フィリピン共和国
水質管理能力強化プロジェクト
終了時評価調査報告書

平成22年11月
（2010年）

独立行政法人国際協力機構
フィリピン事務所

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序　　文

フィリピン共和国では、人口増加や経済発展に伴う水質悪化に対応するために、2004 年 5 月に「水質浄化法」が施行されました。この法律は、市場経済手法に基づく排出量の削減、ステークホルダーの参加による水質管理区域の運営など、従来のフィリピン共和国の水質管理行政になかった新しいアプローチを含んでいます。しかし、「水質浄化法」によって課せられた新しい責任や業務は、水質管理行政を担当する環境天然資源省環境管理局（DENR-EMB）にとって経験がないものを多く含んでおり、現在の組織・職員個人の能力では水質浄化法の実施は困難な状況にあります。

かかる状況の下、フィリピン共和国政府からの要請に応えて、独立行政法人国際協力機構（JICA）では、2006 年 2 月から 5 年間の予定で技術協力プロジェクト「水質管理能力強化プロジェクト」を実施しています。本プロジェクトでは、プロジェクト期間 5 年間を 2 つのフェーズに分け、前半の 2 年間（フェーズ 1）では、主に水質浄化法を執行するための政策や各種手続・技術ガイドラインの作成を通した DENR-EMB の中央事務所の能力強化を行い、後半の 3 年間（フェーズ 2）では、主に 3 カ所のパイロットサイトで水質浄化法の執行に係る各種支援により DENR-EMB 地域事務所の能力強化を図り、最終的には DENR-EMB 全体の水質浄化法執行に係る能力強化を達成することを目的にプロジェクト活動が進められています。

このたび、プロジェクト期間の終了を 2011 年 1 月に控え、国際協力機構は 2010 年 9 月 17 日から 10 月 9 日までの間、フィリピン事務所次長を団長とする終了時評価調査団を現地に派遣し、フィリピン国側評価チームと合同でこれまでの活動実績等について総合的評価を行いました。

これらの評価結果は、日本・フィリピン国側双方の評価チームによる討議を経て合同評価報告書としてまとめられ、署名・交換の上、両国の関係機関に提出されました。

本報告書は、本調査の結果を取りまとめたものであり、今後の協力実施にあたって広く関係者に活用されることを願い取りまとめたものです。

終わりに、本調査にご協力とご支援を頂いた関係者各位に心より感謝申し上げるとともに、引き続きご支援をお願いする次第です。

2010 年 11 月

独立行政法人国際協力機構
フィリピン事務所長

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第 12 地域環境管理局地域事務所

環境天然資源省環境管理局

第 12 地域現地視察
(Marilao, Meycauayan, Obando)

第 6 地域水質管理区域運営評議会表敬

第 6 地域現地視察 (Iloilo-Batiano)

第 6 地域環境管理局地域事務所ラボラトリー

第 6 地域環境天然資源省環境管理局

ローカルコンサルタントへのインタビュー
（Innogy Solution）

略　語　表

略　語	正式名称	日本語
CWA	Clean Water Act	フィリピン水質浄化法
DAO	Department Administrative Order	省令
DENR	Department of Environment and Natural Resources	環境天然資源省
EMB	Environmental Management Bureau	環境管理局
(EMB) CO	EMB Central Office	EMB 本部
(EMB) RO	EMB Regional Office	EMB 地域事務所
(EMB)-WQMS	EMB Water Quality Management Section	EMB 水質管理課
IBRS		イロイロ・バティアノ河川システム水質管理地域
IRR	Implementing Rules and Regulations	施行規則
ISES	Industry-Specific Effluent Standards	産業別排水基準
IWQMF	Integrated Water Quality Management Framework	統合水質管理フレームワーク
JCC	Joint Coordination Committee	合同調整委員会
JICA	Japan International cooperation Agency	国際協力機構
LGU	Local Government Unit	地方自治体
MC	Memorandum Circular	覚書回覧
MMORS		マリラオ・メイカウアヤン・オバンド河川システム水質管理地域
PDM	Project Design Matrix	プロジェクト・デザイン・マトリックス
SMR	Self Monitoring Report (system)	セルフモニタリング報告（システム）
TWO	Technical Working Group	専門作業部会
WQM	Water Quality Management	水質管理
WQMA	Water Quality Management Area	水質管理地域
WQMA GB	WQMA Governing Board	水質管理委員会

終了時評価調査結果要約表

１．案件の概要		
国名：フィリピン共和国		案件名：水質管理能力強化プロジェクト
分野：環境管理		援助形態：技術協力プロジェクト
所轄部署：フィリピン事務所		協力金額：7 億 5,400 万円
協力期間	（R/D）： 2006 年 1 月～2011 年 1 月	先方関係機関：環境天然資源省環境管理局（DENR-EBM）
		日本側協力機関：特になし
		他の関連協力：

１－１　協力の背景と概要

経済成長に向けた活動は、フィリピン共和国（以下、「フィリピン」と記す）政府の 30 年間にわたる努力にもかかわらず、十分な衛生設備、都市排水、汚染防止に対する予算と人的資源に制約があった結果、表流水に加えて地下水も水質が低下し、これは公衆衛生、漁業、観光業に悪影響を及ぼした。

2004 年の水質浄化法（Clean Water Act：CWA）の制定は、フィリピンの水質管理における劇的な転換と認識されている。同法は、さまざまなインセンティブメカニズムを採用し、汚染防止の経済効率と有効性を最大限とする一連の政策手段を導入したほか、従来の水質管理に「指令・制御」を採用した。

しかし、水質浄化法とその要件及び条項に関する経験と専門知識に欠けるため、水質浄化法の施行は、いくつかの介入なしには不可能である。水質浄化法で新たに採用された概念と方法を実現する制度及び法律の枠組みがないことから、環境管理局（Environmental Management Bureau：EMB）が政策の枠組みと技術及び手続きのガイドラインを策定する必要がある。さらに、水質浄化法は、水質管理及びモニタリングにおいて、政府機関だけでなく地方自治体（Local Government Unit：LGU）、民間セクター、市民団体と協力・連携することを同局に義務づけており、これは EMB とその職員にとって完全に新しい体制である。EMB 地域事務所職員は、EMB 本部職員と同様に、水質浄化法の条項に関する研修の機会を与えられなければならない。

この状況で、フィリピン政府は日本政府に対し、水質浄化法を施行する環境天然資源省（Department of Environment and Natural Resources：DENR）の能力を強化する技術協力プロジェクトの実施を要請した。この要請に対し、JICA とフィリピン当局は継続的に調査と協議を行い、2005 年 10 月 24 日に、技術協力プロジェクト「水質管理能力強化プロジェクト」（以下、「プロジェクト」と記す）を実施することに合意した。プロジェクトは 2006 年 2 月、日本人専門家の到着とともに開始された。

１－２　協力内容

フェーズ 1（2006 年 1 月～2008 年 3 月）では EMB 本部事務所の能力強化を目的とし、フェーズ 2（2008 年 4 月～2011 年 1 月）では地域事務所の能力強化を目的とする。

(1) 上位目標

水質管理委員会主導の下で、企業、地方自治体（LGU）、その他の公共団体が、水質管理地域（WQMA）アクション・プランで定められた水質目標を達成するために必要な措置を取る。

(2) プロジェクト目標

水質浄化法施工規則に基づいて義務づけられる優先行動を実施する EMB 本部及び EMB 地域事務所の能力が強化される。

(3) 成果

1) 水質浄化法に基づく水質管理（WQM）の統合的な政策フレームワークが確立され、EMB 職員を対象とした適切な手続きガイドラインと研修が行われる。
2) EMB 本部事務所が地域事務所を指導・支援する能力が強化される。
3) WQMA 及び関連する各機関を設置し、支援する EMB 地域事務所の能力が 3 パイロット地域で強化される。
4) 水質管理における EMB 地域事務所の総合的能力が 3 パイロット地域で強化される。

(4) 投入（評価時点）

1) 日本側：

総投入額：	7.5 億円
長期専門家派遣：	3 名
短期専門家派遣：	6 名
機材投与：	研修、現地モニタリング・サンプリング、水質検査用機材
ローカルコスト負担：	なし
研修員受入：	4 名
その他：	なし

2) 相手国側：

カウンターパート配置：	26 名
機材購入：	なし
土地・施設提供：	事務所、会議室等
ローカルコスト負担：	会議費・交通費等
その他：	なし

２．評価調査団の概要

調査者

担当分野	氏　名	所　属
団　　長	岩上　憲三	JICA フィリピン事務所　次長
水質管理	今井　千郎	JICA 国際協力専門員
評価分析	井田　光泰	合同会社適材適所　コンサルタント
協力企画	桑江　直人	JICA フィリピン事務所　所員
協力企画	Mr. Kessy Reyes	JICA フィリピン事務所　プログラムオフィサー

調査期間	2010 年 9 月 17 日～10 月 9 日	評価種類：終了時評価

３．評価結果の概要

３－１　実績の確認

(1) 成果の達成状況

成果１：計画どおり達成された。達成度は以下のとおり。

指標１「水質目標、遵守期間、水質汚濁管理の戦略・技術、水質関連情報・教育、人材開発の諸点を特定した政策フレームワークの作成と普及」

水質管理の体系と各省庁・自治体の役割・責任を明示した「総合水管理フレームワーク」が DENR に最終版を提出済みであり、DENR からのコメントを受けて最終調整を行っている。

指標２「関連する手続きガイドラインの作成と普及」

計画どおり、すべてのガイドライン/マニュアルのドラフト版が作成された。主要手続きガイドラインのうち、既に 2 種類のガイドラインが最終承認を受けており、その他の成果品についても、最終改訂・調整か、既に DENR に最終版を提出して承認待ちの段階にある。

指標３「上記文書のトレーニング」

これまでに 4 回、年度末にオリエンテーション・ワークショップを開催し、累計で 870 名が参加した。

成果２：計画どおり達成された。達成度は以下のとおり。

指標１「パイロット地域の水質モデル、水質・汚濁源の検索機能を備えたデータベース、インターネット・ベースの情報・通信ネットワークが構築され、フィリピン初の国家水質報告書、パイロット地域以外に対する支援要請書が作成される」

高度なモデリング技術（使用ソフトウエアは廉価な WASP）を活用して、3 パイロット地域の水質管理地域アクション・プランが作成された。水質と汚染源のデータベースが構築され、試行を通してモジュール・入力フォーマットが改良された。ユーザーマニュアルも作成されている。

指標２「本部事務所への機材供与と訓練」

中央ラボに機材供与が行われ、EMB の中央ラボが主催する毎年のラボ職員研修で訓練が実施されている。

指標３「本部事務所が 3 パイロット地域で、効果的に水質浄化法の行政・技術手続きの実施を調整できる」

政策・制度面について、公聴会、水質管理委員会の会議、年次のオリエンテーション・ワークショップの機会を通して、本部事務所は地域事務所との連絡を密にとり、ガイドライン等成果品についてのフィードバックを受けたり、プロジェクトの進捗状況の説明、経験共有を行い、情報共有を図った。技術面についても水域類型指定や水質管理地域の指定などについて支援を行った。

成果３：計画どおり達成された。達成度は以下のとおり。

指標１「指定された水質管理地域で、委員会、技術事務局、マルチ・セクター・グループ（MSG)、地域水質基金の管理システム、連絡・報告システムが定められる」

ガイドラインでは水質管理地域の指定後、当該地域を管理する水質管理委員会が設置され、同委員会の策定するアクション・プランに沿って、水質管理の緒活動が実施される。パイロット事業として取り組んだ３つの水質管理地域では、関連ガイドラインが正式に承認される前（2008 年中半～後半）から過渡的な措置として、水質管理暫定委員会を立ち上げて、組織化を図った。ガイドラインが承認された直後、2009 年 11～12 月に、3 委員会が正式に設立された。

指標２「水質管理委員会により、水質管理地域のアクション・プランが策定される」

3 パイロット地域の水質管理委員会には、地方自治体、中央政府の地域事務所、NGO、大学、地元企業団体、水道公社、漁民代表、少数民族代表など、地域の関係組織から代表者（正・副代表）が正式な構成メンバーとして選任された（メンバー数は 21～25 名)。3 水質管理委員会とも技術事務局が設置されている。事務局には技術面、法律面、財務面などにそれぞれ対応する複数の有識者が必要。現時点で、第 6 地域の委員会は必要人員を満たしているが、第 3、第 12 の委員会は適切な人材を選定中である。また、3 水質管理委員会とも定期会合を開催し、会議後、事務局が議事録を作成し、関係機関に配布、次回の会合で前回の議事録を承認するという報告システムとなっている。これまでに、アクション・プランの策定と承認、水質モニタリングを実施するマルチ・セクター・グループ（MSG）を形成し、地域水質基金の管理システムの関連ガイドラインが改定中である。

成果４：ほぼ計画どおり達成された。達成度は以下のとおり。

指標１「パイロット地域で、主要汚染源が排水基準/排水課徴金制度、自己モニタリング等により管理され、点源・非点源汚濁汚染源データベース、排水課徴金の評価・徴収・会計システム、報償インセンティブ制度が整う」

各パイロット地域の地域事務所では、対象水質管理地域について既に主要汚染源のインベントリー調査を実施済みである。水質、汚染源に関するデータベースも既に運用されている（公害防止管理者に関するデータベースも作成済みで、現在、追加的な改良を行っている)。排水課徴金の評価・徴収・会計システム、報償インセンティブ制度については、現在、関連ガイドラインの正式承認待ちで、水質管理地域管理基金との関連性もあるため、承認後、ガイドラインに沿った運用が予定されている。

指標２「フィリピンで初の地域水質状況報告書が 3 パイロット地域で作成される」

ガイドラインに基づき、パイロット地域事務所（第 3、6、12）は各地域の水質状況報

告書を作成した。報告書は EMB のウェブサイトで公開されている。

(2) プロジェクト目標の達成状況

プロジェクト目標はほぼ達成された。

指標１「本部・地域事務所で、水質浄化法実施規則に沿った水質管理手続きの整備、研修による職員の手続き習熟、機材と情報システムの整備、パイロット地域での関連組織とのネットワークの構築が達成される」

本部事務所職員は、ガイドライン類の作成プロセスと水質管理地域での活動支援を通して、水質浄化法の運用手続きを熟知し、地域事務所に指導できるようになった。パイロット地域事務所も対象水域の特定から水質管理委員会の運営に至る一連のプロセスに関与することで、実施のノウハウを蓄積した。地域事務所と本部事務所を結ぶウェブ・ベースのデータベースも稼働している。

指標２「手続き理解、パイロット地域での水質管理活動のプロセスと経験共有を通して非パイロット地域の地域事務所職員の能力が高まる」

これまでに作成したすべての成果品がオリエンテーション・ワークショップで非パイロット地域事務所職員にも提供され、活用法について実践的な研修が実施済みであり、非パイロット地域事務所職員も水質浄化法の規定・運用方法について理解を深めた。

３－２　評価結果の要約

(1) 妥当性：高い

・プロジェクトの実施期間を通して水質管理の政策面に変化はなく、水質浄化法の運用実施は DENR-EMB にとって非常に優先度の高い課題であった。このため、本プロジェクトで掲げた水質浄化法とその実施規則の運用化は、DENR-EMB の優先課題と一致するものであった。

・フィリピンでは水質問題は深刻化している。2007 年に国際 NGO であるブラック・スミス・インスティチュートが発行した調査報告書によると、本プロジェクトのパイロット地域の 1 つであるメイカウアヤン市とマリラオ地域（第 3 地域事務所管轄）は、世界で最も汚染された 30 地域の 1 つに挙げられている。第 3 地域ではプロジェクト開始前から州政府が協議会を立ち上げて水質改善のための活動を行ったが、地方自治体や政府機関の地域事務所など関係組織を巻き込む制度的枠組みが弱く、十分に機能しなかった。このため、水質浄化法に基づく包括的な取り組みへの期待は高かった。第 6、第 12 地域でも、水質管理委員会の構成組織の水質問題への関心は高く、委員会への参加意欲も高い。また、対象水質管理地域のアクション・プランには、地方自治体の優先課題が包括されている。こうした点から、本プロジェクトは地元ニーズに応えたものであったと判断できる。

(2) 有効性：高い

・本プロジェクトの枠組みは、1)政策文書・ガイドライン類の作成、2)水質浄化法の求めるアプローチに沿った水質管理地域の成功例の提示、3)DENR 職員の全般的能力強化を通して、プロジェクト目標である「水質浄化法施行規則に基づいて義務づけられる優先

行動を実施する EMB 本部及び地域事務所の能力強化」を達成することであり、これら枠組みはプロジェクト目標を達成するために十分であり、プロジェクト目標はおおむね達成される見込みである。

(3) 効率性：高い

・プロジェクト活動は、おおむね計画どおり実施されている。今後の活動では、「非達成水域に関する手続きマニュアルの最終版」や「地方自治体の水質管理地域アクション・プランの履行・順守規定」等、最終段階にある作業を行う予定である。

・すべてのガイドライン/マニュアルのドラフト版が作成され、ガイドライン類は、パイロット地域での試行を通して現場の条件・環境に合致した適正なものであり、当初、想定した成果目標をほぼ満たしている。

・投入について、専門家の派遣期間と専門性は、プロジェクト全体の方針・管理を行ううえで、適切であった。本部・地域事務所のラボに供与された機材は、水質モニタリング・分析に活用されており、特に、第 12 地域事務所では機材供与により、大幅に検査環境が整備され、重金属など検査項目も増加した（プロジェクト開始前、検査できない項目については本部事務所ラボにサンプルを送っていたが、今では地域事務所ラボで検査が可能となった）。

・ローカルコンサルタントの投入について、フェーズ 1 では数多くのコンサルタントを雇上したこともあり、一部に期待どおりのパーフォーマンス・成果品が得られないケースがあったが、フェーズ 2 で必要な措置を取り、成果品の質を高めることができた。

(4) インパクト：中程度

次のようなインパクトの発現が見られることから、上位目標は達成が見込まれる。

・プロジェクトで作成されたガイドライン類に基づいて、水域類型と水質管理地域指定が進められている。EMB は、アルバイ湾（第 5 地域）、トレドーバランバン海岸域（第 7 地域）、マカハラール湾（第 10 地域）の 3 つの優先水域を特定し、さらに、16 の水域を水質管理地域候補として選定している。

・EMB では本プロジェクトの 3 パイロット地域を含めて、これまでに 6 つの水質管理地域の指定を行った。EMB が正式に水質管理地域を指定することで、ドナーの支援が得られやすくなるという促進効果も生まれている。具体的事例として、シルワイ川水質管理地域（第 12 地域）は、世界銀行が支援を開始している。

・本プロジェクトを契機として、EMB は各地域に少なくとも 1 つの水質管理地域を指定する方針を示し、指定された各地域には、毎年 100 万ペソの予算配分を行っている。非パイロット地域事務所職員は、オリエンテーション・ワークショップ等で基本的な研修を受講済みで、対象となる水質管理地域も特定されており、実施に非常に積極的である。本部事務所と 3 パイロット地域事務所の職員はこれまでの経験で、非パイロット地域事務所へのサポートが可能である。ローカルコンサルタントも経験を積んでいるため、水質管理基金が設置されれば、非パイロット地域への面的展開が推進されることが期待される。

・非パイロット地域事務所に対しては、データベース/情報システムの整備、プロジェクト

の成果品の共有、パイロット地域事務所での経験共有、実践的な研修といった支援が実施された。本プロジェクトを通して、非パイロット地域事務所は指定水質管理地域の取り組みを中心とした地域での水質管理について一定の知見を得た。今後は、実際の地域での取り組みを通して、実践的ノウハウを獲得していく必要がある。

(5) 持続性：中程度

＜政策・制度面＞

・プロジェクト期間を通して、水質浄化法とその実施規則の運用は、EMB の主要課題であり、継続的な政策面の支援が行われた。新政権の中期開発計画は 2010 年末に発表予定であるため、評価調査段階では、今後の政策面での継続性は明確でないが、大統領と環境天然資源省大臣は､水質管理の強化は政権の優先課題の 1 つであることを明言しており、EMB も大きな政策上の変更は想定していない。

・水質管理の総合政策フレームワークと水質管理基金の運用ガイドラインは最終調整段階にあるが、まだ正式承認に至っていない。フレームワークは、地域で関係組織の役割と責任を明示した文書（大統領令）であり、水質管理基金のガイドラインは非パイロット地域への普及を図るうえで不可欠である。これらの文書の正式承認が得られた段階で、プロジェクト成果の継続性が確保される。

＜組織・財政面＞

・EMB は全国に 16 の地域事務所をもつ。本プロジェクトは、非パイロット地域事務所への普及を考慮して、ルソン、ビサヤ、ミンダナオの 3 地方から 1 カ所ずつパイロット地域事務所を選定した。対象水質管理地域については、地理・社会経済条件を考慮して選定された。以上の点から、パイロット地域の選定は妥当であったと判断できる。

・3パイロット地域の水質管理委員会はまだ制度・組織的に発展段階にあるが、構成団体は委員会への参加が強化され、マルチ・セクター・グループが水質モニタリングを開始するなど活動レベルは高い。地域事務所も定例会議の準備・開催など対応できるようになり、事務局機能を強化しつつある。EMB は 2008 年より、各水質管理地域に 100 万ペソの予算配分を行っている。以上の点から、3 パイロット地域での活動の継続性は高いと判断できる。ただし、以下の点については、今後も継続的なモニタリングが必要である。

＜技術面＞

・水質管理地域アクション・プランの実効性を高めるためには、実施主体となる地方自治体がアクション・プランとその遵守を規定するスキームを正式承認する必要がある。地方自治体によるコンプライアンスを強化するための承認手続きは、今後の優先的な課題である。

・地域事務所は事務局機能を高めつつあるが、人員不足で事務局職員も複数の業務を兼任している。今後、水質管理地域の活動が拡大・展開するうえでは、業務が過重負荷となる可能性がある。また、現在、水質管理委員会はローカルコンサルタントがコーチ役として支援しているが、プロジェクト終了までに地域事務所がローカルコンサルタントの役割を果たす機能も付加する必要がある。

３－３　効果発現に貢献した要因

(1) 計画内容に関すること

1) 水質管理委員会/マルチ・セクター・グループ

本プロジェクトは、水質浄化法とその実施規則に示された水質管理委員会/マルチ・セクター・グループといった制度的枠組みを活用する実施アプローチを試行した。3 パイロット地域では、地元の関係者がイニシアティブをとり、水質管理委員会/マルチ・セクター・グループに地元のリソースを動員することに成功することで、アプローチの有効性を立証した。EMB は、各地域で水質管理を促進する役割を担うが、実際のインプット/リソース提供やアクション・プランの推進は地方自治体を中心とした地元の意思決定者であり、彼らのイニシアティブを引き出すためのツールを得たことは、水質浄化法の実効性を高めるうえで極めて重要な意味をもつ。

2) カウンターパートによる水質管理に必要なすべてのプロセスへの関与

EMB 本部事務所の職員は水域類型指定、水質管理地域指定、水質管理委員会の設置、アクション・プランの作成とその実施まですべてのプロセスに関与することで、政策文書・ガイドラインの策定・運用について十分な知見とノウハウを蓄積した。

(2) 実施プロセスに関すること

1) アプローチについての合意形成

プロジェクト開始時、EMB と専門家チームの間で、水質管理地域の範囲・定義について考え方の相違があった。この考え方を一致させることは、一連のガイドライン/マニュアル類を作成するうえで極めて重要であり、双方で継続的に議論を重ねて、最終的なコンセンサスを得ることとなった。この合意形成により、その後、意見のぶれなく、効率的に関連ガイドライン/マニュアル類の作成作業を進めることができた。

2) パイロット地域での活動展開

パイロット地域での活動はおおむね次のプロセスを通して進められた。①対象水質管理地域の指定、②公聴会で水質管理地域と未達成水域の説明、③ガイドラインに基づく水質管理委員会構成メンバーの選定、④委員会の定例開催による水質管理地域での活動の提案・承認。

委員会での決定に従い、これまでに水質管理地域のアクション・プランの作成・承認、水質管理地域の水質状況報告書の作成・承認、マルチ・セクター・グループの設置と同グループによる水質モニタリング計画の策定とモニタリングの開始等が実現した。

3) ローカルコンサルタントの役割

EMB にとって、水質管理地域での取り組みなど水質管理の具体的業務を支援できる良質なローカルコンサルタントの存在は重要である。本プロジェクトでは、ローカルコンサルタントを活用した。これにより、ローカルコンサルタントが EMB に対する技術面、組織制度面におけるサービス提供能力を向上させた。

３－４　問題点及び問題を惹起した要因

(1) 計画内容に関すること

なし

(2) 実施プロセスに関すること

なし

３－５　結論

本プロジェクトは、上記のとおり、終了時までに所期の目標を達成することが十分に見込まれる。評価の５項目の観点からもプロジェクトが適切に実施されたと評価する。

３－６　提言（当該プロジェクトに関する具体的な措置、提案、助言）

・プロジェクト終了後、EMB が外部からの技術支援はなく自立的に水質浄化法を運用できる必要がある。そのため、EMB 及び専門家チームはプロジェクト期間中に実施予定の技術支援を確実に完了するよう留意して、プロジェクトの目標を完全に達成することを提言する。
・プロジェクトで作成したガイドライン/マニュアル類の多くが DENR など上位機関の正式承認の段階にある。このため、DENR-EMB が承認手続きについて迅速な対応を図ることを提言する。
・本プロジェクトの 3 パイロット地域での活動は、水質管理委員会を拠点とした水質管理のモデルとして非パイロット地域への普及が期待される。3 パイロット地域での活動が拡大・発展することは水質浄化法の運用の有効性を立証するうえで極めて重要である。このため、EMB と JICA はプロジェクト終了後も継続的に 3 パイロット地域の水質管理委員会のパーフォーマンスをモニタリングし、必要に応じて彼らへの支援を行うことを提言する。
・現在、EMB 地域事務所は人員不足で、個々の職員が複数の担当を兼務することで業務に対応している。人員不足は、地域事務所が各地域で水質管理を主導するうえで大きな障害となっている。したがって、DENR-EMB は、地域事務所の業務の再編で効率化を図ると同時に地域事務所職員の増員に努めることを提言する。

３－７　教訓（当該プロジェクトから導きだされた、他の類似プロジェクトの発掘・形成、実施、運営管理に参考となる事項）

・技術協力プロジェクトでは、政策・運用規定などの枠組みを中央政府で構築し、パイロットサイトでその枠組みを試行するといったアプローチをとるケースが多い。本プロジェクトでは事業期間を、フェーズ分けして、フェーズ 1 でガイドライン類の整備を完成させ、フェーズ 2 でパイロットサイトにおけるガイドライン類の運用を行うというシナリオを明確にした。フェーズ 1 で集中的に運用ルールを整備したことで、遅延なくフェーズ 2 のパイロット活動に着手することができた。明確にフェーズ分けすることは、パイロット活動に十分な時間を確保するうえで有効な手段といえる。
・プロジェクトの 1 年目、水質管理地域の基本的アプローチや用語の定義について EMB と専門家チームの間に相違があったが、この相違を曖昧化せず、共通認識を得られるまで議論した。これにより、具体的な活動の過程で、成果品の内容についての認識ギャップが生じることなく、効率的に進めることができた。カウンターパートと専門家チームが、プロジェクトの目的や方向性、用語の定義、対象業務の範囲、成果品の仕様を初期段階で明確化することはプロジェクトの効率性を高めるうえで極めて重要である。

Summary of Final Evaluation

1. Outline of the Project		
Country: The Republic of the Philippines		Project title: Capacity Development Project on Water Quality Management
Issue/Sector: Environmental Management		Cooperation scheme: Technical cooperation
Division in charge: JICA Philippine Office		Total cost: 754Million Japanese Yen
Period of Cooperation	January 2006 – January 2011 (5 years)	Partner Country's Implementing agencies: DENR-EMB
		Supporting Organization in Japan: N/A
		Related Cooperation: N/A

1.1 Background of the Project

The activities for the economic growth have lead to the unsustainable exploitation of the environment in the Philippines, despite of 30 years effort of the Government of the Philippines. The constraints in budget and manpower for adequate sanitation, urban drainage, and pollution control have resulted in the degradation of surface as well as groundwater quality, which caused the adverse effect on public health, fisheries, and tourism. The enactment of the Clean Water Act (CWA) in 2004 is recognized as the dramatic shift in water quality management in the Philippines. The Act adopts various incentives mechanism and set of policy instruments were introduced to maximize economic efficiency and effectiveness of pollution control. Furthermore it adopted "command and control" in conventional water quality management.

However, due to the lack of the experience and expertise on the CWA and its requirements and provisions, the enforcement of the CWA is almost impossible without several interventions. The lack of the institutional and legal framework to materialize the concepts and methodologies, which were newly adopted in the Act, requires the Environmental Management Bureau (EMB) to develop policy frameworks and technical and procedural guidelines. Furthermore, the Act mandates the Bureau to cooperate and coordinate not only with government agencies but also with Local Government Units (LGUs), private sectors and civil society in the water quality management and monitoring, which is a totally new scheme for the EMB and its staff. The EMB Regional Office (RO) staff as well as the Central Office (CO) staff has to be provided with the training opportunities on the provisions of the Act.

In this context, the Government of the Philippines requested the Government of Japan to undertake a technical cooperation project to capacitate the Department to enforce the CWA. In response to the request, JICA and the Philippine authorities held continuous surveys and discussion, and agreed on October 24th, 2005, to implement the technical cooperation project "Capacity Development Project on Water Quality Management (hereinafter referred to as "the project"). The project was launched in February 2006 on the arrival of Japanese experts.

1.2 Project Overview

The target of the Phase I (January 2006 - March 2008) is the capacity enhancement of EMB CO, and the target of the Phase II (April 2008 – January 2011) is the capacity enhancement of EMB RO.

(1) Overall goal:

Under initiatives of the Water Quality Management Are (WQMA) Governing Boards (GBs), industries commercial entities, LGUs, and other public organizations take necessary actions for achieving the water quality goal established in the WQMA Action Plan.

(2) Project purpose:

Capabilities of EMB Central and regional offices to implement priority actions mandated under the CWA IRR are strengthened.

(3) Outputs:

1) Integrated policy framework for Water Quality Management (WQM) based on the CWA is established and supported by adequate procedural guidelines and training for EMB staff
2) Capacity of EMB central office to lead and support the regional offices is strengthened
3) Capability of EMB regional offices to establish and support WQMAs and related institutions is strengthened in three pilot regions
4) Overall capability of EMB regional offices in water quality management is strengthened in three pilot regions.

1.3 Input

Japanese side: (Total: 754 million Japanese Yen)

Experts: 3 long-term experts, 6 short-term experts
Equipment: Provision of laboratory equipment
Local consultants
Short-term training in Japan: 4 counterpart personnel

Philippine side:

Assignment of counterpart personnel: 26
Budget allocation for travel and transportation costs incurred for pilot activities
Allocation of office space and utility costs for Japanese expert team

2. Evaluation Team

Members of Evaluation Team	**Japanese members:** (1) Mr. Kenzo Iwakami, Senior Representative, JICA Philippine Office (2) Mr. Senro Imai, Senior Adviser (Environment), JICA Head Office (3) Mr. Naoto Kuwae, Representative, JICA Philippine Office (4) Mr. Kaneyasu IDA, Senior Consultant, Tekizaitekisho Organization (5) Mr. Kessy Reyes, Program Officer, JICA Philippine Office **Philippine members:** (1) Ms. Lilihua V. Garcia, Project Evaluation Officer, Project Monitoring and Evaluation Division, Foreign Assisted and Special Project Office, Department of Environment and Natural Resources (DENR) (2) Ms. Nenita R. Zabala, Policy Studies Division, DENR (3) Ms. Febes Melaya, Project Development and Evaluation Division, DENR	
Period of Evaluation	September 17 - October 9, 2010	Type of Evaluation : Final evaluation

3. Summary of Evaluation

3-1 Result of Cooperation

(1) Achievement at the Output level

The main achievements of the Project in accordance with the Project Design Matrix are as follows:

Output 1 is achieved as scheduled.

Indicator 1**:** Publication of the policy framework that clearly specifies: water quality goals and targets, period of compliance, water pollution control strategies and techniques, water quality information and education program, and human resource development program

- Final draft of Integrated Water Quality Management Framework (IWQMF), which specifies the framework of water quality management and roles and responsibilities of each national/local government agency, has been submitted to DENR. Final revision is now being made based on the comments from DENR.

Indicator 2: Publication and dissemination of the supporting procedural guidelines

- All necessary guidelines and manuals to operationalize WQM have been drafted. Two types of guidelines and manuals have been already officially approved. The other documents are at their very final stage of development (fine tuning or incorporating comments from higher authorities).

Indicator 3: Completed orientation-training programs on the policy framework and supporting procedures

- Orientation workshops were organized annually (four times). A cumulative total number of 870 CO/RO staff members including non-pilot regions were trained on policy framework and procedural guidelines and manuals.

Output 2 is achieved as scheduled

Indicator 1: Water quality model in pilot regions, operational water quality and pollution source database, internet-based information and communication network were established. The first national water quality status report was published, and project proposals to generate fund for non-pilot regions were prepared.

- Advanced modeling techniques were applied to develop WQMA action plans. Database on water quality and pollution sources has been devised and made operational through the modifications of modules and data formats. Also, user manuals have been produced.

Indicator 2: CO WQMS staff provided with equipment and trained in the use of equipment.

- Equipment was provided to EMB CO laboratory. Laboratory staff members have been trained through annual trainings conducted by EMB CO laboratory.

Indicator 3: CO effectively coordinating the implementation of CWA administrative and technical procures in the 3 pilot regions.

- EMB CO communicated and coordinated with ROs through regular meetings and conferences to receive feedback and keep the ROs updated on the outcomes and lessons learned from testing the guidelines in the pilot regions. EMB CO also assisted ROs in the technical matters such as identifying water bodies from classification and designation of WQMA.

Output 3 is achieved as scheduled.

Indicator 1: The WQMAs established have functional Governing Boards, Technical Secretariats, Multi-sectoral action groups, Area fund management system and Reporting system.

- According to the guidelines, after WQMA is designated, GB in charge of the WQMA will be established, and the water quality management activities will be implemented based on the action plans that the GB will formulate. The GB for three WQMAs began their meetings in mid or late 2008, and they were officially established in November-December 2009 right after the approval of guidelines.

Indicator 2: At least one WQMA in each pilot region is established with action plan prepared.

- Twenty one to twenty five members, representing LGUs, other line agencies, NGOs, Academics, local industries, water utility corporations, indigenous people were nominated as permanent GB members for the 3 WQMAs in the pilot regions. Technical Secretariat was established in each GB. In the secretariat, it is necessary for Technical Secretariats to have resources persons as members for each of technical/legal and financial aspects. At this moment, selection for appointment of appropriate personnel for the Technical Secretariat is being done for Region 3 and Region 12, while all the necessary resource persons have been appointed for Region 6. Also, all the 3 GB are holding regular meetings, and the minutes of meeting is prepared for each GB meeting, and then approved at the next GB meeting. So far, GBs formulated and approved action plans and established Multi-Sector Group (MSG) to implement the water quality monitoring activities. Guidelines on National and Area Water Quality Management Funds are now being revised.

Output 4 is almost achieved as scheduled

Indicator 1: Major point pollution sources in pilot regions are complying with the discharge permitting/charge system, including the SMR system, and supported by database of point and non-point sources, functional system for assessment, collection and accounting of pollution charges and reward/incentive system

- The ROs have conducted inventory of pollution sources within their WQMA. Database on WQ information is now operational (except the database on PCO which was established but needs some modification for use). The ROs will be able to strengthen enforcement activities once the guidelines on discharge permit and waste water charge system as well as WQMA fund guidelines are officially endorsed.

Indicator 2: First regional water quality status report for each of the 3 pilot regions published.

- Based on the guidelines, the pilot ROs (Region 3, Region 6 and Region 12) prepared the reports on water quality situation. These reports are disclosed on the website of EMB.

(2) Achievement at the Project Purpose level

Project Purpose is almost achieved

Indicator 1: EMB CO and 3 pilot ROs assisted by the Project are efficiently and effectively implementing their mandates under CWA IRR through adequate WQM procedures in conformity with CWA requirements, WQMS staff trained in WQM procedures, adequate equipment and information systems, and linkages with related WQM agencies and concerned stakeholders.

- The EMB CO has been well versed in the procedures and the whole process of WQMA under CWA. Three ROs have also obtained the knowledge and know-how on the whole process of operationalization of the CWA/IRR. The web-based database linking with regional offices is mostly operational. The EMB CO is able to provide necessary support to other non-pilot regions based on their experiences in the three regions.

Indicator 2: Capacity of the staff in charge of water quality management in non-pilot ROs is strengthened through participation in the learning process, in activities such as orientation/workshop conducted in the project, adequate understanding on the procedures and guidelines on the CWA enforcement, and familiarization with the experiences of 3 pilot regions on the WQMA designation and action planning through various types of communication

- All the procedural guidelines and manuals have been shared and disseminated to the regional offices at orientation workshops. The non-pilot regional offices have gained understandings on the procedural guidelines and manuals by participating in orientation workshops and management conferences regularly held by EMB CO.

3-2 Summary of Evaluation Results

(1) Relevance: High

- The direction of WQM was consistent during the Project duration. The operationalization of the CWA/IRR was one of the highly prioritized agendas. Therefore, the Project's objective and approach were clearly in consistent with the policy of DENR/EMB.
- Degradation of water quality is a quite serious issue in the Philippines. A study conducted by the Blacksmith Institute in 2007 listed Meycauayan City and Marilao (one of the three pilot sites in the Project) as one of the top thirty most polluted places in the world. In Region 3, the Provincial Government of Bulacan took initiatives to tackle the problem and formed a council. However, the magnitude of the problem was not addressed by the LGUs due to lack of institutional framework to involve stakeholders. In Regions 6 and 12, LGUs and other stakeholders are increasingly aware of the problem of the water quality in their areas. WQMA action plans developed by the Governing Boards have incorporated priority agendas of LGUs. Therefore, the Project's implementation approach and its scope are very much relevant to the local needs.

(2) Effectiveness: High

- The intended objective of the Project was to develop an enabling environment for the operationalization of WQMA under the CWA/IRR by (1) preparing guidelines on WQMA, (2) showcasing successful WQMA activities and (3) improving the EMB's overall capacity to facilitate WQMA activities. It is judged that the enabling environment has been well developed and entrenched as intended, and it is expected that the project purpose will be mostly achieved.

(3) Efficiency: High

- The Project activities were conducted almost as scheduled. The EMB and the Project Team will complete the remaining activities, which are currently at their final stage of development, such as final draft of Procedural Manual on Non-Attainment Area and WQMA Action Planning and LGU Compliance Scheme.
- All the guidelines and manuals have been drafted. The drafted guidelines and manuals have been or being pilot tested; therefore, the finalized versions will be suited to local conditions.
- Inputs from JICA were judged as effective based on the interviews and questionnaire survey. The equipment provided for the EMB CO and RO laboratories was well used for water sampling and analysis. Particularly, the capacity of the RO 12 laboratory has been significantly enhanced in terms of the number of parameters. (Before the implementation of the Project, ROs had to send samples to CO laboratory for some test items, but ROs themselves are now able to conduct testing of such items.)
- Most of the local consultants made good contributions. In the Phase I, among many local consultants employed, there were some cases where some local consultants failed to deliver expected performance/outputs. In the Phase II, remedial measures were taken and the quality of outputs was successfully improved.

(4) Impact: Moderate

The impacts recognized at the time of final evaluation are as follows, and it is expected that the Overall Goal will be achieved.

- The procedural guidelines developed under the Project are used to classify water bodies and designate WQMA. EMB CO identified three water bodies for classification in other regions (Albay Gulf in Region 5, Toledo - Balamban Coastal Waters in Region 7, Macajalar Bay in Region 10) for WQMA activity. In addition, EMB CO identified sixteen priority water bodies for WQMA designation.
- DENR has so far designated 6 WQMAs including three under the Project. Officially classified water bodies and designated WQMAs facilitated external assistance. For example, the Silway River WQMA is now supported by the World Bank.

- The EMB has set a policy to establish at least one WQMA for each region, and allocate budget of one million pesos annually for such regions which already have established WQMAs. All EMB regional offices have already been trained on the designation of WQMA and are very much willing to designate WQMAs. They have identified their candidate WQMA in their respective jurisdiction. The core members of the EMB CO, experienced in supporting and guiding the WQMAs in three regions are able to extend their support to non-pilot regions, utilizing the working knowledge of the staff members in the pilot regions and expertise of the local consultants. It is expected that WQMA implementation will be greatly facilitated when funds from the Government or other sources are made available.
- For non-pilot ROs, such activities as establishment of database/information systems, information sharing on the project outputs and experiences of the pilot ROs and practical trainings. Through the Project, the non-pilot ROs could obtain knowledge to some extent on the area water quality management especially the actions in the WQMAs. It is necessary to learn practical know-how through actual actions in the regions.

(5) Sustainability: Moderate

< Policy Aspect>

- Throughout the Project period, CWA and implementation of its IRR have been the priority agenda of EMB, and assistance in policy aspect continued. The new medium-term Philippine Development Plan is going to be publicized by the end of 2010. WQM is mentioned by the President and the DENR Secretary as the priority agenda of the current administration. It is unlikely the current policy direction would be significantly changed. At present, the policy support for the operationalization of the CWA/IRR is consistent.
- The integrated policy framework and the procedural guidelines for WQMA fund management are at the finalization stage, but have not been officially approved. The endorsements of these documents are indispensable to involve all the stakeholders in WQMA activities and scale up WQMA to other classified water bodies and WQMAs. Sustainability of the Project outcome will be ensured once these documents are officially approved.

<Institutional Aspect>

- The EMB has 16 ROs nation-wide. The selection of pilot regions was appropriate and effective because one site from Luzon, Visayas and Mindanao was selected to effectively disseminate and demonstrate outputs to other non-pilot regions. Also, the three WQMAs were selected in consideration of geographical conditions and socio0economic settings.
- Although the GBs in the pilot regions are at a rudimentary stage of organizational development, the organizational and institutional sustainability of GB and MSG activities are high as the member organizations are increasingly involved in GB meetings and MSG members are willing to conduct sampling activities. The regional offices are able to handle regular activities and logistic arrangements. Approximately 1 million pesos per WQMA is allocated from the EMB CO. The EMB CO and ROs need to monitor the following points (under Technical Aspect) in order to ensure the sustainability of the GB activities.

<Technical Aspect>

- LGUs need to officially endorse the compliance scheme in order to facilitate the implementation of WQMA Action Plan. Also, in order to strengthen the compliance, the approval process should be given a high priority.
- The regional offices are likely able to maintain their current functions to manage meetings and logistic arrangements. However, they are understaffed and they may be overloaded when WQMA activities are expanded. Also, currently, the GBs are closely coached by local consultants. The EMB ROs need to take over such a role after the end of the project duration.

3-3 Facilitation Factors

1. Planning Stage

(1) GB/MSG

The Project proves the effectiveness of the approach stipulated under the CWA/IRR to foster local initiative and mobilize local resources for WQM activities through the formation of GB and MSG. This is vitally important because actual implementation for WQM is a mandate of the LGU. Many of the participating LGUs in the three WQMAs have been committed to provide inputs for GB and MSG activities and implement prioritized WQMA action plans.

(2)Participation of counterparts in all the necessary processes for WQM

Staff of EMB CO accumulated enough knowledge and know-how on the formulation/operation of policy documents/guidelines through participation in the all processes of classification of water bodies, designation of WQMAs, establishment of GBs and formulation and implementation of action plans.

2. Implementation Process

(1) Consensus building on approach

At the very early stage of the Project, there were different ideas on the definition and scope of WQMA between the JICA technical assistance team and the EMB. This issue was critically important to develop procedural guidelines, and were continuously discussed and eventually, reached a consensus. After that, this helped them to develop procedural documents based on clear and common understanding.

(2) Process of activities in the pilot regions

The pilot activities were conducted through the following process in each region: (1) designation of the target WQMA, (2) organizing public hearing and presenting delineated WQMA and non-attainment areas, (3) nominating GB members based on guidelines and (4) organizing regular GB meetings to confirm progress and achievements and make decisions for next steps. Through this process, WQMA action plan and the first WQMA status report were produced, a MSG was formed and its WQ monitoring plan was developed and actual water quality monitoring started.

(3) Role of local consultants

It is very important for EMB to have local resources that can provide quality services for WQMA activities. The Project extensively utilized local consultants that constantly supported the EMB CO and the three ROs in technical aspects and institutional development. This helped enhance their capabilities to support the EMB.

3-4 Impeding Factors

(1) Planning Stage

none

(2) Implementation Process

none

3-5 Conclusion

As described above, it is expected that the scheduled project objective will be achieved before the completion of the Project. In the light of 5 project evaluation criteria, it is evaluated that the Project was properly implemented.

3-6 Recommendations

- The EMB and the JICA technical assistance team should ensure that the remaining tasks listed in 4-3 should be completed in order to fully accomplish the project's objectives so that the EMB will be able to operate without external technical assistance after the project duration.
- The joint evaluation team recommends that EMB and DENR should make their best effort to expedite the approval of the developed procedural guidelines and manuals.
- The GBs and their WQMA activities in three pilot regions are going to be used as the model for other non-pilot regions. The EMB and JICA should closely monitor their performance and extend support if necessary after the end of the project duration.
- Currently, the regional offices are understaffed and staff members are compelled to take multi-tasking functions. This negatively affects the roles of the regional offices to take the lead role in WQM. Therefore, it is recommended that EMB and DENR should make their best effort to increase the number of staff as well as align the functions of the regional office.

3-7 Lessons Learnt

- The project duration was divided in two phases. By the end of the Phase I, all the guidelines and manuals for WQMA had been drafted; therefore, the three EMB regional offices were able to start pilot activities as planned. This arrangement can be effective to secure a sufficient time for field operations.
- At an early stage of the project duration, there was a conceptual difference between the JICA technical assistance team and EMB on the definition and the scope of WQMA. Yet, after a series of discussions, they had a clear, common understanding. This helped them develop procedural documents based on the common understanding. Full mutual understanding between the counterpart organization and the

JICA technical assistance team on definitions, scope of work and specifications of outputs and deliverables is critically important to produce satisfactory results as well as to set common goals and directions.

第１章　評価の概要

１－１　評価の背景

JICA 技術協力プロジェクト「水質管理能力強化プロジェクト」（以下、プロジェクト）は、環境天然資源省（Department of Environment and Natural Resources : DENR）環境管理局（Environmental Management Bureau：EMB）によるフィリピン水質浄化法（Clean Water Act：CWA）の施行を支援するためのものである。プロジェクトは 2 つのフェーズに分けられている。フェーズ 1（2006 年 1 月～2008 年 3 月）では EMB 本部事務所の能力強化を目的とし、フェーズ 2（2008 年 4 月～2011 年 1 月）では地域事務所の能力強化を目的とする。フェーズ 2 の終了前に、JICA と DENR は、水質管理に関わる関係者の積極的参加におけるプロジェクトのこれまでの進捗と成果を見直す目的で、終了時合同評価チームを派遣した。

１－２　評価の目的

終了時評価の目的は次のとおりである。

(1) PDM に基づいてプロジェクトの進捗を見直し、5 つの評価基準（妥当性、有効性、効率性、インパクト、持続性）に従って成果を評価すること

(2) プロジェクトの実施を促進/妨害した要因を見出すこと

(3) プロジェクトで取るべき必要措置を検討し、提言を行うこと

(4) 合同評価報告書で研究結果を要約すること

１－３　評価の方法

評価は次のように実施された。

(1) 日本人・フィリピン人をメンバーとする合同評価チームが実施

(2) 以下の手段でデータ・情報を収集
- プロジェクトで作成された文書の調査
- 日本人専門員、EMB のカウンターパート（EMB 本部及び EMB 3 パイロット地域事務所）、プロジェクトに従事したローカルコンサルタント、その他の関係当局のインタビュー

(3) プロジェクトの達成度を評価

(4) 5 つの評価基準を用いて総合的成果を分析

基　準	定　　義
1. 妥当性	妥当性は、フィリピン政府の開発政策のほか、受益者のニーズと合致しているという点で、プロジェクト目標と上位目標の妥当性として言及される。
2. 有効性	有効性は、プロジェクトに予期される成果が計画どおり達成された場合と、プロジェクトの（外的要因の、ではなく）結果として成果が実現された場合について言及される。
3. 効率性	効率性は、実施プロセスの生産性と投入を望ましい成果へ転換する効率性を意味する。
4. インパクト	インパクトは、上位目標の達成が見込まれる範囲を含め、プロジェクトを実施することによって起こる直接的・間接的、肯定的・否定的インパクトを意味する。
5. 持続性	持続性は、プロジェクト期間の終了後、受け手側団体がプロジェクトの成果を持続させ、さらに発展させる見込みを意味する。プロジェクトの持続性の見通しは、受け手国の政策、技術、財政、組織の各側面を調べることによって判断される。

１－４　評価チームのメンバー

(1) 日本人チーム

担当分野	氏　名	所　　属
団　　長	岩上　憲三	JICA フィリピン事務所　次長
水質管理	今井　千郎	JICA 国際協力専門員
評価分析	井田　光泰	合同会社適材適所　コンサルタント
協力企画	桑江　直人	JICA フィリピン事務所　所員
協力企画	Mr. Kessy Reyes	JICA フィリピン事務所　プログラムオフィサー

(2) フィリピン人チーム

Ms. Lilihua V. Garcia（チームリーダー）	環境天然資源省（DENR） 海外援助特別事業事務所 プロジェクトモニタリング・評価課 プロジェクト評価オフィサー
Ms. Nenita R. Zabala	環境天然資源省（DENR） 政策研究課
Ms. Febes Melaya	環境天然資源省（DENR） プロジェクト開発・評価課

１－５　評価調査日程

本調査は、2010 年 9 月 17 日から 10 月 9 日の期間で実施した。詳細は、以下のとおり。

	日　付		活　　動
1	9月17日	金	評価分析団員：日本→マニラ 15：00～16：00　JICA フィリピン事務所打合せ
2	9月18日	土	評価グリッド修正
3	9月19日	日	評価グリッド修正
4	9月20日	月	文書作成
5	9月21日	火	10：00　環境省表敬 13：00　JICA 専門家打合せ
6	9月22日	水	9：00　JICA 専門家打合せ 12：30～13：30　JICA 本部との TV 会議（評価グリッド確認） 15：00　ローカルコンサルタントへのインタビュー（Wood Field Consultants）
7	9月23日	木	マニラ→ジェネラル・サントス 午後　水質管理区域運営評議会表敬（第 12 地域ジェネラル・サントス）
8	9月24日	金	10：00　環境天然資源省環境管理局地域事務所インタビュー（第 12 地域ジェネラル・サントス
9	9月25日	土	ジェネラル・サントス→マニラ 午後　文書作成
10	9月26日	日	文書作成
11	9月27日	月	10：00　環境天然資源省環境管理局協議 午後　　環境天然資源省環境管理局インタビュー
12	9月28日	火	9：30　環境天然資源省環境管理局地域事務所インタビュー（第 3 地域） 午後　　現地視察（Marilao, Meycauayan, Obando） 15：00　ローカルコンサルタントへのインタビュー（CEST Inc）
13	9月29日	水	マニラ→イロイロ 10：00　水質管理区域運営評議会表敬（第 6 地域）
14	9月30日	木	9：30　環境天然資源省環境管理局地域事務所インタビュー（第 6 地域） イロイロ→マニラ
15	10月1日	金	9：00　環境天然資源省環境管理局インタビュー 14：00　ローカルコンサルタントへのインタビュー（Innogy Solution）
16	10月2日	土	文書作成
17	10月3日	日	文書作成
18	10月4日	月	文書作成
19	10月5日	火	9：00　評価報告書案作成 14：00　評価報告書協議
20	10月6日	水	9：00　評価報告書案作成 14：00　評価報告書協議
21	10月7日	木	9：00　評価報告書作成 15：00　評価報告書概要説明（JICA フィリピン事務所） 17：00　評価報告書概要説明（環境天然資源省環境管理局）
22	10月8日	金	9：30　合同調整委員会（JCC） 午後　　在フィリピン日本大使館報告、JICA フィリピン事務所報告
23	10月9日	土	評価分析団員帰国

第２章　プロジェクトの概要

２－１　プロジェクトの背景

経済成長に向けた活動は、フィリピン政府の 30 年間にわたる努力にもかかわらず、十分な衛生設備、都市排水、汚染防止に対する予算と人的資源に制約があった結果、表流水に加えて地下水も水質が低下し、これは公衆衛生、漁業、観光業に悪影響を及ぼした。

2004 年の水質浄化法（CWA）の制定は、フィリピンの水質管理における劇的な転換と認識されている。同法は、さまざまなインセンティブメカニズムを採用し、汚染防止の経済効率と有効性を最大限とする一連の政策手段を導入したほか、従来の水質管理に「指令・制御」を採用した。

しかし、水質浄化法とその要件及び条項に関する経験と専門知識に欠けるため、水質浄化法の施行は、いくつかの介入なしには不可能である。同法で新たに採用された概念と方法を実現する制度や法律の枠組みがないことから、環境管理局（EMB）が政策の枠組みと技術及び手続きのガイドラインを策定する必要がある。さらに、同法は、水質管理及びモニタリングにおいて、政府機関だけでなく地方自治体（LGU）、民間セクター、市民団体と協力・連携することを EMB に義務づけており、これは EMB とその職員にとって新しい体制である。EMB 地域事務所職員は、EMB 本部職員と同様に、同法の条項に関する研修の機会を与えられなければならない。

この状況で、フィリピン政府は日本政府に対し、水質浄化法を施行する省の能力を強化する技術協力プロジェクトの実施を要請した。

この要請に対し、JICA とフィリピン政府は継続的に調査と協議を行い、2005 年 10 月 24 日に、技術協力プロジェクト「水質管理能力強化プロジェクト」を実施することに合意した。プロジェクトは 2006 年 2 月、日本人専門家の到着とともに開始された。

プロジェクトは 2 つのフェーズに分けられている。フェーズ 1（2006 年 1 月～2008 年 3 月）では、EMB 本部事務所の能力強化を目的とし、フェーズ 2（2008 年 4 月～2011 年 1 月）では、地域事務所の能力強化を目的とする。

２－２　プロジェクトの概要

(1) 上位目標

水質管理委員会主導の下で、企業、地方自治体、その他の公共団体が、水質管理地域（WQMA）アクション・プランで定められた水質目標を達成するために必要な措置を取る。

(2) プロジェクト目標

水質浄化法施行規則に基づいて義務づけられる優先行動を実施する EMB 本部及び地域事務所の能力が強化される。

(3) 成果

1) 水質浄化法に基づく水質管理（WQM）の統合的な政策フレームワークが確立され、EMB 職員を対象とした適切な手続きガイドラインと研修が行われる。
2) EMB 本部事務所が地域事務所を指導・支援する能力が強化される。
3) WQMA 及び関連する各機関を設置し、支援する EMB 地域事務所の能力が 3 パイロット地域で強化される。

4) 水質管理における EMB 地域事務所の総合的能力が 3 パイロット地域で強化される。

第３章　プロジェクトの実績

３－１　投入実績

(1) 日本側

1) 専門家

合計で 3 名の長期専門家と 6 名の短期専門家が派遣され、技術面と EMB の能力強化を支援した。全体の派遣期間合計は 140 カ月間。長期専門家は、年複数回、EMB をベースに長期滞在し（3 カ月以上）、短期専門家は 1 カ月間ほど、特定分野で技術面の指導を行った。専門家の詳細な派遣実績については付属資料１．ミニッツ Annex 2 を参照。また、プロジェクト全般の助言を行うため、アドバイザー（JICA 専門員）が、年 3 回、各回 2～3 週間派遣された。

2) ローカルコンサルタント

JICA は、ローカルコンサルタントのチーム（2006 年度から 2010 年度までに合計 459.1 人/月）を活用し、専門作業部会、意見聴取会、オリエンテーション・ワークショップの実施の運営費とコンサルタントの報酬、交通費等を負担した。詳細は、付属資料１．ミニッツ Annex 3 を参照のこと。

3) 研修員受入れ

合計 4 名の EMB カウンターパートが 2 回の短期研修コース（水質管理運営及びアジア諸国における水質環境に関する政府の能力強化）に参加した。詳細は、付属資料１．ミニッツ Annex 4 を参照のこと。

4) 機材

研修、現地モニタリング・サンプリング、及び水質検査のための機材が、主にプロジェクトのフェーズ 1 で供与された。EMB 中央ラボと 3 パイロット地域事務所のラボに対して、特に整備が遅れている第 12 地域事務所ラボに多くの分析機材が提供された。詳細は、付属資料１．ミニッツ Annex 5 を参照のこと。

(2) フィリピン側

1) プロジェクト・カウンターパート

2006 年以降、EMB 本部事務所及び 3 パイロット地域事務所から、パイロット水質管理地域活動を担当する EMB 職員が合計 26 名（本部事務所から 19 名、地域事務所から 7 名）、プロジェクト・カウンターパートとして配置されている。カウンターパート人員のリストは、付属資料１．ミニッツ Annex 6 を参照のこと。

2) プロジェクト運営費

EMB（フィリピン側）は、執務室、会議室、テーブル、椅子、通信（電話、ファックス機）、設備/機器の維持費、光熱費などの施設を提供した。さらに EMB は、意見聴取会、関係者会議、オリエンテーション・ワークショップなど、特に地域レベルでのプロジェクト活動の実施に必要なカウンターパートの交通費（ガソリン代、航空運賃）を負担している。

３－２　活動の実績

フェーズ 1 期間中の重点的な活動は、手続きガイドライン/マニュアルの文書化と文書化に必要

な調査であった。フェーズ 2 では、3 パイロット地域における水質管理地域活動の運用化及びその実施と、策定済みガイドライン/マニュアルのパイロット活動の実施を通して得た経験に基づく修正・微調整へと重点が移った。プロジェクト活動の詳細は、付属資料１．ミニッツ Annex 7 を参照のこと。

パイロット地域の概況

地域事務所	地方	水質管理地域の名称	対象規模
第 3 地域事務所	ルソン	マリラオ・メイカウアヤン・オバンド河川システム水質管理地域（通称：MMORS）	面積：280Km^2 人口：2,200,000
第 6 地域事務所	ビサヤ	イロイロ・バティアノ河川システム水質管理地域（通称：IBRS）	面積：100Km^2 人口：310,000
第 12 地域事務所	ミンダナオ	サランガニ湾水質管理地域	面積：400Km^2 人口：580,000

３－３　成果の実績

(1) 成果の達成状況

成果１：計画どおり達成された。達成度は以下のとおり。

指標１「水質目標、遵守期間、水質汚濁管理の戦略・技術、水質関連情報・教育、人材開発の諸点を特定した政策フレームワークの作成と普及」：水質管理の体系と各省庁・自治体の役割・責任を明示した「総合水管理フレームワーク」が DENR に最終版を提出済みであり、同省からのコメントを受けて最終調整を行っている。

指標２「関連する手続きガイドラインの作成と普及」：計画どおり、すべてのガイドライン/マニュアルのドラフト版が作成された。主要手続きガイドラインのうち、既に 2 種類のガイドラインが最終承認を受けており、その他の成果品についても、最終改訂・調整が既に DENR に最終版を提出して承認待ちの段階にある。

指標３「上記文書のトレーニング」：これまでに 4 回、年度末にオリエンテーション・ワークショップを開催し、累計で 870 名が参加した。

成果２：計画どおり達成された。達成度は以下のとおり。

指標１「パイロット地域の水質モデル、水質・汚濁源の検索機能を備えたデータベース、インターネット・ベースの情報・通信ネットワークが構築され、フィリピン初の国家水質報告書、パイロット地域以外に対する支援要請書が作成される」: 高度なモデリング技術（使用ソフトウエアは廉価な WASP）を活用して、3 パイロット地域の水質管理地域アクション・プランが作成された。水質と汚染源のデータベースが構築され、試行を通してモジュール・入力フォーマットが改良された。ユーザーマニュアルも作成されている。

指標２「本部事務所への機材供与と訓練」：中央ラボに機材供与が行われ、EMB の中央ラボが毎年主催するラボ職員研修で訓練が実施されている。

指標３「本部事務所が 3 パイロット地域で、効果的に水質浄化法の行政・技術手続きの実施を調整できる」：政策・制度面について、公聴会、水質管理委員会の会議、年次のオリエンテーション/ワークショップの機会を通して、本部事務所は地域事務所との連絡を密にと

り、ガイドラインなど成果品についてのフィードバックを受けたり、プロジェクトの進捗状況の説明、経験と、情報の共有を図った。技術面についても水域類型指定や水質管理地域の指定などについて支援を行った。

成果３：計画どおり達成された。達成度は以下のとおり。

指標１「指定された水質管理地域で、委員会、技術事務局、マルチ・セクター・グループ、地域水質基金の管理システム、連絡・報告システムが定められる」：ガイドラインでは水質管理地域の指定後、当該地域を管理する水質管理委員会が設置され、同委員会の策定するアクション・プランに沿って、水質管理の緒活動が実施される。パイロット事業として取り組んだ 3 パイロット水質管理地域では､関連ガイドラインが正式に承認される前(2008 年中半～後半）から過渡的な措置として、水質管理暫定委員会を立ち上げて、組織化を図った。ガイドラインが承認された直後、2009 年 11 月～12 月に、3 水質管理委員会が正式に設立された。

指標２「水質管理委員会により、水質管理地域のアクション・プランが策定される」：3 パイロット地域の水質管理委員会には、地方自治体、中央政府の地域事務所、NGO、大学、地元企業団体、水道公社、漁民代表、少数民族代表など、地域の関係組織から代表者（正・副代表）が正式な構成メンバーとして選任された（メンバー数は 21～25 名)。3 水質管理委員会とも技術事務局が設置されている。事務局には技術面、法律面、財務面などにそれぞれ対応する複数の有識者が必要。現時点で、第 6 地域の委員会は必要人員を満たしているが、第 3、第 12 の委員会は適切な人材を選定中である。また、3 水質管理委員会とも定期会合を開催し、会議後、事務局が議事録を作成し、関係機関に配布、次回の会合で前回の議事録を承認するという報告システムとなっている。これまでに、アクション・プランの策定と承認、水質モニタリングを実施するマルチ・セクター・グループを形成し、地域水質基金の管理システムの関連ガイドラインが改定中である。

成果４：ほぼ計画どおり達成された。達成度は以下のとおり。

指標１「パイロット地域で、主要汚染源が排水基準/排水課徴金制度、自己モニタリング等により管理され、点源・非点源汚濁汚染源データベース、排水課徴金の評価・徴収・会計システム、報償インセンティブ制度が整う」：各パイロット地域事務所では、対象水質管理地域について既に主要汚染源のインベントリー調査を実施済みである。水質、汚染源に関するデータベースも既に運用されている（公害防止管理者に関するデータベースも作成済みで、現在、追加的な改良を行っている)。排水課徴金の評価・徴収・会計システム、報償インセンティブ制度については、現在、関連ガイドラインの正式承認待ちで、水質管理地域管理基金との関連性もあるため､承認後､ガイドラインに沿った運用が予定されている。

指標２「フィリピンで初めての地域水質状況報告書が 3 パイロット地域で作成される」：ガイドラインに基づき、パイロット地域事務所（第 3、6、12）は、各地域の水質状況報告書を作成した。報告書は EMB のウェブサイトで公開されている。

(2) プロジェクト目標の達成状況

プロジェクト目標は、ほぼ達成された。

指標１「本部・地域事務所で、水質浄化法と施行規則に沿った水質管理手続きの整備、研修による職員の手続き習熟、機材と情報システムの整備、パイロット地域での関連組織とのネットワークの構築が達成される」：本部事務所職員は、ガイドライン類の作成プロセスと水質管理地域での活動支援を通して、水質浄化法の運用手続きを熟知し、地域事務所に指導できるようになった。パイロット地域事務所も対象水域の特定から水質管理委員会の運営に至る一連のプロセスに関与することで、実施ノウハウを蓄積した。地域事務所と本部事務所を結ぶウェブ・ベースのデータベースも稼働している。

指標２「手続き理解、パイロット地域での水質管理活動のプロセスと経験共有を通して非パイロット地域の地域事務所職員の能力が高まる」：これまでに作成したすべての成果品がオリエンテーション/ワークショップで非パイロット地域事務所職員にも提供され、活用法について実践的な研修が実施済みであり、非パイロット地域事務所の職員も水質浄化法の規定・運用方法について理解を深めた。

３－４　実施プロセス

(1) フェーズ 1

1) 実施戦略

本プロジェクトのプロジェクト目標と成果目標に沿った活動は 40 項目（フェーズ 2 のパイロット活動関連を含む)、本プロジェクトの枠組みに沿った水質浄化法の運用に必要な政策文書やガイドライン/マニュアル類は 20 以上におよぶ。このため、多岐にわたる活動項目の重複を避け、効率的な実施を行うために活動タイプに応じて 40 の活動項目を 9 つのグループに分類して、それぞれのグループごとに EMB のカウンターパート、ローカルコンサルタント、専門家チームの担当者を配置した。

2) 文書化

本プロジェクトでは、おおむね次のようなプロセスを経て、主要ガイドライン/マニュアル類が作成された。①業務指示書の作成とローカルコンサルタントの選定、②キックオフミーティングの開催と業務内容の確認、③当該ガイドライン/マニュアル作成に必要な調査の実施と草案の作成、④関連機関を招いて技術作業部会の開催と初版の作成、⑤EMB による初版のレビュー、⑥ルソン、ビサヤ、ミンダナオの 3 地方における一般公聴会の開催、⑦初版の見直しと改訂版の作成、⑧オリエンテーション/ワークショップで地域事務所への説明（特に改訂版を施行した場合に想定される現場との乖離・ギャップの特定)、 ⑨地域事務所からのコメント集約、⑩最終調整と最終版の作成。

このプロセスを通して、本部事務所のカンターパート職員は、ガイドライン/マニュアルと他の関連法規・規定文書との一貫性・補完性の検証、曖昧な用語の定義・内容の明確化、現場での運用可能性・妥当性の検証といった作業を行い、ガイドライン類作成について経験を蓄積した。また、地域事務所のカウンターパート職員は、本部事務所からガイドライン類の作成過程・進捗状況について継続的に情報を得ると同時に、公聴会、コンサルテーション/ミーティング、オリエンテーション/ワークショップ等で、現場の視点からコメントを挙げることで、ガイドラインの質の向上に貢献した。特に、3 パイロット地域事務所

は、パイロット活動を通して得られた経験から積極的にコメントを付した（ガイドラインの要求項目に見られる現場で運用の困難なポイントの指摘など)。具体的な 3 パイロット地域事務所による貢献については付属資料 1．ミニッツ Annex 9 を参照。

3) アプローチについての合意形成

当初、EMB と専門家チームの間で、水質管理地域の範囲・定義について考え方の相違があった。この考え方を一致させることは、一連のガイドライン/マニュアル類を作成するうえで極めて重要であり、双方で継続的に議論を重ねて、最終的なコンセンサスを得ることとなった。この合意形成により、その後、意見のぶれなく、効率的に関連ガイドライン/マニュアル類の作成作業を進めることができた。

(2) フェーズ 2

1) パイロット地域の開始

フェーズ 1 の終了時点で、水質管理地域での活動を推進するための関連ガイドライン類は既にドラフトが作成済みであった。このため、パイロット地域事務所は、フェーズ 2 の開始時から遅延なく計画どおりに活動に着手することができた。水質管理地域ごとに本部事務所と地域事務所に担当者（フォーカル・パーソン）を配置して、現場での活動の促進・調整を図る体制を取った。また、現場での技術支援、情報システム導入、制度開発を強化するためにローカルコンサルタントが活用された。

水質管理委員会の立ち上げ時、まだ水質管理地域は省令で公的に承認されていなかったが、構成組織は代表を委員会に参加させ、暫定委員会としてスタートした。マリラオ・メイカウアヤン・オバンド河川システム水質管理地域（MMORS）水質管理委員会の場合は、構成組織の実施意欲が非常に高く、水質管理地域の指定に関するガイドラインの承認前から委員会を立ち上げて活動に着手した。

2) パイロット地域での活動展開

パイロット地域での活動はおおむね次のプロセスを通して進められた。①対象水質管理地域の指定、②公聴会で水質管理地域と未達成水域の説明、③ガイドラインに基づく水質管理委員会構成メンバーの選定、④委員会の定例開催による水質管理地域での活動の提案・承認。委員会での決定に従い、これまでに水質管理地域のアクション・プランの作成・承認、水質管理地域の水質状況報告書の作成・承認、マルチ・セクター・グループの設置と同グループによる水質モニタリング計画の策定とモニタリングの開始等が実現した。水質管理委員会の構成メンバーは 21～25 名、議長は EMB 地域事務所長が務め、地域事務所スタッフが事務局を担当している。

第４章　評価結果

４－１　妥当性

プロジェクトの妥当性：高い

(1) プロジェクトの実施期間を通して水質管理の政策面に変化はなく、水質浄化法（CWA）の運用実施は DENR-EMB にとって非常に優先度の高い課題であった。このため、本プロジェクトで掲げた水質浄化法とその実施規則の運用化は、DENR-EMB の優先課題と一致するものであった。

(2) フィリピンでは水質問題は深刻化している。2007 年に国際 NGO であるブラック・スミス・インスティチュートが発行した調査報告書によると、本プロジェクトのパイロット地域の 1 つであるメイカウアヤン市とマリラオ地域（第 3 地域事務所管轄）は、世界で最も汚染された 30 地域の 1 つに挙げられている。第 3 地域ではプロジェクト開始前から州政府が協議会を立ち上げて水質改善のための活動を行ったが、地方自治体や政府機関の地域事務所など関係組織を巻き込む制度的枠組みが弱く、十分に機能しなかった。このため、水質浄化法に基づく包括的な取り組みへの期待は高かった。第 6、第 12 地域でも、水質管理委員会の構成組織の水質問題への関心は高く、委員会への参加意欲も高い。また、対象水質管理地域のアクション・プランには、地方自治体の優先課題が包括されている。こうした点から、本プロジェクトは地元ニーズに応えたものであったと判断できる。

４－２　有効性

プロジェクトの有効性：高い

本プロジェクトの意図は、①政策文書・ガイドライン類の作成、②水質浄化法の求めるアプローチに沿った水質管理地域の成功例の提示、③EMB 職員の全般的能力強化を通して、水質浄化法とその実施規則の運用を可能とする体制・環境を整備することであった。以下の点から、プロジェクトの意図した水質浄化法運用のための体制・環境の整備は十分達成されたと判断できる。

(1) 水質管理地域での取り組みに必要なすべての政策文書とガイドライン類が整備された。ガイドライン類はパイロット地域での試行を経て改訂された、現場で活用できる実践的な内容である。このため、全国各地で水質管理地域を対象とした水質管理の取り組みが可能となった。

(2) 3 パイロット水質管理地域は、それぞれのアクション・プランに沿って既に活動に着手しており、地方自治体など地域の意思決定者を巻き込んだ先進事例として認知されている。現在、EMB では全国で 16 の水域を水質管理地域指定の候補として選定しており、先進事例での経験とノウハウを生かして全国的な展開が可能となった。

(3) EMB 本部と 3 パイロット地域事務所職員は、水質浄化法とその実施規則を運用するために十分な経験と知識を習得しており、本プロジェクトで育成した中心メンバーは、外部からの技術支援なしでも水質管理地域の全国展開を担うことができる。2010 年、専門家チームは、

本部事務所、パイロット地域事務所、非パイロット地域事務所の職員に対する 能力アセスメントを実施した。この結果によれば、2006 年時の能力と比較して、本部事務所・パイロット地域事務所の職員は、制度・組織・個人レベルで高い能力向上が認められた（付属資料１．ミニッツ Annex 10）。

本プロジェクトによるその他の事業効果として次の点を挙げることができる。

(4) 本プロジェクトは、水質浄化法とその実施規則に示された水質管理委員会/マルチ・セクター・グループといった制度的枠組みを活用する実施アプローチを試行した。3 パイロット地域では、地元の関係者がイニシアティブをとり、地元のリソースを動員することに成功することで、アプローチの有効性を立証した。EMB は、各地域で水質管理を促進する役割を担うが、実際のインプット/リソース提供やアクション・プランの推進は地方自治体を中心とした地元の意思決定者であり、彼らのイニシアティブを引き出すためのツールを得たことは、水質浄化法の実効性を高めるうえで極めて重要な意味をもつ。

(5) 本プロジェクトでは、フィリピンの経験に基づく高度なモデリング技術を利用した総合的な水質管理のアプローチを採用した。産業別排出基準は実際の製造過程と処理技術のデータに基づき作成された適正基準であり、実効性が高い。

(6) EMB にとって、水質管理地域での取り組みなど水質管理の具体的業務を支援できる良質なローカルコンサルタントの存在は重要である。本プロジェクトでは、ローカルコンサルタントを活用した。これにより、ローカルコンサルタントが EMB に対する技術面、組織制度面におけるサービス提供能力を向上させた。

４－３　効率性

プロジェクトの効率性：高い

次の視点から、インプットに対する成果の達成状況は良好と判断できる。

(1) すべてのガイドライン/マニュアルのドラフト版が作成された。既に 2 種類のガイドラインが最終承認を受けており、その他の成果品についても、最終改訂・調整か、既に DENR に最終版を提出して承認待ちの段階にある。作成したガイドライン類は、パイロット地域での試行をとおして現場の条件・環境に合致した適正なものであり、当初、想定した成果目標をほぼ満たしている。

(2) EMB 本部事務所の職員は水域類型指定、水質管理地域指定、水質管理委員会の設置、アクション・プランの作成とその実施まですべてのプロセスに関与することで、政策文書・ガイドラインの策定・運用について十分な知見とノウハウを蓄積した。

(3) 3 つのパイロット地域での水質管理委員会やマルチ・セクター・グループの活動を通して、地方自治体、政府機関の地域事務所、大学、市民社会、企業など広範な関係者を水質管理に

巻き込むことに成功している。

評価調査チームによる質問票・インタビュー調査結果によれば、EMB 本部事務所、3 パイロット地域事務所ともに、プロジェクトの成果・プロジェクト目標の達成度は 80～100%と回答している（地域事務所については付属資料１．ミニッツ　Annex 9 参照）。EMB と専門家チームは、プロジェクト終了までに、最終段階にある以下の作業を完了させる見込みである。

・非達成水域に関する手続きマニュアルの最終版
・地方自治体の水質管理地域アクション・プランの履行・遵守規定
・アクション・プランニングのための参考マニュアル
・水域類型指定ガイドラインの最終版
・データベースの追加的改善（公害防止管理者リストのデータベースとのリンク）
・水質管理基金（ナショナルレベルと地域対象）ガイドライン
・排水管理に関する政策文書の最終版
・水質管理に関する広報・教育成果品
・3 パイロット水質管理地域の水質状況報告書の最終版
・水質モニタリングに関する地域協力ガイドラインの最終版

EMB は全国に 16 の地域事務所をもつ。本プロジェクトは、非パイロット地域事務所への普及を考慮して、ルソン、ビサヤ、ミンダナオの 3 地方から 1 カ所ずつパイロット地域事務所を選定した。対象水質管理地域については、地理・社会経済条件を考慮して選定された。以上の点から、パイロット地域の選定は妥当であったと判断できる。

水質管理基金関連など一部の活動を除き、本プロジェクトの進捗はほぼ当初計画どおりであった。主な促進要因は以下のとおり。

(4) プロジェクトの開始時に専門家チームと EMB の間で、水質管理地域の指定方法や用語定義について議論を重ねて共通認識を得たことで、その後の活動を効率的に進めることができたこと（３－２実施プロセス参照）。

(5) 40 の活動項目を効率的に実施するために､活動タイプ別に 9 つのグループを構成したこと。これにより、さまざまな活動を効率的に管理・モニタリングすることが可能となった。

(6) プロジェクトをフェーズ 1 とフェーズ 2 に区分したこと。特に、フェーズ 1 の終了時までにパイロット活動に必要な成果品の作成に注力したことで、フェーズ 2 の開始時からパイロット地域事務所の活動に着手できたこと。

(7) ガイドライン/マニュアル類の作成とパイロット活動にローカルコンサルタントを活用したこと（地域事務所への質問票・インタビュー結果によれば、ローカルコンサルタントの活用が極めて重要な促進要因であったと回答している）。

(8) パイロット活動を促進するためにEMB本部・地域事務所それぞれに担当者（フォーカル・パーソン）を任命・配置して、EMB本部・地域事務所の担当者間の連絡・連携を促したこと。

(9) パイロット地域では非常に強い地元ニーズがあったこと。特に第3地域では、2008年12月、関係機関が連携してマニラ湾の環境改善に取り組むべきとの最高裁判所の命令が下された。この決定は、マニラ湾につながる河川を管轄する第3地域の政府機関と地方自治体による協力を促進する外的要因（プレッシャー）となった。

(10) 定期的にJICAアドバイザーが派遣され、プロジェクトの節々で助言を行ったこと。

当初、水質管理基金関連のガイドラインでは、基金の性格としてリボルビング・ファンドを想定していたが、財務局の財政管理の方針との食い違いがあり、DENR-EMBは、基金の管理・運用の方針・方法について、さまざまな課題をクリアする必要があった。ガイドラインの位置づけも、当初は財務局とDENRの合同覚え書を想定してドラフトを作成したが、財務局の示唆を受けて省令に変更することとなり、ガイドラインの内容を再度検討するなど、ドラフトの版を重ねることとなった。水質管理基金関連のガイドラインが未承認であったため、基金と連動して運用が予定されていた課徴金制度など、プロジェクト期間内での実施ができなかった。

質問票・インタビュー調査によれば、JICAの投入は効果的であったと判断できる。具体的には、専門家及びJICAアドバイザーの派遣期間と専門性はプロジェクト全体の方針・管理を行ううえで、適切かつ満足できるものだったと回答している。EMB本部・地域事務所のラボに供与された機材は、水質モニタリング・分析に活用されている。特に、第12地域事務所では機材供与により、大幅に検査環境が整備され、重金属など検査項目も増加した（プロジェクト開始前、検査できない項目については本部事務所ラボにサンプルを送っていたが、今では地域事務所ラボで検査が可能となった）。ローカルコンサルタントの貢献についてもおおむね高い評価であった。フェーズ1では数多くのコンサルタントを雇上したこともあり、一部に期待どおりのパーフォーマンス・成果品が得られないケースがあったが、フェーズ2で必要な措置を取り、成果品の質を高めることができた。

４－４　インパクト

インパクトの評価：中程度

(1) 本プロジェクトはまだ実施中であるが、次のようなインパクトの発現が見られる。

(2) プロジェクトで作成されたガイドライン類に基づいて、水域類型と水質管理地域指定が進められている。EMBは、アルバイ湾（第5地域）、トレドーバランバン海岸域（第7地域）、マカハラール湾（第10地域）の3つの優先水域を特定し、さらに、16の水域を水質管理地域候補として選定している。

(3) EMBでは本プロジェクトの3パイロット地域を含めて、これまでに6つの水質管理地域指定を行った。EMBが正式に水質管理地域を指定することで、ドナーの支援が得られやすくなるという促進効果も生まれている。具体的事例として、シルワイ川水質管理地域（第12地

域）は、世界銀行が支援を開始している。

(4) 本プロジェクトを契機として、EMB は各地域に少なくとも 1 つの水質管理地域を指定する方針を示し、指定された各地域には、毎年 100 万ペソの予算配分を行っている。非パイロット地域事務所職員は、オリエンテーション/ワークショップなどで基本的な研修を受講済みで、対象となる水質管理地域も特定されており、実施に非常に積極的である。

本部事務所と 3 パイロット地域事務所の職員はこれまでの経験で、非パイロット地域事務所へのサポートが可能である。ローカルコンサルタントも経験を積んでいるため、水質管理基金が設置されれば、非パイロット地域への面的展開が推進されることが期待される。非パイロット地域事務所に対しては、データベース/情報システムの整備、プロジェクトの成果品の共有、パイロット地域事務所での経験共有、実践的な研修といった支援が実施された。本プロジェクトをとおして、非パイロット地域事務所は指定水質管理地域の取り組みを中心とした地域での水質管理について一定の知見を得た。今後は、実際の地域での取り組みを通して、実践的ノウハウを獲得していく必要がある。

４－５　持続性

持続性の評価：中程度

(1) 政策・制度面

1) プロジェクト期間を通して、水質浄化法とその実施規則の運用は、EMB の主要課題であり、政策面での支援は継続的であった。新政権の中期開発計画は 2010 年末に発表予定であるため、評価調査段階では、今後の政策面での継続性は明確でないが、大統領と DENR 大臣は、水質管理の強化は政権の優先課題の 1 つであることを明言しており、EMB も大きな政策上の変更は想定していない。

2) 水質管理の総合政策フレームワークと水質管理基金の運用ガイドラインは最終調整段階にあるが、まだ正式承認に至っていない。フレームワークは、地域で関係組織の役割と責任を明示した文書（大統領令）であり、基金のガイドラインは非パイロット地域への普及を図るうえで不可欠である。これらの文書の正式承認が得られた段階で、プロジェクト成果の継続性が確保される。

(2) 組織・財政面

1) EMB は、全国に 16 の地域事務所をもつ。本プロジェクトは、非パイロット地域事務所への普及を考慮して、ルソン、ビサヤ、ミンダナオの 3 地方から 1 カ所ずつパイロット地域事務所を選定した。対象水質管理地域については、地理・社会経済条件を考慮して選定された。以上の点から、パイロット地域の選定は妥当であったと判断できる。

2) 3 パイロット地域の水質管理委員会はまだ制度・組織的に発展段階にあるが、構成団体は委員会への参加が強化され、マルチ・セクター・グループが水質モニタリングを開始するなど活動レベルは高い。地域事務所も定例会議の準備･開催など対応できるようになり、事務局機能を強化しつつある。EMB は 2008 年より、各水質管理地域に 100 万ペソの予算配分を行っている。以上の点から、3 パイロット地域での活動の継続性は高いと判断できる。

(3) 技術面

1) 水質管理地域アクション・プランの実効性を高めるためには、実施主体となる地方自治体がアクション・プランとその遵守を規定するスキームを正式承認する必要がある。地方自治体によるコンプライアンスを強化するための承認手続きは今後の優先的な課題である。

2) 地域事務所は事務局機能を高めつつあるが、人員不足で事務局職員も複数の業務を兼任している。今後、水質管理地域の活動が拡大・展開するうえでは、業務が過重負荷となる可能性がある。また、現在、水質管理委員会はローカルコンサルタントがコーチ役として支援しているが、プロジェクト終了までに地域事務所がローカルコンサルタントの役割を果たす機能も付加する必要がある。

第５章　結論

本プロジェクトは、前述のとおり、終了時までに所期の目標を達成することが十分に見込まれる。評価の 5 項目の観点からもプロジェクトが適切に実施されたと評価する。

水質浄化法（CWA）の運用を可能とする体制・環境の整備に成功した。運用に必要なガイドライン類が整備され、EMB 本部は水質管理地域の水質管理促進など、水質管理を推進するために必要な能力を獲得した。3 パイロット地域事務所（第 3、6、12 事務所）もパイロット活動での取り組みを通して水質管理の業務推進能力が向上した。3 パイロット水質管理地域では、水質管理委員会を核とした水質管理の制度的枠組みが確立し、構成メンバーである関連組織も積極的に水質管理委員会の活動に参加している。3 水質管理委員会は、中央政府の地方事務所、地方自治体、大学、NGO、住民団体、企業団体など多様な関係者の間を結ぶネットワークの核として機能し始めている。こうした点から、水質浄化法とその実施規則の要求事項を満たす行政的・技術的基盤が EMB 内に十分整備されたと判断できる。今後、水質管理基金など政府・民間からの資金が活用できるようになれば､非パイロット地域への普及も大幅に展開することが期待できる｡ただし、パイロット地域の水質管理委員会は、まだ制度・組織開発の初期段階にあり、関係組織による強いコミットメント、リーダーシップ、オーナーシップを醸成するために、EMB は、今後も 3 パイロット地域での取り組みを注意深くモニタリングし､必要に応じて支援を行うことが求められる。

第６章　提言

(1) プロジェクト終了後、EMB が外部からの技術支援なく自立的に水質浄化法を運用できる必要がある。そのため、EMB 及び専門家チームはプロジェクト期間中に実施予定の技術支援を確実に完了するよう留意して、プロジェクトの目標を完全に達成することを提言する。

(2) プロジェクトで作成したガイドライン/マニュアル類の多くが DENR など上位機関の正式承認の段階にある。このため、DENR-EMB が承認手続きについて迅速な対応を図ることを提言する。

(3) 本プロジェクトの 3 パイロット地域での活動は、水質管理委員会を拠点とした水質管理のモデルとして非パイロット地域への普及が期待される。3 パイロット地域での活動が拡大・発展することは水質浄化法の運用の有効性を立証するうえで極めて重要である。このため、EMB と JICA はプロジェクト終了後も継続的に3パイロット地域の水質管理委員会のパーフォーマンスをモニタリングし、必要に応じて彼らへの支援を行うことを提言する。

(4) 現在、EMB の地域事務所は人員不足で、個々の職員が複数の担当を兼務することで業務に対応している。人員不足は、地域事務所が各地域で水質管理を主導するうえで大きな障害となっている。したがって、DENR-EMB は、地域事務所の業務の再編で効率化を図ると同時に地域事務所職員の増員に努めることを提言する。

第７章　教訓

(1) 技術協力プロジェクトでは、政策・運用規定などの枠組みを中央政府で構築し、パイロットサイトでその枠組みを試行するといったアプローチをとるケースが多い。本プロジェクトでは事業期間を、フェーズ分けして、フェーズ 1 でガイドライン類の整備を完成させ、フェーズ 2 でパイロットサイトにおけるガイドライン類の運用を行うというシナリオを明確にした。フェーズ 1 で集中的に運用ルールを整備したことで、遅延なくフェーズ 2 のパイロット活動に着手することができた。明確にフェーズ分けすることは、パイロット活動に十分な時間を確保するうえで有効な手段といえる。

(2) プロジェクトの 1 年目、水質管理地域の基本的アプローチや用語の定義について EMB と専門家チームの間に相違があったが、この相違を曖昧化せず、共通認識を得られるまで議論した。これにより、具体的な活動の過程で、成果品の内容についての認識ギャップが生じることなく、効率的に進めることができた。カウンターパートと専門家チームが、プロジェクトの目的や方向性、用語の定義、対象業務の範囲、成果品の仕様を初期段階で明確化することはプロジェクトの効率性を高めるうえで極めて重要である。

付　属　資　料

１．ミニッツ（含む合同評価レポート）

２．PDM（和文）

Joint Evaluation Report on Terminal Evaluation on Japanese Technical Cooperation for Capacity Development Project on Water Quality Management

Japan International Cooperation Agency
and
Department of Environment and Natural Resources
The Republic of the Philippines

October 2010

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Abbreviations

CWA	Clean Water Act
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
EMB	Environmental Management Bureau
(EMB) CO	EMB Central Office
(EMB) RO	EMB Regional Office
(EMB)-WQMS	EMB Water Quality Management Section
IRR	Implementing Rules and Regulations
ISES	Industry-Specific Effluent Standards
IWQMF	Integrated Water Quality Management Framework
JCC	Joint Coordination Committee
JICA	Japan International cooperation Agency
LGU	Local Government Unit
MC	Memorandum Circular
PDM	Project Design Matrix
SMR	Self Monitoring Report (system)
TWG	Technical Working Group
WQM	Water Quality Management
WQMA	Water Quality Management Area
WQMA GB	WQMA Governing Board

I Outline of the Evaluation Study

I-1 Background of the Evaluation Study

JICA technical cooperation project "Capacity Development Project on Water Quality Management" (hereinafter referred to as "the project") is to assist the Environmental Management Bureau (hereinafter referred to as "EMB") of the Department of Environment and Natural Resources (DENR) in enforcing the Clean Water Act (CWA). The project is divided into two phase; phase I (2006.1-2008.3) focusing on the capacity development in the EMB central office, while phase II (2008.4-2011.1) focusing on the one in its regional offices. Before the end of the phase II, JICA and DENR formed joint terminal evaluation team for the purpose of reviewing progress and performance so far of the project, in involvement of stakeholders concerned with water quality management.

I-2 Objectives of Evaluation Study

The objectives of the Terminal Evaluation are;

1) to review the progress of the project based on the PDM and to evaluate the achievement in accordance with the five evaluation criteria (relevance, effectiveness, efficiency, impact and sustainability),
2) to find out the factors that promoted/hindered implementations for the project,
3) to consider the necessary actions to be taken and make recommendations for the project and
4) to summarize the results of the study in a joint evaluation report.

I-3 Methodology of Evaluation Study

The evaluation was conducted;

1) jointly by Japanese and Philippine members of evaluation team,
2) by collecting data and information through
   - examining documents prepared by the project
   - interviewing Japanese experts, EMB counterparts (CO and three pilot ROs), the local consultants engaged in the project, and other authorities concerned, then,
3) assessing the degree of achievement of the project, and
4) analyzing the overall achievement using five criteria. Five criteria are shown in the table below.

Criteria	Definition
1. Relevance	Relevance is referred to as the validity of the Project Purpose and the Overall Goal in terms of compliance with the development policy of the Philippine Government as well as the needs of beneficiaries.
2. Effectiveness	Effectiveness is referred if the expected benefits of the Project have been achieved as planned and if the benefits were brought about as a result of the Project (not of the external factors).
3. Efficiency	Efficiency refers to the productivity of the implementation process and efficient conversion of the inputs of the desired output.
4. Impact	Impact refers to direct and indirect, positive and negative impacts caused by implementing the Project including the extent of the prospect of the achievement of the Overall Goal.
5. Sustainability	Sustainability refers to the likelihood of the Project output to be sustained and further developed by the recipient organization(s) after the project period. The prospect of project sustainability is judged by looking into the recipient country's policies, technical, financial and organizational aspects

I-4 Member of the Evaluation Team

(1) Japanese team

Mr. Kenzo Iwakami (Team Leader)	Senior Representative Japan International Cooperation Agency

Mr. Senro Imai (Water Quality Management)	Senior Advisor (Environment) Japan International Cooperation Agency
Mr. Kaneyasu Ida (Project Evaluation)	Consultant Tekizaitekisho Org.
Mr. Naoto Kuwae (Cooperation Planning)	Representative Japan International Cooperation Agency
Mr. Kessy Reyes (Cooperation Planning)	Program Officer Japan International Cooperation Agency

(2) Philippine team

Ms. Lilihua V. Garcia (Team Leader)	Project Evaluation Officer Project Monitoring and Evaluation Division Foreign Assisted and Special Project Office Department of Environment and Natural Resources (DENR)
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2. Outline of the Project

2-1 Background of the Project

The activities for the economic growth have lead to the unsustainable exploitation of the environment in the Philippines, despite of 30 years effort of the Government of the Philippines. The constraints in budget and manpower for adequate sanitation, urban drainage, and pollution control have resulted in the degradation of surface as well as groundwater quality, which caused the adverse effect on public health, fisheries, and tourism.

The enactment of the Clean Water Act in 2004 is recognized as the dramatic shift in water quality management in the Philippines. The Act adopts various incentives mechanism were introduced into the set of policy instruments to maximize economic efficiency and effectiveness of pollution control, as well as "command and control" adopted in conventional water quality management.

However, the lack of the experience and expertise on the CWA and its requirements and provisions, the enforcement of the CWA is almost impossible without several interventions. The lack of the institutional and legal framework to materialize the concepts and methodologies newly adopted in the Act requires the EMB to develop policy frameworks and technical and procedural guidelines. Furthermore, the Act mandates the Bureau to cooperate and coordinate not only with government agencies but also with Local Government Units (LGUs), private sectors and civil society in the water quality management and monitoring, which is totally new scheme for the EMB and its staff. The EMB RO staff as well as CO staff have to be provided with the training opportunities on the provisions of the Act.

In this context, the Government of the Philippines requested the Government of Japan to undertake a technical cooperation project to capacitate the Department to enforce the CWA. In response to the request, JICA and the Philippine authorities held continuous surveys and discussion, and agreed on October 24th, 2005, to implement the technical cooperation project "Capacity Development Project on Water Quality Management (hereinafter referred to as "the project"). The project was launched in February 2006 on the arrival of Japanese experts.

The project is divided into two phase; phase I (2006.1-2008.3) focusing on the capacity development in the EMB central office, while phase II (2008.4-2011.1) focusing on the one in its regional offices.

2-2 Summary of the Project

Goal

Under initiatives of the WQMA Governing Boards, industries commercial entities, LGUs, and other public organizations take necessary actions for achieving the water quality goal established in the WQMA Action Plan.

Project Purpose

Capabilities of EMB Central and regional offices to implement priority actions mandated under the CWA IRR are strengthened.

Outputs

1) Integrated policy framework for WQM based on the CWA is established and supported by adequate procedural guidelines and training for EMB staff
2) Capacity of EMB central office to lead and support the regional offices is strengthened
3) Capability of EMB regional offices to establish and support WQMAs and related institutions is strengthened in three pilot regions
4) Overall capability of EMB regional offices in water quality management is strengthened in three pilot regions

3 Achievements of the Project

3-1 Inputs

(1) Japanese Side

1) Experts

In total, three long term experts and six short term experts have been assigned in the project and provided technical advice on the capacity development of EMB. The total duration of their assignment was 140 M/M. They are divided into two groups, long-tem expert who stayed in EMB for more than three months and continuously work with the counterparts, and short term expert who are dispatched relatively short (less than one month) and provided advice on the respective technical matters. Their positions and assignment durations are shown in Annex 2. In addition, an advisor from JICA Head Quarters was dispatched three times a year (two - three weeks per visit) during the project duration.

2) Local consultants

JICA provided the teams of local consultants (in total 459.1 M/M from JFY 2006 to JFY 2010) with the including operating cost for conduct of technical working groups meeting, public consultation meeting, and orientation workshop, and consultant remuneration and their travel expenses, etc. The details are shown in Annex 3.

3) Training in Japan

A total of four EMB counterparts participated in two short training courses (Water Quality Management Administration and Enhancement of the Governmental Capacity on Water Environment in Asian Countries). The details are shown in Annex 4.

4) Equipment

Equipment for training, field monitoring and sampling and water quality testing was provided mostly during the Phase I of the Project. The details are shown in Annex 5.

(2) Philippine Side

1) Project counterparts

Since 2006, a total of 26 EMB personnel from the Central Office and three Regional Offices in charge of pilot WQMA activities have been assigned as Project Counterparts. The list of the

counterpart personnel is shown in Annex 6.

2) Project operation costs
The EMB (Philippine side) has provided facilities such as office space, conference room, tables, chairs, communication (telephone, fax machine), maintenance cost of equipments/instruments, and electricity charges. Furthermore, EMB has borne the travel expenses of counterparts (fuel for vehicle, airfare) necessary to implement the project activities especially at the regional level such as public consultations, stakeholder meetings, and orientation workshops.

3-2 Achievements of Activities
The focused activity during the Phase I was the documentation of procedural guidelines and manuals and studies necessary for documentation. In the Phase II, the focus was shifted to the operationalization and implementation of WQMA activities in three pilot regions, and revisions and fine tuning of the developed guidelines and manuals based on the experiences obtained through pilot activities. The details of the project activities are shown in Annex 7.

3-3 Achievements of Outputs
The Project's achievements in accordance with the indicators in PDM are as follows:

Indicators of the PDM	Main achievements on the output level
Output 1: Integrated policy framework for WQM based on the CWA is established and supported by adequate procedural guidelines and training for EMB staff.	
• Publication of specific policy framework • Publication and dissemination of supporting procedural guidelines • Conduct of orientation training programs on the policy framework and supporting procedures	• As shown in Annex 8, all the procedural guidelines and manuals planned to be developed under the Project have been drafted. two types of guidelines and manuals have been already officially approved. The other documents are at their very final stage of development (fine tuning or incorporating comments from higher authorities). The final drafts of the DENR Administrative Order on Water Quality Guidelines, and the General Effluent Standards and Executive Order adopting and Integrated Water Quality Management Framework, have been finalized, pending final approval. • All the necessary guidelines and manuals to operationalize WQM have been completed. Therefore, the EMB is able to implement WQMA. WQMA activities will be fully operational and enforcement strengthened when the guidelines for the operationalization of WQMA funds and general/supplemental guidelines on effluent standards are approved. ISES was developed for five industrial sectors/sub-sectors (In the original plan, ISES for four sectors were targeted.). This gave a good opportunity for EMB to develop their knowledge and skills to negotiate with the private sector and set effluent standards for other sectors. • Orientation workshops were organized annually (four times). As shown in Annex 7, the cumulative total number of 870 CO/RO staff members including non-pilot regions were trained on policy framework and procedural guidelines and manuals.
Output 2: Capacity of EMB CO to lead and support the ROs is strengthened.	
If the following systems have been established: • water quality model in pilot regions • Operational water quality and pollution	• Advanced modeling techniques were applied to develop WQMA action plans. Database on water quality and pollution sources has been devised and made operational through the modifications of modules and data formats. The user manual has been also produced. • EMB CO produced the guidelines for preparing water quality status report. Based on the guidelines, the regional water quality status

source database • Internet-based information and communication network • publication of the first national water quality status report • Preparation of project proposals to generate fund for non-pilot regions • CO WQMS staff trained in the use of equipment • CO coordinates the CWA administrative and technical procedures in three pilot regions.	reports of the three pilot regions (3, 6 and 12) were developed and made accessible on the website of EMB. • EMB CO prepared the project proposal, titled "Capacity Development Project for Enhanced Compliance and Enforcement of the Philippine CWA". The EMB CO assists three non-pilot regions to classify water bodies. • Laboratory staff members have been trained by EMB CO laboratory and conducting analysis of collected samples by MSGs. • EMB CO communicated and coordinated with ROs through regular meetings and conferences to receive feedback and keep the ROs updated on the outcomes and lessons learned from testing the guidelines in the pilot regions. EMB CO also assisted ROs in the technical matters such as identifying water bodies from classification and designation of WQMA. • According to the interviews conducted by the evaluation team to the three pilot regions, the support functions of the EMB CO, particularly of the focal persons are highly evaluated to implement WQMA activities and operationalize GB activities in their responsible regions (Annex 9).
Output 3: Capability of EMB ROs to establish and support WQMAs and related institutions is strengthened in three pilot regions.	
The establishment of WQMA in pilot regions with governing board, technical secretariat, multi-sectoral action groups, area fund management system and reporting system	• The GBs for three WQMAs began their meetings in mid or late 2008 and they were officially established in November -December 2009. Twenty one to twenty five members, representing LGUs, other line agencies, NGOs, Academics, local industries, water utility corporation, indigenous people were nominated as permanent GB members. All the GBs have already formed a MSG to conduct monitoring activities. The GB in Region 6 has nominated technical secretariats and the other two GBs in Region 6 and 12 are looking for the right persons with qualifications and attributes. After each GB meeting, the minutes of meeting is prepared and then approved at the next GB meeting. • Although the three GBs differ in their levels of organizational settings, visions and experiences, they are organizationally well entrenched - the organizational structure is institutionalized and their respective WQMA action plans have been developed. • The GBs are increasingly self-reliant. Most of the managerial and administrative functions (e.g. preparation of meeting agendas and minutes of meeting, logistical arrangements) have been transferred to regional offices.
Output 4: Overall capability of EMB ROs in water quality management is strengthened in three pilot regions.	
Major point pollution sources in pilot regions comply with the discharge permitting /charging system (including SMR system) Database of point and non-point sources, functional system for assessment, collection and accounting of pollution charges, and	• The capacity of the RO to support their GBs has been strengthened. The following facts demonstrate the enhanced leadership and ownership of the GB as a result of RO support: • The GB in region 3 organized two GB meetings without external assistance to expedite the implementation of priority action plans in 2010. Active participation of local board members and strong leadership of the chairperson. • The GB members in region 6 managed the implementation and logistical aspects of MSG sampling activities and facilitated mutual assistance among the participating agencies. • The RO 12 has overseen the whole process from the beginning of

reward/incentive system facilitate the compliance of discharge permitting/charging system
 	
Publication of the first regional water quality status report
 	
Principal/priority water bodies in pilot regions classified.
 	
Calibrated WQ model and database in regions are operational, connected with central information system and used for WQ status reporting.
	the GB establishment and the members are encouraged to get more involved in GB meetings.
	• In the three GBs, LGUs, researchers and other agencies are committed or offer to provide financial and/or technical assistance.
	• An advanced GB started to implement its priority action plans as follows:
	  • Mass balance studies for tannery and gold smelting industries (MMO RS WQMA) that helped estimate the amount of waste water effluents generated from each industry and identify pollution hotspots in the processing streams of each industry
	  • The GB launched the GREENLINE Hotline and Text Facility Project with assistance of Globe Telecommunication and in cooperation with Blacksmith Institute to set up a hotline for citizens to report violators.
	• The ROs have conducted inventory of pollution sources within their WQMA. Database on WQ information is now operational (except the database on PCO that needs some modification for use). The ROs will be able to strengthen enforcement activities once the guidelines on discharge permitting and waste water charge system as well as WQMA fund guidelines are officially endorsed.

Project Purpose: Capabilities of EMB CO and ROs to implement priority actions mandated under the CWA IRR are strengthened.	
Performance of EMB CO and three pilot ROs in the implementation of their mandates under CWA IRR in the areas of: • development of WQM procedures • staff training in WQM procedures • equipment and information systems • strengthening of linkages with related WQM agencies Capacity development of non-pilot ROs in the forms of: • participation in orientation and workshops • learning of guidelines and procedures on CWA enforcement • learning from three pilot ROs' experiences	• The EMB CO has been well versed in the procedures and the whole process of WQMA under CWA/IRR. The web-based database linking with regional offices is mostly operational. The EMB CO is able to provide necessary support to other non-pilot regions based on their experiences in the three regions. • National Water Quality Status Report, Procedural manuals for designation of WQMA and Designation of three WQMAs are made available on the EMB website. All the procedural guidelines and manuals have been shared and disseminated to the regional offices at orientation workshops. • As shown in Annex 9, the pilot regional offices are confident to manage GB/MSG activities. They are closely communicating with other participating organizations such as LGUs and other line agencies to take actions for the implementation of their WQMA action plan. • According to the survey conducted in 2010 by the JICA technical assistance team to assess the level of capacity development over the last four years, the capacity of EMO CO staff members and RO staff members in pilot regional offices on all the parameters in institutional, organizational and individual levels was significantly improved over the years. The capacity of the non-pilot regional offices showed moderate progress on the same parameters (Annex 10). It can be said that the non-pilot regional offices have gained understandings on the procedural guidelines and manuals by participating in orientation workshops and management conferences regularly held by EMB CO. The working knowledge can be gained through actual implementation of WQMA activities in their respective regions.

3-4 Implementation Process

Phase I

(1) Implementation strategy

A total of 20 procedural documents were required of the EMB to enforce the CWA and 40 types of activities were identified to produce outputs and the project purpose (Forty activities include pilot activities in three regions.). In order to efficiently manage such a large volume of work and avoid overlapping and repetitions, the 40 activities were categorized into 9 groups. Two EMB CO staff members were assigned to manage each group, assisted by local consultant teams and the JICA technical assistance team.

(2) Documentation

Each of the 12 types of procedural documents was produced through the following steps: (1) setting TOR and selection of a local consultant firm, (2) holding the kick-off meeting, (3) conducting study and drafting, (4) organizing TWG meetings to consult with other line agencies and drafting the initial draft, (5) reviewing by EMB CO, (6) organizing public consultation meetings at three areas (Luzon, Visaya and Mindanao), (7) revising and finalize the first draft, (8) organizing orientation workshops with all the EMB regional offices to check if it fit field realities, (9) receiving comments from the regional offices and (10) fine tuning and completing the final draft.

Through this process, the EMB CO has enriched experiences on how to make sure the document is consistent and compatible with other relevant regulations and guiding documents, clarify ambiguities in the document and make it appropriate and applicable to the field. The EMB ROs have been kept informed of progress as well as contributed to documentation by participating in public hearing and consultation meetings, orientation workshops and giving comments and feedback reflecting their experiences obtained through WQMA implementation (e.g. identification of gaps between the requirements in the guidelines and operational difficulties).

One important issue raised in the course of documentation process was disparate ideas on the definition and scope of WQMA between the JICA technical assistance team and the EMB. This issue was critically important to develop procedural guidelines, they continuously discussed it and reached consensus. After that, this helped them to develop procedural documents based on clear and common understanding.

Phase II

By the end of the Phase I, all the guidelines and manuals for WQMA had been drafted; therefore, the three EMB regional offices were able to start pilot activities as planned. Focal persons from the EMB CO and ROs were assigned for each region to facilitate and coordinate activities. Local consultants assisted the three ROs in technical aspects, information system and institutional development.

At an early period of GB formation, the three GBs started as interim GBs as the WQMAs were not yet officially designated and approved/issued as DENR Administrative Orders. Nevertheless, the member organizations sent their representatives. In the case of the MMO WQMA, the GB was established even before the approval of the guidelines for designation of WQMA because of the members' strong willingness to start GB activities.

The pilot activities were conducted through the following process in each region: (1) designation of the target WQMA, (2) organizing public hearing and presenting delineated WQMA and non-attainment areas, (3) nominating GB members based on guidelines and (4) organizing regular GB meetings to confirm progress and achievements and make decisions for next steps. Through this process, WQMA action plan and the first WQMA status report were produced, a Multi-Sector Group was formed and its WQ monitoring plan was developed and actual water quality monitoring started. The Regional Director chaired the GB meeting and focal persons served as the technical secretariats.

4 Results of Evaluation

4-1 Relevance

The relevance of the Project: high

- The direction of WQM was consistent during the Project duration. The operationalization of the CWA/IRR was one of the highly prioritized agendas. Therefore, the Project's objective and approach was clearly in consistent with the policy of DENR/EMB.

- Degradation of water quality is a quite serious issue in the Philippines. A study conducted by the Blacksmith Institute in 2007 listed Meycauayan City and Marllao (one of the three pilot sites in the Project) as one of the top thirty most polluted places in the world. In the Region 3, the Provincial Government took initiatives and form a council to tackle the problem. However, the magnitude of the problem was not addressed by the LGUs due to lack of institutional framework to involve stakeholders. In Regions 6 and 12, LGUs and other stakeholders are increasingly aware of the problem of the water quality in their areas. WQMA action plans developed by the Governing Boards have incorporated priority agendas of LGUs. Therefore, the Project's implementation approach and its scope are very much relevant to the local needs.

4-2 Effectiveness

The effectiveness of the Project: high

- The intended objective of the Project was to develop an enabling environment for the operationalization of WQMA under the CWA/IRR by (1) preparing guidelines on WQMA, (2) showcasing successful WQMA activities and (3) improving the EMB's overall capacity to facilitate WQMA activities. It is judged that the enabling environment has been well developed and entrenched as intended.
    - To date, almost all the procedural guidelines and operational manuals to operationalize WQMA have been completed. The integrated policy framework and the guidelines for WQMA fund management are in the process of final approval. Therefore, solid legal base has been built to guide WQMA activities. The drafted guidelines and manuals have been or being pilot tested; therefore, the finalized versions will be suited to local conditions.
    - The three pilot WQMAs are accepted as the most advanced cases where the management body (GB) has involves all the important, local stakeholders and decision makers, planned and started to implement their actions and forms the MSG to conduct sampling. At present, 16 water bodies have been identified for WQMA designation. Experiences and know-how obtained through pilot WQMA activities can be used for these areas.
    - The EMB CO and the three ROs have obtained the knowledge and know-how on the whole process of operationalization of the CWA/IRR. The results of the study conducted in 2006 and 2010 by the JICA technical assistance team on capacity development show good progress in institutional, organizational and individual levels of the EMB CO and RO staff members. The core staff members in the EMB CO and the three regions are now able to play the lead roles in the facilitation, management and daily operations of WQMA activities without external assistance.

- Other important effects of the Project are identified as follows:
    - The Project proves the effectiveness of the approach stipulated under the CWA/IRR

to foster local initiative and mobilize local resources for WQM activities through the formation of GB and MSG. This is vitally important because actual implementation for WQM is a mandate of the LGU. As shown in Annex 9, many of the participating LGUs in the three WQMAs have been committed to provide inputs for GB and MSG activities and implement prioritized WQMA action plans.

- The Project helped develop an integrated water quality management approach with modeling techniques and development of ISES based on data analysis on actual production process practiced and water treatment technologies used in the country. This approach is effective to set accurate and practical ISES and seek the industry's compliance.
- It is very important for the EMB to have local resources that can provide quality services for WQMA activities. The Project extensively utilized local consultants that constantly supported the EMB CO and the three ROs in technical aspects and institutional development. This helped enhance their capabilities to support the EMB.

4-3 Efficiency

The efficiency of the Project: high

- The level of achievements on the outputs and the project purpose is judged to be satisfactory based on the following findings:
  - The Project has developed a number of procedural guidelines and related manuals necessary for the EMB to duly implement water quality management activities. To date, all the guidelines and manuals have been drafted. Some of them have already been approved while the others are being tested in the pilot regions. It is currently being revised/finalized in order to be applicable and appropriate to local settings by incorporating comments and suggestions made by ROs.
  - The EMB staff has obtained sufficient knowledge and know-how about the whole procedures from classification of water bodies, designation of WQMA, establishment of GB, preparation and implementation of WQMA action plan through the development of procedural guidelines and manuals and support activities for pilot regions.
  - The Project successfully involved various organizations such as LGUs, other line agencies, academe, civil society and business through institutional development (e.g. formation of GB and MSG).
  - The non-pilot regional offices were supported mainly in the fields of database and information system development and sharing of information, outputs and experiences at orientation workshops and other internal meetings. Also, some of the non-pilot regions (Region 5, 7 and 10) were assisted for the classification of water bodies and development of ISES in Region 10. They have made moderate progress on the understanding of WQMA. However, they need practical experience to fully grasp the procedures and know-how.
  - The questionnaire survey and interview with the stakeholders and EMB CO and the three ROs confirmed that the level of achievements in the project purpose and outputs is 80 - 100% (Annex 9). By the end of the Project duration, the EMB and the JICA technical assistance team are going to complete the remaining, following activities, which are currently at their very final stage of development:
    - Revised draft Procedural Manual on Non-Attainment Area
    - WQMA Action Planning and LGU Compliance Scheme
    - Reference Manual for Action Planning
    - Revised Guidelines on Water Body Classification and initial classification of three water bodies
    - Enhanced database (Accredited PCO database, WWDP MS, WQ Information Repository)
    - Revised Guidelines on National and Area Water Quality Management Funds

- Policy document on Effluent Management
- IEC materials on Water Quality Management
- Finalization of three WQMA status report
- Procedural Guidelines for Area Cooperation Arrangement on Water Quality Monitoring

- The selection of pilot regions was appropriate and effective because one site from Luzon, Visayas and Mindanao was selected to effectively disseminate and demonstrate outputs to other non-pilot regions. Also, the three WQMAs were selected in consideration of geographical conditions and socio-economic settings.

- Mostly, the Project made progress as scheduled. The contributing factors are identified as follows:
  - Group formation of activities (Thirty Nine activities were divided into nine categories and nine groups were formed to take on each set of activities. This arrangement was effective to cope with tight implementation schedule and monitor project progress.)
  - Appointment of focal persons in EMB CO and ROs to facilitate pilot activities
  - Utilization of local consultants (This is one of the most important factors - according to interviews and questionnaire survey to ROs.)
  - Dividing the Project period into two phases (Concentrated efforts to produce procedural guidelines by the end of phase I enabled the ROs to facilitate WQMA activities from the beginning of the phase II without delay.)
  - Consensus building between the JICA technical assistance team and EMB on the directions and definitions as described in the 3-2 Implementation process.
  - In Region 3, the Supreme Court order issued in December 2008 instructed all concerned government agencies to coordinate in the clean-up, restoration, and preservation of Manila Bay. This required the LGUs and government agencies to facilitate regional cooperation.
  - Periodical monitoring and support by the JICA advisor

- The guidelines for the water quality management fund was intended to be a revolving fund. It was necessary for EMB/DENR to consult with the DBM on how to operationalize the funds and also a number of issues needed to be solved between the DENR and the DBM. The draft guidelines was originally a joint memorandum circular with the DBM. However, the DBM suggested the DENR to issue a single DAO with only the DENR as signatory. This process affected project progress in such areas as enhancing enforcement activities.

- Inputs from JICA were judged as effective based on the interviews and questionnaire survey. The equipment provided for the EMB CO and RO laboratories was well used for water sampling and analysis. Particularly, the capacity of the RO 12 laboratory has been significantly enhanced in terms of the number of parameters. The EMB CO and ROs assessed the expertise and duration of assignments of the JICA technical assistance team as well as the advisor were appropriate and satisfactory to set directions and conduct overall management of the Project. Most of the local consultants made good contributions. There are some cases where some local consultants failed to deliver expected outputs in the Phase I. Remedial measures were taken to meet expected outputs in the Phase II.

4-4 Impact

The prospect of the Project's impact: Moderate (The prospect of impact will heavily rely with the operationalization of WQMA fund management.)

- The impacts recognized at the time of final evaluation are as follows:

    - Progress made in WQMA designation: The procedural guidelines developed under the Project are used to classify water bodies and designate WQMA. EMB CO identified three water bodies for classification in other regions (Albay Gulf in Region 5, Toledo - Balamban Coastal Waters in Region 7, Macajalar Bay in Region 10) for WQMA activity in FY2010. The DENR has so far designated 6 WQMAs. (three under the JICA project). In addition, EMB CO identified sixteen priority water bodies for WQMA designation. Classified water bodies and designated WQMAs are the priority targets for seeking external assistance. The Silway River WQMA is now supported by the World Bank.

    - Implementation of WQMA in non-pilot regions: The EMB has set a policy to establish at least one WQMA for each region. All the EMB regional offices have already been trained on the designation of WQMA and are very much willing to designate WQMAs. They have identified their candidate WQMA in their respective jurisdiction. The core members of the EMB CO, experienced in supporting and guiding the WQMAs in three regions are able to extend their support to non-pilot regions, utilizing the working knowledge of the staff members in the pilot regions and expertise of the local consultants. It is expected that WQMA implementation will be greatly facilitated when funds from the Government or other sources are made available.

4-5 Sustainability

The prospect of the Project's sustainability: Moderate (Such factors as the establishment of WQMA funds and the endorsement of all guidelines and manuals have not yet been fully ensured. The GBs in pilot regions are still at their early stage of organizational and institutional development.)

- The new medium-term Philippine Development Plan is going to be publicized by the end of 2010. WQM is mentioned by the President and the DENR Secretary as the priority agenda of the current administration. It is unlikely the current policy direction would be significantly changed. A present, the policy support for the operationalization of the CWA/IRR is consistent.

- The integrated policy framework and the procedural guidelines for WQMA fund management have not been officially approved. The endorsements of these documents are indispensable to involve all the stakeholders in WQMA activities and scale up WQMA to other classified water bodies and WQMAs.

- Although the GBs in the pilot regions are at a rudimentary stage of organizational development, the organizational and institutional sustainability of GB and MSG activities is high as the member organizations are increasingly involved in GB meetings and MSG members are willing to conduct sampling activities. The regional offices are able to handle regular activities and logistic arrangements. Approximately 1 million pesos per WQMA is allocated from the EMB CO. The EMB CO and ROs needs to monitor the following points in order to ensure the sustainability of the GB activities:
    - There is good scope for generating or mobilizing local resources under the GB cooperation framework. However, the GB is not able to fully utilize such resources offered by participating organizations. As shown in Annex 9, some LGUs are willing to allocate funds,

however, the necessary conditions to utilize such funds has not yet been prepared (e.g. a work plan/financial plan and auditing system). Other agencies also offer to conduct water quality analysis, but only analyzed data of EMB-recognized laboratories can be used only for internal use.

- No LGU has not yet adopted local ordinance to comply with the WQMA action plan in their jurisdiction. In order to get strong commitment and initiative of the LGUs, the WQMA action plan needs to be endorsed by the LGUs with local ordinance in due time.
- The regional offices are likely able to maintain their current functions to manage meetings and logistic arrangements. However, they are understaffed and they may be overloaded when WQMA activities are expanded. Also, currently, the GBs are closely coached by local consultants. The EMB ROs need to take over such a role after the end of the project duration.

5 Conclusion

The Project has successfully helped operationalize the CWA/IRR. Necessary guiding documents have been developed and the EMB CO has been capacitated to facilitate WQMA for WQM of surface waters. The regional offices (Regions 3,6 and 12) have been also capacitated through pilot activities. Co-management of the pilot WQMAs has been institutionalized and local partner organizations are actively involved in WQMA activities. Through the Governing Board, these regional offices are becoming the center of network with local partner organizations. Now, the enabling environment is prepared to scale up and implement WQMA activities in non-pilot regions. Therefore, it is judged that the good administrative and technical bases to meet the requirements of CWA/IRR have been built in the EMB. It is expected that WQMA implementation will be expanded when funds from the Government or other sources are made available. The Governing Boards for the three pilot WQMAs are still at their early stage of development. The EMB needs to closely monitor progress and support local partners in getting their commitments and fostering their leadership and ownership.

6 Recommendations

- The EMB and the JICA technical assistance team should ensure that the remaining tasks listed in 4-3 should be completed in order to fully accomplish the project's objectives so that the EMB will be able to operate without external technical assistance after the project duration.

- The joint evaluation team recommends that EMB and DENR should make their best effort to expedite the approval process of the developed procedural guidelines and manuals.

- The GBs and their WQMA activities in three pilot regions are going to be used as the model for other non-pilot regions. The EMB and JICA should closely monitor their performance and extend support if necessary after the end of the project duration.

- Currently, the regional offices are understaffed and staff members are compelled to take multi-tasking functions. This negatively affects the roles of the regional offices to take the lead role in WQM. Therefore, it is recommended that EMB and DENR should make their best effort to increase staff as well as align the functions of the regional office.

7 Lessons learned

- The project duration was divided in two phases. By the end of the Phase I, all the guidelines and manuals for WQMA had been drafted; therefore, the three EMB regional offices were able to start pilot activities as planned. This arrangement can be effective to secure a sufficient time

for field operations.

- At an early stage of the project duration, there was conceptual difference between the JICA technical assistance team and the EMB on the definition and the scope of WQMA. Yet, after a series of discussions, they had a clear, common understanding. This helped them develop procedural documents based on the common understanding. Full, mutual understanding between the counterpart organization and the JICA technical assistance team on definitions, scope of work and specifications of outputs and deliverables is critically important to produce satisfactory results as well as to set common goals and directions.

Project Development Matrix (PDM)

Capacity Development Project on Water Quality Management
Project Area: Whole of the Philippines (particularly DENR EMB Central Office and EMB Regional Offices)
Target Group: Staff of EMB, Local area stakeholders in water quality management
Project Period: January 2006 to January 2011

Version 2
Prepared: October 25th, 2007

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Goal: Under initiatives of the WQMA Governing Boards, industries commercial entities, LGUs, and other public organizations take necessary actions for achieving the water quality goal established in the WQMA Action Plans.	Water quality improvement action plans are being implemented by WQMA boards and LGUs, and industrial and commercial entities are complying with discharge permitting system and water quality / effluent standards, with resulting improvement in ambient water quality. DENR-EMB enforcing legal requirements of the CWA, and have adequate staff equipped with administrative and technical know-how to perform WQM functions. Cooperation with other agencies involved in water quality management is established	Records of EMB on the CWA compliance activities of WQMA boards, LGUs, and regulated industrial and commercial entities. Integrated national WQM framework adopted by government, and is being implemented through appropriate agency and WQMA organizational structures, operating procedures, manuals and work plans, information systems, and support facilities and equipment. Information from EMB on water quality conditions.	National government agencies maintains strong support for the objectives of CWA. The required budget for implementation is allocated.
Project Purpose: Capabilities of EMB Central and Regional Offices to implement priority actions mandated under the CWA IRR are strengthened.	EMB Central Office and 3 pilot ROs assisted by the Project are efficiently and effectively implementing their mandates under the Clean Water Act IRR through; • Adequate WQM procedures in conformity with CWA requirements	Survey of performance using interviews and questionnaires. Project monitoring and interim evaluation, including activity/tasks completion reports.	DENR mobilizes funds to replicate the strengthening activities to the non-pilot regions, specifically in applying the guidelines developed under the Project. WQMA Government Boards

	• WQMS staff trained in WQM procedures • Adequate equipment and information systems • Linkages with related WQM agencies and concerned stakeholders Capacity of the staff in charge of water quality management in non pilot ROs is strengthened through; • Participation in the learning process such as orientation/workshop to be conducted in the project • Adequate understanding on the procedures and guidelines on the CWA enforcement • Familiarization with the experiences of 3 pilot regions on the WQMA designation and action planning through various types of communication		mobilizes funds to implement the action plans. EMB Central and Regional offices have adequate number of technical staff as well as resources to support the operation, EMB CO and RO personnel trained under the project continue to work for implementation of the CWA mandates. Other agencies mandated to perform specific roles under the CWA are cooperative and mobilizes funds to implement their roles.
Outputs:			
1.0 Integrated policy framework for WQM based on the CWA is established and supported by adequate procedural guidelines and training for EMB staff	Publication of the policy framework that clearly specifies: • water quality goals and targets • period of compliance • water pollution control strategies and techniques • water quality information and education program • human resource development program Publication and dissemination of the supporting procedural guidelines Completed orientation-training programs on the policy framework and supporting procedures	Policy documents; proceedings of policy deliberations and inter-agency coordination activities DENR policy documents, department administration order, memorandum circular, etc. Training materials and course proceedings Evaluation reports on completed training courses	DENR and other national government agencies translate the policies and guidelines into EO/DAOs/MC. EMB CO personnel trained under the project continue to work for the implementation of the CWA mandates during the project period.

2.0 Capacity of EMB Central Office to lead and support the Regional Offices is strengthened	Management system in place, evidenced by: • water quality model being set up and running in the pilot regions • operational water quality and pollution source databases with geo-referencing capability (GIS) • establishment of an Internet-based information and communication network • publication of the first national water quality status report; and • project proposals developed to generate additional assistance for the non-pilot regions CO WQMS staff provided with equipment and trained CO effectively coordinating the implementation of CWA administrative and technical procedures in the 3 pilots	Intra-organizational documents Project activity and completion reports	EMB will facilitate access of the Project Team to existing records and databases, including base maps and *shapefiles* for developing the GIS interface (from DENR and NAMRIA). EMB will facilitate coordination by the Project Team with other agencies holding important data/information needed for the modeling work (e.g., hydrologic data from NWRB).
3.0 Capability of EMB Regional Offices to establish and support WQMAs and related institutions is strengthened in 3 pilot regions	At least one WQMA in each pilot region is established, with action plan prepared The WQMAs established have functional: • Governing Boards • Technical Secretariats • Multi-sectoral action groups • Area fund management system • Reporting system	Interviews or questionnaire surveys Process documentation of WQMA activities	EMB will be able to designate at least one WQMA in each of the pilot regions in a timely manner so that institution-building support activities under the Project will not be delayed or be subject to undue time pressure. The EMB RO in each pilot region has adequate number of staff who can be assigned to work in the Technical Secretariat, and if necessary, the EMB Regional Directors will designate staff in other units for Secretariat work.

			Relevant government agencies and LGUs in the WQMAs will be prepared to perform their roles—with their own budgets--so that area management plans are properly prepared and actually implemented.
4.0 Overall capability of EMB Regional Offices in water quality management is strengthened in 3 pilot regions.	Major point pollution sources in pilot regions are complying with the discharge permitting/charge system, including the SMR system, and supported by: • Database of point and non-point sources; • Functional system for assessment, collection and accounting of pollution charges; and • Reward/incentive system First regional water quality status report for each of the 3 pilot regions published Principal/priority waterbodies in pilot regions classified (or re-classified as needed). Calibrated WQ model and database in regions are operational, linked to central information system, and are used for WQ status reporting. Equipment of EMB regional laboratories in pilot regions upgraded, and linkage with partner laboratories established. Water sampling and monitoring equipment for regional WQMS staff procured and staff trained WQM training courses for EMB RO staff completed.	Regional Office accomplishment reports to EMB CO Project monitoring and interim evaluation reports	Adequate and timely budget is provided for pilot EMB ROs' operations so that new WQM mandates can be performed effectively EMB RO personnel trained under the Project continue to work for the implementation of the CWA mandates during the project period.

Main Activities:		
1.1 Set up multi-agency coordination system to formulate an integrated water quality management framework and implementation plan. 1.2 Prepare procedural guidelines for designating Water Quality Management Areas (including identification of non-attainment areas as defined under the CWA). 1.3 Formulate a comprehensive policy on use of market-based instruments for water quality management, including procedural guidelines for implementation. 1.4 Prepare procedural guidelines for classifying inland and marine water bodies as well as groundwater, including guidelines for conducting groundwater vulnerability mapping. 1.5 Prepare procedural guidelines for facilitating WQMA action planning (by the Area Governing Board) and follow-on compliance planning (by LGUs). 1.6 Prepare procedural guidelines, including system and procedures, for pollution load and charge computation in support of the discharge permitting system. 1.7 Prepare procedural guidelines for managing the National Water Quality Management Fund. 1.8 Prepare procedural guidelines for categorization of industries, including point and non-point sources of water pollution. 1.9 Develop approach and prepare guidelines for establishing cooperation programs with other agencies and civic groups in water quality monitoring. 1.10 Prepare guidelines and initiate coordination arrangements for allowing flexibility in enforcing discharge standards for specific types of industry sources. 1.11 Prioritize pollution sources and in prepare an operations manual on conducting compliance inspections for various types of polluting facilities. 1.12 Review water quality guidelines to provide basis for water re-classification and revision of effluent standards. 1.13 Design and implement a training program for EMB CO and RO staff in all regions for each set of procedural guidelines; prepare training materials and conduct the training. 1.14 Integrate Policies on WQM 2.1 Establish coordination system with EMB Regional Offices in implementing the guidelines developed under Output 1.	**Input from Japanese Side:** (1) *Long-Term Experts*: The following tree long-term experts will be provided. The total man-hours of these long-term experts are estimated at about 150 M/M over 5 years. • Team Leader (specialist in environmental policy development and implementation) • Team Member (specialist in water quality management, industrial pollution control, and plant inspections) • Team Member (specialist in organizational and institutional areas) (2) *Short-Term Experts*: JICA will provide 4 short-term experts to assist and advise in special technical fields. The total man-hours of the short-term expert are estimated at about 30 M/M over 5 years. • Specialist in water quality monitoring • Specialist in pollution source control • Specialist in environmental information systems • Specialist in water quality modeling (3) *Local Consultants and Local Sub-Contractors*: Will assist EMB in formulating plans and guidelines and providing the training through workshops and OJT training in pilot regional offices (4) *Local Assistant and Secretaries*: to provide general assistance in implementing the Project. (5) *Equipment and Materials*: The categories of equipment and materials to be provided are shown in the following table. The actual items will be decided after a precise survey on needs. • Equipment for field sampling, monitoring, and measurement, and vehicle • Equipment and materials for water laboratory	Counterpart staff and support facilities are provided by EMB in a timely manner (Identify specifically how many staff and the counterpart support facilities required) **Preconditions:** Additional staff from other DENR units will be detailed to the PMO and TWGs as needed in both CO and ROs, thru formal orders.

2.2 Select or develop appropriate water quality modeling techniques, including calibration, testing and demonstration in selected regions. 2.3 Design, develop, trial implement a national information campaign for raising public awareness of water quality management issues. 2.4 Design and develop a water quality and pollution source database management and reporting system for use by ROs, with capability for mapping pollution sources using GIS. 2.5 Design and develop an Internet-based WQM information and communication system to link the EMB CO with the ROs. 2.6 Integrate regional reports and publish the first national status report on water quality. 2.7 Implement procedures for managing the national water quality management fund (based on procedural guidelines developed under Activity 1.7). 2.8 Procure sampling equipment for WQMS staff, and streamline operations of the EMB central lab as a reference laboratory and training center for RO laboratory personnel. 2.9 Design and implement a training program for EMB CO staff on use of the information and communication system developed, including fund management. 2.10 Conduct activities to generate resources for non-pilot ROs, e.g., planning workshops with other donor agencies (e.g., World Bank, ADB). 3.1 Implement the guidelines for WQMA delineation. 3.2 Set up the Governing Board and Technical Secretariat for the designated WQMAs. 3.3 Facilitate the formulation of WQMA GB action plans and LGU compliance plans based on guidelines developed under Activity 1.5. 3.4 Assist WQMA GBs in establishing and managing the area water quality management fund and the activities of multi-sectoral monitoring groups. 3.5 Assist in establishing area-based cooperation arrangements in water quality monitoring based on procedures developed under Activity 1.9. 4.1 Identify attainment and non-attainment areas based on the procedures developed under Activity 1.2. 4.2 Classify or re-classify water bodies as needed based on guidelines developed in Activities 1.4 and 1.12. 4.3 Implement the discharge permitting and wastewater charge	• Equipment for water quality information system (6) *Technical Training in Japan or Third Countries*: This is intended for EMB staff engaged in water quality management. The fields of training, periods, training places and trainees will be decided in the course of the project implementation. **Input from Philippine Side:** (1) Counterpart Staff: Designated counterpart staff shall work as the counterparts of the Japanese side to implement the Project whenever requested. • Chairman of Joint Coordination Committee • Project Director • Project Manager • Assistant Project Manager • Focal Persons • Project members • Members of Technical Working Groups/Technical Committees • Members who work jointly in the pilot regional offices (2) Facilities for Japanese side: The Philippine side will provide office space under the secure conditions. The facilities will be equipped with desks, meeting tables, air conditioners, communication equipment, etc. (3) Equipment and Materials: The Philippine side will provide other necessary equipment and materials necessary for project implementation. (4) Budget for Project Operation: The Philippine side will provide salary and allowance for the staff of the Philippine side, including budget for travel expenses and operation expenses required under the project.	

system based on procedures developed under Activity 1.6. 4.4 Set up collection and accounting systems for permitting fees and wastewater charges. 4.5 Conduct pollution source inventories and water quality field surveys. 4.6 Apply the water quality model developed under Activity 2.2, for example, in allocating pollution quotas in non-attainment areas. 4.7 Implement procedures (developed under Activities 1.8 and 1.11) for pollution source categorization, prioritization and compliance inspections. 4.8 Manage the database of pollution sources and WQ data survey results, and link the regional database to the national database at the EMB CO. 4.9 Procure equipment for sampling and analysis, and develop training materials to enhance capability of EMB regional laboratories; also assist ROs in initiating laboratory partnerships. 4.10 Prepare and disseminate the first regional water quality status reports. 4.11 Design and implement a program for RO staff in the non-pilot regions to visit and observe WQM procedures being implemented in the pilot regions.		

Annex 2: Dispatch of Japanese experts

Name	Position	Period	
Group A (Long-Term)			
Hitoshi KIN	Team Leader/ Policy and Planning Specialist	FY2005	02/19/2006-04/21/2006
		FY2006	06/01/2006-09/26/2006 10/30/2006-03/28/2007
		FY2007	05/15/2007-08/27/2007 10/03/2007-02/29/2008
		FY2008	05/02/2008-09/09/2008 11/02/2008-03/19/2009
		FY2009	05/11/2009-06/30/2009 08/02/2009-08/30/2009 12/01/2009-12/15/2009 01/09/2010-03/19/2010
		FY2010	05/06/2010-07/09/2010 08/24/2010-12/14/2010 01/03/2011-01/31/2011
Yasuhiko MURAMATSU	Water Quality Management Specialist	FY2005	02/19/2006-04/21/2006
		FY2006	06/01/2006-11/30/2006 01/03/2007-03/28/2007
		FY2007	05/15/2007-12/25/2007
		FY2008	05/07/2008-08/02/2008 08/31/2008-12/06/2008 01/13/2009-02/14/2009
		FY2009	05/11/2009-07/17/2009 08/16/2009-12/12/2009 01/11/2010-03/19/2010
		FY2010	06/27/2010-12/22/2010 01/06/2011-01/31/2011
Yusuke GOTO	Organizational and Institutional Specialist	FY2006	07/02/2006-02/28/2007
		FY2007	05/15/2007-06/28/2007 08/21/2007-02/29/2008
		FY2008	05/07/2008-08/02/2008 08/31/2008-11/14/2008 01/13/2009-03/19/2009
		FY2009	07/01/2009-12/12/2009 01/04/2010-03/19/2009
		FY2010	05/25/2010-08/09/2010 08/31/2010-12/15/2010 01/06/2011-01/31/2011
Group B (Short-Term)			
Takashi ONUMA	Water Quality Monitoring	FY2005	03/15/2006-04/21/2006
		FY2006	09/02/2006-12/07/2006
Kenichi KURAMOTO	Pollution Source Control	FY2006	09/07/2006-11/30/2006 02/01/2007-03/17/2007
Yuichiro HAMADA	WQ Information System	FY2006	06/02/2007-09/14/2007
Makoto MITSUKURA	Water Quality Modelling/ Project Coordinator	FY2005	03/05/2006-04/05/2006
		FY2006	08/06/2006-10/04/2006 11/01/2006-11/30/2006
		FY2007	01/31/2008-02/29/2008
Miho NAKANO	Wastewater Management	FY2009	09/07/2009-12/15/2009
Yukiko ITAMI	Coordinator	FY2010	11/01/2010-12/15/2011

Annex 3: Local Consultants

Task	Consultants	Period	Total M/M
Formulation of Integrated Water Quality Management Framework	DARUMA Technologies	2006.8-2007.3	9.0
Development of Procedural Guidelines for Designation Water Quality Management Area, Attainment and Non-Attainment Areas and WQMA Action Planning	CEST	2006.6-2007.3	16.0
Designation of Water Quality Management Areas, Identification of Non-Attainment and Attainment Areas	CEST	2006.5-2007.12	33.0
Market-based Instruments and Wastewater Charge System (Public Consultation for Waste Water Charge System)	Aquatreat Environmental System	2006.11-2006.12	1.5
Development of the Policy and Guidelines on Market-Based Instruments for Water Quality Management	Tetra Tech	2007.6-2008.1	18.0
Managing Ambient Water Quality, Development of Procedural Guidelines for Categorization, Effluent Standards and Regulatory Compliance Enforcement	Woodfields Consultants	2006.8-2007.3	33.5
Revising Water Quality Monitoring Manual (Surface water)	Woodfields Consultants	2007.6-2008.1	12.0
Finalization of revised water quality guidelines and development of effluent standards	Innogy Solutions	2007.6-2007.12	25.5
Development of the Database for Water Quality Management (Phase 1)	Woodfields Consultants	2006.10-2007.2	23.0
Development of the Database for Water Quality Management (Phase 2)	Woodfields Consultants	2007.6-2007.12	18.5
regional and National Water Quality Status Report for Public Information and Advocacy	Innogy Solutions	2006.8-2007.3	19.5
Integration of Guidelines on Water Quality Management	Tetra Tech	2007.9-2007.12	3.0
Preparation of WQMA Action Plan for Three Pilot Regions (Year 1)	CEST	2008.06-2009.02	78.5
Supplemental Consulting Services 1 for Preparation of WQMA Action Plan for Three Pilot Regions	CEST	2009.01-2009.02	3.0
Supplemental Consulting Services 2 for Preparation of WQMA Action Plan for Three Pilot Regions	CEST	2009.1-2009.2	2.6
Development of Industry- Specific Effluent Standards (Year 1)	Innogy Solutions	2008.06-2009.02	23.0
Water Quality Management Implementation (Water Quality Management Fund)	Innogy Solutions	2009.01-2009.02	3.5

Preparation of WQMA Action Plan for three Pilot Regions (Year 2)	CEST	2009.06-2010.02	54.0
Development of Industry- Specific Effluent Standards (Year 2)	Innogy Solutions	2009.06-2010.02	16.0
Revision of Guidelines for PCO accreditation and Compliance Inspection Manual	Innogy Solutions	2009.09-2010.02	3.5
Finalization of Wastewater Charge System and Harmonization	Innogy Solutions	2009.09-2010.02	4.5
Development and Validation of Methods for Animal Fats and Vegetable Oil (AVFO) and Petroleum Oil in Water/Wastewater	Dr. Evangeline C. Santiago	2009.08-2010.02	2.5
Area Cooperation Arrangement, Pollution Source Prioritization and Inspection and Public Information in the three Water Quality Management Areas	CEST	2010.05-2010.12	19.0
Classification of Waterbody	Woodfields Consultants	2010.06-2010.12	15.5
Enhanced Use of Database/Information System	Woodfields Consultants	2010.06-2010.12	9.0
Enhancement of Proposed Water Quality Management Fund Guidelines	Innogy Solutions	2010.07-2010.12	6.0
Philippines Effluent Management Strategy Policy Review	Innogy Solutions	2010.06-2010.12	6.0

Annex 4: Training in Japan

Name of Trainee	Title of Training	Period	Venues
Mr. Marcelino N. Rivera Ms. Leza Acorda-Cuevas Ms. Consolacion Crisotomo	Water Quality Management Administration	2007.7.16-2007.7.28	TIC, Shiga Prefecture, Ibaragi Prefecture, Mie Prefecture, etc.
Ms. Dorren Torres	Workshop for Enhancement of the Governmental Capacity on Water Environment in Asian Countries	2010.09.05-2010.09.18	Yokohama International Center

Annex 5: Equipment provided for the Project

Training equipment:

No	Item	Responsible person	Date of delivery	Section
1	Digital Camera : Kodak V350	Sonia Barlis	October 19, 2006	WQMS
2	Laptop : HP Compaq Nx6320 Business Notebook	Renato Cruz (S/N:CNU6280TM9)	October 19, 2006	EQD
		Leza Cuevas (S/N:CNU6280V3C)	October 19, 2006	WQMS
3	LCD Projector ; EPSONEMP-X3 Multimedia Projector	Leza Cuevas	October 19, 2006	WQMS
4	Mini Screen : portable	Leza Cuevas	October 19, 2006	WQMS
5	IC recorder Sony	Leza Cuevas	October 19, 2006	WQMS

Field monitoring & water sampling equipment:

No	Item	Responsible person	Date of delivery	Section
1	Water Sampler (Wildco Brand, PN 1130-C42)	Damian Rubio	October 31, 2006	WQMS
2	Sediment Sampler, Brand: Ponar (CZ-05471-10)	Damian Rubio	October 31, 2006	WQMS
3	Digital Current Meter: Marsh-McBirney Brand Flo-Mate 2000-11	Marcelino N. Rivera, Jr.	October 31, 2006	WQMS
4	Water Quality Checker: Horiba U-22XD	Vilma Cabading (S/N:511044)	October 31, 2006	WQMS
		Renato Vengco (S/N:511041)	October 31, 2006	WQMS
5	Global Positioning System (Garmin Brand)	Marcelino N. Rivera, Jr.	October 31, 2006	WQMS
6	One unit brand new 2006 NISSAN FRONTIER III 4x4S	Marcelino N. Rivera, Jr.	July 17, 2006	WQMS

Laboratory equipment:

No	Item	Responsible person	Date of delivery	Section
1	Water Bath: Stabletemp Digital Utility Bath	Araceli Cantre	January 10, 2007	RDD
2	Hot Plate	Remy Mamon	January 10, 2007	RDD
3	Low Temperature Refrigerator for Sample Storage	Leonita Baetiong	January 10, 2007	RDD
4	Low temperature refrigerator for standards and reagent storage	Leonita Baetiong	January 10, 2007	RDD

Equipment provided for EMB Region III

	Equipment	Remarks
1	Current meter	For ambient water quality monitoring.
2	Sediment Sampler	For collection of sediment sample from riverbed and ocean.
3	Water Sampler	Type: Van Dorn type water Sampler
4	Water Quality Checker	Type: Portable type, applicable field measurement
5	Secchi Disc	Type: Secchi Disc for Transparency
6	Transparency Meter	50cm height
7	Incubator	For BOD, Coli form count.
8	Autoclave	
9	Water Bath	
10	Hot Plate	
11	Pure Water Supply Unit	
12	Ultrasonic Cleaner	
13	Distillation Unit	
14	Multiple Analyzer	
15	Laboratory Test Meter	
16	Atomic Absorption Spectrophotometer	
17	Set of Support Apparatus for Analysis	1) Micro Pipette (5mL): 2 set each, 2) Dispenser: 2 sets, 3) Burette: 2 sets, 4) BOD Bottle: 96 pcs

Equipment provided for EMB Region VI

	Equipment	Remarks
1	Current meter	For ambient water quality monitoring.
2	GPS	For identifying geological position of pollution sources and sampling sites of WQ monitoring.
3	Sediment Sampler	For collection of sediment sample from riverbed and ocean.
4	Water Sampler	Type: Van Dorn type water Sampler
5	Water Quality Checker	Type: Portable type, applicable field measurement
6	Secchi Disc	Type: Secchi Disc for Transparency
7	Transparency Meter	50cm height
8	Incubator	For BOD, Coliform count.
9	Autoclave	
10	Water Bath	
11	Hot Plate	
12	Desiccating Cabinet	
13	Pure Water Supply Unit	
14	Ultrasonic Cleaner	
15	Filtration Unit w/ pump (3 units)	
16	Distillation Unit	
17	Multiple Analyzer	
18	Laboratory Test Meter	
19	Set of Support Apparatus for Analysis	1) Micro Pipette (5mL): 2 set each, 2) Dispenser: 2 sets, 3) Burette: 2 sets, 4) BOD Bottle: 96 pcs

Equipment provided for EMB Region XII

	Equipment	Remarks
1	Current meter	For ambient water quality monitoring.
2	GPS	For identifying geological position of pollution sources and sampling sites of WQ monitoring
3	Sediment Sampler	For collection of sediment sample from riverbed and ocean
4	Water Sampler	Type: Van Dorn type water Sampler
5	Water Quality Checker	Type: Portable type, applicable field measurement
6	Secchi Disc	Type: Secchi Disc for Transparency
7	Transparency Meter	50cm height
8	Fume Hood with wash and exhaust Unit	Dimension: 75(W) x 50(D) x 120(H) cm or more
9	Incubator	The incubator will be used for BOD, Coliform count.
10	Autoclave	
11	Water Bath	
12	Hot Plate	
13	Desiccating Cabinet	
14	Refrigerator	
15	Pure Water Supply Unit	
16	Ultrasonic Cleaner	
17	Filtration Unit w/ pump (3 units)	
18	Distillation Unit	
19	UV-Vis Spectrophotometer	
20	Multiple Analyzer	
21	Laboratory Test Meter	
22	Atomic Absorption Spectrophotometer	
23	Mercury Analyzer	
24	Arsenic Generator and absorber assembly	
25	Ion Chromatograph	
26	Set of Support Apparatus for Analysis	1) Micro Pipette (5mL): 2 set each, 2) Dispenser: 2 sets, 3) Burette: 2 sets, 4) BOD Bottle: 96 pcs

Annex 6: Assignments of the counterpart personnel

	Name	Office Designation	Position
1	Renato T. Cruz	OIC, EQD (EMB CO)	Project Manager
2	Marcelino N. Rivera Jr.	OIC, WQMS (EMB CO)	Assistant Project Manager
3	Leza A. Acorda-Cuevas	Supervising EMS (EMB CO)	EMB Lead Focal Person
4	Michico Venus A. Navaluna	Supervising EMS (EMB CO)	Focal Person for WQM Funds and Sarangani Bay WQMA Action Planning and MSG
5	Consolacion P. Crisostomo	DMO IV (EMB CO)	Focal Person for Incentives and Rewards IBRS WQMA Action Planning and MSG
6	Sonia R. Barlis	Statistician II (EMB CO)	Focal Person for Database/Info Mgt. and MMO RS WQMA and MSG
7	Vizminda Osorio	Supervising EMS (EMB CO)	Focal Person for Revision of PCO Guidelines for Accreditation
8	Ella S. Deocadiz	Chief RDD	Member
9	Elenida R. Basug	Chief EEID	Member
10	Herbert Narisma	Chief MIS	Member
11	Vilma T. Cabading	Senior EMS (EMB CO)	Focal Person for Preparation of National and Regional Water Quality Status Reports (Pilot Regions) and MMO RS WQMA Action Planning
12	Nicanor E. Mendoza	Engineer IV (EMB CO)	Focal Person for Waste Water Charge System and Discharge Permits
13	Nolan B. Francisco	Senior EMS (EMB CO)	Technical Input
14	Samuel A. Fabro	Forester II (EMB CO)	Focal Person for Water Body Classification
15	Dominic Gonzales	Data Encoder (EMB CO)	Administrative Support
16	Zenaida Manuel	Data Encoder (EMB CO)	Administrative Support
17	Rowena Gersalia	Clerk II (EMB CO)	Administrative Support
18	Renato Vengco	Clerk III (EMB CO)	Administrative Support
19	Damian Rubio	Clerk III (EMB CO)	Administrative Support
20	Exuperio Lipayon	Chief, PCD	Focal Person in EMB Region 3
21	Dorren Torres	OIC, WQMS	Focal Person in EMB Region 3
22	Samson Guillergan	Chief, PCD	Focal Person in EMB Region 6
23	Nimfa Adolfo	OIC, WQMS	Focal Person in EMB Region 6
24	Ronnie Salmon	Chief, PCD	Focal Person in EMB Region 12
25	Alex Tacbobo	Chief, PCD	Focal Person in EMB Region 12
26	Leoncia Rellon	OIC, WQMS	Focal Person in EMB Region 12

Annex 7: The summary of project activities

Activity	Deliverables/Outputs	Current status	Description
1.1	Multi-agency coordination system comprising various policy commitments.	Completed	EMB CO organized several consultation meetings and workshops on IWQMF, participated in by around 30 agencies. Attendance among various agencies was mostly division chief level. All the agencies agreed on goals and targets, but it was unclear if they would formally accept the targets and commitments set forth in the IWQMF. It was then decided such a system will be formed at the two levels of organization, an Inter-agency Steering Committee (IASC) composed of the heads of key government agencies and Technical Working Groups (TWG) for each of six major areas of concern under the proposed IWAMF, involving more than 30 relevant agencies and organizations.
	Integrated Water Quality Management Framework and its implementation activities	EMB has almost finalized IWQMF. It is being submitted to DENR.	Subsequently, this activity was newly added to consolidate the draft guidelines and manuals that had been completed in the first year. It was decided that IWQMF should be a Presidential Executive Order (E.O.) that directs responsible agencies to carry out their respective orders. It was once submitted to DENR and now it is being finalized. It is going to be submitted before the end of the Project.
1.2	1) Procedural manual for designating Water Quality Management Areas (WQMAs) 2) Procedural guidelines for identification of non-attainment areas	1) Approved (EMB-MC 2009-15) 2) Almost ready for approval	It took some time for the consultants, EMB and JICA team to agree on the definition and basic approach to WQMA designation. JICA team proposed an approach based on identification of and focus on pollution problem areas, while EMB proposed to delineate based on the watershed. Finally, a combined approach was adopted. The procedural guidelines was converted to procedural manual as recommended by DENR Policy TWG. It developed and already approved in 2008. The procedural guidelines for designation of Non-Attainment Areas was drafted in March 2008. It was revised after pilot-testing. The final version will be submitted within 2010.
1.3	1) A comprehensive policy on the use of MBIs; 2) Procedural guidelines on incentives and rewards under the CWA; 3) Procedural guidelines on effluent	On-going	Procedural guideline on effluent quota was developed in the phase 2. It was decided that procedural guidelines on effluent trading should be developed after other relevant guidelines were drafted and this activity was cancelled. The guidelines on incentives and rewards have been drafted, incorporating comments from BOI. As part of the EMB CO's review of the policy, an instrument on Effluent Quota Allocation is going to be reviewed.

Activity	Deliverables/Outputs	Current status	Description
	quota		
1.4	Procedural guidelines for classifying inland and marine water bodies	Final draft is almost ready for approval (Final form: MC).	The first draft was completed in February 2007. It is currently being revised. The final draft is going to be submitted to DENR/EMB by the end of the project duration.
1.5	Procedural Guideline for facilitating WQMA action planning and follow-up compliance planning	Final draft is almost ready for approval (Final form: MC)	The first draft was completed in February 2007. It was pilot-tested in the three WQMAs. It was finalized and re-submitted in February 2010. The final draft is going to be submitted to DENR by the end of the project duration. Reference manual on WQMA Action Planning and LGU Compliance Scheme was also developed and being revised. It is also expected to be completed by the end of the project duration.
1.6	Supplemental Procedural guidelines on the Implementation of the wastewater charge system	Pending the completion of general guidelines (Final form: DAO)	Procedural guideline was developed under the project funded by the World Bank/Korean fund. This JICA Project provided financial support for holding Public Consultations in three regions since the budget was not included in the WB project. After the draft guidelines were revised, the Public Consultations were organized by the Project in Luzon area, and by EMB in Visayas and Mindanao areas which was followed by finalization of the draft guidelines.
1.7	Procedural guidelines for managing the National Water Quality Management Fund embodied with manual for area WQ management fund	Final draft is almost ready for approval (Final form: DAO)	This Procedural guideline was developed under the project funded by USAID. Yet, they needed major revisions as the structure and approach of fund management needed to have consensus with the DBM. In the initial draft, the Area WQ management fund was designed as a revolving fund, but this was not supported by the DBM. The development of the national procedural guidelines is in its final stage, undergoing refining. The guidelines for the Area WQ management fund was drafted in February 2009 and it is currently being revised.
1.8	Procedural guidelines for categorization of industries	Submitted to DENR (Final form: MC)	Initial draft Procedural guidelines for categorization of industries have been completed and further refining was done. It has been submitted to the DENR for approval.
1.9	Guidelines for establishing cooperation programs with other agencies and civic groups in Water Quality Monitoring Manual	On-going	The guidelines were drafted. They are tested in the pilot regions (e.g. the applicability of the guidelines for the formation of Multi-Sector Group). The guidelines will be revised based on the experiences obtained through pilot activities and finalized by the end of the Project duration.

Activity	Deliverables/Outputs	Current status	Description
1.10	Procedural guidelines for allowing flexibility in discharge standards for specific types of industry sources.	Implemented as the activity under 1.12	The EMB developed Procedural Guidelines for Industry-Specific Effluent Standards for four sectors as well as the procedural guidelines for general effluent standard. Therefore, it was decided that no further guiding documents were necessary to allow flexibility in discharge standards. Currently, the EMB is conducting study on the future direction of ISES and target industries.
1.11	1)Guidelines for prioritization of pollution sources 2) Operation manual of Compliance Inspection 3)Guidelines for accreditation of Pollution Control Officers.	Ready for approval (Final form: DMC).	The guidelines and manuals were developed in the Phase I. In the Phase II, they were revised and finalized after applied in the pilot regions.
1.12(1)	Revised Water Quality Guidelines embodied in DAO 34	Completed	The first draft done by L/C was not fully accepted by EMB since it contained several scientific standards which were not practical and/or applicable in the current Philippine conditions. The EMB CO reviewed the guidelines to adapt to local conditions.
New	Finalization of Revised Water Quality Guidelines and Development of General Effluent Standards	Draft DAO is ready for approval.	EMB Technical committee is handling the finalization properly. Based on 1.12(2), General Effluent Standards were developed in 2007. (BOD issue for marine water remains.)
1.12(2)	Procedural guidelines for establishing general effluent standard and Industry-Specific Effluent Standards	Submitted to DENR (Final form: DAO).	In FY2006, it was identified that the General Effluent Standard (GES) should be developed in advance of Industry-Specific Effluent Standard.(1.12(2)) Four industry-specific standards (for Alcohol distillery, Abaca, Paper and pulp products and Sugar milling) were developed in the phase 2. Also, EMB CO developed ISES for Hotel and Restaurant sector. Yet, the restaurant sub-sector was negative on the proposed ISES. The draft DAO on WQG and GES was revised in 2008. The guidelines for revising GES and developing ISES is to be finalized.
1.12(3)	A study for Establishing 4 Industry Specific Standards	On-going (Final form: DAO).	
1.13	Training program on procedural guidelines	Completed	At the end of each fiscal year, a series of orientation workshops were organized and participated in by all the regional offices (2 - 4 staff members each). The objectives of the workshops were to present project's outputs, share experiences of pilot activities.

Activity	Deliverables/Outputs	Current status	Description
			Titles of Workshops 2006: (The number of participants: 184) Formulation of Integrated Water Quality Management Framework Procedural Guidelines on Water Quality Management Area, Non-Attainment and Attainment Areas, and WQMA Action Plan and LGU Compliance Scheme Managing Ambient Water Quality, Developing Procedural Guidelines for Categorization, Effluent Standards & Regulatory Compliance Enforcement Preparation of Regional and National Water Quality Status Report 2007: (The number of participants: 231) Designation of Water Quality Management Area, Identification of Non-Attainment Areas, and Setting up of Governing Boards Market-Based instruments Revising Water Quality Monitoring Manual (Surface Water) Finalization of Revised Water Quality Guidelines and Development of Effluent Standards Database Development 2008: (The number of participants: 231) Operationalization of Water Quality Management Fund Preparation of WQMA Action Plan Development of Industry specific Effluent Standards Enhancement of Operation of Database/Information System 2009: (The Number of participants: 224) Development of Industry Specific Effluent Standards (Hotel & Restaurant Sector) Finalization of Discharge Permitting and Wastewater Charge System and Harmonization Revision of Guidelines for PCO Accreditation and Compliance Inspection Manual Preparation of WQMA Action Plan (Year 2) According to the questionnaire surveys conducted after each workshop, the level of satisfaction was generally very high, the materials provided very appropriate and the level of understanding

Activity	Deliverables/Outputs	Current status	Description
			of the contents high or very high. Yet, a number of respondents felt the necessity of OJT for full understanding. Sharing of experience and information on the Project's outputs was also done at the monthly management conference.
1.14	Integration of policies on WQM	Completed	The guidelines and manuals developed during the Phase 1 were reviewed on their legal consistency and complementarity and the guidelines and manuals were revised accrdingly.
2.1	Coordination with regional offices	On-going	The JICA TAT assisted the EMB CO on various occasions by providing documents and conducting analysis. The EMB CO coordinated with EMB ROs through collaborative preparation of materials used in management conferences to keep non-pilot regions informed. Local consultants consistently support the EMB CO in managerial and technical aspects of GB activities.
2.2	Selection of appropriate water quality modelling technique	Completed	The model developed by a local consultant was not satisfactory to EMB. Then, JICA TAT incorporated the development of water quality model in its contract with another local consultant. The design of the model and its program require highly technical skills; therefore, the template as well as the operation manual was developed for EMB for use. The EMB staff members were also trained in the use of the program.
2.3	A trial, national campaign for raising public awareness of water quality management issues	On-going	In 2010, Discussion was made at Governing Board meetings on a framework plan for WQMA public information activity. The GBs will provide materials for such a campaign to the EMB CO. Then, the EMB CO will process such materials into IEC materials.
2.4	A water quality and pollution source database with reporting system for use by ROs linking between EMB CO and ROs	Now operational	Collection and analysis on relevant data and information in EMB CO and six ROs were achieved in FY2006, as well as design of initial database structure. In FY2007, database and internet-based communication system was developed and currently in use. Water quality monitoring data as well as social and geographical data in the pilot regions are regularly compiled and processed in the web-based database. Some minor revision is made on waste water discharge permitting and pollution sources to respond to changes made in the guidelines for fund management. Database on PCO is going to be additionally developed and finalized by the end of the project duration.
2.5	Internet-based WQM information and communication system to link the EMB CO with the ROs	Mostly operational	

Activity	Deliverables/Outputs	Current status	Description
2.6	1) Regional Water Quality Status Reports for three pilot regions 2) The first National Water Quality Status Report	Completed	The guidelines for preparing water quality status report was developed in February 2007.
2.7	Implementation of procedures for managing the national water quality management fund (1.7)	On-going	The EMB CO finalized the fund guidelines and the operational manuals for national and area water quality management funds. Coordination with DBM is underway to operationalize water quality management fund. Yet, the operationalization of the fund was pending due to DMB policy. It is expected that the DBM, the DOJ and the committee on Ecology will settle the issue.
2.8	Equipment for training and sampling work for EMB Central Laboratory and EMB-CO WQMS	Completed	The equipment provided for project activities was properly managed.
2.9	Training programs on use of the information and communication system and fund management	Completed	The user's manual on water quality management information system was developed in August 2008 and approved in December 2008. Training on the use of information system was conducted in the orientation workshops.
2.10	A donor coordination workshop to generate resources for non-pilot regions	Completed	In March 2009, a seminar was organized to present project progress and outputs, inviting other donors (ADB, AusAID, CIDA, DANIDA, GTZ, KOICA, NZAID, SIDA, UNDP, USAID, WB, WHO) and relevant, national organizations. A project proposal, titled "Capacity Development Project for Enhanced Compliance and Enforcement of the Philippine CWA" was produced. In the forthcoming orientation workshop, a session is planned to discuss on how to expand WQMA to non-pilot regions.
3.1	Implementation of the guidelines for WQMA delineation	Completed	This was completed during 2008 - 2009 for each WQMA.
3.2	Area Governing Boards for the WQMAs	Completed	The GB has been formed for each WQMA in the pilot regions. Details are shown in Annex 8.
3.3	Governing board action plans and LGU compliance plans (based on the guidelines developed under 1.5)	Completed	The three pilot regions of EMB prepared initial WQMA action plan for each WQMA. They were further developed into ten-year WQMA action plans. Some of the priority actions in the Ten-Year WQMA action plans are being implemented, including the creation of Multi-Sector

Activity	Deliverables/Outputs	Current status	Description
			Groups (MSGs). Actual compliance will be done when the LGUs issue local ordinance to adopt the WQMA plan.
3.4	Establishment of the area water quality management fund and Multi-Sectoral Groups (MSGs)	On-going	The capacity of EMB ROs was augmented with an additional function for each fund management and monitoring. The manual for operationalizing the funds was prepared. This includes the setting-up of an accounting system for the WQMA to track fund flows. Coordination with DBM is underway to operationalize water quality management fund. Yet, the operationalization of the fund was pending due to DMB policy. It is expected that the DBM, the DOJ and the committee on Ecology will settle the issue. Each GB formed a MSG for water quality monitoring in 2009 in compliance with the Section 5 of the CWA and Rule 5.7 of CWA-IRR. Details are shown in Annex 8.
3.5	Area-based cooperation in water quality monitoring (based on the procedures developed under 1.9)	Completed	To date, each MSG has developed a Water Quality Monitoring Plan with assistance of the technical secretariat from EMB RO, nominated its members, selected sampling stations (MMO/EMB 3: 13 stations, IBRS/EMB 6: 16 stations, Sarangani Bay/EMB 12: 22 stations), trained members in sampling and test procedures and conducted pilot sampling. Analysis of water quality is conducted by regional laboratories. Draft guidelines for area cooperation (guiding documents for the establishment and operation of MSG) in water quality monitoring were prepared. The document is being consulted with EMB and GBs and scheduled to be finalized by the end of the Project duration.
4.1	Initial identification of attainment and non-attainment areas	Completed	The Three pilot EMB ROs assessed water quality monitoring data and delineated an NAA in each WQMA in early 2009.
4.2	Classification of water bodies as required by the procedures developed under 1.4 and 1.12	On-going	A marine and/or lake water body in regions was decided to be the focus for this activity. The procedural guidelines for classification of water bodies are currently tested in Albay Gulf, Toledo-Balamban Coastal Waters and Macajalar Bay.
4.3	Implementation of discharge permitting and waste water charge system based on procedures developed under 1.6	On-going	Implementation is pending the official approval of the guidelines. The drafted formats on the discharge permitting and waste water charge system is going to be revised, incorporated into the database.
4.4	Accounting system for permitting fees	Completed	The EMB ROs developed an operational manual for the Area WQM Fund under the thematic

Activity	Deliverables/Outputs	Current status	Description
	and waste water charges		group on WQM implementation. Actual use of the system is pending the official approval of the guidelines.
4.5	Pollution source inventories and water quality field surveys	Completed	The EMB ROs developed an inventory of pollution sources within each WQMA.
4.6	Application of the water quality model developed under 2.2 (e.g. allocation of pollution quota in non-attainment areas)	Completed	As part of action planning, water quality modelling was done for planning purposes in the three pilot EMB ROs.
4.7	Implementation of procedures (1.8 and 1.11) for pollution source categorization, prioritization and compliance inspections	On-going	Guidelines for Pollution Control Officer (PCO) accreditation and compliance inspection manual was drafted after several revisions. The EMB have conducted additional public consultation and reviewed the guidelines. Recommendations on the pollution source prioritization and compliance inspections are being drafted.
4.8	Management of database of pollution sources and water quality data and linking with the national database	Almost completed	Database was constructed and its user manual completed. All EMB ROs started processing data on the developed database, following the manual. The water quality management information system is under revision.
4.9	Equipment for laboratory service (Specification will be defined in Phase I and the procurement will take place in The phase 2) at the EMB ROs in the three pilot regions	Completed	Laboratory staff members from the regions were trained in the use of newly procured equipment. In addition, inter-laboratory training was conducted annually to improve the accuracy of analysis and upgrade skills. Equipment procured for regional laboratories was operational. It is used for analysis of sampled water collected by both EMB and MSG on a regular basis.
4.10	The first regional water quality status report	Completed	The regional water quality status reports of the three pilot regions have been already produced and made accessible on the EMB website. In addition to the regional status reports, the GBs of the WQMAs in the pilot regions decided to produce their respective WQMA water quality status reports. The contents of the report cover the overview of WQMA and water qualification, water quality assessment, water quality management policies and programs, best practices and lessons learned in water quality management and challenges. The first draft versions have been produced and currently consulted and revised by the GBs. The status reports will be used for public awareness campaigns as well as for reviewing and revising WQMAs.

Activity	Deliverables/Outputs	Current status	Description
4.11	A visitation program for non-pilot ROs to study pilot regions		The cross-visit planned in 2009 was postponed due to budgetary constraints. In February 2010, it was conducted as part of the orientation and workshop. Site visits were made to waste water treatment facilities in Metropolitan Manila and Rizal.

Annex 8: The status of the Project's main outputs (Guidelines and manuals)

Outputs	Final draft completed by consultant	Final draft submitted by consultant to EMB	Technical committee meetings held	Request for revision, addition or any other issues raised by the committee that resulted in delay in submitting to DENR (or the main reason(s) for delay in approval, if any)	Submitting final version to DENR	Final approval	Final form
Procedural Guidelines for Designation of Water Quality Management Area	February 2007	February 2007	2006-2007	Procedural Guidelines was converted to Procedural Manual per recommendation of DENR Policy TWG	2008	2008	MC
Integrated WQM framework and its implementation activities	February 2007	February 2007	2007-2007	Once submitted and now finalizing it based on the comments	Once submitted	Expected by the end of Project	Executive Order of President
Water Quality Guidelines, General Effluent Standards, Procedural Guidelines for Establishing Effluent Standards including General and Industry-Specific Standards	February 2007	February 2007	2006-2007	The draft DAO on WQG and GES was revised in JFY 2008.	Now at DENR	Expected by the end of Project	DAO
				The Guidelines for revising GES and developing ISES is currently being revised (JFY 2010).	N/A	Unlikely to be approved during project duration	EMB internal guidelines
Procedural Guidelines on Classification/Reclassification of Fresh and Marine Waters	February 2007	February 2007	2006-2007	The guidelines is currently being revised (JFY 2010).	Not yet submitted	Unlikely to be approved during project duration	MC
Water Quality Monitoring manual	February 2008	June 2008	2007-2008	Completed.	December 2008	December 2008	MC
Supplemental Guidelines on the Nationwide Implementation of the Wastewater Charge System	February 2007	April 2007		The draft guidelines was revised in JFY 2009 as IRR on Sections 13 and 14 of RA 9275.	Pending the completion of general guidelines	Unlikely to be approved during project duration	DAO

Guidelines on the Operationalization of National WQM FUND		February 2009		The guidelines is currently being revised (JFY 2010).	Not yet submitted	Expected by the end of Project	DAO
Area fund	February 2009	February 2009		The guidelines is currently being revised (JFY 2010). Need to discuss with the congress.	Not yet submitted	Difficult to determine the timing of approval	DAO
Procedural Guidelines for Designation of Non-Attainment Areas	February 2008	March 2008		The guidelines was pilot-tested and revised guidelines will be submitted by local consultant within 2010.	Not yet submitted	Expected by the end of Project	DAO
Procedural Guidelines for WQMA Action Planning and LGU Compliance Scheme	February 2007	February 2010		The guidelines was pilot-tested then revised and re-submitted by local consultant in February 2010.	Not yet submitted	Expected by the end of Project	MC
Reference Manual on WQMA Action Planning and LGU Compliance Scheme					N/A	Expected by the end of Project	EMB manual for internal use
Guidelines for Preparing WQ Status Report	February 2007	February 2007		Completed.			MC
User's Manual on Water Quality Management Information System	March 2008	August 2008		Completed.	December 2008	December 2008	MC

Annex 9: Results of interviewing and questionnaire survey to pilot regional offices

	Region 3	Region 6	Region 12
Staff members in the regional office involved in the Project	6 (Director, Chief of CPD, TFL-WQMA, EMS, PEA)	7 (Director, 3 lab staff, 2 in WQ Section, One for IEC)	5 (Director, Chief lab, Planning officer, Statistician, Chemist)
Relevance			
The project's relevance to the RO's needs	• The problem of water quality has been serious for quite sometime. Small scale industries have been mushrooming for the last 10 years. In response, the mayor of Mekyacuayan city took initiative and established a local council to tackle this issue. But, it did not work well as it lacked an institutional framework to involve all stakeholders. The Project was very relevant to the local needs.	• Before the Project, the DENR was operating alone. Co-management of WQ was very much needed.	Apparently very high. RO 12 proposed to be included in the target, pilot regions.
Local needs and political support	• The LGUs are very supportive as they need to respond to increasing complains about the water quality. The supreme court order gives them and other line agencies pressure to act as this river system is the major source of pollution for Manila Bay. • The Governor co-chairs the GB. This indicates the importance of this issue.	• The City of Iloilo and the Iloilo River Development Council are now rely with the GB on the issue of water quality management. • The City of Iloilo and the LGUs are willing to cooperate as they are very much concerned with Iloilo River. • Improving water quality of Iloilo river is a priority issue for participating organizations. The GB meeting have met the quorum except one case - due to miscommunication. All the members participate in the GB meeting without honorarium. This indicates the willingness of the members.	• At provincial and LGU levels, awareness toward water quality improvement is not yet so high. WQMA/GB is the only one addressing the issue. Solid waste seems to be a higher agenda. • Local fishermen are concerned with the issue.
Effectiveness			

Level of achievement on output 1	• 80 - 90%, except the guidelines for WQMA fund management, all the necessary procedural guidelines and manuals have been developed for the WQMA activities. • Important achievements include the development of water quality model in pilot regions, publication of the water quality status report. • Operational water quality and pollution source database, internet-based information and communication network and WQ modeling and fund sourcing should be further strengthened.	• 80%, the guidelines for WQMA designation and management and action planning were officially approved. The RO can implement WQMA with legal base. • The guidelines were developed based on pilot-testing, they are practical and user friendly. • The remaining task is to finalize the guidelines for WQMA fund management. RO can start collecting waste water charges when the guidelines are endorsed.	80%, important achievement was the conduct of orientation workshops on policy framework and supporting procedures. The remaining task is the publication of policy framework.
Level of achievement on output 2	• 90%, the MSG members as well as the RO office staff and the laboratory staff have been trained by the EMB CO at orientation workshops, etc. The EMB CO helped coordinate various meetings and often communicated with the RO.	• Almost 100%, the EMB CO helped the RO organize GB meetings, make arrangements with LCs, update progress at the EMB CO at internal meetings as well orientation workshops. The EMB CO also guided the RO on how to process reports. Their support was very consistent and skillful.	• 90%, important achievement was the publication of the first national water quality status report and preparation of project proposals to generate fund for pilot regions. The development of water quality model in pilot regions needs to be further strengthened. • EMB CO is in full support of the RO in technical aspects. Particularly, support for the regional laboratory is timely. • Communication with the EMB CO is done at various meetings and by phone or email.

Level of achievement on output 3	• 90%, Most of the intended WQMA activities under JICA project were completed. The GB has started the GREENLINE program to set up a hotline and form a quick response team, which was an added activity launched by the GB. • One more staff member will be trained in the use of the template for modeling. • It is necessary to capacitating the Local Government Units(LGUs), equipping the QRTs and policy measure to utilize the WQMA Fund in order to fully implement the Ten-Year Action Plan.	• 90%, Most of the intended WQMA activities under JICA project were completed. Even the template for modeling can be used for the IBRS. One problem is delays in getting endorsement by LGUs and compliance scheme due to forthcoming local elections. • The sources of water pollution load are properly identified and corresponding plan to address it. • Successfully involving stakeholders in the decision-making	• 90%, important achievement was the establishment of WQMA and GB. Area fund management and reporting system need improvement. • Another important achievement for RO 12 is the upgraded capacity of its laboratory as the Project provided equipment and training to handle sufficient testing and analysis (on an average, 10 samples per day). Inter-laboratory training conducted regularly helps the lab staff (4 members) improve their skills and accuracy of analysis by conducting cross-checking.
Level of achievement on output 4	• 80%, one important achievement of the Project is that it helped develop a functional, institutional framework that involve stakeholders. The RO is confident to manage and facilitate the GB activities without external assistance. • The RO is now planning to take concrete actions for the implementation of the WQMA action plan (e.g. conducting study and pilot testing the operation of water treatment facilities) • The main achievements include the data base for point and non-point pollution sources and WQ modeling.	• 85%, through public consultations and GB meetings, data on pollution sources are disseminated. Such data help pressure the industries to comply with the existing discharge permitting and discharge system. Yet, enforcement activities under the project has not been fully implemented as the ISES is not yet endorsed. • The RO is now closely communicating and consulting with the Iloilo City Government and LGUs on how to implement the action plan. The important achievement was that the RO has institutionalized the network to co-manage WQM activities.	• 90%, important achievement was the database of point and non-point sources. The first regional water quality status report needs to be published and the database has had a technical problem to enter data of sub-stations since Jan. 2010. This needs to be solved before the end of the Project.

Level of achievement on Project Purpose	• 90%, the achievements are the designation of MMORS as WQMA with GB, MSGs and QRTs and the awareness and enthusiasm of LGUs and stakeholders regarding the protection of water bodies/water environment. • The RO can not judge to what extent the non-pilot regions have been capacitated. But, the non-pilot regions learned at lot at orientation workshops and the RO also shared its experiences with them. • The areas that need to be further strengthened: more equipment and operational information systems	• 90%, The RO is confident to replicate the WQMA activities for the development of GB and MSG for anther WQMA in the region (Tigum Aganan). If configuration of the model is done by consultants. • The RO is also confident to facilitate the GB to implement the WQMA action plan. Ideally, local consultants can couch the GB periodically to check and advise to the GB.	• Almost 100%, EMB CO and ROs have implemented priority actions mandated under CWA/IRR. Yet, capacity development of non-pilot regions needs to be enhanced. • Non-pilot regions are exposed to progress made in the pilot regions. They are very much willing to start WQMA activities. Because EMB CO is already experienced, they will be able to lead and support non-pilot regions.
Other effects of the Project			Strengthened linkage between EMB RO and LGUs, NGOs and NGAs
Efficiency *scored on a scale from 4 - 1 (4: Very good, 3: Satisfactory, 2: Not so good, 1: Need improvement)			
Planning process and clearness of the plan	4: The projects aims to capacitate the EMB personnel regarding water quality management through development of policies to be implemented at the pilot regions and develop the capacity of the ROs in leading the LGUs and other WQM agencies through training/workshops.	4: The WQMA plan was well communicated and understood by the stakeholders. The process of establishing the GB was participatory, which was different from other similar efforts (e.g. formation of TWG).	3: The action plan of 10 years seems to be too long for LGUs in the case of Sarangani WQMA.
Communication with JICA TAT	4: RO staff have good communication and coordination with the expert team.	4: The JICA TAT Team was open to comments and advice. They were supportive to the activities of the GB.	3: EMB CO should have its stand in assisting the proposals of the expert team in all aspects of its undertakings. A draft guidelines or MOA should be entered through regional office.
Communication with other organizations	4~3: MMORS WQMA GB members actively participate in the meetings and other activities organized by the expert team.	4: Communication was very good. These offices were accessible. The coordinator of the RO closely communicates with all the participating organizations and follow up on progress when they failed to attend the GB meeting.	4: It was necessary. But, telephone numbers and office addresses of the members should be in the directory.

The number and expertise of JICA TAT	4: The number and expertise of Japanese are just enough.	4	3
Timing and quantity of inputs provided	4~3: Timing is very good, quantity is satisfactory as it was thinly spread out to the many activities.	4	3
Method/contents of technology transfer	3: Only one staff from the EMB Region 3 availed of training abroad in which the use of technology was observed. The LGU/other member/s of the WQMA should be oriented/exposed to the Japanese technology and experience. In Japan, the LGUs are strong on enforcement as they are equipped with technical competence and technological support.	4	3
Utilization of local resources	4: Sharing of information with the local consultants and application of local recourses were effective.	3: DOH and DOST offer to conduct water quality testing at their laboratories. The RO has a problem of the availability of TWG and determining the common time.	4: Local consultants were always ready to support. WQMA is very different from other institutional arrangements tried in the past (e.g. TWG). The concept and approach is new. Their constant support was very effective to capacitate the regional office.
The approach to divide into two phases	4: The approach is very systematic.	3: It was good to evaluate project progress in mid-way.	3 No much difference to the regional office

Comments for further improvements	• There is a need for focused training to capacitate the LGUs particularly the MSGs/QRTs including the DENR counterparts (PENRO and CENRO levels). Capacity building should have with it equipping with technological know how and application of basic monitoring equipment. • The MMORS WQMA GB had already established the Multi-sectoral Groups and QRTs. Operations of these will help in the monitoring of water quality both in ambient water and industrial effluent. There is, however, a need to capacitate the LGUs in terms of training and provision of equipment. In the 2011 proposed budget, EMB Region 3 had proposed procurement of portable water quality checkers to be used by the QRTs and upgrading of laboratory facilities. Pending the approval of the Rationalization Plan, the EMB Region 3 is bent to hire more people to complement its human resources.	To increasingly involve the GB in the proposed activities.	Project activities can be well managed if the university personnel assists the project as local consultants.
Impact			

Implementation of WQMAs	• The Project's impact is very positive as it has pushed for the establishment of the MMORS WQMA and its GB and its active operations. • The top management noted that in addressing the pollution of the Manila Bay, it is strategic to pour out more resources to the MMORS WQMA since it is being worked on efficiently and effectively. The collaboration between and among WQMA GB members, media, civil society is strong enough to push the carrying out of specific tasks as proven in the past and recent activities.	• Recognition and awareness of LGU and stakeholders that they are part of and solution of the problem of water quality. • The RO 6 plans to work on another WQMA, Tigum Aganan Watershed Management Area, and develop the watershed management council into a GB. The RO is confident to utilize the working knowledge and experience to implement the new WQMA.	• The positive impact is the designation of WQMA but it will have a negative impact if WQMA sources of funding becomes a failure, then the GB will be weakened. • General Santos City accepted that it is the major polluter as evinced by the status report. The city is now committed to draft local sanitation ordinance (one of the primary measures in the WQMA action plan). The city also offers to support water sampling. • LGUs express their support to the GB at regional council meetings. • After each GB meeting, the participants submit reports and outputs to their organizations. The member organizations are getting more informed of WQMA activities.
Impacts to non-pilot regions	• Recently, the DENR Secretary directed the establishment of WQMAs in all regions. • With the inputs and influence over the GB, the objectives and goal of the CWA are being pursued. An extension of the Project would definitely redound to better replication of the applicable experiences in region 3 to other non-pilot regions.	• They can learn from experience of pilot regions.	Non-pilot regions were supported in terms of outputs of pilot projects.
Other impacts		• Motivation of the stakeholders	
Sustainability			

Financial aspect	• Since 2009, 1 Million Pesos have been allocated for the WQMA each year. • The office of the Governor shoulders the cost for meeting venues. • Many stakeholders (e.g. industries, the office of the Governor, NGO, etc.) offer financial support. Yet, the GB is not able to make use of such funds as the procedural guidelines are not yet approved. • The other agencies would be much more actively involved in GB/MSG activities if the area fund is available. They do not have their own budget for WQMA activities.	• The EMB CO allocates 1 Million pesos for the management and operation of GB and MSG activities. The budget is also used for the Tigum Aganan WQMA. Other stakeholders offer inputs (e.g. training and water sampling by researchers and DOH, technical advice by universities). By utilizing such inputs, the monitoring activities can be sustained. • The RO would try to minimize the costs for running GB meetings (by using the RO office or LGU office for venue instead of a hotel).	• A budget from the EMB for WQMA was not allocated for the WQMA this year. Lack of fund would lead to weakening the GB.
Organizational and institutional aspects	• The limitation is the shortage of staff as they are multi-tasking. Negative impact of this is that the staff can not be fully engaged in focused activities in an intensive way. Further, the EMB Regional Office/s are expected to capacitate the partner agencies and stakeholders particularly the LGUs. Such would require additional human resources, budget and logistics. • The LGUs have not yet issued local ordinance to adopt the WQMA action plan and LGU compliance scheme. • Capacity development of LGUs is going to be the key issue. One critical issue is that some LGUs do not have an ENRO. Measures to motivate and encourage the LGU members are necessary (e.g. training and exposure visits).	• The RO is confident to mange the GB activities. • The RO lacks the manpower as more GBs and WQMAs shall be established. • Area cooperation shall be further strengthened and training provided.	• Regional office has only five staff members handling not only WQM but also other mandates under CAA and industrial waste. Each staff member is assigned several tasks. Limited number of staff is a major constraint. • GB is going to regularly conduct sampling, but only one vehicle and one set of sampling kits is available.
Measures taken in response to recommendation made at mid-term evaluation			

Support from DENR executive level	The participation of the DENR Regional Executive Director in GB Meetings and activities recently is a manifestation of active support. In the launching of the Greenline Hotline and Text Project, the DENR Secretary thru the Undersecretary reiterated its support to the MMORS WQMA. The direction of the top management to allocate funds for this year and onwards is also notable.		
Realignment of the manpower and information	The DENR Regional Office and its PENRO actively participate in the activities being undertaken by the WQMA GB. The DENR top management is pushing for the approval of the Rationalization Plan for the EMB and its regional offices. Meanwhile, the top management approved the hiring of additional staff to do the survey and monitoring of industries within the WQMA and along rivers affecting the Manila Bay.	The personnel still do multi-tasking instead of realignment.	The RO laboratory personnel, including permanent, regular and contractuals complemented each other to cope with shortage of manpower.
Improvement of non-pilot regional offices	During the conduct of workshops information from the experiences of the pilot region were shared with the non-pilot regions.	The non-pilot regions learned on the strategies well from the pilot regions.	The non-pilot regional offices have familiarized themselves with experiences of and lessons learned by the pilot ROs through various meetings such as orientation workshops and management conferences.
Information dissemination to stakeholders	The information and outputs were properly disseminated to the stakeholders through public consultations and meetings.	Information dissemination was done in various meetings, public consultation meetings and the mass media.	Through GB meetings and public hearing meetings, information and outputs are properly disseminated.
Consolidation of the guidelines		The RO was involved in the refinements of the guidelines.	The regional office contributed to the integration of guidelines by giving comments and feedback.
Involvements of ROs in the development of guidelines and manuals			
Procedural Guidelines for Designation of Water Quality Management Area	• Suggested to include the Local executives to be a Co-Chair of the WQMA GB	• The RO participated in workshops and consultation meetings.	• Organized and participated at meetings.

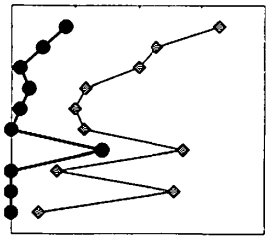
Integrated WQM framework and its implementation activities		• The RO made comments.	• Made minor comments and suggestions at the meetings.
Water Quality Guidelines, General Effluent Standards, Procedural Guidelines for Establishing Effluent Standards including General and Industry-Specific Standards	• Consideration of the present capabilities regional laboratories for pilot and non-pilot regions	• The RO personnel participated in workshops in making the guidelines suited to the local situations.	• Proposed an alternative in the direction and approach at a meeting.
Procedural Guidelines on Classification/Reclassification of Fresh and Marine Waters	• Consider the Laboratory capabilities of other RO	• The RO gave information on problems in the region.	• Made minor comments and suggestions at meetings.
Monitoring manual	• Consider the Laboratory capabilities of other RO	• The RO made comments.	• Made major comments.
Supplement Guidelines on the Nationwide Implementation of the Wastewater Charge System	• Clarification regarding the exemption of industries to permitting system which are connected to the centralized treatment facilities e.g. industrial zones with existing CWTF like in Clarkfield, Pampanga and PEZA in Mariveles Bataan	• The RO made comments. Waiting for its early approval.	• Proposed an alternative in the direction.
DENR-DBM JOINT DAO for Implementing Guidelines on the Operationalization of National WQM FUND		• The RO made comments. Requested that its process should be expedited.	• Made major comments and suggestions.
Area fund		• The RO made comments. Requested that its process should be expedited.	• Made major comments.

Procedural Guidelines for Designation of Non-Attainment Areas		• The RO provided monitoring data and made comments.	• Made minor comments and suggestions.
Procedural Guidelines for WQMA Action Planning and LGU Compliance Scheme Reference Manual on WQMA Action Planning and LGU Compliance Scheme	• MSG was already in place in MMORS which will be conducting water quality monitoring including ambient and effluent, form the draft Area Cooperation Arrangement only the ambient monitoring was considered.	• The RO participated in workshops and gave comments.	• Proposed an alternative in the direction.
Guidelines for Preparing WQ Status Report		• The RO participated in workshops and provide information.	• Organized and participated in meetings.

Findings on the Governing Boards for each WQMA based on interviews to RO staff and local consultants and observation of GB meetings			
	MMO (EMB III)	IBRS (EMB VI)	Sarangani Bay (EMB XII)
Designation of WQMA	May 2008 (DAO 2008-07)	November 2009 (DAO 2009 - 11)	November 2009 (DAO 2009 - 12)
Establishment of GB	July 2008	Started as interim GB in September 2008 Officially established in November 2009	Started as interim GB in August 2008 Officially established in November 2009
Composition of members	25 permanent members 25 alternate members (7 LGUs, Provincial Government, national agencies - DA, DPWH, DOH, DOST, DTI, BFAR NIA, HLURB, DENR, representatives from NGO, academia, water utility corporation, business)	21 permanent members 21 alternate members (6 LGUs, national agencies - DA, DPWH, DOH, DOST, DTI, BFAR NIA, HLURB, DENR, representatives from NGO, academia, water utility corporation, business)	21 permanent members 21 alternate members (6 LGUs, Provincial Government, national agencies - DA, DPWH, DOH, DOST, DTI, BFAR NIA, HLURB, DENR, NGO, academia, representatives from business, indigenous people, local fishermen)
Finalization of WQMA action plan	December 2009	December 2009	December 2009
Meetings held	Monthly meetings, several special meetings, public hearing, and consultation meetings. On the average, 15 - 20 members participate in GB meeting.	Quarterly meetings, several special meetings, public hearing, and consultation meetings held. On the average, attendance is around 70%.	Quarterly meetings - 4 times, several special meetings, public hearing, and consultation meetings
Major achievements	• Development of WQMA action plan • Drafting the first WQMA status report • Establishment of MSG • Development of WQ monitoring plan • Starting monitoring activities to supplement and/or reinforce the monitoring activities of EMB • GREENLINE project	• Development of WQMA action plan • Drafting the first WQMA status report • Establishment of MSG • Development of WQ monitoring plan • Starting monitoring activities to supplement and/or reinforce the monitoring activities of EMB	• Development of WQMA action plan • Drafting the first WQMA status report • Establishment of MSG • Development of WQ monitoring plan • Starting monitoring activities to supplement and/or reinforce the monitoring activities of EMB
Performance and participation of GB members	• Awareness level is very high among members because of the magnitude of the problem and the Supreme court decision. • A strong need for external support for WQM.	• Members are actively involved as they are well aware of WQM activities in other pilot regions. • Some participating organizations willing to volunteer WQ sampling activities. • 4 technical secretariats already assigned • Handling of meeting improved	• Members are getting active. • Handling of meeting improved. • The director having overseen the activities from the beginning • Shortage of RO staff sometimes resulting in administrative/logistic

	• Strong political support - the provincial governor co-chairs the GB. • Handling of meeting improved		
Impact/Benefits to participating organizations	• Each organization's roles clarified for action • The status report and sampling data can be used for budget allocation and fund raising as well public awareness campaign	• Each organization's roles clarified for action • The status report and sampling data can be used for budget allocation and fund raising as well public awareness campaign	• Each organization's roles clarified for action • The status report and sampling data can be used for budget allocation and fund raising as well public awareness campaign
Contributions made by participating organizations	• Provincial Government allocates fund (Not yet utilized due to lack of work plan/financial plan) • The cost of meetings is shouldered by the hosting LGU. • University and DOST conducted research and presented the results at GB meetings.	• The city of Iloilo conducting study on facilities and negotiating with donors for funding • Other participating organizations (DOST and DOH) offer to conduct water quality analysis at their laboratories. But, the EMB accepts the data provided by DENR-recognized laboratories for official use.	• General Santos City accepted that it is the major polluter as evinced by the status report. The city is now committed to draft local sanitation ordinance (one of the primary measures in the WQMA action plan). The city also offers to support water sampling.
A next step forward	• Adoption of the action plan by LGU • Implementation of the Action Plan	• Adoption of the action plan by LGU • Implementation of the Action Plan	• Adoption of the action plan by LGU • Implementation of the Action Plan
Important issues	• Compliance with the action plan by LGU • Workplan/financial plan, auditing system not yet in place although the guidelines are already in place. • 80% domestic sources + heavy metal contents • Still looking for Technical secretariats to the GB	• Compliance with the action plan by LGU • Work plan/financial plan, auditing system not yet in place although the guidelines are already in place.	• Compliance with the action plan by LGU • Workplan/financial plan, auditing system not yet in place although the guidelines are already in place. • How to operationalize MSG to support GB • Capacitating GB members on WQM to fill the gap in the level of understanding • Motivating active participation of GB members • MOA with stakeholders or donors/seeking funding • Still looking for Technical secretariats to the GB
Problems	• Shortage of sampling equipment - only one set available • change of RO directors		• Provincial government representative not formally nominated. • Lack of consistency in the attendance of GB members • Shortage of sampling equipment - only one set available
Factors important for	• Political will of LGUs to take initiative	• Political will of LGUs to take initiative and	• Political will of LGUs to take initiative and

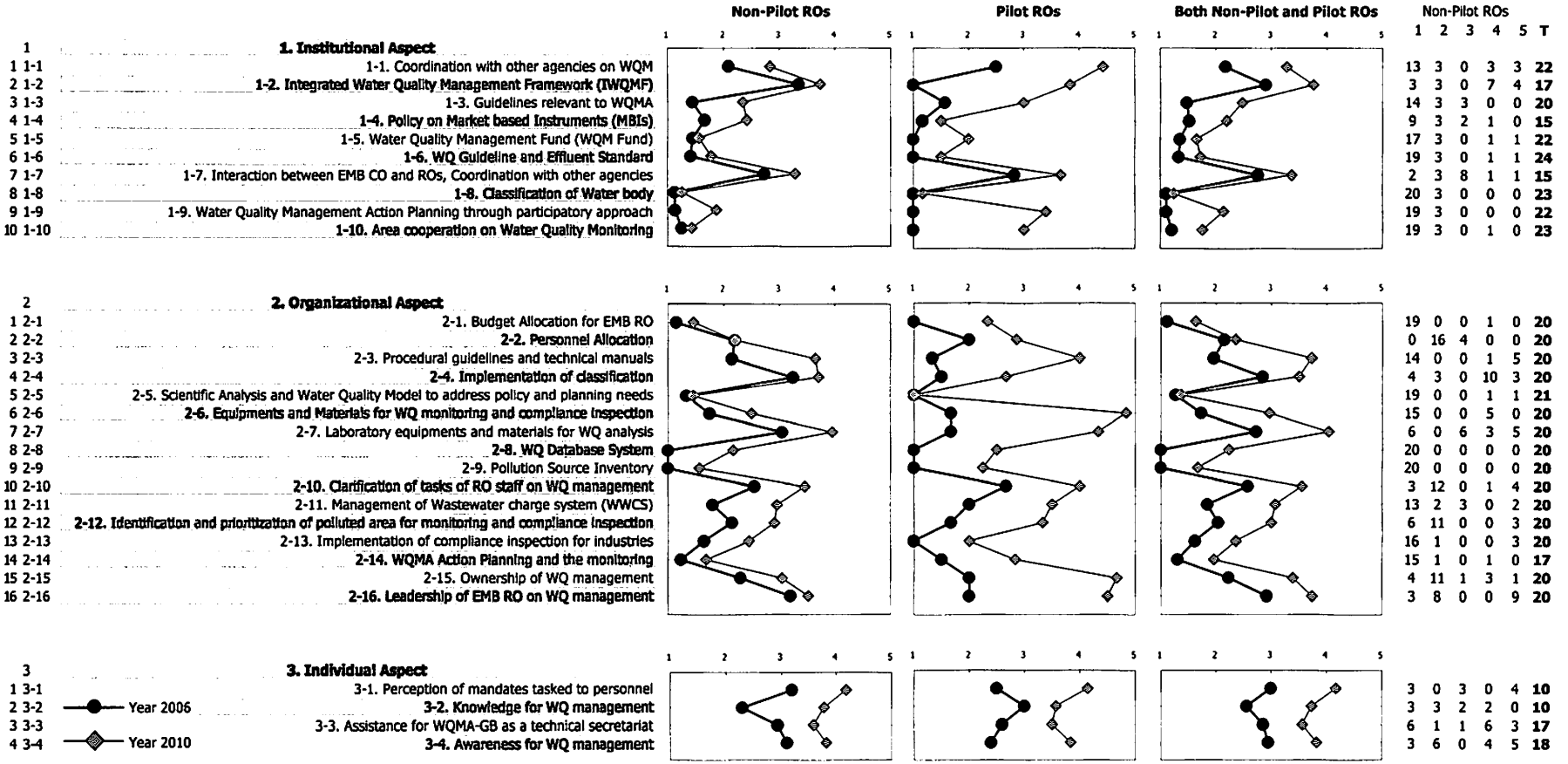
sustainability after the Project	and responsibility • Financial management system to utilize allocated fund from LGUs	responsibility • Financial management system to utilize allocated fund from LGUs	responsibility • Financial management system to utilize allocated fund from LGUs
Suggestions to further improve GB activities	• Water quality monitoring to be conducted monthly to generate longitudinal data. • Increasing level of understanding on such topics as water quality parameters, database management, relevant regulations to fill the gap among the members and convince their organizations to enhance cooperation.	• Water quality monitoring to be conducted monthly to generate longitudinal data. • Increasing level of understanding on such topics as water quality parameters, database management, relevant regulations to fill the gap among the members and convince their organizations to enhance cooperation.	• Water quality monitoring to be conducted monthly to generate longitudinal data. • Increasing level of understanding on such topics as water quality parameters, database management, relevant regulations to fill the gap among the members and convince their organizations to enhance cooperation. • Line agencies and participants from LGUs should convince majors and governors with IEC materials. Some members are not yet confident enough to convince their respective organizations to further assistance.



			2006 CO						2010 CO						Point 2006	Point 2010	Growth
			1	2	3	4	5	T	1	2	3	4	5	T			
1		**1. Institutional Aspect**															
1	1-1	1-1. Coordination with other agencies on WQM	4	1	1	1	0	**7**	0	0	1	3	3	**7**	1.86	4.29	2.43
2	1-2	**1-2. Integrated Water Quality Management Framework (IWQMF)**	3	3	0	0	0	**6**	0	3	0	3	1	**7**	1.50	3.29	1.79
3	1-3	1-3. Guidelines relevant to WQMA	6	1	0	0	0	**7**	0	1	5	1	0	**7**	1.14	3.00	1.86
4	1-4	**1-4. Policy on Market based Instruments (MBIs)**	5	2	0	0	0	**7**	0	5	1	0	0	**6**	1.29	2.17	0.88
5	1-5	1-5. Water Quality Management Fund (WQM Fund)	6	1	0	0	0	**7**	0	7	0	0	0	**7**	1.14	2.00	0.86
6	1-6	**1-6. WQ Guideline and Effluent Standard**	6	0	0	0	0	**6**	0	6	1	0	0	**7**	1.00	2.14	1.14
7	1-7	1-7. Interaction between EMB CO and ROs, Coordination with other agencies	1	2	4	0	0	**7**	0	1	3	0	3	**7**	2.43	3.71	1.29
8	1-8	**1-8. Classification of Water body**	6	0	0	0	0	**6**	3	3	1	0	0	**7**	1.00	1.71	0.71
9	1-9	1-9. Water Quality Management Action Planning through participatory approach	7	0	0	0	0	**7**	0	2	1	2	2	**7**	1.00	3.57	2.57
10	1-10	**1-10. Area cooperation on Water Quality Monitoring**	7	0	0	0	0	**7**	5	1	1	0	0	**7**	1.00	1.43	0.43
2		**2. Organizational Aspect**															
1	2-1	2-1. Budget Allocation for EMB CO	5	1	0	0	1	**7**	3	1	2	0	1	**7**	1.71	2.29	0.57
2	2-2	**2-2. Personnel Allocation**	0	7	0	0	0	**7**	0	3	3	1	0	**7**	2.00	2.71	0.71
3	2-3	2-3. Procedural guidelines and operation manuals	6	0	0	0	0	**6**	0	2	5	0	0	**7**	1.00	2.71	1.71
4	2-4	**2-4. Scientific Analysis and Water Quality Model to address policy and planning needs**	6	0	0	0	0	**6**	4	3	0	0	0	**7**	1.00	1.43	0.43
5	2-5	2-5. Laboratory equipments and materials for WQ analysis	0	3	2	1	0	**6**	0	2	1	4	0	**7**	2.67	3.29	0.62
6	2-6	**2-6. WQM Database/Information System**	7	0	0	0	0	**7**	1	1	3	2	0	**7**	1.00	2.86	1.86
7	2-7	2-7. Ownership of WQ management	1	2	2	0	2	**7**	0	1	2	0	4	**7**	3.00	4.00	1.00
8	2-8	**2-8. Leadership of EMB CO on WQ management**	0	4	2	0	1	**7**	0	1	3	0	2	**6**	2.71	3.50	0.79
3		**3. Individual Aspect**															
1	3-1	3-1. Perception of mandates tasked to personnel	2	1	2	1	0	**6**	0	1	3	1	2	**7**	2.33	3.57	1.24
2	3-2	**3-2. Knowledge for WQ management**	1	1	4	0	0	**6**	0	1	1	5	0	**7**	2.50	3.57	1.07
3	3-3	3-3. Awareness for WQ management	0	6	0	0	0	**6**	0	2	1	1	3	**7**	2.00	3.71	1.71

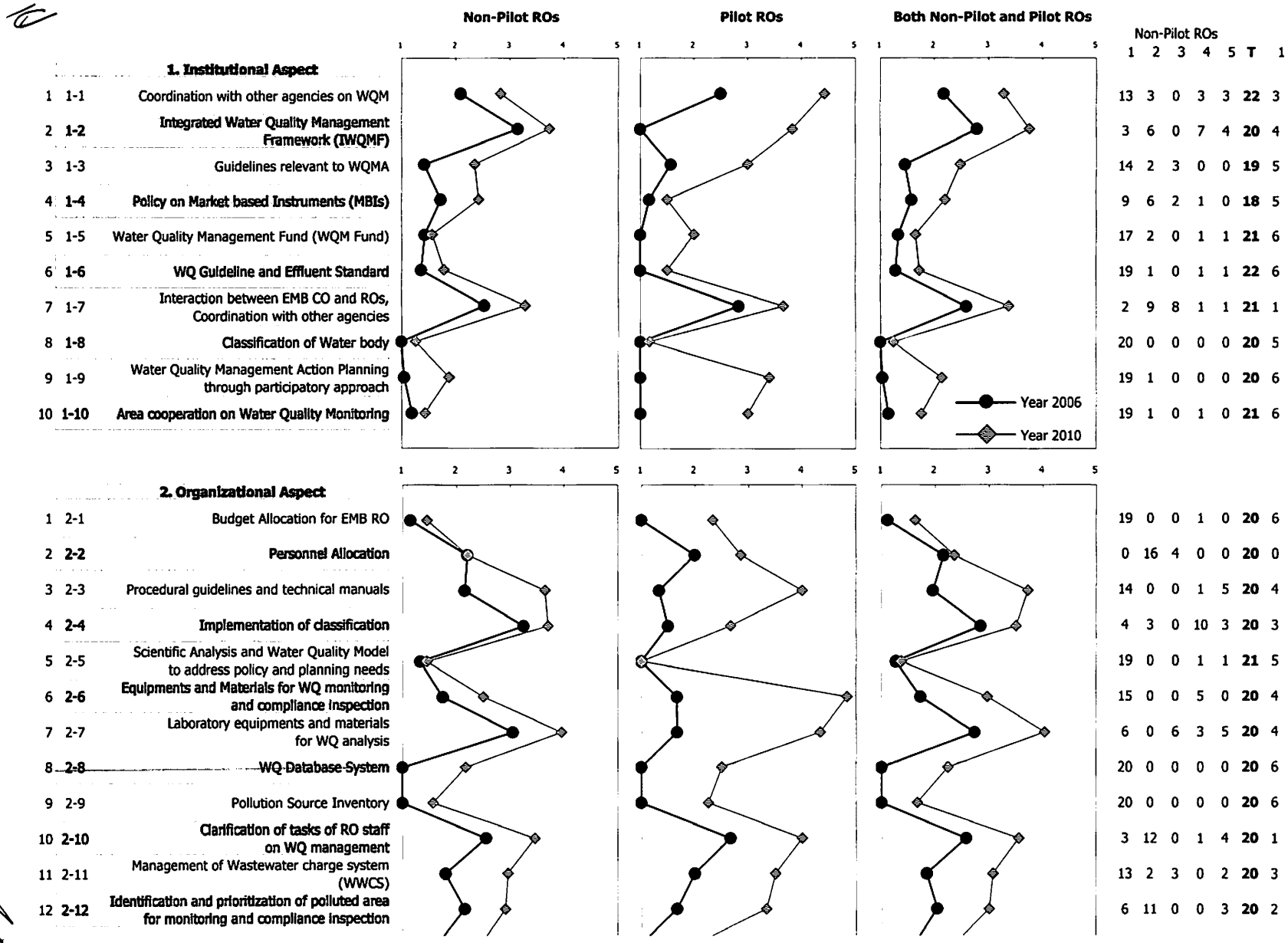
Year 2006

Year 2010



		Non-Pilot ROs					
		1	2	3	4	5	T
1	**1. Institutional Aspect**						
1-1	1-1. Coordination with other agencies on WQM	13	3	0	3	3	**22**
1-2	**1-2. Integrated Water Quality Management Framework (IWQMF)**	3	3	0	7	4	**17**
1-3	1-3. Guidelines relevant to WQMA	14	3	3	0	0	**20**
1-4	**1-4. Policy on Market based Instruments (MBIs)**	9	3	2	1	0	**15**
1-5	1-5. Water Quality Management Fund (WQM Fund)	17	3	0	1	1	**22**
1-6	**1-6. WQ Guideline and Effluent Standard**	19	3	0	1	1	**24**
1-7	1-7. Interaction between EMB CO and ROs, Coordination with other agencies	2	3	8	1	1	**15**
1-8	**1-8. Classification of Water body**	20	3	0	0	0	**23**
1-9	1-9. Water Quality Management Action Planning through participatory approach	19	3	0	0	0	**22**
1-10	1-10. Area cooperation on Water Quality Monitoring	19	3	0	1	0	**23**
2	**2. Organizational Aspect**						
2-1	2-1. Budget Allocation for EMB RO	19	0	0	1	0	**20**
2-2	**2-2. Personnel Allocation**	0	16	4	0	0	**20**
2-3	2-3. Procedural guidelines and technical manuals	14	0	0	1	5	**20**
2-4	**2-4. Implementation of classification**	4	3	0	10	3	**20**
2-5	2-5. Scientific Analysis and Water Quality Model to address policy and planning needs	19	0	0	1	1	**21**
2-6	**2-6. Equipments and Materials for WQ monitoring and compliance inspection**	15	0	0	5	0	**20**
2-7	2-7. Laboratory equipments and materials for WQ analysis	6	0	6	3	5	**20**
2-8	**2-8. WQ Database System**	20	0	0	0	0	**20**
2-9	2-9. Pollution Source Inventory	20	0	0	0	0	**20**
2-10	**2-10. Clarification of tasks of RO staff on WQ management**	3	12	0	1	4	**20**
2-11	2-11. Management of Wastewater charge system (WWCS)	13	2	3	0	2	**20**
2-12	**2-12. Identification and prioritization of polluted area for monitoring and compliance inspection**	6	11	0	0	3	**20**
2-13	2-13. Implementation of compliance inspection for industries	16	1	0	0	3	**20**
2-14	**2-14. WQMA Action Planning and the monitoring**	15	1	0	1	0	**17**
2-15	2-15. Ownership of WQ management	4	11	1	3	1	**20**
2-16	**2-16. Leadership of EMB RO on WQ management**	3	8	0	0	9	**20**
3	**3. Individual Aspect**						
3-1	3-1. Perception of mandates tasked to personnel	3	0	3	0	4	**10**
3-2	**3-2. Knowledge for WQ management**	3	3	2	2	0	**10**
3-3	3-3. Assistance for WQMA-GB as a technical secretariat	6	1	1	6	3	**17**
3-4	**3-4. Awareness for WQ management**	3	6	0	4	5	**18**

2006 Pilot ROs						Total	2006 Non-Pilot ROs						2010 Pilot ROs						Total	Point 2006 Non-Pilot	Point 2006 Pilot	Point 2006 TTL	Point 2010 Non-Pilot	Point 2010 Pilot	Point 2010 TTL	Growth Non-Pilot	Growth Pilot	Growth TTL
1	2	3	4	5	T	1	2	3	4	5	T	1	2	3	4	5	T	1	2	3	4	5	T	1	2	3	4	5	T	NP06	P06	T06	NP10	P10	T10	NP10-06	P10-06	T10-06
3	1	0	0	2	**6**	16	4	0	3	5	**28**	8	1	1	2	6	**18**	1	0	0	0	6	**7**	9	1	1	2	12	**25**	2.09	2.50	2.18	2.83	4.43	3.28	0.74	1.93	1.10
4	0	0	0	0	**4**	7	3	0	7	4	**21**	0	6	0	11	6	**23**	0	2	0	1	3	**6**	0	8	0	12	9	**29**	3.35	1.00	2.90	3.74	3.83	3.76	0.39	2.83	0.85
5	1	0	1	0	**7**	19	4	3	1	0	**27**	5	5	13	0	0	**23**	0	0	6	0	0	**6**	5	5	19	0	0	**29**	1.45	1.57	1.48	2.35	3.00	2.48	0.90	1.43	1.00
5	1	0	0	0	**6**	14	4	2	1	0	**21**	8	1	5	4	1	**19**	3	3	0	0	0	**6**	11	4	5	4	1	**25**	1.67	1.17	1.52	2.42	1.50	2.20	0.75	0.33	0.68
6	0	0	0	0	**6**	23	3	0	1	1	**28**	10	13	0	0	0	**23**	0	6	0	0	0	**6**	10	19	0	0	0	**29**	1.45	1.00	1.36	1.57	2.00	1.66	0.11	1.00	0.30
6	0	0	0	0	**6**	25	3	0	1	1	**30**	7	15	0	1	0	**23**	3	3	0	0	0	**6**	10	18	0	1	0	**29**	1.42	1.00	1.33	1.78	1.50	1.72	0.37	0.50	0.39
1	3	0	0	2	**6**	3	6	8	1	3	**21**	1	1	14	1	4	**21**	0	0	4	0	2	**6**	1	1	18	1	6	**27**	2.73	2.83	2.76	3.29	3.67	3.37	0.55	0.83	0.61
5	0	0	0	0	**5**	25	3	0	0	0	**28**	18	4	1	0	0	**23**	5	1	0	0	0	**6**	23	5	1	0	0	**29**	1.13	1.00	1.11	1.26	1.17	1.24	0.13	0.17	0.13
6	0	0	0	0	**6**	25	3	0	0	0	**28**	12	8	0	3	1	**24**	0	0	3	2	0	**5**	12	8	3	5	1	**29**	1.14	1.00	1.11	1.88	3.40	2.14	0.74	2.40	1.03
6	0	0	0	0	**6**	25	3	0	1	0	**29**	14	8	1	0	0	**23**	0	4	0	0	2	**6**	14	12	1	0	2	**29**	1.26	1.00	1.21	1.43	3.00	1.76	0.17	2.00	0.55
6	0	0	0	0	**6**	25	0	0	1	0	**26**	16	7	0	0	1	**24**	0	4	2	0	0	**6**	16	11	2	0	1	**30**	1.15	1.00	1.12	1.46	2.33	1.63	0.31	1.33	0.52
0	6	0	0	0	**6**	0	22	4	0	0	**26**	3	13	8	0	0	**24**	0	1	6	0	0	**7**	3	14	14	0	0	**31**	2.20	2.00	2.15	2.21	2.86	2.35	0.01	0.86	0.20
4	2	0	0	0	**6**	18	2	0	1	5	**26**	2	4	2	7	8	**23**	0	1	0	3	2	**6**	2	5	2	10	10	**29**	2.15	1.33	1.96	3.65	4.00	3.72	1.50	2.67	1.76
3	3	0	0	0	**6**	7	6	0	10	3	**26**	3	1	1	14	5	**24**	0	4	0	2	0	**6**	3	5	1	16	5	**30**	3.25	1.50	2.85	3.71	2.67	3.50	0.46	1.17	0.65
5	0	0	0	0	**5**	24	0	0	1	1	**26**	18	1	1	1	1	**22**	5	0	0	0	0	**5**	23	1	1	1	1	**27**	1.33	1.00	1.27	1.45	1.00	1.37	0.12	0.00	0.10
4	0	2	0	0	**6**	19	0	2	5	0	**26**	10	0	7	6	1	**24**	0	0	0	1	5	**6**	10	0	7	7	6	**30**	1.75	1.67	1.73	2.50	4.83	2.97	0.75	3.17	1.24
4	0	2	0	0	**6**	10	0	8	3	5	**26**	0	2	6	6	9	**23**	0	0	0	4	2	**6**	0	2	6	10	11	**29**	3.05	1.67	2.73	3.96	4.33	4.03	0.91	2.67	1.30
6	0	0	0	0	**6**	26	0	0	0	0	**26**	9	2	13	0	0	**24**	0	3	3	0	0	**6**	9	5	16	0	0	**30**	1.00	1.00	1.00	2.17	2.50	2.23	1.17	1.50	1.23
6	0	0	0	0	**6**	26	0	0	0	0	**26**	16	1	6	0	0	**23**	0	3	1	0	0	**4**	16	4	7	0	0	**27**	1.00	1.00	1.00	1.57	2.25	1.67	0.57	1.25	0.67
1	0	5	0	0	**6**	4	12	5	1	4	**26**	3	4	2	9	6	**24**	0	1	1	0	3	**5**	3	5	3	9	9	**29**	2.55	2.67	2.58	3.46	4.00	3.55	0.91	1.33	0.97
3	0	3	0	0	**6**	16	2	6	0	2	**26**	3	5	9	0	5	**22**	0	1	3	0	2	**6**	3	6	12	0	7	**28**	1.80	2.00	1.85	2.95	3.50	3.07	1.15	1.50	1.23
2	4	0	0	0	**6**	8	15	0	0	3	**26**	3	10	1	2	6	**22**	0	1	2	3	0	**6**	3	11	3	5	6	**28**	2.15	1.67	2.04	2.91	3.33	3.00	0.76	1.67	0.96
1	0	0	0	0	**1**	17	1	0	0	3	**21**	6	9	0	0	5	**20**	0	5	0	0	0	**5**	6	14	0	0	5	**25**	1.65	1.00	1.62	2.45	2.00	2.36	0.80	1.00	0.74
3	3	0	0	0	**6**	18	4	0	1	0	**23**	7	11	1	0	0	**19**	0	1	5	0	0	**6**	7	12	6	0	0	**25**	1.24	1.50	1.30	1.68	2.83	1.96	0.45	1.33	0.66
0	6	0	0	0	**6**	4	17	1	3	1	**26**	1	6	8	5	2	**22**	0	0	0	2	4	**6**	1	6	8	7	6	**28**	2.30	2.00	2.23	3.05	4.67	3.39	0.75	2.67	1.16
0	6	0	0	0	**6**	3	14	0	0	9	**26**	2	3	7	0	9	**21**	0	1	0	0	5	**6**	2	4	7	0	14	**27**	3.20	2.00	2.92	3.52	4.50	3.74	0.32	2.50	0.82
1	2	0	0	1	**4**	4	2	3	0	5	**14**	2	1	3	1	15	**22**	0	2	0	0	5	**7**	2	3	3	1	20	**29**	3.20	2.50	3.00	4.18	4.14	4.17	0.98	1.64	1.17
3	0	0	0	3	**6**	6	3	2	2	3	**16**	0	4	6	4	9	**23**	1	1	1	1	3	**7**	1	5	7	5	12	**30**	2.30	3.00	2.56	3.78	3.57	3.73	1.48	0.57	1.17
1	2	0	2	0	**5**	7	3	1	8	3	**22**	0	6	1	11	4	**22**	0	2	1	1	2	**6**	0	8	2	12	6	**28**	2.94	2.60	2.86	3.59	3.50	3.57	0.65	0.90	0.71
2	1	0	2	0	**5**	5	7	0	6	5	**23**	0	5	1	10	7	**23**	0	1	1	2	2	**6**	0	6	2	12	9	**29**	3.11	2.40	2.96	3.83	3.83	3.83	0.71	1.43	0.87



			Non-Pilot ROs						
			1	2	3	4	5	T	1
		1. Institutional Aspect							
1	1-1	Coordination with other agencies on WQM	13	3	0	3	3	**22**	3
2	**1-2**	**Integrated Water Quality Management Framework (IWQMF)**	3	6	0	7	4	**20**	4
3	1-3	Guidelines relevant to WQMA	14	2	3	0	0	**19**	5
4	**1-4**	**Policy on Market based Instruments (MBIs)**	9	6	2	1	0	**18**	5
5	1-5	Water Quality Management Fund (WQM Fund)	17	2	0	1	1	**21**	6
6	**1-6**	**WQ Guideline and Effluent Standard**	19	1	0	1	1	**22**	6
7	1-7	Interaction between EMB CO and ROs, Coordination with other agencies	2	9	8	1	1	**21**	1
8	**1-8**	**Classification of Water body**	20	0	0	0	0	**20**	5
9	1-9	Water Quality Management Action Planning through participatory approach	19	1	0	0	0	**20**	6
10	**1-10**	**Area cooperation on Water Quality Monitoring**	19	1	0	1	0	**21**	6
		2. Organizational Aspect							
1	2-1	Budget Allocation for EMB RO	19	0	0	1	0	**20**	6
2	**2-2**	**Personnel Allocation**	0	16	4	0	0	**20**	0
3	2-3	Procedural guidelines and technical manuals	14	0	0	1	5	**20**	4
4	**2-4**	**Implementation of classification**	4	3	0	10	3	**20**	3
5	2-5	Scientific Analysis and Water Quality Model to address policy and planning needs	19	0	0	1	1	**21**	5
6	**2-6**	**Equipments and Materials for WQ monitoring and compliance inspection**	15	0	0	5	0	**20**	4
7	2-7	Laboratory equipments and materials for WQ analysis	6	0	6	3	5	**20**	4
8	**2-8**	**WQ Database System**	20	0	0	0	0	**20**	6
9	2-9	Pollution Source Inventory	20	0	0	0	0	**20**	6
10	**2-10**	**Clarification of tasks of RO staff on WQ management**	3	12	0	1	4	**20**	1
11	2-11	Management of Wastewater charge system (WWCS)	13	2	3	0	2	**20**	3
12	**2-12**	**Identification and prioritization of polluted area for monitoring and compliance inspection**	6	11	0	0	3	**20**	2

13	2-13	Implementation of compliance inspection for industries							16	1	0	0	3	**20**	1
14	2-14	**WQMA Action Planning and the monitoring**							15	1	0	1	0	**17**	3
15	2-15	Ownership of WQ management							4	11	1	3	1	**20**	0
16	2-16	**Leadership of EMB RO on WQ management**							3	8	0	0	9	**20**	0
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
		3. Individual Aspect																
1	3-1	Perception of mandates tasked to personnel							3	0	3	0	4	**10**	1
2	3-2	**Knowledge for WQ management**							3	3	2	2	0	**10**	3
3	3-3	Assistance for WQMA-GB as a technical secretariat							6	1	1	6	3	**17**	1
4	3-4	**Awareness for WQ management**							3	6	0	4	5	**18**	2

2006 Pilot ROs					Total	Non-Pilot ROs						2010 Pilot ROs						Total						Point 2006			Point 2010			Growth		
2	3	4	5	T	1	2	3	4	5	T	1	2	3	4	5	T	1	2	3	4	5	T	1	2	3	4	5	T	Non-Pilot NP06	Pilot P06	TTL T06	Non-Pilot NP10	Pilot P10	TTL T10	Non-Pilot NP10-06	Pilot P10-06	TTL T10-06
1	0	0	2	**6**	16	4	0	3	5	**28**	8	1	1	2	6	**18**	1	0	0	0	6	**7**	9	1	1	2	12	**25**	2.09	2.50	2.18	2.83	4.43	3.28	0.74	1.93	1.10
0	0	0	0	**4**	7	6	0	7	4	**24**	0	6	0	11	6	**23**	0	2	0	1	3	**6**	0	8	0	12	9	**29**	3.15	1.00	2.79	3.74	3.83	3.76	0.59	2.83	0.97
1	0	1	0	**7**	19	3	3	1	0	**26**	5	5	13	0	0	**23**	0	0	6	0	0	**6**	5	5	19	0	0	**29**	1.42	1.57	1.46	2.35	3.00	2.48	0.93	1.43	1.02
1	0	0	0	**6**	14	7	2	1	0	**24**	8	1	5	4	1	**19**	3	3	0	0	0	**6**	11	4	5	4	1	**25**	1.72	1.17	1.58	2.42	1.50	2.20	0.70	0.33	0.62
0	0	0	0	**6**	23	2	0	1	1	**27**	10	13	0	0	0	**23**	0	6	0	0	0	**6**	10	19	0	0	0	**29**	1.43	1.00	1.33	1.57	2.00	1.66	0.14	1.00	0.32
0	0	0	0	**6**	25	1	0	1	1	**28**	7	15	0	1	0	**23**	3	3	0	0	0	**6**	10	18	0	1	0	**29**	1.36	1.00	1.29	1.78	1.50	1.72	0.42	0.50	0.44
3	0	0	2	**6**	3	12	8	1	3	**27**	1	1	14	1	4	**21**	0	0	4	0	2	**6**	1	1	18	1	6	**27**	2.52	2.83	2.59	3.29	3.67	3.37	0.76	0.83	0.78
0	0	0	0	**5**	25	0	0	0	0	**25**	18	4	1	0	0	**23**	5	1	0	0	0	**6**	23	5	1	0	0	**29**	1.00	1.00	1.00	1.26	1.17	1.24	0.26	0.17	0.24
0	0	0	0	**6**	25	1	0	0	0	**26**	12	8	0	3	1	**24**	0	0	3	2	0	**5**	12	8	3	5	1	**29**	1.05	1.00	1.04	1.88	3.40	2.14	0.83	2.40	1.10
0	0	0	0	**6**	25	1	0	1	0	**27**	14	8	1	0	0	**23**	0	4	0	0	2	**6**	14	12	1	0	2	**29**	1.19	1.00	1.15	1.43	3.00	1.76	0.24	2.00	0.61
0	0	0	0	**6**	25	0	0	1	0	**26**	16	7	0	0	1	**24**	0	4	2	0	0	**6**	16	11	2	0	1	**30**	1.15	1.00	1.12	1.46	2.33	1.63	0.31	1.33	0.52
6	0	0	0	**6**	0	22	4	0	0	**26**	3	13	8	0	0	**24**	0	1	6	0	0	**7**	3	14	14	0	0	**31**	2.20	2.00	2.15	2.21	2.86	2.35	0.01	0.86	0.20
2	0	0	0	**6**	18	2	0	1	5	**26**	2	4	2	7	8	**23**	0	1	0	3	2	**6**	2	5	2	10	10	**29**	2.15	1.33	1.96	3.65	4.00	3.72	1.50	2.67	1.76
3	0	0	0	**6**	7	6	0	10	3	**26**	3	1	1	14	5	**24**	0	4	0	2	0	**6**	3	5	1	16	5	**30**	3.25	1.50	2.85	3.71	2.67	3.50	0.46	1.17	0.65
0	0	0	0	**5**	24	0	0	1	1	**26**	18	1	1	1	1	**22**	5	0	0	0	0	**5**	23	1	1	1	1	**27**	1.33	1.00	1.27	1.45	1.00	1.37	0.12	0.00	0.10
0	2	0	0	**6**	19	0	2	5	0	**26**	10	0	7	6	1	**24**	0	0	0	1	5	**6**	10	0	7	7	6	**30**	1.75	1.67	1.73	2.50	4.83	2.97	0.75	3.17	1.24
0	2	0	0	**6**	10	0	8	3	5	**26**	0	2	6	6	9	**23**	0	0	0	4	2	**6**	0	2	6	10	11	**29**	3.05	1.67	2.73	3.96	4.33	4.03	0.91	2.67	1.30
0	0	0	0	**6**	26	0	0	0	0	**26**	9	2	13	0	0	**24**	0	3	3	0	0	**6**	9	5	16	0	0	**30**	1.00	1.00	1.00	2.17	2.50	2.23	1.17	1.50	1.23
0	0	0	0	**6**	26	0	0	0	0	**26**	16	1	6	0	0	**23**	0	3	1	0	0	**4**	16	4	7	0	0	**27**	1.00	1.00	1.00	1.57	2.25	1.67	0.57	1.25	0.67
0	5	0	0	**6**	4	12	5	1	4	**26**	3	4	2	9	6	**24**	0	1	1	0	3	**5**	3	5	3	9	9	**29**	2.55	2.67	2.58	3.46	4.00	3.55	0.91	1.33	0.97
0	3	0	0	**6**	16	2	6	0	2	**26**	3	5	9	0	5	**22**	0	1	3	0	2	**6**	3	6	12	0	7	**28**	1.80	2.00	1.85	2.95	3.50	3.07	1.15	1.50	1.23
4	0	0	0	**6**	8	15	0	0	3	**26**	3	10	1	2	6	**22**	0	1	2	3	0	**6**	3	11	3	5	6	**28**	2.15	1.67	2.04	2.91	3.33	3.00	0.76	1.67	0.96

0	0	0	0	**1**	17	1	0	0	3	**21**	6	9	0	0	5	**20**	0	5	0	0	0	**5**	6	14	0	0	5	**25**	1.65	1.00	1.62	2.45	2.00	2.36	0.80	1.00	0.74
3	0	0	0	**6**	18	4	0	1	0	**23**	7	11	1	0	0	**19**	0	1	5	0	0	**6**	7	12	6	0	0	**25**	1.24	1.50	1.30	1.68	2.83	1.96	0.45	1.33	0.66
6	0	0	0	**6**	4	17	1	3	1	**26**	1	6	8	5	2	**22**	0	0	0	2	4	**6**	1	6	8	7	6	**28**	2.30	2.00	2.23	3.05	4.67	3.39	0.75	2.67	1.16
6	0	0	0	**6**	3	14	0	0	9	**26**	2	3	7	0	9	**21**	0	1	0	0	5	**6**	2	4	7	0	14	**27**	3.20	2.00	2.92	3.52	4.50	3.74	0.32	2.50	0.82
2	0	0	1	**4**	4	2	3	0	5	**14**	2	1	3	1	15	**22**	0	2	0	0	5	**7**	2	3	3	1	20	**29**	3.20	2.50	3.00	4.18	4.14	4.17	0.98	1.64	1.17
0	0	0	3	**6**	6	3	2	2	3	**16**	0	4	6	4	9	**23**	1	1	1	1	3	**7**	1	5	7	5	12	**30**	2.30	3.00	2.56	3.78	3.57	3.73	1.48	0.57	1.17
2	0	2	0	**5**	7	3	1	8	3	**22**	0	6	1	11	4	**22**	0	2	1	1	2	**6**	0	8	2	12	6	**28**	2.94	2.60	2.86	3.59	3.50	3.57	0.65	0.90	0.71
1	0	2	0	**5**	5	7	0	6	5	**23**	0	5	1	10	7	**23**	0	1	1	2	2	**6**	0	6	2	12	9	**29**	3.11	2.40	2.96	3.83	3.83	3.83	0.71	1.43	0.87

			2006															2010												
			Non-Pilot ROs					Pilot ROs					Total					Non-Pilot ROs					Pilot ROs					Total			
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
	1	**1. Institutional Aspect**																														
1	1-1	1-1. Coordination with other agencies on WQM	13	3	0	3	3	3	1	0	0	2	16	4	0	3	5	8	1	1	2	6	1	0	0	0	6	9	1	1	2	12
2	1-2	1-2. Integrated Water Quality Management Framework (IWQMF)	3	6	0	7	4	4	0	0	0	0	7	6	0	7	4	0	6	0	11	6	0	2	0	1	3	0	8	0	12	9
3	1-3	1-3. Guidelines relevant to WQMA	14	2	3	0	0	5	1	0	1	0	19	3	3	1	0	5	5	13	0	0	0	0	6	0	0	5	5	19	0	0
4	1-4	1-4. Policy on Market based Instruments (MBIs)	9	6	2	1	0	5	1	0	0	0	14	7	2	1	0	8	1	5	4	1	3	3	0	0	0	11	4	5	4	1
5	1-5	1-5. Water Quality Management Fund (WQM Fund)	17	2	0	1	1	6	0	0	0	0	23	2	0	1	1	10	13	0	0	0	0	6	0	0	0	10	19	0	0	0
6	1-6	1-6. WQ Guideline and Effluent Standard	19	1	0	1	1	6	0	0	0	0	25	1	0	1	1	7	15	0	1	0	3	3	0	0	0	10	18	0	1	0
7	1-7	1-7. Interaction between EMB CO and ROs, Coordination with other agencies	2	9	8	1	1	1	3	0	0	2	3	12	8	1	3	1	1	14	1	4	0	0	4	0	2	1	1	18	1	6
8	1-8	1-8. Classification of Water body	20	0	0	0	0	5	0	0	0	0	25	0	0	0	0	18	4	1	0	0	5	1	0	0	0	23	5	1	0	0
9	1-9	1-9. Water Quality Management Action Planning through participatory approach	19	1	0	0	0	6	0	0	0	0	25	1	0	0	0	12	8	0	3	1	0	0	3	2	0	12	8	3	5	1
10	1-10	1-10. Area cooperation on Water Quality Monitoring	19	1	0	1	0	6	0	0	0	0	25	1	0	1	0	14	8	1	0	0	0	4	0	0	2	14	12	1	0	2
	2	**2. Organizational Aspect**																														
1	2-1	2-1. Budget Allocation for EMB RO	19	0	0	1	0	6	0	0	0	0	25	0	0	1	0	16	7	0	0	1	0	4	2	0	0	16	11	2	0	1
2	2-2	2-2. Personnel Allocation	0	16	4	0	0	0	6	0	0	0	0	22	4	0	0	3	13	8	0	0	0	1	6	0	0	3	14	14	0	0
3	2-3	2-3. Procedural guidelines and technical manuals	14	0	0	1	5	4	2	0	0	0	18	2	0	1	5	2	4	2	7	8	0	1	0	3	2	2	5	2	10	10
4	2-4	2-4. Implementation of classification	4	3	0	10	3	3	3	0	0	0	7	6	0	10	3	3	1	1	14	5	0	4	0	2	0	3	5	1	16	5
5	2-5	2-5. Scientific Analysis and Water Quality Model to address policy and planning needs	19	0	0	1	1	5	0	0	0	0	24	0	0	1	1	18	1	1	1	1	5	0	0	0	0	23	1	1	1	1
6	2-6	2-6. Equipments and Materials for WQ monitoring and compliance inspection	15	0	0	5	0	4	0	2	0	0	19	0	2	5	0	10	0	7	6	1	0	0	0	1	5	10	0	7	7	6
7	2-7	2-7. Laboratory equipments and materials for WQ analysis	6	0	6	3	5	4	0	2	0	0	10	0	8	3	5	0	2	6	6	9	0	0	0	4	2	0	2	6	10	11
8	2-8	2-8. WQ Database System	20	0	0	0	0	6	0	0	0	0	26	0	0	0	0	9	2	13	0	0	0	3	3	0	0	9	5	16	0	0
9	2-9	2-9. Pollution Source Inventory	20	0	0	0	0	6	0	0	0	0	26	0	0	0	0	16	1	6	0	0	0	3	1	0	0	16	4	7	0	0
10	2-10	2-10. Clarification of tasks of RO staff on WQ management	3	12	0	1	4	1	0	5	0	0	4	12	5	1	4	3	4	2	9	6	0	1	1	0	3	3	5	3	9	9
11	2-11	2-11. Management of Wastewater charge system (WWCS)	13	2	3	0	2	3	0	3	0	0	16	2	6	0	2	3	5	9	0	5	0	1	3	0	2	3	6	12	0	7
12	2-12	-12. Identification and prioritization of polluted area for monitoring and compliance inspection	6	11	0	0	3	2	4	0	0	0	8	15	0	0	3	3	10	1	2	6	0	1	2	3	0	3	11	3	5	6
13	2-13	2-13. Implementation of compliance inspection for industries	16	1	0	0	3	1	0	0	0	0	17	1	0	0	3	6	9	0	0	5	0	5	0	0	0	6	14	0	0	5
14	2-14	2-14. WQMA Action Planning and the monitoring	15	1	0	1	0	3	3	0	0	0	18	4	0	1	0	7	11	1	0	0	0	1	5	0	0	7	12	6	0	0
15	2-15	2-15. Ownership of WQ management	4	11	1	3	1	0	6	0	0	0	4	17	1	3	1	1	6	8	5	2	0	0	0	2	4	1	6	8	7	6
16	2-16	2-16. Leadership of EMB RO on WQ management	3	8	0	0	9	0	6	0	0	0	3	14	0	0	9	2	3	7	0	9	0	1	0	0	5	2	4	7	0	14
	3	**3. Individual Aspect**																														
1	3-1	3-1. Perception of mandates tasked to personnel	3	0	3	0	4	1	2	0	0	1	4	2	3	0	5	2	1	3	1	15	0	2	0	0	5	2	3	3	1	20
2	3-2	3-2. Knowledge for WQ management	3	3	2	2	0	3	0	0	0	3	6	3	2	2	3	0	4	6	4	9	1	1	1	1	3	1	5	7	5	12
3	3-3	3-3. Assistance for WQMA-GB as a technical secretariat	6	1	1	6	3	1	2	0	2	0	7	3	1	8	3	0	6	1	11	4	0	2	1	1	2	0	8	2	12	6
4	3-4	3-4. Awareness for WQ management	3	6	0	4	5	2	1	0	2	0	5	7	0	6	5	0	5	1	10	7	0	1	1	2	2	0	6	2	12	9

A. Point in 2006			B. Point in 2010			Growth (A-B)		
Non-P	Pilot	TTL	Non-P	Pilot	TTL	Non-P	Pilot	TTL
2.1	2.5	2.2	2.8	4.4	3.3	0.7	1.9	1.1
3.2	1.0	2.8	3.7	3.8	3.8	0.6	2.8	1.0
1.4	1.6	1.5	2.3	3.0	2.5	0.9	1.4	1.0
1.7	1.2	1.6	2.4	1.5	2.2	0.7	0.3	0.6
1.4	1.0	1.3	1.6	2.0	1.7	0.1	1.0	0.3
1.4	1.0	1.3	1.8	1.5	1.7	0.4	0.5	0.4
2.5	2.8	2.6	3.3	3.7	3.4	0.8	0.8	0.8
1.0	1.0	1.0	1.3	1.2	1.2	0.3	0.2	0.2
1.1	1.0	1.0	1.9	3.4	2.1	0.8	2.4	1.1
1.2	1.0	1.1	1.4	3.0	1.8	0.2	2.0	0.6
1.2	1.0	1.1	1.5	2.3	1.6	0.3	1.3	0.5
2.2	2.0	2.2	2.2	2.9	2.4	0.0	0.9	0.2
2.2	1.3	2.0	3.7	4.0	3.7	1.5	2.7	1.8
3.3	1.5	2.8	3.7	2.7	3.5	0.5	1.2	0.7
1.3	1.0	1.3	1.5	1.0	1.4	0.1	0.0	0.1
1.8	1.7	1.7	2.5	4.8	3.0	0.8	3.2	1.2
3.1	1.7	2.7	4.0	4.3	4.0	0.9	2.7	1.3
1.0	1.0	1.0	2.2	2.5	2.2	1.2	1.5	1.2
1.0	1.0	1.0	1.6	2.3	1.7	0.6	1.3	0.7
2.6	2.7	2.6	3.5	4.0	3.6	0.9	1.3	1.0
1.8	2.0	1.8	3.0	3.5	3.1	1.2	1.5	1.2
2.2	1.7	2.0	2.9	3.3	3.0	0.8	1.7	1.0
1.7	1.0	1.6	2.5	2.0	2.4	0.8	1.0	0.7
1.2	1.5	1.3	1.7	2.8	2.0	0.4	1.3	0.7
2.3	2.0	2.2	3.0	4.7	3.4	0.7	2.7	1.2
3.2	2.0	2.9	3.5	4.5	3.7	0.3	2.5	0.8
3.2	2.5	3.0	4.2	4.1	4.2	1.0	1.6	1.2
2.3	3.0	2.6	3.8	3.6	3.7	1.5	0.6	1.2
2.9	2.6	2.9	3.6	3.5	3.6	0.6	0.9	0.7
3.1	2.4	3.0	3.8	3.8	3.8	0.7	1.4	0.9

		2006															2010													
		Non-Pilot ROs					Pilot ROs					Total					Non-Pilot ROs					Pilot ROs					Total				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1	Institutional Aspect																														
1-1	Coordination with other agencies on WQM	13	3	0	3	3	3	1	0	0	2	16	4	0	3	5	8	1	1	2	6	1	0	0	0	6	9	1	1	2	12
1-2	Integrated Water Quality Management Framework (IWQMF)	3	6	0	7	4	4	0	0	0	0	7	6	0	7	4	0	6	0	11	6	0	2	0	1	3	0	8	0	12	9
1-3	Guidelines relevant to WQMA	14	2	3	0	0	5	1	0	1	0	19	3	3	1	0	5	5	13	0	0	0	0	6	0	0	5	5	19	0	0
1-4	Policy on Market based Instruments (MBIs)	9	6	2	1	0	5	1	0	0	0	14	7	2	1	0	8	1	5	4	1	3	3	0	0	0	11	4	5	4	1
1-5	Water Quality Management Fund (WQM Fund)	17	2	0	1	1	6	0	0	0	0	23	2	0	1	1	10	13	0	0	0	0	6	0	0	0	10	19	0	0	0
1-6	WQ Guideline and Effluent Standard	19	1	0	1	1	6	0	0	0	0	25	1	0	1	1	7	15	0	1	0	3	3	0	0	0	10	18	0	1	0
1-7	Interaction between EMB CO and ROs, Coordination with other agencies	2	9	8	1	1	1	3	0	0	2	3	12	8	1	3	1	1	14	1	4	0	0	4	0	2	1	1	18	1	6
1-8	Classification of Water body	20	0	0	0	0	5	0	0	0	0	25	0	0	0	0	18	4	1	0	0	5	1	0	0	0	23	5	1	0	0
1-9	Water Quality Management Action Planning through participatory approach	19	1	0	0	0	6	0	0	0	0	25	1	0	0	0	12	8	0	3	1	0	0	3	2	0	12	8	3	5	1
1-10	Area cooperation on Water Quality Monitoring	19	1	0	1	0	6	0	0	0	0	25	1	0	1	0	14	8	1	0	0	0	4	0	0	2	14	12	1	0	2
2	Organizational Aspect																														
2-1	Budget Allocation for EMB RO	19	0	0	1	0	6	0	0	0	0	25	0	0	1	0	16	7	0	0	1	0	4	2	0	0	16	11	2	0	1
2-2	Personnel Allocation	0	16	4	0	0	0	6	0	0	0	0	22	4	0	0	3	13	8	0	0	0	1	6	0	0	3	14	14	0	0
2-3	Procedural guidelines and technical manuals	14	0	0	1	5	4	2	0	0	0	18	2	0	1	5	2	4	2	7	8	0	1	0	3	2	2	5	2	10	10
2-4	Implementation of classification	4	3	0	10	3	3	3	0	0	0	7	6	0	10	3	3	1	1	14	5	0	4	0	2	0	3	5	1	16	5
2-5	Scientific Analysis and Water Quality Model to address policy and planning needs	19	0	0	1	1	5	0	0	0	0	24	0	0	1	1	18	1	1	1	1	5	0	0	0	0	23	1	1	1	1
2-6	Equipments and Materials for WQ monitoring and compliance inspection	15	0	0	5	0	4	0	2	0	0	19	0	2	5	0	10	0	7	6	1	0	0	0	1	5	10	0	7	7	6
2-7	Laboratory equipments and materials for WQ analysis	6	0	6	3	5	4	0	2	0	0	10	0	8	3	5	0	2	6	6	9	0	0	0	4	2	0	2	6	10	11
2-8	WQ Database System	20	0	0	0	0	6	0	0	0	0	26	0	0	0	0	9	2	13	0	0	0	3	3	0	0	9	5	16	0	0
2-9	Pollution Source Inventory	20	0	0	0	0	6	0	0	0	0	26	0	0	0	0	16	1	6	0	0	0	3	1	0	0	16	4	7	0	0
2-10	Clarification of tasks of RO staff on WQ management	3	12	0	1	4	1	0	5	0	0	4	12	5	1	4	3	4	2	9	6	0	1	1	0	3	3	5	3	9	9
2-11	Management of Wastewater charge system (WWCS)	13	2	3	0	2	3	0	3	0	0	16	2	6	0	2	3	5	9	0	5	0	1	3	0	2	3	6	12	0	7
2-12	Identification and prioritization of polluted area for monitoring and compliance inspection	6	11	0	0	3	2	4	0	0	0	8	15	0	0	3	3	10	1	2	6	0	1	2	3	0	3	11	3	5	6
2-13	Implementation of compliance inspection for industries	16	1	0	0	3	1	0	0	0	0	17	1	0	0	3	6	9	0	0	5	0	5	0	0	0	6	14	0	0	5
2-14	WQMA Action Planning and the monitoring	15	1	0	1	0	3	3	0	0	0	18	4	0	1	0	7	11	1	0	0	0	1	5	0	0	7	12	6	0	0
2-15	Ownership of WQ management	4	11	1	3	1	0	6	0	0	0	4	17	1	3	1	1	6	8	5	2	0	0	0	2	4	1	6	8	7	6
2-16	Leadership of EMB RO on WQ management	3	8	0	0	9	0	6	0	0	0	3	14	0	0	9	2	3	7	0	9	0	1	0	0	5	2	4	7	0	14
3	Individual Aspect																														
3-1	Perception of mandates tasked to personnel	3	0	3	0	4	1	2	0	0	1	4	2	3	0	5	2	1	3	1	15	0	2	0	0	5	2	3	3	1	20
3-2	Knowledge for WQ management	3	3	2	2	0	3	0	0	0	3	6	3	2	2	3	0	4	6	4	9	1	1	1	1	3	1	5	7	5	12
3-3	Assistance for WQMA-GB as a technical secretariat	6	1	1	6	3	1	2	0	2	0	7	3	1	8	3	0	6	1	11	4	0	2	1	1	2	0	8	2	12	6
3-4	Awareness for WQ management	3	6	0	4	5	2	1	0	2	0	5	7	0	6	5	0	5	1	10	7	0	1	1	2	2	0	6	2	12	9

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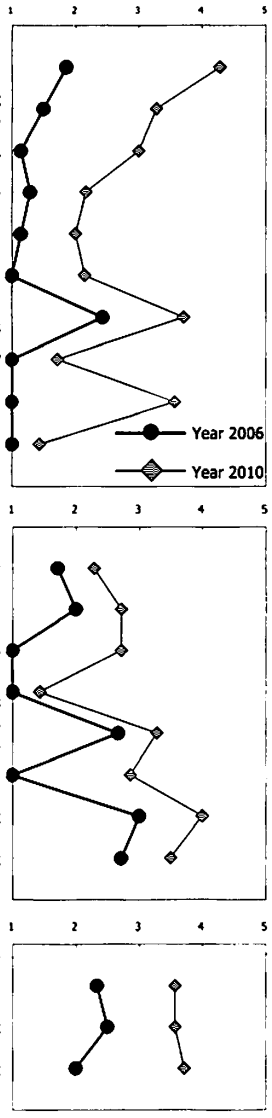

			2006 CO						2010 CO						Point 2006	Point 2010	Growth
			1	2	3	4	5	T	1	2	3	4	5	T			
		1. Institutional Aspect															
1	1-1	Coordination with other agencies on WQM	4	1	1	1	0	7	0	0	1	3	3	7	1.86	4.29	2.43
2	1-2	Integrated Water Quality Management Framework (IWQMF)	3	3	0	0	0	6	0	3	0	3	1	7	1.50	3.29	1.79
3	1-3	Guidelines relevant to WQMA	6	1	0	0	0	7	0	1	5	1	0	7	1.14	3.00	1.86
4	1-4	Policy on Market based Instruments (MBIs)	5	2	0	0	0	7	0	5	1	0	0	6	1.29	2.17	0.88
5	1-5	Water Quality Management Fund (WQM Fund)	6	1	0	0	0	7	0	7	0	0	0	7	1.14	2.00	0.86
6	1-6	WQ Guideline and Effluent Standard	6	0	0	0	0	6	0	6	1	0	0	7	1.00	2.14	1.14
7	1-7	Interaction between EMB CO and ROs, Coordination with other agencies	1	2	4	0	0	7	0	1	3	0	3	7	2.43	3.71	1.29
8	1-8	Classification of Water body	6	0	0	0	0	6	3	3	1	0	0	7	1.00	1.71	0.71
9	1-9	Water Quality Management Action Planning through participatory approach	7	0	0	0	0	7	0	2	1	2	2	7	1.00	3.57	2.57
10	1-10	Area cooperation on Water Quality Monitoring	7	0	0	0	0	7	5	1	1	0	0	7	1.00	1.43	0.43
		2. Organizational Aspect															
1	2-1	Budget Allocation for EMB CO	5	1	0	0	1	7	3	1	2	0	1	7	1.71	2.29	0.57
2	2-2	Personnel Allocation	0	7	0	0	0	7	0	3	3	1	0	7	2.00	2.71	0.71
3	2-3	Procedural guidelines and operation manuals	6	0	0	0	0	6	0	2	5	0	0	7	1.00	2.71	1.71
4	2-4	Scientific Analysis and Water Quality Model to address policy and planning needs	6	0	0	0	0	6	4	3	0	0	0	7	1.00	1.43	0.43
5	2-5	Laboratory equipments and materials for WQ analysis	0	3	2	1	0	6	0	2	1	4	0	7	2.67	3.29	0.62
6	2-6	WQM Database/Information System	7	0	0	0	0	7	1	1	3	2	0	7	1.00	2.86	1.86
7	2-7	Ownership of WQ management	1	2	2	0	2	7	0	1	2	0	4	7	3.00	4.00	1.00
8	2-8	Leadership of EMB CO on WQ management	0	4	2	0	1	7	0	1	3	0	2	6	2.71	3.50	0.79
		3. Individual Aspect															
1	3-1	Perception of mandates tasked to personnel	2	1	2	1	0	6	0	1	3	1	2	7	2.33	3.57	1.24
2	3-2	Knowledge for WQ management	1	1	4	0	0	6	0	1	1	5	0	7	2.50	3.57	1.07
3	3-3	Awareness for WQ management	0	6	0	0	0	6	0	2	1	1	3	7	2.00	3.71	1.71

		2006 CO					2010 CO					A. Point in 2006	B. Point in 2010	Growth (A-B)
		1	2	3	4	5	1	2	3	4	5			
1	Institutional Aspect													
1-1	Coordination with other agencies on WQM	4	1	1	1	0	0	0	1	3	3	1.9	4.3	2.4
1-2	Integrated Water Quality Management Framework (IWQMF)	3	3	0	0	0	0	3	0	3	1	1.5	3.3	1.8
1-3	Guidelines relevant to WQMA	6	1	0	0	0	0	1	5	1	0	1.1	3.0	1.9
1-4	Policy on Market based Instruments (MBIs)	5	2	0	0	0	0	5	1	0	0	1.3	2.2	0.9
1-5	Water Quality Management Fund (WQM Fund)	6	1	0	0	0	0	7	0	0	0	1.1	2.0	0.9
1-6	WQ Guideline and Effluent Standard	6	0	0	0	0	0	6	1	0	0	1.0	2.1	1.1
1-7	Interaction between EMB CO and ROs, Coordination with other agencies	1	2	4	0	0	0	1	3	0	3	2.4	3.7	1.3
1-8	Classification of Water body	6	0	0	0	0	3	3	1	0	0	1.0	1.7	0.7
1-9	Water Quality Management Action Planning through participatory approach	7	0	0	0	0	0	2	1	2	2	1.0	3.6	2.6
1-10	Area cooperation on Water Quality Monitoring	7	0	0	0	0	5	1	1	0	0	1.0	1.4	0.4
2	Organizational Aspect													
2-1	Budget Allocation for EMB CO	5	1	0	0	1	3	1	2	0	1	1.7	2.3	0.6
2-2	Personnel Allocation	0	7	0	0	0	0	3	3	1	0	2.0	2.7	0.7
2-3	Procedural guidelines and operation manuals	6	0	0	0	0	0	2	5	0	0	1.0	2.7	1.7
2-4	Scientific Analysis and Water Quality Model to address policy and planning needs	6	0	0	0	0	4	3	0	0	0	1.0	1.4	0.4
2-5	Laboratory equipments and materials for WQ analysis	0	3	2	1	0	0	2	1	4	0	2.7	3.3	0.6
2-6	WQM Database/Information System	7	0	0	0	0	1	1	3	2	0	1.0	2.9	1.9
2-7	Ownership of WQ management	1	2	2	0	2	0	1	2	0	4	3.0	4.0	1.0
2-8	Leadership of EMB CO on WQ management	0	4	2	0	1	0	1	3	0	2	2.7	3.5	0.8
3	Individual Aspect													
3-1	Perception of mandates tasked to personnel	2	1	2	1	0	0	1	3	1	2	2.3	3.6	1.2
3-2	Knowledge for WQ management	1	1	4	0	0	0	1	1	5	0	2.5	3.6	1.1
3-3	Awareness for WQ management	0	6	0	0	0	0	2	1	1	3	2.0	3.7	1.7

		2006					2010				
		CO					CO				
		1	2	3	4	5	1	2	3	4	5
1	Institutional Aspect										
1-1	Coordination with other agencies on WQM	4	1	1	1	0	0	0	1	3	3
1-2	Integrated Water Quality Management Framework (IWQMF)	3	3	0	0	0	0	3	0	3	1
1-3	Guidelines relevant to WQMA	6	1	0	0	0	0	1	5	1	0
1-4	Policy on Market based Instruments (MBIs)	5	2	0	0	0	0	5	1	0	0
1-5	Water Quality Management Fund (WQM Fund)	6	1	0	0	0	0	7	0	0	0
1-6	WQ Guideline and Effluent Standard	6	0	0	0	0	0	6	1	0	0
1-7	Interaction between EMB CO and ROs, Coordination with other agencies	1	2	4	0	0	0	1	3	0	3
1-8	Classification of Water body	6	0	0	0	0	3	3	1	0	0
1-9	Water Quality Management Action Planning through participatory approach	7	0	0	0	0	0	2	1	2	2
1-10	Area cooperation on Water Quality Monitoring	7	0	0	0	0	5	1	1	0	0
2	Organizational Aspect										
2-1	Budget Allocation for EMB CO	5	1	0	0	1	3	1	2	0	1
2-2	Personnel Allocation	0	7	0	0	0	0	3	3	1	0
2-3	Procedural guidelines and operation manuals	6	0	0	0	0	0	2	5	0	0
2-4	Scientific Analysis and Water Quality Model to address policy and planning needs	6	0	0	0	0	4	3	0	0	0
2-5	Laboratory equipments and materials for WQ analysis	0	3	2	1	0	0	2	1	4	0
2-6	WQM Database/Information System	7	0	0	0	0	1	1	3	2	0
2-7	Ownership of WQ management	1	2	2	0	2	0	1	2	0	4
2-8	Leadership of EMB CO on WQ management	0	4	2	0	1	0	1	3	0	2
3	Individual Aspect										
3-1	Perception of mandates tasked to personnel	2	1	2	1	0	0	1	3	1	2
3-2	Knowledge for WQ management	1	1	4	0	0	0	1	1	5	0
3-3	Awareness for WQ management	0	6	0	0	0	0	2	1	1	3

1. Institutional Aspect

2006	2010	1-1. Coordination with other agencies on WQM
4	0	1
1	0	2
1	1	3
1	3	4
0	3	5

2006	2010	1-2. Integrated Water Quality Management Framework (IWQMF)
3	0	1
3	3	2
0	0	3
0	3	4
0	1	5

2006	2010	1-3. Guidelines relevant to WQMA
6	0	1
1	1	2
0	5	3
0	1	4
0	0	5

2006	2010	1-4. Policy on Market based Instruments (MBIs).
5	0	1
2	5	2
0	1	3
0	0	4
0	0	5

2006	2010	1-5. Water Quality Management Fund (WQM Fund)
6	0	1
1	7	2
0	0	3
0	0	4
0	0	5

2006	2010	1-6. WQ Guideline and Effluent Standard
6	0	1
0	6	2
0	1	3
0	0	4
0	0	5

2006	2010	1-7. Interaction between EMB CO and ROs, Coordination with other agencies
1	0	1
2	1	2
4	3	3
0	0	4
0	3	5

2006	2010	1-8. Classification of Water body
6	3	1
0	3	2
0	1	3
0	0	4
0	0	5

2006	2010	1-9. Water Quality Management Action Planning through participatory...
7	0	1
0	2	2
0	1	3

0	2	4
0	2	5

2006	2010	1-10. Area cooperation on Water Quality Monitoring
7	5	1
0	1	2
0	1	3
0	0	4
0	0	5

2. Organizational Aspect

2006	2010	2-1. Budget Allocation for EMB CO
5	3	1
1	1	2
0	2	3
0	0	4
1	1	5

2006	2010	2-2. Personnel Allocation
0	0	1
7	3	2
0	3	3
0	1	4
0	0	5

2006	2010	2-3. Procedural guidelines and technical manuals
6	0	1
0	2	2
0	5	3
0	0	4
0	0	5

2006	2010	2-4. Scientific Analysis and Water Quality Model to address policy and planning needs
6	4	1
0	3	2
0	0	3
0	0	4
0	0	5

2006	2010	2-5. Laboratory equipments and materials for WQ analysis
0	0	1
3	2	2
2	1	3
1	4	4
0	0	5

2006	2010	2-6. WQM Database/Information System
7	1	1
0	1	2
0	3	3
0	2	4
0	0	5

2006	2010	2-7. Ownership of WQ management
1	0	1
2	1	2
2	2	3
0	0	4
2	4	5

2006	2010	2-8. Leadership of EMB CO on WQ management

0	0	1
4	1	2
2	3	3
0	0	4
1	2	5

3. Individual Aspect

2006	2010	3-1. Perception of mandates tasked to personnel
2	0	1
1	1	2
2	3	3
1	1	4
0	2	5

2006	2010	3-2. Knowledge for WQ management
1	0	1
1	1	2
4	1	3
0	5	4
0	0	5

2006	2010	3-3. Awareness for WQ management
0	0	1
6	2	2
0	1	3
0	1	4
0	3	5

Annex 11: List of Interviewees

No.	Name	Agency
1	Mr. Solomon Paz	Woodfields Consultants Inc.
2	Mr. William P. Galutan	Woodfields Consultants Inc.
3	Mr. Rafael Camat	CEST
4	Ms. Yola M. Mingoa	CEST
5	Ms. Lloly Y. de Jesus	Innogy Solutions Inc.
6	Mr. Mariano L. Visaya III	Innogy Solutions Inc.
7	Ms. Lyra Ocampo	EMB Region 12
8	Ms. Bolawan Sambarani	EMB Region 12
9	Mr. Ronie Salmon	EMB Region 12
10	Mr. Datu Tungko Saikol	EMB Region 12
11	Mr. Samson J. Guillergan	EMB Region 6
12	Ms. Nimfa Adolfo	EMB Region 6
13	Eng. Ariel A. Gloria	EMB Region 6
14	Ms. Amelita Q. Guillergan	EMB Region 6
15	Ms. Lormelyn Claudio	EMB Region 3
16	Ms. Dorren Torres	EMB Region 3
17	Mr. Renato T. Cruz	EMB CO
18	Mr. Marcelino N. Rivera Jr.	EMB CO
19	Ms. Leza A. Acorda-Cuevas	EMB CO
20	Ms. Minda A. Osorio	EMB CO
21	Mr. Nicanor E. Mendoza	EMB CO
22	Ms. Consolacion P. Crisostomo	EMB CO
23	Ms. Sonia R. Barlis	EMB CO
24	Ms. Michico Venus A. Navaluna	EMB CO
25	Mr. Herbert Narisma	EMB CO
26	Ms. Fatima Molina	DENR RDD
27	Ms. Remy Mamon	DENR RDD

プロジェクト・デザイン・マトリックス（PDM）

プロジェクト名：水質管理能力強化プロジェクト

対象地域：フィリピン全国（特にDENR-EMB本部事務所及びEMB地域事務所）

受益者層（ターゲット・グループ）：EMB職員、地元地域の水質管理関係者

実施期間：2006年1月から2011年1月

バージョン2

2007年10月25日作成

プロジェクトの要約	指　標	指標データ入手手段	外部条件
上位目標： 水質管理委員会主導の下で、企業、LGU、その他の公共団体が、WQMAアクション・プランで定められた水質目標を達成するために必要な措置を取る。	1. 水質改善アクション・プランをWQMA委員会とLGUが実行し、産業・商業組織体は排出許可証システム及び水質/排水基準に従い、その結果、水質環境の改善が見られる。 2. DENR-EMBがCWAの法的要件を守らせ、WQM機能を果たすための行政・技術のノウハウを備えた職員がいる。 3. 水質管理に従事する他の機関との協力が確立されている。	1. WQMA委員会、LGU、規制対象の産業・商業組織体のCWA遵守活動に関するEMBの記録 2. 政府が採択し、適切な機関とWQMA組織構造、運用手続き、マニュアルと作業計画、情報システム、支援施設・設備を通して実施されている全国総合WQMフレームワーク 3. 水質状況に関するEMBからの情報	1. 国家政府機関がCWAの目標に対する強力な支援を維持している。 2. 実施に必要な予算が割り当てられている。
プロジェクト目標： CWA IRRに基づいて義務づけられる優先行動を実施するEMB本部及びEMB地域事務所の能力が強化される。	1. プロジェクトの支援を受けたEMB本部事務所と3パイロット地域事務所が、以下を通して水質浄化法IRRに基づく委託事項を効率的・効果的に実施する： ・適切なCWA要件に従った	1. 面接やアンケートを用いたパフォーマンス調査 2. プロジェクト・モニタリングと中間評価、活動/タスク完成報告を含む	1. DENRが非パイロット地域で、特にプロジェクトの下で策定されたガイドラインの適用において、強化活動を再現するために資源を動員する。 2. WQMA委員会がアクション・プランを実行するために

	WQM 手続き ・WQM 手続きの研修を受けた WQMS 職員 ・適切な設備と情報システム ・関連 WQM 機関及び関係者とのつながり 2. 非パイロット地域事務所で水質管理を担当する職員の能力が、以下を通して強化される： ・プロジェクトで実施されるオリエンテーション/ワークショップなどの学習プロセスへの参加 ・CWA 施行に関する手続きやガイドラインへの十分な理解 ・さまざまな種類のコミュニケーションを通した、WQMA 指定及びアクション・プラン作成に関する 3 パイロット地域における経験の熟知		資源を動員する。 3. EMB 本部・地域事務所が十分な人数の技術職員のほか、運営を支援する資源を備える。 4. プロジェクトの下で研修を受けた EMB 本部及び地域事務所の要員が CWA 委託事項の実施に向けた作業を継続する。 5. CWA に基づいて特定の役割を果たすことを義務づけられた他の機関が協力し、役割を遂行するために資源を動員する。
成果：			
1. CWA に基づく WQM の統合的な政策フレームワークが確立され、EMB 職員を対象とした適切な手続きガイドラインの整備と研修が行われる。	1. 以下を明確に定める政策フレームワークの公表： ・水質の目標とターゲット ・コンプライアンスの期間 ・水質汚染防止戦略・技術 ・水質情報と教育プログラム	1. 政策文書：政策審議・機関間調整活動の議事録、DENR 政策文書、省令、覚書回覧等 2. 研修の資料及びコース記録 3. 修了した研修コースに関する評価報告	1. DENR 及び他の国の機関が政策･ガイドラインを EO/DAO/MC へ書き換える。 2. プロジェクトの下で研修を受けた EMB 本部職員が、プロジェクト期間中、CWA 委託事項

	・人材開発プログラム 2. 支援手続きガイドラインの公表と普及。 3. 政策フレームワークと支援手続きに関するオリエンテーション/研修プログラムの修了。		の実施に向けた仕事を継続する。
2. EMB 本部事務所が地域事務所を指導・支援する能力が強化される。	1. 管理システムが実施される。その指標は以下のとおり： ・パイロット地域での水質モデルの設定・運営 ・運用可能な水質・汚染源データベース（地理参照機能（GIS）付き） ・インターネットによる情報・通信ネットワークの設置 ・第 1 回全国水質状況報告書の公表 ・非パイロット地域の追加援助のために策定されたプロジェクト案 2. 設備の供与と研修を受けた EMB 本部の WQMS 職員。 3. EMB 本部が 3 パイロット地域で CWA 行政・技術手続きの実施を効果的に調整。	1. 組織内文書 2. プロジェクト活動及び完了報告書	1. EMB が基盤地図や GIS インターフェース作成用シェープファイルを含む既存記録・データベースに対するプロジェクトチームのアクセスを容易にする（DENR 及び NAMRIA から）。 2. EMB がモデル化作業に必要な重要データ/情報を保有する他の機関とのプロジェクトチームの調整を促進する（例：NWRB から水文データ）。
3. WQMA 及び関連する各機関を設置し、支援する EMB 地域事務所の能力が 3 パイロット地域で強化される。	1. 各パイロット地域で少なくとも 1 カ所の WQMA が設定され、アクション・プランが作成される。	1. 面接又はアンケート調査 2. WQMA 活動のプロセス文書化	1. EMB が、プロジェクトに基づく支援活動が遅延または、過度の時間的圧力を受けることがないよう、適時に、各パイロッ

	2. 設定された WQMA には、以下のことが機能している： ・委員会 ・技術事務局 ・多部門行動グループ ・地域資源管理システム ・報告システム		ト地域で少なくとも 1 か所の WQMA を指定できる。 2. 各パイロット地域の EMB 地域事務所に技術事務局の仕事に配属できる十分な人数の職員がおり、必要に応じて EMB 地域事務所長が事務局の仕事をする他のユニットに職員を指名する。 3. WQMA の関係政府機関と LGU は、地域管理計画が適切に作成され、実際に実行されるように各自の役割を（各自の予算で）果たす用意がある。
4. 水質管理における EMB 地域事務所の総合的能力が 3 パイロット地域で強化される。	1. パイロット地域における主な点源汚染源が、排出許可証/課徴金システム（SMR システムを含む）に従っており、以下に支えられている： ・点源・面源のデータベース ・汚染課徴金の評価・徴収・会計の機能的システム ・報償インセンティブ制度 2. 3 パイロット地域それぞれについて、第 1 回地域水質状況報告書が公表される。 3. パイロット地域の主要/優先水域が分類される（または、必要に応じて再分類される）。	1. EMB 本部に対する地域事務所の達成報告書 2. プロジェクト・モニタリング及び中間評価報告書	1. 新たな WQM 委託事項が効果的に実施できるよう、十分な予算が適時、パイロット EMB 地域事務所の業務に提供される。 2. プロジェクトに基づき研修を受けた EMB 地域事務所要員が、プロジェクト期間中、CWA 委託事項の実施に向けて仕事を継続する。

	4. 地域内で調整済み水質モデルとデータベースが運用可能となり、中央情報システムと接続され、水質状況報告に使用される。 5. パイロット地域の EMB 地域研究室の設備がグレードアップし、パートナー研究室との連携が確立される。 6. 地域 WQMS 職員の水質サンプリング・モニタリング設備が調達され、職員が研修を受ける。 7. EMB 地域事務所職員の WQM 研修コースが終了する。		

主な活動		
1.1 統合水質管理フレームワークと実施計画を策定する多機関調整システムを設ける 1.2 水質管理地域を指定する手続きガイドラインを立案する（CWA に定義される未達成地域の特定を含む） 1.3 水質管理に市場的手段を用いることに関する包括的政策を、実施に向けた手続きガイドラインを含めて策定する 1.4 陸水域・海水域のほか、地下水を分類する手続きを、地下水脆弱性マップ作成を行うガイドラインを含め、作成する 1.5 （地域委員会による）WQMA アクション・プラン立案と付随する（LGU による）遵守計画立案を促進する手続きガイドラインを作成する	**日本側の投入：** (1) 長期専門家：以下 3 名の長期専門家が派遣される。こうした長期専門家の総人月は、5 年間で約 150 人/月の見積りである。 ・チームリーダー（環境政策策定・実施のスペシャリスト） ・チームメンバー（水質管理、産業汚染対策、プラント検査のスペシャリスト） ・チームメンバー（組織・制度領域のスペシャリスト） (2) 短期専門家：JICA は特別技術分野における支援と助言のため、4 名の短期専門家を派遣する。短期専門家の総人月は、5 年間で約	カウンターパート職員と支援施設を、EMB が適時に提供する。 （必要な職員の人数とカウンターパート支援施設を具体的に指定する） **前提条件：** 他の DENR ユニットからの追加職員は、本部と地域事務所両方で、

1.6 排出許可証システムをサポートする汚染負荷量と賦課金算定のため、システムと手続きを含めた手続きガイドラインを作成する 1.7 全国水質管理基金を管理する手続きガイドラインを作成する 1.8 点源・面源汚染源を含め、産業を分類する手続きガイドラインを作成する 1.9 水質モニタリングにおける他の機関や市民グループとの協力プログラムを確立するアプローチを策定し、ガイドラインを作成する 1.10 特定種類の産業汚染源について排出基準を守らせるガイドラインを作成し、柔軟性を持たせる連携の仕組みを開始する 1.11 汚染源の優先順位を定め、さまざまな種類の汚染を引き起こす施設のコンプライアンス検査の実施に関する運用マニュアルを作成する 1.12 水質ガイドラインを再検討し、水質再分類と排水基準改定の根拠を提示する 1.13 手続きガイドラインの各組について、すべての地域で EMB 本部及び地域事務所職員を対象とした研修プログラムを策定・実施する。研修用資料を作成し研修を実施する 1.14 WQM に関する統合政策 2.1 成果 1 の下で策定されたガイドラインの実施において、EMB 地域事務所との連携システムを確立する 2.2 選定地域における調整・試験・実証を含む、適切な水質モデリング技術を選定又は開発する 2.3 水質管理問題について、国民意識を向上させる全国情報キャンペーンを立案・策定し、試験的に実施する	30 人/月の見積りである。 ・水質モニタリングのスペシャリスト ・汚染源対策のスペシャリスト ・環境情報システムのスペシャリスト ・水質モデリングのスペシャリスト (3) ローカルコンサルタントと地元下請人：パイロット地域で、計画・ガイドラインの策定や、ワークショップ・OTJ 研修を通した研修の提供において EMB を支援する。 (4) 地元の助手・秘書：プロジェクトの実施において一般的支援を提供する。 (5) 設備・資材：提供される設備・資材のカテゴリーを以下に示す。実際の品目については、正確なニーズ調査の後に決定する。 ・現地でのサンプリング・モニタリング・計測用設備と車両 ・水質研究室用設備・資材 ・水質情報システム用設備 (6) 日本または第三国での技術研修：これは水質管理に従事する EMB 職員が対象として意図されている。研修の分野、期間、研修場所及び研修生については、プロジェクト実施の過程で決定する。 **フィリピン側の投入：** (1) カウンターパート職員：指名されたカウンターパート職員は、要請があり次第、プロジェクトを実施する日本側のカウンターパートとして働く。 ・合同調整委員会の議長	必要に応じ、正式命令を通して PMO と TWG に配置される。

2.4 EMB 地域事務所が使用する水質・汚染源データベース管理・報告システムを、GIS を利用した汚染源マップ作成機能付きで設計・開発する 2.5 EMB 本部を各地域事務所とリンクする、インターネットによる WQM 情報通信システムを設計・開発する 2.6 地域の報告書をまとめ、第 1 回全国水質状況報告書を公表する 2.7 全国水質管理基金を管理する手続きを実施する（活動 1.7 で策定された手続きガイドラインに基づく） 2.8 WQMS 職員用にサンプリング設備を調達し、EMB 地域事務所研究室人員の基準研究室兼研修センターとしての EMB 中央研究室の業務を合理化する 2.9 資金管理を含め、開発された情報通信システムの利用について、EMB 本部職員を対象とした研修プログラムを計画し、実施する 2.10 非パイロット地域事務所のための人材養成活動、例えば他のドナー機関（例：世界銀行、ADB）とのワークショップ企画などを行う 3.1 WQMA 線引きのガイドラインを実施する 3.2 指定された WQMA に委員会と技術事務局を設置する 3.3 活動 1.5 で策定された手続きガイドラインに基づき、WQMA GB アクション･プラン及び LGU コンプライアンス計画の策定を促進する 3.4 地域水質管理基金の設置・運営と、多部門行動モニタリンググループの活動において WQMA を支援する 3.5 活動 1.9 で策定された手続きに基づき、水質モニタリングにおける地域型協力の取決めの確立を支援する 1.1 活動 1.2 で策定された手続きに基づき、達成・未達成	・プロジェクトディレクター ・プロジェクトマネージャー ・担当者 ・プロジェクトメンバー ・専門作業部会/専門委員会メンバー ・パイロット地域事務所において共同で働くメンバー (2) 日本側用施設：フィリピン側は、安全な条件下の事務所スペースを提供する。施設には、机、会議テーブル、エアコン、通信設備等が備えられている。 (3) 設備及び資材：フィリピン側は、プロジェクトの実施に必要な他の必要設備及び資材を提供する。 (4) プロジェクト運営予算：フィリピン側は、プロジェクトの下で必要となる交通費及び運営経費の予算を含む、フィリピン側職員の給与・手当を支給する。	

地域を特定する 1.2 活動 1.4 及び 1.12 で策定されたガイドラインに基づき、必要に応じて水域を分類又は再分類する 1.3 活動 1.6 で策定された手続きに基づき、排出許可証及び排水課徴金システムを実施する 1.4 許可証手数料と排水課徴金の徴収・会計システムを設ける 1.5 汚染源の調査一覧を作成し、水質の現地調査を行う 1.6 活動 2.2 で開発された水質モデルを、例えば未達成地域で汚染物質の排出権を割り当てる際に適用する 1.7 汚染源の分類・優先順位・コンプライアンス検査の手続き（活動 1.8 及び 1.11 で策定）を実施する 1.8 汚染源と水質データ調査結果のデータベースを管理し、各地域のデータベースを EMB 本部にある全国データベースとリンクさせる 1.9 サンプリング及び分析用の設備を調達し、研修資料を開発して EMB 地域研究室の能力を強化する。また、各地域事務所が研究室パートナーシップを開始する際に支援する 1.10 第 1 回地域水質状況報告書を作成し、配布する 1.11 非パイロット地域の地域事務所職員がパイロット地域を訪れ、そこで WQM 手続きの実施を観察するプログラムを策定し、実施する		


ジャイカ
JICA