Executive Board

President's memorandum

Proposed additional financing to

Lao People's Democratic Republic

Partnerships for Irrigation and Commercialization of Smallholder Agriculture Project (PICSA)

Project ID: 2000001892

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Action: The Executive Board is invited to approve the recommendation for the proposed additional financing contained in paragraph 64.

Technical questions:

Reehana Raza
Regional Director
Asia and the Pacific Division
e-mail: r.raza@ifad.org

Ambrosio Barros
Country Director
Asia and the Pacific Division
e-mail: a.nsinguibarros@ifad.org

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Project delivery team	
Regional Director:	Reehana Raza
Country Director/Country Programme Manager:	Ambrosio Barros
Technical Lead:	Dan Martin
Finance Officer:	Tendayi Makuyana
Climate and Environment Specialist:	Nawraj Pradhan
Legal Officer:	Mavundla Mhlambi

Financing summary

Initiating institution:	IFAD
Borrower/recipient:	Lao People's Democratic Republic
Executing agency:	Ministry of Finance
Total project cost:	US$97.5 million
Amount of original IFAD loan:	SDR 9 million (US$13 million)
Additional IFAD loan:	SDR 5.67 million (US$8 million)
Terms of original and additional IFAD financing:	Blend
Amount of second additional IFAD Loan:	US$10 million
Terms of second additional IFAD financing:	Blend terms Maturity period of 25 years, including a grace period of 5 years, with a service charge of 0.75 per cent and interest rate of 1.25 per cent per annum in special drawing rights (SDR) (adjustments for single-currency loans)
Cofinancier(s):	Asian Development Bank (ADB) – European Union (EU) German Agency for International Cooperation (GIZ) - Green Climate Fund (GCF) Private sector
Amount of cofinancing:	ADB-EU: US$30.4 million GIZ-GCF: US$24.7 million Private sector: US$1.6 million
Terms of cofinancing:	Parallel financing
Contribution of borrower:	US$3.1 million
Contribution of beneficiaries:	US$6.7 million
Amount of original IFAD climate finance:	US$10.1 million
Amount of additional IFAD climate finance:	US$6.9 million
Cooperating institution:	IFAD

I. Background and project description

A. Background

1. The original financing (OF) for the Partnerships for Irrigation and Commercialization of Smallholder Agriculture Project (PICSA)[1] became effective on 29 November 2019. The initial completion date was 31 December 2025.

2. PICSA is an IFAD-initiated and cofinanced project with a total cost of US$85.25 million divided as follows: IFAD original loan: US$13 million; IFAD additional loan: US$8 million; Government: US$2.15 million; beneficiaries: US$5.51 million; private sector: US$1.55 million; Asian Development Bank (ADB): US$30.36 million; and GIZ/GCF: US$24.68 million.

3. PICSA is part of a national programme that includes the ADB-funded Sustainable Rural Infrastructure and Watershed Management Sector Project (SRIWMSP) and the GIZ/GCF-funded Emission Reductions Programme (ERP) in the Lao People's Democratic Republic.

4. On 13 February 2024, following the PICSA midterm review (MTR) and considering the extensions of SRIWMSP and ERP to 2028 and 2027, respectively, the Government requested an extension of PICSA to 31 December 2028, with a second additional financing (AF) of US$10 million under the IFAD12 performance-based allocation system cycle, on blend terms, to scale up project activities that had demonstrated good value for money at MTR.

B. Original project description

5. PICSA's goal is to enhance livelihoods, climate resilience and sustainability in the project area. The development objective is sustainable and inclusive local economic development, to be achieved through three components: (i) intensified agricultural development, (ii) value chain development, and (iii) improved nutritional practices.

6. PICSA targets four provinces (Xiengkhouang, Houapanh, Saiabouly, and Luang Prabang), covering 19 districts and 353 villages. The project aims to reach 36,900 households, with the target group composed of at least 50 per cent women, 35 per cent young people and 30 per cent belong to ethnic groups.

7. The Ministry of Agriculture and Forestry manages the project through the Department of Irrigation at the central level, along with provincial project implementation teams (PPITs) and district project implementation teams (DPITs) at the provincial and district levels, in line with the Government's decentralization policy.

II. Rationale for additional financing

A. Rationale

8. The proposal includes US$10 million in AF and a three-year extension, following the positive findings of the MTR carried out in the December 2023.[2] The additional funding will allow for the replication of successful activities, consolidation of outcomes, and expansion to new villages and households, while addressing the climate change impacts on agriculture in the targeted areas.

9. Climate variability in the Lao People's Democratic Republic has led to crop damage, reduced yields and fluctuations in production. The Ex-Ante Carbon Balance Tool analysis projects a total carbon balance reduction of 53,048 tCO2-eq over 20 years, covering 1,803 hectares, which validates the PICSA AF proposal as

[1] EB 2019/LOT/P.2.

[2] The MTR's value for money analysis showed efficient resource use, with input-to-outcome ratios consistently below 1. The project met 67 per cent of its outreach targets using only 50 per cent of the total budget and 44 per cent of the IFAD financing. Furthermore, 16 of 22 output indicators surpassed midterm targets, with notable progress in nutrition and gender mainstreaming.

building the adaptive capacity of smallholders, while enhancing their commercial agriculture, market linkages and nutritional status, and reducing carbon emissions.

10. The AF will focus on scaling up and refining successful activities supported by the OF in three key areas:

    (a) **Component 1 – Intensified agricultural development:** Increase irrigated areas by 1,800 ha covering 120 new villages, thereby reaching additional beneficiaries.

    (b) **Component 2 – Value chain development:** Advance a graduation approach for agricultural production groups (APGs) and improve 115 km of access roads for additional beneficiaries.

    (c) **Component 3 – Improved nutritional practices:** Ensure year-round water access for 78 villages, expand household nutrition grants and provide nutrition education.

11. The AF is needed to amplify the project's impact and sustainability and provide continued support to rural communities. The economic net present value of the consolidated net benefit stream (OF + AF), discounted at 8 per cent, is LAK 271,133 million (US$12.7 million), producing an economic internal rate of return of 18.2 per cent. The benefit-cost ratio, reflecting the amount generated per dollar invested, is US$2.09.

Special aspects relating to IFAD's corporate mainstreaming priorities

12. **Mainstreaming themes**. In line with IFAD's mainstreaming commitments, the OF was validated as:

    ☒ Including climate finance

    ☒ Nutrition-sensitive

    ☒ Youth-sensitive

    In addition, the AF was validated as:

    ☒ Including adaptive capacity

13. The AF will scale up the successful targeting strategies used for the OF to ensure equitable benefits for all poor and vulnerable rural people, including women and men from all ethnic groups, while minimizing the risk of unequal benefits.

B. Description of geographical area and target groups

14. **Geographical targeting.** PICSA currently targets 353 villages (batches 1–3) across 19 districts in four provinces. The AF will extend activities to 120 new villages (batch 4) within the same districts to enhance efficiency. New villages will be selected based on set criteria such as poverty levels (compliance with Government Decree [348/GoL]), food insecurity, irrigation potential, youth population and government priorities. An automated Excel ranking tool has been developed to facilitate this selection process.

15. **Target groups.** Along with the farmer groups already supported by PICSA, the AF will also target new eligible farmer groups based on specific criteria. Component 1 will focus on poor and near-poor smallholder farmers in 120 new villages, setting up and strengthening water user groups (WUGs) and APGs, and linking the poorest households to household grants under component 3. Component 2 will cluster advanced APGs and connect them with start-ups or youth/women-led enterprises, excluding those already supported elsewhere. Component 3 will aid the poorest households in 38 villages affected by water constraints and 40 villages with multifunctional water systems, offering grants and dietary counselling, particularly for vulnerable women. The AF will also include better-off households for their economic roles and leadership.

C. Components, outcomes and activities

16. The AF will retain the same components as the OF.

17. **Component 1 – Intensified agricultural development.** This component supports local authorities and farmer groups in optimizing the productive use of natural resources and promoting agricultural intensification where conditions allow. It aims to reduce land stress from climate change and enhance community resilience to climatic shocks.

18. The outcome of this component is measured by two indicators: (i) cropping intensity and (ii) adoption of new or improved inputs, technologies or practices.

19. **Output 1.1 – Decentralized implementation strengthened.** This output focuses on 120 new villages (batch 4), creating basic village profiles that detail opportunities for high-value crops, road connectivity and water management. PICSA will deploy one local development expert per province and one cluster facilitator per 3–4 villages to assist community mobilization and village authorities in planning and implementing activities.

20. **Output 1.2 – Water user groups trained**. This output targets WUGs in the 120 new villages (batch 4) and supports 143 WUGs from the original villages (batch 3). District and Provincial Agriculture and Forestry Office (DAFO/PAFO) staff, supported by the project governance team (PGT), will provide training to WUGs to enhance the productivity, profitability, and sustainability of irrigated farming through effective operation and maintenance. Experts will assist WUGs and APGs with proposal submissions to the farmer group investment facility (see output 1.4). There is scope to cooperate with the ADB-funded SRIWMSP.

21. **Output 1.3 – Extension services provided**. This output targets new APGs and WUGs in 120 villages, enhancing the productivity and profitability of irrigated agriculture. PICSA will promote training on best agricultural practices and climate resilience, nutrition, and market responsiveness. DAFO staff will deliver training with PICSA's support by: (i) providing resources and project staff, (ii) encouraging third-party extension efforts, such as technical and vocational education and training centres and (iii) facilitating farmer-to-farmer extension methods.

22. **Output 1.4 – Farmer group investment facility.** This output will support new APGs and WUGs in the 120 new villages in developing irrigation infrastructure and investing in agricultural production, enabling communities to invest independently. The facility will cover:

    (a) **Small-scale infrastructure:** Funding for 120 schemes (developing about 1,800 ha of irrigated land) for small-scale irrigation infrastructure. Unit costs will increase in order to include climate-proofing measures. Key changes under the AF include: (i) designing irrigation schemes based on Command Area, with a cost of up to US$1,410 per ha and a maximum of 50 ha per scheme (instead of a fixed budget per village); (ii) ensuring alignment between WUG and APG members; and (iii) funding improvements to small headworks for areas of up to 10–20 ha, provided detailed flood risk analysis and environmental, social and climate management plans are prepared.

    (b) **Production grants***:* A total of 120 grants of up to US$9,000 per APG (average US$225 per member) for climate-resilient agricultural practices, covering small-scale mechanization, irrigation materials, seedlings, small livestock, seeds and biofertilizers, but excluding large livestock, pesticides and large machinery.

    (c) **Farmer trainer grants.** A total of 120 grants of up to US$2,000 for each farmer serving as a trainer and input supplier in their village. IFAD funding for each grant is 75 per cent. The beneficiaries will provide labour and local

material and cover the remaining share of the financial costs, estimated at 25 per cent of the total.

23. **Component 2 - Value chain development.** The outcome of this component is improved sales by smallholder farmers, measured through two outcome indicators: (i) percentage of households reporting an increase in sales of farm products, and (ii) percentage of participating enterprises obtaining a positive net return on investment.

24. **Output 2.1 – Multi-stakeholder platforms (MSPs).** The AF will not directly fund MSPs. Instead, government line agencies will continue to support the MSPs to enhance market linkages and contract farming as has been the case under the OF. MSPs will be adjusted to focus on specific commodities and will be driven by value chain actors and APGs, with potential collaboration with SRIWMSP and ERP.

25. **Output 2.2 – Agroenterprise investment facility.** This output will target OF- and AF-eligible villages (batches 1–4). The facility will focus on advanced APGs and start-up agroenterprises, supporting investments in collective post-harvest facilities and sustainable management. Funding includes: (i) US$2,800 each for 72 start-ups and youth/women-led enterprises, (ii) US$10,000 each for 38 advanced APGs, and (iii) US$30,000 each for 19 clustered APGs. A national agribusiness specialist and service provider will assist with investment planning, while clustered APGs will manage facilities under local authority supervision. This support aims to enhance climate resilience and market responsiveness.

26. **Output 2.3 – Improved access.** This output will target OF- and AF-eligible villages (batches 1–4). The AF will improve 115 km of access tracks at an increased unit cost of US$10,000 per km to incorporate climate-proofing measures. The AF also includes upgrading 30 km of access tracks from the OF phase. Enhancements will be made to IFAD's Social, Environmental and Climate Assessment Procedures (SECAP) risk screening, design quality and works supervision.

27. **Component 3 - Improved nutritional practices.** This component enhances dietary intake among nutritionally vulnerable members of PICSA's target group, through integrated homestead food production and awareness campaigns on diverse, safe and nutritious diets. This outcome is measured through the indicator: percentage of women reporting minimum dietary diversity (MDD-W).

28. Under the OF, PICSA improved MDD-W,[3] promoted diversified food production and enhanced storage and food processing facilities. The AF will refine these activities by better integrating component 3 with the other components to further enhance nutrition outcomes.

29. **Output 3.1: School-based nutrition interventions established [OF] / Access to water improved [AF]**. This output will target OF- and AF-eligible villages (batches 1–4). The AF will enhance water access at household, school and village levels by installing 38 small-scale water systems and making 40 irrigation schemes multifunctional, improving sustainable water management and climate change adaptation.

30. **Output 3.2: Increased dietary intake and improved dietary quality [OF] / Diversified food production improved [AF].** This output will target OF- and AF-eligible villages (batches 1–4). The AF will provide 1,200 household garden grants to the poorest and most vulnerable households. Managed by APG groups, these grants will support improved dietary intake. The AF will also intensify training for village nutrition facilitators and extension officers to strengthen community

[3] The PICSA midline survey indicated an MDD-W of 84 per cent.

awareness and adoption of optimal nutrition behaviour and enhance resilience to climate variability.

D. Costs, benefits and financing

Project costs

Project budget and economic and financial analysis

31. The total cost of PICSA is estimated at US$97.5 million. The financing summary is presented in table 1 below.

Table 1
Original, additional and second additional financing summary
(Thousands of United States dollars)

	*Original financing**	*Additional financing**	*Second additional financing*	*Total*
IFAD loan	12 995	8 035	10 000	31 030
Private sector	1 555	-	51	1 606
Beneficiaries	5 510	-	1 243	6 753
Borrower	2 155	-	867	3 022
ADB/EU	30 360	-	-	30 360
GIZ/GCF	24 687	-	-	24 687
Total	**77 262**	**8 035**	**12 161**	**97 458**

* Original and additional financing cost tables as approved in the President's report of the Partnerships for Irrigation and Commercialization of Smallholder Agriculture Project. Documents EB 2019/LOT/P.2 and EB 2020/LOT/P.9. Project ID: 2000001892.

32. Project investments for the second AF are allocated as follows: 47.9 per cent to component 1; 25.6 per cent to component 2; 8.1 per cent to component 3; and 18.4 per cent to component 4 (project management), which covers technical assistance and capacity-building and is consistent with the proportions approved for the OF. The detailed financing plan per component is shown in the table below.

Table 2
Additional financing: project costs by component and financier
(Thousands of United States dollars)

	IFAD AF	*Borrower*	*Beneficiaries*	*Private sector*	*Total*
1. Intensified agricultural development	4 624	206	1 002	-	5 832
2. Value chain development	2 603	213	241	51	3 108
3. Improved nutritional practices	909	79	-	-	988
4. Project management	1 864	369	-	-	2 233
Total project costs	**10 000**	**867**	**1 243**	**51**	**12 161**

33. The total amount of additional IFAD climate finance for this AF proposal is US$6.88 million.

Table 3
Additional financing: costs by component (and subcomponent) and financier
(Thousands of United States dollars)

	IFAD additional loan		*Private sector*		*Beneficiaries*			*Borrower/recipient*			*Total*
Component/subcomponent	*Amount*	*%*	*Amount*	*%*	*Cash*	*In-kind*	*%*	*Cash*	*In-kind*	*%*	*Amount*
1. Intensified agricultural development											
Output 1.1 - Decentralized implementation strengthened	899	89.7	-	-	-	-	-	-	103	10.3	1 002
Output 1.2 - Water user groups trained	290	90.3	-	-	-	-	-	-	31	9.7	321
Output 1.3 - Extension services provided	332	90.0	-	-	-	-	-	-	37	10.0	369
Output 1.4 - Farmer group investment facility	3 103	75.0	-	-	-	1 002	24.2	-	35	0.8	4 140
2. Value chain development											
Output 2.1 - Multi-stakeholder platforms	-	-	-	-	-	-	-	-	22	100.0	22
Output 2.2 - Agroenterprise investment facility	1 095	77.6	51	3.6	-	241	17.1	-	24	1.7	1 411
Output 2.3 - Improved access	1 508	90.0	-	-	-	-	-	-	167	10.0	1 675
3. Improved nutritional practices											
Output 3.1 - School-based nutrition interventions established / Access to water improved	607	90.1	-	-	-	-	-	-	67	9.9	674
Output 3.2 - Increased dietary intake and improved dietary quality / Diversified food production improved	302	96.2	-	-	-	-	-	-	12	3.8	314
4. Project management	1 864	83.5	-	-	-	-	-	-	369	16.5	2 233
Total	**10 000**	**82.2**	**51**	**0.4**	**-**	**1 243**	**10.2**	**-**	**867**	**7.1**	**12 161**

Table 4
Additional financing: costs by expenditure category and financier
(Thousands of United States dollars)

	IFAD additional loan		*Private sector*		*Beneficiaries*			*Borrower/recipient*			*Total*
Expenditure category	*Amount*	*%*	*Amount*	*%*	*Cash*	*In-kind*	*%*	*Cash*	*In-kind*	*%*	*Amount*
Investment costs											
1. Works	1 912	90.0	-	-	-	-	-	-	212	10.0	2 124
2. Goods, services and inputs	49	90.7	-	-	-	-	-	-	5	9.3	54
3. Equipment and materials	2	40.0	-	-	-	-	-	-	3	60.0	5
4. Consultancies	1 496	90.3	-	-	-	-	-	-	161	9.7	1 657
5. Training and workshops	751	89.0	-	-	-	-	-	-	93	11.0	844
6. Grants and subsidies	4 030	75.7	51	1.0	-	1 243	23.3	-	-	-	5 324
Total investment costs	**8 240**	**82.3**	**51**	**0.5**	**-**	**1 243**	**12.4**	**-**	**474**	**4.7**	**10 008**
Recurrent costs											
7. Salaries and allowances	1 184	89.2	-	-	-	-	-	-	144	10.8	1 328
8. Operating costs	576	69.8	-	-	-	-	-	-	249	30.2	825
Total recurrent costs	**1 760**	**81.7**	**-**	**-**	**-**	**-**	**-**	**-**	**393**	**18.3**	**2 153**
Total	**10 000**	**82.2**	**51**	**0.4**	**-**	**1 243**	**10.2**	**-**	**867**	**7.1**	**12 161**

Table 5
PICSA AF costs by component and project year (PY)
(Thousands of United States dollars)

	PY1		*PY2*		*PY3*		*PY4*		*Total*
Component/subcomponent	*Amount*	*%*	*Amount*	*%*	*Amount*	*%*	*Amount*	*%*	*Amount*
1. Intensified agricultural development									
Output 1.1 - Decentralized implementation strengthened	312	31.2	342	34.2	228	22.8	119	11.9	1 001
Output 1.2 - Water user groups trained	34	10.6	117	36.3	103	32.0	68	21.1	322
Output 1.3 - Extension services provided	15	4.1	120	32.6	122	33.2	111	30.2	368
Output 1.4 - Farmer group investment facility	38	0.9	3 765	90.9	318	7.7	19	0.5	4 140
2. Value chain development									
Output 2.1 - Multi-stakeholder platforms	12	57.1	6	28.6	3	14.3	-	-	21
Output 2.2 - Agroenterprise investment facility	958	67.8	427	30.2	27	1.9	-	-	1 412
Output 2.3 - Improved access	731	43.6	597	35.6	327	19.5	20	1.2	1 675
3. Improved nutritional practices									
Output 3.1 - School-based nutrition interventions established / Access to water improved	299	44.2	336	49.7	31	4.6	10	1.5	676
Output 3.2 - Increased dietary intake and improved dietary quality / Diversified food production improved	98	31.3	173	55.3	42	13.4	-	-	313
4. Project management	86	3.9	851	38.1	868	38.9	428	19.2	2 233
Total	**2 583**	**21.2**	**6 734**	**55.4**	**2 069**	**17**	**775**	**6.4**	**12 161**

Financing and cofinancing strategy and plan

34. The IFAD loans totalling US$21.03 million, plus the proposed second AF of US$10 million, will cover 32 per cent of total project costs. IFAD's share of recurrent costs is 14.5 per cent of the second AF and 17.6 per cent of IFAD's total financing.

35. PICSA benefits from parallel cofinancing in the project area: US$30.4 million from ADB/EU for SRIWMSP and US$24.7 million from GIZ/GCF for ERP, totalling 57 per cent of project financing.

36. Contributions for the OF and AF include US$2.16 million from the Government, US$5.51 million from beneficiaries, and US$1.56 million from the private sector. For the second AF, the Government will contribute US$867,000, beneficiaries US$1.2 million, and the private sector US$51,000. Government and beneficiary contributions will include in-kind contributions, such as taxes, duties and labour.

Disbursement

37. The withdrawal of IFAD resources will follow the revolving fund disbursement modality. The withdrawal application (WA) amounts will be supported by interim financial reports (IFRs) submitted to IFAD, within 30 days from following the end of the quarter. The IFRs and WAs will be submitted via the IFAD Client Portal's Financial Execution Module.

38. The AF will incorporate the contributions of the Government, beneficiaries and the private sector into the annual workplan and budget describing the disbursement profile and plan (OF and AF): flow of funds, disbursement methods, proposed thresholds for statements of expenditure, designated account and any unique circumstances or requirements.

Summary of benefits and economic analysis

39. The results from the financial analysis of the AF indicate that the activities foreseen contribute to increasing the benefits for farmers transitioning to improved rice varieties and adopting the agronomic practices promoted through the project. The results presented in table 7 below underline the importance of PICSA in providing financial support to farmers. Additional details on the analysis of results are provided in appendix II.

Table 6
Summary of economic and financial analysis of results at MTR

Activity	*Family farm benefits after financing without project (US$ /year)*	*Family farm benefits after financing with project (US$ /year)*	*Return to labour (US$ per.day)*	*Benefit-cost ratio*
Rainfed paddy	222	274	2.24	1.17
Rainfed paddy and upland maize	295	372	2.20	1.30
Rainfed lowland paddy with upland maize and crop	288	450	2.15	1.64
Irrigated lowland paddy only	350	423	3.42	1.19
Irrigated lowland paddy with upland crop	615	884	4.39	1.85
Average				**1.43**

40. The analysis of the economic profitability of the AF also indicates that it is a technical and economically viable investment. The project economic net present value of the consolidated net benefit stream (OF + AF), discounted at 8 per cent, is LAK 271,133 million (US$12.7 million), producing an economic internal rate of return of 18.2 per cent. The benefit-cost ratio, reflecting the worth generated per dollar invested, amounts to US$2.09 (see appendix II for additional details).

Exit strategy and sustainability

41. The AF provides an opportunity to refine the PICSA exit strategy to ensure the long-term sustainability of outcomes, with a key focus on empowering village authorities, WUGs and APGs under component 1. Component 2 will support the development of mature APGs and their clusters, guiding them towards self-financing and improved credit access for sustainable and profitable operations. Extending the project will further support this positive, long-term transition.

III. Risk management

A. Risks and mitigation measures

42. The overall risk of the AF is **moderate** in the updated integrated project risk matrix. Key risks include macroeconomic instability, climate change and financial management. To counteract macroeconomic risks, the project will boost farmers' market knowledge, improve market linkages through the multi-stakeholder platforms, the agroenterprise investment facility, and infrastructure upgrades (component 2), and align production with market demand. Details on financial management and climate change risks are provided below.

43. **Financial risks**. The financial management inherent and residual risk is **substantial**. Mitigation actions include: (i) capacity-building and technical assistance at the provincial and district levels; (ii) adequate enhancement of the accounting software for financial reporting and accounting; (iii) timely and accurate budgeting and systematic monitoring of budget performance; (iv) updating the project implementation manual to reflect up-to-date financial management provisions and the introduction of the internal audit function; (v) enhancing controls on asset management and use; and (vi) implementing the audit action plans.

B. Environment and social category

44. The environmental and social risk category for the AF is assessed as **moderate** per the revised SECAP risk matrix. Key risks include: (i) procurement of natural resources for irrigation and road upgrades (low risk); (ii) increased chance of human-wildlife conflicts (low); (iii) environmental pollution (moderate); (iv) use of agrochemicals; (v) primary production and small livestock (poultry, swine); and (vi) commercialization of cultural heritage (low). The project's location near ethnic groups poses a low risk of impacting their land rights or resources. Additional social risks include child labour (low), working conditions (moderate), and disease

spread. These risks will be managed through subproject selection criteria and mitigated by the Environmental, Social and Climate Management Plan (ESCMP) in the SECAP review note, ensuring environmentally and socially sustainable implementation.

C. Climate risk classification

45. The climate risk category for the AF is assessed as **moderate** according to the revised SECAP risk matrix. Risks include river floods, landslides, cyclones, extreme heat and wildfires. Target villages in the remote northern part of the country are particularly vulnerable to these risks, which affect agriculture, value chain and infrastructure investments. These risks will be addressed through subproject screening and the ESCMP in the SECAP review note to ensure climate resilience. Climate-proofing measures will be incorporated into the design of irrigation schemes and access roads to enhance sustainability against climate-related weather events.

D. Debt sustainability

46. The Lao People's Democratic Republic is in debt distress per the latest Debt Sustainability Analysis undertaken in May 2023. The country qualifies for blend terms as it is categorized as a "gap country" due to its gross national income per capita being above the International Development Association eligibility cut-off for over two years. It is therefore ineligible for Debt Sustainability Framework support. The deterioration in the country's risk rating and debt sustainability is attributed to macroeconomic challenges such as significant exchange rate depreciation, expanded debt coverage, expenditure arrears and domestic debt issuance to recapitalize state-owned banks.

IV. Implementation

A. Compliance with IFAD policies

47. The AF is aligned with the country strategic opportunities programme (COSOP) 2018–2024 and will be reflected in the design of the new COSOP. The project also conforms to the development assistance strategy and IFAD's financial management and procurement policies.

48. The AF adheres to IFAD's Strategy and Action Plan on Environment and Climate Change 2019–2025, SECAP 2021, the IFAD Rural Youth Action Plan (2019–2021), the Nutrition Action Plan (2019–2025), and the updated Policy on Engagement with Indigenous Peoples (2022).

B. Organizational framework

Management and coordination

49. **Project management.** The AF will adhere to the Government's decentralization policy, as established under the OF. Steering committees at national, provincial and district levels will provide guidance, with the national project steering committee offering strategic direction, document approval, and policy dialogue. The current PGT, under the Department of Irrigation of the Ministry of Agriculture and Forestry, will oversee implementation. PPITs and DPITs will manage localized activities, incorporating technical support from relevant agencies and aligning activities with project goals and development objectives. The human resources structure for the AF builds on the capacity already in place and ensures cost efficiency.

50. **Coordination.** The AF will maintain synergies with the ADB/EU-funded SRIWMSP and GIZ/GCF-funded ERP projects, and will continue using the established coordination mechanisms among these initiatives whenever feasible.

Financial management, procurement and governance

51. **Financial management (FM).** FM performance is rated as **moderately satisfactory**. The FM arrangements are properly organized in terms of staffing and

systems. The project finance team is equipped to manage the AF with segregation of duties on major functions. The approved annual workplan and budget and procurement plan will guide the project activities. Project payments will be adequately documented. The current signing arrangements will be maintained for the second AF.

52. **Accounting and reporting.** The existing accounting system, Sage 300, will be used to record financial transactions and generate reports. IFRs will be prepared and submitted through the IFAD Client Portal within 30 days following the end of the quarter together with the related withdrawal applications for justification and advances when required. The reporting currency will be United States dollars and transaction currency will be LAK.

53. **Disbursement and funds flow arrangements.** The existing designated account in the Bank of the Lao People's Democratic Republic will receive the second AF. The designated account is denominated in United States dollars and will follow the revolving fund arrangement, informed by the quarterly IFRs and cash forecasts. A project account will be maintained in a commercial bank in local currency for transaction purposes and will be replenished as needed from the designated account. The sub-accounts or operating accounts already established in commercial banks will continue to be used. These will be replenished from the project account upon approval of the request by the PGT. The utilization of the second AF proceeds will commence after the original loan has been fully used.

54. **Internal control.** The current project implementation manual and financial management manual will be maintained and updated as needed for the AF.

55. **External audit.** Financial statements will be prepared based on IPSAS cash basis.[4] The second AF will be incorporated into the project's financial statements and will be subject to an annual external audit by a private audit firm cleared by IFAD. The audit report and management letter will be submitted to IFAD within 6 months of year end. The audit report will be disclosed as per the IFAD Policy on the Disclosure of Documents.

56. **Procurement.** Procurement using IFAD funds will follow national regulations consistent with IFAD's Project Procurement Guidelines. The procurement system from PICSA will continue, with decentralized management at district and village levels. The PGT will be directly responsible for national-level procurement activities, and will consolidate annual plans, and train the DPIT for local procurement, including for access tracks and water supply systems. Procurement for access tracks, water supply systems and farmer group investment facility grants will be carried out by farmer groups with support from the DPIT.

57. A project procurement arrangement letter will outline requirements and thresholds for procurement methods and IFAD prior review. The IFAD Online Project Procurement End-to-End System (OPEN) will be used to prepare and monitor procurement plans. Contract data will be updated regularly in the IFAD Client Portal's contract monitoring tool.

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

58. **Monitoring and evaluation (M&E).** The M&E system already in place will continue to be used to monitor physical and financial progress, as well as progress on project objectives, outcomes and outputs, and will serve as a key management tool. The original logical framework has been updated to integrate AF cumulative end targets at all levels. The IFAD core indicator 3.2.1 has been added to the

[4] Financial Reporting under the Cash Basis of Accounting as issued by the International Public Sector Accounting Standards Board.

logframe to measure carbon emissions reduction. The endline survey will be conducted on completion of the AF period.

59. **Knowledge management (KM).** Key KM activities, including the maintenance and update of PICSA social media platforms and the generation of pertinent KM products, will be continued.

D. Proposed amendments to the financing agreement

60. The financing agreement will be amended to incorporate the AF of US$10 million, which, together with the OF, brings the total to US$42.41 million contributed by IFAD, the Government, beneficiaries and the private sector.

Table 7
Proposed amendments to the financing agreement
(Thousands of United States dollars)

	Original financing	*Disbursed as of 31 July 2024*	*% disbursed*	*Additional financing*	*Total*
IFAD original financing (loan 2000003089)	12 995	10 539	81%	-	12 995
IFAD additional financing (loan 2000003624)	8 035	5 501	68%	-	8 035
IFAD second additional financing	-		-	10 000	10 000
Government	2 155	2 360	110%	867	3 022
Beneficiaries	5 510	1 444	26%	1 243	6 753
Private sector	1 555	2 681	172%	51	1 606
Total	**30 250**	**22 525**	**74%**	**12 161**	**42 411**

V. Legal instruments and authority

61. A financing agreement between the Lao People's Democratic Republic and IFAD will constitute the legal instrument for extending the proposed financing to the borrower/recipient. The signed financing agreement will be amended following approval of the additional financing.

62. The Lao People's Democratic Republic is empowered under its laws to receive financing from IFAD.

63. 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

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

> RESOLVED: that the Fund shall provide a loan on blend terms to the Lao People's Democratic Republic in an amount of ten million United States dollars (US$10,000,000) and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

Alvaro Lario
President

Updated logical framework incorporating the additional financing

Results Hierarchy	Indicators	Baseline	End Target			Means of Verification			Assumptions
	Name		OF	MTR	AF	Source	Frequency	Responsibility	
Outreach	1 Persons receiving services promoted or supported by the project					Project M&E records / Progress Report	Quarterly	PGT, PPIT, DPIT M&E officers	Outreach calculation of OF as revised at MTR: C1: 353 villages authorities trained (an overlap of 50% with APG and WUG is estimated) + 353 APG groups of 80 individuals + 353 WUG groups of 80 individuals (an overlap of 90% with APG is estimated) C2: AIF enterprise size (120*5) + HH members living in the catchment area (160km*3800*5.5 with estimated overlap of 60% with APG) C3: 1700 HGG are provided to 1700 HH in 160 villages (an overlap of 60% with APG).
	Males	0	95 940	61 402	77 015				
	Females - Females	0	95 940	61 402	77 015				
	Young - Young people	0	47 970	30 701	38 508				
	Indigenous people - Indigenous people	0	76 752	36 841	46 209				
	Total number of persons receiving services - Number of people	0	191 880	122 804	154 030				
	1.a Corresponding number of households reached								
	Women-headed households - Households	0	5 535	1 845	2 405				
	Non-women-headed households - Households	0	31 365	35 055	45 703				
	Households - Households	0	36 900		48 108				
	1.b Estimated corresponding total number of households members								

	Household members - Number of people	0	191 880	202 950	258 326				An average of 3,2 persons per HH is considered to be directly receiving project services (indicator 1). The number of HH members (indicator 1.b) is calculated by multiplying the number of HHs by 5,3 (average household size in Laos). AF added targets to OF. The outreach for the AF is calculated in the same way as for the OF (see above). Disaggregation is as follows: 50% male; 50% female; 25% youth (15-35 years old); 30% indigenous people (IP)
	Groups receiving project services					Project M&E records / progress report	Bi-annual	PGT, PPIT, DPIT	
	Group - Number	0	2450	706	946				
	Villages receiving project services								
	Villages - Number	0	350	353	473				
Project Goal Enhanced livelihood and climate resiliencies and sustainability within the	# target group households (extreme poor, poor, near poor) reporting enhanced resilience			# target group households (poor, near poor) reporting enhanced resilience		Household resilience index included in the surveys	Baseline, midline, endline	PGT (outsourced)	Project interventions will effectively build resilience and lead to long-term sustainability across economic,

project intervention area.	# target group households - Number	0	22 960		29 848				institutional, social, and environmental dimensions, with ongoing stakeholder commitment and stable external conditions.
Development Objective Sustainable and inclusive local economic development	% of households below the poverty line					Baseline, midterm and completion surveys	Baseline, midline, endline	PGT (outsourced)	Project will successfully foster local economic development that is both sustainable and inclusive, with active participation from all community members and a stable environment that supports long-term growth.
	% households - Percentage (%)	30	5		5				
Outcome1. Intensified agricultural development	Cropping intensity in lowland paddy fields (proxy for farming system intensity)					Baseline, midterm and completion surveys	Baseline, midline, endline	PGT (outsourced)	Intensified agricultural development will drive local economic growth, helping to stabilize or reduce out-migration, and will be supported by effective disaster risk management and response systems.
	Cropping intensity - Percentage (%)	110	140		140				
	1.2.2 Households reporting adoption of new/improved inputs, technologies or practices								
	Households - Percentage (%)	10	50		70				
	Number of HHs	3 690		18 450	33 676				
	Total HH members	20 295		101 475	185 217				
Output 1.1 Decentralized	# of Districts with more than 15 staff trained in project implementation and management procedures					Project M&E records	Bi-annual	DPIT	There will be sufficient continuity in government staffing at all
	Districts - Number	0	19		19				

implementation strengthened	# of village authorities trained in leading Local Economic Development							levels, and that the government will continue to support a strong implementation role for the districts, effectively putting the Sam Sang decree into practice.
	Village authorities - Number	0	350	353	473			
Output 1.2 Water users' groups trained	3.1.1 Groups supported to sustainably manage natural resources and climate-related risks					Project M&E records	Bi-annual	DPIT	Collaboration and commitment among agencies involved in promoting commercialisation of smallholder agriculture
	Total size of groups - Number of people	0	7 060	28 000	37 840				
	Groups supported - Groups (WUG)	0	438	353	473				
	Males - Males	0	3 530	14 000	18 920				
	Females - Females	0	3 530	14 000	18 920				
	Young - Young people	0	1 765	7 000	9 460				
	Indigenous people - Indigenous people	0	2 824	8 400	11 352				
Output 1.3 Extension Service provided	1.1.4 Persons trained in production practices and/or technologies					Project M&E records	Bi-annual	DPIT	Valid agricultural innovations available from research institutions and private sector.
	Total persons trained in crop - Number of people	0	28 000		37 600				
	Men trained in crop	0		14 000	18 800				
	Women trained in crop	0		14 000	18 800				

	Young people trained in crop	0		7 000	9 400				
Output 1.4 Farmer Group Investment Facility established	2.1.3 Rural producers' organizations supported					Project M&E records	Bi-annual	DPIT	Farm households are able to finance their part of the investment facility.
	Rural POs supported - Organizations (APG)	0	2450	353	473				
	"Total size of POs (number of people) "	0		28 000	37 840				
	Females - Females	0		14 000	18 920				
	Males - Males	0		14 000	18 920				
	Young - Young people	0		7 000	9 460				
	Indigenous people - Indigenous people	0		8 400	11 352				
	Women-headed women	0		106	1 892				
Outcome 2. Value chain development	% of households reporting an increase in sales of farm products					Baseline, midterm and completion surveys	Baseline, midline, endline	PGT (outsourced)	Value chain development will be supported by market access, investment, and stakeholder collaboration, leading to enhanced economic opportunities and benefits for all participants.
	Households - Percentage (%)	0	50		50				
	% of participating enterprises having a positive net return on investment					Thematic survey	Midterm and completion	PGT (outsourced)	
	Enterprises - Percentage (%)	0	90		90				
Output 2.1	Policy 2 Functioning multi-stakeholder platforms supported							DPIT	

Multi-stakeholder platforms established	Number - Platforms	0	19		19	Project M&E records	semi-annual		Private investors are interested in investing in business opportunities in smallholders' agriculture along conditions promoted by the programme.
Output 2.2 Agro-Enterprise Investment Facility established	2.1.1 Rural enterprises accessing business development services					Project M&E records	semi-annual	PPIT	Local enterprises are able to finance their part of the investment facility.
	Rural enterprises - Enterprises	0	255	120	192				
Output 2.3 Improved rural access	2.1.5 Roads constructed, rehabilitated or upgraded					Project M&E records	Annually	DPIT	Communities assume responsibility for use, maintenance and management of facilities invested in by the Project.
	Length of roads - Km	0	504	162	277				
Outcome 3. Improved nutritional practices	1.2.8 Women reporting minimum dietary diversity (MDDW)					Baseline, midterm and completion surveys	Baseline, midline, endline	PGT (outsourced)	Improved nutritional practices will result from effective education, community engagement, and sustained access to necessary resources, leading to lasting behavior
	Women (%) - Percentage (%)	50	80		80				
	Women (number) - Females	453	1360		2 360				
	Households (%) - Percentage (%)	50	80		80				
	Households (number) - Households	453	1360		2 360				

	Household members - Number of people	2267	6800		12 980				change and better health outcomes.
	Indigenous - Indigenous people	181	544		3 894				
	Women-headed households - Households	108	326	68	118				
Output 3.1 School-based nutrition interventions established	# of schools serving improved meals of adequate nutritional value					Project M&E records	Bi-annual	DPIT	Collaboration and commitment among agencies involved in national convergence approach.
	Schools - Number	0	160		160				
	# of new school gardens established								
	School gardens - Number	0	100		100				
Output 3.2 Increased dietary intake and improved dietary quality	1.1.8 Households provided with targeted support to improve their nutrition					Project M&E records	Bi-annual	DPIT	Efforts to increase dietary intake and improve dietary quality will be met with community acceptance, access to diverse and nutritious foods, and the continued availability of resources and support to sustain these improvements.
	Total persons participating - Number of people	0	6800	3400	5 800				
	Males - Males	0	3400	1700	2 900				
	Females - Females	0	3400	1700	2 900				
	Indigenous people - Indigenous people	0	2720	1020	1 740				
	Young - Young people	0	1700	850	1 450				
	Households - Households	0	1700		2 900				
	Household members	0	8500	9350	15 950				

	benefitted - Number of people								
NEW: Outcome 4. Greenhouse gas emissions (CO2e) avoided and/or sequestered	3.2.1 Greenhouse gas emissions (CO2e) avoided and/or sequestered					FAO's EX-Ante Carbon-balance Tool (EX-ACT)	Baseline, endline	IFAD ECG PDT	Activities initiated during the original funding window continue to influence GHG fluxes beyond the project's closure. This extended impact is linked to the EX-ACT methodology, which aligns with IPCC guidelines for estimating greenhouse gas fluxes related to changes in soil carbon stocks.
	Hectares of land - *Area (ha)*	16 975			18 058				
	tCO2e/20 years - *Number*				-53 048				
	tCO2e/ha - *Number*	-2.21			-8.00				
	tCO2e/ha/year - *Number*	-0.37			-1.82				

Updated summary of the economic and financial analysis

Table 1: Summary page on PICSA costs, Logframe indicators and EFA results (original and additional financing)

COST-EFFECTIVENESS DATA			
Total Project Costs (USD M): **42.41**		**IFAD loan**: (USD M): **31.03**	
Target population [1]	People: **154,030**	Households**: 48,108**	
Cost per targeted population	**120** USD / person	**645** USD / HH	
Primary beneficiaries [2] (included in the EFA)	People: **104,060**	Households**: 18,920**	Farmers Groups: **946** @ 40 HH per group
Cost per primary beneficiary [3]	**298** USD / person	**1,640** USD / HH	**Participation rate: 80%**

Components / Outputs and Cost (USD M)		**Selected Outputs and Indicators**	
A. Intensified Agricultural Development			
1.1 - District staff and village authorities trained	1.89	19	# Districts trained
1.2 - Water User Groups trained	0.51	473	# Groups supported
1.3 - Extension services provided	1.13	37,600	# Persons trained
1.4 - Farmer Group Invest. Facility established	8.66	473	# Rural producers' organisations supported
B. Value Chain Developed			
2.1 - Multi-Stakeholder Platforms established	0.40	19	# MSP meetings held
2.2 – Agro-Enterprise Invest. Facility established	3.10	192	# Ent. Accessing services
2.3 - Access improved	4.82	277	# kms of new/rehabilitated roads managed and maintained by communities
C. Improved Nutritional Practices			
3.1 - School-based nutrition interventions established	0.99	160	# Schools preparing meals based on adequate nutritional value
3.2 - Increased dietary intake and improved dietary quality	0.68	2,900	# HH provided with targeted support to improve diets

EFA RESULTS				
INDICATOR	**UNIT**	**Combined**	**Additional financing**	**Original (MTR)**
Economic Net Present Value (ENPV) @ 8%	(LAK million)	271,133	168,3441	172,476
ENPV @ 8%	(USD million)	12.73	7.9	19.30
Economic Internal Rate of Return (EIRR)	(%)	18.2%	18.2%	21.0%
Benefit Cost Ratio (BCR)	ratio	2.09	1.98	2.39

[1] Total targeted population assumes the population in 19 Districts benefitting from better market linkages, better connectivity and enhanced water management. Primary beneficiaries are those accessing the local economic development matching grants. The Economic and Financial Analysis assesses the effectiveness and efficiency of these grants.

[2] Direct beneficiaries - assumes 5.5 persons per household.

[3] IFAD loan (USD 21.03 million + USD 10 million) / Project target HHs (i.e. reached by project interventions)

FINANCIAL ANALYSIS

Objective and Methodology

1. The primary objective of the financial analysis is to determine the financial viability and incentives for the project target group as a result of their participation in project activities and, hence, to determine the economic impact on family labour, cash flow and household incomes. The financial analysis of PICSA additional financing (AF) applies the same methodology used in project design and mid-term review (MTR). The key indicators used to carry out the analysis are Net Present Values (NPVs), Internal Rates of Returns (IRRs) and Benefit-Cost Ratios (BCRs) calculated over the project implementation phase (4 years) and its capitalisation phase (16 years).

Details on farm models

2. **Representative products.** The key farm products currently produced by the target group, and thus used as the representative products, include paddy, maize (field food crops), peanuts, garlic, vegetables (cash crops), and pigs (livestock).

3. **Farm models.** Updated data were used to refine the original four types of farm models (A to D—table 2) and MTR updated models (A to F—table 2). The table below presents the distribution and phasing of target households by project years and type of products. Most new farm models are related to paddy production in the project provinces, either in the lowland or upland, as also foreseen in PICSA's original financing.

Table 3: AF updated farm models from the original financing

Scenario	Farm size	Wet Season	Dry Season
Model A: Rainfed lowland paddy only			
Existing	1 ha lowland	1 ha rainfed lowland paddy (local variety)	(No cropping)
New	1 ha lowland	1 ha rainfed lowland paddy (improved variety Lao GAP[\1])	1 ha peanut relay crop
Model B: Rainfed lowland paddy with upland maize			
Existing	1 ha lowland	1 ha rainfed lowland paddy (local variety)	(No cropping)
	1 ha upland	1 ha maize (local variety)	(No cropping)
New	1 ha lowland	1 ha rainfed lowland paddy (improved variety)	(No cropping)
	1 ha upland	1 ha maize (improved variety)	1 ha maize (improved variety)
Model C: Rainfed lowland paddy with upland relay peanut			
Existing	1 ha lowland	1 ha rainfed lowland paddy (local variety)	(No cropping)
	1 ha upland	1 ha maize (local variety	(No cropping)
New	1 ha lowland	1 ha rainfed paddy (improved variety)	0.5 ha short-cycle relay crop (peanut)
	1 ha upland	1 ha maize (improved variety)	(No cropping)
Model D: Irrigated lowland paddy only			
Existing	1 ha lowland	1 ha irrigated paddy (local variety)	0.5 ha irrigated paddy (local variety)
New	1 ha lowland	1 ha irrigated rice (improved variety)	1 ha garlic
Model E: Irrigated lowland paddy with upland			
Existing	1 ha lowland	1 ha irrigated paddy (local variety)	0.5 ha irrigated paddy (local variety)
	1 ha upland	1 ha maize	(No cropping)
New	1 ha lowland	1 ha irrigated paddy (improved variety)	0.5 ha vegetables
	1 ha upland	1 ha maize	0.5 ha maize

			0.25 ha vegetable
Model F: Livestock			
Existing	20 heads x 2 cycles	20 hd (local variety), 5 months	20 hd (local variety), 5 months
New	30 heads x 2 cycles	30 hd (improved), 4 months	30 hd (improved), 4 months

Table 4: Household, Beneficiaries and Phasing [1]

	PY 1	PY 2	PY 3	PY 4	Total
	2025	2026	2027	2028	
Households by Farm Type					
Model A	78	939	470	78	1,566
Model B	13	159	80	13	265
Model C	16	193	96	16	322
Model D	40	485	243	40	808
Model E	26	315	158	26	525
Model F	66	788	394	66	1,314
Total – incremental	240	2,880	1,440	240	4,800
Total – cumulative (rounded)	240	3,120	4,560	4,800	
Beneficiaries by farm type					
Model A	345	4,134	2,067	345	6,890
Model B	58	700	350	58	1,166
Model C	71	849	425	71	1,415
Model D	178	2,134	1,067	178	3,557
Model E	116	1,387	693	116	2,311
Model F	289	3,468	1,734	289	5,781
Total – incremental	1,056	12,672	6,336	1,056	21,120
Total – cumulative (rounded)	1,056	13,728	20,064	21,120	

[1] Primary beneficiaries – i.e. taking up the matching grants of Output 1.4 - Farmer Group Investment Facility only.
[2] 80% adoption rate.
[3] Assuming 5.5 persons per household.
Source: MTR mission, AF mission and PGT

4. The critical parameters of farm models A to F have been revised and updated with the latest baseline, midline and project M&E data. The table below summarises the key features of the farm models.

Table 5: Selected Financial Analysis Assumptions

Selected Outputs	Av. Production [1] unit	WOP	WP [2]	Price (LAK)	unit	Selected Inputs	Price (LAK)	unit
Paddy	t/ha	2.52	3.11	2,200	/ kg	Improved paddy seed	5,250	/ kg
Maize	t/ha	1.33	4.58	1,600	/ kg	Improved maize seed	2,400	/kg
Peanut	t/ha	2.57	1.60	3,000	/ kg	Fertiliser	110,000	/ bag
Garlic	t/ha	7	2.00	5,500	/ kg	Manure	300	/ kg
Vegetable [2]	t/ha	10	12.96	3,500	/ kg	Fencing material	2,000,000	/ ha
Pig						Sack	2,500	/ pc
						Hired Labour	50,000	/ day
						Garlic seed	30,000	/kg

Note:
[1] *Full development*
[2] *WoP and WP data based on baseline and midline surveys and information from field visits*

[3] *Represented by cabbage*

Results of farm model financial analysis

5. **Model A: Rainfed Paddy Farm Household**. This model examines the profitability of switching from a single crop of traditional rainfed paddy to an improved rainfed paddy variety and a peanut relay crop. The key characteristics and results of this farm model are shown in the table below.

Table 6: Financial results - Model A

Description: Rainfed lowland paddy and upland farms improved through improved varieties, inputs and supplementary irrigation to allow for improved yield and an incremental upland cycle in the dry season.

Financial indicators:	Unit	Without	With
Family farm benefits after financing	LAK '000/year	4,736	5,837
	USD/year	222	274
Return to family-labour	LAK/person/day	44,408	47,663
	USD/person/day	2.08	2.24
Ratio to the daily wage rate	Ratio	0.99	1.06
Profitability indicators:	**Value**	**Before financing**	**After financing**
NPV	USD/HH	(91.27)	92.39
IRR	%	7%	16%
BCR		1.17	

6. The results indicate that the activity contributes to increasing the benefits for farmers transitioning to improved rice varieties. The results also underline the importance of PICSA in providing financial support to farmers. Without the latter, the activity would not make economic sense, as farmers from this group could not sustain it (negative NPV before financing).

7. **Model B: Rainfed lowland paddy with upland maize**. This model examines the profitability of moving from a single crop of traditional variety rainfed paddy and upland maize to an improved rainfed paddy and upland maize with improved variety and production process. The table below summarises the key characteristics and financial results of this farm model.

Table 7: Financial results – Model B

Description: Rainfed lowland paddy and upland farms improved through improved varieties, inputs and supplementary irrigation to allow for improved yield and an incremental upland cycle in the dry season.

Financial indicators:	Unit	Without	With
Family farm benefits after financing	LAK '000/year	6,277	7,922
	USD/year	295	372
Return to family-labour	LAK/person/day	32,863	46,865
	USD/person/day	1.54	2.20
Ratio to the daily wage rate	Ratio	0.73	1.04
Profitability indicators:	**Value**	**Before financing**	**After financing**
NPV	USD/HH	(58)	125
IRR	%	9%	16%
BCR		1.30	

8. The data shows that this activity has the potential to increase farmers' benefits. Nevertheless, without the technical and financial support provided by PICSA, farmers in this group would have difficulty securing the necessary financing, leading to a negative NPV before financing.

9. **Model C: Rainfed lowland paddy with upland maize and relay crop**. This model examines the profitability of moving from a single crop of traditional variety rainfed paddy and upland maize to an improved variety and process and a short-cycle peanut relay crop in the lowland. This activity's results are already positive in the pre-financing scenario, confirming its feasibility and value for money in the given context (see table below).

Table 8: Financial results - Model C

Description: Rainfed lowland paddy and upland farms upgrade to improved varieties, inputs and supplementary irrigation to allow for an incremental upland cycle and a lowland short relay cash crop in the dry season.			
Financial indicators:	**Unit**	**Without**	**With**
Family farm benefits after financing	LAK '000/year	6,142	9,588
	USD/year	288	450
Return to family-labour	LAK/person/day	32,059	45,724
	USD/person/day	1.50	2.15
Ratio to the daily wage rate	Ratio	0.71	1.02
Profitability indicators:	**Value**	**Before financing**	**After financing**
NPV	USD/HH	430	970
IRR	%	26%	n/a
BCR		1.64	

10. **Model D: Irrigated lowland paddy only**. This model examines the profitability of moving from a single crop of traditional variety irrigated paddy to an improved irrigated paddy variety and a garlic relay crop in the lowland. The key characteristics and results of this farm model are shown in the table below. Profitability results are positive under both the pre-and post-financing scenarios, confirming the financial feasibility of the activity.

Table 9: Financial results - Model D

Description: Lowland paddy farm was developed through improved varieties, inputs, and supplementary irrigation to allow for a short cash crop relay in the dry season.			
Financial indicators:	**Unit**	**Without**	**With**
Family farm benefits after financing	LAK '000/year	7,455	9,021
	USD/year	350	423
Return to family-labour	LAK/person/day	46,712	72,915
	USD/person/day	2.19	3.42
Ratio to the daily wage rate	Ratio	1.04	1.62
Profitability indicators:	**Value**	**Before financing**	**After financing**
NPV	USD/HH	9	289
IRR	%	12%	n/a
BCR		1.19	

11. **Model E: Irrigated lowland paddy with upland**. This model examines the profitability of moving from a single wet season crop and partially dry season of traditional lowland paddy and upland maize to an improved variety wet season paddy and a dry season vegetable relay crop in the lowland, together with dry season maize and vegetable in the upland. The key characteristics and positive results of this farm model are shown in the table below.

Table 10: Financial results - Model E

Description: Irrigated lowland paddy and partially dry upland farms are developed through improved varieties, inputs, and supplementary irrigation to allow for incremental maize cycle and short relays of cash crops in the dry season in both lowland and upland.			
Financial indicators:	**Unit**	**Without**	**With**
Family farm benefits after financing	LAK '000/year	13,098	18,825
	USD/year	615	884
Return to family-labour	LAK/person/day	68,572	93,475
	USD/person/day	3.22	4.39
Ratio to the daily wage rate	Ratio	1.52	2.08
Profitability indicators:	**Value**	**Before financing**	**After financing**
NPV	USD/HH	822	1,363
IRR	%	33%	n/a
BCR		1.85	

12. **Model F: Livestock.** This model examines the profitability of intensified livestock production, represented by Pig fattening through improving bloodstocks, feeding and disease prevention processes, and expanding production. While livestock intensification means a larger number of animals over a shorter period and a higher risk of disease and mortality, the model is made possible by improving the production and veterinary processes and better water supply for hygiene and environmental protection, which allows for more proper animal health to control the incremental risks. This is a new model that was not included in the original EFA, and it is not directly related to paddy production like other models. This model is prevalent in all project areas, with a higher concentration in Luang Prabang. The profitability of this activity is confirmed by the results shown in the table below.

Table 11: Financial results - Livestock[1]

Description: A pig fattening farm was developed through improved piglets, feeding regime, water supply, and animal health processes to improve feed conversion, weight gain, and price.			
Financial indicators:	**Unit**	**Without**	**With**
Family farm benefits after financing	LAK '000/year	37,834	64,018
	USD/year	1,776	3,005
Return to family-labour	LAK/person/day	69,901	76,276
	USD/person/day	3.28	3.58
Ratio to the daily wage rate	Ratio	1.55	1.70
Profitability indicators:	**Value**	**Before financing**	**After financing**
NPV	USD/HH	430	970

IRR	%	26%	n/a
BCR		1.64	

[\1] represented by pig fattening

ECONOMIC ANALYSIS

Objective and Methodology

13. The objectives of the economic analysis are (i) to examine the overall Project viability, (ii) to assess the project's impact and the overall economic rate of return, and (iii) to perform sensitivity analyses of risks and variables affecting the project's results.

14. Similar to the financial analysis, the economic analysis follows the methodology for the original as closely as possible. A few revisions have been introduced in the estimates of economic parameters. The table below presents the key information on the parameters estimated and related data sources.

Table 12: Key Economic Analysis Assumptions

Parameter	Value	Remarks
Official exchange rate	21,305	USD 1 = LAK 21,305 IMF data (May 2024).
Shadow exchange rate	22,321	USD 1 = LAK 22,321 Estimated based on World Bank data (May 2024)
Shadow exchange rate factor	1.05	Project costs are estimated in USD and converted using the Costab software to economic terms using the SERF. Subsidies, duties, and taxes are eliminated to convert all financial costs into economic costs.
Standard conversion factor (SCF)	0.95	Estimated based on World Bank data (May 2024). As appropriate, all output prices are adjusted using the corresponding conversion factors.
Value added tax	7%	Included in project costs and eliminated as appropriate for conversion to economic costs.
Unemployment rate	4%	International Labour Organization data (May 2024)
Shadow wage rate factor (SWRF)	92%	Applied to unskilled wage rates to reflect the relative abundance of unskilled labour.
Financial discount rate	11%	Average of lending and deposit interest rate. Data from LAO PDR Central Bank statistics (May 2024)
Economic discount rate	8%	Average of long-term government bonds. Data from LAO PDR Central Bank statistics (May 2024)
Project life (years)	20	The project life has been assumed to be equivalent to 20 years, which is in line with the investment lifecycle.

15. **Key Assumptions**. Production and activity models considered in the financial analysis are used to determine the whole project's viability once market distortion and opportunity costs for inputs and outputs are addressed. The economic analysis of the project hinges on the following assumptions: (i) Project life has been assumed at 20 years in light of investments lifecycle; (ii) project inputs and outputs are valued at their economic parity prices estimated upon international prices as reported by the World Bank commodity outlook, and on the basis of custom duties and taxes rates as provided by the national custom bureau of LAO PDR; (iii) an economic discount rate of 8% has been calculate as the average value of long-term bond yields; (iv) family labour is valued at its opportunity cost; (v) the shadow exchange rate factor (SERF) of 1.05 is calculated upon international trade statistics and applied for the conversion of tradable commodity prices; vi) conversion factors for main inputs and outputs are calculated from international prices and on the basis of import and export taxes and duties in Laos; and (vii) the shadow exchange rate (SER), estimated upon international trade data, is equal to LAK 22,321.

16. **Project Economic Costs.** Project financial costs have been converted to economic values by removing taxes, duties and subsidies. The economic analysis includes the investment and incremental recurrent costs of project components. To avoid double counting, the final aggregation considered only those costs not included in financial models. Specifically, the estimation of economic costs considered (a) all investment costs deducted from taxes, (b) the recurrent costs of the program, (c) allowances for post-project recurrent costs to maintain support for effective market linkages, assumed at 15 per cent of investment costs; (d) post-project recurrent costs to maintain rural access, assumed at 15 per cent of investment costs. and (e) using a conversion factor of 1.05 (SERF) to correct market costs to economic costs into Costab.

17. **Benefits Estimation.** The incremental benefits stream comprises the economic net values of all the models developed in the financial analysis. These benefits are then aggregated following the inclusion phasing foreseen for targeted households. To ensure a conservative estimation of the project impact, it is assumed that 80 percent of the original target group will actively adopt project activities. Similarly, annual phasing rates for beneficiary inclusion are also assumed to report a gradual and increasing uptake of project activities.

18. **Economic Profitability.** The additional financing of PICSA is a technical and economically viable investment for the economy as a whole. The project economic NPV of the net benefit stream, discounted at 8%, is LAK 168,344 million (US$7.9 million), producing an EIRR of 18.2%. The benefit-cost ratio, reflecting the worth generated per dollar invested, amounts to US$1.98. The table below summarises the profitability results for PICSA's additional financing. Similarly, the results from the consolidated analysis (additional and original financing) confirm the viability of PICSA. The economic analysis of PICSA yields an NPV of LAK 271,133 million, an EIRR of 18.2 and a BCR of 2.09. The summary of these results is provided in table 13, while table 14 reports the result from the original financing of PICSA only (as per MTR review).

Table 13: PICSA Economic results - Additional financing only (LAK million)

Year	Incremental benefits	Total incremental costs	Net incremental benefits
1	(1,336)	44,593	(45,929)
2	(25,029)	79,360	(104,389)
3	(4,976)	3,127	(8,103)
4	7,912	1,785	5,555
5	34,787	9,106	25,109
6	36,341	9,106	26,663
7	54,066	9,106	44,388
8	57,058	9,106	47,380
9	59,977	9,106	50,299
10	61,697	9,106	52,019
11	61,697	9,106	52,019
12	61,697	9,106	52,019
13	61,697	9,106	52,019
14	61,697	9,106	52,019
15	61,697	9,106	52,019
16	61,697	9,106	52,019
17	61,697	9,106	52,019
18	61,697	9,106	52,019
19	61,697	9,106	52,019

20	61,697	9,106	52,019

ENPV @ 8%	(LAK million)	168,344
ENPV @ 8%	(USD million)	7.90
EIRR	(%)	18.2%
Benefit Cost Ratio	ratio	1.98
NPV benefits @ 8%		367,968
NPV costs @ 8%		186,157
Switching values Benefits		(49%)
Switching values Costs		98%

Table 14: PICSA Economic results - Consolidate financing AF + MTR (LAK million)

Year	Incremental benefits	Total incremental costs	Net incremental benefits
1	-	2,153	-2,153
2	-	24,247	-24,247
3	(22,884)	17,601	-40,485
4	(24,029)	45,719	-69,748
5	73	16,525	-16,452
6	24,714	58,101	-33,387
7	59,738	96,550	-36,812
8	58,504	8,851	49,653
9	33,832	7,509	26,322
10	55,166	14,830	40,336
11	68,174	14,830	53,343
12	93,710	14,830	78,879
13	95,264	14,830	80,434
14	112,989	14,830	98,159
15	115,981	14,830	101,151
16	118,900	14,830	104,070
17	120,620	14,830	105,790
18	120,620	14,830	105,790
19	120,620	14,830	105,790
20	120,620	14,830	105,790
21	120,620	14,830	105,790
22	120,620	14,830	105,790
23	120,620	14,830	105,790
24	120,620	14,830	105,790
25	120,620	14,830	105,790

ENPV @ 8%	(LAK million)	271,133
ENPV @ 8%	(USD million)	12.73
EIRR	(%)	18.2%
Benefit Cost Ratio	ratio	2.09
NPV benefits @ 8%		561,484
NPV costs @ 8%		268,660
Switching values Benefits		(52%)

Switching values Costs		109%

Table 15: PICSA Economic results - original financing MTR (LAK million)

Year	Incremental benefits	Total incremental costs	Net incremental benefits
1	-	2,153	(2,153)
2	-	24,247	(24,247)
3	(22,884)	17,601	(40,485)
4	(24,029)	45,719	(69,748)
5	73	16,525	(16,452)
6	24,714	13,508	11,206
7	59,738	17,190	42,548
8	59,840	5,724	54,116
9	58,861	5,724	53,136
10	60,142	5,724	54,418
11	60,262	5,724	54,538
12	58,923	5,724	53,199
13	58,923	5,724	53,199
14	58,923	5,724	53,199
15	58,923	5,724	53,199
16	58,923	5,724	53,199
17	58,923	5,724	53,199
18	58,923	5,724	53,199
19	58,923	5,724	53,199
20	58,923	5,724	53,199
21	58,923	5,724	53,199
22	58,923	5,724	53,199
23	58,923	5,724	53,199
24	58,923	5,724	53,199
25	58,923	5,724	53,199

ENPV @ 9%	(LAK million)	172,476
ENPV @ 9%	(USD million)	19.30
EIRR	(%)	21.0%
Benefit Cost Ratio	ratio	2.39
NPV benefits @ 9%		323,135
NPV costs @ 9%		135,136
Switching values Benefits		(58%)
Switching values Costs		139%

19. **Sensitivity Analysis**. Finally, the sensitivity analysis shows the effect of variations in project benefits and costs. Project results were tested to measure variations due to unforeseen factors, hence identifying those variables affecting final results the most. The table below indicates the extent to which a change in key variables (e.g., costs, benefits, or delay in implementation) would induce a shift in the project ENPV and EIRR. Results show that the PICSA AF is more sensitive to a decline in benefits only in the unlikely scenario of significant delays in implementation accompanied by an increase in costs and a reduction in benefits of ±20%. Project results would be heavily reduced—albeit remaining positive.

Table 16: Results of the sensitivity analysis of PICSA AF (only)

Simulations			EIRR	ENPV @ 8% (LAK million)
Base Case			18.2%	168,344
Changes Δ%				
Project Costs	Incremental Benefits	Benefits delayed by	Results	
10%	base case	No delay	15.8%	132,620
20%	base case	No delay	14.4%	114,280
base case	-20%	No delay	13.8%	84,090
base case	-40%	No delay	9.4%	17,230
10%	-10%	No delay	14.2%	99,190
20%	-20%	No delay	11.0%	47,420
base case	base case	1 year	15.1%	126,190
base case	base case	2 years	13.4%	103,260
base case	base case	3 years	12.0%	82,030
base case	-20%	1 year	10.8%	45,940
base case	base case	2 years	9.6%	27,600
base case	base case	3 years	8.6%	10,620
20%	-20%	2 years	8.5%	9,260

Appendix A1: Detailed EFA budgets and models

The EFA models and budgets are provided in separate Excel files.