced during the training course. 3-2 Training impact is properly assessed in second and third year in CFT countries, identifying the degree of utilization, its affecting factors, and recommendation(s) for improvement. 3-3 Training impact is properly assessed in second and third year in GT countries, identifying the degree of utilization, its affecting factors, and recommendations for improvement. 	<ol style="list-style-type: none"> 1-1 Agreement document prepared with each country during the Need Survey 1-2 Project progress reports 1-3 Project progress reports 1-4 Project progress reports 2-1 Results of the Course Questionnaire 2-2 Results of the Course achievement tests 2-3 Results of the Course achievement tests 3-1 Project progress reports 3-2 Follow up survey report for CFT countries 3-3 Follow up survey report for GT countries 	<ul style="list-style-type: none"> • As results of the need survey in CFT target countries, local government agreed the target institution and content recommended by the survey team. • A discussion for training content identification was implemented among the GT target countries.

Activities	Inputs		
<p>1-1 Identify detailed training needs of each country.</p> <p>1-2 Select target institution(s) in each country.</p> <p>1-3 Establish specific project targets for each country.</p> <p>1-4 Develop/ improve training curriculum.</p> <p>1-5 Prepare/ improve training material.</p> <p>1-6 Determine training schedule.</p> <p>2-1 Select participants.</p> <p>2-2 Arrange logistics.</p> <p>2-3 Implement training.</p> <p>2-4 Evaluate training.</p> <p>3-1 Develop follow-up plan.</p> <p>3-2 Develop web-based information system.</p> <p>3-3 Conduct follow-up of the CFT and GT participants through web-based information system as well as through the TIKa foreign offices.</p> <p>3-4 Evaluate the impact of the training based on the collected information.</p>	<p>[Turkish Side]</p> <p>1) Personnel</p> <ul style="list-style-type: none"> • Project Director (Director General, General Directorate of Technical and Vocational Education) • Deputy Project Director (Head of Department, General Directorate of Technical and Vocational Education) • Project Manager (Principal, Izmir Mazhar Zorlu Anatolian Technical and Industrial Vocational High School) • Project Coordinator (Teachers Training Center) • IAT Trainers (TTC) • Focal point person of TIKa <p>2) Facilities</p> <ul style="list-style-type: none"> • Office space for experts at TTC • Training facilities at TTC • ICT facilities including PC, Server, LAN and Internet. <p>3) Available data and information related to project</p> <p>4) Recurrent costs</p> <ul style="list-style-type: none"> • Supply of replacement of machinery, equipment, instruments, vehicles, tools, spare parts and other materials owned by Turkey side. • Utility and other basic expenses to run project. <p>5) Following training cost:</p> <ul style="list-style-type: none"> • Interpretation, Translation, Meeting expenses, Training material, Document printing, Excursion etc. <p>6) Travel cost of joint needs survey mission to Azerbaijan, Kazakhstan, Pakistan and Uzbekistan for Turkish side.</p>	<p>[Japanese Side]</p> <p>1) Experts</p> <ul style="list-style-type: none"> • Chief Advisor/ Training Management • Coordinator/ Curriculum Development • Other fields <p>2) Following training cost:</p> <ul style="list-style-type: none"> • Air fare, Transportation, Per-diem, Accommodation, Insurance etc. <p>3) Travel cost of joint needs survey mission to Azerbaijan, Kazakhstan, Pakistan and Uzbekistan for Japanese side.</p>	<ul style="list-style-type: none"> • Sufficient numbers of TTC counterparts are assigned to conduct the preparation, implementation and evaluation of the courses. • Necessary equipments and facilities are provided for the course implementation at TTC. • Sufficient PC and smooth internet connection is provided at TTC to each participant. • Necessary PC and internet connection is provided at participants institutions. <p>Pre-condition</p> <ul style="list-style-type: none"> • Target countries participate in project. • MoNE's decision to provide international training on IAT to the neighboring countries doesn't change.

2. 調査日程

付属資料 2: 調査日程

Date		Schedule
15-Sep	Mon	11:55 Narita (TK051) → Istanbul (Evaluation Analysis) 20:00 Istanbul (TK2178) → Ankara
16-September	Tue	09:30 JICA Turkey office
		14:00 MoNE Mr. Osman Yıldırım, Acting Director General, GDVTE Ms. Şennur Çetin, Head of Group, GDVTE Mr. Mehmet Yazar, Expert, GDVTE Ms. Kübra Karaibis, Assistant Expert, DVTE
17-September	Wed	10:00 TIKA Dr. Mehmet Yılmaz, Head of Foreign Affairs and Partnerships Ms. Ayşe ÖRÜN, Expert Ms. Berna GÜRKAŞ, Expert
		15:55 Ankara (TK7010) → Izmir (Evaluation Management 1, Evaluation Analysis)
		19:00 Dr. Takujiro Ito (Chief Advisor)
18 September	Thu	09:00 Observation tour of the TTC facilities 10:00 Project briefing by TTC CP and Expert 13:00-16:00 Group meeting with C/P
19 September	Fri	9:00-10:00 Mr. Yusuf VURAL (PM), Principal, MZ 11:00-12:00 Mr. Hasan KORKMAZ (former PM), Deputy Director of Provincial Education Office 15:55 Izmir (TK7009) → Ankara (Evaluation Management) 16:00 Dr. Takujiro Ito (Chief Advisor)
20 September	Sat	10:20 Izmir (TK7005) → Ankara (Evaluation Analysis) Report drafting (Evaluation Analysis)
21 September	Sun	Report drafting (Evaluation Analysis)
22-September	Mon	11:00 Draft Terminal Evaluation Report discussion at JICA Office
		15:00 Draft Terminal Eval Draft Report discussion with MoNE Ms. Şennur Çetin, Head of Group, GDVTE Mr. Mehmet Yazar, Expert, GDVTE Ms. Kübra Karaibis, Assistant Expert, DVTE
23 September	Tue	Draft Terminal Evaluation Report circulated to MoNE and TIKA for review
24-September	Wed	Draft Terminal Evaluation Report Review Period (MoNE, TIKA, & JICA)
		15:00 TIKA (Discussion on early responses) Ms. Ayşe ÖRÜN, Expert Ms. Berna GÜRKAŞ, Expert
25-September	Thu	AM: Comment reflection 14:30 JICA Evaluation Team Meeting
26-September	Fri	AM: Circulation of Confirmed Evaluation Report to MoNE, TIKA, JICA
		14:30 Joint Coordination Meeting (JCC) Ankara (TK2175) → Istanbul (Evaluation Analysis)
27-September	Sat	01:05 Istanbul (TK052) → Narita (Evaluation Analysis)

3. 主要面談者リスト

付属資料 3: 主要面談者リスト

1. 国民教育省 (MoNE)

Name	Position	Roles in the Project
Mr. Osman Yıldırım	Acting Director General, GDVTE	Project Director
Ms. Şennur Çetin	Head of Department, GDVTE	Deputy Project Director
Mr. Mehmet Yazar	GDVTE	
Ms. Kübra Karaibis	Assistant Expert, GDVTE	

2. トルコ国際協力調整庁(TIKA)

Name	Position	Roles in the Project
Dr. Mehmet Yılmaz	Head of Foreign Affairs and Partnerships Department	JCC Member
Ms. Ayşe ÖRÜN	Expert	
Ms. Berna GÜRKAŞ	Expert	

3. イズミール県教育局

Name	Position	Roles in the Project
Mr. Hasan KORKMAZ	Deputy Director	Former Project Manager (Till June 2014)

4. マズハルズルル工業高校/教員研修センター

Name	Position	Roles in the Project
Mr. Yusuf VURAL	Acting Principal	Project Manager
Mr. Egemen DOGER	Head of IAT Department/Trainer	C/P
Mr. Gürcan Bildir	Coordinator/Trainer	C/P (Project Coordinator/IAT Trainer)
Mr. Murat ÖZDEVECİ	Ex-Chief of TTC/Trainer	C/P
Mr. Bülent VARDAL	Trainer	C/P
Mr. İsmail AKTAŞ	Trainer	C/P
Ms. Neslihan BILDIR	Project Assistant	Project Assistant

5. 専門家

Name	Position
伊藤 拓次郎	総括/研修マネジメント/カリキュラム作成 1

4. 投入実績

付属資料 4: 投入実績

3-1: 日本側投入実績

3-1-1 専門家派遣

Field of Expertise	Name	Dispatched period (M/M)				
		2011	2012	2013	2014	Total
総括/研修マネジメント/カリキュラム作成 1	伊藤 拓次郎	5.33	3.20	3.63	1.34	13.50
カリキュラム作成 2	仲里 麻也子	3.00	2.00	2.00	0.00	7.00
研修マネジメント/機材指導	熊谷 英樹	0.00	0.83	0.43	0.00	1.27
業務調整/研修マネジメント補助	藤島 真美	3.00	2.16	1.60	0.00	6.76
業務調整/研修マネジメント補助 (2014/9/17 交代)	藤井 言				1.07	1.07
Total		11.33	8.19	7.66	2.41	29.6

注：2014年8月までは実績値、それ以降は計画値。JICA 備上のインストラクション・デザイン講師を含まず。

3-1-2 本邦研修 (2013年11月16～24日)

“Field Observation of Human Development for IAT in Japan,” 9-days trip to Japan for managers from General Directorate of MoNE was implemented from November 16 to 24, 2013.

The main objectives of the field observation were as follows:

- 1) Obtain information regarding new trend of IAT related technologies in Japan
- 2) Observe the situation of the IAT education at TVE High Schools and Universities
- 3) Observe the standard facilities and service of the International Training Centers in Japan.

The names of the invited participants were as follows:

	Name	Title in Organization	Title in Project
1	Assoc. Prof. Dr. Ömer AÇIKGÖZ	Director General, General Directorate of Vocational and Technical Education (VTE)	Project Director
2	Mr. Osman YILDIRIM	Group of Curricula and Teaching Materials, General Directorate of VTE	
3	Mr. Yucel YUKSEL	Head of Department, General Directorate of VTE	Deputy Project Director

The itinerary included the following field visits and meetings:

	Name of Organization/ Lecture	Objective
1	Polytechnic University	To learn the overview of IAT education in higher education in Japan
2	Polytechnic Center	To learn about the roles and training contents of Polytechnic Center
3	Institute of National Colleges of Technology (KOSEN KIKOU)	Courtesy call
4	Tokyo National College of Technology (Tokyo KOSEN)	To learn about the roles and training contents of Tokyo KOSEN
5	Akashi National College of Technology (Akashi KOSEN)	To learn overview of the IAT education in vocational college in Japan
6	Tokyo Tech High School of Science and Technology	To learn overview of the IAT education in vocational high school in Japan
7	Factory of Denso, Denso E & TS Training Center Corporation	To see the automated industrial factory and learn about technical education in the company
8	Lecture of Japan Association for Automation Advancement	To learn the history and trend of IAT education in Japan
9	JICA Kansai	To learn the functions and services needed for International Training Center

Achievement of the training as per reported by the Project is as follows:

The three main objectives of the field observation were achieved through the visits to the IAT educational institutions, private factories, and through the lecture. The guests commented that they have learned about three major characteristics of the Japanese IAT education. One is the practical training on the automation field, second, the project based and problem-solving oriented studies, and third, the close relationship with the industry. These characteristics were not only focused in the high schools, colleges and universities; but they were emphasized in the human resource development in the private sector. One of the guests showed his surprise to the high placement rate in KOSEN and other organizations.

3-1-3 供与機材

1) Industrial Automation Composing System (2 sets)

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
1-1	Practice of Controlling Target Machine					
	Pneumatic Air Cylinder	Power (MAX): 15W, Rating torque: 120mNm, An output gear for connections: 80φmodule=1, Source Power: 220V/50Hz	MM-VA210	1,200	2	2,400
	Speed Control Induction Motor	Power (MAX): 15W, Rating torque: 120mNm, An output gear for connections: 80φmodule=1, Source Power: 220V/50Hz	MM-VA310	1,130	2	2,260
	Reversible Motor	Drive Source: Air pressure, Angle: 180°, An output gear for connections: 80φmodule=1	MM-VA320	930	2	1,860
	Rotary Pneumatic Air Actuator	Stroke 98mm or more, Output pin: φ6mm, An output gear for connections: 80φmodule=1	MM-VA410	1,405	3	4,215
	Feed Screw	Stroke: 135mm, Two table position detection sensors, Output pin: φ6mm	MM-VM140	2,240	2	4,480
	Slide Table	Conveyor effective length: 325mm, Belt width: 25mm, Rotatory direction: CW/CCW, An output gear for connections: 80φmodule=1	MM-VM310	1,700	2	3,400
	Belt Conveyor	Table dimensions: 160mm, Two sensors for table position detection, Rotatory direction: CW/CCQ, An output gear for connections: 80φmodule=1	MM-VM320	1,590	2	3,180
	Rotary Table	Drive Source: Air pressure, Pneumatic chunk, Stroke: 30mm, Top and bottom drive: The air pressure cylinder inside diameterφ15mm, Two sensor magnetism switches for top and bottom position sensing.	MM-VM330	2,250	2	4,500
	Pneumatic Air Driven Robot Arm	Tube: φ20mm (indide), Stroke: 75mm, Output pin: φ6mm	MM-VR110	1,880	2	3,760
1-2	Control and Supporting Units					
	2-Way Photo Electric Sensor	Transmission type Sensor dimensions: 34.8x18.6x10.8mm, Detection method: 10,000mm, Setting method: Strong magnet base, Reflection type Sensor dimensions: 34.8x20x10.8mm, Detection method:	MM-VS310	1,120	2	2,240

		Multi-reflection type Detection distance: 300mm, Setting method: Strong magnet base Source Power: 220V/50Hz				
	Connecting Rods	Shaft: Stainless steel, Highly precise ball joint, the tool for connecting units mechanically.	MM-VU310	200	2	400
					Sub-total	32,695

2) Industrial Automation Composing System (Mechanism & Application)

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
2-1	Typical Application Mechanism					
	Double Pin Geneva	Division number Geneva: 8, Geneva wheel: Wheel diameter (ϕ 110.1mm), Cam groove (10.1mm \pm 5mm), Shaft position sensor input: One micro switch, Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=1	MM-VM220	2,400	1	2,400
	Spur Gear	Input-output speed ratio: 1:3 or 3:1, Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=1	MM-VM150	1,590	1	1,590
	Rack & Pinion	Motion conversion: Translatory movement \leftrightarrow Rotational movement, Output pin: ϕ 6mm, An output gear for connections: 80 ϕ module=1	MM-VA110	1,460	1	1,460
	Crank Arm	Motion conversion: Rotational movement \leftrightarrow Translatory reciprocating motion Reciprocating stroke: 34-86mm An output gear for connections: 80 ϕ module=1	MM-VM230	2,300	1	2,300
	Lever Slider	Motion conversion: Rotational movement \leftrightarrow Translatory reciprocating motion Reciprocating stroke: 89-124mm Composition detection sensor: Two micro switches AN output gear for connections: 80 ϕ module=1	MM-VM240	1,800	1	1,800
2-2	Control and Supporting Units					
	Work Slide Guide	Shoot for work piece	MM-FW270	300	2	600
	Work Piece	Color of the work: Red, Blue, Yellow, Quality of the material: Aluminum, with magnet on the back	MM-FW130	10	10	100

	Magnetic Fixture	Magnet jig for fixing the units, 5 pieces in one set	MM-VB410	400	3	1,200
					Sub-total	11,450

3) Control Equipment (PLC)

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
3-1	Interface and Wiring Equipment					
	Terminal I/O Box (for Omron)	Input: 8 points, Output: 8 points, An input and output connector: '36 Centronics pins. It is with GND/a dummy switch Source Power: 220V/50Hz	MM-VC300	1,200	2	2,400
	Wireless with Connection Pins	Pin part: A spring lock, Pin diameter: Large ϕ 4mm, Small ϕ 2mm, Cable length: 1.5m	MM-VC190	300	3	900
	Data switch	Connection to switch up to four devices at Centronics, Connector: 36 Centronics pins, Number of switching: 1:4 or 4:1	DTSV4-CT	60	3	180
	Centronics Cable	Cable to connect Terminal I/O Box and Data Switch, Cable length: 5m	KPU-005K	39	3	117
					Sub-total	3,597

4) Motor Experiment Unit

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
4-1	Motor Control Basic Experiment					
	Stepping Motor	Hybrid Motor Full Step/Micro Step with Terminal Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=15V Logic Voltage 24V Motor Voltage	MM-VA335	1,580	1	1,580
	DC Motor	DC Motor with Terminal Rotatory direction: CW/CCW, An output gear for connections: 80 ϕ module=15V Logic Voltage 24V Motor Voltage	MM-VA390	1,680	1	1,680
4-2	AC Servo Motor	Rating output: 0.1KW, Torque rating: 0.32N*m, Rotary speed: 3000r/min, An output gear for connections: 80 ϕ module=1, Source Power: 220V/50Hz	NM-VA345 OMRON	2,660	1	2,660
					Sub-total	5,920

5) Extra

	Equipment	Specifications	Ref. No	Unit Price (EUR)	Quantity	Amount (EUR)
5-1	Rotary Potentionmeter with BNC		MM-VC510	800	2	1,600
	Digital I/O Board USB Type		MM-VC310-USB	500	1	500
	Analog I/O Board with BNC		MM-VC590	600	1	600
					Sub-total	2,700

Total	56,362
KDV (18%)	10,145
Grand Total	66,507

3-1-4 プロジェクト運営費

プロジェクト運営費

(単位：トルコリラ)

ITEMS	R/D	BUDGET (A)				ACTUAL (B)			
		AMOUNT				AMOUNT			
		2012	2013	2014 (up to Sep.)	TOTAL	2012	2013	2014 (up to Sep.)	TOTAL
I INVITATION EXPENSES									
1. AIR FARE	○	94,280	0	0		119,762	0	0	
2. TRANSPORTATION	○	6,020	0	0		14,980	0	0	
3. PER DIEM	○	37,800	107,900	43,120		35,760	85,345	37,240	
4. ACCOMMODATION	○	186,740	334,400	96,410		181,475	224,710	73,158	
5. HEALTH INSURANCE	○	4,730	0	0		3,690	0	0	
SUB-TOTAL		329,570	442,300	139,530		355,667	310,055	110,398	
II TRAINING EXPENSES									
1. TRANSLATION EXPENSES		0	373,025	82,340		0	159,630	65,134	
2. EXCURSION EXPENSES		0	0	0		0	0	0	
3. EXPENDABLE SUPPLIES		0	0	0		0	0	0	
4. CONSUMPTION MATERIAL		0	0	0		0	0	0	
5. MEETING EXPENSES		0	0	0		0	0	0	
6. PRINTING		0	0	0		0	0	0	
7. OTHERS		0	0	0		2,644	0	0	
SUB-TOTAL		0	373,025	82,340		2,644	159,630	65,134	
TOTAL		329,570	815,325	221,870	1,366,765	358,311	469,686	175,532	1,003,529

3-2: トルコ側投入実績

3-2-1 C/P 配置

ID	Name	Affiliation	Project Function	2012年			2013年				2014年							
				Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1			
1	Prof. (Mr.) Ömer AÇIKGÖZ	MoNE	Project Director	[Shaded]														
2	Mr. Osman YILDIRIM	MoNE	Project Director	[Shaded]														
3	Ms. Şennur ÇETİN	MoNE	Deputy Project Director	[Shaded]														
4	Mr. Yücel YÜKSEL	MoNE	Deputy Project Director	[Shaded]														
5	Mr. Yaşar Baki ALTUNBAŞ	MoNE	Deputy Project Director	[Shaded]														
6	Mr. Mehmet YAZAR	MoNE	Deputy Project Director	[Shaded]														
7	Mr. Hamit DOĞAN	MZS	Project Manager	[Shaded]														
8	Mr. Hasan KORKMAZ	MZS	Project Manager	[Shaded]														
9	Mr. Yusuf VURAL	MZS	Project Manager	[Shaded]														
10	Mr. Murat ÖZDEVECİ	MZS	C/P	[Shaded]														
11	Mr. Osman Egemen DÖĞER	MZS	C/P	[Shaded]														
12	Mr. Gürcan BILDIR	MZS	C/P	[Shaded]														
13	Mr. Bülent VARDAL	MZS	C/P	[Shaded]														
14	Mr. İsmail AKTAŞ	MZS	C/P	[Shaded]														
15	Mr. Mustafa NAZMAN	MZS	C/P	[Shaded]														
16	Mr. Telat GÜLER	MZS	C/P	[Shaded]														

3-2-2 TIKa 担当者の配置

ID	Name	Project Function	2012年			2013年				2014年							
			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1			
1	Dr. Mehmet YILMAZ	JCC Member	[Shaded]														
2	Ms. Ayşe ORUN	Expert	[Shaded]														
3	Mr. Şafak ÖZDEMİR	Expert	[Shaded]														
4	Mr. Ömer ÖZDENÖREN	Expert	[Shaded]														
5	Ms. Belgin ÇAĞDAŞ	Expert	[Shaded]														
6	Mr. Ahmet DAŞTAN	Expert	[Shaded]														
7	Ms. Berna GÜRKAŞ	Expert	[Shaded]														

3-2-3 供与機材

Expenses for TTC	Amount (TRY)
Computer Laboratory	50,000
Furnishing for devices (Motor Control Lab.)	25,000
CNC Control Equipment	5,000
Expenses for TTC rooms	35,000
Laptop computer	5,000
XYZ Table	10,000
Expenses for conference hall	70,000
TOTAL	200,000

Expenses for TIKA	Amount (TRY)
Body Feeding with Sensor and Faulty Party Evacuation	11,562
Elektropneumatic	6,040
Horizontal piece distribution system with external gripper	16,490
Rotating manipulator and gripper	22,285
Two-axis Cartesian manipulator and holder	22,293
Others	6,962.50
SUBTOTAL	85,632.5
18% VAT	15,413.85
TOTAL	101,046.35

3-2-4 プロジェクト運営費

ITEMS	R/D	BUDGET (A)				ACTUAL (B)			
		AMOUNT				AMOUNT			
		2012	2013	2014 (up to Sep.)	TOTAL	2012	2013	2014 (up to Sep.)	TOTAL
I. INVITATION EXPENSES									
1. AIR FARE		0	233,950	93,840		0	130,260	72,370	
2. TRANSPORTATION		0	24,360	12,800		0	20,080	15,880	
3. PER DIEM		0	0	0		0	0	0	
4. ACCOMMODATION		0	0	0		0	0	0	
5. HEALTH INSURANCE		0	5,800	7,500		0	11,050	4,320	
SUB-TOTAL		0	264,110	114,140		0	161,390	92,570	
II. TRAINING EXPENSES									
1. TRANSLATION EXPENSES	TIKA	132,740	0	0		78,500	0	0	
2. EXCURSION EXPENSES	TIKA	30,328	33,200	27,500		51,980	51,086	36,150	
3. EXPENDABLE SUPPLIES	TIKA	2,240	15,000	6,000		4,860	15,000	3,000	
4. CONSUMPTION MATERIAL	TIKA	51,000	100,000	45,000		51,000	99,500	0	
5. MEETING EXPENSES	MoNE	18,000	40,000	17,000		12,000	40,000	18,000	
6. PRINTING	MoNE	2,400	50,000	2,000		600	50,000	1,450	
7. OTHERS	MoNE	2,000	21,600	9,000		31,500	21,600	9,350	
SUB-TOTAL		238,708	259,800	106,500		230,440	277,186	67,950	
TOTAL		238,708	523,910	220,640	983,258	230,440	438,576	160,520	829,536

付属資料 5: 評価グリッド

SECTION I: Project Achievements

Evaluation Questions		Results
Main Questions	Sub Questions	
Prospect for Achieving the Overall Goal	<p>To what degree has the Overall Goal been achieved?</p> <p><u>Overall Goal:</u> Technical education and vocational training capacity on IAT of target countries is enhanced.</p>	<p>OVI: Trial IAT program(s) is/are introduced to the participant's institution.</p> <ul style="list-style-type: none"> The achievement of the indicator will require resource input (financial, technical, and logistical), either by own effort of the participating countries' Ministry of Education or through support by external sources. One emerging case is Kazakhstan, where additional/separate larger context input (e.g. Japanese Government resource for supporting small/medium sized business acquired in Kazakhstan channeled to the pilot institutions of this Project, World Bank assistance to educational institutes in Kazakhstan included the pilot colleges, etc.) has been secured to produce emerging results: At three out of the four pilot institutions, IAT course has started, with equipment purchase arrangement in process. Large part of accessing such further support has been arranged by the Project, reaching out to Kazakhstan as a part of Project activities. This kind of additional handholding required for meeting the Overall Goal will not be available to the other participating countries at post-completion stage of the Project period, and therefore, the prospect for achieving the Overall Goal (which is by default a goal for the implementing agency to achieve AFTER the Project period) is fair.
Prospect for Achieving the Project Purpose	<p>To what degree has the Project Purpose been achieved?</p> <p><u>Project Purpose:</u> Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.</p>	<p>A. Kazakhstan:</p> <p>OVI 1: TVE administrators are aware of what and how to introduce IAT program into the TVE.</p> <ul style="list-style-type: none"> Achieved: 9 Administrators attended CFT Executive Managers Course and the TVE Managers Course, both in Nov. 2012, and based on the knowledge obtained, TVE Managers developed action plans to introduce the IAT program to their schools. The proposals were submitted to the Ministry of Education and Science in Kazakhstan. (p. 3, 2nd PR). <p>OVI 2: At least 4 TVE colleges are selected as IAT Pilot College.</p> <ul style="list-style-type: none"> Achieved: Kazakhstan's Ministry of Education and Science selected 4 TVE colleges as IAT pilot colleges (Almaty State Polytechnic College, Almaty State College of Energetic and Electronic Technologies, Taldykorgan College of Manufacturing Industry, and Zyambyl Polytechnic College) (p. 3, 2nd PR). <p>OVI 3: At least 3 teachers from each pilot college become capable of teaching basic and intermediate IAT course as team.</p> <ul style="list-style-type: none"> Achieved: In June 2013, three teachers each from the 4 pilot colleges attended IAT Basic Course and successfully completed the program. By the time of the Intermediate Course (June 2014), two of them (one each from Almaty State Polytechnic College and Taldykorgan College of Manufacturing Industry) had been transferred to other positions. Their slots were given to the other technical staff from the respective institutions with a condition that they will catch up by attending the Basic Course offered by Nazarbayev University prior to travelling to Turkey for the Intermediate Course at TTC. The condition was met and led to the achievement of this indicator.

Evaluation Questions		Results
Main Questions	Sub Questions	
		<p>OVI 4: Basic IAT course program(s) is/are developed based on the training at TTC.</p> <ul style="list-style-type: none"> Prospect for achieving the indicator is high as per the status at the time of Terminal Evaluation (Sep. 2014). At three out of four Project participating institutions (i.e. Almaty State College of Energetic and Electronic Technologies, Taldykorgan College of Manufacturing Industry, and Zhambyl Polytechnic College), approval for the course offering has been obtained from the Ministry of Education, followed by the development of the course program, and based on which the course implementation has started. Including Almaty State Polytechnic College whose course application is at the Ministry of Education and Science review stage, IAT equipment procurement application is also at the Ministry of Education and Science for review for Almaty State College of Energetic and Electronic Technologies, Almaty State Polytechnic College, and Zhambyl Polytechnic College. Taldykorgan College of Manufacturing Industry has already secured budget for the equipment, and it is now being procured. While classes have started with the theoretical part to be covered in the 1st year, that will lead into lab work in the 2nd year by which time equipment procurement is hoped to complete, textbook/material preparation have not caught up, and is understood as an area for the Turkish C/Ps to assist as short term experts with expected dispatch in April 2015. <p>B. Pakistan:</p> <p>OVI 1: TVE administrators are aware of what and how to introduce IAT program in their schools.</p> <ul style="list-style-type: none"> Achieved: Agreement of Memorandum was signed by the Project Needs Survey Mission Team and Mr. Qamar Zaman Ch., Secretary, Ministry of Professional Technical Training, Government of Pakistan. In addition, 2 high ranking administrators attended the CFT Executive Managers Course that was conducted in Nov. 2012. The participants agreed that they will select appropriate TVE teachers for the CFT training in TTC, and the 1st course, IAT Basic, was successfully implemented in Dec. 2012. <p>OVI 2: At least 3 or more institutions are selected for the participation to training in TTC.</p> <ul style="list-style-type: none"> Achieved: Following 7 institutions were selected to send teachers to the Basic IAT Course (2012) and the Intermediate IAT Course (2013) – National Training Bureau (NTB), Islamabad; Technical Training Center, Quetta, Baluchistan; Govt Vocational Training Institute, Mirpur, Azad Kashmir; Govt College of Technology, Rawalakot, Azad Kashmir; GVT Peshawar, Peshawar; STEVTA, Sindh; GCT Tangi, Charsadda, North West Frontier Province. <p>OVI 3: 10 teachers are trained in Basic, Intermediate and Advance IAT course at TTC.</p> <ul style="list-style-type: none"> Prospect for achievement of this indicator is high. During the Needs Survey before the start of the course, Pakistani Government agreed to send the same participants from the same institutions to be trained in Turkey in the course of the 3 year of the Project. Subsequently, Pakistani teachers participated in the Basic IAT Course on 3-21 Dec., 2012. In 2013, the same participants attended the Intermediate IAT Course on 4-22, Nov., 2013. The Advanced Course is scheduled for 5-23, Jan., 2015, and the same participants are expected to return to the Course.

Evaluation Questions		Results
Main Questions	Sub Questions	
		<p>C. Azerbaijan:</p> <p>OVI 1: TVE administrators are aware of what and how to introduce IAT program in their schools.</p> <ul style="list-style-type: none"> Achieved: Eight administrators from Azerbaijan attended the CFT Executive Managers Course and the TVE Managers Course in Nov. 2012. Based on the knowledge from the training, TVE Managers developed action plans to introduce the IAT program to their schools. The proposals were submitted to Azerbaijan’s Ministry of Education, (<i>Note: however, no further information on the progress of the action plans.</i>) <p>OVI 2: At least one institution is selected as IAT pilot college.</p> <ul style="list-style-type: none"> Prospect for achieving the indicator is low: During the June 2012 Needs Survey, Azerbaijan’s Vocational Training Office DG mentioned the possibility of establishing an IAT pilot college. Yet 2013 Sep Basic IAT course participants were drawn from several TVE colleges, and none came from IAT pilot college. As of Sep 2014, no further confirmation is obtained through TIKa who had been requested to check in through its in-country liaison the update status at Azerbaijan’s Ministry of Education. <p>OVI 3: 20 teachers are trained in Basic IAT course at TTC.</p> <ul style="list-style-type: none"> Prospect for achieving this indicator is high: In 2013, 10 teachers participated in the training at TTC. Participation of another set of 10 teachers in Oct 2014 Basic Course is probable, which will suffice the achievement of the indicator. However, the appropriateness of selection has been questioned. It is due to the professional background of the dispatched teachers who all have computer science background. It seems inevitable as the country does not have institutions related to IAT, from which to send the instructor participants. <p>D. Group Training target countries</p> <p>OVI 1: TVE administrators are aware of the importance of the IAT.</p> <ul style="list-style-type: none"> Achievement level of the indicator is medium. Eight administrators attended the GT TVE Managers Course in Nov. 2012: 2 from Kyrgyzstan, 2 from Tajikistan, 0 from Turkmenistan, 2 from Afghanistan, and 2 from Palestine. Subsequently, a total of 18 TVE trainers attended the IAT Basic Courses – from Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and Palestine (Plan was 24). However, no TVE trainers from Afghanistan as the applicants did not possess relevant background and did not meet the candidacy. Follow up with Afghanistan had been agreed through TIKa. However, to date, no specific further action has been discussed, and at this stage Afghanistan participation has faded out for the Project. <p>OVI 2: At least 10 teachers from each country are trained in basic IAT course.</p> <ul style="list-style-type: none"> Prospect for achieving the indicator is fair, based on the preparation status of Nov. 2014 and Dec. 2014 Basic Courses and continued uncertainty of appropriate participation from Afghanistan.

Evaluation Questions		Results
Main Questions	Sub Questions	
Achievement levels of the Outputs	<p>To what degree has Output 1 been achieved?</p> <p>Output 1: Training for target group is appropriately planned.</p>	<p>1-1 Appropriate training targets are set for each country focused training country.</p> <p><u>Means of Verification:</u> Agreement document prepared with each country during the Need Survey (as per PDM)</p> <p>✓ Achieved by Terminal Evaluation. 2012 June Needs Survey for CFT target countries- Pakistan, Kazakhstan, and Azerbaijan- led to the production of the country specific three year program which were discussed with their own governments. The agreement document on IAT training at TTC was only signed in Pakistan, however, the results of the Needs Survey were submitted to, and received by, the Ministry of Education and Science in Kazakhstan and the Ministry of Education in Azerbaijan. The Needs Survey for Uzbekistan was canceled, but an agreement was reached to invite technical teachers from Uzbekistan to GT. The training targets for Azerbaijan were revised at the 5th JCC in Nov. 2013 to conduct two IAT Basic Course for different participates (in lieu of IAT Basic and Intermediate Courses to the same participants) to align with the scope of commitment of Azerbaijan’s Ministry of Education.</p> <p>1-2 Appropriate training targets are set for group training.</p> <p><u>Means of Verification:</u> Project progress reports (as per PDM)</p> <p>✓ Achieved by Terminal Evaluation: Four GT TVE managers from the target countries were invited to the 1sst GT course in Nov. 2012. Through the training, the needs of the contents that would be taught in the subsequent courses were identified along with possible goals, and the contents were developed.</p> <p>1-3 Appropriate training plans are prepared for country-focused training program.</p> <p><u>Means of Verification:</u> Project progress reports (as per PDM)</p> <p>✓ Achieved by Terminal Evaluation: During June 2012 Needs Survey, training plans for Azerbaijan, Kazakhstan, and Pakistan were expanded, and the survey team reached agreements with local representatives from the Ministry of Education.</p> <p>1-4 Appropriate training plans are prepared for group training program.</p> <p><u>Means of Verification:</u> Project progress reports (as per PDM)</p> <p>✓ Achieved by Terminal Evaluation: Based on the targets developed for GT in 2012, training plans and a course schedule for the IAT Basic Course were developed.</p>
Achievement levels of the Outputs	<p>To what degree has Output 2 been achieved?</p> <p>Output 2: Training for target group is effectively</p>	<p>OVI 2-1. 70% of the course participants are satisfied in terms of course content, course management and accommodation services in GT courses and CFT courses.</p> <p><u>Means of Verification:</u> Results of the Course Questionnaire (as per PDM)</p> <p>✓ Prospect for achieving the indicator is high. Other than accommodation part of the evaluation, participants’ satisfaction has been recorded meeting the indicator (e.g. as of March 2014, eight out of the total nine courses are evaluated as satisfactory by more</p>

Evaluation Questions		Results
Main Questions	Sub Questions	
	provided.	<p>than 80% of the participants in course content and course management), endorsing that the quality, relevance, and the delivery of the prepared courses surpassed the expectation of the participants. From Pakistan CFT IAT Intermediate Course, the evaluation on accommodation resulted in only 20% of the participants having been satisfied. This was due mainly to the transition period of TTC accommodation management from Mazhar Zorlu Technical and Industrial Vocation High School to Alsancak Nevvar Salih Isgoren Hotel Business and Tourism High school, when service quality was not yet stabilized. Over one year has passed since the handover during which time the Project continued to provide guidance and supervision to enhance service provision quality management as well as facility maintenance guidance. Current high occupancy rate suggests that the accommodation part of the survey that will be administered as a part of the remaining course evaluation will receive scores meeting this indicator.</p> <p>OVI 2-2. At least 80% of participants in country focused training achieve the 70 % of the learning performance.</p> <p><u>Means of Verification: Results of the Course achievement tests (as per PDM)</u></p> <ul style="list-style-type: none"> ✓ Prospect for achieving the indicator is high. Four CFT for TVE Trainers were conducted before March 2014, among which only 1 was evaluated with the revised version of the Learning Performance Evaluation (ver. 3), since it was prepared after revision of this indicator. This Evaluation incorporated guidance by the JICA-dispatched lecturer on instructional design, and designed to capture incremental progresses and/or bottlenecks of the participants' daily leaning through the end of day checking, ensuring that based on this data the IAT trainers can accommodate necessary adjustment to the learning of individual participants for the next day. Such a mechanism is expected to ensure close monitor of and support to the performance of the participants in the remaining two CFT and lead to the achievement of this indicator. <p>OVI 2-3. At least 80% of participants in group training achieve the 70% of the learning performance.</p> <p><u>Means of Verification: Results of the Course achievement tests (as per PDM)</u></p> <ul style="list-style-type: none"> ✓ Prospect for achieving the indicator is high. Two GT for TVE Trainers were conducted before March 2014, among which only one was evaluated with the revised version of the Learning Performance Evaluation (ver. 3), since it was prepared after revision of the indicator. The last two GT courses will be evaluated with the revised Learning Performance Evaluation and the result will be monitored for further conclusion. As stated already in reference to OVI2-2., this Evaluation incorporated guidance by the JICA-dispatched lecturer on instructional design, and is designed to capture incremental progresses and/or bottlenecks of the participants' daily leaning through the end of day checking, ensuring that based on this data the IAT trainers can accommodate necessary adjustment to the learning of individual participants for the next day. Such a mechanism is expected to ensure close monitor of and support to the performance of the participants in the remaining two GT and lead to the achievement of this indicator.
Achievement levels of the Outputs	To what degree has Output 3 been achieved? Output 3: Follow-up system is established.	<p>OVI 3-1. Web-based information system is developed, installed and introduced during the training course.</p> <p><u>Means of Verification: Project progress reports (as per PDM)</u></p> <ul style="list-style-type: none"> ✓ Considered achieved by Terminal Evaluation: The developed web-based training support system -WBTSS- has been introduced during the training to all the target participants to date, and the same arrangement is planned for the rest of the Course offering. However, except for Pakistan, this platform has barely been used due probably to the lack of language interface (for non-English based countries), access to as well as familiarity with the internet, etc.

Evaluation Questions		Results
Main Questions	Sub Questions	
		<p>OVI 3-2. Training impact is properly assessed in second and third year in CFT countries, identifying the degree of utilization, its affecting factors, and recommendation(s) for improvement.</p> <p><u>Means of Verification:</u> Follow up survey report for CFT countries (as per PDM)</p> <p>✓ Prospect for achieving the indicator is modest. Monitoring Survey has been conducted for the three CFT courses in the follow-up period, and its collection rate is 68% (25 out of 37 participants). This rate includes 8 additional responses on the Basic Course filled and submitted when the Kazakhstan participants returned for the Intermediate Course. As this response suggests, it has been very difficult for the CPs to assume self-managed follow up activities. While TIKA has been put to coordinate as an interface between the Turkish side and the participating country side, the challenge of smooth and active follow up for results is expected to last.</p> <p>OVI 3-3. Training impact is properly assessed in second and third year in GT countries, identifying the degree of utilization, its affecting factors, and recommendations for improvement.</p> <p><u>Means of Verification:</u> Follow up survey report for GT countries (as per PDM)</p> <p>✓ Prospect for achieving the indicator is modest. The collection rate of the already administered one GT survey was 55% (6 out of 11). In addition to the language and internet access barriers experienced with the CFT, the challenge for the GT comes from the arrangement that from the participant perspective it is one time commitment to attend the Basic Course, without a clear sense of benefit for continued association through the follow up. While the Project is planning to continue this monitoring, the challenge of post-training communication with the participants is expected to persist, and seeking proactive participation in this post-training needs to be clearly communicated while the participants are attending the course, giving them the value of such connection for their future resource for technical knowledge.</p>
Achievement of Inputs	Have the Japanese side's inputs been allocated as planned?	<ul style="list-style-type: none"> • The planned input was disbursed. However, in light of the evolving situations not foreseen at the planning stage (e.g. departure of many CP from the preceding Project, that shrunk the CP cohort down from around 25 personnel to seven at the Project start, which was further reduced to five due to staffing needs of the MZS), additional input was required for effective execution of the Project, either through JICA Turkey Office's separate budget line (for a short term expert on curriculum design) or with separate collaborative arrangement. • Personnel (Japanese the JICA Expert Team): The Japanese side has assigned five JICA Expert Team to the Project in the fields of: Chief Advisor/Training Management/Curriculum Development1, Curriculum Development 2, Industrial Automation Technology, and 2 Coordinators/Training Management Assistance that changed hands in the summer of 2014. (See Annex 3-1-1 Assignment of the JICA Expert Team). • Training in Japan The Japanese side has provided training in Japan to three managers from General Directorate of MoNE for field observation (Nov. 16-24, 2013) with the following objectives: (1) Obtain information regarding new trend of IAT related technologies in Japan, (2) Observe the situation of the IAT education at TVE High Schools and Universities, (3) Observe the standard facilities and service of the International Training Centers in Japan. (See Annex 3-1-3 Training in Japan and the Third Country).

Evaluation Questions		Results
Main Questions	Sub Questions	
		<ul style="list-style-type: none"> • Provision of equipment and materials: The Japanese side has provided equipment necessary for the implementation of the Project (industrial automation composing system, industrial automation composing system- mechanism & application, control equipment-PLC, motor experiment unit), which amounted to EUR 66,507 (Approximately JPY 9.1 million) (See Annex 3-1-4 Provision of Machinery and Equipment). • Operational Expenses: The Japanese side has allocated total amount of TRY 1 million (Approximately JPY 48.2 million) for the operational costs of project activities with a focus on expenses for training participants (See Annex 3-1-4 Operational Expenses by Japanese side).
	Have the Turkish side's inputs been allocated as planned?	<ul style="list-style-type: none"> • Turkish side also made the effort in securing resources to support the Project activities. The most challenging part of the resource acquisition related to the CP assignment. Manpower needs to meet the planned activities at TTC was calculated at 77.7MM/year. Yet, five CP had to shoulder this load, each heroically performing more than one person's full time job. • Counterpart personnel: The Turkish side has assigned one Project Director, one Project Manager, five to seven C/P (at a time) drawn from TTC (See Annex 3-2-1 Assignment of C/P Personnel). • Facilities: The Turkish side has provided office space for JICA Expert Team. • Local cost: The Turkish side has allocated the total amount of TRY529, 536 (approximately JPY 6.2 million) for the operational costs of project activities with a focus on training expenses (shared between MoNE and TIKa) (See Annex 3-2-2 Turkish Side's Local Costs).

SECTION II. Implementation Process

Evaluation Questions		Results
Main Questions	Sub Questions	
Implementation of Activities and Ownership in Implementation	To what degree have project activities been implemented as planned? Has the implementation agency (i.e. MoNE) demonstrated an adequate level of ownership to enhance their management capacity?	<ul style="list-style-type: none"> • At TTC, the IAT trainers, who not only possess distinguished technical expertise but also high moral and commitment in their professional service delivery aided by never ending pursuit for betterment, strived to give their best in preparing the training program, delivering the courses, and following up for improvement for Project execution. What is beyond their domain of business that was essential for their effort to bring results, is the communication with the participants beyond national borders where internet access might be more limited (not only as physical access but inclusive of cultural or habitual barriers that might exist) and/or language prohibits direct communication, part of Project work discussed and agreed at JCC to be handled by TIKa. It turned out that the effective implementation of the planned activities require more handholding and reaching out than simple communication by sending out forms and collecting them. While it is clear that all the concerned parties have done their part within the scope of their mandate, glitches (e.g. no-responses to follow-up survey) hindered the smooth and effective implementation of the Project activities.

Evaluation Questions		Results
Main Questions	Sub Questions	
Project management	Are there any issues with the project management? Has there been an effective communication and information sharing among CP and between CP and Experts?	<ul style="list-style-type: none"> The Project structure as per signed in the RD November 28, 2011) assumed international coordination part of the Project work is administered by “TIKA Target Country Office Staff” (p.9) with “JICA Target Country Staff” providing “Coordinative Support,” meaning these personnel are internalized as actors in the Project

SECTION III: Evaluation by the Five Criteria

	Evaluation Questions		Results
	Main Questions	Sub Questions	
Relevance	Relevance with the Government policy of Turkey	<p>Has the Project been in line with the priority of development policies of the Government of Turkey as well as vision, principles, and strategic plan of MoNE?</p> <p>Are they also in line with the development agendas of the participating countries?</p>	<ul style="list-style-type: none"> Match with the national policies of Turkey, particularly that pertaining to their own international cooperation to the neighboring countries was mentioned during appraisal, and is sustained through the succeeding development plan (i.e. 10th Development Plan). Well aligned with Turkey’s support in education, incl. IAT support to Azerbaijan. As per Appraisal Report (p. 20), TTC’s long term strategy includes its support as IAT capacity development training center for the neighboring countries. 10th Development Plan (2014-2019)” also emphasizes international cooperation for development axis by sharing experiences with other countries. The government’s legislative document emphasizes pursuing national and international projects in TVET domain, endorsing that the Project is a well aligned realization of the direction of the sub-sector.
	Relevance with the needs of beneficiaries	<p>Has the Project Purpose been in line with the needs of the target group? Have the needs of the target group been high?</p> <p>Target Group: Teachers teaching IAT and related subjects in technical and vocational schools in target countries</p>	<ul style="list-style-type: none"> As a part of Project formulation, JICA Turkey Office conducted needs survey and fleshed out specific and differentiated needs of the participating countries. Since this survey focused on the needs from the perspective of the industries, however, preparedness on the part of TVET institutions to initiate/upgrade IAT area were not identified to reflect into the Project design.
	Relevance with the Japan’s ODA Policy	Has the Project been in line with the Japanese Government’s assistance policies for Turkey?	<ul style="list-style-type: none"> The Project is a precursor of Japan’s ODA policy to Turkey that emphasizes supporting Turkey’s position as an emerging donor to the Central Asia and the Middle East. The MOU between JICA and Turkish Cooperation and Coordination Agency (TIKA) signed in January 2012 in order to promote the joint projects and technical cooperation projects is a testament and a proof of the Project’s significance to Japan-Turkey partnership.

	Evaluation Questions		Results
	Main Questions	Sub Questions	
	Comparative empirical and technological advantage of Japan's cooperation	Do you see Japan has clear technological and empirical advantages in IAT vocational training instruction for international participants?	<ul style="list-style-type: none"> Evidenced by the preceding, completed projects such as "Establishment of Industrial Automation Technologies Departments in Anatolian Technical High Schools (2001 to 2006)," "The Project on Strengthening the Program of Expanding Industrial Automation Technologies Department (SPREAD) (2007-2010)", technical expertise in the area of IAT vocational training instruction has been recognized as a critical area where concerned parties in Turkey can benefit from Japanese expertise. This point was further confirmed during the November 2013 CP training in Japan where MoNE's senior managers were exposed to the Japanese current practices that emphasizes experimental, project based, problem-solving focused vocational education for the technical areas concerned. Yet, the Japanese technological advantage has not yet been fully tapped: TTC trainers have highly valued Japanese equipment (e.g. OMRON) procured for their teaching activities, but there are far more Japanese equipment choice that will support Turkey's advancement in IAT education arena.
Effectiveness	Achievement of the Project Purpose	What is the prospect of achieving the Project Purpose by the end of the Project period?	<ul style="list-style-type: none"> The prospect for meeting the determined per-country (for CFT) or per-group (for GT) indicators for the Project Purpose is mixed, with high potential for Kazakhstan and Pakistan, while low for Azerbaijan and medium for GT countries. Therefore, the overall prospect for achieving the Project Purpose is medium.
	Project Purpose: Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.	To what degree was the achievement of the Project Purpose attributable to the successful achievement of the Outputs?	<ul style="list-style-type: none"> For stronger achievers such as Kazakhstan and Pakistan, CFT for Executive Managers as well as that for TVE Managers under Output 1 served as critical opportunities to secure high level engagement of the participating countries' Ministry of Education. The criticality of additional factors to the Project Outputs for the achievement of the Project Purpose is clear from the Output 3: Without direct/effective interface between the IAT trainers and the participants, the prospect for achieving Output 3 is limited at most.
		Have the Important Assumptions for achieving the Project Purpose been fulfilled?	<ul style="list-style-type: none"> According to the hearing by the Project to the training participants, the important assumptions are largely met by the stronger achievers that are Kazakhstan and Pakistan: In Kazakhstan, three out of the four pilot colleges have already started the IAT course based on the TTC training results with associated equipment under procurement stage, and in Pakistan also, some of the institutions have started training on IAT. <p>Important Assumptions</p> <ul style="list-style-type: none"> Equipment are purchased by the participant institution. IAT Curriculum(s) is/are approved by the Ministry of Education of target countries. Teachers trained in Turkey are assigned to conduct the new curriculum at each target country.
		Contributing factors	To what degree has each Output been produced?
		Have there been any other factors that contributed to the achievement of the Project Purpose?	<ul style="list-style-type: none"> Particularly for Kazakhstan, it is evident that the successful achievement of the Outputs coincided with parallel inputs and efforts that were drawn to the IAT pilot colleges from other sources, such as Japanese Government scheme for supporting small/medium sized business connected with the Project's IAT pilot colleges and World Bank assistance to educational institutes in Kazakhstan.

	Evaluation Questions		Results
	Main Questions	Sub Questions	
	Hindering factors to Effectiveness	Have there been any other factors that impeded the achievement of the Project Purpose?	<ul style="list-style-type: none"> • Since application process for the training participants had to be conducted as logistical and administrative matter led by TIKA, it was difficult to enforce technical relevance in the selection, resulting in the recruitment of less than ideal candidates due to the target country conditions. • .
Efficiency	Causality of Inputs and Outputs	Have Project activities been appropriately conducted in terms of their timing, duration, and quality to produce planned Outputs?	<ul style="list-style-type: none"> • The training schedule was prepared in accordance with the Turkish calendar. Given participating countries might be dictated by different budget/academic calendars, a diagnostic analysis on the best timing could have increased the efficiency of Input-Output relationship.
	Achievement of Outputs	Has the Important Assumption for achieving the Outputs been fulfilled?	<ul style="list-style-type: none"> • Mostly. <p>Important Assumptions:</p> <ul style="list-style-type: none"> • As results of the need survey in CFT target countries, local government agreed the target institution and content recommended by the survey team. • A discussion for training content identification was implemented among the GT target countries.
	Appropriateness of Inputs by Japan	How appropriate has the assignment of Experts been in terms of the number of experts, their expertise and capabilities, and the dispatched periods and timings?	<ul style="list-style-type: none"> • The planned input was disbursed. However, in light of the evolving situations not foreseen at the planning stage (e.g. departure of many CP from the preceding Project, that shrunk the CP cohort down from around 25 personnel to seven at the Project start, which was further reduced to five due to staffing needs of the MZS), additional input was required for effective execution of the Project. In this relation, a short term expert on curriculum design was arranged. This input was highly valued by both the Japanese and Turkish sides with a remark that it would have been even more effective if intervention was possible earlier in the course of the Project.
		How appropriate has CP training in Japan and in the third countries (if applicable) been in terms of the number of participants, training contents, and the dispatched period and its timing?	<ul style="list-style-type: none"> • For training in Japan, “Field Observation of Human Development for IAT in Japan,” 9-days trip for managers from General Directorate of MoNE was implemented from November 16 to 24, 2013. This exposure not only exposed to the MoNE managers Japanese IAT practices and teaching approach but also to how JICA operates its aid activities. The feedback shared endorses that the training impacted Project Director and other closely associated MoNE managers of the Project, and supported to forge more informed environment to the rest of the Project implementation.
		How appropriate has the provision of equipment by the Japanese side been in terms of its quality, quantity and timing?	<ul style="list-style-type: none"> • TTC trainers have highly valued Japanese equipment (e.g. OMRON) procured for their teaching activities over the course of the last 10 years (from the predecessor project time). Initially no plan was made to procure Japanese equipment for this Project. However, due to advice of the short term expert, it was arranged and was reported to have drastically contributed to teaching, as the procured system could be disassembled and re-assembled, to enable more visual conceptualization of the IAT system.
		Appropriateness of Inputs by the Turkish side	How appropriate has the assignment of CP been in terms of the number, placement (i.e. balance between their regular tasks and Project activities) ownership and level of participation?

	Evaluation Questions		Results
	Main Questions	Sub Questions	
Efficiency		How appropriate has the provision of facilities and equipment by the Turkish side been?	<ul style="list-style-type: none"> Turkish side also contributed to procure some equipment/supplies in the first and second years. Due to unforeseen circumstances, however, the third year applicable budget of TRY 50,000 (approximately JPY 2.4 million) has not been disbursed. MoNE and TTC are expecting to spend this allocated amount in the near future.
		Has the budget for the Project been appropriate in scale?	<ul style="list-style-type: none"> See Section 1: Project Achievement
	Cooperation with other organizations/ projects	Has there been any effective cooperation with other organizations or projects that increased the efficiency of the Project?	<ul style="list-style-type: none"> Partnership with the private sector, universities, and industrial park to be tapped.
	Contributing or hindering factors to Efficiency	Are there any other factors that increased or decreased the efficiency of the Project?	<ul style="list-style-type: none"> CP assignment Language/internet access barriers
Impact	Prospects of achieving the Overall Goals	<p>To what degree has the Overall Goal been achieved?</p> <p>Overall Goal: Technical education and vocational training capacity on IAT of target countries is enhanced.</p>	<ul style="list-style-type: none"> One emerging case is Kazakhstan, where additional/separate larger context input (e.g. Japanese Government resource for supporting small/medium sized business acquired in Kazakhstan channeled to the pilot institutions of this Project, World Bank assistance to educational institutes in Kazakhstan included the pilot colleges, etc.) has been secured to produce emerging results: At three out of the four pilot institutions, IAT course has started, with equipment purchase arrangement in process. Large part of accessing such further support has been arranged by the Project, reaching out to Kazakhstan as a part of Project activities.
		Will the Overall Goal be achieved in 3 to 5 years after the completion of the Project? (Are the Overall Goal and verifiable indicators still valid?)	<ul style="list-style-type: none"> The prospect for achieving the Overall Goal (which is by default a goal for the implementing agency to achieve by own effort AFTER the Project period) against the preset indicator is fair. <p><u>Means of Verification:</u> Trial IAT program(s) is/are introduced to the participant's institution.</p>
		Have the Important Assumptions for achieving the Overall Goals been fulfilled?	<p>Important Assumption:</p> <ul style="list-style-type: none"> A decision was taken by the local government for the establishment of the IAT department.
	Other aspects	Are there any unexpected positive and negative impacts?	<ul style="list-style-type: none"> Cases of unexpected effects
Sustainability	Institutional aspect	Have roles and responsibilities of the responsible parties of the Project been clearly defined and understood among MoNE, TTC, TIKA?	<ul style="list-style-type: none"> Roles and responsibilities of the responsible parties of the Project were defined in R/D and understood among MoNE, TTC, TIKA. However, it is uncertain if the respective parties were fully aware of the complexities involved with managing international participants with whom they might not have full control for envisaged results [CP] Sustainability from the perspective of TTC teachers “transferring the knowledge to new people”.

	Evaluation Questions		Results
	Main Questions	Sub Questions	
	Financial aspect	Have the Project concerned organizations been able to secure sufficient budget to conduct its operation and management based on the annual plans developed by the Project?	<ul style="list-style-type: none"> • Most of the funding that was budgeted has been secured, at times.
	Technical aspect	Have core staff of the Project concerned organizations been trained sufficiently in number and knowledge to conduct its operation and management based on the annual plans developed by the Project?	<ul style="list-style-type: none"> • Through the Project, the IAT trainers (i.e. C/P) strengthened coordinative/managerial/administrative capacity in planning, delivering, monitoring, and improving IAT training for trainers. It has proven through the Project that their expertise is of international value, which in turn is an important asset for Turkey as they can contribute to the capacity enhancement vision of the Turkish Government in strengthening global competitiveness in manufacturing industries. It is hoped that their expertise will be utilized for the country while maintaining exposure to the neighboring countries, so that findings will feed into further innovation to enable Turkey to hold its competitive edge.
	Other factors that will affect the sustainability of the Project achievements	Are there any other factors that will increase or decrease the sustainability of the Project?	<ul style="list-style-type: none"> • During the Project period, exhaustive discussions were held regarding sustainability of TTC. As of now, its status as an attached service entity to MZS is anticipated to continue beyond the Project period. The needs for their service, either domestic for in-service training, or international, as an implementation arm to realize Turkish Government's national policy that emphasizes international cooperation, is anticipated to continue, and therefore, the sustenance of this entity should be a common agenda to be prioritized. Target country's bureaucratic procedures play important role in acquiring relevant applications and project execution.

6. プロジェクト・デザイン・マトリックス (PDM) 第2版

付属資料 6: プロジェクト・デザイン・マトリックス(PDM) 第2版

Project Title: The Industrial Automation Technology (IAT) Extension Project for Central Asian and Middle East Countries		Duration: February 2012 – April 2015	
Implementing Agency: Ministry of National Education (MoNE)	Collaborating Agency: Turkish Cooperation and Coordination Agency (TIKA)		
Target Site: Teacher Training Center (TTC) of Izmir Mazhar Zorlu Anatolian Technical and Industrial Vocational High School			
Target Countries: 1) Country Focused Training: Azerbaijan, Kazakhstan, Pakistan and 2) Group Training: Uzbekistan, Afghanistan, Kyrgyzstan, Palestine, Tajikistan and Turkmenistan			
Target Group: Teachers teaching IAT and related subjects in technical and vocational schools in target countries			
Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Super Goal IAT human resources are developed in target countries.	IAT department is established in at least in one of the participant's institution.	Follow up survey report	
Overall Goal Technical education and vocational training capacity on IAT of target countries is enhanced.	Trial IAT program(s) is/are introduced to the participant's institution.	Follow up survey report	<ul style="list-style-type: none"> A decision was taken by the local government for the establishment of the IAT department.
Project Purpose Technical education and vocational training capacity of teachers in IAT in target countries is enhanced.	<p>A. Kazakhstan:</p> <ol style="list-style-type: none"> TVE administrators are aware of what and how to introduce IAT program into the TVE. At least 4 TVE colleges are selected as IAT Pilot College. At least 3 teachers from each pilot college become capable of teaching basic and intermediate IAT course as team. Basic IAT course program(s) is/are developed based on the training at TTC. <p>B. Pakistan:</p> <ol style="list-style-type: none"> TVE administrators are aware of what and how to introduce IAT program in their schools. At least 3 or more institutions are selected for the participation to training in TTC. 10 teachers are trained in Basic, Intermediate and Advance IAT course at TTC. <p>C. Azerbaijan:</p> <ol style="list-style-type: none"> TVE administrators are aware of what and how to introduce IAT program in their 	<p>A. Kazakhstan:</p> <ol style="list-style-type: none"> Course implementation reports Need survey report, project progress report Course implementation reports Impact survey report <p>B. Pakistan:</p> <ol style="list-style-type: none"> Course implementation report, Impact survey report Course implementation report, Project progress report Course implementation report <p>C. Azerbaijan:</p> <ol style="list-style-type: none"> Course Implementation report, impact survey report Project progress report Course implementation report <p>D. Group Training target</p>	<ul style="list-style-type: none"> Equipment are purchased by the participant institution. IAT Curriculum(s) is/are approved by the Ministry of Education of target countries. Teachers trained in Turkey are assigned to conduct the new curriculum at each target country.

	<p>schools.</p> <ol style="list-style-type: none"> 2. At least one institution is selected as IAT pilot college. 3. 20 teachers are trained in Basic IAT course at TTC. <p>D. Group Training target countries</p> <ol style="list-style-type: none"> 1. TVE administrators are aware of the importance of the IAT. 2. At least 10 teachers from each country are trained in basic IAT course. 	<p>countries</p> <ol style="list-style-type: none"> 1. Course implementation report 2. Course implementation report 	
<p>Output:</p> <ol style="list-style-type: none"> 1. Training for target group is appropriately planned. 2. Training for target group is effectively provided. 3. Follow-up system is established. 	<ol style="list-style-type: none"> 1-1 Appropriate training targets are set for each country focused training country. 1-2 Appropriate training targets are set for group training. 1-3 Appropriate training plans are prepared for country-focused training program. 1-4 Appropriate training plans are prepared for group training program. 2-1 70% of the course participants are satisfied in terms of course content, course management and Accommodation services in GT courses and CFT courses. 2-2 At least 80% of participants in country focused training achieve the 70 % of the learning performance. 2-3 At least 80% of participants in group training achieve the 70% of the learning performance. 3-1 Web-based information system is developed, installed and introduced during the training course. 3-2 Training impact is properly assessed in second and third year in CFT countries, identifying the degree of utilization, its affecting factors, and recommendation(s) for improvement. 3-3 Training impact is properly assessed in second and third year in GT countries, identifying the degree of utilization, its affecting factors, and recommendations for improvement. 	<ol style="list-style-type: none"> 1-1 Agreement document prepared with each country during the Need Survey 1-2 Project progress reports 1-3 Project progress reports 1-4 Project progress reports 2-1 Results of the Course Questionnaire 2-2 Results of the Course achievement tests 2-3 Results of the Course achievement tests 3-1 Project progress reports 3-2 Follow up survey report for CFT countries 3-3 Follow up survey report for GT countries 	<ul style="list-style-type: none"> • As results of the need survey in CFT target countries, local government agreed the target institution and content recommended by the survey team. • A discussion for training content identification was implemented among the GT target countries.

Activities	Inputs		
<p>1-1 Identify detailed training needs of each country.</p> <p>1-2 Select target institution(s) in each country.</p> <p>1-3 Establish specific project targets for each country.</p> <p>1-4 Develop/ improve training curriculum.</p> <p>1-5 Prepare/ improve training material.</p> <p>1-6 Determine training schedule.</p> <p>2-1 Select participants.</p> <p>2-2 Arrange logistics.</p> <p>2-3 Implement training.</p> <p>2-4 Evaluate training.</p> <p>3-1 Develop follow-up plan.</p> <p>3-2 Develop web-based information system.</p> <p>3-3 Conduct follow-up of the CFT and GT participants though web-based information system as well as though the TIKA foreign offices.</p> <p>3-4 Evaluate the impact of the training based on the collected information.</p>	<p>[Turkish Side]</p> <p>1) Personnel</p> <ul style="list-style-type: none"> • Project Director (Director General, General Directorate of Technical and Vocational Education) • Deputy Project Director (Head of Department, General Directorate of Technical and Vocational Education) • Project Manager (Principal, Izmir Mazhar Zorlu Anatolian Technical and Industrial Vocational High School) • Project Coordinator (Teachers Training Center) • IAT Trainers (TTC) • Focal point person of TIKA <p>2) Facilities</p> <ul style="list-style-type: none"> • Office space for experts at TTC • Training facilities at TTC • ICT facilities including PC, Server, LAN and Internet. <p>3) Available data and information related to project</p> <p>4) Recurrent costs</p> <ul style="list-style-type: none"> • Supply of replacement of machinery, equipment, instruments, vehicles, tools, spare parts and other materials owned by Turkey side. • Utility and other basic expenses to run project. <p>5) Following training cost:</p> <ul style="list-style-type: none"> • Interpretation, Translation, Meeting expenses, Training material, Document printing, Excursion etc. <p>6) Travel cost of joint needs survey mission to Azerbaijan, Kazakhstan, Pakistan and Uzbekistan for Turkish side.</p>	<p>[Japanese Side]</p> <p>1) Experts</p> <ul style="list-style-type: none"> • Chief Advisor/ Training Management • Coordinator/ Curriculum Development • Other fields <p>2) Following training cost:</p> <ul style="list-style-type: none"> • Air fare, Transportation, Per-diem, Accommodation, Insurance etc. <p>3) Travel cost of joint needs survey mission to Azerbaijan, Kazakhstan, Pakistan and Uzbekistan for Japanese side.</p>	<ul style="list-style-type: none"> • Sufficient numbers of TTC counterparts are assigned to conduct the preparation, implementation and evaluation of the courses. • Necessary equipments and facilities are provided for the course implementation at TTC. • Sufficient PC and smooth internet connection is provided at TTC to each participant. • Necessary PC and internet connection is provided at participants institutions. <p>Pre-condition</p> <ul style="list-style-type: none"> • Target countries participate in project. • MoNE's decision to provide international training on IAT to the neighboring countries doesn't change.

