Documento do Banco Interamericano de Desenvolvimento

**BRASIL**

**PROGRAMA DE DESENVOLVIMENTO SUSTENTÁVEL DO ACRE**

**BR-L 1289**

**Plano de Monitoramento e Avaliação**

**Observation: This plan is partially written in Portuguese (Monitoring of Execution and English (Evaluation). The consultants are working to turn everything into Portuguese**

**Documento elaborado por**: Patricia Nardelli (consultora), Vera Bazanella (consultora), e Eirivelthon Lima (INE/RND)

**INDICE**

1. **Introdução**
2. **Monitoramento**
3. Indicadores
4. Recopilação de dados e instrumentos
5. Apresentação de relatórios
6. Coordenação, plano de trabalho e orçamento para o monitoramento
7. Plano de trabalho do monitoramento
8. **Avaliação**
	1. Principais perguntas de avaliação
	2. Conhecimento existente (avaliações prévias, análise econômica ex-ante)
	3. Principais indicadores de efeitos diretos
	4. Metodologia da avaliação
	5. Aspectos técnicos da metodologia selecionada
	6. Informação dos resultados
	7. Coordenação, plano de trabalho e orçamento da avaliação

**SIGLAS E ABREVIAÇÕES**

BID Banco Interamericano de Desenvolvimento

CEMACT Conselho Estadual de Meio Ambiente, de Ciência e Tecnologia

CONAMA Conselho Nacional de Meio Ambiente

DERACRE Departamento de Estradas de Rodagens, Hidrovia e Infraestrutura Portuária do Acre

DOE Diário Oficial do Estado do Acre

EFAS Estados Financeiros Auditados

FUNTAC Fundação de Tecnologia do Acre

IDM Instituto Estadual de Desenvolvimento de Educação Profissional Dom Moacir Grechi

IMAC Instituto de Meio Ambiente do ACRE

ITERACRE Instituto de Terras do Acre

ITP (PCR) Relatório de Término de Projeto

LRR Relatório de Revisão do Empréstimo

MR Matriz de Resultados

OE Organismo Executor

PA Plano de Aquisição

PEP Plano de Execução Plurianual

PMR Relatório de Monitoramento de Progresso

POA Plano Operativo Anual

SEIAM Sistema Estadual de Informação Ambiental

SEAPROF Secretaria de Estado de Extensão Agroflorestal e Produção Familiar

SEDENS Secretaria de Estado de Desenvolvimento Florestal, da Indústria, do Comércio e dos Serviços Sustentáveis

SEMA Secretaria de Estado de Meio Ambiente

ZEE Zona Especial de Produção

1. **INTRODUÇÃO**
	1. O objetivo geral do Programa é aumentar a contribuição do setor florestal para o crescimento econômico e redução da pobreza no Estado do Acre, mantendo o desmatamento sob controle. O Programa foi estruturado em três (3) componentes, sendo estes: (i) Gestão Sustentável das Florestas Públicas e Comunitárias; (ii) Promoção de Cadeias Agroflorestais Sustentáveis; e (iii) Fortalecimento da Capacidade Institucional, para a gestão florestal sustentável.

1.3 O Organismo Executor será a Secretaria de Estado de Planejamento do Estado do Acre (SEPLAN), por meio da Unidade de Coordenação do Programa (UCP), vinculada diretamente ao Gabinete do Secretário. A SEPLAN contará com o apoio dos diversos órgãos da administração estadual envolvidos com a execução das ações previstas, como titulares destas, e que atuarão como subexecutores. A SEPLAN optou por uma execução operacional centralizada. Os órgãos estaduais subexecutores são: Secretaria de Estado de Desenvolvimento Florestal, da Indústria, do Comércio e dos Serviços Sustentáveis (SEDENS); Secretaria de Estado de Meio Ambiente (SEMA); Instituto de Terras do Acre (ITERACRE); Fundação de Tecnologia do Acre (FUNTAC); Departamento de Estradas de Rodagens, Hidrovia e Infraestrutura Portuária do Acre (DERACRE); Instituto Estadual de Desenvolvimento de Educação Profissional Dom Moacir Grechi (IDM); Instituto de Meio Ambiente do ACRE (IMAC); e Secretaria de Estado de Extensão Agroflorestal e Produção Familiar (SEAPROF).

* 1. O Programa conta com um Plano de Monitoramento e Avaliação (PM&A) para verificar o alcance dos resultados e o cumprimento das metas propostas na Matriz de Resultados (MR). O organismo executor, por meio da UCP, terá a responsabilidade de gerar e manter a informação requerida para monitorar os indicadores de produtos e resultados. Este documento apresenta os principais aspectos do monitoramento e da avaliação de impacto do Programa. Na seção II está descrito o plano de monitoramento ou seguimento onde se apresentam os indicadores de produto, se descrevem os relatórios principais, o plano de trabalho e o orçamento. Na seção III, que corresponde à parte de avaliação de impacto de impacto está descrita a a lógica da intervenção e as hipóteses principais que se quer analisar con a avaliação, os indicadores de impacto e resultados, a metodologia de avaliação de impacto, o desenho de grupos de controle e estratégia de amostra, a descrição do instrumento de busca de informação e a estratégia de coleta de dados, a apresentação de resultados e o orçamento para a avaliação com seu respectivo calendário de atividades.
	2. Os elementos essenciais do plano de monitoramento e avaliação deste Programa serão: (i) o monitoramento contínuo dos indicadores definidos na Matriz de Resultados (MR) [[1]](#footnote-1), de acordo com as atividades, produtos e resultados previstos no programa, e com base na informação gerada na Unidade Coordenadora do Programa (UCP)/SEPLAN; e (ii) a avaliação do programa, que será realizada por meio de uma avaliação de meio termo e de uma avaliação de impactos.
1. **MONITORAMENTO**
2. **Indicadores**
	1. Os indicadores a serem utilizados para o monitoramento do Programa, e que integrarão o respectivo Relatório de Monitoramento, encontram-se detalhados na Matriz de Resultados. Na tabela 1-1 estão os indicadores de produtos (bens e serviços) de maior relevância, que a Matriz de Resultado apresenta em detalhe.

**TABELA 1-1**

**INDICADORES DE MONITORAMENTO**

|  |  |  |  |
| --- | --- | --- | --- |
| Indicador | Fórmula | Frequência da medição | Fonte de verificação |
| **Indicadores de Efeitos Diretos** |
| Outcome # 1.1 |
| 1.1.1 Hectares of “State Public Forests” ready to be auctioned for the private sector (long-term assurance of timber supply) | N/A | Year 3 to 5 | The monitoring system will track and report information about the “Advertisement of the Forest Concession Areas” and “Invitation for Expression of Interest” published in the DOE; |
| Outcome # 1.2 |
| 1.2.1 Revenue raised from the “State Public Forest Concessions (R$ million)” | N/A | Year 3 to 5 | The monitoring system will track and report information about “Forest Concessions Contract” published in the DOE; |
| Outcome # 1.3 |
| 1.3.1. Hectares of forests from rural producers approved and authorized for sustainable forest production; | N/A | Year 2 to 5 | The monitoring system will track and report information about the number of hectares are approved and authorized for sustainable production -- reports from SEAIM/IMAC; |
| 1.3.2. Number of contracts between forestry companies and organizations of rural producers (beneficiaries of the value chain development grant) for sustainable forest management; | N/A | Year 2 to 5 | The monitoring system will track and report information about timber sales contracts signed between forest companies and organizations of producers receiving financial support (contractual condition between the PCU and beneficiaries to report the results achieved); |
| Outcome # 2.1 |
| 2.1.1 Number of contracts by new businesses to procure forest and agroforestry commodities from beneficiary producers; | N/A | Year 3 to 5 | The monitoring system will track and report information about contracts to procure forest and agroforestry commodities from the beneficiaries producers; |
| Outcome # 2.2 |
| 2.2.1 Number of new rural producers (households) entering into sustainable agroforestry value chains; | N/A | Year 2 to 5 | The monitoring system will track and report information about the beneficiaries participating in business plans executed, disaggregated by gender, income, and ethnicity.  |
| Outcome # 2.3 |
| 2.3.1. Number of hectares contracted (medium and large landholders) by the private equity fund (*Fundo de Investimento em Participações* – FIP) | N/A | Year 3 to 5 | The monitoring system will track and report information about the number of hectares that will contracted under the FIP; |
| Outcome # 3.1 |
| 3.1.1 # hectares of state forests properly managed by SEDENS; | N/A | Year 3 to 5 | The monitoring system will track and report information about the compliance with the management plans for the protected areas + the forest concessions contracts with private sector (logging companies). This information will come from annual report from SEDENS and compliance statements from IMAC based on the approved forest management plans and annual operating plans in accordance with State Law # 1426/01 and Federal Law # 11284/06, CONAMA 406/09 and CEMACT 003/08; |
| * + 1. Average processing time (days) to issue final environment permit/license by IMAC
 | N/A | Year 2 | The monitoring system will track and report information about the time taken to approve the environmental licenses; |
| 3.1.3 ITERACRE’s capacity to regularize open access forest land (ha/year) | N/A | Year 2 | The monitoring system will track and report information about ITERACRE annual reports of its progress in regularization of public forest lands, unclaimed public lands, is in compliance with: Federal Law # 9636/1998; Federal Decree # 3725/2001; State Laws #: 1373/2001; 1382/2001; and 1904/2007; |
| Outcome # 3.2 |
| * + 1. # types of licensing issued by IMAC at UGAI and regional offices
 | N/A | Year 1, 3 | Program’s monitoring systems; IMAC ruling (Portaria) issued; SEIAM reports according to State Law 2156/2009  |
| * + 1. Number of rural properties per year in process of receiving environmental license (LAR) according to Forest Code
 | N/A | Annual | The monitoring system will track and report information about the number of rural properties in process of receiving environmental license. The source of information are annual reports issued IMAC/ SEIAM; |
| Outcome # 3.3 |
| 3.3.1 Number of government institutions able to monitor and report performance against previously agreed performance targets; | N/A | Year 2 | The monitoring system will track and report information about the number of government institutions able to monitor and report performance against previously agreed targets; |
| **Indicadores de Produtos – Componente 1** |
| Output # 1.1 |
| 1.1.1 Sets of Regulations for the Forest Concessions to guarantee reliable access to forest resources enacted. | N/A | Year 1 | The monitoring system will track and report information about the updating of the State Forest Law and its associated regulations published in the DOE; |
| 1.1.2 Number of packages of tender documentation for forest concessions. | N/A | Annual | The monitoring system will track and report information about the “Advertisement of the Forest Concession Areas” and “Invitation for Expression of Interest” published in the DOE; |
| 1.1.3 Number of management system to supervise, monitor, and audit the forest concessions. | N/A | Annual | The monitoring system will track and report information about the “Operating Manual of the System approved”; |
| Output # 1.2 |
| 1.2.1 Hectares of public land for “State Forests” with tenure cleared | N/A | Annual | The monitoring system will track and report information about the State Laws creating the new “State Forests” published in the DOE; |
| 1.2.2 Number of management plans approved for state forests | N/A | Annual | The monitoring system will track and report information about “Ruling” approving the Management Plans of the State Forests published in the DOE; |
| 1.2.3 Hectares of state forests under process of concessions | N/A | Annual | The monitoring system will track and report information about the “Advertisement of the Forest Concession Areas” and “Invitation for Expression of Interest” published in the DOE; |
| Output #1.3 |
| 1.3.1 Number of producers organizations strengthened/created for smallholders and traditional communities. | N/A | Annual | Monitoring system of the program. Specifically, a report with: (1) accounting for the signed contracts of technical assistance; (2) technical reports of the hired firms; (3) assessments of the beneficiaries producers organizations regarding capacity building services received; |
| 1.3.2 Number of producers receiving technical assistance regarding sustainable forestry, markets for forest products, and contract negotiation. | N/A | Annual |
| 1.3.3 Number of business plans submitted by producers organizations approved to access markets for sustainable forest products. | N/A | Annual | Monitoring system of the program. Specifically, a report with: (1) call for proposal published in the DOE; (2) signed contracts between Producers Organization and UCP; (3) technical and financial auditing; |
| Output #1.4 |
| 1.4.1 Km of secondary roads rehabilitated to reduce transportation costs. | N/A | Annual | Monitoring system of the program. |
| 1.4.2 Km of resource roads to support sustainable community forest production. | N/A | Annual | Monitoring system of the program. |
| Output #1.5 |
| 1.5.1 Number of service providers and professionals trained and evaluated. | N/A | Annual | Monitoring reports form UCP, including signed contracts from provider of technical level training; and technical report with: (i) course work; (ii) admissions (class profiles); and (iii) attendance and evaluation |
| Output #1.6 |
| 1.6.1 Number of communities of smallholders and traditional trained. | N/A | Annual | Monitoring reports form UCP, including signed contracts from provider of technical level training; and technical report with: (i) course work; (ii) admissions (class profiles); and (iii) attendance and evaluation |
| **Indicadores de Produtos – Componente 2** |
| Output #2.1 |
| 2.1.1 Marketing strategy and short campaigns to generate leads and opportunities for forestry and agroforestry value chains. | N/A | Annual | Monitoring system of the program; |
| 2.1.2 Prospective Business Plans. | N/A | Annual | Monitoring system of the program; |
| 2.1.3 Participation in major events related the agroforestry and forestry value chains in key markets. | N/A | Annual | Monitoring system of the program; |
| Output #2.2 |
| 2.2.1 Studies to identify the bottlenecks to streamline legislation and regulation to minimize regulatory costs and provide investment certainty in the PPPs. | N/A | Annual | Monitoring system of the program; |
| Output #2.3 |
| 2.3.1 ATER Network trainers trained, evaluated and “authorized”. | N/A | Annual | Monitoring system of the program; |
| Output #2.4 |
| 2.4.1 Number of smallholders and traditional communities receiving technical assistance and capacity building to submit and execute the business plans. | N/A | Annual | Monitoring system of the program; |
| Output #2.5 |
| 2.5.1 Number of business plans (collective proposals) to support the participation of smallholders in the sustainable value chains approved and delivered to the producers organizations. | N/A | Annual | Monitoring system of the program; |
| Output #2.6 |
| 2.6.1 Investments mobilized in the Private Equity Fund ($MM) | N/A | Annual | Monitoring system of the program; |
| **Indicadores de Produtos – Componente 3** |
| Output #3.1 |
| 3.1.1 Number of strategic plans developed and implemented with institutional objectives, goals, targets and performance indicators for 5 agencies. | N/A | Year 1 - 2 | Monitoring system of the program; |
| Output #3.2 |
| 3.2.1 Number information systems designed, implemented, and integrated databases to SEIAM. | N/A | Year 2 - 3 | Monitoring system of the program; |
| Output #3.3 |
| 3.3.1 Number of decentralized units (UGAI) for environmental and forest management providing at least one public service. | N/A | Year 2 – 3 – 5 | Official documents creating the UGAIs; Monitoring reports from SEMA; SEDENS; ITERACRE |
| 3.3.2 Number of regional offices from IMAC modernized and providing at least one type of service. | N/A | Year 2 – 3 – 4 | Reports from the UCP; SEIAM reports SEMA; IMAC |
| 3.3.3 Number of ATER regional offices modernized and providing rural extension services (SEAPROF). | N/A | Year 2 – 3 – 5 | Reports from the UCP; Monitoring reports SEAPROF |
| Output #3.4 |
| 3.4.1 Number of government institutions with organizational structures revised and internal regiments approved (SEDENS; IMAC; ITERACRE; SEAPROF) | N/A | Year 1 | Official approval of the internal by-laws published in the DOE |
| 3.4.2 Number of government agencies with rationalized and normalized operational processes and procedures (1) (SEDENS, SEMA, IMAC, SEAPROF & ITERACRE) | N/A | Year 1 | Monitoring system of the program**Observations:** Include licensing; permits; concessions; cadastres, regularizations; administrative processing, internal manuals etc.); |
| 3.4.3 % internal units in 5 institutions (SEDENS, IMAC, ITERACRE, SEMA, SEAPROF) modernized and equipped to perform their functions (R1, R2, R3) | N/A | Year 1- 2 | Annual monitoring reports from government agencies; Periodic monitoring reports from the UCP |
| Output #3.5 |
| 3.5.1 Forest Law updated | N/A | Year 1 | Law, regulations and norms published in the DOE |
| Output #3.6 |
| 3.6.1 Number of technical staff recruited - SEDENS – IMAC - ITERACRE | N/A | Year 1-2-3 | Annual monitoring reports from government agencies; Periodic monitoring reports from the UCPMonitoring reports form UCP, including signed contracts from provider of technical level training; and technical report with: (i) course work; (ii) admissions (class profiles); (iii) and attendance and students evaluation |
| 3.6.2 Number of technical staff developed and trained. | N/A | Annual |

1. **Dados e Instrumentos**
	1. Os dados para o monitoramento dos indicadores de produto serão extraídos das fontes citadas na tabela 1-1 e dos relatórios semestrais de progresso. Os indicadores de efeitos diretos serão obtidos dos relatórios das avaliações de meio termo e final do Programa.
2. **Relatórios e Instrumentos de Monitoramento do Programa**
	1. Os seguintes mecanismos e instrumentos serão utilizados para informar os resultados da execução do Programa e do seu monitoramento, sendo as fontes de informação para o PMR.
3. ***Relatórios Semestrais de Progresso***. Tem a finalidade de apresentar ao Banco os resultados alcançados na execução do POA[[2]](#footnote-2), do Plano de Aquisições[[3]](#footnote-3) (PA) e da Matriz de Resultados (MR), com relação ao programado. O relatório de progresso do segundo semestre de cada ano apresentará a síntese dos riscos identificados para o Programa[[4]](#footnote-4). Será apresentada, ainda, uma consolidação das lições aprendidas, conclusões e recomendações, para a retroalimentação da gestão do programa. Esses relatórios deverão ser apresentados no prazo máximo de trinta (30) dias após o término do semestre correspondente. Com base nesses relatórios, serão realizadas reuniões de avaliação conjunta entre o órgão executor (SEPLAN) e o Banco, dentro dos 60 dias seguintes à sua apresentação.
4. ***Estados Financeiros Auditados (EFAs),*** que o Órgão Executor (OE), apresentará ao Banco, dentro do prazo de cento e vinte (120) dias após a data de fechamento do exercício financeiro e durante o prazo estabelecido para desembolso do financiamento, devidamente auditados por uma firma de auditoria independente aceita pelo Banco. O último desses relatórios será apresentado dentro dos cento e vinte (120) dias seguintes à data estabelecida para o último desembolso do financiamento. Assim, durante todo o prazo de desembolso do financiamento e até os sessenta (60) dias seguintes após o encerramento de cada semestre, o Órgão Executor apresentará ao Banco os relatórios financeiros auditados sobre as atividades financiadas no semestre anterior.
5. ***Relatórios Semestrais de Revisão Ex- post de aquisições e desembolsos***. A revisão ex- post das aquisições consiste na verificação *in situ* de uma amostra de processos de contratação para determinar se o Órgão Executor cumpriu com as políticas de aquisições estabelecidas pelo Banco. Igualmente, a revisão de desembolsos consiste na verificação *in situ* de uma amostra de documentos originais comprovantes de pagamentos ou despesas realizadas pelo Programa. A periodicidade dessas revisões varia em função da complexidade e do risco da operação.
6. ***Relatório de Revisão da Operação (LRR).*** A ser elaborado pela Equipe de Projeto aos dezoito (18) meses após ser iniciada a execução do programa, em base nos relatórios semestrais de progresso, MR e outros documentos. Será realizada uma missão de meio termo do Programa, para identificar problemas e ajustar os instrumentos de apoio à execução, caso necessário.
7. ***Relatório de Conclusão do Projeto (ITP o PCR)***. Será elaborado pelo Banco no prazo dos noventa (90) dias posteriores ao último desembolso e com base nos relatórios semestrais, MR, EFA, estudos, avaliações do programa, entre outros documentos e instrumentos.
8. **Coordenação, plano de trabalho e orçamento para o monitoramento.**
	1. A UCP será a responsável de monitorar o desempenho e o progresso da implantação dos componentes e subcomponentes do Programa, com apoio técnico de uma firma gerenciadora. Este monitoramento será realizado com base na Matriz de Resultado (MR, Anexo I do POD) e nos seguintes instrumentos:
9. ***Plano de Execução Plurianual (PEP) e os Planos Operativos Anuais (POAs)***. O PEP apresenta a relação das aquisições e contratações que deverão ser realizadas durante o prazo de execução do Programa, especificando os valores (custos) e as datas previstas para serem elaborados os produtos definidos e executadas as atividades. Com o objetivo de assegurar uma adequada programação operacional, o Órgão Executor, com o apoio e usando formatos estabelecidos pelo Banco, elaborará um PEP para a execução plurianual, no qual visará demonstrar como o Programa deverá alcançar os objetivos e as metas definidas na MR.

Será elaborado um POA para os primeiros dezoito (18) meses de execução, tendo detalhado nele as atividades a realizar em cada componente para assim obter os objetivos e metas estabelecidas para o primeiro ano de execução. Um POA inicial forma parte deste POD. A partir do Ano 1, os POAs seguintes deverão incluir:

* Justificativas e recomendações em relação às metas não alcançadas no período anterior;
* Planejamento das atividades a realizar se para cada componente do programa em relação aos resultados previstos, seu cronograma de execução e custos estimados;
* Objetivos e metas programadas para o período incluindo os indicadores;
* Necessidades de financiamento para o período, por fontes de financiamento, identificando os atos mais importantes para alcançar os objetivos perseguidos.
1. ***Plano de Aquisições (PA).*** A equipe do Banco e o Órgão Executor elaborarão uma proposta de orçamento detalhado e seu PA inicial para os primeiros dezoito (18) meses de execução e completo para todo o Programa, contendo:
* Obras, serviços, consultorias e diferentes a consultoria.
* Os métodos propostos para as contratações e aquisições.
* Procedimentos aplicados pelo Banco para a supervisão dos processos de aquisições (ex- post ou ex-ante).
1. ***Relatório de Monitoramento do Progresso (PMR).*** Esse relatório contém as informações quantitativas e qualitativas do desempenho do Programa, quanto aos produtos entregues, resultados alcançados e os impactos da execução dos componentes. Integram o PMR a MR, o orçamento, a tabela de custos e as projeções de desembolso definidas durante a fase de preparação do Programa. Isso permite à Equipe de Projeto do Banco monitorar o progresso da execução dos Produtos e Resultados definidos durante o desenho do Programa. Os relatórios terão base semestral (setembro e março), durante todo o período de execução.
2. Por parte do Banco a ***Supervisão Técnica da Execução*** do programa estará a cargo da Divisão INE/RND com o apoio da Oficina de Aquisições para Operações (PDP) e da Representação do Banco em Brasília. Além disso, a execução do Programa continuará contando com o apoio da equipe responsável pelo seu desenho inicial e preparação. Anualmente, será realizada uma reunião de monitoramento, conjuntamente entre o órgão executor e o Banco, onde serão discutidos os seguintes pontos:
* Avanço das atividades identificadas no POA;
* Medição dos indicadores estabelecidos na MR para cada componente nesse período;
* POA para o ano seguinte e o PA para os próximos 12 meses.
	1. Na tabela a seguir estão apresentados os responsáveis, as atribuições e os períodos de monitoramento e avaliação da execução do Programa.

| **Responsável** | **Atribuições** | **Periodicidade** |
| --- | --- | --- |
| Nível Estratégico:Órgão Executor (SEPLAN) e Conselho Consultivo do Programa, com apoio da UCP. | Discutir a aprovar o Plano de Execução Plurianual (PEP), os Planos Operativos (POA) e os Planos de Aquisições (PA) para encaminhamento aos órgãos estaduais e ao BID. | Variável |
| Discutir e aprovar a inclusão dos valores do Programa (financiamento e contrapartida) no PPA e na LOA. | Anual |
| Avaliar o andamento do PEP, do POA e do PA, propor ações corretivas e revisões, quando for o caso, e aprovar os Relatórios de Progresso (semestrais) a serem encaminhados ao BID. | Semestral |
| Discutir e aprovar as informações para a elaboração do LRR e do PCR, a serem encaminhados ao BID. | 18 meses e ao término do Projeto |
| Nível Operacional:Unidade de Coordenação do Projeto e Órgãos Subexecutores | Elaborar os Planos Operativos (POA) e os Planos de Aquisições (PA) para encaminhamento ao BID. | Anual ou quando necessário. |
| Acompanhar e avaliar os indicadores da Matriz de Resultados do Programa. | Contínua |
| Monitorar os riscos do Programa e, quando for o caso, participar de sua atualização. | Semestral e Eventual |
| Disponibilizar para o BID todos os registros administrativos, diplomas legais, estatísticas e demais dados necessários ao processo de monitoramento e avaliação do Programa. | Contínua |
| Nível Operacional: Unidade de Coordenação do Projeto / Gerência de Monitoramento e Avaliação  | Implantar e manter atualizadas as bases de dados do Programa, no que se refere aos indicadores de resultado e de impacto, e aos indicadores de execução físico-financeira. | Contínua |
| Articular-se com os órgãos do governo responsáveis pelos projetos/atividades e demais entidades envolvidas, objetivando a coleta e o tratamento das informações sobre o andamento das ações do Programa. | Contínua |
| Registrar os dados e manter atualizado o Sistema de Gerenciamento do Programa, além de fazer o acompanhamento de desvios, atrasos e fatores externos que afetem a execução do Programa, propondo medidas corretivas. | Contínua |
| Elaborar os Relatórios de Progresso e, quando for o caso, propor ações corretivas. | Contínua |
| Monitorar a implantação das recomendações provenientes de cada um dos instrumentos de avaliação. | Contínua |
| Apoiar as reuniões internas de acompanhamento e avaliação do Programa e apoiar as missões de acompanhamento e avaliação do BID. | Eventuais |
| Participar de eventos para o aprendizado institucional e a disseminação dos resultados de todas as avaliações, promovidos pelo PDSA II. | Eventuais |
| Compilar as informações do programa e promover a internalização das lições aprendidas, disseminando os resultados obtidos e as melhores práticas. | Contínua |

* 1. O orçamento previsto para cada uma das atividades principais e suas fontes de financiamento encontram-se no orçamento detalhado anexo do POD.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Atividades | Ano 1 | Ano 2 | Ano 3 | Ano 4 | Ano 5 | Responsável | Custo (US$) | FF |
| Implantação e alimentação do Sistema de Monitoramento e Avaliação do Programa. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | UCP/SEPLAN | 100,000100,00057,000 | AL |
| Desenvolvimento de ações de monitoramento e assistência técnica. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | UCP/SEPLAN |
| Elaboração de relatórios semestrais de monitoramento. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | UCP/SEPLAN |
| Total |  | 257,000 |  |

* 1. **Evaluation**

The purpose of this section is to detail the evaluation methodology and the implementation of the evaluation.

1. **Main Evaluation Question(s)**
	1. As mentioned previously, the overall goal of the program is to increase the contribution of the forestry and agroforestry sector to economic growth and poverty reduction. In order to achieve this goal, the program will work in three complementary approaches: (i) the program will attend to the basic requirements to turn State Forests into a reliable source of forest resources to the growing forest industry; (ii) the program will address the main bottlenecks producers face when linking to competitive and sustainable value chains; and (iii) the program will improve the forest sector investment climate by addressing problems related to land tenure, basic infrastructure, and the delivery of high quality public services to the sector. Given the interventions, two evaluations will be done in the program. The first evaluation will measure the impacts of the interventions to turn the State Forests into a reliable source of resources to the forest industry. The second evaluation will measure the impacts of the interventions to link smallholders and traditional communities to competitive and sustainable value chains.
	2. To organize the presentation of the evaluation of the program, we present the both approaches.
	3. **Component 1**: Sustainable Management of Public Forests. To support the forestry sector development, this component will finance the expansion, consolidation and getting the State Forests ready for production. In specific, it will finance: (i) land tenure regularization of the State Forests; (ii) consolidation of the already established State Forests; (iii) development of the State Forest concession system; and (iv) applied research and development to increase the forestry and agroforestry productivity. Overall, the program will help nearly 705,000 hectares of State Forests to enter into production.
	4. The forestry sector has nearly no empirical studies done to evaluate the impacts of forest concessions on economic growth. The studies available are concerned with the impacts of the creation of public forest on reduction of deforestation and assessments of the design of royalties and concession systems. Part of the reasons for the lack of empirical studies about forest concessions is the impossibility of rolling out a forest concession program for a randomly “chosen” treatment group while excluding the program benefits for a control group. Also, the main aim of intervention like the one proposed in here is to foster economic linkages between the different segments of the forest industry. Thus, even if it was possible to create a treatment and control group, market linkages would make it impossible to avoid control group contamination. This case is very similar to the tourism impact evaluation to some extent very similar to the tourism sector (Taylor, 2011).
	5. In spite of the lack of empirical studies, effective forest concessions as a business practice have been implemented in nearly all countries with large areas of public forests (Gray, 2002). These countries include Australia, Canada, Indonesia, and Eastern Europe countries just to mention few cases. In general, forest concessions and concessions of natural resources in general (renewable and non-renewable) tend to work when the investment climate (land tenure, basic infrastructure, and other public services) is well provided.
	6. Emerging evidence suggests that the rapidly developing restructuring in the food tends to exclude smallholder, especially those with poor assets portfolios. For example, research examining tomato growers operating in the markets of Guatemala and Nicaragua show that, unassisted, asset-poor smallholders are excluded from modern value chains, the governance which is dominated by specialized wholesalers and supermarkets. Only those smallholders with an adequate asset base are able to participate (Barrett, 2011; and Berdegué, J.A., et al, 2005).
	7. **Component 2**: Value Chains Development Grant. To support smallholders and traditional communities to participate in modern forestry and agroforestry value chains, this component will target investments to design and implement business plans, partial grants, together with technical extension and training of producers. The goal of this support is to overcome the minimum set of assets and technology to enable smallholders and traditional communities to participate in sustainable forestry and agroforestry value chains. The program is demand driven and the qualified producers should present a business plan, which will be evaluated against a set of criteria. The approved business plans will, then, be the beneficiaries of the program.
	8. Emerging evidence suggests that the rapidly developing restructuring in the food tends to exclude smallholder, especially those with poor assets portfolios. For example, research examining tomato growers operating in the markets of Guatemala and Nicaragua show that, unassisted, asset-poor smallholders are excluded from modern value chains, the governance which is dominated by specialized wholesalers and supermarkets. Only those smallholders with an adequate asset base are able to participate (Barrett, 2011; and Berdegué, J.A., et al, 2005).
	9. The basic hypothesis of the **component 1** are:
* What is the impact of the implementation of forest concession on economic growth (direct, indirect and induced impacts) of the State of Acre?
* What is the impact of the implementation of forest concession on households, particularly on poor households, living near the intervention areas?
	1. The basic hypothesis of the **component 2** are:
* What is the impact of the value chain development grant on the beneficiary household income?
* What is the impact of the value chain development grant on the beneficiary participation on competitive and sustainable value chains?
	1. The expected benefit of the impact evaluation of both components is significant for the Bank and our clients. According to FAO (2008) nearly 60% of forest resources in Latin America and the Caribbean are under public jurisdiction. A large share of commercial forestry in public lands takes places through concessions. These are contracts between a forest owner (typically the government) and a forest user that permit harvesting specified volumes for a specified forest land area. For a comprehensive discussion about concessions see Gray (2000). The proposed impact evaluation is designed to provide information on how to best design forest concessions policy to maximize the development benefits while minimizing negative environmental impacts.
	2. As pointed out by Barrett, C. et al (2011), the question of smallholder and traditional communities participation in modern value chains is of great importance to policymakers seeking to stimulate rural economic growth and poverty reduction. The proposed impact evaluation is designed to identify the determinants of inclusion or exclusion of smallholders and traditional communities in the modern agroforestry and forestry value chains. In addition, it will look at the asset and income effect of the participation of smallholders and traditional communities in modern value chains, with the goal of informing the organization, policy and institutional design to have maximum benefits of new markets to smallholders and traditional communities.
1. **Existing Knowledge (previous evaluations, ex ante economic analysis)**
	1. The paper by Amacher (2001) and Mcpherson (2010) are among the few papers looking into the design of forest concessions. The first paper explores how government preferences for revenue generation and public goods provision affect the design of forest concessions. While the second paper look into specific instruments, auditing, performance bonds and royalty, to induce reduced impact logging and harvest volume requirements. The first paper uses panel data from several years of contract between the Government of Malysia and logging companies to examine the empirical linkages between government revenues, forest condition, and harvesting behavior to determine the impact of different royalty systems on the distribution of harvesting between high and low value timber species. The main conclusion of the paper is that the design of royalty could be used to promote sustainable forestry as well government revenues.
	2. The paper by Mcpherson (2010) uses microeconomic simulation model to evaluate the response of a representative concessionaire to royalty instruments under imperfect enforcement and performance bonds when there are incentives to harvest timber volumes over the legal limit and shirk Reduced Impact Logging requirements in Brazil. He founds that the use of traditional royalty instruments such as the ad valorem and revenue-based royalty can effectively generate revenues and, in the case of revenue-based instruments, modifies harvest behavior, but only under very limited circumstances.
	3. Overall both studies confirm that the design of forest concessions is an important element to guarantee both economic and environmental feasibility.
	4. Reardon, T. et al (2009) and Barrett, C. et al (2011) surveys the literature on the impacts of smallholder participation on value chains. The review led by Reardon highlights: (1) the shift from spot market relations to vertical coordination of the value chain using contracts and market inter-linkages, and shift from local sourcing to sourcing via national, regional, and global networks; (2) companies in general tend to source from large producers; (3) when companies source from small producers they tend to source form those who meet the minimum requirements (producers association, equipments, and access to roads); (4) occasionally companies use resource-provision contracts; and (5) government policy, especially provision of public goods, affects the pace and nature of inclusion of producers in value chains. The review by Reardon confirms that overall value chain participation have a positive effect on producers participation. However, the results of the reviewed papers should be considered carefully given the fact that these early studies were based on cross-sectional rather than panel data surveys.
	5. According to Barrett, the empirical studies on participation in value chains has struggled to establish causality, that is, to ensure that the estimated impacts on welfare can be ascribed to value chain participation rather than to unobservable factors. However, most studies suggest that participant households have higher levels of welfare. Few studies, however, have credible controls for the nonrandom pattern of geographic placement of firm contracting and of firm selection of individual suppliers into specific value chains. This fact raises serious concerns about the relationship between producers income and participation. The most recent empirical studies, however, are overcoming these problems with the use of panel data designs, credible instruments for participation in value chains, and randomization of interventions to properly control for exogenous drivers of both welfare change and value chain participation.
	6. There are few projects addressing the issue smallholders and traditional communities participation in agroforestry and forestry value chain in Brazil, and they include:
	7. The paper by Weber, J. G., et al. (2011) evaluates a program financed by the World Bank to promote forest-based microenterprises in a State Forest located in the State of Pará. The program involved several activities that all centered on selling forest good and/or services. The program was demand driven. In total, 355 households out of 650 participated in the program. The authors combined matching with regression to quantify the effect of the program on household income, asset accumulation, and livelihoods. The study concludes that the program had a positive and significant impact on household income and asset accumulation. Again, these studies suffer from the same causality problems identified by Reardon, T. et al (2009) and Barrett, C. et al (2011).
	8. As mentioned above, the beneficiaries of the World Bank’s program are traditional communities living inside a protected (Public Forest). This setting is very similar to the targeted beneficiaries of the value chain development grant in the State of Acre. Given the similar characteristics of the activities being financed, environment, and the likely beneficiaries of the program, we think that the empirical evidence presented in the paper provides external validity for our interventions. In other words, impacts estimated in the evaluation done in the State of *Pará* can be generalized to the likely population of all eligible households in the State of Acre.
2. **Key Outcome Indicators**
	1. The table below summarizes the main impacts, indicators, formula and methodology, frequency of measurement, and means of verification for each of them.

Table 3

Key Impact/Results Indicators

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicator Type** | **Indicator** | **Methodology** | **Frequency** | **Observation** |
| **Component 1** |  |  |  |  |
| Impact #1:Increase the contribution of the forest sector to economic growth; | The marginal difference in the gross regional product from the baseline scenario (without the program) compared to the alternative scenarios (with the program); | Microeconomic Simulation in the area of intervention of the program; | Year 1;Year 5; | Means of Verification: a set of surveys (year 1 and year 5) to update the Social Account Matrix (SAM), which should have at least the following components: (i) forest sector; (ii) activities; (iii) household; and (iv) government.  |
| **Component 2** |  |  |  |  |
| Impact #2:Improve the welfare of traditional communities and farm smallholders; | The difference between household income of beneficiaries and non-beneficiaries, measured as percent; | Randomized &Difference-in-differences; | Year 1;Year 3;Year 5; | Means of Verification: Surveys to the control and treated households in year 1, 3 and 5 of the project;Observation: Acre average of rural household’s income is R$10,755 (IBGE,2006) from which R$6,000 to R$7,000 come from agriculture and forest production; |

1. **Evaluation Methodology**
	1. The evaluation methodology described below takes into account the specific needs of component 1 and 2.
	2. For component 1, the impact evaluation strategy relies on a microeconomic-wide simulation method. The basic input for a microeconomic-wide simulation is a Social Accounting Matrix (SAM). A baseline SAM will be built in order to perform an ex-ante analysis and benchmark the component 1. The development of a second SAM, constructed with data gathered following the project’s implementation, is required for ex-post analysis. The SAM will include the following critical information: (i) forestry component , which takes total expenditures by the forest industry in the project area and allocates them across activities inside and outside of the area of intervention; (ii) activity component, which takes the gross revenue from each activity and allocates it to expenditures on: (a) intermediate inputs produced in the area of intervention; (b) intermediate input obtained from markets outside the intervention area (“imports”); (c) factors of production: labor, capital, and others; and (iv) household component.
	3. Building a SAM is a first step for microeconomic-wide simulation, because SAMs contain most of the data needed to construct any kind of economy-wide simulation model. In other words, a SAM is just an accounting framework. The simplest economy-wide model that can be constructed using a SAM, and the multipliers derived from it give a sense of how large the forestry sector linkages might be in an economy that satisfies the basic assumption underlying the SAM multiplier[[5]](#footnote-5). In the case of Acre, it is very likely that elasticity of supply of all goods, services, and factors are not perfectly elastic. In this case, a microeconomic general equilibrium model will need to be constructed for the area of intervention. Taylor (2010) highlights the differences between a Computable General Equilibrium Model (CGM) and SAM multipliers models. CGE models include more general production and consumption functions; prices, which may be determined either outside the economy that being modeled, as equilibrium prices within the economy, or as household-specific shadow prices, in the case of subsistence households, and a more flexible and perhaps realistic modeling of trade. Taylor (2010) illustrates the steps needed to create a CGE model.
	4. The microeconomic-wide simulation model (micro CGE) will be designed to capture both the direct and indirect economic impacts of the proposed intervention. As pointed out by Taylor (2010), this kind of modeling reveal many influences of the interventions that cannot be picked up using more traditional cost-benefit, experimental, and econometric approaches. This approach is not new to the forest sector in Brazil. However, most models have been done at the national and regional level – too aggregated to be of much use for project analysis.
	5. For component 2, the impact evaluation strategy relies on a partially randomized strategy – that is, on a comparison of early and late treatment groups. Early treatment communities will begin to participate in the program in the second year of execution of the program. Late treatment communities will begin to participate in the fourth year of execution of the program. A random sample of the eligible producers in both groups will be asked to complete a single survey in the first year of execution of the program. All survey respondents will be revisited by the impact evaluation team in the third year of execution of the program and again in the end of the program in the fifth year of execution.
	6. The objective of the proposed methodology is to estimate the average treatment effect (ATE) of the program. Again, the ATE provides an answer to the following question: “On average, how much larger is the household income of the “value chain grant development” beneficiaries with the program than without the program?” Generating an estimate of this counterfactual requires identifying an appropriate control group and it is the primary challenge of the impact evaluation. With the partially randomized difference-in-difference approach, the counterfactual is generated by comparing outcomes across participants and no-participants at a given point in time. The main concern of this approach is that we would not be able to control for all of the factors that affect household income and are correlated with self-selection into the program. In other words, we are concerned with $Cov(T\_{i},ε\_{i})\ne 0$.
	7. One way to overcome this problem is to collect information on participant and non-participant households before and after the program was implemented. An estimate of the average treatment effect is then generated by comparing the change in income over time for participant versus non-participants groups. If the unobserved characteristics that we are concerned about in the error term are time-invariant then they will not affect the change in income. As a result, the bias is eliminated.
2. **Technical Aspects of Selected Methodology**
	1. Componente 1. The social accounting matrices (SAM) are designed to capture the complex interlinkages among the area of intervention production activities, institutions, and the outside world. Entries in a SAM include intermediate input demand between production sectors; income (value-added) paid by production sectors to different types of labor (male or female, educated or uneducated, or different ethnic groups) or attributable to land or capital; the distrubtion of labor, land, and capital value-added across different households; and the distrubtion of household group’s expenditures across saving, consumption of domestically produced goods and services, and imports. A government account collect taxes from activities and households and redirects this income within the system, saves it, or uses it to pay foreigners for imported goods and services or repayment of debt. The great strength of building a SAM for the forestry sector in the area of intervention are its comprehensiveness and the flexibility to provide an accounting framework to address the policy shock we are interested in understanding better.
	2. In our case, we would like to build the SAM and turn it into a microeconomic model for the area of intervention. The microeconomic model retains the major strengths of the SAM and it offers additional advantages. First, it permits to introduce non-linearities into the model. On the production side, fixed inputs and production technologies generate decreasing returns to variable inputs, which have important influence on how factors are allocated across production. More relevant to the State of Acre, constraints on the availability of resources for production are incorporated directly into the model. In the case of land and capital, this is accomplished by making short-run assumptions that factor inputs are fixed. Also, prices add an important element to the microeconomic simulation. Where prices are exogenous to the area of intervention, it is possible to explore the effects of prices on the area of intervention economic activities. Where prices are endogenous to the area of intervention, they transmit policy, market, and other income shocks through the area of intervention economy.

Component 2.

*Estimation Strategy*

* 1. The program to support smallholders and traditional communities to participate in modern value chains is hypothesized to increase incomes for those households who benefit from the program. Letting y indicate the outcomes variable of interest (e.g., household income), the goals of the evaluation is to estimate the impact of a project treatment T (i.e. grant mechanism to overcome the minimum investment threshold required to participate in modern value chains) that is implemented after time period 1. This impact can be defined with the following difference-in-difference expression:

$$D^{T}=\left[\left(y\_{2}^{T}-y\_{1}^{T}\right)\left(y\_{2}^{C}-y\_{1}^{C}\right)\right]$$

* 1. where $D^{T}$ is the project treatment impact, the subscript indicate time (1 is the time before the treatment and 2 is the time after the treatment) and the superscript $C$ indicates values for the control group. The treatment effect is defined as the changes in $y$ (e.g. income) that a household experiences following the treatment less the change in $y$ that the same household (or an adequate control housheold) would have experienced over the same time period without the treatment. The identification of the treatment effect requires observation of treatment and control groups both before and after the treatment. The actual econometric method that will used to estimate $D^{T}$ will be determined later, depending on the exact character of the control group and other considerations.

*Treat and Control Group*

* 1. Identification of control group for demand-driven programs is complicated. The value chain development grant will be requested and it will not be extended to every producer (smallholder and traditional community) in the State. However, the value chain development grant mechanism will be rolled out at different times in different (quasi-random selected) areas of the State. Household receiving the value chain grants early in the program will serve as the treated, while those receiving later in the program will serve as controls. The GoAC has already identified a geographic rollout strategy that will be adequate for this purpose.
	2. Households treated with the value chain development grant will thus come from early treated communities, while those from late treated communities will form the controls. Since early and late status will be randomly determined, we will use this treatment status as an instrumental variable to estimate program participation in later econometrics. For the final analysis, we would have the option of using continuous treatment estimation methods as the extent of treatment received by any household will depend on their randomly distributed early or late treatment status.

*Logic of the Impact Evaluation Strategy*

* 1. The logic of the impact evaluation strategy relies on a partially randomized strategy – that is, on a comparison of early and late treatment groups. Early treatment communities will begin to participate in the program in the second year of execution of the program. Late treatment communities will begin to participate in the fourth year of execution of the program. A random sample of the eligible producers in both groups will be asked to complete a single survey in the first year of execution of the program. All survey respondents will be revisited by the impact evaluation team in the third year of execution of the program and again in the end of the program in the fifth year of execution.

*Description of the Value Chain Development Grant Mechanism (VCD)*

* 1. The GoAC will select a group of communities for the main forestry and agroforestry value chains. Within each community, it will be possible to identify a group of "eligible producers." The eligible producers can labeled as "participant producers" when they submit and get their Business Management Plan (BMPs) approved by the PCU.

*Choosing Clusters/Communities for Early and Later Roll-out of the VCD:*

* 1. In order for the proposed impact evaluation strategy to work, the GoAc needs to follow the steps listed below:
* In year 1, the GoAC will identify a set of selected communities where the program will be rolled out in either year 2 or year 4. The exact number of communities needed is specified below;
* The impact evaluation team will randomly divide the set of communities into two groups: the early treatment group (that will receive the grant in year 2) and a late treatment group that will receive the grant in year 4.
* The PCU will make sure the GoAC (SEAPROF and SEDENS) follows the implementation of its program in accordance with this plan;
* Recognizing that in a few cases, the GoAC may choose not to ultimately implement a program in a selected community. It will be good for the impact evaluation analysis if this happens in a few communities. However, then additional selected communities will have to be specified.

*Choosing Households within Clusters*

* 1. Selection of households for inclusion in the survey will follow these steps:
* A visit must be paid to each community. The leader within each community will be interviewed and asked to identify the full universe of producers within the community area who might be eligible for the program. Being included on the list does not mean that the producer will or must receive the benefits of the program. It simply means that the farmer is eligible producer under the program rules if she or he desires to participate. The study design assumes that only a fraction of the elegible producers will actually receive treatment. The resulting listing of elegible producers (perhaps 50-80 producers in each community) will form the sample frame for the survey;
* Once the sample frame has been formed for each community, a random sample of producers will be selected from the list. These are the producers who will be subsequently interviewed for the impact evaluation study (both at baseline in year 1 and in two subsequent years). In year 1, once resources are available, the project team will need to discuss in more detail the exact number of producers, but we assume that approximately 50% of listed producers will be chosen for interview. These producers will become our sample producers.
	1. Again it is important to note that not all sample producers will actually receive the VCD grants. It is very important that an identical procedure is followed in both early and late treatment communities. That is, sample producers in both early and late treatment communities must be randomly drawn from the set of eligible producers.

*Execution Strategy*

* 1. The impact evaluation will focus on the following value chains. The number in square brackets after each value chain is the approximate number of communities with which the GoAC will work over the execution of the program.
* Timber Value Chain [50-75];
* Non timber forest products [50-75];
* Agroforestry [100]
	1. Across these three value chains, the GoAC thus proposes to work with a total of 200-250 communities and total of 8,000 – 9,000 households.
	2. For the impact evaluation, we proposed that PCU should identify 50% (100-125) of these 200-250 communities for either early or late treatment. As mentioned above, we would randomly allocate these 100-125 communities in early (50-60 communities) and late (50-60 communities) treatment groups. For purpose of the impact evaluation, these 100-125 communities need to be divided evenly across the three value chains. The other 100 communities can be treated according to whatever timetable is convenient for the GoAC.
	3. Within each selected community, the impact evaluation team will form a census of eligible producers using criteria provided in the Operation Regulations for any given value chain. A random sample of ~20 producers will be drawn from this list. It is these producers who will be interviewed in year 1, 3, and 5 of the program execution. In total, there will be 100 communities from which 20 household interviews will be done per community in three years. This should amount to 2,000 surveys per year for the three years planned.

*Sampling Power*

* 1. This sampling strategy is preliminary, the impact evaluation team with detailed information about the possible participants in the areas of interventions (i.e. income variance and variance about the participation in value chains) should develop a sample design that give us sufficient statistical power to identify program effects that increase household income by at least 8%. We feel that this is an adequate “minimum detectable effect”. That is, we hope that the program will have a much greater impact than 8%. If the effect is less than 8%, the survey may not be able to detect it (i.e statistical results may be insignificant). Greater precision could be achieved by increasing the number of communities or by increasing the number of eligible producers interviewed in each community.
	2. The sample design proposed has two levels of randomization. In a first level, we select randomly the clusters/communities that will participate in early and late treatment. In a second level, we will select farmers from each of these cluster/communities. As it was mentioned before, we will compute the difference-in-difference estimator to evaluate the impact of the VCD in household income. For the impact of the program to be statistically identified, we have to take into account the sample size considering the sample frame. Such a sample frame consists of clusters/communities of households (i.e. smallholders) in which a proportion of them will participate in the program. Then, the sample design will determine the characteristics of the sample to be interviewed and, consequently, the statistical properties of the estimators in terms of bias of its variance. It is important to note that a high variance of the difference-in-difference estimator could conclude wrongly that the program did not have any effect on incomes. While, a lower variance of the estimator could provide a more precise estimation of the program impacts.
	3. Since we are looking for the lowest possible variance of the estimator, the first parameter to consider in the variance of the proposed estimator is the intra class correlation that could exist within every cluster, that is, the income correlation between producers that belong to a same cluster/community. In statistical terms, a high inter class correlation will increase variance of the difference-in-difference estimator with respect to a sample design in which individuals have been selected randomly. This higher variance is known as *design effect.* In other words, the higher the intra class correlation in income, the lower the gain of increasing the number of interviewed producers within a cluster. With a high class correlation the best option is to increase the number of clusters, because we can learn more about the average effect of the program knowing producers with different experience in terms of income.
	4. There are other two parameters that could increase the variance: the compliance rate (c-s), and the proportion of the ample that will early treated (P).
	5. The compliance rate is the difference between (i) the proportion of eligible farmers that belong to the early treated clusters that will participate in the program in year 1 (c); and (ii) the proportion of eligible producers that belong to the late treated clustersbut that are being treated wrongly in year 1 (s). Ideally, a perfect compliance rate (ie. C=1 and s=0) would have no effect on variance. However, if c-s is lower than 1, the variance of the difference-in-difference estimator will increase. We could expect that around 1/3 of the eligible farmers that belong to th early treated clusters/communities will participate in the program (c=1/3) and that no eligible producers that belong to the later treatment will be treated in year 1 (s=0). This entails a compliance rate around one third (c-s=1/3).
	6. In terms of the proportion P, the variance of the difference-in-difference estimator is minimized when P=1/2. This means that there is an even number of both early and later clusters. In practice, it could be tempting to treat as many producers as possible in year 1, leaving a lower amount of producers to be treated in year 4. (P>1/2). However, in this context, the variance and, consequently, the minimum detectable effect (MDE) will be higher.
	7. Finally, the impact evaluation team also needs to decide how much power to set with this sample design. In the case of the VDM, if the program impact is highly successful, the power can defined as the probability that any statistical test concludes that the hypothesis of zero or small effect is not true. We would like to set a high power to our test such that the MDE decreases. However, too much power would increase the size of the statistical test. That is, if the program does have a negligible effect, we would conclude wrongly that the program has a large effect on incomes.
	8. In year 1 of execution of the program, the impact evaluation team would have to: (i) compute the intra class correlation using the disaggregated rural census (census track level); (ii) estimate the rural household average income and standard deviation; (iii) find out the percentage of the income variance that it is not explained by the determinants of income (residual variance); (iv) confirm the likely compliance rate (c-s); and (v) set a level of significance (i.e. 5%). With this information, it would be possible to compute the MDE (number of clusters and number of producers to be sampled). We have assumed, without much analysis that 100 clusters with 20 producers interviewed per cluster (n=2,000) would provide a good MDE.

*Disaggregating Program Impacts by Gender, Age, and Income*

* 1. The basic household questionnaire will be designed to take into account full demographic information on each respondent household, making it possible to econometrically disentangle impacts by age and gender. Similarly, the survey instrument will also contain a full suite of wealth and income measures so that again program impacts can be calculated separately by economic status.

*Externalities/Spillover*

* 1. The presence of externalities or spillover effects from the Value Chain Development (VCD) grant beneficiaries to non-beneficiaries represents a serious challenge to any impact evaluation strategy (including randomization). The reason is straightforward, if non-beneficiaries are somehow impacted by the fact that other households are participating in the VCD, then these non-beneficiaries no longer provide a valid counterfactual for the beneficiaries. In the context of the State of Acre, we would be concerned with two types of spillovers. The first are knowledge spillovers. Non-participant rural producers may have learned about the techniques promoted by the VCD simply by observing or talking with nearby VCD beneficiaries. If non-participants implemented the VCD practices or land use systems, then they would no longer represent a valid control group. Second, environmental externalities are also likely to exist. For example, non-participants may have higher yields because their neighbors, who participate in the VCD, planted trees that reduced soil erosion and water runoff. In our case, our main hypothesis is that rural producers cannot participate in modern value chains because of the substantial upfront investment required. If this is true, then, even if non-beneficiaries observe the technologies from beneficiaries, they will not be able to adopt them.

Data Collection

* 1. *Component 1.* The raw data to build the SAM are generated from surveys with the forestry sector, production activities, and households.

*Component 2.* The impact evaluation team will collect data in years 1, 3, and 5 of the program execution. This timetable is subject to further discussions with the government. The survey instrument will be based on the standard surveys done to understand participation of rural producers on value chains. The specific design of the survey instrument, pre-testing of the instrument, and training of enumerators, survey initiation, and survey supervision are key activities in year 1.

* 1. The data will be collected as follows:
	2. Year 1. The first baseline survey round will take place in year 1 of the execution of the program. The exact timing of the sample will depend on further agreements to be made with the Government of Acre about the actual program rollout.
	3. Year 3. The second survey round will take place approximately 2 years after the baseline (year 1). The exact timing will need to be coordinated with the implementation plan of the component with the UCP. The idea is to have the second round surveys take place before the VCD mechanism is implemented in the “late” areas.
	4. Year 5. A third survey round of data will be collected during the final year of execution of the program. By this time, producers located in control (later treatment areas) should have been treated. This will allow “continuous treatment” methods in which variation in the extent of treatment (e.g. months with value chain support) can be used to identify program effect. This method could allow a look into the dynamic effects of the program.

Survey Instrument.

A general outline of the survey instrument for the evaluation of the impacts of the VCD grant is presented in the appendix 1.

1. **Reporting and Evaluation Coordination**
	1. The report of the results obtained in the impact evaluation exercise will be comprised of two main analyses, baseline and impacts of the program. The results will be shared within and without the State of Acre. The PCU and SEPLAN will be in charge of the execution of the impact evaluation plan. The lessons learned will feed into the final evaluation of the program, and it will serve to the design of similar projects in Latin American and the Caribbean.
2. **Work Plan and Budget**
	1. The table 5 presents the timeframe of the main activities of the plan for impact evaluation of the VCD. The evaluation of impact will be financed with resources from the loan operation. For component 1, the impact evaluation will cost (U$149,000) and for component 2 the impact evaluation will cost around (US$743,000). These are still approximations that need to be further reviewed given the sampling power analysis.

Table 5a

Evaluation Work Plan

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Key Evaluation Activities/Products per Activity | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Responsible | Cost(Currency) | Funding |
| 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |  |  |  |
| 1. Evaluation – Component 1
 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Survey design, pre-testing questionnaire, enumerator training, and sampling power analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$20,000 | BR-L1289 |
| First round of surveys (US$84 per survey \*500 surveys) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$ 42,000 | BR-L1289 |
| Baseline report and information sharing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants + IDB | US$20,000 | BR-L1289 |
| Second round of surveys (US$84 per survey \*500 surveys) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$42,000 | BR-L1289 |
| Final Impact evaluation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$25,000 | BR-L1289 |
| **Subtotal Component 2** |  |  | US$149,000 |  |

Table 5b

Evaluation Work Plan

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Key Evaluation Activities/Products per Activity | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Responsible | Cost(Currency) | Funding |
| 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |  |  |  |
| 1. Evaluation – Component 1
 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Survey design, pre-testing questionnaire, enumerator training, and sampling power analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$20,000 | BR-L1289 |
| First round of surveys (US$84 per survey \*2,000 surveys) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$ 168,000 | BR-L1289 |
| Baseline report and information sharing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants + IDB | US$20,000 | BR-L1289 |
| Second round surveys (US$84 per survey \*2,000 surveys) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$168,000 | BR-L1289 |
| Preliminary impact analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$ 25,000 | BR-L1289 |
| Third round of surveys (US$84 per survey \*2,000 surveys) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$168,000 | BR-L1289 |
| Final Impact evaluation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | SEPLAN + PCU + Consultants | US$25,000 | BR-L1289 |
| **Subtotal Component 2** |  |  | US$594,000 | BR-L1289 |
| **Total (Comp 1 + Comp 2)** |  |  | US$743,000 | BR-L1289 |

**References**

Taylor, J. 2011. Technical Guidelines for Evaluating the Impacts of Tourism Using Simulations Models. Impact Evaluation Guidelines. Technical Notes No IDB-TN-229. Inter-American Development Bank, 109 pages;

Gray, J. 2002. Forest concession Policies and Revenue Systems: Country Experience and Policy Changes for Sustainable Tropical Forestry. World Bank Technical Paper No 522. Forest Series, 107 pages;

Barrett, C. B.; M. E. Bachke; M. F. Bellemare; H. C. Michelson; S. Narayanan; T. F. Walker. 2011. Smallholder Participation in Contract Farming : Comparative Evidence from Five Countries. World Development. In printing, 16 pages;

Berdegué, J.A.; Balsevich, F; Flores, L., and Reardon, T. 2005. Central American supermarkets’ private standards of quality and safety in procurement of fresh fruits and vegetables. Food Policy, 30(3), 254-269;

Amacher, G. 2001. Government Preferences and Public Forest harvesting: A Second-Best Approach. American Journal of Agriculture Economics, 81, 14-28;

Mcpherson, A. J.; Carter, M. R.; Lentini, M.W. ; and Schulze, M. D. 2010. Following the Rules: Brazilian Logging Concessions under Imperfect Enforcement and Royalties. Land Economics, 86(3), 493-513.

Reardon, T.; Barrett, C. B.; Berdegue, J. A.; and Swinnen, J. F. M. 2009. Agrifood industry transformation and small farmers in developing countries. World Development, 37(11), 1717-1727;

Weber, J. G.; Sills, E. O; Bauch, S.; and Pattanayak, S. K. 2011. Do ICDPs Work? An Empirical Evaluation of Forest-Based Microenterprises in the Brazilian Amazon. Land Economics, 87 (4): 645–681;

**Appendix 1**. Proposed Structure of Household Survey for the Value Chain Development Grant

In this appendix we provide a general outline of the structure of the household survey to be used in the impact evaluation of the subcomponent 2.2. In general, the baseline and follow-up surveys will be the same. There is, however, one exception. This is to provide pre-program time series data to evaluate the parallel trends assumption underlying the difference in difference approach.

It important to notice that this is a preliminary exercise, the final version of the outline will be done in the first year of execution of the program.

***Module 1.***  Identification of the Interview

* Location:
* GPS data
* Data and time of the interview;
* Outcome of the interview (complete, incomplete, rejected)

***Module 2.***  Household demographics (by household member)

* Names of the household members;
* Relationship to the household head;
* Gender;
* Age;
* Literacy;
* Years of schooling;
* Ethnicity;
* Membership in a productive cooperative/ association;
* Distance to downtown;

***Module 3***. Land Assets

* Total land owned;
* Total land rented;
* Total land cropped (in crop land, pasture land, and forests);
* Tenure status;
* Physical characteristics of the land owned and rented: soil type/quality; slope;
* Physical infrastructure: presence of fixed investment: irrigation, well, pump, house, electricity;
* Investments in the property: fences, walls, stables, etc (current value, when was the investment made, physical amount)

***Module 4***. Non-Land Assets

* Total value of farm assets;
* Total value of animals owned;

***Module 5***. Agriculture, Agroforestry, and Forestry Production

* Annual crop production and sales:
	+ - * + Crop identifier;
				+ Area planted;
				+ Date planted;
				+ Output harvested;
				+ Date harvested;
				+ Quantity sold;
				+ Unit price;
* Annual agroforestry production and sales:
	+ - * + Agroforestry system identifier (if not producing how long it will take before production);
				+ Area planted;
				+ Date planted;
				+ Output harvested;
				+ Date harvested;
				+ Quantity sold;
				+ Unit price;
* Annual forestry production and sales:
	+ - * + Forest inventory (estimated volumes);
				+ Area of forest;
				+ Output harvested (if any);
				+ Date harvested;
				+ Quantity sold;
				+ Unit price;

***Module 6***. Agriculture, Agroforestry, and Forestry Production Costs (annual costs)

* Fertilizers (type, quantity, and unit price);
* Improved seeds;
* Pesticides, Fungicides,Vaccines and other chemicals inputs (type, quantity, and unit price);
* Machinery and animal traction (type of task, tractor or animal, quantity used, unit price);
* Labor (type of task, amount and unit of unpaid family labor, total amount of paid labor (unit, amount, price per unit);

***Module 7***. Livestock

* Current numbers owned;
* # Consumed in the last 12 months;
* # purchased and valued of purchases in the last 12 months;
* # sold and revenues received in the last 12 months;

***Module 8***. Income from livestock products

* Quantity of production and value of sales: milk, eggs, cheese, etc..

***Module 9***. Stock of agricultural machinery and assets

* Number owned;
* Current value;
* Purchased in the last 12 months?
* If yes, value;

***Module 10***. Modern Value Chain Participation

* To whom the production of all outputs listed in the above questions were sold (local markets, middle-man, producers organization (cooperative, producers association) and/or large companies:
	+ - * + Type of buyer;
				+ Volume sold for each buyer;
* Did you get a contract and/or verbal agreement to sell outputs to these buyers?
* Characteristics of the contract:
	+ - * + Previously agreed price (when the deal was closed and unit price);
				+ Previously agreed volume (when the deal was closed and volume);
				+ Previously agreed standards of quality and/or production technology and/or techniques;
				+ Did the buyers under this contract offered in advance:

Technical assistance (amount, unit);

Inputs (amount and unit);

***Module 11***. Credit market participation and credit rationing:

* Sources of borrowing for agriculture in the last 12 months;
* Type of lender;
* Loan size requested;
* Loan size granted;
* Interest rate;
* Loan duration;
* Collateral requirements;
* Recall of credit for the past 3 years;

***Module 12.*** Non-Farm Income:

* Wage income (by job):
	+ - * + Type of non-farm job;
				+ Number of days worked off-farm in the past year;
				+ Total income earned;
* Business income:
	+ - * + Does the family own a business?
				+ What type?
				+ Revenue in the past 12 months;
				+ Profits in the past 12 months;
				+ Number of months the business operated in the last 12 months;

***Module 13***. Tansfer Income:

* Value of remittances received in the last 12 months;
* Value of transfers from government programs in the last 12 months
1. A Matriz de Resultados (MR), apresentada como anexo da Proposta de Desenvolvimento da Operação (POD) se baseia em: (i) indicadores de impacto e de resultados do Programa, com as respectivas linhas de base e metas a alcançar; e (ii) produtos, definidos para cada um dos componentes. A MR é a ferramenta fundamental para o planejamento, monitoramento e avaliação do Programa. A informação da MR é a base da informação contida no Relatório de Monitoramento de Progresso (PMR), onde o Banco registra os avanços físicos e financeiros do Programa, ao longo do tempo, com o objetivo de calcular seu Índice de Desempenho. No momento da elaboração do Plano Operativo Anual (POA) será utilizada a MR. [↑](#footnote-ref-1)
2. O **Plano Operativo Anual (POA)** tem como objetivo apresentar ao Banco a proposta de plano anual para a execução das ações estabelecidas. O POA consolida todas as atividades que serão desenvolvidas durante um determinado período de execução. O primeiro POA deverá alcançar o período de dezoito (18) meses, contados a partir da assinatura do Contrato de Empréstimo. A partir de então serão apresentados POA para cada ano-calendário (1º de janeiro a 31 de Dezembro). Este documento deverá ser apresentado ao Banco, ao mais tardar, até o dia 30 de Novembro do ano anterior da sua vigência. [↑](#footnote-ref-2)
3. O **Plano de Aquisições (PA)** é elaborado pela Equipe do Banco, conjuntamente com o Órgão Executor, e indica os tipos de aquisição, método de contratação e o valor estimado e se será necessário um processo de pré-qualificação. Os procedimentos aplicados pelo Banco na revisão das aquisições integram os acordos e requisitos fiduciários. O PA deve ser apresentado junto com o POA, para análise e aprovação pelo BID, e atualizado anualmente ou quando necessário, durante todo o período de execução do Projeto. [↑](#footnote-ref-3)
4. Os relatórios incluirão: (i) a descrição das atividades realizadas, (ii) os cronogramas atualizados de execução física e de desembolsos, (iii) grau de cumprimento dos indicadores de execução acordados, (iv) a programação de atividades para o semestre entrante, (v) o resumo da execução financeira do Programa e do fluxo de recursos previstos para o próximo semestre, (vi) a identificação de possíveis riscos que poderiam afetar a execução do programa, e (vii) o relatório relativo ao fechamento do ano, incluindo o POA e o Plano de Aquisições atualizado. [↑](#footnote-ref-4)
5. The assumptions are: (i) perfectly elastic supplies of all goods, services, and factors; (ii) linear responses all around; and (iii) no price effects. [↑](#footnote-ref-5)