第6章　5項目による評価

6-1 妥当性

：プロジェクトは現在でも妥当である。

項目	評価
1. 必要性	
(1) ブラジルのニーズとの整合性	上位目標（「衛星画像に基づく違法伐採に係る技術情報を基に、取締りが強化される」）はブラジルのニーズに合致している。 ➢ ブラジル政府は1970年代より森林伐採のモニタリングに衛星画像を利用している。しかしながら、光学システムを利用する衛星画像を通したモニタリングは、1年のうち5ヶ月近く雲に覆われているアマゾン地域の森林の状況の把握には限界があるが、ALOS/PALSAR画像を利用することにより、雲の下の状況を把握することが可能になる。
(2) 実施機関のニーズとの整合性	プロジェクト目標(「ALOS/PALSAR画像に基づくブラジル・アマゾンにおける違法伐採に係る技術情報が取締りのために提供される」）は実施機関（INC/DITEC/DPF及びCSR/DIPRO/IBAMA)のニーズに合致している。 ➢ DPFは、従来から、違法伐採を含む環境犯罪の鑑定書作成に衛星画像を利用してきている。また、2007年以降、アマゾン地域の違法伐採取り締まりを目的とする「火のアーク（“Arch de Fogo“）」作戦を組織的に展開している。 ➢ IBAMAはブラジルにおいて、環境モニタリングの調整を担当しており、CSRのミッションは、地理的処理技術・方法を使って、環境情報を生産・体系化・管理・提供することである。
2.優先度	
(1) ブラジルの国家開発計画・政策との整合性	上位目標はブラジルの国家開発計画と整合性がある。 ➢ ブラジル政府の最新の多年度計画(2008-2011)において、自然資源の保全と持続的利用の重要性が強調されている。 ➢ 2004年以降、大統領令3号（2003年）に基づき、13省庁が共同して実施している「森林伐採・火災の防止・抑制行動計画（PPCDAM)」において、ほぼリアル他有無で森林伐採状況を捉える衛星モニタリングシステムであるDETER（リアルタイム森林伐採発見)が導入されている。
(2) 日本のODA政策との整合性	上位目標は日本のODA政策と整合性がある。 ➢ 日本政府のODA大綱によれば、「地球温暖化及び環境問題」は優先課題の一つである。 ➢ 日本政府の中期ODA政策（2005年）において、環境セクターは国際協力における最重要セクターの一つとされている。
3.手段としての適切性	
(1) 日本の技術的優位性	日本の技術的優位性は存在する。 ➢ ブラジル側のプロジェクト・スタッフの専門家チームへの評価及び彼らの技術能力の向上度に鑑み、ALOS/PALSAR画像を利用した森林伐採モニタリングにおいて、日本の技術的優位性はあると確認される。

6-2 有効性 (予測)

：有効性は確保されるとみられる。

項目	評価
1.プロジェクト目標の達成状況とアウトプットの貢献度	指標の達成度から判断すると、プロジェクト目標は、その達成に向けて、ほぼ計画通りに進捗している。プロジェクト目標はブラジル側・日本側双方の継続的な努力により、プロジェクト終了までに達成されるとみられる(詳細は第 4 章のプロジェクト目標の実績を参照)。 また、プロジェクト目標とアウトプットの間には論理的整合性が存在する。アウトプットは、現時点でその達成度に違いはあるが、それぞれプロジェクト目標の達成に貢献してきた。
2.外部条件	➢ 外部条件 A 「DPF 及び/あるいは IBAMA にプロジェクト実施に影響を与えるような大幅な組織変更がない」: これまでのところ、プロジェクトに不利な DPF 及び IBAMA の組織変更はなく、外部条件は満たされている。 ➢ 外部条件B 「DPF 及び/あるいは IBAMA の衛星モニタリング予算が大幅に減少しない」: これまでのところ、満たされている。
3. その他の促進・阻害要因	特になし。

6-3 効率性

：プロジェクトは概ね効率的であったと考えられる。

項目	評価
1.アウトプットの産出状況	指標の達成度及び活動の進捗度から判断すると、アウトプットは、概ね計画通り産出されつつあると考えられる。(詳細は第 4 章、第 5 章参照) ➢ アウトプット 1:アウトプット 1 の進捗度は計画通りであり、アウトプットは半ば産出されている。2009 年 12 月以降、ALOS/PALSAR 画像の多時期合成不良はゼロになっている。森林伐採発見手法（判読ガイド、森林分類ツール、変化発見ツール）は 2009 年末までに開発され、現在、改善中である。IBAMA 用の森林伐採地発見技術マニュアル及び DPF 用の ALOS 画像を用いた鑑定書作成技術マニュアルの初版作成は進行中であり、2011 年 3 月までに完成されると見込みである。2011 年 4 月までに、IBAMA 用マニュアル初版は、環境分析官が利用できるように SISCOM にアップロードされ、DPF 用マニュアル初版は、犯罪科学捜査官が利用できるように InteliGEO にアップロードされる見込みである。 ➢ アウトプット 2: アウトプット 2 は部分的に産出されているが、産出レベルは予測より低い。プロジェクトによって開発された DPF の情報共有メカニズム(InteliGEO)は 、2010 年 9 月に、全国の犯罪科学捜査官に公開されたが、世界的経済危機に起因する必要機材の調達の遅れにより、公開は計画より約 9 ヶ月遅れた。また、InteliGEO は公開されたが、ALOS/PALSAR の高画質画像の調達が手続き上の理由で 2010 年 8 月まで遅れたことにより、同画像を利用/参照した違法伐採鑑定書は、未だに作成/共有されていない。一方、法定アマゾン 9 州の IBAMA 地方事務所は、2009 年 12 月以降、本部の INDICAR/SISCOM とリンクされており、IBAMA によれば、少なくとも 9 州中 8 州の事務所は INDICAR/SISCOM にアップロードされた森林伐採地情報を活用した実績があるという。しかしながら、発見された森林伐採地に関する現地調査結果の本部へのフィードバックは 10%未満だという。IBAMA では、地方事務所からのフィードバックを確保するために、誰が

項目	評価
	情報をダウンロードし、誰がフィードバックを返していないかを追跡できるフィードバック・システムを構築中である。 ➢ アウトプット 3: アウトプット 3 の進捗度はほぼ計画通りであり、アウトプットは半ば産出されている。2009 年 12 月までに、IBAMA/DPF を対象とした ALOS/PALSAR 画像の一般的利用に関する基礎・上級コースが開発された（カリキュラム・教材を含む）。これまで、3 つの研修（基礎コース 2、上級コース 1）が実施され、合計 46 名（DPF 犯罪科学捜査官 21 名、IBAMA 環境分析官 25 名）の研修生が IBAMA の研修修了書を受領した。体系的な研修モニタリング・評価は行われていないが、研修生からのインフォーマルなフィードバックは次回以降の研修計画に活用されている。
2.外部条件	➢ 外部条件 A 「主要なプロジェクト・スタッフが他機関・部署に異動しない」: DPF のプロジェクト・マネージャーは 2009 年 12 月に国立警察学校に異動になったが、後任としては、計画段階からプロジェクトに関与していた人物が即時に任命された。また、IBAMA のプロジェクト・マネージャーにも交替があったが、後任は即時に任命されている。
3.投入の適切さ	
(1)ブラジル側	
(a) プロジェクト・スタッフ	➢ タイミング・期間・人数: ● 概ね適切。 ● 情報共有/伝達分野（アウトプット 2）において、DPF では、2010 年 3 月まで IT を専門とするスタッフが配置されなかった。それまでのプロジェクト活動は、主として、IT を専門としない DPF の既存のプロジェクト・スタッフが、IBAMA の IT スペシャリストや専門家チームの支援を受けながら行った。時には、DPF は地方事務所所属の IT スペシャリストを一時的（1 ヶ月程度）に本部に呼び寄せたこともあった。もし、プロジェクト開始当初から、IT を専門とするスタッフが、情報技術コミュニケーション管理及びウェブ GIS の日本人専門家のカウンターパートとして配置されていれば、より効率的だっただろう。 ● 情報共有/伝達分野（アウトプット 2）において、DPF、IBAMA では、現在、 各 1 名の IT スペシャリストがプロジェクトに配置されている。DPF のスペシャリストは InteliGEO 関連の職務に専念しており、また、DPF では、必要に応じて、地方事務所のスペシャリストを配置している。しかし、IBAMA においては、IT スペシャリストは INDICAR/SISCOM 以外の職務も担当している。IT スペシャリストの努力及び同僚や専門家チームの支援・協力によって、 アウトプットは産出されつつあるが、アウトプットのみならず、プロジェクト目標や上位目標達成における INDICAR/SISCOM の運用/改善の重要性を考えると、IBAMA(CSR)に、1 名以上の IT スペシャリストが配置されることが望まれる。 なお、IBAMA は、IT スペシャリストをもう 1 名雇用することを計画中である。 ➢ 質: ● 関連する分野・経験、適切な技術レベルを有する技術スタッフが配置された。また、彼らは勤勉であり、担当業務に対して、献身的である。 <アウトプット産出への貢献度> ● 高
(b) 建物・施設	➢ タイミング、量 : ● 土地・施設 : プロジェクトに必要な土地・施設はタイムリーに提供されてきた。 ● プロジェクト・オフィス: プロジェクト開始以来、ブラジリア市の IBAMA 本部内の一室がプロジェクト・オフィスとして提供されている。また、DPF においても、必要に応じて、専門家の執務スペースが提供されている。 ➢ 質: 適切。

項目	評価
	<アウトプット産出への貢献度> • 高
(c) 事務・運営費	総じて、プロジェクトの実施に必要な額がタイムリーに支出された。 <アウトプット産出への貢献度> • 高
(2)日本側	
(a)専門家	➢ タイミング、期間、人数 : : • 第 1 回 JCC で承認された専門家チームのインセプション・レポートの全体業務計画に添って作成され、JICA の承認した年間計画通りに、4 分野の専門家が派遣されている。 ➢ 質、分野 : • 適切な分野、経験、技術レベルの専門家が派遣された。彼らは、プロジェクト・スタッフの技術的質問に回答することをいつでも厭わない、アクセスしやすい専門家である。 <アウトプット産出への貢献度> • 高
(b)本邦研修	➢ タイミング、期間、人数: • 適切な人数のプロジェクト・スタッフがタイミングよく本邦研修に派遣された。 ➢ 分野、内容、質: • 特に ALOS データ利用に関するリモート・センシングの研修が実施された。研修の分野、内容、質はプロジェクトのニーズに合致しており、評価団がインタビューを行った全ての元研修員が、それらに高い評価を与えている。 ➢ 活用: • 研修員は全てプロジェクトに直接参加しているプロジェクト・スタッフであり、研修で得た知識・スキルをプロジェクトの活動に十分に活用している。また、研修で得た知識・スキルを同僚と共有している。 ➢ その他: • DPF 及び IBAMA のプロジェクト・スタッフの一部は、プロジェクト開始前に、JICA の集団研修（リモート・センシング分野）に参加した。同研修は JICA の通常研修であり、本プロジェクトに特化したものではなかったが、本邦研修を計画するにあたっては、同研修の参加者のコメントが反映されており、本邦研修の効率性を高めるのに貢献したといえる。 <アウトプット産出への貢献度> • 高
(c) 機材供与	➢ タイミング: • 適切さは中程度である。 • アウトプット 1 及びアウトプット 3 関連の機材は計画通り調達されたが、アウトプット 2 関連の多くの機材は調達が遅れた。 DPF の情報共有メカニズム(InteliGEO)の開発・本格運用に必要な機材は、世界的経済危機に起因する供給不足のために調達が遅れ、最後の機材が納品されたのは 2010 年 10 月であった。DPF の犯罪科学捜査官の鑑定書作成に必要な ALOS/PALSAR の高画質画像も、手続き上の理由で、納品が 2010 年 8 月まで遅れた。ただし、DPF 及び専門家チームの努力、ならびに IBAMA の機材の臨時貸与(無償)により、アウトプットの産出への悪影響は最小限に留められている. (詳細は、第 4 章のアウトプット 2 の指標 2a 及び 2c の実績を参照)。

項目	評価
	➢ 量、質、アイテム、スペック: ● 量、質、アイテムは適切であると考えられる。また、スペックも総じて適切である。 ➢ 運転・保守管理: ● これまで、機材の保守管理は適切になされてきている。 ➢ 活用: ● 全ての機材はプロジェクト実施に活用されている。 <アウトプット産出への貢献度> ● 中
(d) ローカルコスト	➢ タイミングと量: プロジェクト活動に必要な額がタイミングよく支出された。 ➢ その他: ローカルコストによって雇用されている現地スタッフが、プロジェクトの効率的な実施に貢献している。 <アウトプット産出への貢献度> ● 高
4.前提条件	➢ 前提条件 A(「ALOS/PALSAR 画像(ScanSAR 画像)が、JAXA と IBAMA の協定（K&C 協定）に基づき、JAXA によって提供される」): ALOS/PALSAR 画像(ScanSAR 画像)は（K&C 協定）に基づき、JAXA によって提供されている。 ➢ 前提条件 B(「DPF 及び IBAMA が、プロジェクト共同実施協定を結ぶ」）: 当初計画されたような共同実施協定は結ばれていないが、プロジェクトは DPF と IBAMA の緊密なパートナーシップによって実施されている。なお、DPF と IBAMA では、組織単位の包括的な協力協定締結に向けた手続きを開始している。
5.他プロジェクトとの連携	➢ 他の JICA プロジェクト/スキームとの連携 ● 第 3 国研修： プロジェクトは INPE 及び IBAMA 共催の「熱帯雨林モニタリング中核人材育成コース」(2010-2013)と連携している。 2010 年 11 月に開催された研修では、IBAMA のプロジェクト・スタッフが、プロジェクトや森林伐採発見における ALOS/PALSAR 画像の利用について、講義を行った。
6.その他の促進・阻害要因	特になし

6-4 インパクト

： 既に様々な正のインパクトが確認されており、今後、さらに発現することが期待される。負のインパクトは確認されておらず、予測されない。

項目	評価
1.上位目標レベルのインパクト	
(1) 上位目標の達成見込み	上位目標の達成見込みを判断することは、時期尚早であると判断された。 注: 指標が十分に詳細でなく、具体的な計画値もないため、いずれにせよ、正確な達成度を予測することは不可能であった。指標は、プロジェクトによってレビューされ、適宜修正される必要がある。
(2) 外部条件	➢ 外部条件 A(「取り締まりのための予算とスタッフが大幅に減少しない」): ブラジル政府にとって、アマゾン地域の違法伐採取り締まりは優先事項の一つであることから、外部条件は満たされると思われる。
2.その他のインパクト	<既に観察されている正のインパクト> ➢ ALOS/PALSAR 画像の利用により、ブラジルのアマゾン地域の衛星モニタリングが 1

項目	評価
	年中可能になった。 ➢ ALOS/PALSAR 画像(ScanSAR 画像)及びプロジェクトの改善した INDICAR/SISCOM を利用して、IBAMA は、2,000 以上の森林伐採地を発見した。 ➢ IBAMA の CSR 所員は、アマゾン地域だけではなく、他の地域でも ALOS/PALSAR 画像(ScanSAR 画像)を利用した森林伐採地発見を始めている。 ➢ DPF 情報共有システムである InteliGEO の構築により、ブラジル中の犯罪科学捜査官が、鑑定書作成に有益な情報を入手できるようになった。犯罪科学捜査官は情報を得るのにもはや複数の情報源にあたる必要がなくなり、1 ヶ所（InteliGEO）だけですむようになった。また、最新の情報を容易に得られるようになった。 ➢ ALOS/PALSAR 画像の一般的利用に関する第 2 回基礎研修及び第 1 回上級研修には、DPF の他部署及び他機関（INC 鑑定エンジニアリング・セクション(SEPENA)から 1 名、DPF 航空センター(CAOP)から 2 名、ブラジル森林局（SFB)から 1 名、CENSIPAM から 5 名）が参加し、ALOS/PALSAR 画像の利用に関するスキル・知識を身につけた。 ➢ InteliGEO の利用は他の鑑定分野にも拡がりつつある。例えば、DPF が国連薬物犯罪事務所（UNODC）の支援を受けて実施中のマリファナ作物取り締まりプロジェクト（SIGMA プロジェクト)及び薬物化学プロファイリング・プロジェクトが、薬物取り締まりへの InteliGEO の利用に関心を示している。 InteliGEO の拡張にあたっては、利用に関心をもつ者が、財政及びあるいは技術資源を提供することになっており、SIGMA 及び PEQUI プロジェクトは既に 2 台のサーバー・コンピューター、1 台のストーレージ等を提供している。 ➢ DPF のプロジェクト・スタッフは、現在 SIGMA プロジェクトに配置されている 10 名の犯罪科学捜査官を対象として、ALOS/PALSAR の高画質画像の利用を含む GIS/リモート・センシング研修（15 日間）を開催した。また、この研修において、IBAMA 及び専門家チームの同意の下、プロジェクトによって開発されたカリキュラム・教材が活用された。 なお、2011 年には、20 名の犯罪科学捜査官を対象とした同様の研修コースを 2 回開催する予定である。 ➢ IBAMA によれば、ブラジルのアマゾン地域の森林伐採地域はこの 2 年間で 40%減少しており、これには、一部、ALOS/PALSAR 画像及び INDICAR/SISCOM を利用している IBAMA スタッフの努力も寄与している。 <予測される正のインパクト> ➢ ALOS/PALSAR の高画質画像及び InteliGEO を利用することにより、DPF は、より多くの情報源・より正確で最新の情報をもってより質の高い鑑定書を裁判に提出することが可能になる。 ➢ InteliGEO は DPF にとって、全ての種類の連邦犯罪用の地理情報加工システムになる潜在的可能性がある。 <負のインパクト> ➢ 負のインパクトは確認されておらず、予測されない。

6-5 自立発展性 （見込み）

: 自立発展性は確保される見込みである。

項目	評価
1.組織・制度面	
(1) 政策的・法的支援	衛星画像に基づく技術情報を利用した違法伐採取り締まりに対する政策的・法的支援は今後も継続すると見込まれる。
(2) 組織戦略（出口戦略）	DPF 及び IBAMA の代表との協議時に、プロジェクト終了までに、プロジェクト後に関する組織戦略/出口戦略を策定する必要性が確認された。
(3) プロジェクト・スタッフの配置	DPF の全てのプロジェクト・スタッフ及び IBAMA のほとんどのプロジェクト・スタッフは連邦政府の正規職員であり、雇用は保証されている。また、彼らはプロジェクト終了後も、引続き関連ポストに配置され、プロジェクトで得た知識・スキルを職務に活用し、プロジェクトの効果を維持することができると思われる。
(4) 管理運営能力	DPF の INC 及び IBAMA の CSR はどちらもプロジェクト活動を重大な支障なく運営管理してきており、プロジェクト終了後も、関連活動を独力で運営管理していけると思われる。
(5) 関連機関との連携	➢ DPF と IBAMA: 当初計画されたような共同実施協定は結ばれていないが、プロジェクトは DPF と IBAMA の緊密なパートナーシップによって実施されており、この関係はプロジェクト終了後も維持されると思われる。なお、DPF と IBAMA においては、組織単位の包括的な協力協定締結に向けた手続きが開始されている。 ➢ 他機関: プロジェクトの活動は INPE や CENSIPAM といった現地機関との連携の下、行われてきた。この連携はプロジェクト終了後も継続すると期待される。
2.財政面	これまでのところ、DPF 及び IBAMA はプロジェクト活動実施に必要な予算を措置してきた。また、プロジェクトを現場レベルで担当している DPF の INC 環境犯罪科学セクション(APMA)及び IBAMA の CSR に対する予算は、両機関のアマゾン地域の違法伐採取り締まりに対するコミットメント及び取り締まりへの衛星画像の利用に関する組織的関心を反映して、増加してきている。 DPF については、既に、InteliGEO の拡張に際して、関心をもつ部署（薬物取り締まり部署を含む）から財政的（及び技術的）資源の動員を開始している。一方で、プロジェクト期間中は日本側が調達している ALOS/PALSAR の高画質画像に関するプロジェクト後の予算確保については、不透明である。
3.技術面	
(1) プロジェクト・スタッフの技術能力	DPF 及び IBAMA の技術能力は、アウトプットの産出状況、活動の実施において示された問題解決能力、専門家チームによる評価を総合的に判断すると、着実に強化されている。技術スタッフの継続的な努力及び専門家の支援により、プロジェクト終了までには、独力で、関連活動を計画・実施・モニタリング・評価でき、新たな課題に取り組むことができる能力が備わると思われる。
(2) 移転技術と成果品の活用と普及	これまでに移転された技術・手法及び成果品は現地の技術ニーズ・技術レベルに適合したものである。移転技術/手法及び成果品は、これまで十分に活用されてきており、プロジェクトが開発/改善した InteliGEO・INDICAR/SISCOM、及びプロジェクトの実施した研修によって、DPF の犯罪科学捜査官及び IBAMA の環境分析官に普及されている。プロジェクト終了後も、移転技術/手法及び成果品は継続的に活用され、普及されると見込まれる。
(3) 供与機材の活用と保守管理	➢ 活用: プロジェクトによって供与された機材は十分に活用されている。供与機材は違法伐採の取り締まりのための衛星画像を用いた技術情報提供に不可欠なものであり、プロジェクト終了後も活用されると見込まれる。 ➢ 運転・保守管理: 供与機材のメーカーにより、運転・保守管理マニュアル（英語版）が提供されている。DPF 及び IBAMA の技術スタッフは、既に供与機材を自分たちで運転することができる。供与機材の日常点検・保守は DPF あるいは IBAMA のエ

項目	評価
	ンジニアによって行われている。専門家チームによれば、内部では対応できない不具合が生じた場合でも、現地業者に対応能力があるとのことである。また、ほとんどの機材が現地で調達されたため、部品・消耗品はブラジル国内で入手可能である。これらを総合すると、プロジェクト終了後の運転・保守管理には大きな問題はないと思われる。

第7章　結論

全般的にプロジェクトはスムーズに進捗し、森林伐採地特定に必要な時間の大幅な短縮やブラジル国内での技術研修を通じたDPF及びIBAMA職員の技術レベルの向上等、確実な成果を残している。この意味でプロジェクトの目標達成レベルは高く評価できるものである。

情報フローの改善については世界経済の停滞に起因する供給不足により、DPFにおける情報共有メカニズムの構築に必要な機材の購入遅延という厳しい課題に直面したが、これによるプロジェクトへの悪影響はDPFとIBAMAの密接な連携協力により最小限に抑えられた。また構築された情報共有メカニズムInteliGEOは本プロジェクト目的の達成はもとより、様々な分野の科学捜査にかかる情報フローの改善にも大きく貢献する可能性を持ちつつある。

評価項目に関して、アマゾン森林保全にかかる全体的な潮流における本プロジェクトの妥当性は現在も維持されている。また有効性の観点からは、プロジェクトは目標の達成にむけ正しい方向性を持って進捗している。自立発展性についても確保される見込みであるが、プロジェクト全体がALOS画像の使用を前提として構築されていることを考慮し、今後の継続的なALOS画像の確保にむけては努力が求められる。

プロジェクトの運営面に関し、全般的にな運営状態は良好であるが、プロジェクトの進捗モニタリングの面では改善の余地を残しており、これについてはPDMの改定が貢献するものと考えられる。

また確認可能なアウトプット以外にも、本プロジェクトにかかるブラジル国民の高い認知度が違法伐採に対する抑止効果をもたらしている可能性もあり得る。

約1年半の残り協力期間において継続的な取り組みを行うことにより、本プロジェクトはアマゾン森林保全のために多大なインパクトを与えるとともに、革新的技術と多機関による連携アプローチを重用した日本・ブラジル両国の協力にかかる成功事例としての象徴的役割を果たすことも可能であると考えられる。

第 8 章　提言と教訓

8-1 提言

合同レビュー報告書に記載された提言は以下のとおり。

・DPF、IBAMA 間の合意文書

プロジェクト終了後の DPF と IBAMA 間の継続的な連携協力を確実にするため、両機関間で相互連携にかかる合意文書を 2011 年の上半期中に締結する。

・ALOS データの継続的使用

現在 IBAMA と独立行政法人宇宙航空研究開発機構（JAXA）間の合意に基づき提供されている ALOS/PALSAR の ScanSAR 画像について本プロジェクトの協力期間を通じて継続的に使用可能とし、更に ScanSAR 画像を含め違法伐採の発見に必要される ALOS の様々な画像を協力期間終了後も入手可能にするようブラジル側は努力を行う。

・フィードバック・システムの構築

違法伐採地検出にかかる精度/スピードの更なる向上とアウトプット 2 の達成度のモニタリングへの貢献を目的とした、違法伐採地現地確認結果にかかる IBAMA の地方事務所から IBAMA 本部へのフィードバックにかかるフィードバック・システムを構築する。

・ALOS/PALSAR 画像の判読技術

違法伐採モニタリングシステムにおいて ALOS/PALSAR 画像の判読技術が非常に重要な役割を果たすことから、マニュアルの作成等による当該技術の文書化や当該技術をもった人材の育成について努力が行われなければならない。

・ブラジル国内研修参加者にかかるフォローアップの強化

今後の研修内容の更なる改善に向け、ブラジル国内研修参加者に対する研修修了後のフォローアップがシステマティックに実施されなければならない。

・PDM の修正

本中間レビューで使用した評価用 PDM（PDME）に基づき、本プロジェクトの PDM を修正する（これについては本中間レビュー実施中に実施された JCC にて修正について承認を得た）。なお上位目標にかかる適当な指標についてもプロジェクトが 2011 年度の上半期中に決定する。

・年間活動計画の策定

2010 年末までに、DPF,IBAMA 及び専門家チーム間の協議に基づき 2011 年度の年間活動計画（APO）が準備され、プロジェクト・ダイレクター及び JCC 議長によって承認されなければならない。

・定期会合の開催

プロジェクト管理体制の改善のために、DPF、IBAMA 及び専門家チーム間において様々なレベルの定期会合が開催されることが望ましい。

・レポートの作成・提出

プロジェクトの実施スケジュールに基づき、プロジェクトにより、セミアニュアルレポート、アニュアルレポート、プロジェクト終了時レポートが作成・提出される必要がある。

・IT 専門家の人数

INDICAR の円滑なオペレーションのために適切な人数の IT 専門家が配置される必要がある。

8-2 教訓

・本プロジェクトにおいては、実施機関である DPF と IBAMA 間はもとよりブラジル国立宇宙研究所（INPA）やアマゾン保護システム運営管理センター（CENSIPAM）等他の政府機関も含めた政府機関間の相互連携がプロジェクトの円滑な進捗に貢献している。プロジェクトの成功にはこのような政府機関間の円滑な相互連携が重要である。

・特に高い特殊性を有する機材を調達・活用するプロジェクトの実施にあたっては、市場における当該機材の供給状況等を慎重に確認した上で、機材調達スケジュールを検討することが望ましい。

付属資料

1　協議議事録（Minutes of Meeting）
Annex 1 合同評価報告書(英文)
Annex 2 PDM Ver.3
Annex 3 PO Ver.1

2　PDME

MINUTES OF MEETINGS
BETWEEN
THE JAPANESE MID-TERM REVIEW TEAM
AND
AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE FEDERATIVE REPUBLIC OF BRAZIL
ON
JAPANESE TECHNICAL COOPERATION PROJECT
FOR
UTILIZATION OF ALOS IMAGES TO SUPPORT THE PROTECTION OF THE BRAZILIAN AMAZON FOREST AND COMBAT AGAINST ILLEGAL DEFORESTATION

Brasilia, Brazil, November 19th, 2010

Mr. ENDO Hiroaki
Team Leader
The Mid-Term Review Team
Japan International Cooperation Agency (JICA),
Japan

Mr. Paulo Roberto Fagundes
Director
Technical Scientific Directorate,
Department of Federal Police (DPF),
Ministry of Justice,
Federative Republic of Brazil

Mr. Wofsi Yuri G. de Souza
Manager
Coordination of Received Bilateral Cooperation,
Brazilian Cooperation Agency (ABC),
Ministry of External Relations,
Federative Republic of Brazil

Mr. Luciano de Meneses Evaristo
Director
Environmental Protection Directorate,
Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA),
Ministry of Environment,
Federative Republic of Brazil

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and the Government of the Federative Republic of Brazil (hereinafter referred to as "Brazil") organized a Joint Mid-Term Review Team (hereinafter referred to as "the Team") composed of the Japanese Review team headed by Mr. ENDO Hiroaki, Director, Forest and Nature Conservation Division II, Forest and Nature Conservation Group, Global Environment Department, JICA, and the Brazilian Review team headed by Mr. Eron Carlos da Costa, Projects Analyst of the Coordination of Received Bilateral Cooperation from Brazilian Cooperation Agency (ABC), Ministry of External Relations, for the purpose of conducting the mid-term review of the Japanese technical cooperation project "Utilization of ALOS Images to Support the Protection of the Brazilian Amazon Forest and Combat against Illegal Deforestation" (hereinafter referred to as "the Project").

The Team has carried out intensive study and analysis of the activities and achievement of the Project, and prepared the Joint Mid-Term Review Report attached hereto (hereinafter referred to as "the Report") (ANNEX1), which was presented to the Joint Coordinating Committee (hereinafter referred to as "JCC") held on November 19th, 2010. After discussions on the major issues pointed out in the Report, the JCC accepted it and took note on the recommendations made therein.

Further, the Japanese Review team had a series of meetings with the Brazilian authorities concerned, on the matters related to the Project including the results of the Joint Mid-Term Review, and agreed on the following matters.

1. Result of Joint Mid-Term Review

Both parties agreed upon the contents of the Report, which was approved by the JCC of November 19th, 2010.

The Team concluded that, in general, the project activities have been smoothly implemented, producing steady outputs such as drastic decrease of the time for detecting deforestation areas and skill-up of the staff of both Department of Federal Police, Ministry of Justice (hereinafter referred to as "DPF") and the Brazilian Institute for the Environment and Renewable Natural Resources, Ministry of Environment (hereinafter referred to as "IBAMA") through training courses in Brazil. In this regard, the achievement level of the Project was highly evaluated.

With continuous effort in the remaining period of cooperation which is approximately a year and a half, the Project can produce huge impacts on the conservation of Amazon Forest, and also play a symbolic role of successful collaboration between Japan and Brazil combining an innovative technology with a multi institutional engagement.

The major recommendations from the Team were as follows.

(1) Agreement between DPF and IBAMA

To ensure the continuous coordination between DPF and IBAMA after the termination of the Project, it is recommended that DPF and IBAMA conclude an agreement on mutual cooperation during the first semester of 2011.

(2) Continuous use of ALOS data

It is recommended that the Brazilian side makes efforts to ensure that Scan Synthetic

Aperture Radar (ScanSAR) images of the Japanese satellite Advanced Land Observing Satellite / Phased Array Type L-band Synthetic Aperture Radar (ALOS/PALSAR), which are now being provided under the agreement between IBAMA and Japan Aerospace Exploration Agency (JAXA), can be continuously used during the Project cooperation period.

Further, efforts should also be made to ensure that several types of ALOS images, including ScanSAR images, which are necessary for the detection of illegal deforestation, will be continuously available after the termination of the Project.

(3) Establishment of Feedback System

Establishment of a system for feedback from IBAMA regional offices to the headquarter on the results of field surveys of detected deforestation areas is recommended for further improvement in accuracy and time of detection of deforestation areas, as well as for the monitoring of the Output of the Project.

2. Modification of the Project Design Matrix and Development of the Plan of Operation

With regard to the Project Design Matrix (hereinafter referred to as "PDM"), both parties agreed that PDM version 2, attached to the Minutes of Meeting signed between JICA and Brazilian authorities on December 15th, 2008, would be modified to PDM version 3 (ANNEX 2) as attached hereto, based on the recommendation of the Mid-Term Review.

With regard to the Plan of Operation (hereinafter referred to as "PO"), both parties agreed with the PO version 1 (ANNEX 3), which has been developed based on the PDM version 3.

3. Change in the Administration of the Project

Both parties confirmed that the administrative personnel from IBAMA, which was agreed in the Record of Discussion signed between JICA and Brazilian authorities on December 15th, 2008, would be partially changed as follows.

〈Before〉

Project manager:

Head of Remote Sensing Center (CSR), Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA)

〈After〉

Project Manager (Managerial Matters):

Coordinator of General Coordination of Environmental Zoning and Monitoring, IBAMA

Project Manager (Technical Matters):

Head of CSR, IBAMA

Sub Project Manager:

Sub Head of CSR, IBAMA

Attached Documents:

ANNEX 1 Joint Mid-Term Review Report

ANNEX 2 PDM version 3

ANNEX 3 PO version 1

ANNEX 1.

REPORT OF THE JOINT MID-TERM REVIEW
ON
THE PROJECT FOR UTILIZATION OF ALOS IMAGES TO SUPPORT THE PROTECTION OF THE BRAZILIAN AMAZON FOREST AND COMBAT AGAINST ILLEGAL DEFORESTATION

November 18th, 2010

Mr. ENDO Hiroaki
Leader of Japanese Review Team
Japan International Cooperation Agency

Mr. Eron Carlos da Costa
Leader of Brazilian Review Team
Brazilian Cooperation Agency
Ministry of External Relations

1. Introduction

1.1 Objectives of the Review

The reviewing activities were performed with the following objectives:

(1) To verify the accomplishments of the Project compared to those planned;

(2) To identify obstacles and/or facilitating factors that have affected the implementation process;

(3) To analyze the Project in terms of the five evaluation criteria (i.e. Relevance, Effectiveness, Efficiency, Impact, and Sustainability); and

(4) To make recommendations on the Project regarding the measures to be taken for the remaining period as well as the post-project period.

1.2 Members of the Joint Review Team

(1) The Japanese Team

Title	Name	Position
Team Leader	Mr. ENDO Hiroaki	Director, Forest and Nature Conservation Division II, Forest and Nature Conservation Group, Global Environment Department, Japan International Cooperation Agency (JICA)
Forest Conservation /Satellite Image Analysis	Dr. HIRATA Yasumasa	Head of Climate Change Office, Forestry and Forest Products Research Institute
Cooperation Planning	Mr. IKENOUE Takahiro	Senior Program Officer, Forestry and Nature Conservation Division II, Forestry and Nature Conservation Group, Global Environment Department, JICA
Evaluation/Analysis	Ms. HIROUCHI Yasuyo	Permanent Expert, International Development Associates Ltd.

(2) The Brazilian Team

Title	Name	Position
Team Leader	Mr. Eron Carlos da Costa	Projects Analyst, Coordination of Received Bilateral Cooperation Brazilian Cooperation Agency, Ministry of External Relations
Member	Ms. Eristelma Teixeira de Jesus Barbosa Silva	Managerial Analyst on Natural Resources and Environmental Analysis, Operational and Management Centre of Amazon Protection System (CENSIPAM)
Member	Ms. Camila Aparecida Lima	Intellectual Analyst on Natural Resources and Environmental Analysis, CENSIPAM

1.3 Schedule of the Review

The review of the Project was conducted from November 1st to 17th, 2010. The Joint Review Team (hereinafter referred to as "the Team") collected the information through questionnaires and a series of interviews with Brazilian Project Personnel and Japanese experts. The Team also conducted a field observation in Rondonia for four days. Based on the results of the review, the Team prepared a draft report and finalized it through a series of discussions on November 16th and 17th.

2. Outline of the Project

2.1 Background of the Project

Amazon rainforest is the largest rainforest in the world and its conservation is very important for the whole earth. Despite the great efforts of the government of Brazil to conserve it, the forest is decreasing because of several causes such as environmental crimes.

Satellite images are useful tools to monitor the situation of vast Amazon rainforest. The Brazilian government has used them to protect Amazon rainforest from 1970s and developed satellite monitoring systems by using optical sensors. Brazilian satellite systems are one of the world's advanced systems, and have produced good results on forest conservation.

Satellite systems play an important role in the Plan of Action for the Prevention and Combat against the Deforestation in Amazonia (PPCDAM). The plan has been operated through a partnership of 13 ministries, and as a result, 20 million hectares of conservation units were created, the System of Real Time Detection of Deforestation (DETER) and the Project on the Monitoring of Deforestation in Legal Amazon (PRODES) were established, the Document of Forest Origin (DOF) which proves legal tree felling was introduced, number of imprisoned persons involved in environmental crimes increased, dozens of irregular companies were discovered, and the deforestation was remarkably reduced.

Although satellite systems are useful tools to monitor Amazon, there is a serious problem. Amazon is covered by thick clouds about half a year and during that time, monitoring by optical sensors is difficult.

The Japanese satellite Advanced Land Observing Satellite DAICHI (hereinafter referred to as "ALOS") loads a Phased Array Type L-band Synthetic Aperture Radar (hereinafter referred to as "PALSAR"), which can obtain images regardless of the weather. By using ALOS, it becomes possible to monitor the Amazon rainforest throughout the year so that a deterrent effect to environmental crimes can be strengthened.

Beside that, other ALOS images of high resolution (PRISM-Panchromatic Remote Sensing Instrument for Stereo Mapping and AVNIR2-Advanced Visible and Near Infrared Radiometer type 2) can be useful in law enforcement improving the forensic reports that

are essential documents to describe the proofs of crimes and to avoid the impunity of environmental criminals.

Therefore, the Japanese technical cooperation project "the Project for Utilization of ALOS Images to support the protection of the Brazilian Amazon Forest and Combat Against Illegal Deforestation" started in June 2009, and Japan International Cooperation Agency (hereinafter referred to as "JICA") will cooperate with the Department of Federal Police (hereinafter referred to as "DPF") and the Brazilian Institute for the Environment and Renewable Natural Resources (hereinafter referred to as "IBAMA") until June 2012. Now, after half of the period of the Project has passed, the Team was formed for this mid-term review.

2.2 Summary of the Project

(1) The Project Purpose: Technical information based on ALOS/PALSAR images on illegal deforestation in the Brazilian Amazon is provided for law enforcement

(2) The Overall Goal: Law enforcement is enhanced ground on technical information based on satellite images on illegal deforestation

(3) The Outputs:

1) Output 1: Deforestation areas including suspicious areas are detected using ALOS/PALSAR data

2) Output2: The information flow of satellite monitoring system throughout DPF and IBAMA is improved

3) Output3: Human resources in DPF and IBAMA are upskilled to detect and characterize illegal deforestation

3. Review of the PDM

For evaluation of a technical cooperation of JICA, Project Design Matrix (hereinafter referred to as "PDM") and Plan of Operations (hereinafter referred to as "PO") are used as essential documents. Prior to the start of the evaluation, the Team reviewed the current PDM (PDM2) attached to the Record of Discussion (hereinafter referred to as "R/D") signed on December 15th, 2008, and agreed to prepare a PDM for evaluation (PDME) (Annex 1) as a basis of the evaluation. The PDME was prepared by the Team through consultation with Brazilian project personnel and Japanese experts. Since the PO has not been prepared for the Project, the Team assisted the Project in developing a draft (Annex 2), which was also used as a basis of the evaluation.

4. Methodology of Review

4.1 Data Collection Method

The Team made interviews with the Brazilian Project Personnel and the Japanese

experts engaged in the Project. The Team also collected information through questionnaires from the concerned personnel. The team also conducted field survey from November 10th to 13th.

4.2 Items of Analysis

(1) Accomplishment of the Project

The accomplishment of the Project was measured in terms of the Inputs, the Outputs and the Project Purpose in comparison with the Objectively Verifiable Indicators of PDM as well as the plan delineated in the R/D.

(2) Implementation Process

The implementation process of the Project was reviewed to see if the Activities have been implemented according to the schedule delineated in the latest PO, and to see if the Project has been managed properly as well as to identify obstacles and/or facilitating factors that have affected the implementation process.

(3) Evaluation based on the Five Evaluation Criteria

(a) Relevance: Relevance of the Project was reviewed to see the validity of the Project Purpose and the Overall Goal in connection with the needs of the beneficiaries and policies of Brazil and Japan.

(b) Effectiveness: Effectiveness was analyzed by evaluating the extent to which the Project has achieved and contributed to the beneficiaries.

(c) Efficiency: Efficiency of the Project implementation was analyzed focusing on the relationship between the Outputs and Inputs in terms of timing, quality, and quantity.

(d) Impacts: Impacts of the Project were forecasted by referring to positive and negative impacts caused by the Project.

(e) Sustainability: Sustainability of the Project was analyzed in institutional, financial and technical aspects by examining the extent to which the achievement of the Project would be sustained and/or expanded after the Project is completed.

5. Summary of Accomplishment and Implementation Process of the Project

5.1 Accomplishment of the Project (Details are described in Annex 3)

(1) Inputs (Details are described in section (1) of Annex 3)

Summary of Inputs is shown in the tables below.

Table 1: Summary of Brazilian Inputs

Allocation of Project Personnel (P/P)	DPF:7 persons IBAMA: 8 persons	Allocation of local cost:	US$576,034.94 (as of December 2010)

Table 1: Summary of Japanese Inputs

Dispatch of Experts:	4 persons	Provision of Equipment:	¥ 68 million
P/P Trained in Japan:	8 persons (4 each from DPF and IBAMA)	Disbursement of local cost:	¥ 21 million (as of September 2010)

(2) Outputs (Details are described in section (2) of Annex 3)

(a) Output 1: Progress has been made as expected. Output 1 has been moderately achieved. Useless multi-temporal combination of ALOS/PALSAR images has become zero since December 2009. Methodologies for deforestation detection, including interpretation guide, forest classification tool, and change detection tool, have been developed by the end of 2009, which are being updated. Development of initial version of the technical manuals for IBAMA and DPF for utilization of ALOS/PALSAR images in detection of deforestation areas and preparation of Forensic Reports respectively are ongoing and would be completed by March 2011. The initial manuals are expected to be uploaded to Environmental Information Sharing System (SISCOM) for the use of Environmental Analysts of IBAMA and to the information sharing mechanism of DPF developed by the Project (i.e. InteliGEO) for the use of its Forensic Experts respectively by April 2011.

(b) Output 2: Information sharing mechanism of DPF (i.e. InteliGEO) has become available to all Forensic Experts in Brazil since September 2010, which was delayed for 9 months because of the delay of the delivery of the necessary equipment due to supply shortage caused by world-wide economic recession. While InteliGEO has become operational, Forensic Reports that utilize/refer to the ALOS/PALSAR images have not been produced/shared yet because the delivery of the high-resolution images of ALOS/PALSAR was delayed due to administrative reasons. Regional Offices in Legal Amazon States have been linked with INDICAR/SISCOM of IBAMA Headquarters since December 2009. According to IBAMA, at least 8 out of 9 Legal Amazon States have utilized the Deforestation Polygons uploaded in INDICAR/SISCOM. Less than 10% of the results of the visits of the detected deforestation areas (i.e. Deforestation Polygons) have been reported back from the Regional Offices, however. In order to ensure the feedbacks from the Regional Offices, a feedback system is being developed, through which IBAMA could keep track of who has downloaded the Deforestation Polygons and who has not given feedback.

(c) Output 3: Progress has been made almost as expected. Output 3 has been moderately produced. Basic and advanced courses for IBAMA and DPF for the general use of ALOS/PALSAR images, including curriculum and textbooks, have been developed. So far, three trainings (i.e. two Basic and one Advanced Courses) have been conducted and a total of 46 training participants (i.e. 21 DPF Forensic Experts and 25 IBAMA Environmental Analysts) have been awarded the certificates by IBAMA. Informal feedbacks from the trainees have been reflected in planning of the subsequent ones; but training monitoring and evaluation has not been implemented in systematic manner.

(3) Project Purpose (Details are described in section (3) of Annex 3)
Time for the deforestation detection after IBAMA receives the Scan Synthetic Aperture Rador (ScanSAR) images of ALOS/PALSAR has decreased from more than one month in the beginning of the Project to 8 working days.

With regard to provision of the location and size of the detected deforestation to the Regional Offices of IBAMA, it takes five working days at present because of the need for a lead time for data accumulation. A mechanism, in which data accumulation time is minimized, has been developed, which would contribute to reduction of the lead time for the data provision once it is put into operation.

Meanwhile, Forensic Reports on illegal deforestation cases, which utilize/refer to ALOS/PALSAR images, have not yet been produced though as many as 21 DPF Forensic Experts have been trained on the use of ALOS/PALSAR images. This is attributable to the delay of the delivery of the high-resolution images and the necessary equipment for development and operation of InteliGEO as mentioned in 4.1 (2)(b). Since these issues have been already addressed, the trained Forensic Experts are now ready to produce Forensic Reports using ALOS/PALSAR images. Some have already started writing Forensic Reports using the ALOS/PALSAR images.

5.2 Implementation Process of the Project (Details are described in Annex 4)
Overall, the Project has been proceeding well.

The Project has been implemented jointly by DPF and IBAMA. Though the agreement for joint implementation has not been concluded as initially planned, both organizations have worked in close partnership. Communication within the Project is sufficient for smooth implementation. Cooperative relations between Brazilian and Japanese sides have been built up. The Project has coordinated/collaborated with various organizations,

including INPE and CENSIPAM. Initiative and commitment of the Director of Technical Scientific Directorate (DITEC) of DPF (as Project Director) and Director of Environmental Protection Directorate (DIPRO) of IBAMA as the chairman of the Joint Coordinating Committee (JCC) as well as motivation and diligence of the Project Personnel have been identified as the factors that have facilitated the implementation process.

Although the Project has been proceeding well, the initial PDM, which had been developed through a series of discussions between Brazilian and Japanese side prior to the beginning of the Project, was found not to be detailed enough as a management tool for the Project. For example, Indicators were not objectively verifiable. In addition, a PO, another management tool for JICA project, has not been developed for the Project. This has made it difficult for all those concerned to have clear and common understanding of the overall implementation process and progress of the Project activities based on the PDM and PO as well as expected achievement level of the Outputs and the Project Purpose. Through a series of discussions with the Evaluation Team, a draft PDM3 with more detailed Indicators has been developed. The Project has also developed a detailed PO (DPO), reorganizing the activities of the Overall Work Plan of the Japanese Expert Team under the Activities of the PDME, for endorsement by the third meeting of JCC schedule on November 19, 2010. The Project plans to prepare an annual PO (APO) for the Brazilian Fiscal Year 2011 based on the endorsed DPO. The draft APO would be prepared through due discussion among the personnel concerned with the Project and is expected to be finalized by the end of 2010.

6. Summary of Evaluation based on the Five Evaluation Criteria

6.1 Relevance (Details are described in Section 1 of Annex 5)

The Overall Goal and the Project Purpose are still relevant with the needs of Brazil and Target Groups (i.e. Forensic Experts of DPF and Environmental Analysts of IBAMA). They are still consistent with the national development plan of Brazil as well as Official Development Assistance (ODA) policies of Japan. Japanese technical advantage has been confirmed.

Overall, the Project is still relevant.

6.2 Effectiveness (Prospect) (Details are described in Section 2 of Annex 5)

Judging from the achievement level of the Indicators, progress is being made mostly as expected in achieving the Project Purpose. The Project Purpose is likely to be achieved by the end of the Project with continuous effort of the Brazilian and Japanese sides.

Logical relation between the Project Purpose and the Outputs is confirmed. All of the Outputs (i.e. development of methodologies for deforestation detection, improvement of satellite information flow throughout DPF and IBAMA, and development of human resources in DPF and IBAMA for detection and characterization of deforestation) are relevant with the Project Purpose. Although their level of achievement varies at this moment, they have contributed to the achievement of the Project

Taken together, the Project is likely to be effective.

6.3 Efficiency (Details are described in Section 3 of Annex 5)

Progress has been made mostly as expected in producing Outputs, judging from the achievement level of its Indicators as well as the progress of the activities. As for Output 1 and Output 2, progress has been made as expected and they have been moderately produced. Progress has been made towards achievement of Output 2; but its achievement level is lower than expected mainly because of the delay of the delivery of the necessary Inputs, namely equipment due to supply shortage caused by world-wide economic recession and high-resolution images of ALOS/PALSAR. The Evaluation Team notes that, through efforts made by DPF and the Japanese Expert team as well as collaboration of IBAMA in temporal provision of their equipment, the adverse effect on production of Output 2 has been mitigated to minimum.

Inputs from the Brazilian and Japanese sides have been mostly appropriate in producing the Outputs in terms of timing, quality and quantity, except for the delay of the delivery of the necessary equipment and high-resolution images of ALOS/PALSAR mentioned above and the number of IT specialist for INDICAR/SISCOM. The Inputs are considered to have contributed to production of the Outputs mostly.

As for IBAMA, the IT specialist is not only engaged in the tasks related to INDICAR/SISCOM. The Team notes that through the hard work of the IT specialists as well as support and collaboration from their colleagues and Japanese Expert team, progress is being made on producing the Output. It would be more efficient, however, if more than one IT specialists are assigned to IBAMA, considering the importance of operation/improvement of INDICAR/SISCOM in achieving the Project Purpose as well as the Overall Goal. For reference, IBAMA is trying to employ another IT specialist.

Overall, the Project is considered to have been mostly efficient.

6.4 Impacts (Details are described in Section 4 of Annex 5)

Impacts at the Overall Goal level: Likelihood of achievement of the Overall Goal was not assessed because it was found preliminary. (The exact level could not have been assessed in any case because the Indicator is not objectively verifiable).

Other impacts: Various positive impacts have been observed already and more are foreseen. For example, satellite monitoring of Brazilian Amazon has become possible in all seasons of the year. More than 2,000 deforestation areas have been detected by IBAMA. According to IBAMA, the deforested area in Brazilian Amazon has decreased by 40% in the last two years, part of which is attributable to the efforts made by its staff members utilizing the ScanSAR images of ALOS/PALSAR and INDICAR/SISCOM for law enforcement. Through establishment of InteliGEO, useful information for production of Forensic Reports, including high-resolution images of ALOS/PALSAR, has become available to all DPF Forensic Experts in Brazil. Utilizing the ALOS/PALSAR images and InteliGEO, DPF has become able to produce Forensic Reports in better quality, with more reliable and updated information from multiple sources to convince judges. Moreover, InteliGEO is expanding its border to other forensic issues.

Negative impacts have not been observed. They are not foreseen, either.

6.5 Sustainability (Forecast) (Details are described in Section 5 of Annex 5)

Institutional and organizational aspects: Policy support for law enforcement using technical information based on satellite monitoring in Brazilian Amazon is likely to continue. Almost all of the Brazilian project staff members are permanent staff of the Government of Brazil, whose employment is ensured. They are expected to be assigned to the relevant posts in the post project period so that they could utilize the techniques/experiences obtained through the Project continuously. The collaborative relationship between DPF and IBAMA has been enhanced through joint implementation of the Project. For reference, DPF and IBAMA have started process of developing an umbrella agreement on collaboration.

Financial aspects: So far, DPF and IBAMA have allocated necessary budget for the implementation of the Project activities. Budgets for Environmental Forensic Section (APMA) of INC/DPF and Remote Sensing Center (CSR) of IBAMA have been increasing, reflecting the commitment of the both organizations on the combat for illegal deforestation in Brazilian Amazon as well as the organizational interests in utilizing satellite images for law enforcement. In addition, DPF has already started mobilizing financial (as well as technical) resources in expanding InteliGEO from those who are interested in using it. In the meantime, it is uncertain whether or not budget for

high-resolution images of ALOS/PALSAR, which are procured by JICA during the Project, would be secured by DPF after the end of the Project.

Technical aspects: Technical capacity of the Brazilian project staff has been enhanced steadily. The skills and knowledge transferred through the Project as well as the deliverables are relevant with the local needs and technical levels. They have been utilized fully and have been disseminated to all Environmental Analysts of IBAMA and all Forensic Experts of DPF through INDICAR/SISCOM and InteliGEO as well as trainings organized by the Project. The transferred skills and knowledge as well as the deliverables are expected to be continuously utilized and disseminated in the post-project period. The equipment provided by the Project is expected to be fully utilized after the end of the Project.

From a comprehensive viewpoint, sustainability of the Project is likely to be ensured.

7. Conclusion

In general, the project activities have been smoothly implemented, producing steady outputs such as drastic decrease of the time for detecting deforestation areas and skill-up of DPF staff and IBAMA staff through the training courses in Brazil. In this regard, the achievement level of the Project can be highly evaluated.

In terms of the improvement of the information flow, the Project has faced severe constraint, which is a delay on the delivery of the necessary equipment for the establishment of an information sharing mechanism in DPF, due to supply shortage caused by the world-wide economic recession. Though, negative impact for the Project was mitigated to minimum level thanks to the close collaboration between DPF and IBAMA. Meanwhile an information sharing mechanism called InteliGEO was established. This mechanism has been gradually developing a high potential for improving the information flow in DPF not only for achieving the Project purpose but also for solving various forensic issues.

Regarding the evaluation criteria, the Project continues to be relevant in the overall context of Amazon Forest conservation. In terms of Effectiveness, it can be said that the Project is on the right track to achieve its purpose. In regard of Sustainability, it is likely to be ensured, though, efforts should be made to ensure the continuous availability of ALOS images, given the fact that the whole Project results rely on them.

In terms of administration, the Project is well managed in general, though, there is room for enhancing the monitoring of the Project progress, and modification of the PDM mentioned in item 3 of this Report is expected to serve for that purpose.

Further, besides the visible outputs of the Project, high public awareness of the Project may be contributing to produce deterrent effect for illegal deforestation.

The Team believes that with continuous effort in the remaining period of cooperation which is approximately a year and a half, the Project can produce huge impacts on the conservation of Amazon Forest, and also play a symbolic role of successful collaboration between Japan and Brazil combining an innovative technology with a multi institutional engagement.

8. Recommendations and Lessons Learned

8.1 Recommendations

(1) Agreement between DPF and IBAMA

To ensure the continuous coordination between DPF and IBAMA after the termination of the Project, it is recommended that DPF and IBAMA conclude an agreement on mutual cooperation during the first semester of 2011.

(2) Continuous use of ALOS data

It is recommended that the Brazilian side makes efforts to ensure that ScanSAR images of ALOS/PALSAR, which are now being provided under the agreement between IBAMA and Japan Aerospace Exploration Agency (JAXA), can be continuously used during the Project cooperation period.

Further, efforts should also be made to ensure that several types of ALOS images, including ScanSAR images, which are necessary for the detection of illegal deforestation, will be continuously available after the termination of the Project.

(3) Establishment of Feedback System

Establishment of a system for feedback from IBAMA regional offices to the headquarter on the results of field surveys of detected deforestation areas is recommended for further improvement in accuracy and time of detection of deforestation areas, as well as for the monitoring of the Project Output 2.

(4) Technique of Interpretation of ALOS/PALSAR image

Interpretation of ALOS/PALSAR image plays a key role in the monitoring system using ALOS/PALSAR image. Therefore efforts should be made for the documentation of relevant techniques through the publication of manuals, as well as for the development of human resources with interpretation techniques.

(5) Enhancement of Follow up of ex-participants of Training Course in Brazil

Systematic follow up of the ex-participants of training courses held in Brazil should be implemented for further improvement of the contents of future courses.

(6) Modification of the PDM

The Team recommends that the PDM should be modified based on PDME for clarifying the range of activities and smooth monitoring the Project. Also, an appropriate objectively verifiable indicator for the Overall Goal should be determined by the Project during the first semester of 2011. .

(7) Establishment of Annual Plan of Operation

Annual Plan of Operation for 2011 should be prepared through mutual consultation among DPF, IBAMA and the Japanese experts team based on PO and should be endorsed by the Project Director and the chairman of the JCC by the end of 2010.

(8) Holding of Periodical Meetings

The following periodical meetings are recommended for the improvement of the administration of the Project.

1) Project Executive Meeting*	(in the middle of 2011)
2) Meeting between DPF and IBAMA**	(once a month)
3) Meeting between DPF & Japanese experts team	(every two weeks)
4) Meeting between IBAMA & Japanese experts team	(every two weeks)

* Project Executive Meeting is to monitor semiannual progress and to discuss the activities for the next semester, among Project Director, JCC Chairman, Project Managers of DPF/IBAMA, Japanese experts team and Representative of JICA Brazil Office.

** Japanese experts team will also participate in the Meeting when they are in Brasilia.

(9) Submission of Reports

The following reports should be prepared and submitted according to the Project implementation schedule. Contents of the Reports are described in PO.

1) Semi-annual reports
2) Annual report
3) Terminal report

(10) Number of IT specialists

Appropriate number of IT specialists should be allocated for the smooth operation of INDICAR.

8.2 Lessons Learned

The Team identified the lessons described below, learned from the experience and knowledge acquired from the implementation of the Project

(1) Institutional interaction is fundamental for the good progress of the Project, not only

between the executing organizations of the Project but also among other Governmental institutions like INPE and CENSIPAM

(2) Equipment procurement schedule should be carefully examined considering the market situation, especially when equipments with high specialty are needed.

Annex 1 PDME
Annex 2 PO
Annex 3 Accomplishment of the Project
Annex 4 Implementation Process
Annex 5 Evaluation based on Five Evaluation Criteria

End of Document

Annex 1 PDM for Evaluation based on PDM 2 attached to the R/D

1. **Project Name** : The Project for utilization of ALOS images to support the protection of the Brazilian Amazon Forest and combat against illegal deforestation
2. **Project site**: Brasilia
3. **Duration**: From ~~February~~ June 2009to ~~February~~ June 2012 (three years)
4. **Target Beneficiaries**: ~~Staff~~ Forensic Experts of Federal Police Department (DPF) and Environmental Analysts of Brazilian Institute for the Environment and Renewable Nature Resources (IBAMA)
5. **Target Area:** Brazilian Amazon (i.e. 9 Legal Amazon States: Acre, Amapa, Amazonas, Maranhao, Mato Grosso, Para, Rondonia, Roraima, Tocantins)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Law enforcement is enhanced ground on technical information based on satellite images on illegal deforestation	a:Number of law enforcement actions using monitoring documents produced in the month of cloud cover is increased (Note: The Indicator for the Overall Goal would be discussed and clarified by the Project in the first semester of 2011)	a. Reports by IBAMA and DPF	A: There is no particular change in government policies on protection of Brazilian forest
Project Purpose Technical information based on ALOS(*1)/PALSAR(*2) images on illegal deforestation in the Brazilian Amazon is provided for law enforcement	~~a: The time of detection of the new deforestation is reduced.~~ a: By the Project end, deforestation areas are detected within 3 working days after receiving the ScanSAR (*3)images of ALOS/PALSAR by IBAMA. b: By the Project end, the location and size of the detected deforestation areas (i.e. Deforestation Polygons) are provided to the relevant IBAMA regional offices within 2 working days after their detection ~~b: Number of documents (A4 and forensic reports) produced by DPF and IBAMA using ALOS/PALSAR images is increased~~ c: By the Project end, ALOS/PALSAR images (mainly high-resolution ones), are utilized/referred to in 60 Forensic Reports(*4) produced by DPF per year	a&b: Comparison of the record of concerned dates kept by IBAMA c: Review of Forensic Reports	A: Budgets and staffs for law enforcement do not decrease drastically
Output 1: Deforestation areas including suspicious areas are detected using ALOS/PALSAR data	~~1a: Number of ALOS/PALSAR images in SISCOM is increased (per month)~~ 1a: Useless multi-temporal combination of ScanSAR images of ALOS/PALSAR becomes zero by the end of 2009. ~~1b: Methodology for deforestation detection is spread throughout technical manual~~ 1b: Methodologies to extract deforestation information from ScanSAR images of ALOS/PALSAR developed by the Project, including Interpretation guide, forest classification tool, and change detection tool by the end of 2009; and updated by March 2011 1c: Initial version of the technical manuals for IBAMA and DPF for utilization of ALOS/PALSAR images in detection of deforestation areas and preparation of Forensic Reports respectively are developed/approved by March 2011 (in English and Portuguese) 1d: The initial version of the technical manual for IBAMA is uploaded to SISCOM (*5)for the use of Environmental Analysts and the one for DPF is uploaded to InteliGEO(*6) for the use of Forensic Experts by April 2011. 1e: The initial version of the technical manuals for IBAMA and DPF are updated by March 2012 1f: The updated manuals are uploaded to SISCOM and InteliGEO respectively by April 2012 ~~1c: Number of products (maps, tools, articles, reports, etc) developed to detect deforestation using ALOS/PALSAR images is increased~~	1a: Review of error report produced by IBAMA 1b: Review of the developed tools &progress reports 1c&e: Review of technical manuals & date of approval of each manual by the Project Manager of DPF and IBAMA respectively 1d&f: Review of the uploaded dates recorded in SISCOM and InteliGEO	A: There is no significant organizational change in DPF and /or IBAMA affecting implementation of the Project B: Budgets for satellite monitoring of DPF and/or IBAMA do not decrease drastically
Output 2: The information flow of satellite monitoring system throughout DPF and IBAMA is improved	~~2a: Utilization of ALOS/PALSAR images is increased in DPF and IBAMA~~ 2a: Information sharing mechanism of DPF developed by the Project (i.e. InteliGEO) is made available to all the Forensic Experts in Brazil by December 2009 2b: By the Project end, 100% of Forensic Reports produced by DPF Forensic Experts, utilizing/referring to ALOS/PALSAR images (mainly high-resolution ones), are made available in InteliGEO for other Experts within one week after the completion 2c: By the Project end, access to INDICAR(*7)/SISCOM of IBAMA becomes at least one from each of the 9 Legal Amazon States per cycle of ALOS operation (i.e. 46 days) ~~2b:Number of feedback from DPF and IBAMA regional offices is increased~~ 2d: Semi-annual access to InteliGEO of DPF is increased by 5 % in relation to the previous semester.	2a:Record of the release date 2b:Check that all Forensic Reports in Criminalistica uploaded in InteliGEO, and the ones that are not more than a week old 2c: Record of access to INDICAR 2d: Record of access to InteliGEO	

Annex 1 PDM for Evaluation based on PDM 2 attached to the R/D

	2e: By the Project end, 90 % of the results of visits of the deforestation areas detected by INDICAR/SISCOM & ALOS/PALSAR (i.e. Deforestation Polygons) are fed back to IBAMA HQ per cycle of ALOS operation	2e::Record of feedbacks registered in the Target Registration System to be developed at IBAMA	
Output 3: Human resources in DPF and IBAMA are upskilled to detect and characterize illegal deforestation	~~3a: Number of staff in DPF and IBAMA using ALOS/PALSAR images is increased~~ ~~3b: 12 staff in DPF and IBAMA participated in the advanced training course in Japan~~ 3a: Basic and advanced courses for IBAMA and DPF for the general use of ALOS/PALSAR images, including curriculum and textbooks, are developed by September 2009 3b: Basic course specifically for the use of DPF Forensic Experts to produce Forensic Reports are developed by December 2011. 3c: ~~100 staff members participate in the training courses in Brazil~~ By the Project end, 70 staff members (30 Forensic Experts of DPF and 40 Environmental Analysts of IBAMA) receive official training certificates for the use of ALOS/PALSAR images from IBAMA or DPF 3d: On average, 80% of the trainees give the highest or medium rate on three-level rating about "degree of understanding" and "degree of applicability" of the concerned trainings 3e: The training courses are updated based on the feedbacks from the trainees, including the results of monitoring and evaluation of the trainings, and other Project Activities	3a: Project report &curriculum and textbooks developed 3b: ditto 3c: List of trainees 3d: Results of the questionnaires to the trainees 3e:Analytical report of training	

Activities

1.1 Convert ALOS/PALSAR data format to fit into INDICAR/SISCOM
1.2 Develop methodologies to extract deforestation information from ALOS/PALSAR images.
1.3 Identify potential deforestation areas using ALOS/PALSAR images and other available geographic information
1.4 Develop technical manuals for DPF and IBAMA for utilization of ALOS images based on the results of the Activities 1.1-1.3

2.1 Document existing monitoring mechanism
2.2 Identify possible upgrading opportunities in the DPF/IBAMA deforestation monitoring mechanism
~~2.3 Determine the upgraded mechanism~~
~~2.4 Execute the plan determined in 2.3~~
2.3 Improve the existing satellite information sharing mechanism of IBAMA HQ (i.e. INDICAR/SISCOM)
2.4 Develop an information sharing mechanism at DPF HQ (i.e. InteliGEO)
2.5 Establish an information flow between IBAMA and DPF HQs
2.6 Develop an intra-information flow mechanism between IBAMA HQ and its regional offices
2.7 Develop an intra-information flow mechanism between DPF HQ and its regional offices

3.1 Assess training needs to monitor and characterize illegal deforestation in DPF/IBAMA
3.2 Determine the training plan
3.3 Execute the training plan
3.4 Monitor/evaluate/upgrade the trainings

Inputs

<Brazilian Side>
(1) ~~Counterparts~~ Project & Administrative personnel
- Project Director
- Project Manager(s)
- Other project ~~counterparts~~ and administrative personnel

(2) Office Spaces and Facilities
- Office space in IBAMA
- Other facilities necessary for the implementation of the Project

(3) Administration and operational costs

<Japanese Side>
(1) Experts
- Remote Sensing/Administrative Coordination
- Information and Communication Technology
- Web-programming, GIS
- Other Experts necessary for the Project

(2) Training of Brazilian personnel in Japan
(3) Machinery and Equipment
- ALOS images, software, servers, storages
- Other materials necessary for the implementation of the Project

A:Main ~~counterparts~~ Project Personnel are not transferred to other departments and/or agencies

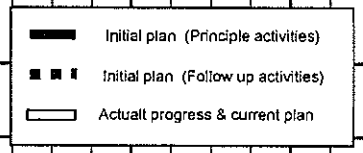
Pre-Conditions

A: ALOS/PALSAR images (i.e. ScanSAR images) are provided by Japan Aerospace Exploration Agency (JAXA) based on the Agreement on Cooperation between JAXA and IBAMA

B: DPF and IBAMA conclude an agreement on the joint implementation of the project

(*1) ALOS: Advanced Land Observing Satellite launched by JAXA
(*2) PALSAR: Phased Array Type L-Band Synthetic Aperture Radar (*3) ScanSAR: Scan Synthetic Aperture Radar
(*4) Forensic Report: Technical document produced by DPF Forensic Experts that aims to establish whether a crime has happened, how it happened, and who committed it. This document is used in criminal prosecutions.
(*5) SISCOM: Environmental information sharing mechanism of IBAMA
(*6) InteliGEO: Information sharing mechanism of DPF being developed by the Project under Output 2 (*7) INDICAR: Indicator of Deforestation for Radar Images.

Activities	Expected Results	Schedule: 2009 JFY2009 Jun	Jul-Sep	Oct-Dec	Jan-Mar	2010 JFY2010 Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	2011 JFY2011 Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	2012 12 Apr-Jun	Org. in charge	Person in Charge	Implementors	Other major inputs: Japaese	Brazilian	Remarks
Output 1. Deforestation areas includig suspicious areas are detected using ALOS/PALSAR data															DPF/IBAMA	Sano (IBAMA)/Rafael (DPF)		JE(RSI/Adm-Ono)		
1.1 Convert ALOS/PALSAR data format to fit to INDICAR/SISCOM															IBAMA	Rodrigo (IBAMA)	Werner, Daniel, Felipe, Silvia (IBAMA)	JE(RSI/Adm-Ono)		SISCOM is a data server and INDICAR is a function in the SISCOM which enable detection of deforestation using ALOS/PALSAR images
1.1.1 Establish ALOS/PALSAR data upload path for INDICAR/SISCOM	PALSAR data uploaded to SISCOM periodically														ditto	ditto	ditto	ditto		
1.1.2 Establish preprocess functions to use an individual PALSAR image for SISCOM/INDICAR.	Preprocess conduceted without errors														ditto	ditto	ditto	ditto		
1.1.3 Create image catalog to access the PALSAR data uploaded in SISCOM	Catalog list exported as a file														ditto	ditto	ditto	ditto		
1.1.4 Establish preprocess functions to use multi-temporal PALSAR images for INDICAR	Preprocess conduceted without errors														ditto	ditto	ditto	ditto		
1.1.5 Validation/Evaluation and improvement of the methodologies developed	Methodologies validated and improved														ditto	ditto	ditto	ditto		
1.2 Develop methodologies to extract deforestation information from ALOS/PALSAR images.															IBAMA	Rodrigo (IBAMA)	Werner, Daniel, Felipe, Silvia (IBAMA)	JE(RSI/Adm-Ono)		
1.2.1 Develop an interpretation guide for detection of deforestation area using ALOS/PALSAR (w/optical images and ground truthing)	Interpretation guide developed														ditto	ditto	ditto	ditto		
1.2.2 Develop a forest classification (i.e.discrimination of forest/non-forest) tool, using ALOS/PALSAR images	Forest classification tool developed														ditto	ditto	ditto	ditto		
1.2.3 Develop a change detection tool for identification of possible deforestation areas through conducting time series analysis using the results of Act.1.2.2	Change detection tool developed														ditto	ditto	ditto	ditto		
1.2.4 Validation/Evaluation and improvement of the methodologies developed	Methodologies validated and improved														ditto	ditto	ditto	ditto		
1.3 Identify possible deforestation areas using ALOS/PALSAR images and other available geographic information															IBAMA	Rodrigo (IBAMA)	Werner, Daniel, Felipe, Silvia (IBAMA)	JE(RSI/Adm-Ono)		
1.3.1 Identify geographic information useful for identification of deforestation area from multipule data sources	Useful info identified														ditto	ditto	ditto	ditto		Digital Elevation Model (DEM) info &DETER/PRODES info identifed
1.3.2 Develop methodologies to integrate the useful geographic information from multiple data sources into data servers of IBAMA and DPF (INDICAR/SISCOM and InteliGEO)															IBAMA/DPF	George(IBAMA), Rafael (DPF)	Werner, Mariano			



Annex 2 Draft Detailed PO with Record of Activities

	Activities	Expected Results	Schedule	Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009 / JFY2009: Jun, Jul-Sep, Oct-Dec; 2010 / JFY2010: Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec; 2011 / JFY2011: Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec; 2012 / 12: Jan-Mar, Apr-Jun				Japanese	Brazilian	
a	Integration into the data server of IBAMA (INDICAR/SISCOM)	Useful info integrated into the data server of IBAMA	SRTM DEM; AsterDEM; PrismrDEM	IBAMA	George (IBAMA)	Mariano, Wemer, Luis Motta (IBAMA)	JE(RSI/Adm-Ono)		
b	Integration intothe data server of DPF developed in Activity 2.4 (i.e. InteliGEO)	Useful info integrated into the data server of DPF	AsterDEM; PrismrDEM	DPF	Rafael (DPF)	Rafael, Russo, Miranda (DPF)	ditto		Integration of Aster DEM has been delayed due to the delay of completion of development of InteliGEO (See.Remarks of Act.2.4)
1.3.3	Utilize the information integraed in the data servers in preparation of Deforestation Polygone/A4 Reports of IBAMA and Foresing Report of DPF			IBAMA/ DPF	Rodrigo(IBAMA), Rafael (DPF)	Rafael, Daniel, Miranda (DPF) Rodrigo, Wemer, Daniel,Silvia, Felipe (IBAMA)	JE(RSI/Adm-Ono)		
a	In preparation of Deforestation Polygon/A4 Report (IBAMA)	Info in the data server utilized		IBAMA	Rodrigo (IBAMA)	Rodrigo, Werner, Daniel, Felipe, Silvia (BAMA)	ditto		
b	In preparation of Forensic Report (DPF)	ditto		DPF	Rafael (DPF)	Rafael, Russo, Miranda (DPF)	ditto		*Activity delayed due to delay of the completion of the development of the data server(i.e.InteliGEO) . See Remarks of Act.2.4) *Interferometry technology learned in the Advanced Course (see Output 3) is utlized
1.4	Develop technical mannuas for DPF and IBAMA for utilization of ALOS images based on the results of the Activities 1.1-1.3			DPF/IBAMA	Rafael (DPF) Sano(IBAMA)	Rafael, Daniel, Miranda (DPF) Rodrigo, Wemer, Daniel, Felipe, Silvia (IBAMA)	JE(RSI/Adm-Ono)		The manuals consists of the common part and individual parts for each organization .
1.4.1	Develop the manual for DPF for the use of Foresnsic Expert to prepare Forensic Report	English and Portugease manuals developed		DPF	Rafael (DPF)	Rafael, Russo, Miranda (DPF)	ditto		
1.4.2	Update the above manual	ditto		ditto	ditto	ditto	ditto		
1.4.3	Develop the manual for IBAMA for the use of Environmental Analysts to prepare Deforestation Polygon	ditto		IBAMA	Sano (IBAMA)	Rodrigo, Wemer, Daniel, Felipe, Silvia (IBAMA)	ditto		
1.4.4	Update the above manual	ditto		ditto	ditto	ditto	ditto		

Annex 2 Draft Detailed PO with Record of Activities

Activities	Expected Results	Schedule	Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
		2009 / JFY2009: Jun; Jul-Sep; Oct-Dec — 2010 / JFY2010: Jan-Mar; Apr-Jun; Jul-Sep; Oct-Dec — 2011 / JFY2011: Jan-Mar; Apr-Jun; Jul-Sep; Oct-Dec — 2012 / 12: Jan-Mar; Apr-Jun				Japanese	Brazilian	
Output 2: The information flow of satellite monitoring system througout DPF and IBAMA is improved			DPF/IBAMA	Rafael (DPF) Sano(IBAMA)		JE(RSI/Adm-Ono)		
2.1 Document existing monitoring mechanism throughout DPF and IBAMA.			DPF/IBAMA	Rafael (DPF) George(IBAMA)	Rafael, Daniel, Miranda (DPF) Mariano, Werner (IBAMA)	JE(GIS1-Kawaguchi GIS2/Web-Furuhashi)		
2.1.1 Develop a flow chart on information sharing and transmission system, including the existing INDICAR/SISCOM	The flow chart developed		ditto	ditto	ditto	ditto		
2.2 Identify possible upgrading opportunities in the DPF/IBAMA crime monitoring mechanism.			DPF/IBAMA	Rafael (DPF) George(IBAMA)	Rafael, Daniel, Miranda (DPF) Rodrigo, Werner (IBAMA)	JE(GIS1-Kawaguchi GIS2/Web-Furuhashi)		
2.2.1 Analyze the flow chart developed in Act.2.1	Analytical report prepared		ditto	ditto	ditto	ditto		
2.3 Improve the existing satelite information sharing mechanism of IBAMA at HQ (i.e. INDICAR/SISCOM)			IBAMA	George (IBAMA)	Mariano, Werner, Luis Motta (IBAMA)	JE(GIS-Kawaguchi, RS2/ICT-Nishimura, GIS2/Web-Furuhashi)		
2.3.1 Prepare immediate upgrading plan for INDICAR?SISCOM	A report on upgrading plan developed		ditto	ditto	ditto	ditto		
2.3.2 Implement immediate upgradeing plan	Official version of INDICAR released		ditto	ditto	ditto	ditto		
2.3.3 Implement integration and performance test on the mechanism developed	*Performance report developed		ditto	ditto	ditto	ditto		
2.33 Implement the end-user assessment	Assessment conducted once		ditto	ditto	ditto	ditto		The end-user assessment was conducted after the protocol was released
2.3.4 Excute further upgrading based on the end-user assessment and as appropriate (needed)	Mechanism upgraded		ditto	ditto	ditto	ditto		
2.4 Develop a information sharing mechanism at DPF HQ (i.e. InteliGEO)			DPF	Rafael (DPF)	Rafael, Daniel, Miranda (DPF)	JE(GIS-Kawaguchi, RS2/ICT-Nishimura, GIS2/Web-Furuhashi)		*Information means ALOS/PALSAR images (with high resolution in particular) and Forensic Reports for Act 2.4 *The data server called InteliGEO was developed *Overall Progress: Activities have been delayed due to delay of the delivery of the relevant equipment. The last component was delivered in Oct.2010
2.4.1 Prepare a plan	A report on plan developed		ditto	ditto	ditto	JE (ditto)		

	Activities	Expected Results	Schedule	Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009 JFY2009 Jun / Jul-Sep / Oct-Dec; 2010 JFY2010 Jan-Mar / Apr-Jun / Jul-Sep / Oct-Dec; 2011 JFY2011 Jan-Mar / Apr-Jun / Jul-Sep / Oct-Dec; 2012 12 Jan-Mar / Apr-Jun				Japaese	Brazilian	
2.42	Develop the mechanism based on the plan (2.4.1)	*A report on design developed *Equipment installed according to the design		ditto	ditto	ditto	JE (ditto) Equipment LC for consultant		Protorype of the InteliGEO was developed, utilizing the equipment rented from IBAMA as emergency measure.
2.4.3	Implement integration and performance test on the mechanism developed (i.e. InteliGEO)	Performance report developed		ditto	ditto	ditto	ditto		
2.4.4	Oerationalize the InteliGEO officially	The InteliGEO service launched officially		ditto	ditto	ditto	ditto		
2.4.4	Implement the end-user assessment	Assessment conducted twice	I; II; I; II	ditto	ditto	ditto	ditto		Second assessment would be conducted by DPF staff with orientation from Japanese Expert team
2.4.5	Upgrade the InteliGEO based on the assessment	Mechanism upgraded as appropriate		ditto	ditto	ditto	ditto		
2.5	Establish the information flow between DPF and IBAMA HQ (i.e. InteliGEO and INDICAR/SISCOM)			DPF/IBAMA	Rafael (DPF) George(IBAMA)	Rafael, Daniel, Miranda (DPF) Mariano, Werner, Luis Motta (IBAMA)	JE(GIS1-Kawaguchi GIS2/Web-Furuhashi)		
2.5.1	Prepare a plan	A report on plan developed		ditto	ditto	ditto	ditto		
2.5.2	Develop the mechanism based on the above plan (2.5.1)	*A report on design developed *Equipment installed according to the design		ditto	ditto	ditto	ditto		
2.5.3	Implement integration and performance test on the mechanism developed	Performance report developed		ditto	ditto	ditto	ditto		
2.5.4	Operationalize the mechanism officially	Access to INDICAR become possible through InteliGEO		ditto	ditto	ditto	ditto		
2.5.4	Implement the end-user assessment	Assessment conducted twice	I; II	ditto	ditto	ditto	ditto		
2.5.5	Upgrade the mechanism based on the assessment	Mechanism upgraded		ditto	ditto	ditto	ditto		
2.6	Develop an intra-information flow mechanism beteen IBAMA HQ and its Regional Offices			IBAMA	George (IBAMA)	Werner, Mariano, Luis Motta (IBAMA)	JE(GIS-Kawaguchi, RS2/ICT-Nishimura, GIS2/Web-Furuhashi)		*Information means Polygons and ALOS/PALSAR images for Act.2.6 *Web interface for GIS was developed
2.6.1	Prepare a plan	A report on plan developed		ditto	ditto	ditto	ditto		
2.6.2	Develop the mechanism based on the plan (2.6.1)	A report on design developed		ditto	ditto	ditto	ditto		

Activities		Expected Results	Schedule	Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009 / JFY2009: Jun; Jul-Sep; Oct-Dec / 2010 / JFY2010: Jan-Mar; Apr-Jun; Jul-Sep; Oct-Dec / 2011 / JFY2011: Jan-Mar; Apr-Jun; Jul-Sep; Oct-Dec / 2012 / 12: Jan-Mar; Apr-Jun				Japaese	Brazilian	
2.6.3	Implement integration and performance test on the mechanism developed	Performance report developed		ditto	ditto	ditto	ditto		
2.6.4	Operationalize the mechanism in full-scale	Information transmitted between IBAMA and 9 Amazon State Offices		ditto	ditto	ditto	ditto		Polygons have been made accecible by Regional Offices. As for ALOS/PALSAR images, since internet speed is not as fast as desired, media (Solid State Data Storage: SSD) transref by DHL is being considered as a practical solution
2.6.5	Implement the end-user assessment	Assessment conducted twice	I; II	ditto	ditto	ditto	ditto		
2.6.6	Upgrade the mechanism based on the assessment	Mechanism upgraded		ditto	ditto	ditto	ditto		(Same as Act.2.6.5)
2.7	Develop an intra-information flow mechanism beteen DPF HQ and its Regional Offices			DPF	Rafael (DPF)	Rafael, Daniel, Miranda (DPF)	JE(GIS-Kawaguchi, RS2/ICT-Nishimura, GIS2/Web-Furuhashi)		*Informationfor Act.2.7 means ALOS/PALSAR images * Web interface for GIS is to be developed *Activities have been delayed due to delay of the delivery of the relevant equipment for InteliGEO (See Act.2.4)
2.7.1	Prepare a plan	A report on plan developed		ditto	ditto	ditto	ditto		
2.7.2	Develop the mechanism based on the plan (2.7.1)	A report on design developed Equipment installed based on the design		ditto	ditto	ditto	ditto		
2.7.3	Implement integration and performance test on the mechanism developed	Performance report developed		ditto	ditto	ditto	ditto		
2.7.4	Operationalize the mechanism in full-scale	Information transmitted between InteliGEO and 9 Amazon State Offices		ditto	ditto	ditto	ditto		Since internet speed is not as fast as desired in Regional Offices for transmission of ALOS/PALSAR images, media transref by DHL is being considered as a practical solution
2.7.5	Implement the end-user assessment	Assessment conducted twice	I; II; I; II	ditto	ditto	ditto	ditto		Second assessment would be conducted by DPF staff with orientation from Japanese Expert team
2.7.6	Upgrade the mechanism based on assessment	Mechanism upgraded		ditto	ditto	ditto	ditto		(Same as Act.2.7.4)

Activities		Expected Results	Schedule													Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009			2010				2011				2012							
			JFY2009			JFY2010				JFY2011				12					Japaese	Brazilian	
			Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun						
Output 3: Human resources in DPF and IBAMA are upskilled to detect and characterize illegal deforestation																IBAMA/ DPF	Sano (IBAMA)/Rafael (DPF)		JE(RSI/Adm-Ono)		
3.1	Assess training needs to monitor and characterize illegal deforestation in DPF/IBAMA..															IBAMA	Humberto (IBAMA)	Rodrigo, Werner, Rafael, Daniel, Felipe (IBAMA) Rafael, Magliano (DPF)	JE(RSI/Adm-Ono, GIS1-Kawaguchi, GIS2/Web-Furuhahsi)		
3.2	Determine the training plans															IBAMA/ DPF	Rafael (IBAMA)/Rafael (DPF)	Rodrigo, Werner, Rafael, Daniel (IBAMA) Rafael, Russo, Diogo, Luciano, Garcia (DPF)	ditto		
3.2.1	Develop training plan Basic Course for those who do not have technical background using ALOS/PALSAR images, including curriculm and materialsl, including curriculm and materials	Three GIS and RS courses planned/updated	I					II			III					IBAMA	Rafael (IBAMA)	Rodrigo, Werner, Rafael, Humberto, Daniel (IBAMA)	ditto		Initial courses would be developed based on the needs identified in 3.1. The successors would be developed based on the feedbacks from training M&E&(Activity 3.4)
3.2.2	Develop training plan for Advanced Course for those who have technical background using ALOS/PALSAR images, including curriculm and materials	Two GIS and RS courses planned/updated	I							II						IBAMA	ditto	ditto	ditto		
3.2.3	Develop training plan for Basic Course specifically for DPF Forensic Experts to produce Forensic Reports, including curriculm and materials	One GIS and RS courses planned										I				DPF	Rafael (DPF)	Rafael, Russo, Diogo, Luciano, Garcia (DPF)	ditto		Basic course for DPF would be developed, utilizing the curriculum and texts of 3.2.1
3.3	Execute the training plans.															IBAMA/ DPF	Rafael (IBAMA)/Rafael(DPF)	Rodrigo, Werner, Rafael, Daniel (IBAMA) Rafael, Russo, Diogo, Luciano, Garcia (DPF)	ditto		
3.3.1	Execute Basic course for IBAMA and DPF (by IBAMA)	Three courses implemented		I				II				III				ditto	ditto	Rodrigo, Werner, Rafael (IBAMA)	ditto	Training cost	
3.3.2	Execute Advanced course for IBAMA and DPF (by IBAMA)	Two courses implemented				I				II						ditto	ditto	ditto	ditto	ditto	
3.3.3	Execute Basic course for DPF (by DPF)	On course implemented										I				DPF	Rafael (DPF)	Rafael, Russo, Diogo, Luciano, Garcia (DPF)	ditto	ditto	

Annex 2 Draft Detailed PO with Record of Activities

	Activities	Expected Results	Schedule														Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009			2010				2011				2012								
			JFY2009			JFY2010				JFY2011				12								
			Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun					Japaese	Brazilian	
3.4	Monitor/Evaluate/Upgrade the trainings.																IBAMA/DPF	Rafael(IBAMA)/Rafael(DPF)	Rodrigo, Werner, Rafael, Daniel (IBAMA) Rafael, Russo, Diogo, Luciano, Garcia (DPF)	JE(RSI/Adm-Ono)		
3.4.1	Monitor the trainings through questionnnares at the end of each course																ditto	ditto	ditto	ditto		
a	Basic course in Brazil (IBAMA)	Results compiled within (time)		I				II				III					IBAMA	Rafael (IBAMA)	Rodrigo, Werner, Rafael, Daniel (IBAMA)	ditto		
b	Advanced course in Brazil (IBAMA)	ditto				I				II							IBAMA	ditto	ditto	ditto		
c	Basic course in Brazil (DPF)	ditto										I					DPF	Rafael (DPF)	ditto			
3.4.2	Evaluate the trainings																IBAMA/DPF	Rodrigo (IBAMA)/Rafael(DPF)	Same as 3.4	ditto		
a	Basic course in Brazil (IBAMA)	Evaluationl report with suggestions developed						I	II			III					IBAMA	Rodorigo (IBAMA)	Rodrigo, Werner, Rafael,, Daniel (IBAMA)	ditto		
b	Advanced course in Brazil (IBAMA)	ditto							I		II						IBAMA	ditto	ditto	ditto		
c	Basic course in Brazil (DPF)	ditto										I					DPF	Rafael (DPF)	Rafael, Russo, Diogo, Luciano, Garcia (DPF)			
3.4.3	Upgrade the trainings based on the results of Monitoring and Evaluation and other Project Activities																IBAMA/DPF	Rafael (IBAMA)/Rafael(DPF)	Same as 3.4	ditto		
a	Basic course in Brazil (IBAMA)	The courses upgrade as needed								■	■	■	■	■	■	■	IBAMA	Rafael (IBAMA)	Rodrigo, Werner, Rafael, Daniel (IBAMA)	ditto		
b	Advanced course in Brazil (IBAMA)	ditto								■	■	■	■	■	■	■	ditto	ditto	ditto	ditto		

09

Annex 2 Draft Detailed PO with Record of Activities

	Activities	Expected Results	Schedule													Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009			2010			2011				2012									
			JFY2009			JFY2010			JFY2011				12									
			Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun				Japaese	Brazilian	
0: Activities related to project management and public relations																DPF/IBAMA	Magliano(DPF)/George (IBAMA)		JE(RSI/Adm-Ono)		
0.1	Organize a Joint Coordination Committee (JCC)	*JCC organized at least once ayear *M/M signed														ditto	ditto	DPF staff &CSR Satff	JE(RSI/Adm-Ono) Local sraff (August)		Actions for the raised issues, deadline, responsible person(s) would be included in the M/M
0.2	Prepare Annual PO for approval by JCC	*Draft prepared before JCC														ditto	ditto	ditto	ditto		Integrated APO for the Project is presented to JCC
0.5	Prepare Semi-annual Reports for submittion to JICA	*Semi-annual reports submitted to JICA without delay														dito	ditto	ditto	ditto		Semi-annual progress of APO/Indicators, issues&actions, plan for the next semester, progress made on the recommendation of the Mid-term Review,,etc. included
0.6	Organize Project Executive Meetings (Project Director, JCC Chairman, Project Managers of IBAMA/DPF and Expert team)															ditto	ditto	ditto	ditto		Semi-annual report presented & discussed
0.3	Prepare Annual Reports for review by JCC	*Draft prepared before JCC														ditto	ditto	ditto	ditto		Progress of Indicators&annual PO, issues &actions, progress on the Recommendations of the Mid-term Review, etc. are included Annual PO for the next year is attached
0.4	Prepare a Terminal Reporfor review by the final JCC	*Draft prpared before the final JCC														ditto	ditto	ditto	ditto		Progress of Indicators&DPO, issues& post-project strategies, progress on the reccomendation of the Final Evaluation etc. are included
0.7	Organize internal Meetings periodically																ditto	ditto	JE(RSI/Adm-Ono)		
a	Meeting between DPF & IBAMA	Montly meeting held														IBAMA	Magliano (DPF)/George (IBAMA)	ditto	All experts in Brazil		Progress &plans, issues & actions discussed.
b	Meeting between DPF & Japanese Experts	Weekly meeting held when J/E are in Brazil														IBAMA	Magliano(DPF)	ditto	ditto		Progress of the perevious week, plan for the week , issues&actions discussed
c	Meeting between IBAMA & Japanese Experts	ditto														DPF	George (IBAMA)	ditto	ditto		ditto
0.8	Monitor the achievement of the Indicators	Information collected and organized periodically														ditto	Magliano(DPF)/Rodrigo (IBAMA)	ditto	JE(RSI/Adm-Ono)		
0.9	Facilitate conclusion of Termo de Cooperacao Tecnica (DPF/IBAMA)	Conclusion facilitated														ditto	Magliano(DPF)/George (IBAMA)	ditto	JE(RSI/Adm-Ono)		
0.10	Prepare for Joint Evaluation	*Necessry data is made available to the Mission														ditto	ditto	ditto	JE(RSI/Adm-Ono)		
0.11	Follow-up the Recommedations of the Evaluation	All the recommendations implemented														ditto	ditto	ditto	JE(RSI/Adm-Ono)		
0.12	Organize project seminars	4 Seminars held														ditto	ditto	ditto	JE(RSI/Adm-Ono)		

Annex 3 Accomplishment of the Project

I Accomplishment of Inputs

Plan as per PDM	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
1 Brazilian side		
1.1 Personnel (1) Project Director (2) Project Managers (3) Other project and Administrative personnel	Review of record of Inputs	At present, a total of 15 persons (7 from DPF and 8 from IBAMA) are assigned as the Project Personnel. (For details, please see RM A-1)
1.2 Office Space and Facilities	ditto	Office space and facilities have been made available for the Project.
1.3 Administrative and operational cost	ditto	Both DPF and IBAMA have allocated administrative and operational cost necessary for implementation of the Project. A total of R$ 956, 000 have been allocated so far. (For details, please see RM A-2)
2 Japanese side		
2.1 Experts (1) Remote Sensing/Administrative Coordination, (2) Information and Communication Technology, (3) Web-programming, (4) GIS (5) Other Experts necessary for the Project	Review of record of Inputs	So far, a total of four Experts in the following fields have been dispatched: (i) Remote Sensing1/Administrative Coordination, (ii) Remote Sensing2/Information and Communication Technology Management, (iii) GIS1, and (iv) GIS2/Web Programming (For details, please see RM B-1)
2.2 Training of Brazilian Personnel in Japan	ditto	So far, eight staff members (4 Forensic Experts of DPF and 4 Environmental Analysts of IBAMA) have been trained in Japan. Eight more person (4 Forensic Experts of DPF and 4 Environmental Analysts of IBAMA) are planned to be trained in Japan from January to February 2011. (For details, please see RM B-2)
2.3 Machinery and Equipment (1) ALOS images, software, servers, storages (2) Other materials necessary for the implementation of the Project	ditto	So far, the equipment equivalent to 68 million Japanese Yen has been provided. Major items include 362 scenes of ALOS/PALSAR images (with high-resolution), 2 server computers and their accessories, two storages, software, etc. (For details, please see RM B-3)
2.4 Administrative and operational cost	ditto	As of September 2010, approximately 21 million Japanese Yen has been disbursed as local administrative and operational costs. Major items are costs for local staff & contracts, training and seminars. (For details, please see RM B-4)

II Accomplishment of Outputs

(1) Output 1: Deforestation areas including suspicious areas are detected using ALOS/PALSAR data.

Objectively Verifiable Indicators (PDME)	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
1a: Useless multi-temporal combination of ScanSAR images of ALOS/PALSAR	Review of error report	Using a software developed by the Project, useless multi-temporal combination of ScanSAR images of ALOS/PALSAR has become zero since December 2009

Annex 3 Accomplishment of the Project

<table>
<tr><th>Objectively Verifiable Indicators (PDME)</th><th>Source/ Method</th><th>Results (as of 17 November 2010 unless otherwise mentioned)</th></tr>
<tr><td>becomes zero by the end of 2009.</td><td></td><td><Conclusion>
The Indicator has been achieved as planned. The level of achievement has been sustained so far. It is expected to be sustained till the end of the Project.</td></tr>
<tr><td>1b. Methodologies to extract deforestation information from ScanSAR images of ALOS/PALSAR developed by the Project, including Interpretation guide, forest classification tool, and change detection tool by the end of 2009; and updated by March 2011</td><td>Review of project report</td><td>An interpretation guide, forest classification tool, and change detection tool, as well as an integrated software program with functions of these tools, had been developed by the end of 2009. Evaluation/validation and improvement of the above tools is ongoing and is expected to be completed by March 2011 as per the plan.

<Conclusion>
The achievement level of the Indicator is as planned. The Indicator has been mostly achieved; and is likely to be achieved by March 2011.</td></tr>
<tr><td>1c: Initial version of the technical manuals for IBAMA and DPF for utilization of ALOS/PALSAR images in detection of deforestation areas and preparation of Forensic Reports respectively are developed/approved by March 2011(in English and Portuguese)</td><td>ditto</td><td>Initial technical manuals for DPF and IBAMA are expected to be developed and approved by March 2011 as shown in the table below.

Table (a): Plan/progress on development of initial manuals for DPF and IBAMA
<table>
<tr><th></th><th>Major activity item</th><th>Plan/Progress</th></tr>
<tr><td>a</td><td>Development of the common part (in English)</td><td>The draft, which was developed in Oct.2010, is expected to be finalized by the middle of Mar. 2011</td></tr>
<tr><td>b</td><td>Development of the individual part for DPF (in English)</td><td>Activities would start in Dec.2010 and is expected to be completed by the middle of Mar. 2011</td></tr>
<tr><td>c</td><td>Development of the individual part for IBAMA (in English)</td><td>Manual on handling ALOS/PALSAR images (i.e.ScanSAR images) completed and distributed to the concerned Project Personnel already.</td></tr>
<tr><td>d</td><td>Compilation of the common and individual parts into manuals</td><td>Manuals are expected be ready for initial approval by the respective Project Managers by the middle of Mar. 2011.</td></tr>
<tr><td>e</td><td>Technical approval of the manuals by the Project Managers</td><td>The Manuals are expected to be approved by the end of Mar.2011</td></tr>
<tr><td>f</td><td>Translation into Portuguese</td><td>Translation would be completed by the end of Dec. 2011.</td></tr>
</table>
Note: The manuals would consist of the common part for DPF and IBAMA as well as an individual part dedicated to each organization.

<Conclusion>
Steady progress has been made. The Indicator is likely to be achieved by March 2012.</td></tr>
<tr><td>1d The initial version of the technical manual for IBAMA is uploaded to SISCOM for the use of Environmental Analysts and the one for DPF is uploaded to InteliGEO for the use of Forensic Experts by April 2011;</td><td>ditto</td><td>According to DPF and IBAMA, it usually takes less than one month to upload technical manuals to InteliGEO and SISCOM respectively after their approval.

<Conclusion>
The Indicator is likely to be achieved by April 2011 if the manuals are approved by March 2011 as planned.</td></tr>
<tr><td>1e The initial version</td><td>ditto</td><td>The relevant activities have not started yet. As per the draft PO, initial</td></tr>
</table>

Objectively Verifiable Indicators (PDME)	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
of the technical manuals for IBAMA and DPF are updated/approved by March 2012		manuals are planned to be updated from July 2011 to March 2012. The updated manuals are expected to be approved by the end of March 2012. <Conclusion> Assessment was not made because the relevant activities have not started yet.
1f: The updated manuals are uploaded to SISCOM and InteliGEO respectively by April 2012	ditto	The relevant activities have not started yet. <Conclusion> Assessment was not made because the relevant activities have not started yet.

(2) Output 2: The information flow of satellite monitoring system throughout DPF and IBAMA is improved.

Objectively Verifiable Indicators (PDMe)	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
2a: Information sharing mechanism of DPF developed by the Project (i.e. InteliGEO) is made available to all the Forensic Experts in Brazil by December 2009	Review of Progress report	Release of InteliGEO, which was expected in December 2009, has been delayed because of an external condition which is beyond the control of the Project, which was a delay of the delivery of the necessary equipment, including the server computer and its accessories, due to supply shortage caused by the world-wide economic recession. The server computer and its accessories had been delivered by May 2010. The last item, which was delivered in October 2010, has been just installed. It is worthwhile mentioning that IBAMA, as an emergency measure, had rented their server computer to DPF for free of charge from November 2009 to May 2010. DPF had made their existing equipment available to the Project, including rack and communication infrastructure that are necessary to run the server computer. Utilizing the equipment rented from IBAMA and the existing equipment of DPF, a prototype of InteliGEO had been developed by December 2009. A pre-release version of InteliGEO was made available to all Forensic Experts in September 2010. The official version will be released on November 30 during the 5th Seminar of Environmental Crimes organized by DPF. As planned, InteliGEO is linked to INDICAR/SISCOM. It stores ALOS/PALSAR images as well as Forensic Reports related to illegal deforestation. InteliGEO is also linked with INPE databases for CBERS and LANDSAT images. It stores other information which is useful for production of Forensic Reports, including other satelite images and geographic inforamtion. <Conclusion> Although there was a delay in progress due to an external condition which could not be controlled by the Project, the Indicator has been already achieved through close collaboration with IBAMA and efforts made by DPF and Japanese Expert team. <For reference> Other Forensic Reports with geographic coordinates are stored in InteliGEO.
2b: By the Project end, 100% of Forensic	ditto	Relevant information was not available. While InteliGEO finally became

Objectively Verifiable Indicators (PDMe)	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
Reports produced by DPF Forensic Expert s, utilizing/referring to ALOS/PALSAR images (mainly high-resolution ones), are made available in InteliGEO for other Experts within one week after the completion		de facto operational in September 2010, Forensic Reports that utilize/refer to the high-resolution images of ALOS/PALSAR have not been produced yet because the initial delivery of the images had been delayed until August 2010 due to administrative reasons. Note: For preparation of Forensic Reports, high-resolution images of ALOS/PALSAR, which are not included in the K&C agreement between JAXA and IBAMA, are required. The high-resolution images are provided through the Project. <For reference> According to DPF, 100% of the existing and newly produced Forensic Reports with geographic coordinates, including the ones related to illegal deforestation, have been uploaded to InteliGEO since its prototype was developed in December 2009. The newly produced ones have been uploaded to the InteliGEO within one week after completion. <Conclusion> Considering the remark made by DPF that 100% of newly produced Forensic Reports have been uploaded to InteliGEO within one week, it is assumed that Indicators would be achieved by the Project end
2c: By the Project end, access to INDICAR/SISCOM of IBAMA becomes at least one from each of the 9 Legal Amazon States per cycle of ALOS operation	Record of access counter	Objectively verifiable information was not available because a counter of the website of INDICAR has not been installed yet. <For reference> All of the Regional Offices in Legal Amazon States have been linked with INDICAR/SISCOM of IBAMA Headquarters since December 2009. For example, during the period between August 10 and September 25, 2010 (i.e. 47 days), there were 197 accesses to the top page of INDICAR. According to IBAMA, at least 8 out of 9 Legal Amazon States have utilized the Deforestation Polygons uploaded in INDICAR/SISCOM so far. <Conclusion> Considering the remark made by IBAMA that at least 8 out of 9 Legal Amazon States have utilized the Deforestation Polygons uploaded in INDICAR/SISCOM, the Indicator is considered to have been mostly achieved and would be achieved by the Project end.
2d: Semi-annual access to InteliGEO of DPF is increased by 5 % in relation to the previous semester.	Record of access counter	The relevant information was not available because InteliGEO has not yet been officially launched due to the delay of the equipment necessary for its full operationalization as mentioned in the results of Indicator 2a for Output 2. <Conclusion> Assessment could not be made because the relevant information was not available due to the delay in achievement of the Indicator 2.a for Output 2 caused by an external condition.
2e: By the Project end, 90 % of the results of visits of the deforestation areas detected by INDICAR/SISCOM & ALOS/PALSAR (i.e. Deforestation Polygons) are fed back to IBAMA HQ per cycle of ALOS operation	Record of IBANMA	Objectively verifiable information was not available. <For reference> As mentioned in the results of the Indicator 2c for Output 2, all of the Regional Offices in Legal Amazon States have been linked with INDICAR/SISCOM of IBAMA Headquarters since December 2009. According to IBAMA, less than 10% of the results of the visits of the detected deforestation areas have been reported, however. In order to ensure the feedbacks from its Regional Offices, IBAMA is developing a feedback system called "Target Registration System", through which IBAMA could keep track of who has downloaded the

Objectively Verifiable Indicators (PDMe)	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
		Deforestation Polygons and who has not given feedback. IBAMA is confident that 90% of the results would be fed back to the Headquarters once the System becomes operational. <Conclusion> The Indicator is considered to have been partly achieved. It is likely to be achieved by the Project end if the feedback system under development becomes operational.

(3) Output 3: Human resources in DPF and IBAMA are upskilled to detect and characterize illegal deforestation

Objectively Verifiable Indicators (PDMe)	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
3a: Basic and advanced courses for IBAMA and DPF for the general use of ALOS/PALSAR images, including curriculum and textbooks, are developed by September 2009.	Review of the training report provided by the Project	Basic and Advanced Courses had been developed based on assessment on training needs, including curriculum and textbooks, by September 2009 <Conclusion> The Indicator has been already achieved.
3b: Basic course specifically for the use of DPF Forensic Experts to produce Forensic Reports are developed by December 2012	ditto	As per the schedule delineated in the draft DPO of the Project, the relevant activities would start in 2012. <Conclusion> Assessment was not made because the relevant activities are scheduled in 2012.
3c: By the Project end, 70 staff members (30 Forensic Experts of DPF and 40 Environmental Analysts of IBAMA) acquire the skills and knowledge to use ALOS/PALSAR images through the above training courses.	Review of the training participant lists provided by the Project	As planned, three trainings (i.e. two Basic and one Advanced Courses for the general use of ALOS/PALSAR images) have been conducted so far. A total of 46 persons (21 DPF Forensic Experts and 25 IBAMA Environmental Analysts) have participated in these training courses. All of them were awarded the certificates by IBAMA.

Table (b): Number of staff who received official training certificates

Training conducted	Year	DPF Forensic Expert	IBAMA Environmental Analyst	Total	Others (Non-target group)
1st Basic Course for IBAMA/DPF	2009	9	11	20	0
1st Advanced Course for IBAMA/DPF	2009	7	8	15	3
2nd Basic Course for IBAMA/DPF	2010	5	6	11	6
Total		21	25	46	9
Achievement ratio		70%	63%	66%	

Four more training courses are planned to be conducted by the end of the Project: one Basic Course and two Advanced Courses for the

Annex 3 Accomplishment of the Project

<table>
<tr><th>Objectively Verifiable Indicators (PDMe)</th><th>Source/ Method</th><th>Results (as of 17 November 2010 unless otherwise mentioned)</th></tr>
<tr><td></td><td></td><td>general use by IBAMA: and one Basic Course specifically for Forensic Experts by DPF

<Conclusion>
The Indicator has been moderately achieved. With four more trainings, it is assumed the Indicator would be achieved by the Project end.</td></tr>
<tr><td>3d: On average, 80% of the trainees give the highest or medium rate on three-level rating about "degree of understanding", and "degree of applicability" of the concerned trainings</td><td>Review of the compiled results of thesurvey provided by the Project</td><td>According to the results of the questionnaire survey conducted by the Project at the end of each training course, on average, more than 80% (i.e. 91%) of the trainees have given the highest or medium rate on three-level rating about "degree of understanding" and "degree of applicability".

Table(c): Ratio of the trainees who have given highest or medium rate
<table>
<tr><th>Training conducted</th><th>Year</th><th>Degree of Understanding</th><th>Degree of Applicability</th><th>Average</th></tr>
<tr><td>1st Basic Course for IBAMA/DPF</td><td>2009</td><td>93.3</td><td>100.0</td><td>96.7</td></tr>
<tr><td>1st Advanced Course for IBAMA/DPF</td><td>2009</td><td>96.1</td><td>82.3</td><td>89.2</td></tr>
<tr><td>2nd Basic Course for IBAMA/DPF</td><td>2010</td><td>86.7</td><td>87.6</td><td>87.2</td></tr>
<tr><td>Average</td><td></td><td>92.0</td><td>90.0</td><td>91.0</td></tr>
</table>
Note: The denominator is the total number of training participants. In the case of first Advance Course and the second Basic Course, the number of persons from non-target groups is included in the denominator.

<Conclusion>
Steady progress has been made towards achievement of the Indicator. The Indicator is likely to be achieved at the Project end.</td></tr>
<tr><td>3e: The training courses are updated based on the feedbacks from the trainees, including the results of monitoring and evaluation of the trainees, and other Project Activities</td><td>Review of the progress report</td><td>Although the results of the questionnaire surveys have been compiled, they have not been utilized in planning of the subsequent courses since analyses have not been conducted.

In the meantime, informal feedbacks from the trainings have been reflected in planning of the subsequent ones.

The Project plans to implement analysis on the results of the questionnaires and to reflect the results in planning of the subsequent courses in the last half of the Project period.

<Conclusion>
The Indicator has been partly achieved. It is likely to be achieved as the Project plans to update the training courses based on the feedbacks, including the results of training monitoring and evaluation.</td></tr>
</table>

III Accomplishment of Project Purpose

The Project Purpose: Technical information based on ALOS/PALSAR images on illegal deforestation in the Brazilian Amazon is provided for law enforcement

<table>
<tr><th>Objectively Verifiable Indicators (PDMe)</th><th>Source/ Method</th><th>Results (as of 17 November 2010 unless otherwise mentioned)</th></tr>
<tr><td>a. By the Project end, deforestation areas are detected within</td><td>Interview with IBAMA staff</td><td>Objectively verifiable information was not available.

<For reference>
According to IBAMA, it used to take more than one month to detect</td></tr>
</table>

Annex 3 Accomplishment of the Project

Objectively Verifiable Indicators (PDMe)	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
3 days after receiving the ScanSAR images of ALOS/PALSAR by IBAMA		deforestation areas after downloading the ScanSAR images of ALOS/PALSAR prior to the beginning of the Project. The time for deforestation detection has become an average of 8 working days since the methodologies for deforestation detection developed by the Project were put into use in December 2009. In the latter half of the Project Period, semi-automatization of some part of the deforestation detection process is planned. This, together with further enhancement of the capacity of the technical personnel of IBAMA, is expected to contribute to further decrease of the time for deforestation detection. <Conclusion> The Indicator is considered to have been mostly achieved. It is likely to be achieved by the Project end
b. By the Project end, the location and size of the detected deforestation areas (i.e. Deforestation Polygons) are provided to the relevant IBAMA regional offices within two days after their detection.	Interview with IBAMA staff	Objectively verifiable information was not available. <For reference> An information flow mechanism between IBAMA Headquarters and its Regional Offices had been made available since December 2009. According to IBAMA, it takes five working days to provide the generated Deforestation Polygons to its Regional Offices at present because of the need for a lead time for data accumulation. A mechanism, in which data accumulation time is minimized, was developed in July 2010. The mechanism, which is being validated/evaluated, is expected to be put into operation in the latter half of the Project Period. This, together with further enhancement of the capacity of the technical personnel of IBAMA, is expected to contribute to reduction of the time for provision of the data to the relevant Regional Offices. <Conclusion> The Indicator is considered to have been partly achieved. It is likely to be achieved by the Project end
c. By the Project end, ALOS/PALSAR images (mainly high-resolution ones) are utilized/referred to in 60 Forensic Reports produced by DPF per year	Information of forensic reports in InteliGEO, interview with DPF staff	Although as many as 21 DPF Forensic Experts have been trained on the use of ALOS/PALSAR images through the Project so far (ref. the results of the Indicator 3c for Output 3), they have not yet been able to utilize the acquired skills and knowledge in producing Forensic Reports. It is because (i) initial delivery of the high-resolution images had been delayed until August 2010 due to administrative reasons (ref. the results of the Indicator 2b for Output 2); and (ii) information sharing mechanism of DPF (i.e. InteliGEO) had not been made available to the Forensic Experts until September 2010 due to delay of the delivery of the necessary equipment for its operationalization (ref. the results of the Indicator 2a for Output 2). Since the above mentioned issues have been already addressed, the trained Forensic Experts are now ready to produce Forensic Reports utilizing/referring to ALOS/PALSAR images. According to DPF, some Forensic Reports, utilizing the ALOS/PALSAR images provided by the Project, are under preparation. <For reference>

Objectively Verifiable Indicators (PDMe)	Source/ Method	Results (as of 17 November 2010 unless otherwise mentioned)
		DPF has always been utilizing satellite images in producing Environmental Forensic Reports. For example, a total of 1,690 Environmental Forensic Reports were produced in 2009. On illegal deforestation cases, a total of 376 Forensic Reports, in most of which satellite images were utilized/referred to in 2009. <Conclusion> Progress has been made towards achievement of the Indicator in spite of the delay of delivery of high-resolution images of ALOS/PALSAR and essential equipment for InteliGEO. Considering the achievement made so far in terms of development of human resources and InteliGEO as well as the volume of Forensic Reports on illegal deforestation cases utilizing/referring to satellite images in 2009, it is assumed that the Indicator would be achieved by the Project end.

Annex 4 Implementation Process

Item	Source/ Methods	Results (as of 17 November 2010 unless otherwise mentioned)
1 Progress of Activities		Note: 1) For the evaluation purpose, following modifications are made to the Activities of the original PDM as shown in the PDME (Annex 1). a. Output 1: Activity 1.4 ("Develop technical manuals for DPF and IBAMA for utilization of ALOS/PALSAR images") has been added as the Activity should have been included in the original one. b. Output 2: Original Activities 2.3 ("Determine the upgraded mechanism") and 2.4 ("Execute the plan determined in 2.3") have been reorganized into five Activities, reflecting the activities implemented as per the Overall Work Plan of the Japanese Expert Team, which is included in its Inception Report, which was approved by the first JCC meeting in July 2009. 2) The Plan of Operations (PO), which specifies information necessary for planning and monitoring, such as "expected result(s)", "schedule", "person in charge", "implementers", "major inputs" etc. for each Activity or Sub-Activity of the PDM, has not been developed for the Project. The progress of each of the PDM Activities has not been recorded/reported, either. 3) Through a series of discussions with the Evaluation Team, the Project has developed a detailed PO (DPO), reorganizing the activities of the Overall Work Plan of the Japanese Expert Team under the Activities of the PDME (Annex 2), for endorsement by the third meeting of JCC schedule on November 19, 2010. The Project plans to prepare an annual PO for the Brazilian Fiscal Year 2011 based on the endorsed DPO. The draft would be prepared through due discussed among the personnel concerned with the Project and is expected to be finalized by the end of 2010.
(1) Activities under Output 1	Review of PO, progress reports, questionnaire &interview with relevant P/P (Project personnel) and J/E (Japanese experts)	The Activities defined in the draft DPO are on schedule and are planned to be completed by the end of the Project. (See Annex 2 for details)
(2) Activities under Output 2		Some of the Activities defined in the draft DPO are on schedule, while others are behind the schedule. All of the planned Activities are expected to be completed by the Project end, however. (See Annex 2 for details) Issues/Points: 1) Activity 2.4 &2-7: Activities for DPF have been delayed due to a delay of the delivery of the necessary equipment, including a server machine and its accessories, caused by an external condition (Also see the results of Indicator 2a for Output 2 in Annex3). Through the efforts made by DPF and the Japanese Expert team as well as collaboration of IBAMA in temporal provision of their existing IT equipment, the information sharing mechanism of DPF (i.e. InteleGEO) and the information flow mechanism between DPF and its Regional Offices have already become de facto operational. The first end-user assessments of both mechanisms, which were originally scheduled in March-May 2010, are planned to be implemented in January-March 2011. The second assessments are rescheduled in January-March 2012. Though a Japanese Expert in charge, whose timing of dispatch had been determined based on the initial plan, would not be available for the rescheduled second assessment, DPF would implement the assessment for themselves with orientation from the Japanese Expert team.
(3)Activities under Output 3		The Activities defined in the draft PO are on schedule and are planned to be completed by the end of the Project. (See Annex 2 for details).
2Implementation System	Review of progress reports	As planned, the Project has been implemented jointly by DPF and IBAMA. Implementation system of the DPF has not been changed. Director, Technical Scientific Directorates (DITEC) and Coordinator of the working for the Project, National Criminalistics Institute (INC), DPF, have been the

Item	Source/ Methods	Results (as of 17 November 2010 unless otherwise mentioned)
		Project Director and the Project Manager in accordance with the R/D. In case of IBAMA, Head of Remote Sensing Center (CSR) has been assigned as Project Manager as originally planned. In addition, General Coordinator of Environmental Zoning and Monitoring, DITEC, has been assigned as Project Manager since July 2010. Under the current system, the General Coordinator of Environmental Coordinator is responsible for managerial matters whereas the Head of CSR is in charge of technical matters. The implementation system has been working well so far because both organizations are committed to law enforcement on illegal deforestation in Brazilian Amazon and recognize the importance of technical information based on ALOS/PALSAR images for their purposes.
3 Project Management	Review of progress reports, questionnaire &interview with relevant P/P,J/E, review of PDM/PO	1) Joint Coordinating Committee (JCC): According to the Record of Discussions (R/D), functions of the JCC are: (i) to discuss and decide overall strategies in the management and coordination of the Project; (ii) to review and endorse the annual plan of the Project; and (iii) to monitor and evaluate the progress of the Project; and (iv) to make decisions relevant to the overall management of the Project. The JCC is chaired by Director, Environmental Protection Directorate (DIPRO) of IBAMA. Since the beginning of the Project, two meetings have been held (in July and December 2009). For each meeting, the Minutes of the Meetings were prepared and signed by the Project Director, the Head of CSR/IBAMA, representatives from JICA Brasilia Office and Brazilian Cooperation Agency (ABC), and the Japanese Expert Team. In the first JCC meeting, the Inception Report of the Japanese Expert Team was presented and approved. In the second meeting, general progress and issues were discussed. The annual plan of the Project (i.e. Annual PO) has not been discussed/endorsed at the JCC because such a plan has not been prepared as already stated. 2) Internal monitoring system: Overall progress of the Activities of PDM/PO and achievement of the Indicators of the PDM has not been monitored by the Project. Although ad-hoc meetings have been held as needed, periodic meetings to systematically monitor day-to-day activities have not been held. In order to enhance internal monitoring, it would be useful to hold the different level of regular meetings:(i) weekly or biweekly staff meetings between the Project Personnel of DPF and the Japanese Expert Team who are in Brasilia: (ii) weekly or biweekly staff meetings between the Project Personnel of IBAMA and the Japanese Expert Team who are in Brasilia; (iii) monthly or quarterly managerial meetings between Implementation Organizations, consisting of the Project Managers and other relevant personnel as well as Japanese Experts who are in Brasilia: and (iv) executive meetings, consisting of the Project Director, the JCC Chairman, the Project Managers, a representative from JICA Brasilia Office as well as Japanese Experts who are in Brasilia, which would be held between JCC meetings. Progress of the previous period and the plan for the current period as well as issues and actions could be discussed in such meetings among others. 3) Monitoring by JICA: An Annual Work Report of the Japanese Expert Team has been submitted to JICA. Semi-annual progress reports, which are supposed to be prepared by the Japanese Expert Team in consultation with the Brazilian project personnel, have not been prepared so far. 4) Project Management through the PDM and the PO: The PDM as well as the PO is an essential tool for the project management for the projects supported by JICA. The PDM and the PO of the present

Annex 4 Implementation Process

Item	Source/ Methods	Results (as of 17 November 2010 unless otherwise mentioned)
		Project, however, has not been used effectively. As for the PDM, most of the "Objectively Verifiable" Indicators are not objectively verifiable. Most of them lack criteria to judge the achievement level. Some of them are not well defined. In addition, some of the Indicators of the Outputs are not directly linked to their Activities. Some of the "Means of Verification" require implementation of certain activities by the Project but the relevant activities are not included in the PDM. As already stated, the PO as well as the Annual PO has not been prepared. In the reviewing process, these issues have not been addressed. This has made it difficult for all those concerned to have common understanding of the overall implementation process and progress of the Project based on the PO as well as expected achievement level of the Outputs and the Project Purpose of the PDM.
4 Communication	Questionnaire and interview with P/P and J/E	Communication within the Project has been sufficient in order to implement the Activities of the Project. Mutual understanding, respect, and trust have been built up.
5. Coordination with local relevant organizations	-ditto-	The Project has been implemented in coordination/cooperation with various organizations, including National Institute for Space Research (INPE) and Center for Operation and Management Amazon Protection System (CENSIPAM).
6. Other factors that have affected the implementation process	-ditto-	1) Positive factors: a Initiative and commitment of Director of DITEC (as Project Director) and Director of DIPRO (as JCC chairman) concerning the Project and enhancement of law enforcement on illegal deforestation in Brazilian Amazon, using technical information based on satellite images, has promoted smooth implementation of the Project. b The Project Personnel of both DPF and IBAMA have been very cooperative, motivated, and hardworking. 2) Negative factors: Not found.

I. RELEVANCE: *The Project is still relevant.*

Item	Source/ Method	Evaluation
1.1 Necessity		
(1) Relevance with the needs of Brazil	Review of the relevant document	The Overall Goal ("Law enforcement is enhanced ground on technical information based on satellite images on illegal deforestation") and the Project Purpose ("Technical information based on ALOS/PALSAR images on illegal deforestation in the Brazilian Amazon is provided for law enforcement") are relevant with the needs of Brazil. ➢ The Government of Brazil has been using satellite images for monitoring of deforestation since the 1970s. Monitoring through satellite images, using the optical system, however, has limitations in capturing the state of the forests in Amazon region, which is covered by thick clouds for about 5 months in a year. By utilizing ALOS/PALSAR images, one can grasp the situation of the forest under the clouds.
(2) Relevance with the needs of Implementing Organization	Review of the relevant documents	The Project Purpose is relevant with the needs of the Implementing Organizations (INC/DITEC/DPF and CSR/DIPRO/IBAMA) ➢ DPF has been utilizing satellite images in producing Environmental Forensic Reports, including the ones on illegal deforestation. In addition, it has launched "Arch de Fogo (Arc of Fire)" operation since 2007 to combat against illegal deforestation in Brazilian Amazon. ➢ IBAMA is responsible for coordination of environmental monitoring in Brazil among others. The Mission of CSR/IBAMA, in particular, is to produce, work, systematize, manage and disseminate environmental information, using geo-processing techniques and methods.
1.2 Priority		
(1) Relevance with national plan and policies of Brazil	Review of the documents	The Overall Goal is consistent with development plan of Brazil. ➢ Conservation and sustainable use of natural resources is emphasized in the latest Multi-annual Plan(PPA) of the Government of Brazil (2008-2011), ➢ Since 2004, based on the Presidential Decree 3 (2003), through joint action among 13 Ministries, has started the project called "Action Plan for Prevention and Control of Deforestation and Burning" (PPCDAM), introducing DETER (Real time Deforestation Detection), the satellite monitoring system that captures the situation of deforestation in near real time.
(2) Relevance with Official Development Assistance (ODA) policies of Japan	ditto	The Overall Goal is consistent with ODA policies of Japan. ➢ According to the "Official Development Assistance Charter", published by the Government of Japan, addressing global issues including "global warming and environmental problems" is one of the priority issues. ➢ According to the Japan's "Medium-Term Policy of Official Development Assistance", issued in 2005, the Government of Japan has been setting the environmental sector as one of the most important sector of international cooperation.
1.3 Adequacy as means		
(1) Technological Advantage of Japan		There are technical advantages of Japan. ➢ Judging from the assessments of the Brazilian project personnel on Japanese Experts as well as increase in the technical capacity of the Brazilian technical staff, advantages of Japan are confirmed.

II. EFFECTIVENESS (Prospect): *The effectiveness of the Project is likely to be ensured.*

Items	Source/ Methods	Evaluation
2.1 Achievement level of the Project Purpose and contribution of Outputs	Review of Annex 3 and PDM	Judging from the achievement level of the Indicators, progress is being made mostly as expected in achieving the Project Purpose. The Project Purpose is likely to be achieved by the end of the Project with continuous effort of the Brazilian and Japanese sides. (For details, please see Annex 3). Logical relation between the Project Purpose and the Outputs is confirmed. All of the Outputs (i.e. development of methodologies for deforestation detection, improvement of satellite information flow throughout DPF and IBAMA, and development of human resources in DPF and IBAMA for detection and characterization of deforestation) are relevant with the Project Purpose (i.e. provision of technical information based on ALOS/PALSAR images on illegal deforestation in the Brazilian Amazon for law enforcement). Although their level of achievement varies at this moment, they have contributed to the achievement of the Project Purpose.
2.2 Important Assumptions	Review of progress reports, record of Inputs	Two Important Assumptions for the Project Purpose are identified in the PDM: ➢ The first Assumption ("There is no significant organizational change in DPF and/or IBAMA affecting implementation of the Project"): The Assumption has been satisfied. So far, organization of DPF and IBAMA has not been changed unfavorably to the Project. ➢ The second Assumption ("Budgets for satellite monitoring of DPF and/or IBAMA do not decrease drastically"): The Assumption has been satisfied so far
2.3 Other promoting /hampering factors	ditto	Specific factors have not been found.

III EFFICIENCY: *The Project is considered to have been mostly efficient.*

Items	Source/ Methods	Evaluation
3.1 Production level of Outputs	Review of the results of Annex 3 &Annex4	Progress has been made mostly as expected in producing Outputs, judging from the achievement level of its Indicators as well as the progress of the activities (For details, please see Annex 3 and Annex 4) ➢ Output 1: Progress has been made as expected. Output 1 has been moderately produced. Useless multi-temporal combination of ALOS/PALSAR images has become zero since December 2009. Methodologies for deforestation detection, including interpretation guide, forest classification tool, and change detection tool, have been developed by the end of 2009, which are being updated. Development of initial version of the technical manuals for IBAMA and DPF for utilization of ALOS/PALSAR images in detection of deforestation areas and preparation of Forensic Reports respectively are ongoing and would be completed by March 2011. The initial manuals are expected to be uploaded to SISCOM for the use of Environmental Analysts of IBAMA and to InteliGEO for the use of Forensic Experts of DPF respectively by April 2011. ➢ Output 2: Progress has been made towards production of the Output. Output 2 has been partly produced but the production level is lower than expected. Information sharing mechanism of DPF (i.e. InteliGEO), developed by the Project, has become available to all Forensic Experts in Brazil since September 2010, which was delayed for 9 months

Items	Source/ Methods	Evaluation
		because of the delay of the delivery of the necessary equipment due to supply shortage caused by world-wide economic recession. While InteliGEO has become operational, Forensic Reports that utilize/refer to the high-resolution images of ALOS/PALSAR have not been produced/shared yet because the delivery of the images was delayed due to administrative reasons. Regional Offices in Legal Amazon States have been linked with INDICAR/SISCOM of IBAMA Headquarters since December 2009. According to IBAMA, at least 8 out of 9 Legal Amazon States have utilized the Deforestation Polygons uploaded in INDICAR/SISCOM. Less than 10% of the results of the visits of the detected deforestation areas have been reported back from the Regional Offices, however. In order to ensure the feedbacks from the Regional Offices, a feedback system is being developed, through which IBAMA could keep track of who has downloaded the Deforestation Polygons and who has not given feedback. ➢ Output 3: Progress has been made almost as expected. Output 3 has been moderately produced. Basic and advanced courses for IBAMA and DPF for the general use of ALOS/PALSAR images, including curriculum and textbooks, have been developed. So far, three trainings (i.e. two Basic and one Advanced Courses) have been conducted and a total of 46 training participants (i.e. 21 DPF Forensic Experts and 25 IBAMA Environmental Analysts) have been awarded the certificates by IBAMA. Feedbacks from the trainees have been reflected in planning of the subsequent ones.
3.2 Important Assumptions	Review of record of Inputs and interview with the J/E &P/P	➢ The Assumption identified in the PDM ("Main project staff members are not transferred to other departments and/or agencies"): The Project Manager of DPF was transferred to National Police Academy in December 2009 but the successor, who had been involved in the Project since the preparatory stage, was appointed right away. The Project Manager of IBAMA has been changed, whose successors have been appointed immediately as well.
3.3 Inputs		
(1)Brazilian side		
(a) Project personnel	Questionnaire &interview with the relevant P/P and J/E	➢ Timing, Duration & Number: • Mostly appropriate. • In the field of information sharing/transmission (i.e. Output 2), an IT specialist for DPF had not been appointed until March 2010. By then, the activities had been mostly carried out by the existing project personnel, who are not specialized in IT, with assistance of an IT specialist of IBAMA and the Japanese Expert team. DPF sometimes had to put some specialists from some Regional Offices to the Headquarters for a month or so. It would have been more efficient if he had been assigned since the beginning of the Project to work with Japanese Experts in the fields of IT Communication management and Web-GIS. • In the field of information sharing/transmission (i.e. Output 2), one IT specialist each is assigned at IBAMA. The specialist of DPF is solely engaged in the tasks related to InteliGEO. DPF also puts specialists from Regional Offices when necessity arises. As for IBAMA, the IT specialist is not only engaged in the tasks related to INDICAR/SISCOM. Evaluation Team notes that through the hard work of the IT specialists as well as support and collaboration from their colleagues and Japanese Expert team, progress is being made on producing the Output. It would be more efficient, however, if more than one IT specialists are assigned to IBAMA, considering the importance of operation/improvement of INDICAR/SISCOM in achieving the Project Purpose as well as the Overall Goal. For reference, IBAMA is trying to employ another IT specialist.

Annex 5 Evaluation based on Five Evaluation Criteria

Items	Source/ Methods	Evaluation
		➢ Quality: • Technical staff with the relevant background, appropriate experiences, and sufficient technical level has been assigned. They are hardworking and committed to their assignment, too. <Overall Contribution to the Outputs> • High.
(b) Building, and facilities	-ditto-	➢ Timing and quantity: • Land and facilities: Land and facilities necessary for the Project activities have been provided in time. • Project Office: A room for the Project Office has been provided at IBAMA since the beginning of the Project. In addition, office space for the Japanese Experts are made available at DPF as needed. ➢ Quality: Appropriate. <Overall Contribution to the Outputs> • High.
(c) Financial inputs	--ditto-	In general, the amount necessary for implementation of the activities have been allocated without delay. <Overall Contribution to the Outputs> • High.
(2)Japanese side		
(a)Expert	-ditto	➢ Timing, duration and number: • Japanese Experts in four fields have been dispatched according to the annual plan of dispatch approved by JICA, which was prepared based on the Overall Work Plan of the Japanese Expert Team included in the Inception Report authorized by the first JCC meeting. ➢ Quality: • The Experts with adequate background, relevant experiences and sufficient technical level have been dispatched. They are accessible and ready to answer the technical questions made by the Project Personnel. <Overall Contribution to the Outputs> • High
(b) Training in Japan	-ditto-	➢ Timing and quantity: • Appropriate number of trainees has been sent in timely manner. ➢ Field, quality, and contents: • The training course on Remote Sensing, in particular utilization of ALOS data, has been conducted. The field, quality and contents of the training in Japan are relevant with the needs of the Project. All of the training participants interviewed by the Evaluation Team showed great appreciation on them. ➢ Utilization: • All of the training participants are directly involved in the Project as the project personnel. Those who have participated in the training in Japan have utilized the acquired skills and knowledge in the Project activities fully. They have also shared the acquired skills and knowledge with their colleagues. ➢ Others: • Some Project Personnel of DPF and IBAMA had participated in a Group Training Course of JICA on remote sensing prior to the start of the Project. It was a regular training course of JICA, which was not specifically designed for the Project. Their suggestions had been reflected in planning and designing of the training in Japan for the Project.

Items	Source/ Methods	Evaluation
		<Overall Contribution to the Outputs> • High
(c) Equipment	-ditto-	➢ Timing: • Moderately appropriate. • While equipment for Output 1 and Output 3 were procured as planned, procurement of most of the equipment for Output 2 was delayed. Delivery of necessary equipment for development and operation of information sharing mechanism at DPF (i.e. InteliGEO) was delayed due to supply shortage caused by world-wide economic recession. The last item was delivered in October 2010. Delivery of high-resolution images for ALOS/PALSAR, which are necessary for DPF to produce Forensic Reports, was also delayed until August 2010 due to administrative reasons. It is noted that, through efforts made by DPF and Japanese Expert team as well as collaboration of IBAMA in temporal provision of their equipment, the adverse effect on production of the relevant Output (i.e. Output 2) has been mitigated to minimum. (For details, see the results of Indicator 2a and 2c for Output 2 in Annex 3). ➢ Quality, items, and specifications: • Quantity, quality and items of the provided equipment are considered appropriate. Specifications are also generally appropriate. ➢ Operation and maintenance (O/M): • O/M of the equipment has been adequate. ➢ Utilization: • All of the equipment has been utilized for the project implementation. <Overall Contribution to the Outputs> • Medium.
(e) Local activity cost	-ditto-	➢ Timing and Quantity: Necessary amount of the local activity cost has been disbursed in time. ➢ Others: Local staff hired by local cost has been helpful <Overall Contribution to the Outputs> • High
3.4Preconditions	Progress reports	Two conditions are identified in the PDM: ➢ The first Condition ("ALOS/PALSAR images are provided by JAXA"): ALOS/PALSAR images (i.e. ScanSAR images) have been provided based on the K &C agreement between JAXA and IBAMA. ➢ The second Assumption ("DPF and IBAMA conclude an agreement on the joint implementation of the Project"): Though the agreement for joint implementation of the Project has not been concluded as initially planned, DPF and IBAMA have worked in close partnership to implement the Project. Evaluation Team notes that DPF and IBAMA has started process of developing an umbrella agreement on collaboration.
3.5Coordination with other relevant projects	Progress reports, J/E	➢ Coordination with other JICA Projects/Schemes: • The Third-County Training Scheme: The Project has coordinated with JICA "International Course on Tropical Forest Monitoring Course (2010-2013)" organized jointly by INPE and IBAMA. During the training course held in November 2010, some of the Project Personnel of IBAMA have given lectures regarding the Project, utilization of ALOS/PALSAR images in deforestation detection, etc.
3.6 Other promoting /hampering factors	Accomplishment grid, progress reports	Specific factors have not been identified.

IV. IMPACT: *Various positive impacts have been already observed and more are foreseen. Negative impacts have not been observed. They are not foreseen, either.*

Items	Source/ Methods	Evaluation
4.1 Impact at the Overall Goal level		
(1) Likelihood of achievement of the Overall Goal	Results of "Accomplishment of the Project"	Likelihood of achievement of the Overall Goal was not assessed because it was found preliminary. Note: The exact level could not have been assessed in any case because the Indicator is lack of concrete target(s). The Indicator needs to be reviewed and modified as appropriate by the Project.
(2) Important Assumption	Questionnaire &interview with the relevant P/P and J/E	➢ The Assumption ("Budgets and staffs for law enforcement do not decrease drastically): The assumption is likely to be satisfied because law enforcement on illegal deforestation in Brazilian Amazon is among the priorities of the Government of Brazil.
4.2 Other impacts	Questionnaire &interview with the relevant P/P, J/E and Regional Offices	<Positive impacts alredy observed> ➢ Satellite monitoring of Brazilian Amazon region in all seasons of the year has become possible by utilizing ALOS/PALSAR images ➢ More than 2,000 deforestation areas have been detected by IBAMA, utilizing ALOS/PALSAR images (i.e. ScanSAR images) and INDICAR/SISCOM. ➢ The staff members of CSR/IBAMA have started to utilize ALOS/PALSAR images (i.e. ScanSAR images) to detect deforestation not just in Amazon biome, but in other Brazilian biomes. ➢ Through establishment of InteliGEO, information which is useful for production of Forensic Reports has become available to all DPF Forensic Experts in Brazil. Now, Forensic Experts can consult the information in one place: they do not have to consult multiple sources. They can easily share updated information, too. ➢ In the first Basic and Advanced training courses for the general use of ALOS/PALSAR images, a total of 9 staff members from other departments of DPF and other organizations, including 1 from Section of Forensic Engineering (SEPENA)/INC/DPF, 2 from Operational Aviation Center (CAOP)/DPF, 1 from Brazilian Forest Services (SFB), and 5 from CENSIPAM, have participated, who have also acquired the skills and knowledge on ALOS/PALSAR images ➢ InteliGEO is expanding its boarder to other forensic issues. For example, marihuana crops law enforcement project (i.e. SIGMA project) and drugs chemical profiling project (i.e. PEQUI project) of DPF, supported by United Nations Office for Drug Control (UNODC), have shown interests in using InteliGEO for the combat against drugs. In expanding InteliGEO, financial and/or technical resources are to be provided by those who are interested in using it. SIGMA and PEQUI projects have already provided two server machines, a storage, etc. for InteliGEO. ➢ The Project Staff of DPF has organized a 15-day GIS/remote sensing training course, including utilization of high-resolution images of ALOS/PALSAR, for 10 Environmental Forensic Expert of DPF, who are currently assigned to SIGMA project. Training curriculum and materials developed by the Project was utilized in the said training with consent of IBAMA and the Japanese Expert Team. In 2011, DPF plans to organize two training courses for a total of 20 Forensic Experts. ➢ The head of DPF has become aware of the potential of the ALOS

Items	Source/ Methods	Evaluation
		technologies for crime prevention and law enforcement. ➢ According to IBAMA, the deforested area in Brazilian Amazon has decreased by 40% in the last two years, part of which has been resulted from efforts made by its staff members utilizing ALOS/PALSAR images and INDICAR/SISCOM. <Positive impacts foreseen> ➢ Utilizing high-resolution images of ALOS/PALSAR and InteliGEO, DPF would be able to produce Forensic Reports in better quality, with more sources of information and reliable and updated information to convince Judges. ➢ InteliGEO has a potential to become the geo-processing system of the entire DPF for all kinds of Federal criminal situation. <Negative impacts> ➢ Negative impacts have not been observed. They are not foreseen, either.

V. SUSTAINABILITY (Forecast): *Sustainability of the Project is likely to be ensured.*

Items	Source/ Methods	Evaluation
5.1 Institutional & Organizational Aspects		
(1) Policy and legal supports	Review of the relevant document, questionnaire to P/P	It is likely that current policy and legal supports for law enforcement using technical information based on satellite images will continue after termination of the Project.
(2) Organizational strategy (Exit strategy)	Questionnaire and discussion with managerial P/P,J/E	Necessity of development of post-project strategy/exit strategy towards the end of the Project has been confirmed during the discussions between the Evaluation Team and representatives of DPF and IBAMA.
(3) Deployment of Project Personnel	ditto	All the Project Personnel of DPF and most of the Project Personnel of IBAMA are permanent staff of Federal Government, whose employment is ensured. They are expected to be continuously assigned to the relevant posts so that they would be able to fully utilize their knowledge and skills to continue their task and sustain the Project effect.
(4) Management capacity	ditto	Both INC of DPF and CSR of IBAMA have managed the Project activities without serious problems. It is likely that they would be able to manage the relevant activities after the end of the Project.
(5) Coordination with relevant organizations	ditto	➢ Between DPF and IBAMA: Though the agreement for joint implementation of the Project has not been concluded as initially planned, DPF and IBAMA have worked in close partnership to implement the Project. Evaluation Team notes that DPF and IBAMA has started process of developing an umbrella agreement on collaboration. ➢ With other organizations: The Project activities have been implemented in collaboration with local organizations such as INPE and CENSIPAM. The collaboration is expected to be continued after the end of the Project.
5.2 Financial Aspects	Questionnaire and discussion with the managerial P/P	So far, both DPF and IBAMA have allocated necessary budget to implement the Project activities. Budgets for Environmental Forensic Section (APMA) of INC/DPF and CSR/IBAMA have been increasing, reflecting the commitment of the both organizations on the combat for

Items	Source/ Methods	Evaluation
		illegal deforestation in Brazilian Amazon as well as the organizational interests in utilizing satellite images for law enforcement. It is worthwhile mentioning that DPF has already started mobilizing financial (as well as technical) resources in expanding InteliGEO from those who are interested in using it, including other Department of DPF dealing with drug control. In the meantime, it is uncertain whether or not budget for high-resolution images of ALOS/PALSAR, which are procured by JICA during the Project, would be secured by DPF after the end of the Project.
5.3Technical Aspects		
(1) Technical capacity of P/P	Review of progress reports questionnaire and interview with the relevant P/P, J/E	Technical capacity of both DPF and IBAMA has been enhanced steadily, judging from the progress made on the production of the Outputs, their demonstrated capacity in problem solving as well as the assessment by the Japanese Expert team. Through continuous efforts of the technical personnel and support from the Japanese Expert team, the technical personnel of DPF and IBAMA is likely to become able to plan, implement, monitor, and evaluate the relevant activities and to cope with the new issues by themselves by the Project end.
(2) Utilization and dissemination of the transferred techniques and project deliverables	Questionnaire and interview with the relevant P/P, J/E. Working Group members	The techniques and methods transferred through the Project as well as the deliverables are relevant with the local needs and technical levels. The transferred techniques/methods and the deliverables have been utilized fully and have been disseminated to Forensic Experts of DPF and Environmental Analysts of IBAMA through InteliGEO and INDICAR/SICOM developed/improved by the Project; and through the trainings organized by the Project. It is expected that the transferred techniques/methods and the project deliverables would be continuously utilized and disseminated after the end of the Project.
(3) Utilization of the provided machinery and equipment	Questionnaire and interview with the relevant P/P, J/E	➢ Utilization: Machinery and equipment provided by the Project has been utilized fully. As the equipment is essential for provision of technical information based on satellite images for law enforcement, it is likely to be utilized fully after the Project end. ➢ Operation & Maintenance: O&M manuals for the provided equipment (in English) have been provided by the makers. The technical personnel of DPF and IBAMA have already become able to operate the equipment for themselves. Routine maintenance and check of the equipment provided to DPF and IBAMA has been conducted by the engineers of the respective organizations. According to the Japanese Expert team, local contractors have capacity to deal with failures of the provided equipment which cannot be handled by the internal specialists. Since most of the equipment has been procured locally, spare parts and consumables would be available in Brazil.

RM-A Record of Brazilian Inputs

A-1. List of Brazilian Personnel (F=Full time assignment, P=Part time assignment)

(1) Project Director

Name	Position in the Organization	F/P	Assignment Period
Paulo Roberto Fagundes	Director of Technical Scientific Directorate (DITEC)/DPF	P	All task of the project to the present

(2) Project Manager

a. DPF

a-1 Current Manager

	Name	Academic Background	Position in the Organization	F/P	Project Assignment Period	Remarks
1	Mauro Mendonça Magliano	Forester	Forensic Scientist Head of Environmental Forensic Section (APMA) of National Institute of Criminology (INC)/ DITEC	F	Jun 2009~ present (assigned as the PM since Dec.2009)	Head of DPF ALOS Project and action planning.

a-2 Former Manager

	Name	Academic Background	Position in the Organization	F/P	Project Assignment Period	Remarks
1	Guilherme Miranda	PhD	Forensic Scientist	P	Jun2009 ~Dec.2009	Moved to National Police Academy

b. IBAMA

b-1 Current Managers

	Name	Academic Background	Position in the Organization	F/P	Project Assignment Period	Remarks
1	George Porto Ferreira	Msc.	General Coordinator of Environment Monitoring /DIPRO	P	June2010 ~present	Responsible for administrative coordination
2	Edson Eyji Sano	PhD.	Head of Remote Sensing Center (CSR)/DIPRO	P	June2010 ~present	Responsible for technical supervision
3	Rodrigo Antônio de Souza	Msc.	Deputy Head of CSR/DIPRO	P	June2009 ~present (Deputy Head since Feb 2010)	Responsible for day-to-day implementation

b-2 Former Manager

	Name	Academic Background	Position in the Organization	F/P	Project Assignment Period	Remarks
1	Humberto Mesquita Jr.	PhD.	Head of CSR, Environmental Analyst	F	June 2009 ~ July 2010	

(3) Technical Personnel

a. DPF staff

	Name	Academic Background	Position in the Organization	Age	F/P	Project Assignment Period	Responsible Activities of PDM
1	Rafael de Arêa Leão Alves	Msc. Cartographer	Forensic Scientist Head of Remote Sensing Sector/APMA/INC	35	F	Jun 2009 ~ present	Head of remote sensing sector and INTELIGEO mapper consulting
2	Daniel Russo	Geologist	Forensic Scientist Remote Sensing Sector/APMA/INC	31	F	Jun 2009 ~ present	INTELIGEO planning and developer and Mining remote sensing specialist
3	Daniel Araújo Miranda	Computer Engineer	Forensic Scientist Remote Sensing Sector/APMA/INC	30	F	March 2010 ~ present	INTELIGEO Web GIS specialist, developer and maintainer
4	Luciano Lamper	Forest Engineer	Forensic Scientist APMA/INC	37	F	Jun 2009 ~ Present (Since Oct 2010 at HQ)	Deforestation remote sensing specialist
5	Diogo Kurihara	Forest Engineer	Forensic Scientist APMA/INC	31	F	Jun 2010 ~ Present (Since Nov. 2010 at HQ)	Heavy user of ALOS images

b. IBAMA staff

b-1 Current project staff

	Name	Academic Background	Position in the Organization	Age	F/P	Project Assignment Period	Responsible Activities of PDM
1	Werner Ferreira Gonçalves	Specialist	Environmental Analyst	27	P	June 2009 to present	1.1, 1.2, 1.3
2	Daniel Moraes de Freitas	Specialist	Environmental Analyst	29	P	June 2009 to present	1.1, 1.2, 1.3
3	Felipe Luis Matos	BSc	Environmental Analyst	34	P	June 2009 to present	1.1, 1.2, 1.3
4	Mariano Pascual	BSc	IT Analyst	31	P	June 2009 to present	2.3.3, 2.4.3,2.4.4
5	Rafael Xavier Cabral	BSc	Environmental Analyst	36	F	June 2009 to present	3.2,3.3,3.4

b-2 Former project staff

	Name	Academic Background	Position in the Organization	Age	F/P	Project Assignment Period	Responsible Activities of PDM
1	Marlon Crisley Silva	Msc.	Environmental Analyst	32	P	June 2009 to Dec 2010	1.1, 1.2

A-2. Allocation of Local Budget for the Project (as of December 2010)

a. DPF (Budget for the Project allocated by APMA/INC)

Unit=R$

	Major Budget Item	BFY2009	BFY2010	Total
1.	2 Servers (bought but not received yet)	0	35,900.00	35,900.00
2.	1 storage (bought but not received yet)	0	31,351.00	31,351.00
3.	20 TB HDs (expected)	0	35,000.00	35,000.00
4.	1 swich fiber channel (bought but not received yet)	0	20,000.00	20,000.00
5.	2 Redhat server licenses (bought but not received yet)	0	1,835.00	1,835.00
6.	12 cores of ArcGIS 10 server advanced (received) + 4 cores of ARCGIS 10 image server (received)	0	300,000.00	300,000.00
7.	Electrical adaptation of server room (done)	1,000.00	0	1,000.00
8.	Personnel in official mission (Forensic Scientist – Élcio – computer specialist)	0	80,000,00	80,000.00
Total in local currency (R$)		1,000.00	504,086.00	505,086.00
Total in US $ (1US$= R$1,66)		**US$602.40**	**US$303,666.27**	**US$304,268.67**

b. IBAMA (Budget for the Project allocated by CSR)

Unit=R$

	Major Budget Item	Total
1.	Personnel Environmental Analyst of CSR (working an average of 10 hours per week)	94,500.00
2.	Trainees	35,712.00
3.	Helicopter Flights for data validation	268,600.00
4.	Air tickets and daily allowance for data validation	16,320.00
5.	Training on SAR processing	36,000.00
Total in local currency (R$)		451,132.00
Total in US $ (1US$= R$1,66)		**US$271,766.27**

RM- B Record of Japanese Inputs

B- 1 . Assignment of Japanese Experts (4 persons in total)

	Field	Name	Assignment Period	M/M	Responsible Outputs / Activities of PDM
1.	Remote-Sensing1 /Administrative coordination	Makoto ONO	17/6/2009 - 19/7/2009	8.43	1-1,1-2,1-3
2.			19/8/2009 - 16/12/2009		2-1,2-2,2-3
3.			2/5/2010 – 25/7/2010		3-1,3-2,3-3,3-4
4.			16/9/ 2010 - 30/9/2010		
5.	Remote-Sensing2 / Intformation and Communication Technology management	Osamu NISHIMURA	17/6/2009 – 18/7/2009	3.43	1-1,1-2,1-3
6.			8/11/2009 – 16/12/2009		2-1,2-2,2-3
7.			11/4/2010 – 12/5/2010		
8.	GIS1	Manabu KAWAGUCHI	17/6/2009 – 30/8/2009	7.53	2-1,2-2,2-3,2-4
9.			20/9/200 9 - 19/12/2009		3-1,3-2,3-3
10.			7/6/2010 - 5/8/2010		
11.	GIS2 / Web Programming	Taichi FURUHASHI	6/8/2009 - 3/10/2009	5.53	2-1,2-2,2-3,2-4
12.			18/11/2009 – 19/12/2009		3-1,3-2,3-3
13.			15/4/2010 - 30/5/2010		
14.			3/7/2010 - 31/7/2010		

RM- B Record of Japanese Inputs

B- 2. List of Brazilian Personnel trained in Japan (8 person in total)

	Name	Position/Organization at the time of training	Training Period	Title of Training Course	Remarks
1.	Daniel RUSSO	Forensic Expert Environmental Forensic Section (APMA) of National Institute of Criminology (INC)/ Techinical Scientific Directorate (DITEC)/ Federal Police Department(DPF)	12/1/2010 – 12/2/2010	Remote-Sensing (Utilization of ALOS data)	
2.	Gustavo Caminoto GEISER	Forensic Expert Criminal Scientific Sector in Para State / DPF	12/1/2010 – 12/2/2010	Remote-Sensing (Utilization of ALOS data)	
3.	Diogo Luis KURIHARA	Forensic Expert Criminal Scientific Sector in Rondonia State / DPF	12/1/2010 – 12/2/2010	Remote-Sensing (Utilization of ALOS data)	Transferred to APMA/INC/DITEC /DPF in Nov 2010
4.	David Bronze MOLLES	Forensic Expert Criminal Scientific Sector in Amazonas State / DPF	12/1/2010 – 12/2/2010	Remote-Sensing (Utilization of ALOS data)	
5.	Werner Luis Ferreira GONCALVES	Environmental Analyst Amazon Monitoring Coordinator of Remote Sensing Center (CSR)/DIPRO/IBAMA	12/1/2010 – 12/2/2010	Remote-Sensing (Utilization of ALOS data)	
6.	Daniel Moraes FREITAS	Environmental analyst CSR/ DIPRO/IBAMA	12/1/2010 – 12/2/2010	Remote-Sensing (Utilization of ALOS data)	
7.	Felipe Luis Lacerda de Carvalho Cidade MATOS	Environmental analyst Amazon Monitoring Team of CSR /DIPRO/IBAMA	12/1/2010 – 12/2/2010	Remote-Sensing (Utilization of ALOS data)	
8.	Rafael Cabral XAVIER	Environmental analyst Training coordinator of CSR/DIPRO/IBAMA	12/1/2010 – 12/2/2010	Remote-Sensing (Utilization of ALOS data)	

RM- B Record of Japanese Inputs

B-3 List of Equipment and Machinery provided by Japanese Side

*1 Use: A-Frequently (almost ever day), B-Sometines (1-3 a week), C-Use concentrated on particular period, D-Rarely (1-3 times a year), E- No use due to particular reasons

*2 Mgt: A: Always possible to use with sufficient maintenance, B-Almost no problem in use, C-Possible to use if repaired, D-Difficult to use

JFY	No.	Item	Specification	Qn	Unit Price	Total Price	Total Price Equivalent JPY	Model number/ Management number	Location	Responsible Person	Responsible Organization	International or local procurement	Date of Delivery	Use (*1)	Mgt (*2)	# of deployed dept	# of available dept	Relevant major activity # of PDM
2009	1	Server computer	IBM x3650 Xeon 2.66 Hz 4Cores/1333MHz/8MB L3	2	R$ 29,991.80	R$ 59,983.60	JPY 2,999,180	TR005NA, TR005N9	DPF	Mauro Magliano	DPF/INC	Local	20/01/2010	A	A	0	2	2.4
2009	2	Storage	DS4000 EXP810	1	R$ 119,464.05	R$ 119,464.05	JPY 5,973,203	78K0D6G	DPF	Mauro Magliano	DPF/INC	Local	20/11/2009	A	A	0	1	2.4
2009	3	Storage	DS4000 EXP810	1	R$ 119,464.05	R$ 119,464.05	JPY 5,973,203	78K0D6H	IBAMA	George Porto	IBAMA/CSR	Local	20/11/2009	A	A	0	1	2.3
2009	4	Switch	SAN24B	2	R$ 15,938.09	R$ 31,876.18	JPY 1,593,809	108400K, 108393A	DPF	Mauro Magliano	DPF/INC	Local	20/11/2009	A	A	0	2	2.4
2009	5	Rack	NetBAY 42U S2	1	R$ 9,711.03	R$ 9,711.03	JPY 485,552	23X6631	DPF	Mauro Magliano	DPF/INC	Local	24/03/2010	A	A	0	1	2.4
2009	6	Switch	Cisco Catalyst	1	R$ 27,839.39	R$ 27,839.39	JPY 1,391,970	FD0134806S9	DPF	Mauro Magliano	DPF/INC	Local	18/01/2010	A	A	0	1	2.4
2009	7	Power Supply Hot Swap	Option Watt	2	R$ 764.85	R$ 1,529.70	JPY 76,485	NA - Unit installed and running, not possible to recover the serial number without turn off the server, this number will be acquired in the next shut down maintainence	DPF	Mauro Magliano	DPF/INC	Local	23/05/2010	A	A	0	2	2.4
2009	8	4GBPS Fiber Channel	4Gbps FC, 300GB/15K E-DDM	4	R$ 2,960.15	R$ 11,840.58	JPY 592,029	39R6525	DPF	Mauro Magliano	DPF/INC	Local	20/11/2009	A	A	0	4	2.4
2009	9	Dual Port Ethernet Adapter	IBM Netxtreme II 1000 Express	2	R$ 1,025.40	R$ 2,050.79	JPY 102,540	42C1780	DPF	Mauro Magliano	DPF/INC	Local	23/05/2010	A	A	0	2	2.4
2009	10	SATA 2 Controller	IBM Server Aid 10IS SAS / SATA 2 Controller	2	R$ 4,921.01	R$ 9,842.02	JPY 492,101	44E8700	DPF	Mauro Magliano	DPF/INC	Local	23/05/2010	A	A	0	2	2.4
2009	11	Fiber cable	1m Optic LC/LC	8	R$ 80.62	R$ 644.47	JPY 32,224	C-8-065-0701, C-8-065-1209, C-8-065-1852, C-8-065-1218, C-8-065-1237, 084251, 081063, 081764	DPF	Mauro Magliano	DPF/INC	Local	23/05/2010	A	A	0	8	2.4
2009	12	Expansion Unit	DS4000 Expansion Unit	4	R$ 5,903.56	R$ 23,614.23	JPY 1,180,712	78K11X8, 78K11XB, 78K11XD, 78K11XF	DPF	Mauro Magliano	DPF/INC	Local	23/05/2010	A	A	0	4	2.4
2009	13	TranscBR Pair	IBM 1812 2410 SW 4 GBPS	4	R$ 981.67	R$ 3,926.68	JPY 196,334	2100 00 1B 32 93 2B 7B, 2100 00 1B 32 93 1E 8F, 2100 00 1B 32 93 32 E8, 2100 00 1B 32 93 38 87	DPF	Mauro Magliano	DPF/INC	Local	23/05/2010	A	A	0	4	2.4
2009	14	Host Kit	DS 4700 Linux Intel Host Kit	2	R$ 1,677.50	R$ 3,355.00	JPY 167,750	SK92979439, SK92979432	DPF	Mauro Magliano	DPF/INC	Local	23/05/2010	A	A	0	2	2.4
2009	15	Fiber cable	1m Optic LC/LC	16	R$ 76.96	R$ 1,231.36	JPY 61,568	B17HG0916711032, B17HG0916710753, B17HG0916710017, B17HG0916711083, B17HG0916710037, B17HG0916710044, B17HG0916709972, B17HG0916710946, B17HG0916711057, B17HG0916711053, B17HG0916711013, B17HG0916711091, 4117694 9Z98200092, 4117694 9Z98200162, 4117694 9Z98200135, 4117694 9Z98200045	DPF	Mauro Magliano	DPF/INC	Local	23/05/2010	A	A	0	16	2.4
2009	16	Volume Copy	DS4700 Flash Volume Copy	2	R$ 6,982.34	R$ 13,964.68	JPY 698,234	78K0ZL7	DPF	Mauro Magliano	DPF/INC	Local	01/04/2010	A	A	0	2	2.4
2009	17	Server Software	ArcGIS Server 9.3 Enterprise Standard (8 core)	1	R$ 92,957.40	R$ 92,957.40	JPY 4,647,870	ECP327111016	IBAMA	George Porto	IBAMA/CSR	Local	30/9/2009	A	A	0	1	2.3
2009	18	OS	Windows Server 2008 Enterprise (64bit)	1	R$ 5,292.66	R$ 5,292.66	JPY 264,633	463754455	DPF	Mauro Magliano	DPF/INC	Local	24/03/2010	A	A	0	1	2.4

RM- B Record of Japanese Inputs

JFY	No	Item	Specification	Qn	Unit Price	Total Price	Total Price Equivalent JPY	Model number/ Management number	Location	Responsible Person	Responsible Organization	International or local procurement	Date of Delivery	Use (*1)	Mgt (*2)	# of disposed dept	# of available dept	Relevant major activity # of PDM
2009	19	Image Processing Software	PCI Geomatica 10.2 Core module	10		USD 90,485.00	JPY 8,143,650	80-2C057	DPF	Mauro Magliano	DPF/INC	Local	21/10/2009	A	A	0	10	1.3
			PCI Geomatica 10.2 Radar module	10							DPF/INC	Local	21/10/2009			0	10	1.3
			PCI Geomatica 10.2 Alos module	10							DPF/INC	Local	21/10/2009			0	10	1.3
			PCI Geomatica 10.2 Satellite Models module	1							DPF/INC	Local	21/10/2009			0	1	1.3
			PCI Geomatica 10.2 High Resolution module	10							DPF/INC	Local	21/10/2009			0	10	1.3
			PCI Geomatica 10.2 Automatic DEM Extraction	2							DPF/INC	Local	21/10/2009			0	2	1.3
			PCI Geomatica 10.2 Core module	40							IBAMA/CSR	Local	21/10/2009			0	40	1.3
			PCI Geomatica 10.2 Radar module	40							IBAMA/CSR	Local	21/10/2009			0	40	1.3
			PCI Geomatica 10.2 Alos module	40							IBAMA/CSR	Local	21/10/2009			0	40	1.3
2009	20	Image Processing Software	PCI Geomatica 10.2 Geo Raster for Oracle	1					IBAMA	George Porto	IBAMA/CSR	Local	21/10/2009			0	1	1.3
			PCI Geomatica 10.2 Satellite Models module	4							IBAMA/CSR	Local	21/10/2009			0	4	1.3
			PCI Geomatica 10.2 High Resolution module	40							IBAMA/CSR	Local	21/10/2009			0	40	1.3
			PCI Geomatica 10.2 Automatic DEM Extraction	1							IBAMA/CSR	Local	21/10/2009			0	1	1.3
2009	21	Image Processing Software	PCI Maintenance and Support	1	USD 21,515.00	USD 21,515.00	JPY 1,936,350	NA	IBAMA	George Porto	IBAMA/CSR	Local	26/03/2010	NA	NA	0	1	1.3
2009	22	Image Processing Software	PCI Training	1	USD 2,000.00	USD 2,000.00	JPY 180,000	NA	NA	Mauro Magliano	DPF/INC	Local	26/03/2010	END	END	0	1	3.3
2009	23	PC	MacbookPro 15inch	1	JPY 337,648	JPY 337,648	JPY 337,648	W892619N64C	DPF	Mauro Magliano	DPF/INC	International	31/07/2009	C	A	0	1	2.4
2009	24	PC	MacbookPro 15inch	1	JPY 337,648	JPY 337,648	JPY 337,648	W892619M64C	IBAMA	George Porto	IBAMA/CSR	International	31/07/2009	C	A	0	1	2.3
2009	25	PC	MacbookPro 13inch	1	JPY 178,733	JPY 178,733	JPY 178,733	3492EYL66D	IBAMA	George Porto	IBAMA/CSR	International	12/06/2009	C	A	0	1	3.3
2009	26	HDD	LaCie 7.5TB HDD	1	JPY 170,820	JPY 170,820	JPY 170,820	1288901145009U	DPF	Mauro Magliano	DPF/INC	International	15/06/2009	A	A	0	1	2.4
2009	27	Wireless LAN	AirMac Extreme MB763J/A	1	JPY 16,800	JPY 16,800	JPY 16,800	6F91512Y31T	DPF	Mauro Magliano	DPF/INC	International	18/06/2009	A	A	0	1	2.4
2009	28	Wireless LAN	AirMac Extreme MB763J/A	1	JPY 16,800	JPY 16,800	JPY 16,800	6F91518N31T	IBAMA	George Porto	IBAMA/CSR	International	18/06/2009	A	A	0	1	2.3
2009	29	Server Software	ArcGIS Server 9.3 Enterprise Standard (4 core)	1	JPY 3,853,500	JPY 3,853,500	JPY 3,853,500	ECP327111016	DPF	Mauro Magliano	DPF/INC	International	18/09/2009	A	A	0	1	2.4
2009	30	GPS	Creative Zii Egge (Android)	10	JPY 49,875	JPY 498,750	JPY 498,750	YGZK 0014 935R 0087, YGZK 0014 935R 0091, YGZK 0014 935R 0092, YGZK 0014 935R 0097, YGZK 0014 935R 0098,YGZK 0014 935R 0129, YGZK 0014 935R 0130, YGZK 0014 935R 0133, YGZK 0014 935R 0146, YGZK 0014 935R 0148	DPF	Mauro Magliano	DPF/INC	International	06/11/2009	C	A	0	10	3.3
2009	31	GPS	Creative Zii Egge (Android)	10	JPY 49,875	JPY 498,750	JPY 498,750	YGZK 0014 935R 0081 4F, YGZK 0014 935R 0084 8D,YGZK 0014 935R 0088 2K, YGZK 0014 935R 0091 0M, YGZK 0014 935R 0093 2X, YGZK 0014 935R 0093 9P, YGZK 0014 935R 0096 2S, YGZK 0014 935R 0139 4T, YGZK 0014 935R 0141 8R, YGZK 0014 935R 0147 5N	IBAMA	George Porto	IBAMA/CSR	International	06/11/2009	C	A	0	10	3.3
2009	32	Memory	TOSHIBA SD Card (16GB) SD-F16G	10	JPY 5,580	JPY 55,800	JPY 55,800	Model 0934TV6003V - No serial number	DPF	Mauro Magliano	DPF/INC	International	29/10/2009	C	A	0	10	3.3
2009	33	Memory	TOSHIBA SD Card (16GB) SD-F16G	10	JPY 5,580	JPY 55,800	JPY 55,800	Model 0934TV6003V - No serial number	IBAMA	George Porto	IBAMA/CSR	International	29/10/2009	C	A	0	10	3.3

RM- B Record of Japanese Inputs

JFY	No.	Item	Specification	Qn	Unit Price	Total Price	Total Price Equivalent JPY	Model number/ Management number	Location	Responsible Person	Responsible Organization	International or local procurement	Date of Delivery	Use (*1)	Mgt (*2)	# of deployed eqpt	# of available eqpt	Relevant major activity # of PDM
2009	34	Reference Books	Manual of Remote Sensing,Principles and Applications of Imaging Radar, 3rd Edition, 1998 Floyd M Henderson & Anthony J Lewis	1	JPY 181,820	JPY 181,820	JPY 181,820	ISBN- 10:0471294063	DPF	Mauro Magliano	DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Understanding Synthetic Aperture Radar Images, 2004, Chris Oliver & Shaun Quegan	1				ISBN- 10:1891121316			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Imaging with Synthetic Aperture Radar, 2008, Didier Massonnet & Jean Claude Souyris	1				ISBN- 10:0849382394			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Digital Processing Of Synthetic Aperture Radar Data:Algorithms And Implementation, 2005, Ian G Cumming & Frank H Wong	1				ISBN- 10:1580530583			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Processing of Synthetic Aperture Radar (SAR) Images, 2008, Henri Maitre	1				ISBN- 10:1848210248			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Synthetic Aperture Radar:Systems and Signal Processing, 1991, John C Curlander, Robert McDonough	1				ISBN- 10:047185770X			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Polarimetric Radar Imaging:From Basics to Applications, 2009, Jong-Sem Lee & Eric Pottier	1				ISBN- 10:142005497X			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Manual of Remote Sensing,Remote Sensing for the Earth Sciences, 1999, Andrew N Rencz & Robert A Ryerson	1				ISBN- 10:0471294055			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Manual of Remote Sensing,Remote Sensing for Natural Resource Management and Environmental Monitoring, 2004, Susan Ustin	1				ISBN- 10:0471317934			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Remote Sensing and Image Interpretation, 2008, Thomas Lillesand & Ralph W Kiefer & Jonthan W Chipman	1				ISBN- 10:0470052457			DPF/INC	International	26/11/2009	A	A	0	1	3.1
			Introductory Digital Image Processing (3rd Edition), 2005 John R Jensen	1				ISBN- 10:0131453610			DPF/INC	International	26/11/2009	A	A	0	1	3.1
2009	35	Reference Books	Manual of Remote Sensing,Principles and Applications of Imaging Radar, 3rd Edition, 1998 Floyd M Henderson & Anthony J Lewis	1	JPY 181,820	JPY 181,820	JPY 181,820	ISBN- 10:0471294063	IBAMA	George Porto	IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Understanding Synthetic Aperture Radar Images, 2004, Chris Oliver & Shaun Quegan	1				ISBN- 10:1891121316			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Imaging with Synthetic Aperture Radar, 2008, Didier Massonnet & Jean Claude Souyris	1				ISBN- 10:0849382394			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Digital Processing Of Synthetic Aperture Radar Data:Algorithms And Implementation, 2005, Ian G Cumming & Frank H Wong	1				ISBN- 10:1580530583			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Processing of Synthetic Aperture Radar(SAR) Images, 2008, Henri Maitre	1				ISBN- 10:1848210248			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Synthetic Aperture Radar:Systems and Signal Processing, 1991, John C Curlander, Robert McDonough	1				ISBN- 10:047185770X			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Polarimetric Radar Imaging:From Basics to Applications, 2009, Jong-Sem Lee & Eric Pottier	1				ISBN- 10:142005497X			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Manual of Remote Sensing,Remote Sensing for the Earth Sciences, 1999, Andrew N Rencz & Robert A Ryerson	1				ISBN- 10:0471294055			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Manual of Remote Sensing,Remote Sensing for Natural Resource Management and Environmental Monitoring, 2004, Susan Ustin	1				ISBN- 10:0471317934			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Remote Sensing and Image Interpretation, 2008, Thomas Lillesand & Ralph W Kiefer & Jonthan W Chipman	1				ISBN- 10:0470052457			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
			Introductory Digital Image Processing (3rd Edition), 2005 John R Jensen	1				ISBN- 10:0131453610			IBAMA/CSR	International	26/11/2009	A	A	0	1	3.1
2010	36	Image Processing Software	PCI Training	1	USD 6,000.00	USD 6,000.00	JPY 540,000	NA	NA	George Porto	IBAMA/CSR	Local	28/05/2010	END	END	0	1	3.3
2010	37	Connector Transceiver GBIC	Cisco GLCGLCSXMM GE SFP LC	4	R$ 715.00	R$ 2,860.00	JPY 143,000	AGM14171317, AGM141818NK, AGM142014PP, AGM1417131M	DPF	Mauro Magliano	DPF/INC	Local	27/10/2010	A	A	0	4	2.4
2010	38	Power Distribution Unit	Black Box T RMPSB132BB PDU Bifase 30A 8plugs x 2	2	R$ 912.00	R$ 1,824.00	JPY 91,200	NA - Unit installed and running, not possible to recover the serial number without turn off the server, this number will be acquired in the next shut down maintainence	DPF	Mauro Magliano	DPF/INC	Local	27/10/2010	A	A	0	2	2.4

RM- B Record of Japanese Inputs

JFY	No.	Item	Specification	Qtn	Unit Price	Total Price	Total Price Equivalent JPY	Model number/ Management number	Location	Responsible Person	Responsible Organization	International or local procurement	Date of Delivery	Use (*1)	Hpt (*2)	# of dispose d acpt	# of available acpt	Relevant major activity # of PDM
2010	39	Fiber cable	ISCON 11015 JPR Optic DPX FC 15m	6	R$ 189.00	R$ 1,134.00	JPY 58,700	105624, 105625, 105626, 105627, 105628, 105629	DPF	Mauro Magliano	DPF/INC	Local	27/10/2010	A	A	0	6	2.4
2010	40	Server Software	ArcGIS Server 10.0 Enterprise Advanced (8 core)	1	R$ 251,713.89	R$ 251,713.89	JPY 12,585,695	ECP967133967	DPF	Mauro Magliano	DPF/INC	Local	16/09/2010	A	A	0	1	2.4
2010	41	Flash Software	Adobe Flash Builder 4 Premium	2	R$ 2,351.02	R$ 4,702.04	JPY 235,102	1424-4489-2348-9051-7308-8269	IBAMA	George Porto	IBAMA/CSR	Local	14/09/2010	A	A	0	2	2.3
2010	42	Flash Software	Adobe Flash Builder 4 Premium with DVDs	3	R$ 2,375.00	R$ 7,125.00	JPY 356,250	1424-4411-2898-3996-6741-3812	DPF	Mauro Magliano	DPF/INC	Local	18/10/2010	A	A	0	3	2.4
2010	43	GIS Software	ESRI Arc Editor	1	R$ 27,719.23	R$ 27,719.23	JPY 1,385,962	EFL120015227	DPF	Mauro Magliano	DPF/INC	Local	12/08/2010	A	A	0	1	1.3
2010	44	GIS Software	ESRI Arc Info	1	R$ 27,699.23	R$ 27,699.23	JPY 1,384,962	EFL 772511832	IBAMA	George Porto	IBAMA/CSR	Local	27/09/2010	A	A	0	1	1.3
2010	45	GIS Software	ESRI Arc Info	1	R$ 27,719.23	R$ 27,719.23	JPY 1,385,962	EFL772511832	DPF	Mauro Magliano	DPF/INC	Local	16/09/2010	A	A	0	1	1.3
2010	46	Linux Software	Redhat Linux Enterprise Virtualization(RHEL) 36 months	2	R$ 3,835.00	R$ 7,670.00	JPY 383,500	C3C3468EC24B6545	DPF	Mauro Magliano	DPF/INC	Local	28/08/2010	A	A	0	2	2.4
2010	47	Linux Software	Redhat Linux Enterprise Virtualization(RHEL) 12 months	2	R$ 5,700.00	R$ 11,400.00	JPY 570,000	C3C3468EC24B6545	DPF	Mauro Magliano	DPF/INC	Local	27/10/2010	A	A	0	2	2.4
2010	48	OS	Windows Server 2008 R2 Enterprise Volume License	4	R$ 5,760.00	R$ 23,040.00	JPY 1,152,000	47355411	IBAMA	George Porto	IBAMA/CSR	Local	01/09/2010	A	A	0	4	2.3
2010	49	ALOS data	PALSAR,,AVNIR-2,,PRISM	166	R$ 229.03	R$ 38,018.98	JPY 1,900,949	NA	DPF	Mauro Magliano	DPF/INC	Local	01/09/2010	A	A	0	166	1.3
2010	50	ALOS data	PALSAR,,AVNIR-2,,PRISM	196	R$ 229.03	R$ 44,889.88	JPY 2,244,494	NA	IBAMA	George Porto	IBAMA/CSR	Local	01/09/2010	A	A	0	196	1.3
2010	51	Grafic Software	CorelDraw X4	1	JPY 44,730	JPY 44,730	JPY 44,730	CDGSX4ENPCJP	IBAMA	George Porto	IBAMA/CSR	International	21/04/2010	A	A	0	1	1.3
2010	52	SSD	BUFFALO SSD 128GB USB SHD-PE128G-BK	2	JPY 29,610	JPY 59,220	JPY 59,220	41659400301315, 41659400300387	DPF	Mauro Magliano	DPF/INC	International	21/04/2010	A	A	0	2	2.7
2010	53	SSD	BUFFALO SSD 128GB USB SHD-PE128G-BK	2	JPY 29,610	JPY 59,220	JPY 59,220	41659400301216, 41659400300370	IBAMA	George Porto	IBAMA/CSR	International	21/04/2010	A	A	0	2	2.6
2010	54	GPS	Motorola Droid (Android)	2	JPY 94,290	JPY 188,580	JPY 188,580	6JUG5406AB, 6JUG5406AB,	DPF	Mauro Magliano	DPF/INC	International	09/04/2010	A	A	0	2	2.7
2010	55	GPS	Motorola Droid (Android)	1	JPY 94,290	JPY 94,290	JPY 94,290	J286NA2J8N	IBAMA	George Porto	IBAMA/CSR	International	09/04/2010	A	A	0	1	2.6

B-4. Disbursement of Local Activity Cost (as of September 2010)

Unit=R$

Major Budget Item		JFY2009	JFY2010	Total
1	Local Staff	148,180	189,370	337,550
2	Training	17,500	0	17,500
3	Seminar	4,340	12,800	17,140
4	Others	52,240	5,390	57,630
Total in Local Currency		222,260	207,560	429,820
Total in Japanese Yen (1R$=50Yen)		¥ 11,113,000	¥ 10,378,000	¥ 21,491,000

Overall

1) Technology Transfer Plan (June,2009)
2) Project Interim Report 1 (Sep,2009)
3) Project Annual Report 1 (Dec,2009)

Output 1

1) PalsarScan Image Handling Manual (Dec.2009)
2) PALSAR Interpretation Guide Book Ver.1 (Dec.2009)
3) PALSAR Interpretation Guide Book Ver.2 (Oct.2010)
4) PALSAR Viewer Ver1.2.1 (Software) (Dec.2009)
5) PALSAR Viewer Ver1.8.3 (Software) (Oct.2010)
6) PALSAR Viewer user's manual Ver.1 (Dec.2009)
7) PALSAR Viewer user's manual Ver.2 (Oct.2010)
8) ALOS Viewer Ver1.2.1 (Software) (Dec.2009)
9) ALOS Viewer Ver2.2.6 (Software) (Sep.2010)
10) ALOS Viewer user's manual Ver.1 (Dec.2009)
11) ALOS Viewer user's manual Ver.2 (Sep.2010)
12) PALSAR Fringe Ver 4.5.1 (Software) (Jul.2010)
13) PALSAR Fringe user's manual Ver.1 (Jul.2010)
14) PALSAR Processer Ver2.6.3 (Software) (Aug.2010)
15) PALSAR Processer user's manual (Aug.2010)
16) PCG unrap Ver.1.5.1 (Software) (Jul.2010)
17) PCG unrap user's manual (Jul.2010)

Output 2

1) INTELIGEO Prototype (System) (Dec.2009)
2) INTELIGEO Pre-release version (System) (Sep.2010)
3) INDICAR improved edition (System) (Dec.2010)

Output 3

1) 1st Basic Training Manual (Oct.2009)
2) Results of Questionnaire Survey – 1st Basic Training 2009 (Oct.2009)
3) 1st Advanced Training Manual (May.2010)
4) Results of Questionnaire Survey – 1st Advanced Training 2010 (May.2010)
5) 2nd Basic Training Manual (Oct.2010)
6) Results of Questionnaire Survey – 2ndBasic Training 2010 (Oct.2010)

ANNEX 2 PDM 3

1. **Project Name** : The Project for utilization of ALOS images to support the protection of the Brazilian Amazon Forest and combat against illegal deforestation

PDM3 approved on Nov.19, 2010

2. **Project site:** Brasilia
3. **Duration:** From June 2009 to June 2012 (three years)
4. **Target Beneficiaries:** Forensic Experts of Federal Police Department (DPF) and Environmental Analysts of Brazilian Institute for the Environment and Renewable Nature Resources (IBAMA)
5. **Target Area:** Brazilian Amazon (i.e. 9 Legal Amazon States: Acre, Amapa, Amazonas, Maranhao, Mato Grosso, Para, Rondonia, Roraima, Tocantins)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Law enforcement is enhanced ground on technical information based on satellite images on illegal deforestation	a:Number of law enforcement actions using monitoring documents produced in the month of cloud cover is increased (Note: The Indicator for the Overall Goal would be discussed and clarified by the Project in the first semester of 2011)	a. Reports by IBAMA and DPF	A: There is no particular change in government policies on protection of Brazilian forest
Project Purpose Technical information based on ALOS(*1)/PALSAR(*2) images on illegal deforestation in the Brazilian Amazon is provided for law enforcement	a: By the Project end, deforestation areas are detected within 3 working days after receiving the ScanSAR (*3)images of ALOS/PALSAR by IBAMA. b: By the Project end, the location and size of the detected deforestation areas (i.e. Deforestation Polygons) are provided to the relevant IBAMA regional offices within 2 working days after their detection c: By the Project end, ALOS/PALSAR images (mainly high-resolution ones), are utilized/referred to in 60 Forensic Reports(*4) produced by DPF per year	a&b:Comparison of the record of concerned dates kept by IBAMA c: Review of Forensic Reports	A: Budgets and staffs for law enforcement do not decrease drastically
Output 1: Deforestation areas including suspicious areas are detected using ALOS/PALSAR data	1a: Useless multi-temporal combination of ScanSAR images of ALOS/PALSAR becomes zero by the end of 2009. 1b: Methodologies to extract deforestation information from ScanSAR images of ALOS/PALSAR developed by the Project, including Interpretation guide, forest classification tool, and change detection tool by the end of 2009; and updated by March 2011 1c: Initial version of the technical manuals for IBAMA and DPF for utilization of ALOS/PALSAR images in detection of deforestation areas and preparation of Forensic Reports respectively are developed/approved by March 2011 (in English and Portuguese) 1d: The initial version of the technical manual for IBAMA is uploaded to SISCOM (*5) for the use of Environmental Analysts and the one for DPF is uploaded to InteliGEO(*6) for the use of Forensic Experts by April 2011. 1e: The initial version of the technical manuals for IBAMA and DPF are updated by March 2012 1f: The updated manuals are uploaded to SISCOM and InteliGEO respectively by April 2012	1a: Review of error report produced by IBAMA 1b: Review of the developed tools &progress reports 1c&e: Review of technical manuals & date of approval of each manual by the Project Manager of DPF and IBAMA respectively 1d&f: Review of the uploaded dates recorded in SISCOM and InteliGEO	A: There is no significant organizational change in DPF and /or IBAMA affecting implementation of the Project B: Budgets for satellite monitoring of DPF and/or IBAMA do not decrease drastically
Output 2: The information flow of satellite monitoring system throughout DPF and IBAMA is improved	2a: Information sharing mechanism of DPF developed by the Project (i.e. InteliGEO) is made available to all the Forensic Experts in Brazil by December 2009 2b: By the Project end, 100% of Forensic Reports produced by DPF Forensic Experts, utilizing/referring to ALOS/PALSAR images (mainly high-resolution ones), are made available in InteliGEO for other Experts within one week after the completion 2c: By the Project end, access to INDICAR(*7)/SISCOM of IBAMA becomes at least one from each of the 9 Legal Amazon States per cycle of ALOS operation (i.e. 46 days) 2d: Semi-annual access to InteliGEO of DPF is increased by 5 % in relation to the previous semester. 2e: By the Project end, 90 % of the results of visits of the deforestation areas detected by INDICAR/SISCOM & ALOS/PALSAR (i.e. Deforestation Polygons) are fed back to IBAMA HQ per cycle of ALOS operation	2a:Record of the release date 2b:Check that all Forensic Reports in Criminalistica uploaded in InteliGEO, and the ones that are not more than a week old 2c: Record of access to INDICAR 2d: Record of access to InteliGEO 2e::Record of feedbacks registered in the Target Registration System to be developed at IBAMA	

92

ANNEX 2.

Output 3: Human resources in DPF and IBAMA are upskilled to detect and characterize illegal deforestation	3a: Basic and advanced courses for IBAMA and DPF for the general use of ALOS/PALSAR images, including curriculum and textbooks, are developed by September 2009 3b: Basic course specifically for the use of DPF Forensic Experts to produce Forensic Reports are developed by December 2011. 3c: By the Project end, 70 staff members (30 Forensic Experts of DPF and 40 Environmental Analysts of IBAMA) receive official training certificates for the use of ALOS/PALSAR images from IBAMA or DPF 3d: On average, 80% of the trainees give the highest or medium rate on three-level rating about "degree of understanding" and "degree of applicability" of the concerned trainings 3e: The training courses are updated based on the feedbacks from the trainees, including the results of monitoring and evaluation of the trainings, and other Project Activities	3a: Project report &curriculum and textbooks developed 3b: ditto 3c: List of trainees 3d: Results of the questionnaires to the trainees 3e:Analytical report of training	

Activities	**Inputs**	
1.1 Convert ALOS/PALSAR data format to fit into INDICAR/SISCOM 1.2 Develop methodologies to extract deforestation information from ALOS/PALSAR images. 1.3 Identify potential deforestation areas using ALOS/PALSAR images and other available geographic information 1.4 Develop technical manuals for DPF and IBAMA for utilization of ALOS images based on the results of the Activities 1.1-1.3 2.1 Document existing monitoring mechanism 2.2 Identify possible upgrading opportunities in the DPF/IBAMA deforestation monitoring mechanism 2.3 Improve the existing satellite information sharing mechanism of IBAMA HQ (i.e. INDICAR/SISCOM) 2.4 Develop an information sharing mechanism at DPF HQ (i.e. InteliGEO) 2.5 Establish an information flow between IBAMA and DPF HQs 2.6 Develop an intra-information flow mechanism between IBAMA HQ and its regional offices 2.7 Develop an intra-information flow mechanism between DPF HQ and its regional offices 3.1 Assess training needs to monitor and characterize illegal deforestation in DPF/IBAMA 3.2 Determine the training plan 3.3 Execute the training plan 3.4 Monitor/evaluate/upgrade the trainings	**<Brazilian Side>** (1) Project & Administrative personnel ● Project Director ● Project Manager(s) ● Other project and administrative personnel (2) Office Spaces and Facilities ● Office space in IBAMA ● Other facilities necessary for the implementation of the Project (3) Administration and operational costs **<Japanese Side>** (1) Experts ● Remote Sensing/Administrative Coordination ● Information and Communication Technology ● Web-programming, GIS ● Other Experts necessary for the Project (2) Training of Brazilian personnel in Japan (3) Machinery and Equipment ● ALOS images, software, servers, storages ● Other materials necessary for the implementation of the Project	A:Main project personnel are not transferred to other departments and/or agencies **Pre-Conditions** A: ALOS/PALSAR images (i.e. ScanSAR images) are provided by Japan Aerospace Exploration Agency (JAXA) based on the Agreement on Cooperation between JAXA and IBAMA B: DPF and IBAMA conclude an agreement on the joint implementation of the project

(*1) ALOS: Advanced Land Observing Satellite launched by JAXA
(*2) PALSAR: Phased Array Type L-Band Synthetic Aperture Radar (*3) ScanSAR: Scan Synthetic Aperture Radar
(*4) Forensic Report: Technical document produced by DPF Forensic Experts that aims to establish whether a crime has happened, how it happened, and who committed it. This document is used in criminal prosecutions.
(*5) SISCOM: Environmental information sharing mechanism of IBAMA
(*6) InteliGEO: Information sharing mechanism of DPF being developed by the Project under Output 2 (*7) INDICAR: Indicator of Deforestation for Radar Images.

ANNEX 3 PO

Activities	Expected Results	Schedule	Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
		2009 / JFY2009: Jun; Jul-Sep; Oct-Dec				Japanese	Brazilian	
		2010 / JFY2010: Jan-Mar; Apr-Jun; Jul-Sep; Oct-Dec						
		2011 / JFY2011: Jan-Mar; Apr-Jun; Jul-Sep; Oct-Dec						
		2012 / 12: Jan-Mar; Apr-Jun						
Output 1: Deforestation areas includig suspicious areas are detected using ALOS/PALSAR data			DPF/IBAMA	Sano (IBAMA)/Rafael (DPF)		JE(RSI/Adm: Ono)		
1.1 Convert ALOS/PALSAR data format to fit to INDICAR/SISCOM			IBAMA	Rodrigo (IBAMA)	Werner, Daniel, Felipe, Silvia (IBAMA)	JE(RSI/Adm-Ono)		SISCOM is a data server and INDICAR is a function in the SISCOM which enable detection of deforestation using ALOS/PALSAR images
1.1.1 Establish ALOS/PALSAR data upload path for INDICAR/SISCOM	PALSAR data uploaded to SISCOM periodically		ditto	ditto	ditto	ditto		
1.1.2 Establish preprocess functions to use an individual PALSAR image for SISCOM/INDICAR.	Preprocess conduceted without errors		ditto	ditto	ditto	ditto		
1.1.3 Create image catalog to access the PALSAR data uploaded in SISCOM	Catalog list exported as a file		ditto	ditto	ditto	ditto		
1.1.4 Establish preprocess functions to use multi-temporal PALSAR images for INDICAR	Preprocess conduceted without errors		ditto	ditto	ditto	ditto		
1.1.5 Validation/Evaluation and improvement of the methodologies developed	Methodologies validated and improved		ditto	ditto	ditto	ditto		
1.2 Develop methodologies to extract deforestation information from ALOS/PALSAR images.			IBAMA	Rodrigo (IBAMA)	Werner, Daniel, Felipe, Silvia (IBAMA)	JE(RSI/Adm-Ono)		
1.2.1 Develop an interpretation guide for detection of deforestation area using ALOS/PALSAR (w/optical images and ground truthing)	Interpretation guide developed		ditto	ditto	ditto	ditto		
1.2.2 Develop a forest classification (i.e.discrimination of forest/non-forest) tool, using ALOS/PALSAR images	Forest classification tool developed		ditto	ditto	ditto	ditto		
1.2.3 Develop a change detection tool for identification of possible deforestation areas through conducting time series analysis using the results of Act.1.2.2	Change detection tool developed		ditto	ditto	ditto	ditto		
1.2.4 Validation/Evaluation and improvement of the methodologies developed	Methodologies validated and improved		ditto	ditto	ditto	ditto		
1.3 Identify possible deforestation areas using ALOS/PALSAR images and other available geographic information			IBAMA	Rodrigo (IBAMA)	Werner, Daniel, Felipe, Silvia (IBAMA)	JE(RSI/Adm-Ono)		
1.3.1 Identify geographic information useful for identification of deforestation area from multipule data sources	Useful info identified		ditto	ditto	ditto	ditto		Digital Elevation Model (DEM) info &DETER/PRODES info identifed
1.3.2 Develop methodologies to integrate the useful geographic information from multiple data sources into data servers of IBAMA and DPF (INDICAR/SISCOM and InteliGEO)			IBAMA/DPF	George(IBAMA), Rafael (DPF)	Werner, Mariano			

Initial plan (Principle activities)
Initial plan (Follow up activities)
Actualt progress & current plan

Annex 3.

	Activities	Expected Results	Schedule	Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009 / 2010 / 2011 / 2012 JFY2009 / JFY2010 / JFY2011 / 12 Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun				Japaese	Brazilian	
a	Integration into the data server of IBAMA (INDICAR/SISCOM)	Useful info integrated into the data server of IBAMA	SRTM DEM; AsterDEM; PrismrDEM	IBAMA	George (IBAMA)	Mariano, Werner, Luis Motta (IBAMA)	JE(RSI/Adm-Ono)		
b	Integration intothe data server of DPF developed in Activity 2.4 (i.e. InteliGEO)	Useful info integrated into the data server of DPF	AsterDEM; PrismrDEM	DPF	Rafael (DPF)	Rafael, Russo, Miranda (DPF)	ditto		Integration of Aster DEM has been delayed due to the delay of completion of development of InteliGEO (See.Remarks of Act.2.4)
1.3.3	Utilize the information integraed in the data servers in preparation of Deforestation Polygone/A4 Reports of IBAMA and Foresing Report of DPF			IBAMA/ DPF	Rodrigo(IBAMA), Rafael (DPF)	Rafael, Daniel, Miranda (DPF) Rodrigo, Werner, Daniel,Silvia, Felipe (IBAMA)	JE(RSI/Adm-Ono)		
a	In preparation of Deforestation Polygon/A4 Report (IBAMA)	Info in the data server utilized		IBAMA	Rodrigo (IBAMA)	Rodrigo, Werner, Daniel, Felipe, Silvia (BAMA)	ditto		
b	In preparation of Forensic Report (DPF)	ditto		DPF	Rafael (DPF)	Rafael, Russo, Miranda (DPF)	ditto		*Activity delayed due to delay of the completion of the development of the data server(i.e.InteliGEO) . See Remarks of Act.2.4) *Interferometry technology learned in the Advanced Course (see Output 3) is utlized
1.4	Develop technical mannuas for DPF and IBAMA for utilization of ALOS images based on the results of the Activities 1.1-1.3			DPF/IBAMA	Rafael (DPF) Sano(IBAMA)	Rafael, Daniel, Miranda (DPF) Rodrigo, Werner, Daniel, Felipe, Silvia (IBAMA)	JE(RSI/Adm-Ono)		The manuals consists of the common part and individual parts for each organization .
1.4.1	Develop the manual for DPF for the use of Foresnsic Expert to prepare Forensic Report	English and Portugease manuals developed		DPF	Rafael (DPF)	Rafael, Russo, Miranda (DPF)	ditto		
1.4.2	Update the above manual	ditto		ditto	ditto	ditto	ditto		
1.4.3	Develop the manual for IBAMA for the use of Environmental Analysts to prepare Deforestation Polygon	ditto		IBAMA	Sano (IBAMA)	Rodrigo, Werner, Daniel, Felipe, Silvia (IBAMA)	ditto		
1.4.4	Update the above manual	ditto		ditto	ditto	ditto	ditto		

Activities	Expected Results	Schedule: 2009 JFY2009 Jun	Jul-Sep	Oct-Dec	2010 JFY2010 Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	2011 JFY2011 Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	2012 12 Jan-Mar	Apr-Jun	Org. in charge	Person in Charge	Implementors	Other major inputs: Japanese	Other major inputs: Brazilian	Remarks
Output 2: The information flow of satellite monitoring system througout DPF and IBAMA is improved															DPF/IBAMA	Rafael (DPF) Sano(IBAMA)		JE(RSI/Adm-Ono)		
2.1 Document existing monitoring mechanism throughout DPF and IBAMA.															DPF/IBAMA	Rafael (DPF) George(IBAMA)	Rafael, Daniel, Miranda (DPF) Mariano, Werner (IBAMA)	JE(GIS1-Kawaguchi GIS2/Web-Furuhashi)		
2.1.1 Develop a flow chart on information sharing and transmission system, including the existing INDICAR/SISCOM	The flow chart developed														ditto	ditto	ditto	ditto		
2.2 Identify possible upgrading opportunities in the DPF/IBAMA crime monitoring mechanism.															DPF/IBAMA	Rafael (DPF) George(IBAMA)	Rafael, Daniel, Miranda (DPF) Rodrigo, Werner (IBAMA)	JE(GIS1-Kawaguchi GIS2/Web-Furuhashi)		
2.2.1 Analyze the flow chart developed in Act.2.1	Analytical report prepared														ditto	ditto	ditto	ditto		
2.3 Improve the existing satelite information sharing mechanism of IBAMA at HQ (i.e. INDICAR/SISCOM)															IBAMA	George (IBAMA)	Mariano, Werner, Luis Motta (IBAMA)	JE(GIS-Kawaguchi, RS2/ICT-Nishimura, GIS2/Web-Furuhashi)		
2.3.1 Prepare immediate upgrading plan for INDICAR?SISCOM	A report on upgrading plan developed														ditto	ditto	ditto	ditto		
2.3.2 Implement immediate upgradeing plan	Official version of INDICAR released														ditto	ditto	ditto	ditto		
2.3.3 Implement integration and performance test on the mechanism developed	*Performance report developed														ditto	ditto	ditto	ditto		
2.33 Implement the end-user assessment	Assessment conducted once														ditto	ditto	ditto	ditto		The end-user assessment was conducted after the protocol was released
2.3.4 Excute further upgrading based on the end-user assessment and as appropriate (needed)	Mechanism upgraded														ditto	ditto	ditto	ditto		
2.4 Develop a information sharing mechanism at DPF HQ (i.e. InteliGEO)															DPF	Rafael (DPF)	Rafael, Daniel, Miranda (DPF)	JE(GIS-Kawaguchi, RS2/ICT-Nishimura, GIS2/Web-Furuhashi)		*Information means ALOS/PALSAR images (with high resolution in particular) and Forensic Reports for Act 2.4 *The data server called InteliGEO was developed *Overall Progress: Activities have been delayed due to delay of the delivery of the relevant equipment. The last component was delivered in Oct 2010
2.4.1 Prepare a plan	A report on plan developed														ditto	ditto	ditto	JE (ditto)		

Activities		Expected Results	Schedule													Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009			2010				2011				2012					Japanese	Brazilian	
			JFY2009			JFY2010				JFY2011				12							
			Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun						
2.42	Develop the mechanism based on the plan (2.4.1)	*A report on design developed *Equipment installed according to the design														ditto	ditto	ditto	JE (ditto) Equipment LC for consultant		Protorype of the InteliGEO was developed, utilizing the equipment rented from IBAMA as emergency measure.
2.4.3	Implement integration and performance test on the mechanism developed (i.e. InteliGEO)	Performance report developed														ditto	ditto	ditto	ditto		
2.4.4	Oerationalize the InteliGEO officially	The InteliGEO service launched officially														ditto	ditto	ditto	ditto		
2.4.4	Implement the end-user assessment	Assessment conducted twice			I				II I				II			ditto	ditto	ditto	ditto		Second assessment would be conducted by DPF staff with orientation from Japanese Expert team
2.4.5	Upgrade the InteliGEO based on the assessment	Mechanism upgraded as appropriate														ditto	ditto	ditto	ditto		
2.5	Establish the information flow between DPF and IBAMA HQ (i.e. InteliGEO and INDICAR/SISCOM)															DPF/IBAMA	Rafael (DPF) George(IBAMA)	Rafael, Daniel, Miranda (DPF) Mariano, Werner, Luis Motta (IBAMA)	JE(GIS1-Kawaguchi GIS2/Web-Furuhashi)		
2.5.1	Prepare a plan	A report on plan developed														ditto	ditto	ditto	ditto		
2.5.2	Develop the mechanism based on the above plan (2.5.1)	*A report on design developed *Equipment installed according to the design														ditto	ditto	ditto	ditto		
2.5.3	Implement integration and performance test on the mechanism developed	Performance report developed														ditto	ditto	ditto	ditto		
2.5.4	Operationalize the mechanism officially	Access to INDICAR become possible through InteliGEO														ditto	ditto	ditto	ditto		
2.5.4	Implement the end-user assessment	Assessment conducted twice			I				II							ditto	ditto	ditto	ditto		
2.5.5	Upgrade the mechanism based on the assessment	Mechanism upgraded														ditto	ditto	ditto	ditto		
2.6	Develop an intra-information flow mechanism beteen IBAMA HQ and its Regional Offices															IBAMA	George (IBAMA)	Werner, Mariano, Luis Motta (IBAMA)	JE(GIS-Kawaguchi, RS2/ICT-Nishimura, GIS2/Web-Furuhashi)		*Information means Polygons and ALOS/PALSAR images for Act.2.6 *Web interface for GIS was developed
2.6.1	Prepare a plan	A report on plan developed														ditto	ditto	ditto	ditto		
2.6.2	Develop the mechanism based on the plan (2.6.1)	A report on design developed														ditto	ditto	ditto	ditto		

	Activities	Expected Results	Schedule	Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009 / JFY2009: Jun; Jul-Sep; Oct-Dec — 2010 / JFY2010: Jan-Mar; Apr-Jun; Jul-Sep; Oct-Dec — 2011 / JFY2011: Jan-Mar; Apr-Jun; Jul-Sep; Oct-Dec — 2012 / 12: Jan-Mar; Apr-Jun				Japaese	Brazilian	
2.6.3	Implement integration and performance test on the mechanism developed	Performance report developed		ditto	ditto	ditto	ditto		
2.6.4	Operationalize the mechanism in full-scale	Information transmitted between IBAMA and 9 Amazon State Offices		ditto	ditto	ditto	ditto		Polygons have been made accecible by Regional Offices. As for ALOS/PALSAR images, since internet speed is not as fast as desired, media (Solid State Data Storage: SSD) transref by DHL is being considered as a practical solution
2.6.5	Implement the end-user assessment	Assessment conducted twice	I; II	ditto	ditto	ditto	ditto		
2.6.6	Upgrade the mechanism based on the assessment	Mechanism upgraded		ditto	ditto	ditto	ditto		(Same as Act.2.6.5)
2.7	Develop an intra-information flow mechanism beteen DPF HQ and its Regional Offices			DPF	Rafael (DPF)	Rafael, Daniel, Miranda (DPF)	JE(GIS-Kawaguchi, RS2/ICT-Nishimura, GIS2/Web-Furuhashi)		*Informationfor Act.2.7 means ALOS/PALSAR images * Web interface for GIS is to be developed *Activities have been delayed due to delay of the delivery of the relevant equipment for InteliGEO (See Act.2.4)
2.7.1	Prepare a plan	A report on plan developed		ditto	ditto	ditto	ditto		
2.7.2	Develop the mechanism based on the plan (2.7.1)	A report on design developed Equipment installed based on the design		ditto	ditto	ditto	ditto		
2.7.3	Implement integration and performance test on the mechanism developed	Performance report developed		ditto	ditto	ditto	ditto		
2.7.4	Operationalize the mechanism in full-scale	Information transmitted between InteliGEO and 9 Amazon State Offices		ditto	ditto	ditto	ditto		Since internet speed is not as fast as desired in Regional Offices for transmission of ALOS/PALSAR images, media transref by DHL is being considered as a practical solution
2.7.5	Implement the end-user assessment	Assessment conducted twice	I; II; I; II	ditto	ditto	ditto	ditto		Second assessment would be conducted by DPF staff with orientation from Japanese Expert team
2.7.6	Upgrade the mechanism based on assessment	Mechanism upgraded		ditto	ditto	ditto	ditto		(Same as Act.2.7.4)

Activities		Expected Results	Schedule: 2009 JFY2009 Jun; Jul-Sep; Oct-Dec; Jan-Mar	2010 JFY2010 Apr-Jun; Jul-Sep; Oct-Dec; Jan-Mar	2011 JFY2011 Apr-Jun; Jul-Sep; Oct-Dec; Jan-Mar	2012 12 Apr-Jun	Org. in charge	Person in Charge	Implementors	Other major inputs: Japaese	Other major inputs: Brazilian	Remarks
Output 3: Human resources in DPF and IBAMA are upskilled to detect and characterize illegal deforestation							IBAMA/ DPF	Sano (IBAMA)/Rafael (DPF)		JE(RSI/Adm-Ono)		
3.1	Assess training needs to monitor and characterize illegal deforestation in DPF/IBAMA..						IBAMA	Humberto (IBAMA)	Rodrigo, Werner, Rafael, Daniel, Felipe (IBAMA) Rafael, Magliano (DPF)	JE(RSI/Adm-Ono, GIS1-Kawaguchi, GIS2/Web-Furuhahsi)		
3.2	Determine the training plans						IBAMA/ DPF	Rafael (IBAMA)/Rafael (DPF)	Rodrigo, Werner, Rafael, Daniel (IBAMA) Rafael, Russo, Diogo, Luciano, Garcia (DPF)	ditto		
3.2.1	Develop training plan Basic Course for those who do not have technical background using ALOS/PALSAR images, including curriculm and materialsl, including curriculm and materials	Three GIS and RS courses planned/updated	I	II	III		IBAMA	Rafael (IBAMA)	Rodrigo, Werner, Rafael, Humberto, Daniel (IBAMA)	ditto		Initial courses would be developed based on the needs identified in 3.1. The successors would be developed based on the feedbacks from training M&E&(Activity 3.4)
3.2.2	Develop training plan for Advanced Course for those who have technical background using ALOS/PALSAR images, including curriculm and materials	Two GIS and RS courses planned/updated	I	II			IBAMA	ditto	ditto	ditto		
3.2.3	Develop training plan for Basic Course specifically for DPF Forensic Experts to produce Forensic Reports, including curriculm and materials	One GIS and RS courses planned			I		DPF	Rafael (DPF)	Rafael, Russo, Diogo, Luciano, Garcia (DPF)	ditto		Basic course for DPF would be developed, utilizing the curriculum and texts of 3.2.1
3.3	Execute the training plans.						IBAMA/ DPF	Rafael (IBAMA)/Rafael(DPF)	Rodrigo, Werner, Rafael, Daniel (IBAMA) Rafael, Russo, Diogo, Luciano, Garcia (DPF)	ditto		
3.3.1	Execute Basic course for IBAMA and DPF (by IBAMA)	Three courses implemented	I	II	III		ditto	ditto	Rodrigo, Werner, Rafael (IBAMA)	ditto	Training cost	
3.3.2	Execute Advanced course for IBAMA and DPF (by IBAMA)	Two courses implemented	I	II			ditto	ditto	ditto	ditto	ditto	
3.3.3	Execute Basic course for DPF (by DPF)	On course implemented			I		DPF	Rafael (DPF)	Rafael, Russo, Diogo, Luciano, Garcia (DPF)	ditto	ditto	

ANNEX 3 PO

	Activities	Expected Results	Schedule														Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009			2010				2011				2012								
			JFY2009			JFY2010				JFY2011				12								
			Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun					Japaese	Brazilian	
3.4	Monitor/Evaluate/Upgrade the trainings.																IBAMA/ DPF	Rafael(IBAMA)/Rafael(DPF)	Rodrigo, Werner, Rafael, Daniel (IBAMA) Rafael, Russo, Diogo, Luciano, Garcia (DPF)	JE(RSI/Adm-Ono)		
3.4.1	Monitor the trainings through questionnnares at the end of each course																ditto	ditto	ditto	ditto		
a	Basic course in Brazil (IBAMA)	Results compiled within (time)		I				II				III					IBAMA	Rafael (IBAMA)	Rodrigo, Werner, Rafael, Daniel (IBAMA)	ditto		
b	Advanced course in Brazil (IBAMA)	ditto				I				II							IBAMA	ditto	ditto	ditto		
c	Basic course in Brazil (DPF)	ditto										I					DPF	Rafael (DPF)	ditto			
3.4.2	Evaluate the trainings																IBAMA/ DPF	Rodrigo (IBAMA)/Rafael(DPF)	Same as 3.4	ditto		
a	Basic course in Brazil (IBAMA)	Evaluationl report with suggestions developed						I	II			III					IBAMA	Rodorigo (IBAMA)	Rodrigo, Werner, Rafael,, Daniel (IBAMA)	ditto		
b	Advanced course in Brazil (IBAMA)	ditto							I		II						IBAMA	ditto	ditto	ditto		
c	Basic course in Brazil (DPF)	ditto										I					DPF	Rafael (DPF)	Rafael, Russo, Diogo, Luciano, Garcia (DPF)			
3.4.3	Upgrade the trainings based on the results of Monitoring and Evaluation and other Project Activities																IBAMA/ DPF	Rafael (IBAMA)/Rafael(DPF)	Same as 3.4	ditto		
a	Basic course in Brazil (IBAMA)	The courses upgrade as needed															IBAMA	Rafael (IBAMA)	Rodrigo, Werner, Rafael, Daniel (IBAMA)	ditto		
b	Advanced course in Brazil (IBAMA)	ditto															ditto	ditto	ditto	ditto		

ANNEX 3 PO

	Activities	Expected Results	Schedule	Org. in charge	Person in Charge	Implementors	Other major inputs		Remarks
			2009 JFY2009 Jun / Jul-Sep				Japanese	Brazilian	
			Oct-Dec / Jan-Mar						
			2010 JFY2010 Apr-Jun / Jul-Sep						
			Oct-Dec / Jan-Mar						
			2011 JFY2011 Apr-Jun / Jul-Sep						
			Oct-Dec / Jan-Mar						
			2012 12 Apr-Jun						
0	Activities related to project management and public relations			DPF/IBAMA	Magliano(DPF)/George (IBAMA)		JE(RSI/Adm-Ono)		
0.1	Organize a Joint Coordination Committee (JCC)	*JCC organized at least once ayear *M/M signed		ditto	ditto	DPF staff &CSR Satff	JE(RSI/Adm-Ono) Local sraff (August)		Actions for the raised issues., deadline, responsible person(s) would be included in the M/M
0.2	Prepare Annual PO for approval by JCC	*Draft prepared before JCC		ditto	ditto	ditto	ditto		Integrated APO for the Project is presented to JCC
0.5	Prepare Semi-annual Reports for submittion to JICA	*Semi-annual reports submitted to JICA without delay		dito	ditto	ditto	ditto		Semi-annual progress of APO/Indicators, issues&actions, plan for the next semester, progress made on the recommendation of the Mid-term Review,,etc. included
0.6	Organize Project Executive Meetings (Project Director, JCC Chairman, Project Managers of IBAMA/DPF and Expert team)			ditto	ditto	ditto	ditto		Semi-annual report presented & discussed
0.3	Prepare Annual Reports for review by JCC	*Draft prepared before JCC		ditto	ditto	ditto	ditto		Progress of Indicators&annual PO, issues &actions, progress on the Recommendations of the Mid-term Review, etc. are included Annual PO for the next year is attached
0.4	Prepare a Terminal Reporfor review by the final JCC	*Draft prpared before the final JCC		ditto	ditto	ditto	ditto		Progress of Indicators&DPO, issues& post-project strategies, progress on the reccomendation of the Final Evaluation etc. are included
0.7	Organize internal Meetings periodically				ditto	ditto	JE(RSI/Adm-Ono)		
a	Meeting between DPF & IBAMA	Montly meeting held		IBAMA	Magliano (DPF)/George (IBAMA)	ditto	All experts in Brazil		Progress &plans, issues & actions discussed.
b	Meeting between DPF & Japanese Experts	Weekly meeting held when J/E are in Brazil		IBAMA	Magliano(DPF)	ditto	ditto		Progress of the perevious week, plan for the week , issues&actions discussed
c	Meeting between IBAMA & Japanese Experts	ditto		DPF	George (IBAMA)	ditto	ditto		ditto
0.8	Monitor the achievement of the Indicators	Information collected and organized periodically		ditto	Magliano(DPF)/Rodrigo (IBAMA)	ditto	JE(RSI/Adm-Ono)		
0.9	Facilitate conclusion of Termo de Cooperacao Tecnica (DPF/IBAMA)	Conclusion facilitated		ditto	Magliano(DPF)/George (IBAMA)	ditto	JE(RSI/Adm-Ono)		
0.10	Prepare for Joint Evaluation	*Necessry data is made available to the Mission		ditto	ditto	ditto	JE(RSI/Adm-Ono)		
0.11	Follow-up the Recommedations of the Evaluation	All the recommendations implemented		ditto	ditto	ditto	JE(RSI/Adm-Ono)		
0.12	Organize project seminars	4 Seminars held		ditto	ditto	ditto	JE(RSI/Adm-Ono)		

Annex 1 PDM for Evaluation based on PDM 2 attached to the R/D

1. **Project Name** : The Project for utilization of ALOS images to support the protection of the Brazilian Amazon Forest and combat against illegal deforestation
2. **Project site**: Brasilia
3. **Duration**: From ~~February~~ June 2009to ~~February~~ June 2012 (three years)
4. **Target Beneficiaries**: ~~Staff~~ Forensic Experts of Federal Police Department (DPF) and Environmental Analysts of Brazilian Institute for the Environment and Renewable Nature Resources (IBAMA)
5. **Target Area**: Brazilian Amazon (i.e. 9 Legal Amazon States: Acre, Amapa, Amazonas, Maranhao, Mato Grosso, Para, Rondonia, Roraima, Tocantins)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Law enforcement is enhanced ground on technical information based on satellite images on illegal deforestation	a:Number of law enforcement actions using monitoring documents produced in the month of cloud cover is increased (Note: The Indicator for the Overall Goal would be discussed and clarified by the Project in the first semester of 2011)	a. Reports by IBAMA and DPF	A: There is no particular change in government policies on protection of Brazilian forest
Project Purpose Technical information based on ALOS(*1)/PALSAR(*2) images on illegal deforestation in the Brazilian Amazon is provided for law enforcement	a: ~~The time of detection of the new deforestation is reduced.~~ a: By the Project end, deforestation areas are detected within 3 working days after receiving the ScanSAR (*3)images of ALOS/PALSAR by IBAMA. b: By the Project end, the location and size of the detected deforestation areas (i.e. Deforestation Polygons) are provided to the relevant IBAMA regional offices within 2 working days after their detection ~~b: Number of documents (A4 and forensic reports) produced by DPF and IBAMA using ALOS/PALSAR images is increased~~ c: By the Project end, ALOS/PALSAR images (mainly high-resolution ones), are utilized/referred to in 60 Forensic Reports(*4) produced by DPF per year	a&b: Comparison of the record of concerned dates kept by IBAMA c: Review of Forensic Reports	A: Budgets and staffs for law enforcement do not decrease drastically
Output 1: Deforestation areas including suspicious areas are detected using ALOS/PALSAR data	~~1a: Number of ALOS/PALSAR images in SISCOM is increased (per month)~~ 1a: Useless multi-temporal combination of ScanSAR images of ALOS/PALSAR becomes zero by the end of 2009. ~~1b: Methodology for deforestation detection is spread throughout technical manual~~ 1b: Methodologies to extract deforestation information from ScanSAR images of ALOS/PALSAR developed by the Project, including Interpretation guide, forest classification tool, and change detection tool by the end of 2009; and updated by March 2011 1c: Initial version of the technical manuals for IBAMA and DPF for utilization of ALOS/PALSAR images in detection of deforestation areas and preparation of Forensic Reports respectively are developed/approved by March 2011 (in English and Portuguese) 1d: The initial version of the technical manual for IBAMA is uploaded to SISCOM (*5)for the use of Environmental Analysts and the one for DPF is uploaded to InteliGEO(*6) for the use of Forensic Experts by April 2011. 1e: The initial version of the technical manuals for IBAMA and DPF are updated by March 2012 1f: The updated manuals are uploaded to SISCOM and InteliGEO respectively by April 2012 ~~1c: Number of products (maps, tools, articles, reports, etc) developed to detect deforestation using ALOS/PALSAR images is increased~~	1a: Review of error report produced by IBAMA 1b: Review of the developed tools &progress reports 1c&e: Review of technical manuals & date of approval of each manual by the Project Manager of DPF and IBAMA respectively 1d&f: Review of the uploaded dates recorded in SISCOM and InteliGEO	A: There is no significant organizational change in DPF and /or IBAMA affecting implementation of the Project B: Budgets for satellite monitoring of DPF and/or IBAMA do not decrease drastically
Output 2: The information flow of satellite monitoring system throughout DPF and IBAMA is improved	~~2a: Utilization of ALOS/PALSAR images is increased in DPF and IBAMA~~ 2a: Information sharing mechanism of DPF developed by the Project (i.e. InteliGEO) is made available to all the Forensic Experts in Brazil by December 2009 2b: By the Project end, 100% of Forensic Reports produced by DPF Forensic Experts, utilizing/referring to ALOS/PALSAR images (mainly high-resolution ones), are made available in InteliGEO for other Experts within one week after the completion 2c: By the Project end, access to INDICAR(*7)/SISCOM of IBAMA becomes at least one from each of the 9 Legal Amazon States per cycle of ALOS operation (i.e. 46 days) ~~2b:Number of feedback from DPF and IBAMA regional offices is increased~~ 2d: Semi-annual access to InteliGEO of DPF is increased by 5 % in relation to the previous semester.	2a:Record of the release date 2b:Check that all Forensic Reports in Criminalistica uploaded in InteliGEO, and the ones that are not more than a week old 2c: Record of access to INDICAR 2d: Record of access to InteliGEO	

Annex 1 PDM for Evaluation based on PDM 2 attached to the R/D

	2e: By the Project end, 90 % of the results of visits of the deforestation areas detected by INDICAR/SISCOM & ALOS/PALSAR (i.e. Deforestation Polygons) are fed back to IBAMA HQ per cycle of ALOS operation	2e::Record of feedbacks registered in the Target Registration System to be developed at IBAMA	
Output 3: Human resources in DPF and IBAMA are upskilled to detect and characterize illegal deforestation	~~3a: Number of staff in DPF and IBAMA using ALOS/PALSAR images is increased~~ ~~3b: 12 staff in DPF and IBAMA participated in the advanced training course in Japan~~ 3a: Basic and advanced courses for IBAMA and DPF for the general use of ALOS/PALSAR images, including curriculum and textbooks, are developed by September 2009 3b: Basic course specifically for the use of DPF Forensic Experts to produce Forensic Reports are developed by December 2011. 3c: ~~100 staff members participate in the training courses in Brazil~~ By the Project end, 70 staff members (30 Forensic Experts of DPF and 40 Environmental Analysts of IBAMA) receive official training certificates for the use of ALOS/PALSAR images from IBAMA or DPF 3d: On average, 80% of the trainees give the highest or medium rate on three-level rating about "degree of understanding" and "degree of applicability" of the concerned trainings 3e: The training courses are updated based on the feedbacks from the trainees, including the results of monitoring and evaluation of the trainings, and other Project Activities	3a: Project report &curriculum and textbooks developed 3b: ditto 3c: List of trainees 3d: Results of the questionnaires to the trainees 3e:Analytical report of training	

Activities	**Inputs**	
1.1 Convert ALOS/PALSAR data format to fit into INDICAR/SISCOM 1.2 Develop methodologies to extract deforestation information from ALOS/PALSAR images. 1.3 Identify potential deforestation areas using ALOS/PALSAR images and other available geographic information 1.4 Develop technical manuals for DPF and IBAMA for utilization of ALOS images based on the results of the Activities 1.1-1.3 2.1 Document existing monitoring mechanism 2.2 Identify possible upgrading opportunities in the DPF/IBAMA deforestation monitoring mechanism ~~2.3 Determine the upgraded mechanism~~ ~~2.4 Execute the plan determined in 2.3~~ 2.3 Improve the existing satellite information sharing mechanism of IBAMA HQ (i.e. INDICAR/SISCOM) 2.4 Develop an information sharing mechanism at DPF HQ (i.e. InteliGEO) 2.5 Establish an information flow between IBAMA and DPF HQs 2.6 Develop an intra-information flow mechanism between IBAMA HQ and its regional offices 2.7 Develop an intra-information flow mechanism between DPF HQ and its regional offices 3.1 Assess training needs to monitor and characterize illegal deforestation in DPF/IBAMA 3.2 Determine the training plan 3.3 Execute the training plan 3.4 Monitor/evaluate/upgrade the trainings	**<Brazilian Side>** (1) ~~Counterparts~~ Project & Administrative personnel ● Project Director ● Project Manager(s) ● Other project ~~counterparts~~ and administrative personnel (2) Office Spaces and Facilities ● Office space in IBAMA ● Other facilities necessary for the implementation of the Project (3) Administration and operational costs **<Japanese Side>** (1) Experts ● Remote Sensing/Administrative Coordination ● Information and Communication Technology ● Web-programming, GIS ● Other Experts necessary for the Project (2) Training of Brazilian personnel in Japan (3) Machinery and Equipment ● ALOS images, software, servers, storages ● Other materials necessary for the implementation of the Project	A:Main ~~counterparts~~ Project Personnel are not transferred to other departments and/or agencies **Pre-Conditions** A: ALOS/PALSAR images (i.e. ScanSAR images) are provided by Japan Aerospace Exploration Agency (JAXA) based on the Agreement on Cooperation between JAXA and IBAMA B: DPF and IBAMA conclude an agreement on the joint implementation of the project

(*1) ALOS: Advanced Land Observing Satellite launched by JAXA
(*2) PALSAR: Phased Array Type L-Band Synthetic Aperture Radar (*3) ScanSAR: Scan Synthetic Aperture Radar
(*4) Forensic Report: Technical document produced by DPF Forensic Experts that aims to establish whether a crime has happened, how it happened, and who committed it. This document is used in criminal prosecutions.
(*5) SISCOM: Environmental information sharing mechanism of IBAMA
(*6) InteliGEO: Information sharing mechanism of DPF being developed by the Project under Output 2 (*7) INDICAR: Indicator of Deforestation for Radar Images.