

スーダン国
水供給人材育成計画プロジェクト
中間レビュー調査報告書

平成 22 年 1 月
(2010 年)

独立行政法人国際協力機構
地球環境部

環境
JR
15-064

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序 文

日本国政府は、スーダン国政府の要請に基づき、「水供給人材育成計画プロジェクト」を実施することを決定し、2008年6月から2011年3月まで同プロジェクトを実施中です。

当機構は、プロジェクト開始から約1年半が経過した2009年10月に中間レビュー調査団を現地に派遣し、スーダン側のカウンターパートと合同でこれまでの活動実績ならびにその結果について中間レビューを行いました。

このレビュー結果はミニッツに取りまとめられ、日本国・スーダン国双方合意のもとに、署名交換が行われました。本報告書は、今回のレビュー調査および協議結果をとりまとめたものであり、今後、本案件を効果的、効率的に実施して行くための参考として、広く活用されることを願うものです。

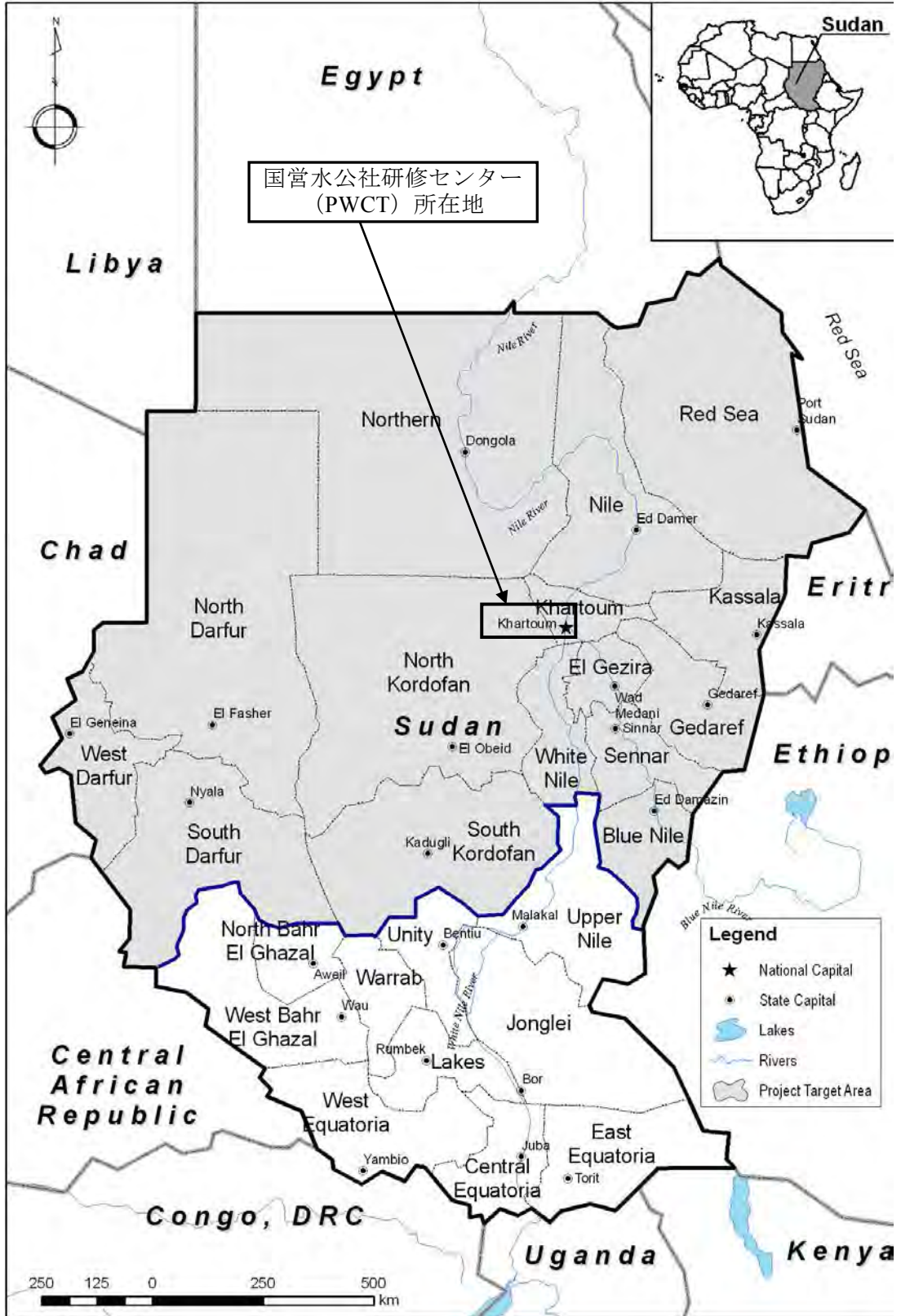
終わりに、調査にご協力、ご支援を戴いた関係各位に対し、心より感謝申し上げるとともに、引き続き一層のご支援をお願いする次第です。

2010年1月

独立行政法人国際協力機構
地球環境部
部長 中川 聞夫

位置図

北部 15 州対象



写真集



研修センター外観



専門家執務室



研修センター内



合同調整委員会の様子



協議の様子



ミニッツの署名

略 語 表

略 語	正式名称	日本語表記
GIS	Geographic Information System(s)	地理情報システム
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
KSWC	Khartoum State Water Corporation	ハルツーム州水公社
MIC	Ministry of International Cooperation	国際援助省
PDM	Project Design Matrix	プロジェクト・デザイン・マトリックス
PO	Plan of Operation	実施計画
PWC	Public Water Corporation	国営水公社
PWCT	Public Water Corporation Training Center	国営水公社研修センター
SWC	State Water Corporation	州水公社
TICAD	Tokyo International Conference on African Development	アフリカ開発会議

中間レビュー調査結果要約表

1. 案件の概要	
分野：水資源管理	援助形態：技術協力
所轄部署： 地球環境部水資源第二課	協力金額（評価時点）：3.3 億円
協力期間：2008 年 6 月～2011 年 3 月	先方関係機関：国営水公社研修センター（PWCT） 日本側協力機関：特になし 他の関連協力：特になし
<p>1-1 協力の背景と概要</p> <p>現在、スーダンにおける安全な水へのアクセス率の平均は 59%で、このうち都市部は 70%、農村部は 52%であるが、スーダン国家 25 カ年給水計画（2003 年～2027 年）によれば 2027 年までに 100%に引き上げる方針である。一方、現在の一人一日当たり給水量は、都市部で 30～50 リットル/日・人、農村部では 6～18 リットル/日・人であるが、これも国家 25 カ年給水計画では都市部は 150 リットル/日・人、農村部 50 リットル/日・人に上げることを目指している。</p> <p>スーダンでは国営水公社（Public Water Corporation：PWC）が給水事業全般の権限を有していたが、地方分権化政策により、給水施設の維持管理については州水公社（State Water Corporation：SWC）に権限委譲された。これに伴い、PWC の役割は給水政策の策定、大規模給水施設建設、SWC のモニタリング、人材育成に限定されることとなった。</p> <p>一方、SWC は都市と村落両方の給水施設維持管理の他に小規模給水施設の建設に責任を持つ。各 SWC の給水人口規模は、首都であるハルツーム州 SWC の 450 万人やゲジラ州 SWC の 305 万人から、紅海州・青ナイル州 SWC の 30 万人程度まで様々であり、また、水源や給水施設の形態も州ごとに異なる。技術者数は、エンジニアクラスは多くても各州 80 人程度（測量、化学等も含む）と少ないことから、各エンジニアが専門分野以外の対応を余儀なくされている。更に、SWC が実施する給水事業は昨今の状況変化により様々な課題を抱えている。例えば、今後、一人あたり給水量の増加に伴い浄水場の新規建設が計画されていることを勘案すると、技術者の増員及び能力強化が必要となるが、現在のスーダンではハルツーム州 SWC が小規模な内部向け研修を行っているのみであり、全 SWC を対象とする研修やそれらを行う施設は存在しない。</p> <p>この様な状況の下、スーダン政府は、人材育成を主な業務の一つとする PWC に全 SWC に対する研修機能を付加することを決定し、研修センターを含む PWC 新庁舎をハルツームの南 6km の地に建設した。今後 PWC は研修センターに基本的な機材及び人材を配置する計画であるが、研修内容の計画・実施能力が不十分であることから、2006 年に我が国に対し技術協力を要請した。これを受けて事前調査団が 2007 年 10 月に派遣され、2008 年 4 月 9 日の R/D 署名を経てプロジェクトが開始された。</p> <p>1-2 協力内容</p> <p>(1) 上位目標</p> <p>スーダン国内の水供給が安定する。</p>	

(2) プロジェクト目標

国営水公社研修センター（Public Water Corporation Training Center：PWCT）が研修実施体制を確立する。

(3) 成果

成果 1：PWCT が研修計画・実施能力を獲得する。

成果 2：PWCT が研修運営に必要な事務管理能力を獲得する。

成果 3：研修コースの試行的実施により改善点・教訓が抽出される。

(4) 投入（評価時点）

日本側：

専門家派遣	7名（70.83人/月）	機材供与	約 6700万円
研修員受入	2名（0.92人/月）	ローカルコスト負担	3000万円
		合計	約 9700万円

スーダン国側：

カウンターパート配置	18名（2009年9月時点）	ローカルコスト負担	396,555SDG
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執務スペース提供

2. 評価調査団の概要

調査者	涌井 純二 団長	JICA 地球環境部水資源第二課 課長
	佐藤 隼人 協力企画	JICA 地球環境部水資源第二課
	市川 智子 評価分析	株式会社 VSOC コンサルタントグループ
調査期間	2009年10月17日～2009年11月5日	評価種類：中間レビュー

3. 評価結果の概要

3-1 実績の確認

(1) プロジェクト目標の達成度について

活動の進捗は概ね良好で各成果の達成度は高い。カウンターパートの研修計画及び運営能力は向上しつつあり、日本人専門家による今後の継続的な支援により、3つの指標は達成可能であると判断される。

指標 1：これまでに実施した 7 回の研修コースに対する受講生による評価結果は、コース全体に対しては平均 90 点、講師に対しては平均 91 点となり、指標 1（90 点以上）を達成している。

指標 2：コース運営に関する評価は、宿舎に対しては平均 86 点、食事に対しては平均 76 点（指標 2：90 点以上）。なお、コース運営に係るスーダン側カウンターパートの関与度は平均 59%。

指標 3：受講生の全員（135 名）が修了証書を受領している。今後、プロジェクトはより明確な修了基準を設ける予定である。

(2) 成果 1 の達成度

マニュアルや年間計画が PWCT 職員によって今後も継続的に更新・管理されれば、成果 1 は達成される見込みが高い。

指標 1-1：プロジェクトでは、研修に係る評価方法や研修計画、実施運営に対するマニュアルを策定中である。

指標 1-2：PWCT 職員は、年間計画やマニュアルの策定方法や更新方法を習得し、基幹コース及びアドホックコースの一部のシラバス（カリキュラム）を第 2 版まで策定済み。

指標 1-3：OJT サイトとしてワークショップ（作業施設）が建設中である。

指標 1-4：講師に対する評価について、マニュアル及び評価シート（第 1 版）が策定されている。

(3) 成果 2 の達成度

研修センターの運営の基盤作りとして、規定類、職員の業務分掌、予算案、文書保管に係る活動が概ね予定通り進められている。図書保管室が確定後、図書・文書管理能力の向上や管理体制の構築がなされることで成果 2 は達成見込み。

指標 2-1：プロジェクト活動 2-1 を通して、研修実施に係る規定や職員の業務分掌が策定済み。その他の規定類は現在草案中。

指標 2-2：基幹コースに必要な物品及び図書は暫定的に収納されており、保管室の整備が予定されている。

指標 2-3：2008 年から 2010 年までの予算案が策定済み。

指標 2-4：経理に係る手続きは PWCT ではなく PWC の制度に準じているため、現状の成果に適さない。よって、中間レビューにおいて指標の変更を提案した。

(4) 成果 3 の達成度

7つの基幹コースとアドホックコースが実施されており、「研修コース報告書」において問題点を報告していることから指標 3-1 と指標 3-2 について概ね達成されている。

抽出された問題点を研修実施にフィードバックする能力の向上が期待されるため、成果 3 の内容の変更を提案した。

指標 3-1：7つの基幹コースとアドホックコースを実施済み。

指標 3-2：研修コース報告書において、抽出した問題点を記載済み。

3-2 評価結果の要約

(1) 妥当性

プロジェクトの妥当性は高いと判断される。

プロジェクトの内容は、現在策定中であるスーダンの給水政策や戦略計画、我が国の ODA 政

策に一致している（優先度）とともに、スーダンの給水ニーズや PWC 人材育成の取り組みに一致している（必要性）。特に、アドホックコースに追加された「井戸管理コース」や「組織管理コース」は、ターゲットグループのニーズに一致しており、コース選定が適切である。また、作業施設（ワークショップ）が現在建設中で、今後、実習において活用されることが期待される（手段としての適切性）。

(2) 有効性（予測）

プロジェクトの有効性は高いと判断される。

プロジェクト活動は順調に展開されており、進捗に大きな問題はない。

成果 3 についてはより現状に即した内容に変更した（「問題解決の能力とフィードバック能力が向上すること。」）。なお、外部条件については、変化はなく満たされる可能性が高い。

(3) 効率性

プロジェクトの効率性は高いと判断される。

これまでのところ、3つの成果達成への阻害要因は見当たらない。研修事業の拠点となる PWCT における資機材の選定は、量、質、仕様の面で、プロジェクト活動を進める上で適切である。一部の資機材の調達はや遅れたものの、水質分析コースの時期を変更するなどの対処により、問題は適切に解決された。今後はワークショップ（作業施設）が建設されることで、実践的な研修が実施されることが期待される。

(4) インパクト（予測）

上位目標については、各州からの基本情報の収集が困難であったため、達成見込みを判断することは困難であった。このため、効果を具体的に把握できるように、上位目標を「安定した水供給のための組織的能力向上が促進される。」と変更することを提案した。

今までのところ、ジェンダーや環境に対するマイナスの影響は見当たらない。

(5) 持続性（見込み）

スーダンでは現在、国家給水政策及び戦略を策定中である。また、2010年度のPWCの予算計画は財務省へ申請中で、今後もPWCの協力を得られる見込みが高い。

研修センター運営、および研修実施に係るスーダン側のオーナーシップがプロジェクト終了までに確保されれば、持続性の確保は可能と見込まれる。

3-3 効果発現に貢献した要因

(1) 計画内容に関すること

- ・PWCTの近隣にワークショップ（作業施設）が建設されることにより、実践的な研修が実施されることが期待される。

(2) 実施プロセスに関すること

- ・研修実施、運営管理および評価に係るプロジェクト活動において、カウンターパートの関与

の度合いが高いこと。

- ・日本人専門家により策定支援が行われてきた予算案を基に、PWC が予算確保に向けた働きかけを行っていること。
- ・組織管理コースにおいて、各州水公社の幹部職員と PWC 職員とのコミュニケーションが円滑に図られること。

3-4 問題点及び問題を惹起した要因

- ・一部の資機材調達が遅れたものの、問題は解決されており、今後の活動進捗に影響を及ぼすような要因は見当たらない。

3-5 結論

本プロジェクトは内戦鎮静化後の援助再開一号案件であったため、プロジェクト開始当初は、スーダン側実施機関と日本人専門家チームのお互いの情報が限られ、プロジェクト実施の方法や内容についての議論が必要であった。しかしながら、双方の努力によりこれら初期の課題は概ね解決済みで、活動の進捗状況は順調であることが確認された。

これまでプロジェクトでは、7つの研修コースの内6つを立ち上げており、受講生からの評価も上々である。現状のまま進めていけば、プロジェクト目標の達成は十分可能であると考えられる。プロジェクトはスーダンのニーズを反映しており、スーダン及び我が国の政策とも合致している。持続性については、PWC の予算確保と各 SWC による研修生派遣が継続し、併せて、研修センター運営及びコース実施に係るスーダン側のオーナーシップが高まれば、確保されると考えられる。

3-6 提言

- (1) 日本人専門家の不在期間においても、スーダン側カウンターパートが一層自立的に活動を進めることが期待される。
- (2) スーダン側コースコーディネーターの関与を現状以上に高めていくと同時に、意識の高い若手カウンターパートを育成することが重要である。
- (3) プロジェクトで作成されている各種文書や、教科書、教材の質を向上させ、指導をより効果的なものとする必要がある。
- (4) 各州の研修ニーズをよりきめ細やかに把握すると同時に、それらの情報を研修内容にフィードバックする必要がある。

3-7 教訓

- (1) ポストコンフリクト国におけるプロジェクトの再開

プロジェクトの事前調査時は、援助再開直後であったこと、及び、地方部では依然安全管理上の問題が残っていたこと等により、情報収集が困難であった。特に地方部における現地調査が行えなかったことで、研修ニーズの把握が十分に行えなかった。プロジェクトの開始以降もスーダン側による日本の技術協力スキームへの理解が不足していたため、専門家の役割等について共通認識を得るための時間を要した。また、研修科目の決定がプロジェクト開始以後にな

らざるを得なかったため、必要な機材の選定・調達にも時間を要した。

スーダンのようなポストコンフリクト国においてプロジェクトを実施する際は、これら情報収集の困難さや相手側の理解不足を考慮し、事前準備に十分な時間をかけることが望ましい。

(2) スーダン国の特殊性の考慮

スーダンは米国による経済制裁を受けているため、軍事技術に転用可能な民生品の米国からスーダンへの輸出は制限されている。スーダンで同様のプロジェクトを実施する際は、このような特殊性を十分配慮して計画を策定する必要がある。例えば、本プロジェクトにおいては GIS 用のソフト等がこれに当たるが、事前調査段階においてこの点が十分考慮されていたとは言い難く、同ソフトの入手には困難が伴った。

同様の制裁下にあるキューバ、イラン等で事業を実施する場合にはこれら諸国の特殊性を十分考慮して計画を策定することが望まれる。

以 上

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第1章 中間レビュー調査の概要

1-1 中間レビュー調査団派遣の目的

本調査は、当該プロジェクトの協力期間（3年間）の中間地点を迎え、プロジェクトが順調に効果発現に向けて実施されているかどうかを検証し、プロジェクト内容の改善に資することを目的とする。主要な作業内容は以下のとおり。

- (1) 活動計画に基づき、プロジェクトの投入実績、活動実績、計画達成度を調査・確認し、問題点を整理する。
- (2) 評価5項目（妥当性、有効性、効率性、インパクト、持続性）の観点から、プロジェクトをレビューし、その結果をプロジェクト・チーム及びスーダン側に報告するとともに、改善が必要と思われる点があれば提言を行う。
- (3) 今後の活動の方向性について、関係者間において合意形成を図る。

1-2 中間レビュー調査団の構成

	担当	氏名	所属
1	団長	涌井 純二	JICA 地球環境部水資源第二課 課長
2	評価企画	佐藤 隼人	JICA 地球環境部水資源第二課
3	評価分析	市川 智子	株式会社 VSOC コンサルタントグループ

1-3 調査日程

10月18日（日）	市川団員のスーダン入り
10月19日（月）～27日（火）	市川団員による調査
10月27日（火）	涌井団長、佐藤団員のスーダン入り
10月28日（水）	JICA スーダン事務所、PWC（国立水公社）表敬 日本人専門家との協議、施設視察
10月29日（木）	MIC（国際協力省）との協議 在スーダン大使館表敬
10月30日（金）～31日（土）	ジュバ視察（涌井、佐藤）、資料整理（市川）
11月1日（日）	PWCT（国立水公社研修センター）との協議
11月2日（月）	JCC 開催
11月4日（水）	ミニッツ署名
11月5日（木）	在スーダン大使館、JICA スーダン事務所報告 調査団スーダン発

1-4 評価の方法

合同評価調査団は、2009年8月に改訂されたプロジェクト・デザイン・マトリックス（PDM4）に基づいて、本プロジェクトの評価を行った。そのために、事前調査報告書、インセプション・レポート、プロジェクト・ドキュメント、進捗報告書、インテリム・レポート、その他関連資料によって、評価デザインの分析を行い、評価グリッドを開発した。評価グリッドの作成にあつ

では、プロジェクト関係者に配布した質問票の回答や関連データなども参考にした。

現地調査では、質問票を分析するとともに、評価グリッドの不明個所を埋めるため、カウンターパート、日本人専門家等の現地関係者にインタビューを行った。今回のレビューはスーダン側と日本側の合同で行われ、調査団は両国より選出された。さらに5項目評価に必要なデータを収集した。この調査をもとに合同評価報告書ドラフトが作成された。調査団員が検討して改訂された最終報告書は、プロジェクトの合同調整委員会により承認された。プロジェクトの中間レビューでは、活動の進捗状況、成果の達成度合い、プロジェクト目標達成の度合いと見込みについて確認した。プロジェクト評価の5つの視点は、妥当性、有効性、効率性、インパクト、持続性である。

- (1) 妥当性：プロジェクト目標や上位目標について、スーダン政府の開発政策やプロジェクト受益者のニーズの観点で妥当かどうか考察する。
- (2) 有効性：プロジェクトが実際にターゲットグループに便益を与えたか、プロジェクトが有効であるか確認する。プロジェクト目標が期待通りに達成されているか、それがプロジェクトによる結果なのかも精査する。
- (3) 効率性：プロジェクトが資源の活用を効率的に行っているか確認する。投入と成果の関係についても見直す。投入コストが成果とプロジェクト目標の達成度合いに適切であるか考察する。
- (4) インパクト：上位目標の達成見込み、及び、プロジェクトによって延長された長期の直接的効果や、間接的効果を確認する。その分析はプロジェクトが計画されたときに、期待されていなかった正・負のインパクトを含む。
- (5) 持続性：組織的、資金的、技術的、環境的側面に焦点をあて、プロジェクトの達成がどの程度持続的に実現されるか確認する。

第2章 プロジェクトの実績と現状

本中間レビューでは、PDM (3)と PO (1)に基づいた検証の結果を述べる。

2-1 投入の実績

日本側、スーダン国側の投入は、質、量、タイミングに関して、概ね計画通り実施されている。詳細は添付資料：合同評価報告書を参照のこと。

2-1-1 日本側の投入

専門家派遣、研修員受け入れ、機材供与、ローカルコスト負担等、すべての項目に関して、計画通り投入が実施されたといえる。

(1) 日本人専門家派遣

中間レビュー時点で、のべ7名の専門家が以下の分野で技術協力を行った。詳細は添付資料：合同評価報告書を参照のこと。

表 2-1 日本人専門家の派遣実績

	指導分野	業務期間
1	総括/研修事業監理/給水計画	14.67 月/人
2	給水施設（機械/電気）	3.60 月/人
3	データ管理/GIS	5.50 月/人
4	浄水場運営維持管理/管網管理	3.93 月/人
5	井戸管理	2.00 月/人
6	教育手法	4.80 月/人
7	水質検査/データベース	1.00 月/人

注：業務期間は2009年9月までを計上している。

(2) カウンターパート研修

下記の表の2名のカウンターパートが、2009年5月10日から5月24日（0.46M/M）までの期間、給水管理に係る本邦研修に参加した。

表 2-2 本邦研修派遣実績

	カウンターパート	研修期間
1	Ms.Eatidal Elrayah Malik	0.46 月/人
2	Mr.Hashim Abdul Raheem	0.46 月/人
	合計	0.92 月/人

(3) 供与機材

2009年9月までに本邦調達や専門家携行を含め、769,721米ドル（約69,259,468円）の機材が供与された。（1USD=JPY89.98円。1USD=2.26スーダンポンド（SDG）。2009年10月

時点の JICA スーダン事務所レートによる。)

(4) 現地業務費

2009年9月までの現地業務費の総額は、76,267米ドル(約6,862,508円)で、概ね計画通り活用されている。(1USD=JPY89.98円。1USD=2.26SDG。2009年10月時点のJICA スーダン事務所レートによる。)

表 2-3 現地業務費の実績

年度	2008年	2009年	合計
経費総額(千円)	2,986,237円	3,876,271円	6,862,508円

注：2009年9月時点。

2-1-2 スーダン国側の投入

(1) カウンターパートの配置

現在までに18名のカウンターパートが配置されている。そのうちの2名はプロジェクト活動の試験的研修コース担当と国営水公社研修センター(Public Water Corporation Training Center: PWCT)業務を兼務している。最近では2008年12月にカウンターパートが交代した。カウンターパートリストの配置状況について、詳細は合同評価報告書を参照のこと。

表 2-4 カウンターパートの配置実績

	担当分野	人数
1	Director of PWCT	1
2	Assistant Director of PWCT	1
3	Secretary	1
4	Director of Administration Department	1
5	Director of Finance Department	1
6	Manager of Workshop	1
7	Store Keeper of Workshop	1
8	Mechanician of Workshop	1
9	Director of Residence	1
10	Manager of Residence	1
11	Course Coordinator	8
	合計	18

注：2009年9月時点。全員がPWCT職員。

(2) 土地・施設・機材の貸与

スーダン国政府より、PWCTの施設内に執務スペースとして日本人専門家執務室が提供された。この室はPWCの施設内であることから、PWC関係者や、PWCT長やコーディネーターを含むカウンターパートとのコミュニケーションが容易な環境であり、プロジェクト実施の円滑化を図るうえでも大変効果的である。

(3) 予算の配分

PWCT の予算は、日本人専門家による予算策定の指導が行われ、下表の通り策定されている。2009 年の予算については、PWC を通じて現在、財務省へ申請中である。

表 2-5 PWCT の予算案

	2008 年案	2009 年案	2010 年案
PWCT	150,000 SDG	479,340 SDG	1,121,088 SDG

注：1USD=JPY89.98 円。1USD=2.26SDG。2009 年 10 月時点の JICA スーダン事務所レート参照。

(4) ワークショップ（作業施設）に係る費用

PWCT は、2009 年 9 月の時点で、約 396,555 スーダンポンド（約 15,788,504 円）がワークショップ費として確保されている。〔1USD=JPY89.98 円。1USD=2.26 スーダンポンド（SDG）。2009 年 10 月時点の JICA スーダン事務所為替レートによる。〕

2-2 活動の実績

活動の実績は、主にグループディスカッションと聞き取り調査、及び、PO の当初計画と実際の活動進捗により、計画された活動は概ね順調に進捗していることを確認した。一部、資機材調達の遅れがあり、また 2009 年 10 月に実施予定だった試験的研修コース（水質分析）開催が 2010 年 2 月へ変更されるなどがあったが、プロジェクト側で対応がなされており、現在のところプロジェクト活動の進捗に大きな支障はない。

2-3 アウトプットの達成状況

(1) 成果 1：<PWCT が研修計画・実施能力を獲得する。>

マニュアルや年間計画が PWCT 職員によって今後も継続的に更新・管理されれば、成果 1 は達成される見込みが高い。

指標 1-1：プロジェクトでは、研修に係る評価方法や研修計画、実施運営に対するマニュアルを策定中である。

指標 1-2：PWCT 職員は、年間計画やマニュアルの策定方法や更新方法を習得し、基幹コース及びアドホックコースの一部のシラバス（カリキュラム）を第 2 版まで策定済み。

指標 1-3：OJT サイトとしてワークショップ（作業施設）が建設中である。

指標 1-4：講師に対する評価について、マニュアル及び評価シート（第 1 版）が策定されている。

(2) 成果 2：<PWCT が研修運営に必要な事務管理能力を獲得する。>

研修センターの運営の基盤作りとして、規定類、職員の業務分掌、予算案、文書保管に係る活動が概ね予定通り進められている。図書保管室が確定後、図書・文書管理能力の向上や管理体制の構築がなされることで成果 2 は達成見込み。

指標 2-1：プロジェクト活動 2-1 を通して、研修実施に係る規定や職員の業務分掌が策定

済み。その他の規定類は現在草案中。

指標 2-2： 基幹コースに必要な物品及び図書は暫定的に収納されており、保管室の整備が予定されている。

指標 2-3： 2008 年から 2010 年までの予算案が策定済み。

指標 2-4： 経理に係る手続きは PWCT ではなく PWC の制度に準じているため、現状の成果に適さない。よって、中間レビューにおいて指標の変更を提案した。

(3) 成果 3： <研修コースの試行的実施により改善点・教訓が抽出される。

7つの基幹コースとアドホックコースが実施されており、「研修コース報告書」において問題点を報告していることから指標 3-1 と指標 3-2 について概ね達成されている。

抽出された問題点を研修実施にフィードバックする能力の向上が期待されるため、成果 3 の内容の変更を提案した。

指標 3-1： 7つの基幹コースとアドホックコースを実施済み。

指標 3-2： 研修コース報告書において、抽出した問題点を記載済み。

2-4 プロジェクト目標の達成見込み

活動の進捗は概ね良好で各成果の達成度は高い。カウンターパートの研修計画及び運営能力は向上しつつあり、日本人専門家による今後の継続的な支援により、3つの指標は達成可能であると判断される。

受講生による評価は、A から E までの5段階で行った上で、それぞれ A を 100 点、B を 80 点、C を 50 点、D を 20 点、E を 0 点として加重平均点を算出した。評価結果を下表に示す。

指標 1： これまでに実施した7回の研修コースに対する受講生による評価結果は、コース全体に対しては平均 90 点、講師に対しては平均 91 点となり、指標 1（90 点以上）を達成している。

指標 2： コース運営に関する評価は、宿舎に対しては平均 86 点、食事に対しては平均 76 点（指標 2：90 点以上）。なお、コース運営に係るスーダン側カウンターパートの関与度は平均 59%。

指標 3： 受講生の全員（135 名）が修了証書を受領している。今後、プロジェクトはより明確な修了基準を設ける予定である。

表 2-6 研修コース全体の評価結果

評価		第1回	第2回	第3回	第4回	第5回	第6回	第7回	平均
100	A	83	51	42	65	64	51	74	
80	B	17	40	47	33	33	39	24	
50	C	0	8	9	2	2	8	1	
20	D	0	1	1	0	1	2	1	
0	E	0	0	1	0	0	0	0	
加重平均		97	87	84	92	92	87	94	90

注: 各回回めから末尾の数値は回答比率を示す。

表 2-7 講師に対する評価結果

評価		第1回	第2回	第3回	第4回	第5回	第6回	第7回	平均
100	A	75	52	66	58	81	55	66	
80	B	22	35	27	33	18	37	30	
50	C	3	8	6	8	1	8	4	
20	D	0	4	1	0	0	0	0	
0	E	0	1	0	1	0	0	0	
加重平均		94	85	91	88	96	89	92	91

注: 各回回めから末尾の数値は回答比率を示す。

表 2-8 宿泊に対する評価結果

評価		第1回	第2回	第3回	第4回	第5回	第6回	第7回	平均
100	A	76	51	55	57	51	52	59	
80	B	20	32	31	36	39	35	20	
50	C	3	8	8	5	8	7	6	
20	D	0	5	5	2	2	5	5	
0	E	1	4	1	0	0	2	10	
加重平均		94	82	85	89	87	84	79	85

注: 各回回めから末尾の数値は回答比率を示す。

表 2-9 食事に対する評価結果

評価		第1回	第2回	第3回	第4回	第5回	第6回	第7回	平均
100	A	65	30	36	36	24	35	44	
80	B	30	48	48	37	29	39	29	
50	C	5	13	8	18	20	23	1	
20	D	0	9	8	4	17	4	1	
0	E	0	4	0	6	10	0	1	
加重平均		92	77	80	75	61	78	68	76

注: 各回回めから末尾の数値は回答比率を示す。

2-5 プロジェクトの実施プロセス

日本人専門家とカウンターパート（マネージャーレベル）とがプロジェクトの進捗確認について頻繁にコミュニケーションをとるなど、研修実施に係る運営・管理においても良い関係が構築されていると考えられる。中間レビュー中に、試験的研修コース（組織管理：11月25日から29日）の準備状況を視察したが、日本人専門家とカウンターパートの役割分担が明確で、コースコーディネーターだけでなく、マネージャーレベルのセンター職員も加わり自主的に開催準備を行っていた。なお、コースコーディネーターは、作業チームを編成しチームワークによって課題に取り組んでいることが確認された。

モニタリングについては、モニタリングシートを作成し、コース、講師、および宿舎（食事やサービス含む）の評価を行っている。これらに基づいて、試験的研修コース実施後は、日本人専門家とカウンターパートの間で反省会が行われ、次期研修に活かすためのモニタリング体制が確認された。なお研修実施後には、研修生による研修レポートが作成され、各州（受講者の州）のSWCに報告されている。今後は、カウンターパート自らが改善点や教訓を導き出し、将来の研修にフィードバックができる研修にすべく、日本人専門家による技術指導が行われる予定である。

合同調整委員会（Joint Coordination Committee : JCC）は、年に2回、これまでに合計3回開催されている。今回のJCCでは、進捗状況及び中間レビューの結果を共有した。次回のJCCは、2010年10月の終了時評価調査時に開催することが予定されている。なお、組織管理コースについては、受講者が上位管理職員であるため、研修期間中に幹部職員間で情報交換する利点があることが確認された。

第3章 評価5項目による評価結果

本項では、妥当性、有効性、効率性、インパクト、持続性の5つの観点（評価5項目）で評価する。

3-1 妥当性

プロジェクトの妥当性は高い。

(1) スーダン国政策との一致

PWCの政策アドバイザー¹へのインタビューを通じ、スーダン国における給水政策状況について、次に述べる情報を得た。まず、「国家給水衛生政策（National Policy for Water Supply）」については、最終案を策定中で2009年の12月に完成予定である。次に、2010年の2月に草案策定予定の「四半期戦略計画〔Quarter Century Strategic Plan（2007-2031）〕」ではスーダン国内外の研修を通じた給水専門家育成の必要性が述べられている。そして、「国営水公社5カ年計画（PWC Five Year Plan 2007-2011）」では、PWCは州の技術者、水利地質や給水計画、技術者および事務管理担当者の人材育成研修が計画されている。

以上より、本プロジェクトはスーダン国の国家政策と整合性があるといえる。

(2) 日本ODA政策との一致

日本政府は、ODA白書「国別データブック」においてスーダン国に対するODAの考え方として平和の構築を支柱とし、我が国の対アフリカ外交の基軸であるアフリカ開発会議（Tokyo International Conference on African Development：TICAD）プロセスにおいても平和の定着を挙げている。ODA中期戦略（2005年2月）では、貧困削減のための戦略の一つに「安全な水と衛生施設の供給」に重点を置くとしている。また、第4回アフリカ開発会議（TICAD VI）の「横浜行動計画（2008年5月30日）」“環境・気候変動問題への対処—2 節水と衛生”で、「有効な水資源管理」や「安全な水及び衛生施設へのアクセス」についての支援促進がうたわれている。JICA国別事業実施計画においても、現在ドラフト中であるが「給水と衛生」が重点分野として挙げられている。従って、我が国の援助政策との整合性も十分にあると判断される。

(3) 必要性

スーダン国においては、地方の給水状況に関する基本情報の入手が難しく、適切な状況把握が困難であるが、プロジェクトの地方調査やPWCが草案を策定中の「給水衛生戦略計画」より、機材の老朽化による不適切な水質やアクセス、および不安定な供給サービスが主な課題として挙げられている。本プロジェクトは、このようなスーダンの給水ニーズに一致する。

¹ PWCは現在、国家給水計画を策定しており、調査による課題の整理が実施中である。プロジェクトの「組織管理」コースの講師でもあるHilal EL Fadil Ahmed氏がPWCの政策アドバイザーでもある。PWC/PWCT内では、政策文書を確認することが困難であったため、中間レビューではスーダン国政策策定状況について、Hilal氏に個別インタビューを行った。

(4) ターゲットグループ

本中間レビューでの PWC 職員へのインタビューによって、過去 10 年間、スーダン国もしくは国外において水利地質や給水計画専門家の育成に係る研修はほとんど実施されていなかった事実が判明した。PWCT は、スーダン国の給水人材を育成する中核となる研修センターとして設立されたが、実際にも本プロジェクトにおける試験的研修コースの実施からさらに発展し研修センターとしての機能を同国側から期待されている。よって、本プロジェクトにおけるターゲットグループの選定は適切であるといえる。

(5) 手段としての適切性

スーダン国における水源はほとんどが表流水か地下水である。本プロジェクトによって実施された地方調査では、井戸の維持管理やリハビリテーションに関する問題点が多く見られると報告された。なおスーダン国側からもプロジェクトのアドホックコースに、「井戸管理」コースを追加する要望が強いという。また、本プロジェクトのニーズ調査により、文書作成、機材・教材の管理、人事管理上の能力強化の必要性が明確になったことから、「組織管理」コースを設置した。これらを総合し、研修コースの選定・設置は適切であると判断される。

3-2 有効性（予測）

プロジェクトの有効性は高い。

プロジェクト活動は順調に展開されており、進捗に大きな問題はない。

スーダン側カウンターパートは、研修を実施する過程で、計画や評価及び運営・事務のノウハウを習得するとともに高い満足感を示し、また、個々の活動でもチームワーク体制を構築するなどの工夫が見られる。

成果 1 と 2 の「研修計画・実施能力」と「研修運営・事務管理能力」の向上、及び、成果 3 の「試行的研修の実施を通し、『改善点・教訓が抽出される』」は、プロジェクト目標（「PWCT が研修実施体制を確立する」）に貢献している。また、成果 3（「問題解決の能力とフィードバック能力が向上すること」）は、中間レビューにおいて、より具体的な目標に修正された。今後さらに現実的な研修となることが期待される。3 つの成果は、互いに関連しながらプロジェクト目標を達成することが期待される。

第 2 章 2-3 アウトプットの達成状況で記したとおり、研修実施、運営管理および評価に係る活動において、予算案作成の過程でカウンターパートの高い関与があった。

外部条件に変化はなく、現在の外部条件が満たされる可能性も高い。

以上より、プロジェクト目標達成の可能性は高いと判断される。

3-3 効率性

プロジェクトの効率性は高いと判断される。

これまでのところ、3 つの成果達成への阻害要因は見当たらない。研修事業の拠点となる PWCT

における資機材の選定は、量、質、仕様の面で、プロジェクト活動を進める上で適切である。一部の資機材の調達が遅れたものの、水質分析コースの時期を変更するなどの対処により、問題は適切に解決された。今後はワークショップ（作業施設）が建設されることで、実践的な研修が実施されることが期待される。

PWC と PWCT が作業施設であるワークショップに対する費用を自主的に捻出している等、スーダン側の投入も適切と言える。

3-4 インパクト（予測）

現在のスーダン国においては、安全管理上、日本人専門家がすべての州を訪問することに制限があり、各州のベースラインとなる統計や地図など、適切な情報の入手が極めて困難である。このような状況下で PWC は、国家給水政策立案のための調査を進めているが、問題分析や課題整理はいまだ作業途中であり、本プロジェクトの上位目標である「スーダン国内の水供給が安定する」へ至る効果発現の判断は困難であった。よって、中間レビューでは、現実的な効果の発現が見られるように、上位目標を「安定した水供給のための組織的能力の向上が促進される」と修正した。

なお、今までのところ、対象社会・ジェンダー、環境に対するマイナスの影響は見当たらない。また、試験的研修コースに参加した 15 州水公社職員については、問題分析の必要性や組織管理に対する問題意識が高まっていることが確認された。

以上を総合すれば、本プロジェクトにおけるインパクトは概ね高いと予測される。

3-5 持続性の見込み

本プロジェクトの持続性については、以下の観点から検証した。

(1) 政策・制度面

現在のところ、スーダン国においては、2009 年 12 月に国家給水政策の草案策定が予定され、さらに 2010 年 2 月に国家給水戦略の草案が策定される予定である（PWC 政策アドバイザーインタビューによる）。また、本プロジェクトにおいて、PWCT の「センター規定（第 2 版）」が改定予定であり、PWCT の管理機能は政策・制度面からの支援体制が整いつつあると言える。

(2) 予算面

PWCT における年間予算計画は毎年策定されている。2010 年度の予算については、PWC を通じて財務省へ申請中であり、今後も PWC の協力が期待される。各州の中には、PWCT へ設備品を寄付するなど、本プロジェクトに貢献しようとする取り組みも見られる。

(3) 技術面

スーダン側カウンターパートは、研修実施や事務に係る知識及び管理方法を習得していることが確認された。試験的研修の実施を通じ、スーダン側のオーナーシップが醸成されつつある。今後は、文書や資機材管理に係る管理能力を強化する活動が予定されている。

(4) 社会・文化、環境面、その他

社会・文化および環境面に対しての阻害要因は現在のところ確認されていない。

以上の 4 つの観点を踏まえ、PWCT の運営及び研修実施に係るスーダン側のオーナーシップがプロジェクト終了までに継続して確保されれば、持続性の確保は可能と見込まれる。

第4章 PDMの改定

本プロジェクトでは、2008年7月15日、2009年3月13日および2009年8月13日に、PDM1、PDM2、およびPDM3が改訂されている。中間レビューで改訂した内容は表4-1に示す。

- (1) 上位目標とその指標を、プロジェクトの活動との関係がより明確になるように示し、かつ、現実的なものとした。例えば、上位目標「スーダンの水供給が安定する（PDM3）」については、PDM4で「北部スーダンの水供給安定のための組織的能力向上が促進される。」に修正した。
- (2) 問題点の評価分析及び改善することの重要性を勘案し、成果3について、研修の「問題を抽出する」に「フィードバック」を加えた。
- (3) 各指標がプロジェクト成果をより適確に表すように書きぶりを修正した。また、具体的な数値や成果物を指標とした。

表 4-1 PDM3 から PDM4 への修正内容

項目	修正内容	修正理由
プロジェクトの要約		
ターゲットグループ	「国営水公社研修センター（PWCT）、水公社（PWC）および州水公社（SWC）」に修正する。	中間レビューにおいて、より明確で適切なターゲットグループの選定とした。
上位目標	「スーダンの水供給が安定する。」を「北部スーダンの水供給安定のための組織的能力向上が促進される。」に修正する。	上位目標はプロジェクト目標が達成された結果、発現する効果として、より現実的で、プロジェクト目標との関係がわかりやすい状態をあらわす表現に言い換えた。
アウトプット3	「研修コースの試験の実施により改善点・教訓が抽出される。」を「PWCTの、問題解決の能力や研修コースにフィードバックする能力が向上する。」	カウンターパートは、問題や課題を抽出するだけでなく、研修コース計画にフィードバックする能力の向上が期待されるため、より現状に即した新たなアウトプットとして修正した。
活動	活動 3-3「活動 3-1 で抽出した問題点を改善する。」	アウトプット3の修正に基づき、新たな活動を追加した。
指標		
上位目標	<p>指標 1「各州水公社（SWC）の中核となる職員7人以上の育成」に修正する。</p> <p>指標 2「研修コースの実施により抽出された教訓を基にして策定された州の予算と共に更新された年間計画書（3-5年間）」に修正する。</p>	上位目標の変更に伴い、より適確に表すような指標の書きぶりに修正した。

項目	修正内容	修正理由
アウトプット 1	<p>指標 1-1「80%以上の PWCT コースコーディネーターによる研修管理業務の割合」に修正する。</p> <p>指標 1-2「最低 3 基幹コースと 4 アドホックコースの年間計画、マニュアル、教材やシラバス」に修正する。</p> <p>指標 1-3「研修サイト設置(PWCT ワークショップ)」に修正する。</p> <p>指標 1-4「すべての研修コース講義に対する改善された評価（方法や体制）」に修正する。</p>	<p>指標 1-1 研修管理業務の評価結果は、より明確に実証できる指標が提案され、修正した。</p> <p>指標 1-2 は、指標としてより適切な表現に言い換えた。</p> <p>指標 1-3 の「OJT サイト」とは“ワークショップ”（作業施設）として認識されているため、現状に即し、修正した。</p> <p>指標 1-4 は、指標としてより適切な表現に言い換えた。</p>
アウトプット 2	<p>指標 2-1「活動 2 における改訂された PWCT スタッフの TOR や規定」に修正する。</p> <p>指標 2-2「改定された必要な書籍文書や教材に対する適切な管理」に修正する。</p> <p>指標 2-3「PWCT 予算の適切な管理」に修正する。</p> <p>指標 2-4 は削除。</p>	<p>指標 2-1 から 2-3 は、指標としてより適切な表現に言い換えた。</p> <p>指標 2-4 は PWC/PWCT の現在の予算申請のシステムには適さないため削除した。PWCT の会計や予算申請は、PWC のシステムで行われている。</p>
アウトプット 3	指標 3-1「4 回以上の 3 基幹コースと 2 回以上のアドホックコースの実施」	アウトプット 3 の変更に伴い、新たな指標が必要となり、指標 3-3 を追加した。
入手手段		
上位目標	<p>1 「研修報告書」に修正する。</p> <p>2 「更新された年間計画書」に修正する。</p>	上位目標の指標の変更に伴いより適切な入手手段に修正した。
アウトプット 1	<p>1-1 「研修報告書」に修正する。</p> <p>1-2 「年間計画書、教材、シラバス」に修正する。</p> <p>1-3 「ワークショップ（作業施設）の状況に修正する。」</p> <p>1-4 「研修報告書」に修正する。</p>	アウトプット 1 の指標の変更に伴い、より適切な入手手段に修正した。
アウトプット 2	2-4 は削除。	アウトプット 2 の指標削除に伴い、入手手段 2-4 を削除した。
外部条件		
プロジェクト目標	プロジェクト期間中に研修に生かせる資機材が PWCT に導入される。	研修の資機材はプロジェクト期間中に必要であることが確認され、修正した。
活動		
アウトプット 1 の活動	1-1-1「自治体が処理場を建設し維持管理していくための財務枠組みを提案する」を「自治体が処理場を建設し維持管理していくための財務状況改善案を提案する」に修正する。	より適切な表現に言い換えた。

第5章 結論

本プロジェクトは内戦鎮静化後の援助再開一号案件であったため、プロジェクト開始当初は、スーダン側実施機関と日本人専門家チームのお互いの情報が限られ、プロジェクト実施の方法や内容についての議論が必要であった。しかしながら、双方の努力によりこれら初期の課題は概ね解決済みで、活動の進捗状況は順調であることが確認された。

これまでプロジェクトでは、7つの研修コースの内6つを立ち上げており、受講生からの評価も上々である。現状のまま進めていけば、プロジェクト目標の達成は十分可能であると考えられる。プロジェクトはスーダンのニーズを反映しており、スーダン及び我が国の政策とも合致している。持続性については、PWCの予算確保と各州水公社（State Water Corporation : SWC）による研修生派遣が継続し、併せて、研修センター運営及びコース実施に係るスーダン側のオーナーシップが高まれば、確保されると考えられる。

第6章 提言及び教訓

6-1 提言

- (1) 日本人専門家の不在期間においても、スーダン側カウンターパートが一層自立的に活動を進めることが期待される。
- (2) スーダン側コースコーディネーターの関与を現状以上に高めていくと同時に、意識の高い若手カウンターパートを育成することが重要である。
- (3) プロジェクトで作成されている各種文書や、教科書、教材の質を向上させ、指導をより効果的なものとする必要がある。
- (4) 各州の研修ニーズをよりきめ細やかに把握すると同時に、それらの情報を研修内容にフィードバックする必要がある。

6-2 教訓

(1) ポストコンフリクト国におけるプロジェクトの再開

プロジェクトの事前調査時は、援助再開直後であったこと、及び、地方部では依然安全管理上の問題が残っていたこと等により、情報収集が困難であった。特に地方部における現地調査が行えなかったことで、研修ニーズの把握が十分に行えなかった。プロジェクトの開始以降もスーダン側による日本の技術協力学スキームへの理解が不足していたため、専門家の役割等について共通認識を得るための時間を要した。また、研修科目の決定がプロジェクト開始以後にならざるを得なかったため、必要な機材の選定・調達にも時間を要した。

スーダンのようなポストコンフリクト国においてプロジェクトを実施する際は、これら情報収集の困難さや相手側の理解不足を考慮し、事前準備に十分な時間をかけることが望ましい。

(2) スーダン国の特殊性の考慮

スーダンは米国による経済制裁を受けているため、軍事技術に転用可能な民生品の米国からスーダンへの輸出は制限されている。スーダンで同様のプロジェクトを実施する際は、このような特殊性を十分配慮して計画を策定する必要がある。例えば、本プロジェクトにおいては GIS 用のソフト等がこれに当たるが、事前調査段階においてこの点が十分考慮されていたとは言い難く、同ソフトの入手には困難が伴った。

同様の制裁下にあるキューバ、イラン等で事業を実施する場合にはこれら諸国の特殊性を十分考慮して計画を策定することが望まれる。

第7章 団長所感

情報や体制も未整備な中で開始された本プロジェクトは、これまでの活動の結果として、PWCTをスーダンにおける給水人材の育成センターとして徐々に機能させ始めることに成功している。これには専門家の努力に加え、スーダン側の貢献も少なくない。

今後はプロジェクト目標の達成に向けて着実に活動を積み重ねるとともに、研修機関としての機能をよりよく発揮させるため、持続性の確保を含めた様々な詰めが大切である。

また、安全面等の留意点はあるが、次のステップを考える上で重要と思われるのは以下の点である。

- (1) 各地の給水事情および各層給水人材のキャパシティをより深く把握するとともに、必要な研修をどのように供給していくかの全体的な方向付け
- (2) 研修後のフォローと研修へのフィードバック

以 上

添 付 資 料

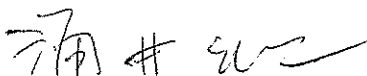
ミニッツ（合同中間レビュー報告書）

**MINUTES OF MEETING
BETWEEN
JICA MID-TERM REVIEW TEAM
AND
THE SUDANESE AUTHORITIES
ON
JAPANESE TECHNICAL COOPERATION PROJECT
FOR
HUMAN RESOURCES DEVELOPMENT FOR WATER SUPPLY
IN
THE REPUBLIC OF SUDAN**

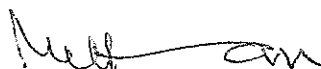
The Sudanese Government and Japan International Cooperation Agency (hereinafter referred to as "JICA") jointly organized the Mid-term Review Team (hereinafter referred to as "the Team"), respectively headed by Eng. Mohamed H. M. Ammar and Mr. Junji WAKUI, for the purpose of conducting the mid-term review for the technical cooperation project "Human Resources Development for Water Supply" (hereinafter referred to as "the Project"). The Team has carried out intensive study and analysis of the activities and achievements of the Project, and prepared the Joint Review Report attached hereto (hereinafter referred to as "the Report"), and presented it to the Joint Coordination Committee (hereinafter referred to as "JCC") held on 2nd November, 2009.

After discussion on the major issues pointed out in the Report as described in the attached document, the JCC accepted and took note of the recommendations made in the Report. The representatives of The Sudanese side and the Japanese side for the JCC agreed to report to their respective authorities concerned the matters referred to in the Report to ensure necessary measures are taken for the smooth and successful implementation of the Project.

Khartoum, 4th November, 2009




Mr. Junji WAKUI
Team Leader
JICA Mid-Term Review Team



Eng. Mohamed H. M. Ammar
Director General
Public Water Corporation

witnessed by



Mr. Mahmaoud Haroun A/elgabar
Manager
Financial Bilateral Cooperation Department
Ministry of International Cooperation

ATTACHED DOCUMENT

1. The Team concluded the review as follows, referring to the Joint Review Report attached hereto;
 - (1) The project activities have been implemented without notable delays or serious difficulties. Thanks to the strong efforts and mutual cooperation of both sides, the project purpose is prospected to be achieved by the end of the Project. Three outputs of the Project are expected to be sufficiently attained as well.
 - (2) The Project is consistent with the development policy of Sudan and the aid policy of the Japanese Government, and sufficiently reflects the needs of Sudan.
 - (3) The sustainability of the Project is considered to be secured, if the financial support from Public Water Corporation ("PWC") and the contribution of State Water Corporation ("SWC") in sending trainees will be continued. Technical sustainability is also confirmed to be relatively high.

2. The Team recommended that the Sudanese side and JICA consider the concrete actions to materialize the points below.
 - (1) More independently execution of the works by counterparts, especially during the absence of the Japanese experts.
 - (2) Upgrading the quality of the documents, formats, teaching materials and so on for more efficient implementation of the Project.
 - (3) Understanding the training needs of each states and their feed back to the courses.

3. The Team recommended JCC to modify the PDM₃ based on the discussion by both sides. The JCC also approved the revision to PDM₄ and took note of the responses and recommendations of the JCC members as attached.

4. Other important matters
 - (1) Counterpart training in Japan

The Sudanese side has requested the Team to accept 6 counterparts for training courses in Japan in May, 2010. The Team replied that they understood the request and will discuss about the matter in Japan. The Team added that the number of the trainees will be decided according to the available budget and after necessary coordination with related organizations in Japan.
 - (2) Necessity of a master plan for Public Water Corporation Training Center

The Sudanese side suggested to discuss about the necessity to have a master plan for human resources development by Public Water Corporation Training Center ("PWCT") and utilization of training results in the states, in consideration of the next step of the activities. The Team replied that they will discuss about the matter in Japan.
 - (3) Procedure for receiving the equipment

The Team requested the Sudanese side to facilitate the procedure for receiving the equipment donated by JICA and will arrive at Sudan in November, 2009. The Sudanese side

promised to do it as they did last time.

(4) Timing to hold the JCC

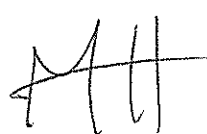
JCC members agreed that considering the current progress and situation of the project, October, 2010 is appropriate timing for holding the next JCC, together with the terminal evaluation. However, it can be held anytime if important matters to be discussed arise and considered necessary.

(end of document)

Attachment:

1. JCC Attendance List
2. Joint Mid-Term Review Report

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ATTACHEMENT 2

**JOINT REVIEW REPORT
ON
THE PROJECT
FOR
HUMAN RESOURCES DEVELOPMENT
FOR
WATER SUPPLY
IN
THE REPUBLIC OF SUDAN**

2nd November, 2009

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LIST OF ABBREVIATION AND ACRONYMS USED

C/P	Counterpart Personnel
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
MIC	Ministry of International Cooperation
M/M	Minutes of Meetings
M/M	Man Month
ODA	Official Development Assistance
OJT	On the Job Training
PDM	Project Design Matrix
PO	Plan of Operations
PWC	Public Water Corporation
PWCT	Public Water Corporation Training Center
R/D	Record of Discussions
SWC	State Water Corporation
TICAD	Tokyo International Conference on African Development
WATSAN	Water Supply and Sanitation

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1. INTRODUCTION

1-1 PURPOSE OF THE REVIEW STUDY

The purposes of the Review on the Project are;

- (1) to review the current status of the project based on inputs, outputs, project purpose, and identify the problems to be solved;
- (2) to evaluate the project in accordance with the five evaluation criteria, namely, relevance, effectiveness, efficiency, impact, and sustainability;
- (3) to consider the necessary actions to be taken and make recommendations for the Project.

1-2 MEMBER OF THE REVIEW

1-2-1 SUDANESE SIDE

Mr. Mahmoud Haroun A/elgabar	Manager of Financial Bilateral Cooperation Department, Ministry of International Cooperation
Ms. Eatiadal Elrayah Malik	Director of Public Water Corporation Training Center

1-2-2 JAPANESE SIDE

JICA Review Team

Mr. Junji WAKUI	Leader/ Director, Water Resources Management Division II, Global Environment Department, JICA
Mr. Hayato SATO	Evaluation Planning/ Program Officer, Water Resources Management Division II, Global Environment Department, JICA
Ms. Tomoshi ICHIKAWA	Evaluation and Analysis/ VSOC Co., Ltd.

1-3 SCHEDULE OF THE REVIEW STUDY

A series of meetings and discussions were held from 18th October to 5th November among Sudanese governmental authorities and institutions relevant to execution of the Project, Project team, and Review Team.

1-4 METHODOLOGY OF REVIEW

The Project was evaluated based on the Project Design Matrix (hereinafter referred to as "PDM") of the Project, which is a summary table describing the outline of the Project. The evaluation carried out referring to the PDM version 3, which was approved by Joint Coordination Committee (hereinafter referred to as "JCC") in August 2009.

1-4-1 REVIEW PROCEDURES

The review took the following steps.

(1) Verification of project performance

The degree of project achievements, such as Input, Activities, Outputs, and Project Purpose, were assessed with reference to Objectively Verifiable Indicators stated in the PDM version 3. To carry out this, various methods were applied including questionnaire, interviews, site observation, workshop, and discussion with relevant stakeholders.

(2) Examination of Project Implementation Process

The process of the project implementation was assessed from the various points.

(3) Evaluation by Five Evaluation Criteria

The following five evaluation criteria are applied to the project evaluation.

Relevance Relevance of the Project was considered from a viewpoint of the validity of the Project Purpose and Overall Goal in connection with the development policy of the Government of Sudan and the needs of beneficiaries of the Project.

Effectiveness: Effectiveness whether the Project has actually benefited the target group and whether the project is effective. It also assesses whether the Project Purpose is being achieved as expected and whether that is in the result of the project's Outputs.

Efficiency: Efficiency verifies whether the project was efficient in terms of effective use of resources. The relationship between Inputs and Outputs is reviewed. In essence, Efficiency examines whether the input cost is appropriate for the degree of achievement on the Outputs and the Project Purpose.

Impact: Impact examines direct effects extended by the project in the long run and indirect effects. The analysis also includes the positive and negative impacts that were not expected when the project was planned.

Sustainability: Sustainability of the Project is focused on institutional, financial and technical aspects by examining the current extent to what the achievement of the Project is sustained or expanded.

(4) Recommendations and Lessons Learned

The Joint Review Team made the recommendations and drew the lessons learned based on the results of Review.

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2. OUTLINE OF THE PROJECT

2-1 BACKGROUND

The provision of adequate and safe water supply services for human is one of the essential issues in the Republic of Sudan. And also the Government of Sudan has conducted the significant efforts to improve the critical water supply situation. According to the Quarter Century Strategy for Water Supply Plan (2007-2031), the specific objectives of the strategy are to achieve by the end of the strategy period, a consumption rate of 50 liter/capita/day and 150 liter/capita/day for rural and the urban population respectively.

On the other hand, PWC was the responsible and organizational authority for water supply projects in Sudan, the responsibilities on operation and maintenance for the water supply facilities have been transferred from PWC. The present role of PWC is construction of the large-scale water supply facilities, coordination of international assistance, monitoring of SWC and human resources development by this decision of the government water supply policy.

SWC has responsibility for the construction of small water supply facilities other than maintenance of urban and rural water supply facilities. As for the water supply population of each SWC, it is quite different from State of Khartoum (4,500,000), State of Gezira (3,050,000), Red Sea and Blue Nile State (about 300,000). In addition, the types of the water source and the water supply facilities in SWC are different. Furthermore, an average of engineer in each SWC is around 80.

Various water related problems occur in each SWC by the drastic change of organizational situation in Sudan. There is problems of pump and generator in the villages of Sudan. Particularly, new generator and electric motor pumps are spreading in Sudan recently. Therefore, the engineers cannot cope with sufficient troubleshooting but only experienced on conventional reciprocating pump. In addition, the operation and maintenance technology of water treatment plant is not sufficient in each state. As a result, water supply in each SWC becomes unstable.

Under this situation, the Government of Sudan has decided to transfer the training function to PWC. And a new building of PWC including a training center was built in Khartoum. Although PWC Training Center has opened in 2006, all of the staff doesn't have sufficient experience on training management and implementation. Therefore the Government of Sudan requested the technical cooperation project to the Government of Japan for training ability improvement of the staff of PWCT.

2-2 SUMMARY OF THE PROJECT

The outline of the project described in PDM₃ is as follows:

(1) Overall Goal

Water supply in Sudan is stabilized.

(2) Project Purpose

PWC Training Center establishes the system for the implementation of Training.

(3) Outputs

1) PWC Training Center acquires abilities to implement and plan training courses.

2) PWC Training Center acquires administrative abilities necessary for managing training courses.

3) Improvements and lessons are extracted from the trial implementation of training courses.

2-3 ADMINISTRATION OF THE PROJECT

(1) Project Director

Director General, Public Water Corporation (PWC)

(2) Project Manager

Director, Public Water Corporation Training Center (PWCT)

(3) Course Coordinator

Training Course Management/Water Supply

Water Supply Facilities (Machinery and Electric)

Data Management/GIS

Operation and Maintenance of the Water Treatment Plant/Maintenance Pipe Networks

Well Management

Education Technology/Organizational Management

Water Quality Analysis/Data Base

(4) Administrative Staff

3. ACHIEVEMENT OF THE PROJECT

3-1. ACTUAL INPUTS

The Mid-term Review Team confirmed that the Project has availed the following inputs along with the stated PDM3 and the Plan of Operation (PO) (see ANNEX 1 and 5).

Inputs from the Japanese side as of September, 2009

(1) Experts (ANNEX 6)

Their fields of experiences and duration of assignments since the project commencement of the project until September 2009 were as below;

Field of Experts	Number of Experts	Total of M/M
Training Course Management/Water Supply	1	14.67
Water Supply Facilities (Machinery and Electric)	1	3.6
Data Management/GIS	1	5.5
Operation and Maintenance of the Water Treatment Plant/Maintenance Pipe Networks	1	3.93
Well Management	1	2.0
Education Technology/Organizational Management	1	4.8
Water Quality Analysis/Data Base	1	1.0
Total		35.5

(2) Training in Japan

Two (2) counterparts was accepted for training from 10th to 24th of May 2009 (total 0.46M/M) to learn about Training System of Japan and Water Supply Management concerned.

Name of Trainees	Resignation	Total of M/M
Ms Eatidal Elrayah Malik	Director of PWCT	0.46
Mr. Hashim Abdul Raheem	Director of Administration of PWCT	0.46
Total		0.92

(3) Provision of Machinery and Equipment (ANNEX 7)

The provision of machinery and equipment are the procurement in Japan and Sudan, the ones brought by JICA Experts and Reference books. Total of machinery and equipment amounting USD 769,721 (approximately JPY 69,259,468) is provided as of October 2009, including procurement in Japan, Sudan and carried by JICA Experts. (cf. exchange rate is USD1=JPY 89.98 and USD1=2.26 Sudan Pond (SDG), as of October 2009.)

(4) Operation Cost (ANNEX 8)

USD 76,267 (approximately JPY 6,862,508) is provided for the local expenses until October 2009. (cf. exchange rate is USD1=JPY 89.98 and USD1=2.26 Sudan Pond (SDG), as of October 2009.)

Inputs from the Sudanese side as of September, 2009

(1) Counterparts personnel assigned for the Project (ANNEX 9)

A total of eighteen (1) personnel have been assigned continuously as of September 2009 after replacement of the counterparts. Two (2) has double assignment of training course and PWCT. It should be noted eight (8) personnel replaced in December 2008.

Organization	Position	Numbers of Personnel
PWCT	Director of PWCT	1
	Assistant Director of PWCT	1
	Secretary	1
	Director of Administration Department	1
	Director of Finance Department	1
	Manager of Workshop	1
	Store Keeper of Workshop	1
	Mechanician of Workshop	1
	Director of Residence	1
	Manager of Residence	1
	Course Coordinator	8
Total		18

(2) Provision of facilities and equipment

PWC and PWCT provide office space for JICA Experts in the PWC/PWCT. The office equipment, water and electricity facilities are provided by counterpart side. Especially a set of desks and chairs for JICA Experts were contributed by one of the trainee side State. In addition, remarkable self efforts are the inputs of PWC/PWCT for the Workshop (training site) construction.

(3) Operation expenses of Sudanese side (ANNEX 10)

SDG 725,536 (approximately JPY 28,886,606) is provided until September 2009. (cf. exchange rate is USD1=JPY 89.98 and USD1=2.26 Sudan Pond (SDG), as of October

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2009.)

(4) Budget of Sudan (ANNEX 10)

The budget has been prepared by Sudan side shown as below.

	2008 (planned)	2009 (planned)	2010 (planned)
PWCT	150,000 SDG	479,340 SDG	1,121,088 SDG

Since the budgetary planning capacity of counterparts is supported by JICA Experts through technical assistance of the Project Activities, the budgetary plan is prepared yearly.

(5) Workshop Expenses of PWC (ANNEX 11)

SDG 396,555 (approximately JPY 15,788,504) is provided for Workshop expenses until September 2009. (cf. exchange rate is USD1=JPY 89.98 and USD1=2.26 Sudan Pond (SDG), as of October 2009.)

3-2. ACOMPLISHMENT OF PROJECT ACTIVITIES

Overall, the Project Activities have been implemented without notable delays or unprecedented difficulties. Although there were procedural constraints in the equipment procurement, it did not affect seriously the overall project activities. To adjust the issues, the Project changed the Water Quality Analysis course supposed to be carried out in October 2009 to February 2010.

3-3. ACHIEVEMENT OF OUTPUTS

The accomplishments of the Project Outputs are verified as follows.

Output 1	PWC Training Center acquires abilities to implement and plan training courses
Objectively Verifiable Indicators	1-1. Evaluation for the procedures for planning and implementing the training courses by experts and course coordinators is improved 1-2. Annual plan, materials and curriculum of more than 3 principal courses and at least 1 ad hoc course are established 1-3. Lecturers and OJT sites are identified for more than 3 principal courses and at least 1 ad hoc course 1-4. Evaluation for the technical skill of lecturers by experts is improved after the complementary training

The evaluation methodologies and manual for planning and implementing the courses

has been improved under PWCT (Indicator 1-1). The counterparts of PWCT have developed their ability on how to prepare and modify the annual plan and manuals through Activity 1-1, 2-1 and 1-8. The counterparts have developed the “curriculum” (acknowledged as syllabus in the Project) of both principal and ad hoc training courses with the technical assistance of the JICA Experts. To date, some are version 1 or 2 (Indicator 1-2). Since the “curriculum” (syllabus) is developed, accordingly the lectures are identified by PWCT. The Workshop (training site) that has been constructed with the effort of the Project and PWC/PWCT has been transformed into an “OJT site” for future Project activities (Indicator 1-3). First (1st) version of evaluation manual and sheet for lecturers has been developed. Course coordinator of PWCT is in charged in analysis of the evaluation for the lecturers with JICA Experts (Indicator 1-4).

More independent administration is expected for PWCT. In addition, continuous review and revision of the annual plan, manual, materials, and curriculum (syllabus), which should be stored and managed by PWCT, are expected as well. With these remarks, the Output 1 will be fully actualized by the end of the Project.

Output 2	PWC Training Center acquires administrative abilities necessary for managing training courses
Objectively Verifiable Indicators	2-1. Evaluation for regulations and demarcations established in activities 2 by the experts and administrators is improved 2-2. Necessary materials and texts for more than 3 principal courses are stored, maintained and used properly 2-3. The budget (income/loss) is managed properly according to the budgetary plan of the Center 2-4. Forms for accounting, public relations and contract are developed and improved on the basis of problems and difficulties extracted through activities 3

The counterparts of PWCT has been developed their ability on how to prepare and modify the regulations including demarcation and manual through Activity 2-1. (Indicator 2-1) Since the regulation and demarcation is still on drafting, evaluation is not yet implemented at this moment. Some of the materials and texts have been stored in the meeting room of PWCT tentatively. Proper storage space or room of PWCT is on planning. The counterpart of PWCT has a plan to learn materials and texts or references (documents) management in future (Indicator 2-2). The budget plan of 2008, 2009 and 2010 has been prepared in PWCT(see Budgetary Plan as of 2009, October) (Indicator 2-3). Since bank accounting and accounting system is conformed to PWC system, it is assessed that

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Indicator 2-4 is not adequate Objectively Verifiable Indicators for this Project.

The Output 2 will be actualized by the end of the Project with only the following remarks;

- Continuous review and revision of regulations and Terms of Reference (TOR) and additional capacity building for material development
- Strengthening material and documentation management skill and also the system of PWCT after the storage space/room is prepared in PWCT.

Output 3	Improvements and lessons are extracted from the trial implementation of training courses
Objectively Verifiable Indicators	<p>3-1. Three principal courses are implemented basically 5 times each. Two ad hoc courses are implemented at least once each. The number of times depends on the situation.</p> <p>3-2. Number of problems and difficulties on each point of view referred in Activities 3-2</p>

To date, the seven (7) principal courses and ad hoc courses are implemented (see Training Course Schedule in ANNEX-) (Indicator 3-1). The “problems and difficulties” are always reported in “Report of Training Course” for the States (Indicator 3-2).

Hence, Output 3 will be actualized by the end of the Project. Only the considerable remarks are the expectation of strengthening problem solution ability of counterparts of PWCT for feedback for the future training course implementation. In the Mid-term Review, modification of Output 3 of PDM3 is proposed (see 5.PDM MODIFICATION).

3-4. PROSPECT TO ACHIEVE PROJECT PURPOSE

Project Purpose	PWC Training Center establishes the system for the implementation of Training
Objectively Verifiable Indicators	<p>1. Average grade of evaluation of the trial training courses by the trainees marks more than 90%</p> <p>2. Average grade of evaluation of the administration by the trial courses trainees marks more than 90%</p> <p>3. At least 90% of the trial course trainee gain certificate of successful completion of the course</p>

As for the Indicators 1 of Project Purpose, the Project has prepared the evaluation result

of Evaluation of Training, Examination Result of Trainees, and Evaluation of Lecturers. Each average marks 61%, 56.4% and 65% respectively as of October 2009. If the score of evaluations gets higher by the end of the Project, it could be expected that the training course planned by the counterparts of PWCT would likely improved.

The Project keeps the score of Work Achievement of Training Course Management for PWCT, Evaluation Result of Residence and Food Quality and Service. Each average marks 59%, 57.3% and 38.7%, respectively. Although the Food Quality and Service is relatively lower at this moment, with the improvement of continuous feedback. Indicator 2 of the Project Purpose could be expected to be achieved by the end of the Project.

By October 2009, through total seven (7) Training Courses, the 100% of trainees will receive the Certification. Thus, Indicator 3 is achieved. In this moment, the qualifications and criteria for issuing certification is on developing by the Project.

As mentioned above, achievement extent of the Indicator 1, 2 and 3 of the Project Purpose of PDM 3 indicates positively. Moreover, with higher achievement possibilities of the Project Outputs (see 3-3 ACHIEVEMENT OF OUTPUTS), the three Outputs will contribute achieving the Project Purpose by the end of the Project. For these reasons, as a whole, it is highly prospected that the Project Purpose will be achieved by the end of the Project.

3-5 PROJECT IMPLEMENTATION PROCESS

Joint Cooperation Committee (JCC) has held every two (2) times in a year. There are three (3) times by October 2009. Since then, PDM was reviewed and revised three times. Due to the long distance trip to Khartoum to attend the JCC for some State level JCC members, currently, numbers of the attendance of JCC is decreasing.

Since PDM is reviewed in this point of Mid-term Review, there would not be assumed to be notable or serious problems in near future. After the Organizational Management course, the Project acknowledges to be able to exchange information and discussion with State level officers. Hence, there are not necessities to hold JCC more than twice of a year except any other urgent or necessary issues are raised.

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4. EVALUATION OF FIVE CRITERIA

4-1. RELEVANCE

The relevance of the Project is assessed as very high/A+ based on the following confirmation.

Relevance of the Project for Sudanese Government's Policy

According to the interview to a policy advisor of PWC, Semi Draft of "National Policy for Water Supply and Sanitation (as final draft)" is on developing and drafted by December 2009. In "Quarter Century Strategic Plan developed for 2007-2031¹" it stated the importance of capacity building of water sector professionals through internal & external training. Similarly, in "PWC 5 years plan (2007-2011)²", it states that PWC should support SWC at State level in providing training activities for their personnel including engineers, geologist/hydro-geologist, civil engineers and administrators. The Project is in line with the Sudanese government's policy.

Relevance of the Japanese Government's Policy

The Project is also in line with the Japanese ODA policy. The Medium-term Policy (2005) states "safe water supply and sanitation service". The country assistance program for Sudan of the Japanese ODA (2008), which emphasizes "peace construction", stipulates the focal points of water and sanitation, health, and education sector assistance. In Tokyo International Conference on African Development IV (TICAD IV), In the chapter of 5 Year Measure in the Sector of Environment and Climate Change, effective water resource management and access of safe water and sanitation facilities are addressed.

In the draft of JICA Project Plan, strengthening of ability of operation and management on water and sanitation sector is one of the focal assistance sectors. JICA is in accordance with TICAD IV as well.

Likewise, the Project is also line with the Japanese government's policy.

Water Supply Needs of the Society of Sudan

Although the reliable baseline information or data of water supply condition in throughout Sudan is not yet been confirmed, according to the site survey of the Project and the survey for "WATSAN Sector Strategic Plan" of PWC that is still on developing as of October 2009, the concern of quality of water, inadequate accessibility and amount of stabilized water supply service due to durability of the equipments are the common issues

¹ 1 is the revision of "Quarter Century National Plan for Domestic Water Supply (2003-2027)".

² 2 is the revision of "3 Years NWC Plan (2007-2009)".

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of water supply condition in Sudan.

Target Beneficiaries

According to the interview of PWC, in more than last 10 years, the training of water supply sector was limited in Sudan, especially for the geologist/hydro-geologist, water supply engineer, and administration staff. PWCT was established to be a central training center for human resource development of water supply of Sudan. In this situation, the Project with the trial course implementation is highly acceptable.

Project Planning

Most of the water source of Sudan is surface and groundwater. During the site survey of the Project, many problems such as maintenance and rehabilitation of the wells are observed. Therefore Sudanese side requested strongly to open new ad hoc course of “Well Management”. In terms of “Organizational Management” course, through the project activities, the Project realizes that strengthening of ability of documentation, equipment and materials, budget and human resource management are highly necessary. Thus, the training courses are selected properly based on the needs of PWCT and SWCs.

4-2. EFFECTIVENESS

The effectiveness of the Project is assessed as high/A+ based on the following confirmation.

In the questionnaire and interview survey, the counterparts of PWCT are highly satisfied and appreciated the technical and administrative know-how of the training implementation including planning and evaluation. The staff of PWCT has developed its team work on the training implementation. The demarcation of roles and tasks of the training implementation with JICA Experts are very clear and the staff have been in charge independently through more than seven (7) times trial training courses. It is in these reasons, that achievement of the Project Purpose would be expected highly by the end of the Project.

As mentioned in “3-3 ACHIEVEMENT OF OUTPUTS“, although there are some necessary modifications, most of the activities and outputs are satisfactory. The Outputs set up in current PDM3 fulfills the Project Purpose.

There has no notable influence caused by the changes of the important assumptions and not any impending factors to prevent the achievement of the Project Purpose. The key factors in achieving the Project Purpose would be the high participation of the counterparts of PWCT in the Project Activities and strong financial support of PWC based on the

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budgetary plan assisted by the Project.

4-3. EFFECIENCY

The efficiency of the Project is considered as moderately high/A- based on the following confirmation.

The inputs by Japanese side are mostly adequate and sufficient in terms of quantities and quality in order to produce the intended outputs of the Project. Although there was some delay of inputs (equipment procurement), the progress of the Project Activities are not seriously affected because of the adjustment effort of the Project. For example, the Project changed the schedule of Water Quality Analysis course of October 2009 to February 2010.

The inputs by Sudanese side are very adequate and sufficient. Most of the inputs are delivered on time and the quantity and quality are assessed appropriately. Remarkable self efforts are the inputs by PWC/PWCT to the Workshop (training site) construction.

After the Workshop opens, when more practical training courses will be implemented and developed the education technology skills of trainees, more cost effectiveness on the Project Output and achieving the Project Purpose is expected.

4-4. IMPACT

The impact of the Project is considered as fair/B based on the following confirmation.

Due to lack of proper data and information such as baseline or map at state level throughout Sudan, since there are still many remaining issues and problems to be analyzed for the means of the Overall Goal "Water Supply in Sudan is stabilized", further discussion is needed to define feasible and proper Overall Goal for this Project (see 5. PDM MODIFICATION). In this moment of Mid-term Review, there have no notable negative effects in terms of social, gender and environmental aspect. The positive effect has been observed the awareness of importance of problem analysis and organizational management at state level among the trainees of the Project, those who are from 15 states.

4-5. SUSTAINBILITY

The sustainability of the Project is generally considered as fair/B based on the following confirmation.

Policy and Institutional Sustainability

Water Supply Policy and Strategy of Sudan is on process preparation. The Policy will

be drafted by December 2009 and the Strategy will be on February 2010. PWCT Regulation has modified the version 2 which was assisted by the JICA Experts, and will support in the strengthening of PWCT's management functions institutionally, along with the Project.

Organizational and Financial Sustainability

The budgetary plan of PWCT has been assisted by the JICA Experts throughout the Project Activities. PWCT has 2010 plan (see 3-1. ACTUAL INPUTS (4) and ANNEX), and it will be applied to the Ministry of Finance by PWC. Since the financial and other organizational supports by PWC are very strong, PWCT financial sustainability is highly expected.

Technical Sustainability

Since the knowledge, planning and management technique of training course implementation and administration skill assisted by the JICA Experts, have been accepted and acquired by the counterparts. They have been gradually motivated through the Project activities. The ability of equipment management will be more strengthened to store and manage the equipments of the training courses by PWCT through the Project activities.

5. PDM MODIFICATION

The modification of PDM1, 2 and 3 are implemented in July 15 2008, March 13 2009, and August 13 2009.

PDM modification of Mid-term Review is proposed and explained in the Table 5-2.

Table 5-2 Proposed Modification of PDM4 (see ANNEX 14)

PDM3	Proposed PDM4	Reasons
Project Target Group: Engineers and Technicians of Water Supply Sector (At least 1000)	Staff of PWCT, PWC and SWCs	In this point of Mid-term Review, more specific proper target groups are confirmed.
Overall Goal: Water supply in Sudan is stabilized	Institutional capacity for stabilizing water supply in the northern Sudan is enhanced.	To make it to be more realistic and easier to understand the relationship with the project purpose
Indicator of Overall	1. Capacity building for more	Need to revise to be

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<p>Goal:</p> <p>1. Non-operation time for water supply facilities by states decreases significantly</p> <p>2. Quantity of water from water supply facilities by states increases significantly</p>	<p>than 7 core personnel at each SWC</p> <p>2. Applied annual water supply plan (3-5 years) with the State budget based on lessons learnt from the implemented training courses.</p>	<p>proper and measurable phrase as “Objectively Verifiable Indicators” of PDM.</p>
<p>Procurement means of Overall Goal;</p> <p>1. Operation report of each facility</p> <p>2. Operation report of each facility</p>	<p>1. Training reports</p> <p>2. Applied annual budget plans</p>	<p>To synchronize the change of the Indicator of the Overall Goal</p>
<p>Important Assumption at Project Purpose level:</p> <p>Equipments are installed at PWC to utilize the skill of the Trainees who completed courses.</p>	<p>Equipments are installed at PWCT to utilize during the project period.</p>	<p>The equipments are necessary to utilize all thorough the project period.</p>
<p>Indicator 1-1, 2, 3 and 4 of Output 1;</p> <p>1-1. Evaluation for the procedures for planning and implementing the training courses by experts and course coordinators is improved.</p>	<p>1-1. More than 80% of contribution by course coordinators of training course management.</p> <p>1-2. Established annual plan, manual, materials and syllabus of more than 3 principal and 4 ad hoc training courses.</p> <p>1-3. Established training site.</p> <p>1-4. Improved evaluation for the lectures of all train courses</p>	<p>Evaluation result of training course management could verify more properly Indicator 1-1.</p> <p>“OJT site” of 1-3 is acknowledged as the Workshop (training site) of the Project.</p> <p>1-2 and 1-4 are necessary to be revised to be proper and measurable “Objectively Verifiable Indicators” of PDM.</p>
<p>Procurement Means of Output 1</p> <p>1-1. Records of the Project</p>	<p>1-1. Training reports</p> <p>1-2. Annual plan, manual, materials and syllabus</p>	<p>To synchronize the change of the Indicator of the Overall Goal</p>

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<p>(list of Lecturers, equipment) 1-2. Record of needs analysis 1-3. Record of implementation of training 1-4. Records of the Project and Evaluation report</p>	<p>courses 1-3. Situation of the workshop 1-4. Training reports</p>	
<p>Indicator 2-1, 2, 3 and 4 of Output 2</p>	<p>2-1. More than 80% of the works done by course coordinators in training course management and implementation. 2-2. Proper management of the improved necessary materials and texts of the training courses. 2-3. Proper management of the Center budget 2-4 is deleted.</p>	<p>It is necessary to be revised to be proper and measurable “Objectively Verifiable Indicators” of PDM. Indicator 2-4 is not adequate in the current system of PWC and PWCT. The accounting system and financial application system of PWCT still conforms to PWC’s system.</p>
<p>Output 3: Improvements and lessons are extracted from the trial implementation of training courses</p>	<p>3-1. PWC Training Center acquires the abilities of problem solution and feedback on training courses.</p>	<p>The counterparts are expected to improve problem solution ability to apply for the feedback, rather than only “extract” the lessons.</p>
<p>Indicator 3-1 of Output 3 3-1. Three principal courses are implemented basically 5 times each. Two ad hoc courses are implemented at least once each. The number of times depends on the situation.</p>	<p>3-1 Implementation of more than four (4) times of three principal courses and more than two (2) times of the ad hoc courses.</p>	<p>New Indicator of 1-3 identifies more adequate Verifiable Indicator.</p>
<p>Add newly as Indicator 3-3 of Output 3</p>	<p>3-3 Number of Improvements of all activities of the Center based</p>	<p>In accordance with the modification Output 3,</p>

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	on Activity 3-2.	new Indicator is needed.
Add as Activity 3-3	3-3 The problems identified in Activity 3-1 are improved.	In accordance with the modification Output 3, new Activity is needed.

6. CONCLUSION

At the beginning of the project, both sides had to have deep discussions and understanding about roles of both counterparts, input such as equipment, ways of implementation and so on, because this project was started as the first technical cooperation after relatively long suspension of Japanese official aid to Sudan and therefore the information for both was limited.

However, the Joint Review Team has confirmed that almost all those challenges and obstacles of early stage were already solved at this stage of the mid-term review, thanks to the strong efforts and mutual cooperation by both sides.

Four planned training courses out of totally seven have already being implemented, and they are evaluated well by the trainees. Remaining three courses can be also started soon, since the preparations of them were almost done, and some necessary equipment, cause of the delay of the Water Quality Course, will be also arrived at Sudan soon.

Generally speaking, any major problems in implementing the project and achievement situation of the outputs can not be found. The project purpose can be also achieved if the project activities will be implemented as it is being done currently.

7. RECOMMENDATION AND LESSONS LEARNED

7-1. RECOMMENDATION

The review team recommended that Sudanese side and JICA consider the concrete actions to materialize the points below.

(1) The activities during the absence of the JICA Experts

Activities, such as preparation of the next training courses, and the works for the center administration, should be executed more independently by the Sudanese side even during the absence of the JICA Experts. For this purpose, more discussions by both sides are necessary for general and deeper understanding to the overall progress of the project and the meaning of

each works by Sudanese staff.

(2) More independent implementation

Since the commencement of the project, the preparation and implementation works of the training courses, which are directly done by the Sudanese course coordinators, have been gradually increasing. At this stage, more than 70% of those works are done by them according to the courses.

However, considering the project period that almost half of it has passed, from now on, contribution by Sudanese course coordinators should be increased more. Some more effort is necessary for doing this.

And more training to the relatively young staff is recommended to be done as they can be regarded as the course coordinators of next generation.

(3) Upgrading the quality

In the project, variety of document, formats, teaching materials and so on are made and prepared.

However, at this stage, many of them seem to be just for satisfying currently existing needs instantly. The Joint Review Team recommends that their qualities should be upgrading gradually for more efficient administration of the center, and for making the training courses attractive, and more effective as well.

(4) Understanding the training needs and their feed back to the courses

Understanding the training needs of each states and their feed back to the courses have been a major concern since the beginning of the project. It is appreciated that the project has visit as much states as they could even amongst such circumstances.

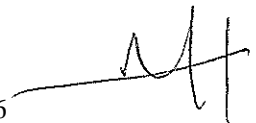
However, some effort that, for instance, collecting information from the participants, is continuously required since the current situation that the information is limited due to some security reasons will continue.

Additionally, it is necessary that some efforts at the level of high ranking officials of each state should be made to concentrate, coordinate and reflect the expectations and needs of each state to the courses.

7-2. LESSONS LEARNED

The following lessons learnt were drawn from the experience so far of the Project, which can be useful for the similar project in planning and implementing activities.

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(1) Mutual understanding by both sides

For the smooth implementation of the project, both sides have to understand the basic philosophy and schemes of the joint technical cooperation well.

Although almost all initial problems were solved, both sides had to discuss intensively about how to implement the Project and the undertaking by both sides in the very early stage, because of the lack of understanding.

(2) Importance of the preparation stage of the project

Because of the reason mentioned "1" above, and additionally, because of lack of basic information of the needs of each states, the decision of the subject of the courses has delayed and subsequently it has affected the procurement of the equipment.

More effort and consideration should have been made to plan the schedule of the Project considering the situation and circumstances of Sudan.

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- ANNEXES -

1. PO3
2. PDM0
3. PDM1
4. PDM2
5. PDM3
6. Assignment of Japanese Experts
7. List of Equipment Provided by Japanese Side
8. List of Operation Cost of Japanese Side
9. List of Counterpart Personnel
10. List of Operation Expenses of Sudanese Side and Budget of Sudan
11. Expenses for the Workshop by the Sudanese Side
12. Training System of PWCT
13. Training Evaluation Result
 - 13-1. Evaluation of the Training Courses by the Trainees
 - 13-2. Examination Result (Average)
 - 13-3. Evaluation of the Lecturers by the Trainees
 - 13-4. Work Ratio of PWCT for the Training Course Management
 - 13-5. Evaluation of Residence/Food Quality and Service
14. Proposed Modification of the PDM4
15. Achievement GRID

ANNEX 1. Plan of Operation (PO3)

2009.6.13

Items	Fiscal Year												MM																							
	Year																																			
	2008			2009			2010			2011																										
Quarter	I			II			III			IV			I			II			III			IV														
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Period	I			II			III			IV			I			II			III			IV			I			II			III			IV		
Evaluation	Final																																			
1	PWC Training Center acquires abilities to implement and plan training courses																																			
1-1	Establishment of the manual for planning, managing and evaluating training courses																																			
1-2	Training course coordinators utilizing the manual above																																			
1-3	Supplemental survey and examination (technical level, subject, background of the trainee, etc) for principal and ad hoc training courses																																			
1-4	Design of principal and ad hoc courses based on 1-3																																			
1-5	Preparation of an annual plan, curriculum, training materials, tools, equipments and machinery for principal and ad hoc training courses																																			
1-6	Identification of lecturer and field training sites for principal and ad hoc training courses from related organizations (PWC, SWWD, SWCs, Universities, Private Companies etc)																																			
1-7	Supplemental training regarding the knowhow for teaching for lecturer of principal and ad hoc training courses																																			
1-8	Establishment of evaluation methods for training course																																			
1-9	Improvement of the manual written in 1-1, on the basis of problems identified in 3-2																																			
2	PWC Training Centre acquires administrative abilities necessary for managing training																																			
2-1	Establishment of regulations and demarcation of duties for the administration of training courses																																			
2-2	Proper reservation of the training materials and texts																																			
2-3	Decision of budgetary plan for training courses																																			
2-4	Proceeding administrative steps for negotiation, contract, procurement and public relations																																			
2-5	Management and maintenance of facilities for training																																			
2-6	Improvement of the regulations and demarcation established in 2-1, on the basis of problems identified in 3-2																																			
3	Improvements and lessons are extracted from the trial implementation of training courses																																			
3-1	Tentative implementation of principal and ad hoc training courses																																			
3-2	Identification of problems in the following fields																																			
	1)Consistency between the needs and contents of the course																																			
	2)Contents of course materials and their interfaces																																			
	3)Capacity and presentation methods of trainers																																			
	4)Capacity of coordinators and procedure established in 1-1																																			
	5)Capacity of administrators and regulations/procedures established in 2-1																																			
Training Course	1.Basic course																																			
	1)Operation and Maintenance of Water Supply Facility(Machinery and Electric Equipment)																																			
	2)Operation and Maintenance of Water Treatment Plant																																			
	3)Data Management/GIS																																			
	2.Ad hoc course																																			
	1)Water Quality Analysis																																			
	2)Management of Pipe Network																																			
	3)Well Management																																			
	4)Organizational Management																																			
Expert	1)Project Manager/Training Course Management/Water Supply																																			
	2)Operation and Maintenance of Water Supply Facilities(Machinery and Electric Equipment)																																			
	3)Operation and Maintenance of Water Treatment Plant and Management of Pipe Networks																																			
	4)Data Management/GIS																																			
	5)Education Technology/Organizational management																																			
	6)Water Quality Analysis																																			
	7) Well Management																																			
	22.2																																			
	6.5																																			
	10.4																																			
	10.5																																			
	10.3																																			
	5.0																																			
	6.0																																			
	3.5																																			

ANNEX 2. Project Design Matrix (PDM₀)

Name of the Project: Human Resources Development for Water Supply in Sudan
The Project Target Area: Northern Part of Sudan

Project Duration: From May, Year 2008 to April, Year 2011 (3Years)
Project Target Group: Engineers and Technicians of Water Supply Sector (At least 1000) Indirect Target Group: All the staffs of Water Supply Sector (At least 12000 people)

Summary of the Project	Indicator	Procurement Means	External Condition
<p><OVERALL GOAL > Water supply in Sudan is stabilized</p> <p><PROJECT PURPOSE > PWC Training Center establishes the system for the implementation of Training</p> <p><OUTPUTS > 1. PWC Training Center acquires abilities to implement and plan training courses</p> <p>2. PWC Training Center acquires administrative abilities necessary for managing training courses</p> <p>3. Improvements and lessons are extracted from the trail implementation of training courses</p> <p><ACTIVITIES > 1-1. Establishment of the manual for planning, managing and evaluating training courses 1-2. Training of course coordinators utilizing the manual above 1-3. Supplemental survey and examination (technical level, subject, background of the trainee, etc.) 1-4. Design of principal and ad hoc training courses based on 1-3 1-5. Preparatory of annual plan, curriculum, training materials, tools, equipments, and machinery for principal and ad hoc training courses 1-6. Identification of trainers and field training sites for principal and ad hoc training courses from related organizations (PWC, GAWD, SWCs, Universities, Private Companies, etc.) 1-7. Supplemental training regarding the know-how for trainers of principal and ad hoc training courses 1-8. Establishment of evaluation methods training courses 1-9. Improvement of the manual written in 1-1, on the basis of problems identified in 3-2 2-1. Establishment of regulations and demarcation of duties for the administration training courses 2-2. Proper reservation of the training materials and texts 2-3. Decision of budgetary plan for training courses 2-4. Proceeding administrative steps for negotiation, contract, procurement and public relations 2-5. Management and maintenance of facilities for training 2-6. Improvement of the regulations and demarcation established in 2-1, on basis of problems identified in 3-2 3-1. Tentative implementation of principal and ad hoc training courses 3-2. Identification of problems in the following fields <ul style="list-style-type: none"> Consistency between the needs and contents of the courses Contents of course materials and their interface Capacity and presentation methods of trainers Capacity of coordinators and procedure established in 1-1 Capacity of administrators and regulations/procedures established in 2-1 </p>	<p>1. Non-operation time for water supply facilities by states decreases significantly 2. Quantity of water from water supply facilities by states increases significantly</p> <p>1. Average grade of evaluation of the trial training courses by the trainees marks more than 90% 2. Average grade of evaluation of the administration by the trial courses trainees marks more than 90% 3. At least 90% of the trial course trainee gain certificate of successful completion of the course</p> <p>1-1. Evaluation for the procedures for planning and implementing the training courses by experts and course coordinators is improved 1-2. Annual plan, materials and curriculum of more than 3 courses and at least 1 ad hoc course are established 1-3. Trainers and OJT sites are identified for more than 3 principal courses and at least 1 ad hoc course 1-4. Evaluation for the technical skill of trainers by experts is improved after the complementary training</p> <p>3-1. Three principal courses are implemented at least 5 times each. Two ad hoc courses are implemented at least once each 3-2. Number of problems and difficulties on each point of view referred in Activities 3-2</p> <p><INPUTS > Japanese Side 1. Experts Training Course Management / Water Supply / Piping and Networks Water Supply Facilities / Machinery and Electrics Operation and Maintenance of the Treatment Plant Data Management / GIS Knowledge Management / Institutional Design Water Quality Analysis 2. Equipment Necessary equipments for the training course "Water Supply / Machinery and Electrics" Necessary equipments for the training course "Data Management / GIS" Necessary equipments for the training course "Water Quality Analysis" Necessary equipments for the training course "Maintenance of Pipe Network" 3. Training in Japan and other third countries Japan, Jordan, Egypt, Ethiopia</p>	<p>1.2. Operation report of each facility</p> <p>1.2. Summary of evaluation 3. Ratio between Number of Certificate given and total number of trainee attended courses</p> <p>1-1. Records of the Project (list of trainer, equipment) 1-2. Record of needs analysis 1-3. Record of implementation of training courses 1-4. Records of the Project 1-5. 6 Evaluation report</p> <p>2-1. Records of the project 2-2. Records of material 2-3. Budgetary records 2-4. Number of documents established and improved (if necessary)</p> <p>3-1. Records of trainings 3-2. Number of points which should be implemented</p> <p>Sudanese Side 1. Allocation of Counterparts 2. Travel Allowance for Trainees 3. Expenses for Installation of Equipments 4. Working Condition for Japanese Experts 5. Expenses for the Consumable Goods and Running Expenses for Training</p>	<p>Political stability continues A large-scale change of structure does not occur in the water supply sector</p> <p>Trainees who complete courses continue working at their organization Equipments are installed at PWC to utilize the skill of the Trainees who completed courses Motivations of trainees who completed the training course are sustained</p> <p>Budget for the Center is secured continuously and Structure of the organization is not changed dramatically</p> <p>Trainees for Course for Instructions will stay and continue working at the Center as instructors Staffs of the Training Center will continue working at the Center without transfer</p> <p><IMPORTANT ASSUMPTIONS > Political Stability & Peace of Order will not be worsened extremely Adequate number of personnel are assigned to Training Center Each SWC establishes the organizational framework</p>

Remarks: PWC stands for Public Water Corporation, SWC for State Water Corporation

ANNEX 3. Project Design Matrix (PDM₁)

Name of the Project: Human Resources Development for Water Supply in Sudan
The Project Target Area: Northern Part of Sudan

Project Duration: From May, Year 2008 to April, Year 2011 (3Years)
Project Target Group: Engineers and Technicians of Water Supply Sector (At least 1000) Indirect Target Group: All the staffs of Water Supply Sector (At least 12000 people)

Summary of the Project	Indicator	Procurement Means	External Condition
<p>< OVERALL GOAL > Water supply in Sudan is stabilized</p> <p>< PROJECT PURPOSE > PWC Training Center establishes the system for the implementation of Training</p>	<p>1. Non-operation time for water supply facilities by states decreases significantly 2. Quantity of water from water supply facilities by states increases significantly</p> <p>1. Average grade of evaluation of the trial training courses by the trainees marks more than 90% 2. Average grade of evaluation of the administration by the trial courses trainees marks more than 90% 3. At least 90% of the trial course trainee gain cer</p>	<p>1. Operation report of each facility 2. Operation report of each facility</p> <p>1. Summary of evaluation 2. Summary of evaluation 3. Ratio between Number of Certificate given and total number of trainee attended courses</p>	<p>Political stability continues A large-scale change of structure does not occur in the water supply sector</p> <p>Trainees who complete courses continue working at their organization Equipments are installed at PWC to utilize the skill of the Trainees who completed courses Motivations of trainees who completed the training course are sustained Old and defect</p>
<p>< OUTPUTS > 1. PWC Training Center acquires abilities to implement and plan training courses</p>	<p>1-1. Evaluation for the procedures for planning and implementing the training courses by experts and course coordinators is improved 1-2. Annual plan, materials and curriculum of more than 3 principal courses and at least 1 ad hoc course are established</p>	<p>1-1. Records of the Project (list of trainer, equipment) 1-2. Record of needs analysis 1-3. Record of implementation of training courses 1-4. Records of the Project and Evaluation report</p>	<p>Budget for the Center is secured continuously and Structure of the organization is not changed dramatically</p>
<p>2. PWC Training Center acquires administrative abilities necessary for managing training courses</p>	<p>2-1. Evaluation for regulations and demarcations established in activities 2 by the experts and administrators is improved 2-2. Necessary materials and texts for more than 3 principal courses are stored, maintained and used properly 2-3. The budget (i</p>	<p>2-1. Records of the project 2-2. Records of material 2-3. Budgetary records 2-4. Number of documents established and improved (if necessary)</p>	
<p>3. Improvements and lessons are extracted from the trail implementation of training courses</p>	<p>3-1. Three principal courses are implemented at least 5 times each. Two ad hoc courses are implemented at least once each 3-2. Number of problems and difficulties on each point of view referred in Activities 3-2</p>	<p>3-1. Records of trainings 3-2. Number of points which should be implemented</p>	
<p>< ACTIVITIES > 1-1. Establishment of the manual for planning, managing and evaluating training courses 1-2. Training of course coordinators utilizing the manual above 1-3. Supplemental survey and examination (technical level, subject, background of the trainee, etc.)</p> <p>2-1. Establishment of regulations and demarcation of duties for the administration training courses 2-2. Proper reservation of the training materials and texts 2-3. Decision of budgetary plan for training courses 2-4. Proceeding administrative steps</p> <p>3-1. Tentative implementation of principal and ad hoc training courses 3-2. Identification of problems in the following fields Consistency between the needs and contents of the courses Contents of course materials and their in</p>	<p>< INPUTS > Japanese Side 1. Experts Training Course Management / Water Supply / Piping and Networks Water Supply Facilities / Machinery and Electric Operation and Maintenance of the Treatment Plant Data Management / GIS Knowledge Management / Instructional Design Water Quality Analysis 2. Equipment Necessary equipment for the training course "Water Supply / Machinery and Electric" Necessary equipments for the training course "Data Management / GIS" Necessary equipments for the training course "Water Quality Analysis" Necessary equipments for the training course "Maintenance of Pipe Network" 3. Training in Japan and other third countries Japan, Jordan, Egypt, Ethiopia</p>	<p>Sudanese Side 1. Allocation of Counterparts 2. Travel Allowance for Trainees 3. Expenses for Installation of Equipments 4. Working Condition for Japanese Experts 5. Expenses for the Consumable Goods and running expenses for trainings</p>	<p>Trainees for Course for Instructions will stay and continue working at the Center as instructors Staffs of the Training Center will continue working at the Center without transfer</p>
			<p>< IMPORTANT ASSUMPTIONS > Political Stability & Peace of Order will not be worsened extremely Adequate number of personnel are assigned to Training Center Each SWC establishes the organizational framework</p>

Remarks: PWC stands for Public Water Corporation, SWC for State Water Corporation

ANNEX 4. Project Design Matrix (PDM2)

Name of the Project: Human Resources Development for Water Supply in Sudan
The Project Target Area: Northern Part of Sudan

Project Duration: From May, Year 2008 to April, Year 2011 (3Years)
Project Target Group: Engineers and Technicians of Water Supply Sector (At least 1000) Indirect Target Group: All the staffs of Water Supply Sector (At least 12000 people)

添付資料

Summary of the Project	Indicator	Procurement Means	External Condition
<p><OVERALL GOAL> Water supply in Sudan is stabilized</p> <p><PROJECT PURPOSE> PWC Training Center establishes the system for the implementation of Training</p>	<p>1. Non-operation time for water supply facilities by states decreases significantly 2. Quantity of water from water supply facilities by states increases significantly</p> <p>1. Average grade of evaluation of the trial training courses by the trainees marks more than 90% 2. Average grade of evaluation of the administration by the trial courses trainees marks more than 90% 3. At least 90% of the trial course trainee gain certificate of successful completion of the course</p>	<p>1. Operation report of each facility 2. Operation report of each facility</p> <p>1. Summary of evaluation 2. Summary of evaluation 3. Ratio between Number of Certificate given and total number of trainee attended courses</p>	<p>• Political stability continues • A large-scale change of structure does not occur in the water supply sector</p> <p>• Trainees who complete courses continue working at their organization • Equipments are installed at PWC to utilize the skill of the Trainees who completed courses • Motivations of trainees who completed the training course are sustained</p>
<p><OUTPUTS> 1. PWC Training Center acquires abilities to implement and plan training courses</p>	<p>1-1. Evaluation for the procedures for planning and implementing the training courses by experts and course coordinators is improved 1-2. Annual plan, materials and curriculum of more than 3 principal courses and at least 1 ad hoc course are established 1-3. Lecturers and OJT sites are identified for more than 3 principal courses and at least 1 ad hoc course 1-4. Evaluation for the technical skill of lecturers by experts is improved after the complementary training</p>	<p>1-1. Records of the Project (list of Lecturers, equipment) 1-2. Record of needs analysis 1-3. Record of implementation of training courses 1-4. Records of the Project and Evaluation report</p>	<p>• Budget for the Center is secured continuously and Structure of the organization is not changed dramatically</p>
<p>2. PWC Training Center acquires administrative abilities necessary for managing training courses</p>	<p>2-1. Evaluation for regulations and demarcations established in activities 2 by the experts and administrators is improved 2-2. Necessary materials and texts for more than 3 principal courses are stored, maintained and used properly 2-3. The budget (income/loss) is managed properly according to the budgetary plan of the Center 2-4. Forms for accounting, public relations and contract are developed and improved on the basis of problems and difficulties extracted through activities 3</p>	<p>2-1. Records of the project 2-2. Records of material 2-3. Budgetary records 2-4. Number of documents established and improved (if necessary)</p>	
<p>3. Improvements and lessons are extracted from the trial implementation of training courses</p>	<p>3-1. Three principal courses are implemented basically 5 times each. Two ad hoc courses are implemented at least once each. The number of times depends on the situation 3-2. Number of problems and difficulties on each point of view referred in Activities 3-2</p>	<p>3-1. Records of trainings 3-2. Number of points which should be implemented</p>	
<p><SACITIVITIES> 1-1. Establishment of the manual for planning, managing and evaluating training courses 1-2. Training of course coordinators utilizing the manual above 1-3. Supplemental survey and examination (technical level, subject, background of the trainee, etc.) 1-4. Design of principal and ad hoc training courses based on 1-3 1-5. Preparatory of annual plan, curriculum, training materials, tools, equipment and machinery for principal and ad hoc training courses 1-6. Identification of lecturers and field training sites for principal and ad hoc training courses from related organizations (PWC, GSWWD, SWCs, Universities, Private Companies, etc.) 1-7. Supplemental training regarding the know-how for lecturers of principal and ad hoc training courses 1-8. Establishment of evaluation methods training courses 1-9. Improvement of the manual written in 1-1, on the basis of problems identified in 3-2</p>	<p><INPUTS> Japanese Side 1. Experts Training Course Management / Water Supply / Piping and Networks Water Supply Facilities / Machinery and Electrics Operation and Maintenance of the Treatment Plant Data Management / GIS Education Technology/Organizational Management Water Quality Analysis Well Management 2. Equipment Necessary equipments for the training course "Water Supply / Machinery and Electrics" Necessary equipments for the training course "Data Management / GIS" Necessary equipments for the training course "Water Quality Analysis" Necessary equipments for the training course "Maintenance of Pipe Network" Necessary equipment for training course "Well Management" • Necessary equipment for workshop Vehicle for the Project 3. Training in Japan and other third countries Japan, or others</p>	<p>Sudanese Side 1. Allocation of Counterparts 2. Daily and travel allowance for Trainees 3. Lecturers allowance 4. Expenses for installation of equipments 5. Working condition for Japanese Experts 6. Expenses for the consumable goods and running expenses for Training 7. Standby generator for the Training Center 8. Construction of workshop at Km 10 9. Construction of laboratory of water quality analysis 10. Arrangement of lodging facility and equipment 11. Transportation for PWC Staff and Trainees</p>	<p>• Trainees for Course for Instructions will stay and continue working at the Center as Instructors • Staffs of the Training Center will continue working at the Center without transfer</p>
<p>2-1. Establishment of regulations and demarcation of duties for the administration training courses 2-2. Proper reservation of the training materials and texts 2-3. Decision of budgetary plan for training courses 2-4. Proceeding administrative steps for negotiation, contract, procurement and public relations 2-5. Management and maintenance of facilities for training 2-6. Improvement of the regulations and demarcation established in 2-1, on basis of problems identified in 3-2</p>			<p><IMPORTANT ASSUMPTIONS> • Political Stability & Peace of Order will not be worsened extremely • Adequate number of personnel are assigned to Training Center • Each SWC establishes the organizational framework</p>
<p>3-1. Tentative implementation of principal and ad hoc training courses 3-2. Identification of problems in the following fields Consistency between the needs and contents of the courses Contents of course materials and their interface Capacity and presentation methods of Lecturers Capacity of coordinators and procedure established in 1-1 Capacity of administrators and regulations/procedures established in 2-1</p>			

Remarks: PWC stands for Public Water Corporation, SWC for State Water Corporation

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ANNEX 5. Project Design Matrix (PDM3)

Name of the Project: Human Resources Development for Water Supply in Sudan
The Project Target Areas: Northern Part of Sudan

Project Duration: From May, Year 2008 to April, Year 2011 (3Years)
Project Target Group: Engineers and Technicians of Water Supply Sector (At least 1000) Indirect Target Group: All the staffs of Water Supply Sector (At least 12000 people)

Summary of the Project	Indicator	Procurement Means	External Condition
<p><OVERALL GOAL > Water supply in Sudan is stabilized</p> <p><PROJECT PURPOSE> PWC Training Center establishes the system for the implementation of Training</p>	<p>1. Non-operation time for water supply facilities by states decreases significantly</p> <p>2. Quantity of water from water supply facilities by states increases significantly</p> <p>1. Average grade of evaluation of the trial training courses by the trainees marks more than 90%</p> <p>2. Average grade of evaluation of the administration by the trial courses trainees marks more than 90%</p> <p>3. At least 80% of the trial course trainees gain certificate of successful completion of the course</p>	<p>1. Operation report of each facility</p> <p>2. Operation report of each facility</p> <p>1. Summary of evaluation</p> <p>2. Summary of evaluation</p> <p>3. Ratio between Number of Certificates given and total number of trainee attended courses</p>	<p>• Political stability continues</p> <p>• A large-scale change of structure does not occur in the water supply sector</p> <p>• Trainees who complete courses continue working at their organization</p> <p>• Equipments are installed at PWC to utilize the skill of the Trainees who completed courses</p> <p>• Motivations of trainees who completed the training course are sustained</p>
<p><OUTPUTS ></p> <p>1. PWC Training Center acquires abilities to implement and plan training courses</p>	<p>1-1. Evaluation for the procedures for planning and implementing the training courses by experts and course coordinators is improved</p> <p>1-2. Annual plan, materials and curriculum of more than 3 principal courses and at least 1 ad hoc course are established</p> <p>1-3. Lecturers and OJT sites are identified for more than 3 principal courses and at least 1 ad hoc course</p> <p>1-4. Evaluation for the technical skill of lecturers by experts is improved after the complementary training</p>	<p>1-1. Records of the Project (list of Lecturers, equipment)</p> <p>1-2. Record of needs analysis</p> <p>1-3. Record of implementation of training courses</p> <p>1-4. Records of the Project and Evaluation report</p>	<p>• Budget for the Center is secured continuously and Structure of the organization is not changed dramatically</p>
<p>2. PWC Training Center acquires administrative abilities necessary for managing training courses</p>	<p>2-1. Evaluation for regulations and demarcations established in activities 2 by the experts and administrators is improved</p> <p>2-2. Necessary materials and texts for more than 3 principal courses are stored, maintained and used properly</p> <p>2-3. The budget (income/loss) is managed properly according to the budgetary plan of the Center</p> <p>2-4. Forms for accounting, public relations and contract are developed and improved on the basis of problems and difficulties extracted through activities 3</p>	<p>2-1. Records of the project</p> <p>2-2. Records of material</p> <p>2-3. Budgetary records</p> <p>2-4. Number of documents established and improved (if necessary)</p>	
<p>3. Improvements and lessons are extracted from the trial implementation of training courses</p>	<p>3-1. Three principal courses are implemented basically 5 times each. Two ad hoc courses are implemented at least once each. The number of times depends on the situation.</p> <p>3-2. Number of problems and difficulties on each point of view referred in Activities 3-2</p>	<p>3-1. Records of trainings</p> <p>3-2. Number of points which should be implemented</p>	
<p><ACTIVITIES ></p> <p>1-1. Establishment of the manual for planning, managing and evaluating training courses</p> <p>1-2. Training of course coordinators utilizing the manual above</p> <p>1-3. Supplemental survey and examination (technical level, subject, background of the trainee, etc)</p> <p>1-4. Design of principal and ad hoc training courses based on 1-3</p> <p>1-5. Preparatory of annual plan, curriculum, training materials, tools, equipment, and machinery for principal and ad hoc training courses</p> <p>1-6. Identification of lecturers and field training sites for principal and ad hoc training courses from related organizations (PWC, GWWD, SWCs, Universities, Private Companies, etc)</p> <p>1-7. Supplemental training regarding the know-how for lecturers of principal and ad hoc training courses</p> <p>1-8. Establishment of evaluation methods training courses</p> <p>1-9. Improvement of the manual written in 1-1, on the basis of problems identified in 3-2</p> <p>2-1. Establishment of regulations and demarcation of duties for the administration training courses</p> <p>2-2. Proper reservation of the training materials and texts</p> <p>2-3. Decision of budgetary plan for training courses</p> <p>2-4. Proceeding administrative steps for negotiation, contract, procurement and public relations</p> <p>2-5. Management and maintenance of facilities for training</p> <p>2-6. Improvement of the regulations and demarcation established in 2-1, on basis of problems identified in 3-2</p> <p>3-1. Tentative implementation of principal and ad hoc training courses</p> <p>3-2. Identification of problems in the following fields</p> <ul style="list-style-type: none"> • Consistency between the needs and contents of the courses • Contents of course materials and their interface • Capacity and presentation methods of Lecturers • Capacity of coordinators and procedure established in 1-1 • Capacity of administrators and regulations/procedures established in 2-1 	<p><INPUTS ></p> <p>Japanese Side</p> <ul style="list-style-type: none"> 1. Experts • Training Course Management / Water Supply • Water Supply Facilities / Machinery and Electric • Operation and Maintenance of the Treatment Plant / Piping and Networks • Data Management / GIS • Education Technology/Organizational Management • Water Quality Analysis • Well Management <p>2. Equipment</p> <ul style="list-style-type: none"> • Necessary equipments for the training course "Water Supply / Machinery and Electric" • Necessary equipments for the training course "Data Management / GIS" • Necessary equipments for the training course "Water Quality Analysis" • Necessary equipments for the training course "Maintenance of Pipe Network" • Necessary equipment for training course "Well Management" • Necessary equipment for workshop • Vehicle for the Project <p>3. Training in Japan</p>	<p>Sudanese Side</p> <ol style="list-style-type: none"> Allocation of Counterparts Daily and travel allowance for Trainees Lecturers allowance Expenses for installation of equipments Working condition for Japanese Experts Expenses for the consumable goods and running expenses for Training Standby generator for the Training Center Construction of workshop at Km 10 Construction of laboratory of water quality analysis Arrangement of lodging facility and equipment 	<p>• Trainees for Course for Instructions will stay and continue working at the Center as Instructors</p> <p>• Staffs of the Training Center will continue working at the Center without transfer</p>
<p>Remarks: PWC stands for Public Water Corporation, SWC for State Water Corporation</p>			<p><IMPORTANT ASSUMPTIONS ></p> <ul style="list-style-type: none"> • Political Stability & Peace of Order will not be worsened extremely • Adequate number of personnel are assigned to Training Center • Each SWC establishes the organizational framework

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ANNEX 6. Assignment of Japanese Experts

Training Schedule and Assignment of JICA Experts

Year Phase	2008												2009												2010												2011												Total
	1st						2nd						3rd						4th						5th																								
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3													
1. Training Course																																																	
(1) Data Management /GIS(16)																																																	
(2)O/M of Water Treatment Plant(21)																																																	
(3) Water Supply Facility (22)																																																	
(4)Management of Pipe Network(15)																																																	
(5) Water Quality Analysis (15)																																																	
(6) Well Management (21/9)																																																	
(7) Organizational Management (15)																																																	
Training Number																																																	
Number of the Lecturers																																																	
Number of the Trainees																																																	
2.Training in Japan																																																	
3. JICA Evaluation																																																	
(1) Intermediate Evaluation																																																	
(2) Final Evaluation																																																	
(3)JCC																																																	
4. Expert Dispatch																																																	
Mr.Uemura Mitsuro																																																	
Mr.Ando Yusuke																																																	
Mr.Iwamoto Masatoshi																																																	
Mr.Uematsu Masao																																																	
Mr.Onodera Jun																																																	
Mr.Matsuo Shunsaku																																																	
Mr.Saito Masakazu																																																	

Note: The number of total M/M of Japanese Experts is shown as of September of 2009.

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ANNEX 7. List of Equipment Provided by Japanese Side

Summary of Equipment Supply

No	Category	Price(Yen)
A	Procurement in Japan	39,519,900
B	Procurement in Sudan	22,080,124
C	JICA Expert	7,394,744
D	Reference Book	264,700
Total(Yen)		69,259,468
Total(SDG)		1,731,487

A Procurement in Japan

A-1 Equipment List Procured in Japan (1)

No.	Equipment Name	Specification	Maker	Q'ty	Unit Price	Amount(Yen)
1	Metal Shears	Model:MS-12	Senkithi	1	4,100	4,100
	Metal Saw	Model:I010600	Gisuke	1	1,000	1,000
2	Spare Blade	HS-06	Gisuke	1	600	600
3	Insulated Resistance Mater	Model DN5218S with dry battery	Sanwa	2	15,800	31,600
		Instruction Manual		2	100	200
		Traceability Report		2	5,000	10,000
4	Ground Resistance Meter	Model:3151	Hikoki	1	35,000	35,000
		Instruction Manual		1	100	100
		Traceability Report		1	8,000	8,000
5	Insulated Driver Set	Model:9824/9820	Kunipex			0
		9824-01		1	1,600	1,600
		9824-02		1	2,000	2,000
		9824-03		1	3,000	3,000
		9820-2.8		1	1,100	1,100
		9820-4.0		1	1,200	1,200
6	Piping Diagram Display Panel	Piping diagram display panel	Kamata	1	2,870,000	2,870,000
		Standard accessory				0
7	Water Leakage Detector	Model:HG-10AII	Fujitec	3	517,400	1,552,200
8	Recording Pressure Gauge	Model:DA-121 with battery	Aich Tokei	3	107,000	321,000
		Recording pen		12	800	9,600
		Recording Paper		600	95	57,000
9	Loudspeaker	Model:PG-610-C	Nanzu	3	45,600	136,800
		Set down transformer		3	4,000	12,000
10	Wireless Microphone and Speaker System	Model:WA-1822	TDA			0
		Portable Wireless Amplifier		3	102,600	307,800
		Tuner Unit		6	51,800	310,800
		Wireless Handy Microphone		6	40,500	243,000
11	Laboratory Table set		Shibata			0
	Table Corner			1	120,000	120,000
	Table Side	SSE-127		3	170,000	510,000
		SSE-157		1	330,000	330,000
		SSE-187		6	340,000	2,040,000
		SSE-247		2	340,000	680,000
		SSE-307		2	460,000	920,000
	Balance Table	TM-127		2	240,000	480,000
	Laboratory Table	FCF-2412		2	980,000	1,960,000
		FCF-3615		1	1,410,000	1,410,000
Fluorescent Lamp		36	800	28,800		
Sub Total						14,400,000

12	Display Model set	Model: 32BMSP	Megakemu	1	920,000	920,000
		Model: 1305		1	420,000	420,000
		Model: 1213		1	790,000	790,000
		Model: 374A		1	450,000	450,000
		Model: 2105		1	180,000	180,000
		Model: 2106B		1	180,000	180,000
		Model: 2104		1	195,000	195,000
		Model: 2106		1	195,000	195,000
		Model: 2103		1	470,000	470,000
13	Programmable Logic Controller	Model: MICREX-F70 NC1X1604	Fuji Electric System	1	25,000	25,000
		Model: NL4N-WNSB		1	80,000	80,000
		Model: FLT-ASFKA		1	72,000	72,000
		USB2.0 cable (L1.5m)		1	12,200	12,200
		Model:NC1P-E0		1	72,200	72,200
		Model:NC1S-1		1	25,500	25,500
		Model:NC1B-02		1	13,300	13,300
		Model:NC1Y16R-08		1	28,900	28,900
14	Pipe Detector	Model : PL-960	Fujui Tecom	4	800,000	3,200,000
15	Ultrasonic Liquid Flow meter	Model : Portaflow-C	Electric System	1	1,100,000	1,100,000
		Model : FSD220Y1		1	200,000	200,000
		DC power adapter		1	25,000	25,000
16	Flame Spectrophotometer	Model:47541201 M410	Sherwood	1	846,000	846,000
		Model:85101001 M851		1	117,000	117,000
		Model:47356903		1	90,000	90,000
		Model:47359700		1	12,000	12,000
		Model:98905139		1	12,000	12,000
		Model:00156622		1	15,000	15,000
17	Atomic Absorption Photometer	Model:AA-6300	Shimazu	1	5,180,000	5,180,000
		Silent type air compressor		1	408,000	408,000
		Cd hollow cathode lamp		1	57,200	57,200
		Co hollow cathode lamp		1	47,300	47,300
		Cr hollow cathode lamp		1	50,600	50,600
		Cu hollow cathode lamp		1	47,300	47,300
		Fe hollow cathode lamp		1	47,300	47,300
		K hollow cathode lamp		1	67,100	67,100
		Pb hollow cathode lamp		1	57,200	57,200
		Mg hollow cathode lamp		1	47,300	47,300
		Li hollow cathode lamp		1	57,200	57,200
		Mn hollow cathode lamp		1	50,600	50,600
		Na hollow cathode lamp		1	66,000	66,000
		Ni hollow cathode lamp		1	47,300	47,300
18	pH/Ion/Dissolved , Oxygen Meter	Model:MM-60R	DKK-TOA	2	291,060	582,120
		Model:GST-5741C		2	28,350	56,700
		Model:CL-2021		2	85,050	170,100
		Model:F-2021		2	113,400	226,800
		Model:N-2031		2	85,050	170,100
		Model:AE-2041		2	103,950	207,900
		Model:OE-570BA		2	108,700	217,400
		Model:143F191		2	1,230	2,460
		Model:143F192		2	1,230	2,460
		Model:143F193		2	1,230	2,460
		Model:143F234		2	1,900	3,800
		Model:143F237		6	950	5,700
		Model:OBG00005		2	2,850	5,700
		Model:OBG00007		2	2,850	5,700
		Model:0CC00023		2	6,300	12,600
		Model:143A014		2	950	1,900
19	Draft chamber	Model : DSS-157CS	Shibata	1	1,720,000	1,720,000
		Spare fluorescent lamp (36W)		3	900	2,700

20	Digital Burette	Model:182-001	Jencons	4	108,000	432,000
		Model:262-103		4	16,200	64,800
21	MLSS/Sludge Interface	Model : SS-5Z		1	260,000	260,000
22	Borehole Camera	Model : iDo 300F-II	Kasahara Chemical	1	4,600,000	4,600,000
		Centralizer		1	100,000	100,000
		Tripod		1	150,000	150,000
		Model:GZ-MG880		1	140,000	140,000
Sub Total						25,119,900
Grand Total						39,519,900

B Procurement in Sudan						
No	Equipment	Specification	Q'ty	U/Price (Yen)	Amount (Yen)	SDG
1. Workshop Equipment						
1	Mechanical Tools set	For Diesel Engine	1	417,656	417,656	SDP 10,070.07
2	Diesel Generator	Capacity:12kVA, 3phase	1	1,113,931	1,113,931	SDG 25,152
3	Ground Type Centrifugal Pump	Centrifugal Pump, Capacity 2.2kW H:31m, Q: 210L/min	1	383,000	383,000	SDG 7,650
Sub Total					1,914,587	
1-2. Electrical Course						
1	Electrical Tools set	General Electrical Tools	1	75,673	75,673	SDP 1,824.54
2	Control Panel(1)	Open style of direct line start circuit	1	35,700	35,700	SDG 850
3	Control Panel(2)	Open style of star-delta start circuit	1	77,700	77,700	SDG 1850
4	Control Panel (3)	Open style of auto-trance start circuit	1	231,000	231,000	SDG 5500
5	Control Panel(4)	Open style of soft (frequency) start circuit	1	409,500	409,500	SDG 9750
6	Eclectic Motor	3phase, Capacity3.7kW	1	63,000	63,000	SDG 1,500
Sub Total					892,573	
1-3. For Maintenance and Operation of Water Treatment Plant Course						
1	Plumbing Tools	Pipe Wrench, Chain wrench, Pipe Cutter	2	66,151	132,301	SDP 3,189.90
2	Screw Machine	Up to 4inch cutting, Galvanized pipe, AS	1	189,000	189,000	SDG 4,500
3	Welding Machine for Pipe	Up to 12inch HDPE Pipe Cutting	1	94,920	94,920	SDG 2,260
4	Water Tank	Plastic made, Capacity:5m ³ Access Hole:6 Numbers	1	80,346	80,346	SDG 1,913
Sub Total					496,567	
2. For Data management/GIS Course						
1	Computer	Core due 2-2GH3-1GB Ram	20	65,070	1,301,400	USD 14460
2	Scanner	HP A3	1	609,660	609,660	USD 6774
3	Laser jet printer	HP A3 B/W	3	220,680	662,040	USD 7356
4	Printer Desk Jet	HP A3 color	3	71,640	214,920	USD 2388
5	GPS	Garmin GPS60	15	26,880	403,200	SDG 9,600
6	GIS Soft wear	Areview	10	251,100	2,511,000	USD 27,900
7	Virus Soft wear		20	4,000	80,000	SDG 1,900
8	UPS		9	27,300	245,700	SDG 5,850
Sub Total					6,027,920	
3. For Well Management Course						
3-1. Main Equipment						
1	Air Compressor	PDS130S-5B2	1	2,688,000	2,688,000	SDG 64,000
2	Polyethylene	1inch, 150m	1	11,000	11,000	SDG 292.5
3	Galvanized Pipe	3inch, Galvanized pipe, L=3m	50	12,000	600,000	SDG 7,781
4	Sumle Motor Pumpersib	Grundfos, SP46, 50Hz	1	415,800	415,800	SDG 9,900
5	Triangle Notch	L=1400mm, W=600mm, H=350mm	1	168,000	168,000	SDG 4,000
6	Chain Block		1	37,800	37,800	SDG 900
Sub Total					3,920,600	
3-2. Air Lifting Tools						
1	Lot1		1	239,205	239,205	SGD 5,860.00
2	Lot2		1	39,963	39,963	SGD 979.00
3	Lot3		1	157,157	157,157	SGD 3,850.00
4	Lot4		1	209,815	209,815	SGD 5,140.00
5	Lot5		1	6,327	6,327	SGD 155.00
Sub Total					652,467	

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4. Workshop (Additional)						
1	Long Desk	1m*5m	6	110,720	664,320	SDP 15,000
2	Chair		12	14,516	174,195	SDP 4,200
3	Chair	Folding type	25	1,993	49,824	SDP 1,125
4	Desk and Chair	1m*2m	1	40,302	40,302	SDP 910
5	Large wind fan		4	8,858	35,430	SDP 800
6	Cabinet	Steel made	5	16,918	84,590	SDP 1,910
7	Projector		2	79,718	159,437	SDP 3,600
8	Screen	Mounting wall type	2	53,146	106,291	SDP 2,400
9	Television	50 inch	2	318,874	637,747	SDP 14,400
10	DVD player		1	14,394	14,394	SDP 325
11	Desk	1m*1.5m	4	24,358	97,434	SDP 2,200
12	Chair	Moving type	4	8,415	33,659	SDP 760
13	Book Shelves	1m*2m*(H)2m	2	53,146	106,291	SDP 2,400
14	Table	1m*1m	2	13,286	26,573	SDP 600
15	Telephone, Fax		1	31,002	31,002	SDP 700
16	Refrigerator	2 door type	1	97,434	97,434	SDP 2,200
17	Water server	Cold and hot water	4	17,715	70,861	SDP 1,600
18	Couch	Made of wood, 4m*0.5m	1	57,574	57,574	SDP 1,300
19	Table	1m*1m	2	13,286	26,573	SDP 600
20	Chair	with shoulders	4	6,643	26,573	SDP 600
21	Workbench	3m*5m*5cm, made of wood	4	132,864	531,456	SDP 12,000
22	Shelves	1m*5m*(H)2m, made of steel	1	155,008	155,008	SDP 3,500
23	Fork lift	Manual Type	1	199,296	199,296	SDP 4,500
24	Fire Extinguisher		4	4,429	17,715	SDP 400
25	Laptop		1	77,504	77,504	SDP 1,750
26	Dram for Copy Machine		1	275,693	275,693	SDP 6,225
Sub Total					3,797,175	
5. Workshop Equipment and Tools						
1	Timer		10	2,879	28,787	SDP 650
2	Voltmeter/ammeter		10	1,550	15,501	SDP 350
3	Welding machine		1	62,003	62,003	SDP 1,400
4	Welding glasses		3	664	1,993	SDP 45
5	Safety dresses & shoes		25	5,757	143,936	SDP 3,250
Sub Total					252,220	
6. Project Vehicle						
1	Land Curser	4WD	1		3,208,000	SDP 72975
7. Others						
1	Spare Parts for Air Conditioner		1	33,600	33,600	SDG 800
2	Sheet Cover for Land Curser		1	24,570	24,570	SDG 585
3	Cover for Computer		25	336	8,400	SDG 200
4	Mouse Pad		15	63	945	SDG 22.5
5	Pinter Toner		1	159,600	159,600	SDG 3,800
6	Video Camera		1	52,500	52,500	SDG 1,250
7	Digital Camera		1	33,600	33,600	SDG 800
8	Copy Machine		1	350,700	350,700	SDG 8,350
9	Computer		2	101,850	203,700	SDG 4,850
10	White Board		4	12,600	50,400	SDG 2,000
Sub Total					918,015	
Ground Total					22,080,124	

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C-1. for 2008

No.	Equipment	Specification	Q'ty	U/P (SDG)	Rate	Amount (Yen)
1	Projecter		1	1,950	52,442	102,262
2	Printer		1	5,800	52,442	304,164
3	GPS		1	500	52,442	26,221
4	Computer		2	1,900	52,442	199,280
5	Screen		1	1,750	52,442	91,774
Sub Total						723,700
6	Tools (1)		1	168	45,881	7,708
7	Tools (2)		1	810	45,881	37,164
8	Tools (3)		1	170	45,881	7,800
9	Tools (4)		1	340	45,881	15,600
10	Tools (5)		1	1,850	45,881	84,880
11	Protter		1	12,650	45,881	580,395
12	Tools (6)		1	140	45,881	6,423
13	Tools (7)		1	1,400	45,881	64,233
14	GIS Soft		10	32,085	98,230	3,151,710
Sub Total						3,955,912
15	Copy Machine		1	19,699.5	45,881	903,833
16	Leakage Detector		1			475,000
17	Earth Resitance Meter		1			32,000
18	Strobe Scope		1			152,900
Sub Total						1,563,733
Grand Total						6,243,344

C-2. for 2009

No.	Equipment	Specification	Maker	Q'ty	U/P (Yen)	Amount (Yen)
1	Jar Tester	Model:MJS-6N	Miyamoto	1	255,000	255,000
2	Water Level Meter	Range:0-4000 NTU	Aqua	1	65,000	65,000
3	Turbidity Meter	Model:2020e	La Motte	1	238,000	238,000
4	Color Meter	Model:WA-PT-4DG	Aqua	1	95,000	95,000
5	Residual Chlorine Meter	Model:EW-510	Tanita	2	28,000	56,000
6	EC/PH Meter	Range:PH 0-14, EC:0, 1mS/m-10mS/m	ToaDKK	1	130,000	130,000
7	Multi-parameter Water Quality Met	4sample tub, AC adptor	La Motte	1	312,400	312,400
Total						1,151,400

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ANNEX 8. List of Operation Cost of Japanese Side

No.	Item	2008	2009
1	Personnel	341,714	291,840
2	Consumable	578,488	1,234,435
3	Document	45,367	349,668
4	Rental Car	1,631,510	1,895,250
5	Others	389,158	105,078
Total(Yen)		2,986,237	3,876,271

Grand Total (Yen)	6,862,508
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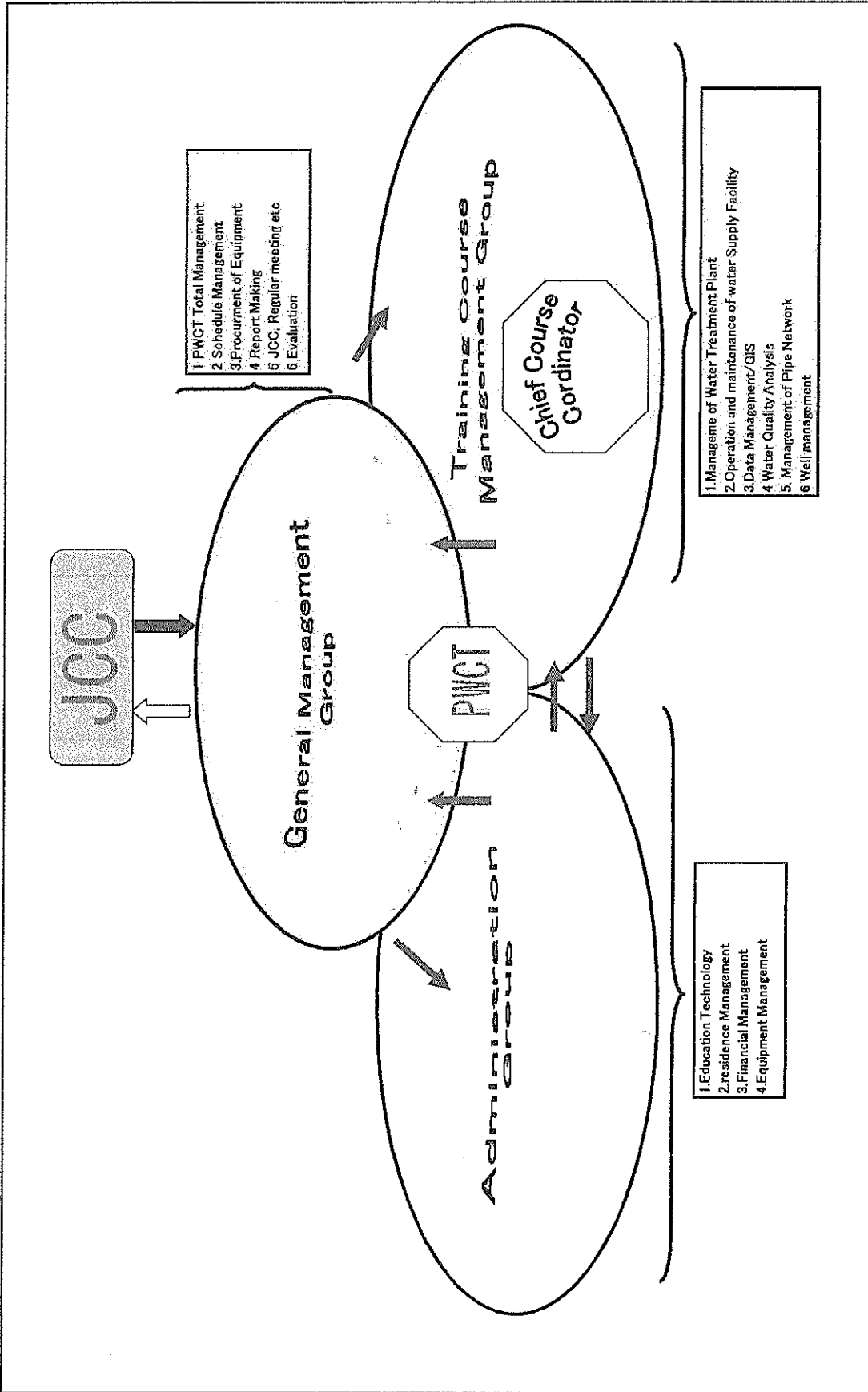
ANNEX 10. List of Operation Expenses of Sudanese Side and Budget of Sudan

No	Item	Contents	Unit price	Quantity	2008		2009		2010	
					Plan	Actual	Plan	Actual	Plan	Actual
1	Personnel expenses	Trainee daily allowance	25	250prs x 14Days	10,000	14,000	15,000	56,000	87,500	87,500
		Lecturer allowance	100	35prs x 12Days	18,000	7,000	18,000	42,000	42,000	42,000
		Staff allowance	500	18prs x 12Months	2,400	45,000	46,000	108,000	108,000	108,000
		Workshop labors	150	12prs x 2Months	1,500	3,000	6,000	3,600	3,600	3,600
		Sub total			31,900	69,000	85,000	209,500	241,100	241,100
2	Transportation expenses	Trainee	25	1250prs x 2times	1,400	4,000	4,500	8,000	12,500	12,500
		Lecturer	20	80prs x 14Days	3,000	1,400	3,500	15,400	22,400	22,400
		Investigation assistant	200	5prs x 4times	6,000	6,000	6,000	4,000	4,000	4,000
		Sub total			10,400	11,400	14,000	27,400	38,900	38,900
3	Welfare expenses	Food expenses of the lodgings	25	250prs x 14Days	31,900	18,900	32,000	56,000	87,500	87,500
		Equipment costs of the lodgings	1,100	12prs	23,100	30,000	25,000	30,000	13,200	13,200
		Entertainment costs	1,000	5sets	5,000	5,000	5,000	5,000	5,000	5,000
				Sub total			60,000	53,900	62,000	91,000
4	Office work costs	Office supplies costs	2,000	12Months	4,000	3,000	4,000	6,000	24,000	24,000
		Office equipment costs		6,000x1+2x2,000+1x2,000	5,000	12,000	12,000	12,000	12,000	12,000
		Maintenance cost of the center	5,674	12Months	1,500	3,000	3,500	3,000	68,088	68,088
		Sub total			10,500	18,000	19,500	21,000	104,088	104,088
5	Communication costs	Telephone / FAX costs	500	12Months	2,000	3,000	3,500	6,000	6,000	6,000
		Internet	500	12Months	3,000	3,000	4,000	6,000	6,000	6,000
				Sub total			5,000	6,000	7,500	12,000
6	Expenses for lighting and fuel	Electricity	3,000	12Month	2,500	12,000	20,000	24,000	36,000	36,000
		Water	200	12Month	1,000	1,200	2,000	2,400	2,400	2,400
		Gas	50	12Month	1,500	300	500	600	600	600
		Sub total			5,000	13,500	22,500	27,000	39,000	39,000
7	Training expense	Document purchase	50	3250sets	1,000	8,000	7,000	8,000	162,500	162,500
		Equipment costs	1,000	13 sets	3,000	1,000	1,000	1,000	13,000	13,000
		Document making costs	100	250prs	1,000	2,000	2,000	2,000	25,000	25,000
		Meeting place costs	150	200prs	2,000	2,500	2,500	2,500	30,000	30,000
		Sub total			7,000	13,500	12,500	13,500	230,500	230,500
8	Meeting costs	Tea	2	8timesx250prsx12Days	1,000	2,016	3,000	3,840	48,000	48,000
		Light meal	10	8timesx160prsx12Days	3,500	10,080	16,000	19,200	240,000	240,000
		Sub total			4,500	12,096	19,000	23,040	288,000	288,000
9	Field visits	Fuel	300	12Months	12,000	1,800	1,400	1,800	3,600	3,600
		Allowance	100	4prs x 30Days	0	12,000	13,000	12,000	12,000	12,000
		Logging	200	4prs x 30Days	0	24,000	20,000	24,000	24,000	24,000
		Maintenance	850	12 times	0	5,000	5,000	5,000	10,200	10,200
		Sub total			12,000	42,800	39,400	42,800	49,800	49,800
10	Contingencies	Emergency payment	1,000	12Months	3,700	6,000	12,000	12,000	12,000	12,000
				Sub total			3,700	6,000	12,000	12,000
		Ground Total			150,000	246,196	293,400	479,340	1,121,088	1,121,088

ANNEX 11. Expenses for the Workshop by the Sudanese Side

No	Item	Cost(SDG)
1	Building Construction(612m ²)	321,300
2	Sanitation Unit	3,500
3	Electrical Installation	15,815
4	Outside Work	30,500
5	Pumping House and Testing Unit	13,800
6	Elevated Water Tank	4,500
7	Air Conditionor	7,140
Total(SDG)		396,555
(39Yen/SDG)		15,465,645

ANNEX 12. Training System of PWCT



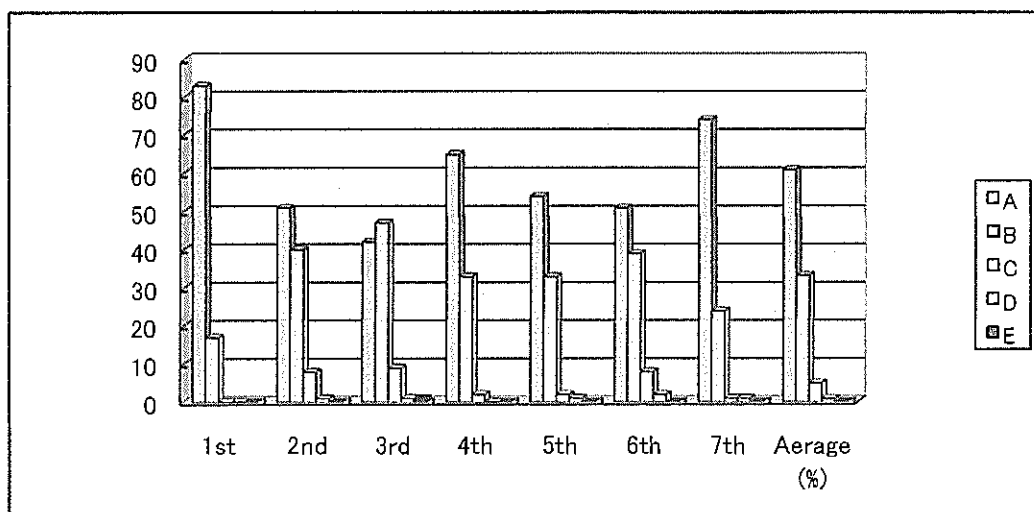
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ANNEX 13-1. Evaluation of the Training Courses by the Trainees

Rank	1st	2nd	3rd	4th	5th	6th	7th	Aerage (%)
A	83	51	42	65	54	51	74	61
B	17	40	47	33	33	39	24	33
C	0	8	9	2	2	8	1	5
D	0	1	1	0	1	2	1	1
E	0	0	1	0	0	0	0	0



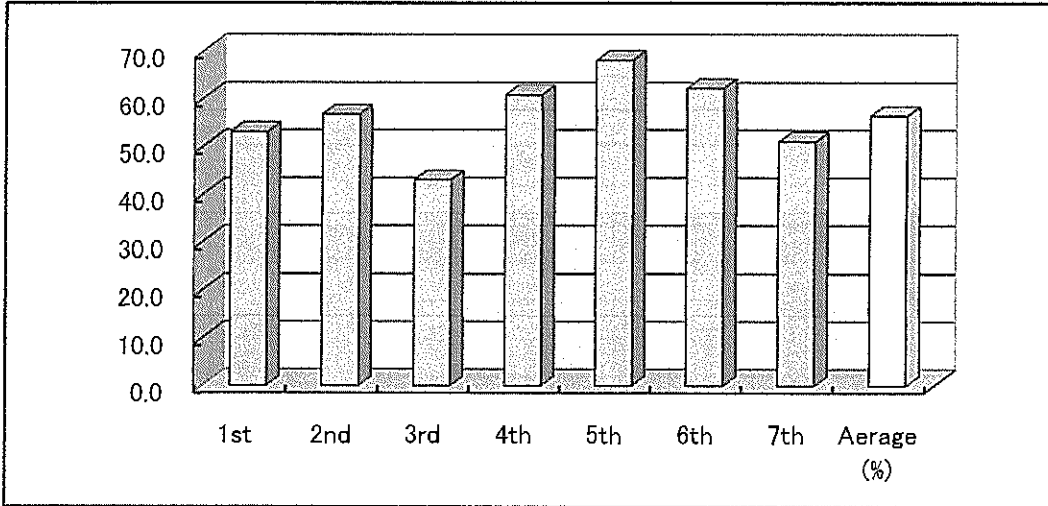
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ANNEX 13-2. Examination Result (Average)

	1st	2nd	3rd	4th	5th	6th	7th	Average (%)
Point	53.0	56.7	43.0	60.8	68.0	62.2	51.0	56.4



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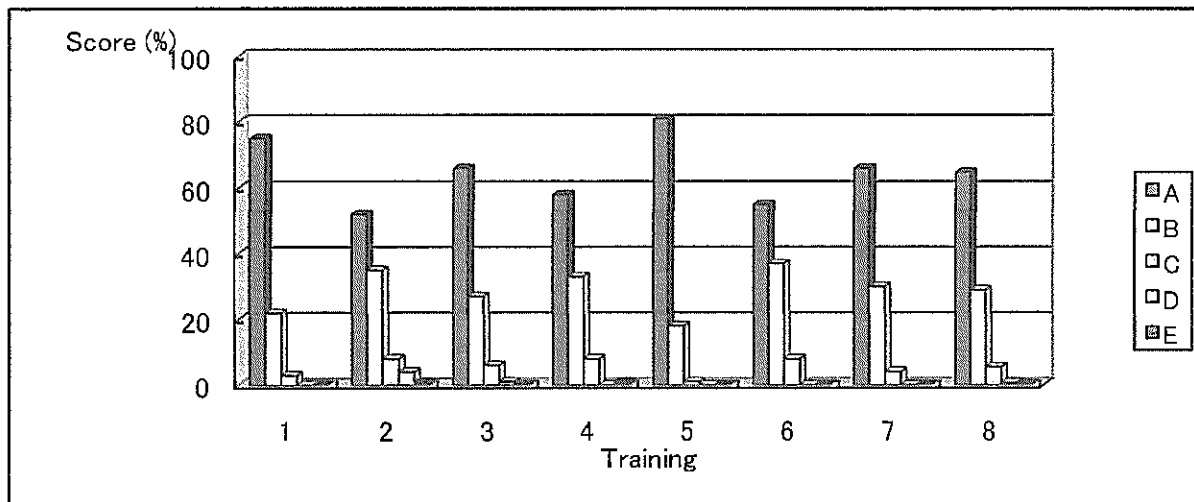
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ANNEX 13-3. Evaluation of the Lecturers by the Trainees

Total Evaluation of the Lecturers

Rank	1st	2nd	3rd	4th	5th	6th	7th	Average(%)
A	75	52	66	58	81	55	66	65
B	22	35	27	33	18	37	30	29
C	3	8	6	8	1	8	4	5
D	0	4	1	0	0	0	0	1
E	0	1	0	1	0	0	0	0
Total	100	100	100	100	100	100	100	100



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ANNEX 13-4. Work Ratio of PWCT for the Training Course Management

No	Work Items	Work Ratio of PWCT							Average (%)	Target (2009)
		1st Course	2nd Course	3rd Course	4th Course	5th Course	6th Course	7th Course		
1	Security of the generator	0	50	50	100	100	100	100	71	100
2	Arrangement of residence	80	90	95	100	100	100	100	95	100
3	Preparations for orientation	40	50	50	80	60	60	40	54	80
4	Preparation of trainee data	40	70	80	100	90	80	20	69	90
5	Preparation of lecturer data	20	70	80	90	100	80	20	66	100
6	Discussion and coordination with the lecturer	40	90	60	70	40	70	60	61	90
7	Training schedule	10	80	50	80	40	50	50	51	80
8	Training place	30	90	30	90	60	50	100	64	60
9	Textbook making	20	80	20	90	80	50	100	63	80
10	Printing work of the textbook	0	100	0	90	100	50	100	63	100
11	Preparations for examination paper	50	80	30	70	50	40	50	53	60
12	Confirmation of equipment for training	50	80	30	90	50	70	50	60	60
13	Preparation of Questionnaire for trainee	0	0	0	0	0	40	50	13	50
14	Preparation of evaluation sheet	0	0	0	50	30	40	100	31	50
15	Pre training meeting	0	0	0	0	40	40	20	14	50
16	Orientation	50	50	50	80	70	80	10	56	80
17	Photography of the training	10	10	40	70	50	80	50	44	60
18	Food providing service	100	100	100	100	100	100	100	100	100
19	Enforcement of the examination	80	100	100	100	100	60	100	91	100
20	Enforcement of evaluation of the lecturer	90	100	100	100	100	100	100	99	100
21	Enforcement of evaluation of the training course	90	100	100	100	100	100	100	99	100
22	Enforcement of evaluation of the residence	90	100	100	100	100	100	100	99	100
23	Enforcement of examination and inspection	50	90	60	100	70	50	50	67	80
24	Analysis of the examination	0	0	50	80	50	50	80	44	70
25	Training certificate making	0	0	60	80	70	70	100	54	80
26	Award of excellence making	0	0	0	80	20	70	20	27	80
27	Trainee interview	0	10	10	80	10	50	50	30	50
28	Closing ceremony	50	50	50	50	70	80	80	61	80
29	Payment of allowance of trainee	100	100	100	100	100	100	100	100	100
30	Payment of lecturer	100	100	100	100	100	100	100	100	100
31	Analysis of a questionnaire	0	0	0	0	0	50	50	14	50
32	Analysis of the evaluation sheet	0	0	30	80	30	50	70	37	50
33	After training meeting and evaluation	20	20	20	40	0	40	100	34	40
34	Training report making	0	0	20	50	20	50	100	34	40
Average		35.6	54.7	49.0	76.2	61.8	67.6	71.2	59.4	76.8
More than 80%		8	16	10	23	12	13	18	8	21

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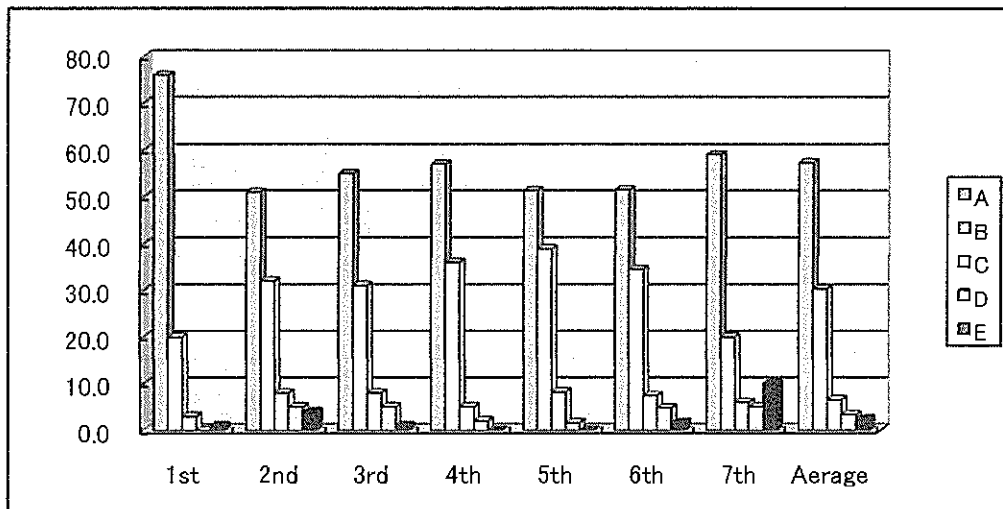
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ANNEX 13-5. Evaluation of Residence/Food Quality and Service by the Trainees

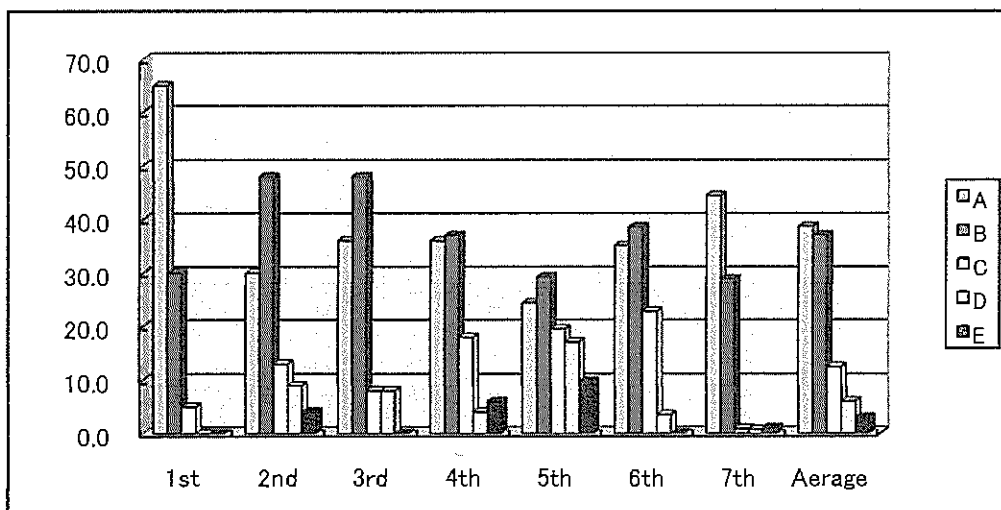
Evaluation of Residence(%)

Rank	1st	2nd	3rd	4th	5th	6th	7th	Aerage
A	76.0	51.0	55.0	57.0	51.4	51.5	59.0	57.3
B	20	32	31	36	39	35	20	30.3
C	3	8	8	5	8.2	7.4	6	6.5
D	0	5	5	2	1.6	4.8	5	3.3
E	1	4	1	0	0	1.7	10	2.5



Evaluation of Food Quality and Service(%)

Rank	1st	2nd	3rd	4th	5th	6th	7th	Aerage
A	65.0	30.0	36.0	36.0	24.4	35.1	44.4	38.7
B	30.0	48.0	48.0	37.0	29.3	38.6	28.9	37.1
C	5.0	13.0	8.0	18.0	19.5	22.8	0.9	12.5
D	0.0	9.0	8.0	4.0	17.1	3.5	0.7	6.0
E	0.0	4.0	0.0	6.0	9.8	0.0	1.1	3.0



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ANNEX 14. Proposed Modification of the Project Design Matrix (PDM4)

Name of the Project: Human Resources Development for Water Supply in Sudan

The Project Target Area: Northern Part of Sudan

Project Target Group: Staff of PWCT, PWC and SWCs, Indirect Target Group. All the staff of Water Supply Sector

Project Duration: From June, 2008 to March, 2011 (3Years)

添付資料

Summary of the Project	Indicator	Procurement Means	External Condition
<p>< OVERALL GOAL ></p> <p>Institutional capacity for stabilizing water supply in the northern Sudan is enhanced.</p> <p>< PROJECT PURPOSE ></p> <p>PWC Training Center establishes the system for the implementation of Training</p> <p>< OUTPUTS ></p> <p>1. PWC Training Center acquires abilities to implement and plan training courses</p> <p>2. PWC Training Center acquires administrative abilities necessary for managing training courses</p> <p>3. PWC Training Center acquires the abilities of problem solution and feedback on training courses</p> <p>< ACTIVITIES ></p> <p>1-1. Establishment of the manual for planning, managing and evaluating training courses 1-2. Training of course coordinators utilizing the manual above 1-3. Supplemental survey and examination (technical level, subject, background of the trainee, etc.) 1-4. Design of principal and ad hoc training courses based on 1-3 1-5. Preparatory of annual plan, curriculum, training materials, tools, equipment, and machinery for principal and ad hoc training courses 1-6. Identification of lecturers and field training sites for principal and ad hoc training courses from related organizations (PWC, GWWD, SWCs, Universities, Private Companies, etc.) 1-7. Supplemental training regarding the know-how for lecturers of principal and ad hoc training courses 1-8. Establishment of evaluation methods training courses 1-9. Improvement of the manual written in 1-1, on the basis of problems identified in 3-2</p> <p>2-1. Establishment of regulations and demarcation of duties for the administration training courses 2-2. Proper reservation of the training materials and texts 2-3. Decision of budgetary plan for training courses 2-4. Proceeding administrative steps for negotiation, contract, procurement and public relations 2-5. Management and maintenance of facilities for training 2-6. Improvement of the regulations and demarcation established in 2-1, on basis of problems 3-1. Tentative implementation of principal and ad hoc training courses 3-2. Identification of problems in the following fields Consistency between the needs and contents of the courses Contents of course materials and their interface Capacity and presentation methods of Lectures Capacity of coordinators and procedure established in 1-1 Capacity of administrators and regulations/procedures established in 2-1. 3-3. Improvement of the problems identified in Activities 3-2.</p>	<p>1. Capacity building for more than 7 core personnel at each SWC</p> <p>2. Applied annual water supply plan (3-5 years) with the State budget based on lessons learnt from the implemented training courses</p> <p>1. Average grade of evaluation of the trial training courses by the trainees marks more than 90%</p> <p>2. Average grade of evaluation of the administration by the trial courses trainees marks more than 80%</p> <p>3. At least 80% of the trial course trainee gain certificate of successful completion of the course</p> <p>1-1. More than 80% of the works done by course coordinators in training course management and implementation</p> <p>1-2. Established annual plan, manual, materials and syllabus of more than 3 principal and 4 ad hoc training courses</p> <p>1-3. Established training site (PWCT workshop)</p> <p>1-4. Improved evaluation to the lectures of all training courses</p> <p>2-1. Revised regulations and TOR of the staff in activity 2</p> <p>2-2. Proper management of the improved necessary materials and texts of the training courses</p> <p>2-3. Proper management of the Center budget</p> <p>3-1. Implementation of more than four (4) times of three principal courses and more than two (2) times of the ad hoc courses</p> <p>3-2. Number of problems and difficulties on each point of view referred in Activities 3-2</p> <p>3-3. Number of improvements of all activities of the Center based on Activities 3-2</p>	<p>1. Training reports</p> <p>2. Applied annual budget plans</p> <p>1. Summary of evaluation</p> <p>2. Summary of evaluation</p> <p>3. Ratio between Number of Certificate given and total number of trainee attended courses</p> <p>1-1. Training reports</p> <p>1-2. Annual Plan, manuals, materials and syllabus</p> <p>1-3. Situation of the workshop</p> <p>1-4. Training report</p> <p>2-1. Records of the project</p> <p>2-2. Records of material</p> <p>2-3. Budgetary records</p> <p>3-1. Records of trainings</p> <p>3-2. Number of points which should be implemented</p>	<p>Political stability continues</p> <p>A large-scale change of structure does not occur in the water supply sector</p> <p>Trainees who complete courses continue working at their organization</p> <p>Equipments are installed at PWCT to be utilized during the project period.</p> <p>Motivations of trainees who completed the training course are sustained</p> <p>Budget for the Center is secured continuously and Structure of the organization is not changed dramatically</p>
<p>< INPUTS ></p> <p>Japanese Side</p> <p>1. Experts Training Course Management / Water Supply Water Supply Facilities (Machinery and Electric) Operation and Maintenance of Water Treatment Plant/ Maintenance of Pipe Networks Data Management / GIS Education Technology/Organizational Management Water Quality Analysis/Data Base Well Management Equipment Necessary equipments for the training course of "Water Supply Facilities (Machinery and Electric)" Necessary equipments for the training course of "Data Management / GIS" Necessary equipments for the training course of "Water Quality Analysis" Necessary equipments for the training course of "Maintenance of Pipe Network" Necessary equipment for training course if "Well Management" Vehicle for the Project</p> <p>3. Training in Japan</p> <p>Sudanese Side</p> <p>1. Allocation of Counterparts</p> <p>2. Daily and travel allowance for Trainees</p> <p>3. Lecturers allowance</p> <p>4. Expenses for installation of equipments</p> <p>5. Working condition for Japanese Experts</p> <p>6. Expenses for the consumable goods and running expenses for Training</p> <p>7. Standby generator for the Training Center</p> <p>8. Construction of workshop at Km 10</p> <p>9. Construction of laboratory of water quality analysis</p> <p>10. Arrangement of lodging facility and</p>	<p>< IMPORTANT ASSUMPTIONS ></p> <p>Political Stability & Peace of Order will not be worsened extremely</p> <p>Adequate number of personnel are assigned to Training Center</p> <p>Each SWC establishes the organizational framework</p>		

Remarks: PWC stands for Public Water Corporation, SWC for State Water Corporation
 "TOR" is integrated in the manual produced in the Project Activities.

ANNEX 15. Achievement GRID

Table of Achievement GRID of Overall Goal, Project Purpose and Outputs

Project Summary	Indicators	Means of Verification	Current Achievement Condition	Issues to be concerned
<p>Overall Goal (Projection) : Water supply in Sudan is stabilized.</p>	<p>1. Non-operation time for water supply facilities by states decreases significantly</p>	<p>Project reports, Activity result, Interview, site visit of State</p>	<p>It is too early to assess prospect of Indicator 1-1. Generally, due to power failure, inadequate generators or old generators causes non-operation time especially local states of Sudan. (site visit and interview to SWC and treatment plant of Khartoum (as of October 27 2009.) It could be assumed that non-operation time is till serious problems at State level. Further discussion is needed problem analysis to look for some solutions. Only by training system establishment of PWCT, the issue cannot attain the Indicator 1-2.</p>	<p>PWCT receives a vehicle from the Project. Oil, travel allowance should be allowed for PWCT staff. The car use administration vehicle should be by PWCT. (will discuss with manager level) After training courses, PWCT does have very few chances to go to monitor and assess in State level. Hence, no information and feedback of water supply facilities condition is collected and reported by SWC.</p>
	<p>2. Quantity of water from water supply facilities by states increases significantly</p>	<p>Project reports, Activity result, Interview, site visit of State</p>	<p>It is too early to assess prospect of Indicator 1-2. According to the site visit and interview to SWC and treatment plant of Khartoum (as of October 27 2009), assessment of population and reviewing the water supply plan are not implemented regularly. In case of Khartoum, the plant treatment staff concern shortage of quantity of water due to the population grows caused by rapid development of Khartoum. It could be assumed that quantity of water is still serious problem to supply for population of State level. Further discussion is needed problem analysis to look for some solutions. Only by training system establishment of PWCT, the issue cannot attain the Indicator 1-2.</p>	

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Project Summary	Indicators	Means of Verification	Current Achievement Condition	Issues to be concerned																																																						
<p>Project Purpose (Prospect) : PWC Training Center establishes the system for the implementation of Training.</p>	<p>1. Average grade of evaluation of the trial training courses by the trainees marks more than 90%.</p>	<p>Project reports, Activity result, Interview</p>	<p>The rank A of Evaluation of Training indicates in the table 1-1. The average grade of the courses marks 61% as of October, 2009. The average of examination result and lecturers is 56.4% and 65%. (see Table 1-2 and 1-3) if the score of examination is getting higher by the end of the Project, the Project expects that the training course is likely improved.</p> <p>Through the confirmation of the result of the Project Activities and interview to PWCT, it is assumed the Indicator 1 will be attained by the end of the Project when PWCT implements based on improved training plan developed by PWCT.</p> <p>Table 1-1 Evaluation of Training (%) (The Project, 2009)</p> <table border="1"> <thead> <tr> <th>Training Course</th> <th>1st</th> <th>2nd</th> <th>3rd</th> <th>4th</th> <th>5th</th> <th>6th</th> <th>7th</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>Rate A</td> <td>83</td> <td>51</td> <td>42</td> <td>65</td> <td>54</td> <td>51</td> <td>74</td> <td>61%</td> </tr> </tbody> </table> <p>Note: 1) The Project has 5 measurement scales (A, B, C, D and E). 2) Participants are 15 States SWC officers including PWC staff.</p> <p>Table 1-2 Examination Result of Trainees (The Project, 2009)</p> <table border="1"> <thead> <tr> <th>Training Course</th> <th>1st</th> <th>2nd</th> <th>3rd</th> <th>4th</th> <th>5th</th> <th>6th</th> <th>7th</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>Rate A</td> <td>53.0</td> <td>56.7</td> <td>43.0</td> <td>60.8</td> <td>68.0</td> <td>62.2</td> <td>51.0</td> <td>56.4%</td> </tr> </tbody> </table> <p>Note: The Project has 5 measurement scales (A, B, C, D and E).</p> <p>Table 1-3 Evaluation of Lecturers (The Project, 2009)</p> <table border="1"> <thead> <tr> <th>Training Course</th> <th>1st</th> <th>2nd</th> <th>3rd</th> <th>4th</th> <th>5th</th> <th>6th</th> <th>7th</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>Rate A</td> <td>75</td> <td>52</td> <td>66</td> <td>58</td> <td>81</td> <td>55</td> <td>66</td> <td>65%</td> </tr> </tbody> </table> <p>Note: The Project has 5 measurement scales (A, B, C, D and E).</p>	Training Course	1st	2nd	3rd	4th	5th	6th	7th	Average	Rate A	83	51	42	65	54	51	74	61%	Training Course	1st	2nd	3rd	4th	5th	6th	7th	Average	Rate A	53.0	56.7	43.0	60.8	68.0	62.2	51.0	56.4%	Training Course	1st	2nd	3rd	4th	5th	6th	7th	Average	Rate A	75	52	66	58	81	55	66	65%	<p>The newest record should be kept by PWCT. The data revision should be kept by PWCT. (The Project requests to modify the Indicator of 90% to 80%.) PWCT personnel need training like PWC.</p>
Training Course	1st	2nd	3rd	4th	5th	6th	7th	Average																																																		
Rate A	83	51	42	65	54	51	74	61%																																																		
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Project Summary	Indicators	Means of Verification	Current Achievement Condition	Issues to be concerned																																																						
	2. Average grade of the evaluation of the administration by the trial courses trainees marks more than 90%	Project reports, Activity result, Interview	<p>Table 2-1 indicates work sharing of training course operation for PWCT staff. The average of more than 80% of the work achievement is 14 work items out of 34. It means 41% of the administration works is implemented by PWCT.</p> <p>PWCT is able to manage and operate the training courses to strengthen their team work. PWCT has confidence to work alone form the 8th Course. Evaluation for the work achievement of the training courses will be implemented continuously by both PWCT and The Project. With these observations of Midterm-Review, it is assumed the Indicator 2 will be attained by the end of the Project when PWCT implements based on improved operation plan of the training course developed by PWCT.</p> <p>Table 2-1 Work Achievement of Training Course Management for PWCT (34 Work Items)</p> <table border="1"> <thead> <tr> <th>Training Course</th> <th>1st</th> <th>2nd</th> <th>3rd</th> <th>4th</th> <th>5th</th> <th>6th</th> <th>7th</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>Average (%)</td> <td>35.6</td> <td>54.7</td> <td>49.0</td> <td>76.2</td> <td>61.8</td> <td>67.6</td> <td>71.2</td> <td>59.4%</td> </tr> <tr> <td>More than</td> <td>8</td> <td>16</td> <td>10</td> <td>23</td> <td>12</td> <td>13</td> <td>18</td> <td>14 (14.3)</td> </tr> </tbody> </table> <p>(The Project, 2009)</p> <p>Note: Evaluated by both PWCT and the Project.</p> <p>Table 2-2 Evaluation Result of Residence and Food Quality and Service</p> <table border="1"> <thead> <tr> <th>Training Course</th> <th>1st</th> <th>2nd</th> <th>3rd</th> <th>4th</th> <th>5th</th> <th>6th</th> <th>7th</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>Accommodation</td> <td>76.0</td> <td>51.0</td> <td>55.0</td> <td>57.0</td> <td>51.4</td> <td>51.5</td> <td>59.0</td> <td>57.3%</td> </tr> <tr> <td>Food</td> <td>65.0</td> <td>30.0</td> <td>36.0</td> <td>36.0</td> <td>24.4</td> <td>35.1</td> <td>44.4</td> <td>38.7%</td> </tr> </tbody> </table> <p>(The Project, 2009)</p> <p>Note: The Project has 5 measurement scales (A, B, C, D and E).</p>	Training Course	1st	2nd	3rd	4th	5th	6th	7th	Average	Average (%)	35.6	54.7	49.0	76.2	61.8	67.6	71.2	59.4%	More than	8	16	10	23	12	13	18	14 (14.3)	Training Course	1st	2nd	3rd	4th	5th	6th	7th	Average	Accommodation	76.0	51.0	55.0	57.0	51.4	51.5	59.0	57.3%	Food	65.0	30.0	36.0	36.0	24.4	35.1	44.4	38.7%	<p>- All date of each course is kept by PWCT. PWCT needs to keep the information and date of achievement result of capacity development inside the Center.</p>
Training Course	1st	2nd	3rd	4th	5th	6th	7th	Average																																																		
Average (%)	35.6	54.7	49.0	76.2	61.8	67.6	71.2	59.4%																																																		
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Project Summary	Indicators	Means of Verification	Current Achievement Condition	Issues to be concerned
	3. At least 90% of the trial course trainee gain certificate of successful completion of the course	Project reports, Activity result, Interview	Total number of certification is 135 for 7 courses as of August 2009 (Reported by the JICA Experts). Already, up to now, 100% of three times courses trainees receive the certification at the stage of Midterm-Review. Trainees are appreciated the trial courses of the Project very much. (reported by PWCT, Course Coordinators) (The Project expects to certify all trainees in the rest of the course. The trainees are expected to be a trainer/lecturer of water supply sector in the future.)	Data of trainee's examination result is kept in Course Report of PWCT. Data of percentage of trainees who receive certification should be kept by PWCT. PWCT needs to keep the information and date inside the Center. The standard of certification is on developing.

Achievement GRID of Project Outputs

Project Summary	Indicators	Means of Verification	Result	Issues to be concerned
OUTPUTS 1. PWC Training Center acquires abilities to implement and plan training courses	1-1. Evaluation for the procedures for planning and implementing the training courses by experts and course coordinators is improved.	Project reports, Activity result, Interview	Evaluation methodologies and manual for planning and implementing the courses has been improved under PWCT.	The documents should be binded.

<p>1-2. Annual plan, materials and curriculum of more than 3 principal courses and at least 1 ad hoc course are established.</p>	<p>Project reports, Activity result, Interview</p>	<p>Instead of "curriculum", The course syllabuses (version 1) of 3 principal courses and 6 ad hoc courses have been developed. (see Table 1-1)</p> <p>It is assumed the Indicator 2 will be attained by the end of the Project when PWCT keep revising syllabuses, materials and annual plan based on evaluation result of future training course implemented independently by PWCT.</p> <p>Table 1-1 Status of Syllabus</p> <table border="1"> <thead> <tr> <th>Course</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>3 principal</td> <td>Version 1</td> </tr> <tr> <td>Operation & Maintenance</td> <td>Version 1&2</td> </tr> <tr> <td>Water Supply Facilities</td> <td>Version 1&2</td> </tr> <tr> <td>Data Management/GIS</td> <td>Version 1&2</td> </tr> <tr> <td>Well Management</td> <td>Version 1</td> </tr> <tr> <td>Water Quality</td> <td>(not yet)</td> </tr> <tr> <td>Organization Management</td> <td>(not yet)</td> </tr> <tr> <td>Pipe Network</td> <td>(not yet)</td> </tr> </tbody> </table>	Course	Status	3 principal	Version 1	Operation & Maintenance	Version 1&2	Water Supply Facilities	Version 1&2	Data Management/GIS	Version 1&2	Well Management	Version 1	Water Quality	(not yet)	Organization Management	(not yet)	Pipe Network	(not yet)	<p>All documents should be binded.</p> <p>Annual plan is not confirmed. According to the JICA Experts, annual plan is on developing.</p> <p>Cooperation work of manual development with PWCT and JICA Experts is necessary.</p>
Course	Status																				
3 principal	Version 1																				
Operation & Maintenance	Version 1&2																				
Water Supply Facilities	Version 1&2																				
Data Management/GIS	Version 1&2																				
Well Management	Version 1																				
Water Quality	(not yet)																				
Organization Management	(not yet)																				
Pipe Network	(not yet)																				
<p>1-3. Lecturers and OJT sites are identified for more than 3 principal courses and at least 1 ad hoc course</p>	<p>Project reports, Activity result, Interview</p>	<p>PWCT officers have learned through the trial training courses how to implement the training courses. The officers have been received the OJT assisted by the Project. (see the Training Course Schedule)</p> <p>Workshop (the site) is an OJT site for the Project activities. Since the syllabus is developed as mentioned in the above 1-2, the lectures are identified by PWCT.</p>	<p>Rehabilitation of Workshop is on schedule. In order to apply the knowledge through practical training, Workshop needs to be rehabilitated as soon as possible.</p>																		

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<p>2. PWC Center acquires necessary administrative training courses.</p>	<p>1-4. Evaluation for the technical skill of lecturers by experts is improved after the complementary training</p>	<p>Project reports, Activity result, Interview</p>	<p>First (1st) version of evaluation manual and sheet for lecturers have been developed. Course coordinator of PWCT is charged in analysis of the evaluation for the lecturers.</p>	<p>All documents should be binded.</p>
<p>2-1. Evaluation for regulations and demarcations established in activities 2 by the experts and administrators is improved.</p>	<p>Project reports, Activity result, Interview</p>	<p>Because the regulation and demarcations are on drafting, the evaluation is not implemented yet.</p>	<p>The evaluation/assessment is planned to do in December, 2009. All documents should be binded.</p>	<p>Purchased References are stored in JCA Experts room. When library finish rehabilitated, all references are going to be stored and managed by PWCT. Reference management technique should be trained</p>
<p>2-2. Necessary materials and texts for more than 3 principal courses are stored, maintained and used properly.</p>	<p>Project reports, Activity result, Interview</p>	<p>The materials and texts have been stored in the meeting room of PWCT. More proper stored space of PWCT is on planning.</p>	<p>The materials and texts have been stored in the meeting room of PWCT. More proper stored space of PWCT is on planning.</p>	<p>Purchased References are stored in JCA Experts room. When library finish rehabilitated, all references are going to be stored and managed by PWCT. Reference management technique should be trained</p>
<p>2-3. The budget (income/loss) is managed properly according to the budgetary plan of the Center.</p>	<p>Project reports, Activity result, Interview</p>	<p>The budget plan of 2008, 2009 and 2010 has been prepared in PWCT. (see Budgetary Plan as of 2009, October)</p>	<p>The budget plan of 2008, 2009 and 2010 has been prepared in PWCT. (see Budgetary Plan as of 2009, October)</p>	<p>Purchased References are stored in JCA Experts room. When library finish rehabilitated, all references are going to be stored and managed by PWCT. Reference management technique should be trained</p>

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	<p>2-4. Forms for accounting, public relations and contract are developed and improved on the basis of problems and difficulties extracted through activities 3.</p>	<p>Project reports, Activity result, Interview</p>	<p>Forms for accounting, public relations and contract are developed and integrated into the manuals supported by the JICA Experts.</p> <p>Manuals are in Table 1-2. (Reported by PWCT staff)</p> <div style="border: 1px solid black; padding: 5px;"> <p>Training Course Manual Management Manual of Training Center Management Manual of Facility and Workshop Management Manual of Residence Management Manual of Library (references and texts) Data Management Manual Evaluation Manual (including Methodologies and Evaluation sheets)</p> </div> <p>Regulation and Manuals are in Table 1-3.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Regulation and Demarcation - Training administration and demarcation - Center management regulation - Work regulation Manual (forms, evaluation sheet, etc) - Center management - Training administration manual - Budget management manual - Accommodation management manual - Workshop and facility management manual - Equipment management manual - Materials and document management manual - Evaluation manual (for Course, Lectures, and Facilities) (Reported by JICA Experts)</p> </div>	<p>Forms, contract regulations are developed and integrated into a series of manuals in the Project.</p> <ul style="list-style-type: none"> - The recording system of "Basis of problems and difficulties" or strengthen revision skill of counterparts of PWCT are needed to be developed by PWCT in future. - The material and documentation management skill of counterparts of PWCT is needed to be strengthened. - Proper material and documentation management system of PWCT is needed to be strengthened after the storage space/room is prepared in PWCT.
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<p>3. Improvements and lessons are extracted from the trial of implementation of training courses.</p>	<p>3-1. Three principal courses are implemented basically 5 times each. two ad hoc courses are implemented at least once each. The number of times depends on the situation.</p>	<p>Project reports, Activity result, Interview</p>	<p>The three (3) principal courses and four (4) ad hoc courses are implemented as following table on schedule.</p> <p>Table 3-1 Principal Courses as of September 2009</p> <table border="1"> <thead> <tr> <th>Course</th> <th>As of October 2009</th> </tr> </thead> <tbody> <tr> <td>1 Water Supply Facilities (Machinery and Electrics)</td> <td>2</td> </tr> <tr> <td>2 Maintenance & Operation of Water Treatment Plant</td> <td>2</td> </tr> <tr> <td>3 Data management/GIS</td> <td>2</td> </tr> </tbody> </table> <p>Table 3-2 Ad hoc Course as of September 2009</p> <table border="1"> <thead> <tr> <th>Course</th> <th>As of October 2009</th> </tr> </thead> <tbody> <tr> <td>1 Pipe Networking Management</td> <td>(will be)</td> </tr> <tr> <td>2 Water Quality Analysis</td> <td>(will be)</td> </tr> <tr> <td>3 Well Management</td> <td>1</td> </tr> <tr> <td>4 Organizational Management/Education Technology</td> <td>October 25-29</td> </tr> </tbody> </table>	Course	As of October 2009	1 Water Supply Facilities (Machinery and Electrics)	2	2 Maintenance & Operation of Water Treatment Plant	2	3 Data management/GIS	2	Course	As of October 2009	1 Pipe Networking Management	(will be)	2 Water Quality Analysis	(will be)	3 Well Management	1	4 Organizational Management/Education Technology	October 25-29	<p>Training Report of ad-hoc courses is not confirmed.</p>
Course	As of October 2009																					
1 Water Supply Facilities (Machinery and Electrics)	2																					
2 Maintenance & Operation of Water Treatment Plant	2																					
3 Data management/GIS	2																					
Course	As of October 2009																					
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2 Water Quality Analysis	(will be)																					
3 Well Management	1																					
4 Organizational Management/Education Technology	October 25-29																					
<p>3-2. Number of problems and difficulties on each point of view referred in Activities 3-2.</p>	<p>Issues & learnt including "problems and difficulties" are discussed after every training course, but not recorded and accumulated. PWCT has plan of the recording system development in December 2009.</p>	<p>Project reports, Activity result, Interview</p>	<p>The problems and difficulties of Activity 3-2 is not recorded or accumulated.</p>																			

Note:
 Attended Assessment Team members, October, 2009
 19th : all PWCT staff, 20th : Ms Aetida, Mr. Hashim, Mr. Egbal, Mr. Bashary, Mr. Osma, Ms Zeinab, Mr. Abdela Majed
 21th : Mr. Egbal, Mr. Bashary, Mr. Osma, Mr. Abdela Majed, 26th : 3 PWC officers, 27th Khartoum SWC and treatment plant officers