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Investing in rural people

President's memorandum  
Proposed additional financing  
Republic of Liberia  
Tree Crops Extension Project  
Project ID: 1100001761

Note to Executive Board representatives

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For: Approval

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## Abbreviations and acronyms

ASAP	Adaptation for Smallholder Agriculture Programme
DAO	district agricultural officer
DSF	Debt Sustainability Framework
FFS	farmer field school
LACRA	Liberia Agricultural Commodity Regulatory Authority
LISGIS	Liberia Institute of Statistics and Geo-Information Services
PBAS	performance-based allocation system
PIU	project implementation unit
PSP	private sector partner
SOE	statement of expenditures
STCRSP	Smallholder Tree Crop Revitalization Support Project
TCEP	Tree Crops Extension Project

## Financing summary

<b>Initiating institution:</b>	IFAD
<b>Borrower/recipient:</b>	Republic of Liberia
<b>Executing agency:</b>	Ministry of Agriculture
<b>Total project cost:</b>	US\$30.7 million
<b>Amount of original IFAD financing:</b>	SDR 9.48 million (equivalent to approximately US\$13 million) and ASAP grant of SDR 3.28 million (equivalent to approximately US\$4.5 million)
<b>Terms of original IFAD financing:</b>	Highly concessional loan: Maturity period of 40 years, including a grace period of 10 years, with a service charge of 0.75 per cent per annum. ASAP funds are provided as a grant.
<b>Amount of additional IFAD financing:</b>	US\$9 million
<b>Terms of additional IFAD financing:</b>	US\$6.6 million provided as highly concessional loan and US\$2.4 million provided as DSF grant. The highly concessional loan will have a maturity period of 40 years, including a grace period of 10 years, with a service charge of 1.46 per cent per annum.
<b>Contribution of borrower/recipient:</b>	US\$1.9 million
<b>Contribution of beneficiaries/private sector:</b>	US\$2.3 million
<b>Appraising institution:</b>	IFAD
<b>Cooperating institution:</b>	Directly supervised by IFAD

## Recommendation for approval

The Executive Board is invited to approve the recommendation contained in paragraph 35.

### I. Background and project description

#### A. Background

1. The Tree Crops Extension Project (TCEP) was approved in December 2015 with a total cost of US\$30.7 million, financed through an IFAD loan of US\$13 million (SDR 9.48 million) and an Adaptation for Smallholder Agriculture Programme (ASAP) grant of US\$4.5 million (SDR 3.28 million) as well as US\$4.2 million in contributions from government, beneficiaries and the private sector. The approved project design also included a financing gap of US\$9 million to finance rural roads under project component B, "Rehabilitation and maintenance of roads".
2. The government is therefore now requesting from IFAD the additional financing of US\$9 million for project component B, "Rehabilitation and maintenance of roads". The IFAD funds requested will be drawn from the country's 2019 to 2021 performance-based allocation system (PBAS) cycle, to finance the rehabilitation of roads under project component B. The proposed IFAD financing would be provided 27 per cent as a Debt Sustainability Framework (DSF) grant and 73 per cent as a loan on highly concessional terms.
3. The current completion date is 30 June 2023.

#### B. Original project description

4. The overall development goal of the TCEP is "to improve the livelihoods and climate change resilience of rural households in Nimba County". The development objective is to improve the incomes and climate change resilience of smallholder cocoa producers in the county. The TCEP consists of four components: component A: increased quantity and quality of cocoa sold and a higher price received by smallholders; component B: improved access to markets and reduced transportation costs; component C: improved service provision to cocoa farmers for value chain development; and component D: ensuring effective and efficient strategic and operational planning, implementation, monitoring and evaluation (M&E), as well as knowledge management for the TCEP.
5. The TCEP adopts a value chain approach to link cocoa farmers – organized at grassroots level in kuu groups and farmer field schools (FFSs) – to markets and services through cooperatives and private sector partners (PSPs).

### II. Justification for the additional financing

#### A. Rationale and justification for the additional financing

6. The proposed IFAD allocation of US\$9 million will finance the financing gap that was already foreseen in the original design of the project. This financing is therefore eligible under IFAD's procedures, since (i) the objectives remain the same as in the original project design; (ii) the Republic of Liberia is eligible for PBAS resources and there are resources available; (iii) the suggested activities comply with all IFAD policies; (iv) the Government of Liberia has officially requested the additional financing; and (v) the requested amount does not exceed the financing gap.
7. The project initially suffered a delay between Executive Board approval in December 2015 and effectiveness in June 2017. In addition, due to a change in government, a fully-fledged Project Implementation Unit (PIU) was not established until January 2019. However, the project has recently met all disbursement

conditions and the first disbursement was made in May 2019. The TCEP is now in full implementation mode and the various project activities have started.

## B. Description of geographic area and target groups

8. The TCEP will intervene in Nimba County, in eight statutory districts. This geographical expansion will complement the Tree Crops Extension Project Phase II (TCEP-II) which will be implemented in Lofa County to realize economies of scale.<sup>1</sup>
9. The original financing targeted around 11,000 stakeholders in the cocoa value chain, of which: (i) 8,000 were cocoa smallholder members of kuu groups and FFSs; (ii) approximately 2,400 (30 per cent) were other farmers who would also benefit from roads, input supply and market linkages; and (iii) 600 were beneficiaries as a result of job creation along the value chain. The TCEP is using a self-targeting approach to select the 8,000 cocoa smallholders, combined with tools to ensure the inclusion of youth, women, the war wounded and Ebola survivors. These targets remain unchanged.

## C. Components/outcomes and activities

10. The TCEP's existing components – and the key activities within these components that will be supported through the additional financing – are as follows:
11. Component A: Revitalization of cocoa plantations. The expected outcome of component A is “increased quantity and quality of cocoa sold and a higher price received by smallholders”. The project focuses on revitalization and replanting, the development of value chain linkages, crop husbandry and post-harvest handling. The underlying idea of basic revitalization is to bring cocoa yields to at least 400 kg per hectare, a stage that would be reached by 2,000 farmers (25 per cent). Further yield increases to 1,000 kg of cocoa per hectare would result from the services developed and technology promoted by the FFSs, PSPs and cooperatives, with project support. This stage will benefit 6,000 farmers (75 per cent). The TCEP supports the establishment and operation of a seed station in Nimba County to guarantee availability of improved planting material for farmers, village nurseries and privately-owned nurseries. The diversification of cocoa farms following their revitalization with valuable trees and food crops – specifically banana/plantain – will be pursued for food security and climate resilience and to even out the cash flow, while simultaneously increasing the role of women in the farming economy. Component A remains unchanged with the additional financing.
12. Component B: Rehabilitation and maintenance of roads. Approximately 200 km of farm-to-market roads will be rehabilitated in Nimba County, using the implementation methodology developed under the Smallholder Tree Crop Revitalization Support Project (STCRSP). The TCEP will have a three-pronged approach to maintenance: (i) capacity-building in road maintenance; (ii) improvement of the road maintenance strategy, including development of a financing mechanism; and (iii) transition financing of maintenance on a cash-for-work basis. The targets remain unchanged.
13. Component C: Service provision for value chain development. The expected outcome of this component is “improved service provision to cocoa farmers for value chain development”. The component aims at: (i) strengthening the capacity of cocoa farmers' cooperatives at district level; (ii) strengthening the capacity of the Ministry of Agriculture, the Liberia Agricultural Commodity Regulatory Authority (LACRA) and the Cooperative Development Agency at county and district levels; (iii) ensuring that climate change adaptation is mainstreamed in the technical support systems for cocoa value chain development; (iv) policy dialogue; and (v) monitoring of deforestation in the cocoa sector. There will be no changes to this component with the additional financing.

<sup>1</sup> The TCEP-II was approved by IFAD's Executive Board in December 2018 and the financing agreement was signed in March 2019. Ratification is expected in the third quarter of 2019.

14. Component D: Project coordination, and monitoring and evaluation. The objective of this component is to ensure effective and efficient strategic and operational planning, implementation, M&E, and knowledge management. No changes are foreseen in this component.

#### D. Benefits, costs and financing

##### Project costs

15. With the planned additional financing, total project costs over six years – including contingencies, taxes and duties – are estimated at US\$30.7 million. The original and additional financing summary is presented in table 1. Additional project costs by component and financier are presented in table 2, by expenditure account and financier in table 3 and by component and year in table 4.

Table 1

#### Original and additional financing summary

(Thousands of United States dollars)

	<i>Original financing*</i>	<i>Additional financing</i>	<i>Total</i>
IFAD loan	13 000	6 570	19 570
IFAD grant	(ASAP) 4 500	2 340	6 840
Beneficiaries/private sector	2 316	-	2 316
Borrower/counterpart	1 855	-	1 855
<b>Total</b>	<b>21 672</b>	<b>9 000</b>	<b>30 672</b>

\* See tables 4 and 5 for a detailed breakdown.

Table 2

#### Additional financing: Project costs by component and financier

(Thousands of United States dollars)

<i>Component</i>	<i>IFAD additional loan</i>		<i>IFAD additional DSF grant</i>		<i>Total</i>	
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>
A. Revitalization of cocoa plantations	116	73	43	27	159	1.8
B. Rehabilitation and maintenance of roads	6 454	73	2 387	27	8 841	98.2
C. Service provision for value chain development	-	-	-	-	-	-
D. Project coordination, and M&E	-	-	-	-	-	-
<b>Total</b>	<b>6 570</b>	<b>73</b>	<b>2 430</b>	<b>27</b>	<b>9 000</b>	<b>100.0</b>

Table 3

#### Additional financing: Project costs by expenditure category and financier

(Thousands of United States dollars)

<i>Expenditure category</i>	<i>Additional IFAD loan</i>		<i>Additional IFAD grant</i>		<i>Total</i>	
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>
<b>I. Investment costs</b>						
A. Works	6 229	73	2 304	27	8 532	94.8
B. Goods, services and inputs	78	73	29	27	107	1.2
C. Vehicles	-	-	-	-	-	-
D. Equipment and materials	29	73	11	27	39	0.4
E. Consultancies	-	-	-	-	-	-
F. Training	26	73	10	27	35	0.4
G. Workshops	11	73	4	27	15	0.2
H. Services	158	73	59	27	217	2.4
<b>II. Recurrent costs</b>						
A. Salaries and allowances	-	-	-	-	-	-
B. Operational costs	39	73	15	27	54	0.6
<b>Total</b>	<b>6 570</b>	<b>73</b>	<b>2 430</b>	<b>27</b>	<b>9 000</b>	<b>100.0</b>

Table 4  
**Programme/project costs by component and year**  
 (Thousands of United States dollars)

Component	PY1		PY2		PY3		PY4		PY5		PY6		Total
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount
A. Revitalization of cocoa plantations	1 882	19	2 152	21	2 452	24	2 606	26	809	8	132	1	10 033
B. Rehabilitation and maintenance of roads	200	2	3 508	35	5 914	58	273	3	171	2	93	1	10 159
C. Service provision for value chain development	1 538	25	1 429	24	1 142	19	869	14	894	15	204	3	6 075
D. Project coordination, and M&E	818	19	555	13	701	16	713	16	764	17	854	19	4 405
<b>Total</b>	<b>4 437</b>	<b>14</b>	<b>7 644</b>	<b>25</b>	<b>10 208</b>	<b>33</b>	<b>4 461</b>	<b>15</b>	<b>2 638</b>	<b>9</b>	<b>1 283</b>	<b>4</b>	<b>30 672</b>

#### Project financing/cofinancing strategy and plan

16. The original project had a total cost of US\$30.7 million, financed through an IFAD loan of US\$13 million (SDR 9.48 million) and an ASAP grant of US\$4.5 million (SDR 3.28 million), a financing gap of US\$9 million, and US\$4.2 million in contributions from government, beneficiaries and the private sector. The additional IFAD financing of US\$9 million will cover the original financing gap and will therefore not add to the overall project cost. The domestic cofinancing still remains at US\$4.2 million, including: (i) a contribution from the Government of Liberia of US\$1.9 million, which will finance taxes and duties on imported goods plus value added tax; (ii) a contribution from farmers of US\$1.4 million; and (iii) contributions from the PSPs of around US\$1 million in the form of their investments in the value chain, and working capital for the cooperatives to buy cocoa.

#### Disbursement

17. The financial management and disbursement arrangements for the additional financing will mirror those of the original project. Direct payment and designated account methods, and a statement of expenditures (SOE) mechanism, will apply as appropriate. SOE thresholds will be established based on risk criteria, specified in the already existing Letter to the Borrower. While two designated accounts are open at the Central Bank of Liberia – one for the original IFAD loan and one for the ASAP grant – an additional account will be opened for the additional financing (loan and grant), to facilitate payment for eligible expenditures. All payments to service providers will be handled through bank accounts. Payments at field level, if any, will be made through bank transfers so as to minimize the use of petty cash transactions. Overall there are no changes to the financial management of IFAD funds as compared to the original design.

#### Summary of benefits and economic analysis

18. The economic rate of return of 35.7 per cent over 20 years is profitable from an economic standpoint and generates a total of US\$112.5 million over that period, in addition to a number of social and secondary economic benefits from the rural road improvement, which have not been monetized. The sensitivity analysis indicates solid resilience in relation to increases in costs and reduction, as shown in appendix II. One additional element considered in this analysis is that of the positive environmental externalities of agriculture and forestry development projects, programmes and policies in relation to the carbon balance.

#### Exit strategy and sustainability

19. The TCEP's exit strategy is based on the following design features: (i) a focus on formalized value chain linkages between PSPs and cooperatives; (ii) a market-driven approach and project intervention through PSPs, cooperatives and other service providers; (iii) support that is provided to smallholders mainly on commercial terms; (iv) a focus on agribusiness activities that will be fully



integrated within the local and regional market economy; and (v) risk mitigation through the institutional capacity-building of value chain stakeholders.

20. The development of training materials and programmes on climate change adaptation within the tree crop supply chains has the potential to influence farmers and stakeholders beyond the project beneficiaries, including as the training materials are adopted and training sessions are attended by technicians from other tree crop projects.

### III. Risks

#### A. Project risks and mitigation measures

21. The overall project risks and proposed mitigation measures are as follows:

Table 5

**Project risks and mitigation measures**

<i>Risk</i>	<i>Implications</i>	<i>Mitigation measures</i>
Weak governance and institutional capacities, including in financial management	Slow disbursement, lower project benefits, delays in implementation	Use of IFAD procurement guidelines; strengthening of training and control systems related to financial management; regular supervision missions; external audits; use of accounting software already in place; technical assistance; ad hoc technical audits; and well-focused, specific capacity-building plans linked to business plans.
Weak cooperatives and market linkages	Farmers will continue side-selling, since cooperatives don't offer a competitive price	<i>Kuu</i> groups and FFSSs, in order to enhance the capacity and bargaining power of farmers; market linkages through PSPs and cooperatives; institutional support to cooperatives.
Increased disease pressure due to a shorter dry season; increasing maximum dry season temperatures	Lower yields and quality, and lower revenues	Setting up and training of pesticide application teams in the cooperatives and FFSSs; promoting the use of shade from valuable trees; and diversification of farming systems.
Increased profitability of cocoa, directly or indirectly causing deforestation	Negative impact on the environment, erosion and deforestation	Interventions restricted to existing farms; forest conservation agreements and participatory land use monitoring to control deforestation risks.
Increased use of pesticides and fertilizers	Soil and water contamination; health risks	Application of the fertilizer promoted will be in doses too low to cause environmental harm; (bio) pesticides will be applied through spraying teams to be specially set up, trained and equipped, thereby reducing the risk of inappropriate uses.
Low quality of cocoa	Lower prices and lower profitability	Introduction of solar dryers for individual farmers, combined with solar dryers at cooperative level; involvement of LACRA in quality control.

#### B. Environmental and social category

22. Based on the IFAD social and environmental categorization criteria, the original project is considered category B. The analysis considered that any adverse social and environmental impacts would be short-term, and would be remedied or mitigated through actions included among the project's activities. The additional financing from IFAD of US\$9 million is aligned with the original design.

#### C. Climate risk classification

23. In line with the Social, Environmental and Climate Assessment Procedures guidelines, the project has been classified within the moderate risk category. The project will capitalize on lessons learned from the STCRSP. It integrates climate risk mitigation measures into its design, for development of low-cost activities in climate change adaptation. These activities entail the adoption of cocoa seeds and seedling varieties that are more resilient to higher temperatures, and promotion of shading on farms to protect the trees during the dry season, the promotion of

more sustainable energy in the cocoa drying processes and climate-proofing the rehabilitated roads.

## IV. Implementation

### A. Compliance with IFAD policies

24. The proposed additional financing complies with the relevant IFAD policies, including: IFAD Strategic Framework 2016-2025; the Rural Enterprise Policy; the Private Sector Development and Partnership Strategy; the Rural Finance Policy; the Policy on Gender Equality and Women's Empowerment; the IFAD Rural Youth Action Plan 2019-2021; Reaching the Rural Poor: the IFAD Policy on Targeting; and the Social, Environmental and Climate Assessment Procedures of IFAD.
25. The adjustments to the project's logical framework as compared to the original relate to alignment to the new IFAD core indicators introduced in 2017.<sup>2</sup> There are no adjustments to the targets.

### B. Organizational framework

Project management and coordination

26. The Ministry of Agriculture has overall responsibility for implementation of the TCEP. A National Steering Committee guides project strategy, oversees planning, reviews progress and ensures linkage with related entities. Within the Project Management Unit, management, M&E of the TCEP is under the responsibility of the IFAD PIU in Monrovia. A County PIU has been established in Saclepea, Nimba County.

Financial management, procurement and governance

27. The TCEP uses the existing financial management system under the IFAD PIU, including records, accounts and preparation of related financial statements in accordance with accounting standards acceptable to IFAD.
28. Disbursements under the TCEP follow IFAD's disbursement guidelines. Direct payment and designated account methods – as well as a SOE mechanism – apply as outlined in the existing Letter to the Borrower. Two designated accounts – one for the IFAD loan and one for the ASAP grant – are open at the Central Bank of Liberia to facilitate payment of eligible expenditures. The TCEP will sign up for the IFAD Client Portal to facilitate withdrawals.

### C. Monitoring and evaluation, learning, knowledge management and strategic communication approaches

29. M&E is key to good project performance. The Government of Liberia is in full support of enhancing this feature of the project. The TCEP's logical framework will form the basis for measuring project outputs, outcomes and impacts. The results of the TCEP (together with other donor programmes focusing on agriculture) will then feed into the Ministry of Agriculture subsector contribution to the Pro-Poor Agenda for Prosperity and Development. M&E will be undertaken at multiple levels (central, county and district) and by several stakeholders, in order to support effective implementation, and will be compliant with IFAD's core indicators as aligned with the ministry's M&E system.
30. A knowledge management action plan will be developed by the project, outlining activities to be undertaken as well as the roles and responsibilities of project staff and implementing partners. This will ensure that the high-quality data collected through the M&E system forms the basis for in-depth analysis and the creation of knowledge products to build the evidence base for contributing to policy dialogue on the cocoa subsector.

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<sup>2</sup> See Taking IFAD's Results and Impact Management System (RIMS) to the Next Level (EB 2017/120/R.7/Rev.1).

#### D. Proposed amendments to the project financing agreement

31. The project financing agreement will be amended to include the additional US\$9 million from IFAD, specifying the new lending terms and conditions that will be negotiated.

#### V. Legal instruments and authority

32. A letter of amendment to the project financing agreement between the Republic of Liberia and IFAD will constitute the legal instrument for extending the proposed financing to the borrower.
33. The Republic of Liberia is empowered under its laws to receive financing from IFAD.
34. I am satisfied that the proposed additional financing will comply with the Agreement Establishing IFAD and the Policies and Criteria for IFAD Financing.

#### VI. Recommendation

35. I recommend that the Executive Board approve the proposed additional financing in terms of the following resolution:

RESOLVED: that the Fund shall provide a loan under highly concessional terms in an amount of six million six hundred thousand United States dollars (US\$6,600,000) to the Republic of Liberia and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

RESOLVED FURTHER: that the Fund shall provide a Debt Sustainability Framework grant of two million four hundred thousand United States dollars (US\$2,400,000) to the Republic of Liberia and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

Gilbert F. Hougbo  
President

# Updated logical framework incorporating additional financing

Narrative Summary	Key Performance Indicators				Means of Verification			Assumptions
	Name	Baseline (Y0)	Mid-Term (Y3)	End Target (Y6)	Source	Frequency	Responsibility	
<b>Outreach</b>	Number of persons receiving services promoted or supported by the project <sup>3</sup> [CI 1]		5,500	11,000	Monitoring report	Quarterly	County-PIU	
	Corresponding number of Households reached [CI 1.a] <sup>4</sup>		5,500	11,000	Monitoring report	Quarterly	County-PIU	
	Estimated corresponding total number of household members <sup>5</sup> [CI 1.b]		32,450	64,900	Monitoring report	Quarterly	County-PIU	
<b>Goal:</b>								
Improve the livelihoods and climate change resilience of rural households in Nimba County	Decreased 0-5 year child malnutrition* (1)	stunted: 36.4% <sup>6</sup> wasted:3.9% underweigh:20.7%	TBD	TBD	Secondary data i.e. LDHS	PY1, PY3, PY6	IFAD-PIU	
	Increased food security (reduction in length of hungry season)* (2)	Food insecure: 11% Moderately food insecure: 30% <sup>7</sup>	TBD	TBD	Baseline/ Completion Survey or secondary data i.e. CFSNS	PY1, PY3, PY6	IFAD-PIU (LISGIS)	
	Improvement in asset ownership* (3)	TBD	TBD	TBD	Baseline and Completion Survey	PY1, PY3, PY6	IFAD-PIU	
<b>Project Development Objective:</b>								
Improve incomes and climate change resilience of smallholder cocoa producers in Nimba County	Number of persons/households reporting increase in production disaggregated by crop (Cocoa) [CI 1.2.4] (4)	0	Cocoa - 5,500	Cocoa - 8,000	Baseline/Completion survey	PY1, PY3, PY6	IFAD-PIU (LISGIS)	Commitment of all stakeholders (government, donors, private sector) to participate in poverty reduction efforts
	Number of persons/households reporting adoption of environmentally sustainable and climate resilient technologies and practices [CI 3.2.2] (5)	0	550	7,800	Baseline/Completion survey	PY1, PY3, PY6	IFAD-PIU (LISGIS)	
	Gross <u>sales</u> of cocoa per farm (6)	100 US\$	624 US\$	1,861US\$	Baseline/Completion survey, monitoring data	PY1, PY3, PY6	LISGIS, Coop reports, PSP	
	Farm gates <u>prices</u> as % of ICCO reference price for grade 1(7)	65%	65%	75%	Monitoring reports	Quarterly	County-PIU	
<b>Component A–Revitalization of cocoa plantations</b>								
<b>Outcome 1:</b> Increased quantity and quality of cocoa sold by smallholders	Number of productive trees per farmer (yielding >10 pods of cocoa per tree) (8)	50	400	1,000	Reports of PSP and cooperatives	Annually	CAC, DAO	Land tenure system in project counties does not pose any limitations to project activities Targeted communities are involved and responsive to
	% of grade 1cocoa (9)	To be provided	70%	90%	Reports of PSP and cooperatives	Annually	CAC, DAO	
<b>Outputs:</b> Plantation revitalized and	Ha of cocoa rehabilitated or replanted (10)	0 ha	6,500ha	10,000 ha	Reports from PSP and Coops	Quarterly	CAC, DAO	

<sup>3</sup>Disaggregated by sex (30 % women and 50% youth)

<sup>4</sup>Disaggregated by Lead (head of household, small enterprise or group)

<sup>5</sup>Disaggregated by sex

<sup>6</sup> Liberia Demographic and Health Survey (LDHS), 2013.

<sup>7</sup> Liberia Comprehensive Food Security and Nutrition Survey (CFSNS), 2013.

climate resilient practices and processing introduced	Land under climate-resilient practices [ASAP2] (11)	Not available	5000	10000	Baseline/completion survey, monitoring report	Annually	CAC, DAO	interventions made
<b>Component B–Rehabilitation and maintenance of roads</b>								
<b>Outcome 2:</b> Improved access to markets	(Number) Percentage of persons/households reporting improved physical access to markets, processing and storage facilities [CI 2.2.6] (12)	Not available	1000	2,400	Baseline/completion survey, monitoring report	Annually	CAC, DAO	
<b>Outputs:</b> Rehabilitation and maintenance of roads	Number of kilometres of roads constructed, rehabilitated or upgraded [CI 2.1.5] (13)	0 km	75km	200km	Reports of CRE	PY1, PY3, PY6	County-PIU, CRE	Targeted communities are involved in responsive interventions Made
<b>Component C–Service provision for value chain development</b>								
<b>Outcome 3:</b> Improved provision to service cocoa smallholder	Tonnes of cocoa sold by farmers through their cooperatives* and/or PSP (14)	0	2,775 tonnes	9,800 tonnes	Reports from Coops and PSP	Quarterly	CAC, DAO	Responsive and interested private sector partners in the cocoa sector
	(Number) Percentage of supported rural producers' organization members reporting new or improved services provided by their organization [CI 2.2.4] (15)	Not available	50%	90%	Reports of PSP and cooperatives	Annually	CAC, DAO	
<b>Outputs:</b> Sustainable cooperatives for marketing of cocoa and provision of inputs	(Number) Percentage of rural producers' organizations supported [CI 2.1.3] (16)	0	50%	90%	Reports from Coops and PSP	Quarterly	CAC, DAO	
	Number of persons trained in income-generating activities or business management. [CI 2.1.2 ] (17)	0	220 FFS	320 FFS (*25 pp/FFS)	FFS officer	Quarterly	County-PIU	

## Updated summary of the economic and financial analysis incorporating additional financing

**Table A: Models' financial cash flow**

Model 1: Basic revitalization													
ITEMS	UNIT		Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Total revenue	US\$		197	197	295	337	802	797	774	752	729	710	690
Total production costs	US\$		40	433	176	176	176	176	176	176	176	176	176
Incremental net income	US\$		0	(393)	(38)	4	469	464	442	419	396	377	357
Return to family labour	23.5												
NPV @ 0.1	1,169												
IRR	46%												
B/C ratio	2.63												
Model 2: Enhanced revitalization													
ITEMS	UNIT		Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Total revenue	US\$		197	197	295	624	1,179	1,731	1,861	1,805	1,748	1,699	1,650
Total production costs	US\$		40	459	307	412	432	452	375	465	435	425	375
Incremental net income	US\$		0	(419)	(169)	54	589	1,121	1,329	1,182	1,156	1,117	1,117
Return to family labour	86												
NPV @ 0.1	3,419												
IRR	66%												
B/C ratio	2.73												
Model 3: Replanting													
ITEMS	UNIT		Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Total revenue	US\$	0	0	0	50	624	1,179	1,731	3,220	3,121	3,022	2,936	2,850
Total production costs	US\$	0	40	775	396	412	452	472	445	505	505	445	445
Incremental net income	US\$	0	0	(735)	(306)	252	766	1,299	2,814	2,656	2,557	2,531	2,444
Return to family labour	60												
NPV @ 0.1	6,758												
IRR	66%												
B/C ratio	3.13												

**Table B: Programme/project costs and Logframe targets**

Project costs				
Component	Cost IFAD, ASAP Million USD	Beneficiaries and Private Sector	GoL	Cost US\$/Beneficiary
Revitalization of cocoa plantations	7.1			
Rehabilitation and maintenance of roads	9.5			
Service provision for value chain development	5.6			
Project Coordination, M&E	4.3			
<b>Total</b>	<b>26.5</b>	<b>2.3</b>	<b>1.9</b>	<b>2 791</b>

Indicators from the EFA				
Outcome	Indicator	Baseline	MTR	FINAL
Improved incomes and climate change resilience of smallholder cocoa producers	Number of farmers who increased their income from cocoa	0	4,250	8,000
	Gross sales per farm	197	624	1,861
Increased quality and quantity of cocoa sold by smallholders	% of grade 1	0%	30%	90%
	Ha of cocoa rehabilitated	0	6,500	10,000
Improved access to markets	Km of roads rehabilitated	0	75	200
Improved service provision to cocoa smallholder farmers	Number of farmers selling their produce through coops	0	3,000	8,000
	Number of farmers receiving inputs from cooperatives	0	4,250	8,000

**Table C: Main assumptions and shadow prices**

C1: Main Assumptions												
	Without				With project							Average
	Y0	Y1/	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
Cocoa yields (kg/ha)												
Model 1 Basic revitalization	100	100	125	150	400	400	400	400	400	400	400	
Model 2 Enhanced revitalization	100	100	100	300	600	900	1000	1000	1000	1000	1000	
Model 3 Restocking	100	0	0	300	600	900	1200	1500	1500	1500	1500	
% of Farmers with access to each grade by year												
cocoa - grade 1	0%	0%	0%	30%	40%	60%	90%	90%	90%	90%	90%	
cocoa - grade 2	100%	100%	100%	70%	60%	40%	10%	10%	10%	10%	10%	
Cocoa price paid to farmers (US\$/kg)												
cocoa - grade 1	1.22	2.13	2.07	2.00	1.94	1.88	1.82	1.77	1.71	1.66	1.61	1.86
cocoa - grade 2	1.2	1.97	1.91	1.85	1.79	1.74	1.69	1.64	1.58	1.54	1.49	1.72
Cocoa price paid to cooperative (US\$/kg)												
cocoa - grade 1	1.22	2.23	2.17	2.10	2.04	1.98	1.92	1.87	1.81	1.76	1.71	1.96
cocoa - grade 2	1.22	2.07	2.01	1.95	1.89	1.84	1.79	1.74	1.68	1.64	1.59	1.82
C2: Shadow prices												
	Prices											
	Financial	Economic										
Cocoa, grade 1	1.65	1.82										
Cocoa, grade 2	1.55	1.71										
fertilizer	1	0.9										
pesticides	40	36										
sprayer	60	54										
wages, skilled	5.5	3.5										
wages, unskilled	3.5	2										

**Table D: Beneficiaries adoption rates and phasing**

		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Basic revitalization	farmers**	500	1,500	2,750	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Enhanced revitalization	farmers**	500	1,500	2,750	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Replanting	farmers**	0	500	1,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Total cocoa farmers	farmers	1,000	3,000	5,500	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Total cocoa plantations	ha	1,000	3,500	6,500	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Cocoa cooperatives	coops	8	8	8	8	8	8	8	8	8	8
*** These beneficiaries are after applying the adoption rate of 50%											

**Table E: Programme/project economic cash flow**

Programme/project economic cash flow								
Project Year	Basic	Enhanced	Replanting	Incremental impact roads	Environmental impact	Total economic benefits	Economic cost project	Cash Flow
PY1	(148,400)	(70,222)	(287,000)	0	27,000	(478,622)	(4,257,299)	(4,735,921)
PY2	(46,603)	70,720	(347,570)	(151,687)	97,650	(377,490)	(7,180,298)	(7,557,788)
PY3	16,469	685,158	135,431	(97,036)	187,200	927,222	(9,436,621)	(8,509,399)
PY4	1,662,041	2,897,435	1,310,154	251,117	297,000	6,417,748	(4,120,544)	2,297,204
PY5	1,643,306	4,783,879	2,237,811	1,760,889	315,000	10,740,886	(2,386,820)	8,354,066
PY6	1,563,924	5,508,407	5,032,634	2,599,499	324,000	15,028,464	(1,138,763)	13,889,702
PY7	1,484,542	5,034,752	4,788,372	3,631,490	333,000	15,272,156	(300,000)	14,972,156
PY8	1,405,160	4,938,697	4,630,511	3,392,300	342,000	14,708,668	(300,000)	14,408,668
PY9	1,335,701	4,777,849	4,578,781	3,292,310	351,000	14,335,641	(300,000)	14,035,641
PY10	1,266,242	4,764,200	4,440,652	3,207,699	360,000	14,038,794	(300,000)	13,738,794
PY11	1,266,242	4,764,200	4,440,652	3,141,328	369,000	13,981,423	(300,000)	13,681,423
PY12	1,266,242	4,764,200	4,440,652	3,141,328	378,000	13,990,423	(300,000)	13,690,423
PY13	1,266,242	4,764,200	4,440,652	3,141,328	387,000	13,999,423	(300,000)	13,699,423
PY14	1,266,242	4,764,200	4,440,652	3,141,328	396,000	14,008,423	(300,000)	13,708,423
PY15	1,266,242	4,764,200	4,440,652	3,141,328	405,000	14,017,423	(300,000)	13,717,423
PY16	1,266,242	4,764,200	4,440,652	3,141,328	414,000	14,026,423	(300,000)	13,726,423
PY17	1,266,242	4,764,200	4,440,652	3,141,328	423,000	14,035,423	(300,000)	13,735,423
PY18	1,266,242	4,764,200	4,440,652	3,141,328	432,000	14,044,423	(300,000)	13,744,423
PY19	1,266,242	4,764,200	4,440,652	3,141,328	441,000	14,053,423	(300,000)	13,753,423
PY20	1,266,242	4,764,200	4,440,652	3,141,328	450,000	14,062,423	(300,000)	13,762,423
EIRR 35.7%								
NPV USD 112.5 million								



**Table F: Sensitivity analysis**

	ERR	NPV (million US\$)	Link with risk matrix
Base Scenario	35.7%	112.5	
Project benefits -20%	29.9%	84.5	Combination of risks affecting output prices, yields and adoption rates
Project benefits -10%	32.9%	98.5	
Adoption rate -10%	28.7%	96.2	Extension service outreach is limited, low uptake of good practices,
Adoption rate -20%	25.6%	79.7	
Project costs 10%	33.1%	109.8	Increase of price of service providers, road construction, fertilizer, etc.
Project costs 20%	30.9%	107.0	
1 year lag in benefits	29.0%	100.9	Low implementation capacity, risks affecting adoption rates
2 year lag in benefits	24.4%	89.8	