
President's report

Proposed loan

Kingdom of Cambodia

**Climate Adaptive Irrigation and Sustainable
Agriculture for Resilience (CAISAR)**

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Action: The Executive Board is invited to approve the recommendation contained in paragraph 45.

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- I. Negotiated financing agreement (to be made available prior to the session)
- II. Logical framework
- III. Integrated project risk matrix

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Map of the project area



The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD | 15-01-2025

Financing summary

Initiating institution:	IFAD
Borrower/recipient:	Kingdom of Cambodia
Executing agency:	Ministry of Water Resources and Meteorology, and National Committee for Sub-National Democratic Development Secretariat
Total project cost:	US\$240 million
Amount of IFAD loan 1 under the performance-based allocation system (PBAS):	US\$17 million
Terms of IFAD loan 1:	Blend terms, which shall be subject to interest on the principal amount outstanding and a service charge as determined by the Fund at the date of approval of the loan by the Fund's Executive Board. The interest rate and service charge determined will be fixed for the life cycle of the loan and shall have a maturity period of 25 years, including a grace period of 5 years
Amount of IFAD loan 2 under the Borrowed Resource Access Mechanism (BRAM):	US\$8 million
Terms of IFAD loan 2:	Ordinary terms, which shall be subject to interest on the principal amount outstanding of the loan, at a rate equal to the IFAD reference interest rate including a variable spread, payable semi-annually in the loan service payment currency, and have a maturity period of 27 years, including a grace period of 8 years
Cofinanciers:	Asian Infrastructure Investment Bank (AIIB) and Green Climate Fund (GCF)
Amount of cofinancing (AIIB):	US\$100 million
Terms of cofinancing (AIIB):	N/A
Amount of cofinancing (GCF):	US\$40 million grant and US\$40 million loan
Terms of cofinancing (GCF):	The loan will have a maturity period of 20 years and grace period of 5 years, with an annual interest rate of 0.75 per cent, service fee of 0.5 per cent and commitment fee of 0.75 per cent
Contribution of borrower/recipient:	US\$15 million
Financing gap:	US\$20 million
Amount of IFAD climate finance:	US\$25 million (of which US\$0.98 million is a climate top-up)
Cooperating institution:	IFAD

I. Context

A. National context and rationale for IFAD involvement

National context

1. Cambodia has made significant progress in poverty reduction, but recent challenges, including the COVID-19 pandemic and the war in Ukraine, have reversed some of these gains. The poverty rate has increased from 10 to 17.8 per cent, with rural populations remaining especially vulnerable. Although agriculture accounted for 22 per cent of GDP and employed 35 per cent of the population in 2020, low land and labour productivity and limited irrigation (only 7 to 8 per cent of Cambodia's cropland is irrigated) hinder further growth. About 75 per cent of Cambodia's 1.7 million farming households are smallholders, with many living just above the poverty line and relying on supplementary wage labour.
2. Farming in Cambodia remains largely subsistence-based and rainfed, with low productivity and limited irrigation coverage, as only 7 to 8 per cent of the total agricultural land is fully irrigated, and 85 per cent of rice cropping areas are vulnerable to changing rainfall patterns. Farmers lack knowledge and tools to adapt to climate change, including the awareness of climate-resilient practices and improved technologies. Additionally, barriers such as limited access to credit and market intelligence, and a growing labour shortage due to rural-to-urban migration, further hinder smallholder productivity. Climate change disproportionately affects women and vulnerable groups, who face greater challenges due to limited access to financial resources, land, education and adaptive agricultural technologies. Despite their higher participation in agriculture, women have less influence in decision-making, which leads to their specific needs being often overlooked. The Agricultural Development Policy 2021–2030 aims to address these challenges by promoting a more commercial agricultural sector, focusing on enhancing productivity, market access and climate resilience. Effective implementation of this policy is key to sustaining agricultural growth and reducing rural poverty in the long term.

Special aspects relating to IFAD's corporate mainstreaming priorities

3. In line with IFAD's mainstreaming commitments, the project has been validated as:
 - ☒ Including climate finance
 - ☒ Including adaptive capacity

Rationale for IFAD involvement

4. IFAD is uniquely positioned to support the Government of Cambodia in implementing the Climate Adaptive Irrigation and Sustainable Agriculture for Resilience (CAISAR) project, leveraging its strong partnerships with government agencies, civil society and the private sector. By focusing on pro-poor value chains, IFAD ensures that rural communities are not left behind as the economy transforms. IFAD will apply its specialized expertise to help farmers overcome key barriers, enabling them to enhance productivity and increase their share of market value in both domestic and export markets. This approach will build on the successes of previous and ongoing initiatives, such as the Agriculture Services Programme for an Inclusive Rural Economy and Agricultural Trade and the Accelerating Inclusive Markets for Smallholders Project, which have worked to formalize informal business clusters, improve access to sustainable technologies and foster partnerships with the private sector.
5. Through CAISAR, IFAD will continue its commitment to inclusive financial services by utilizing public sector banks for investment financing, thus leveraging its global expertise. In collaboration with the Asian Infrastructure Investment Bank (AIIB) and the Green Climate Fund (GCF), IFAD will continue its programmatic approach, strengthening synergies between ongoing projects. This comprehensive strategy

will maximize the impact of the CAISAR project, ensuring long-term sustainability and growth for Cambodia's rural economy.

B. Lessons learned

6. Lessons learned from IFAD's country strategic opportunities programme for Cambodia and elsewhere have been documented in the project design report and are summarized as follows:
 - The need for differentiated strategies to meet the needs of two key target groups: smallholders advancing in agricultural commercialization and poor households seeking out coping strategies;
 - The need for adequate time and resources for capacity-building;
 - The need for a holistic approach to smallholder capacity-building, which includes: (i) social capital and inclusive governance; (ii) production and productivity; (iii) access to sustainable markets; and (iv) viable business models that include cash flows;
 - The importance of devolved, pluralistic extension services promoting good agricultural practice through a network of community change agents;
 - The need for increasing the importance of and potential for digital services for smallholder farmers and value chains;
 - The need to develop partnerships with financial institutions to increase access to finance on suitable terms for smallholders and small and medium-sized agriculture enterprises;
 - The need for targeting value chains through a cluster approach to group poorer areas with more developed ones, while ensuring pro-poor inclusion throughout;
 - The need to recognize that structural transformation of the economy will result in many people in IFAD's target group transitioning from farming to wage-based livelihoods, which requires project design to give adequate importance to creating decent rural employment.

II. Project description

A. Objectives, geographical area of intervention and target groups

7. The CAISAR project will benefit more than 1.7 million people (roughly 11 per cent of Cambodia's population) in four provinces across Cambodia: Kampong Speu, Kampong Chhnang, Kandal and Pursat. The target areas have been identified based on: (i) greater prevalence of poverty and food insecurity; (ii) the need for upgrading irrigation infrastructure for floods and droughts, especially floods; (iii) higher vulnerability to climate change; and (iv) low indicators of development. The specific characteristics of each province have been mapped against the criteria for selection.
8. A total of 375,171 households – corresponding to about 1,575,716 people – will benefit from the project, mainly belonging to three types of the target groups: very poor and poor households as well as households above the poverty line. Beneficiaries will include women, youth and smallholder farmers. The project will emphasize conserving the biodiversity of the target districts and the project activities will have no negative impact.

B. Components, outcomes and activities

9. The CAISAR project will have the following components: (i) farm-level climate adaptation and resilience; (ii) upgrading and climate-proofing water infrastructure

- for increased resilience; and (iii) strengthened institutional and regulatory capacity for low-emission climate-resilient development pathways.
10. **Component 1: Farm-level climate adaptation and resilience** will be handled by the National Committee for Sub-National Democratic Development Secretariat (NCDDS) and includes:
 - Output 1.1: Increased farmer capacity in climate-resilient agriculture;
 - Output 1.2: Climate adaptive value chains developed by public-private-producer partnerships (4Ps) and increased access to finance;
 - Output 1.3: Increased access to climate information and advisory services for climate-responsive water use and crop planning;
 - Output 1.4: Increased resilience of farm road infrastructure to climate change.
 11. **Component 2: Upgrading and climate-proofing water infrastructure for increased resilience** will be handled by the Ministry of Water Resources and Meteorology (MOWRAM) and includes:
 - Output 2.1: Modernized irrigation schemes and ponds;
 - Output 2.2: Flood-proofing and drainage improvement;
 - Output 2.3: Farmer water user communities (FWUCs) established and trained;
 - Output 2.4: Water information system established and operational in three subprojects.
 12. **Component 3: Strengthened institutional and regulatory capacity for low-emission climate-resilient development pathways** will include:
 - Output 3.1: Strengthened MOWRAM;
 - Output 3.2: NCDDS strengthened at national and provincial level.
 13. The project area is expected to comprise 32,056 hectares (ha). The schemes or subprojects will include Ou Ta Paong and Lum Hach, and four smaller subprojects in the Krang Ponley valley. The cultivation and utilization of these areas varies by season and planting cycle. While the entire project area is expected to plant wet season rice crops, the area in which a second irrigated dry season rice crop can be established is 22,051 ha. In the remaining 10,000 ha in the dry season, vegetable production, mainly homestead gardening, poultry production and aquaculture can be established. In several of the four Krang Ponley subprojects, commercial vegetables are planned to be planted due to the proximity to Phnom Penh, and other conditions. Components 1 and 2 are expected to work in close synergy to maximize the benefits from the investments.
 14. Details of the six irrigation subprojects are outlined in table 1.

Table 1
Details of the six irrigation subprojects

Irrigation scheme	Component 2									
	Component 1 (Same as output 2.1 + 2.2)		Output 2.1		Output 2.2 (Additional area of output 2.1)		Output 2.3 (Additional area of output 2.1 + C2.2) (Not included in the total area)		Total	
	Area (ha)	Ratio (%)	Area (ha)	Ratio (%)	Area (ha)	Ratio (%)	Area (ha)	Ratio (%)	Area (ha)	Ratio (%)
Ou Ta Paong	17 079	53	14 874	67	2 205	22	80 000	100	17 079	53
Lum Hach	6 350	20	3 900	18	2 450	24	-	-	6 350	20
Krapeu Trom	1 140	4	690	3	450	5	-	-	1 140	4
Yutasas	2 693	8	593	2	2 100	21	-	-	2 693	8
Stoeung Krang Bat	1 394	4	994	5	400	4	-	-	1 394	4
Brambei Mom	3 400	11	1 000	5	2 400	24	-	-	3 400	11
Total	32 056	100	22 051	100	10 005	100	80 000	100	32 056	100

Note: Output 2.2 – River training: length of river training work = 400 m (width of impact) converted in ha.

Output 2.2 – Polder: length of polder (m) = 1,000 m (width of impact) converted in ha.

Output 2.3 – Masterplan area potential impact = 80,000 ha in Ou Ta Paong scheme area (not included in total area).

C. Theory of change

15. CAISAR's theory of change is based on experiences that have shown that addressing the complex impacts of climate change on rainfed and irrigated agriculture requires action at three levels – at the farm level, at the irrigation scheme level and at the national level – in order to create a strong institutional base and an enabling environment. The project's theory of change has therefore based its investments on an understanding of the pathways that can help reduce greenhouse gas emissions and help smallholder farmers adapt to climate change by applying climate-resilient agricultural technologies. The CAISAR project will adopt a three-pronged strategy to bring about a paradigm shift in the farming systems and the water management governance in Cambodia. The integrated actions combining the various elements of the strategy can have a transformative impact on reducing vulnerability of water and agriculture systems to climate change impacts, while also reducing greenhouse gas emissions and enhancing the livelihoods of rural populations, who primarily depend on agriculture.

D. Alignment, ownership and partnerships

16. CAISAR will contribute to the achievement of Sustainable Development Goals (SDGs) 1 (no poverty), 2 (zero hunger), 5 (gender equality), 6 (clean water and sanitation), 8 (decent work and economic growth), 13 (climate action) and 15 (life on land). The project is aligned with the strategic objectives of Cambodia's Country Strategic Opportunities Programme 2022–2027, which closely reflect the global strategic objectives set under the Twelfth Replenishment of IFAD's Resources (IFAD12).

E. Costs, benefits and financing

17. The financing gap of US\$20 million may be sourced through subsequent performance-based allocation system (PBAS) cycles and/or through the Borrowed Resource Access Mechanism (BRAM) (under financing terms to be determined and subject to internal procedures and subsequent Executive Board approval) or by cofinancing identified during implementation.
18. Project outputs 1.1, 2.2 and 3.2 are counted as climate finance. As per the multilateral development banks' methodologies for tracking climate change adaptation and mitigation finance, the total amount of IFAD climate finance for this project is estimated as US\$25 million or 100 per cent of the total IFAD project cost.

Project costs

19. The total project cost amounts to US\$240 million over a seven-year implementation period.

Table 2

Project costs by component and financier

(Thousands of United States dollars)

<i>Component</i>	<i>IFAD loan PBAS</i>		<i>IFAD loan BRAM</i>		<i>GCF grant</i>		<i>GCF loan</i>		<i>AIIB credit</i>		<i>Borrower/ recipient</i>		<i>Financing gap</i>		<i>Total</i>	
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>
1. Farm-level climate adaptation and resilience	12 929	76	-	-	26 323	66	-	-	-	-	1 193	8	-	-	40 445	17
2. Upgrading and climate-proofing water infrastructure for increased resilience	691	4	8 000	100	3 300	8	39 000	98	95 958	96	11 125	74	9 634	48	167 708	70
3. Strengthened institutional and regulatory capacity for low-emission climate-resilient development pathways	-	-	-	-	8 670	22	-	-	-	-	917	6	-	-	9 587	4
4. Project monitoring and evaluation	3 379	20	-	-	1 707	4	1 000	2	4 042	4	1 765	12	7 928	40	19 822	8
5. Contingencies	-	-	-	-	-	-	-	-	-	-	-	-	2 438	12	2 438	1
Total project costs	17 000	100	8 000	100	40 000	100	40 000	100	100 000	100	15 000	100	20 000	100	240 000	100

Table 3

Project costs by expenditure category and financier

(Thousands of United States dollars)

<i>Expenditure category</i>	<i>IFAD loan PBAS</i>		<i>IFAD loan BRAM</i>		<i>GCF grant</i>		<i>GCF loan</i>		<i>AIIB credit</i>		<i>Borrower/ recipient</i>		<i>Financing gap</i>		<i>Total</i>	
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>In kind</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>
Investment costs																
1. Works	3 159	19	8 000	100	12 000	30	34 450	86	86 606	87	5 869	39	11 722	59	161 807	67
2. Training, workshops and conferences	8 400	49	-	-	2 769	7	-	-	567	1	986	7	-	-	12 722	5
3. Professional and contractual services	3 124	18	-	-	9 995	25	4 550	11	10 992	11	994	7	6 956	35	36 611	15
Total investment costs	14 684	86	8 000	100	24 763	62	39 000	98	98 165	98	7 850	52	18 677	93	211 139	88
Recurrent costs																
1. Salaries and allowances	1 816	11	-	-	9 508	24	-	-	1 107	1	6 961	46	1 323	7	20 714	9
2. Materials and equipment	500	3	-	-	4 021	10	-	-	728	1	100	1	-	-	5 349	2
3. Travel	-	-	-	-	1 708	4	1 000	2	0	-	90	1	-	-	2 798	1
Total recurrent costs	2 316	14	-	-	15 237	38	1 000	2	1 835	2	7 150	48	1 323	7	28 861	12
Total project costs	17 000	100	8 000	100	40 000	100	40 000	100	100 000	100	15 000	100	20 000	100	240 000	100

Table 4

Project costs by component and project year (PY)

(Thousands of United States dollars)

<i>Component</i>	<i>PY1</i>		<i>PY2</i>		<i>PY3</i>		<i>PY4</i>		<i>PY5</i>		<i>PY6</i>		<i>PY7</i>		<i>Total</i>	
	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>	<i>Amount</i>	<i>%</i>
1. Farm-level climate adaptation and resilience	1 339	3	4 852	12	5 747	14	6 439	16	8 373	21	7 711	19	5 984	15	40 445	
2. Upgrading and climate-proofing water infrastructure for increased resilience	3 578	2	5 425	3	21 125	13	51 923	31	59 068	35	25 048	15	1 541	1	167 708	
3. Strengthened institutional and regulatory capacity for low-emission climate-resilient development pathways	1 345	14	1 470	15	1 333	14	1 313	14	1 478	15	1 313	14	1 333	14	9 587	
4. Project monitoring and evaluation	2 634	13	2 894	15	2 894	15	3 125	16	2 804	14	2 483	13	2 989	15	19 822	
5. Contingencies	348	14	348	14	348	14	348	14	348	14	348	14	348	14	2 438	
Total project costs	9 245	3.9	14 989	6	31 447	13	63 149	26	72 071	30	36 904	15	12 196	5	240 000	

Financing and cofinancing strategy and plan

20. IFAD will finance US\$25 million, which represents 10.4 per cent of the total project costs. This includes US\$17 million from the PBAS allocation to Cambodia for IFAD13 and US\$8 million from the BRAM. AIIB's cofinancing amounts to US\$100 million, or 41.7 per cent, while the GCF will provide US\$80 million, accounting for 33.3 per cent of the costs. This GCF funding consists of a US\$40 million loan and an additional grant of US\$40 million. The counterpart funding from the Government is US\$15 million, or 6.25 per cent, and there is an estimated financing gap of US\$20 million, or 8.3 per cent. The financial structure of the project is based on the importance of investing in modernizing and climate-proofing the irrigation and drainage infrastructure in the selected project areas. About 70 per cent of the total project costs of US\$240 million will be allocated to irrigation infrastructure. To the soft activities included in component 1 (training farmers through the farmer field school approach, and organizing 4Ps and multi-stakeholder forums, and early warning and climate information services), 16.8 per cent of total project costs will be allocated, while 4.5 per cent will be allocated to institutional strengthening at national level. Project management will receive an allocation of 5 per cent and the GCF contribution to project management costs will be in the same proportion as its total financing for the project, which is 33 per cent.

Table 5

Project budget by component and funding source

(Millions of United States dollars)

<i>Component</i>	<i>Funding source</i>							<i>%</i>
	<i>Total cost</i>	<i>GCF (grant)</i>	<i>GCF (loan)</i>	<i>IFAD (loan)</i>	<i>AIIB (credit)</i>	<i>Government of Cambodia (in kind)</i>	<i>Financing gap</i>	
1. Farm-level climate adaptation and resilience	40.4	26.3	-	12.9	-	1.2	-	16.9
2. Upgrading and climate-proofing water infrastructure for increased resilience	167.7	3.3	39.0	8.7	96.0	11.1	9.6	69.9
3. Strengthened institutional and regulatory capacity for low-emission climate-resilient development pathways	9.6	8.7	-	-	-	0.9	-	4.0
4. Project management, and monitoring and evaluation	19.8	1.7	1.0	3.4	4.0	1.8	7.9	8.3
5. Contingencies	2.4	-	-	-	-	-	2.4	1
Total	240.0	40.0	40.0	25.0	100.0	15.0	20.0	100
Proportionate share (%)		16.7	16.7	10.4	41.7	6.3	8.3	

Disbursement

21. The Ministry of Economy and Finance (MEF) will authorize the opening of four designated accounts in United States dollars at the National Bank of Cambodia for the receipt of the financing from IFAD's PBAS, IFAD's BRAM and the GCF loan and grant resources. Two United States dollar project accounts (one for the MOWRAM and one for the NCDDDS) will be opened at commercial banks for the payment of project activities. One government counterpart fund account is to be maintained by the MEF through which the proceeds of the financing shall be further transferred to two sub-accounts in commercial banks to receive counterpart funds from the counterpart fund account. IFAD funds will be disbursed through the revolving fund mechanism, under which the project can withdraw/justify the advance based on the interim financial report (IFR) following the procedures and conditions outlined in the financial management and financial control arrangements letter (FMFCL). IFAD will send the FMFCL to MOWRAM and MEF with guidance on disbursement procedures; MEF will send a letter through the IFAD Client Portal providing the delegation and authorization of the persons who can request and approve the submission of the IFR and withdrawal application in the portal.

Summary of benefits and economic analysis

22. The economic analysis of the project, considering all costs, indicates promising economic returns over a 30-year evaluation period and a social discount rate of 9.47 per cent. The economic internal rate of return is estimated at 16.3 per cent, and the net present value is projected at US\$143.6 million, with a benefit-cost ratio of 1.26 and a payback period of nearly 12 years. Sensitivity and scenario analyses underscore the robustness of these evaluations, suggesting that the project would remain profitable even within a 20-year evaluation period. The sensitivity analysis shows that the project could become unprofitable if projected benefits decrease by more than 20.7 per cent, or if costs increase by more than 26.1 per cent due to potential shocks during implementation, which is unlikely, given the local economic context and macroeconomic trends observed.

Exit strategy and sustainability

23. The project will focus on strengthening farm-level capacity to help farmers adopt improved production techniques, reduce emissions from rice cultivation, and enhance practices like alternate wetting and drying, soil conservation, water management and crop diversification. Farmers will receive refresher training sessions, and be connected with both public extension services and the private sector for adaptive inputs and technologies. NGOs, common back offices, social enterprises and private companies will support the smallholder farmers, providing services like solar pumps, mechanization and climate adaptive rice varieties. By linking smallholders with the private sector for extension advice and inputs, the project aims to create a sustainable exit strategy, while the NCDDDS will ensure that public extension services are continued, and that technology is adopted.
24. The project will capitalize on the existing Law on Water Resources Management of the Kingdom of Cambodia under which farmers have to contribute to the operations and maintenance (O&M) costs of irrigation systems. This requirement is well accepted, although at present O&M contributions are far below the required levels (usually US\$8 to US\$10/ha/crop). Experience from some pumped irrigation schemes developed under the Australian Department of Foreign Affairs and Trade, the Cambodia Agricultural Value Chain project, shows that farmers are paying up to US\$80/ha/crop for the O&M for routine maintenance in the case of a pumping scheme. The CAISAR project will pilot an irrigation fee that will be levied by the FWUCs who have the authority to collect the payment.
25. The project will focus on developing and training FWUCs to ensure efficient management of irrigation schemes. Local communities will be involved in scheme cleaning, maintenance and management, with FWUCs playing a key role. The

CAISAR project team has surveyed FWUCs in the project areas and will collaborate with MOWRAM and the Provincial Departments of Water Resources and Meteorology to establish and train FWUCs. Investment will be directed towards building their capacity for effective, sustainable scheme management, enhancing the long-term financial and operational sustainability of the irrigation systems.

III. Risk management

A. Risks and mitigation measures

26. CAISAR is considered a project with substantial risk. The project faces several risks related to technical capacity, policy frameworks, coordination, procurement, social and environmental impacts, and private sector engagement. Weak institutional capacity in water resources management, insufficient policies for climate change integration and poor coordination among ministries could slow project implementation. To mitigate this, the project will provide targeted training for key stakeholders, assist in revising climate-sensitive policies, establish a robust coordination mechanism and set up a dedicated procurement team. Social and environmental risks will be addressed through the environmental and social impact assessment (ESIA) and the environmental, social and climate management plans (ESCMPs), as well as other specific management plans developed for the project, while the private sector's limited engagement with smallholder farmers will be tackled by enhancing demand for climate adaptive technologies and creating platforms for public-private partnerships. These measures aim to ensure the project's long-term success and sustainability. Financial management (FM) risks include: (i) a potential lack of capacity among FM staff at implementing agencies and (ii) the absence of prior experience with IFAD-funded projects within MOWRAM. To mitigate these FM risks, transparent recruitment of qualified FM consultants will be ensured; hands-on training will be provided for FM staff at the implementing agencies; and a detailed project implementation manual will be developed, outlining clear roles and responsibilities.

Table 6

Overall risk summary

<i>Risk areas</i>	<i>Inherent risk rating</i>	<i>Residual risk rating</i>
Country context	Moderate	Moderate
Sector strategies and policies	Moderate	Moderate
Environment and climate context	High	High
Project scope	Moderate	Moderate
Institutional capacity for implementation and sustainability	Moderate	Moderate
Financial management	Substantial	Substantial
Project procurement	Moderate	Moderate
Environment, social and climate impact	High	High
Stakeholders	Moderate	Moderate
Overall	Substantial	Substantial

B. Environment and social category

27. The proposed environmental and social risk category is high. An ESIA and ESCMPs have been prepared, as well as other management plans, a stakeholder engagement plan, a land acquisition and resettlement planning framework, a gender action and social inclusion plan, a cultural heritage management plan, an Indigenous Peoples' plan and a Free, Prior and Informed Consent implementation plan.

C. Climate risk classification

28. The climate risk category is Substantial. An in-depth climate risk analysis has been prepared. The screening checklist provided in the ESIA and ESCMPs and the recommendations of the climate risk analysis will guide the project to implement

adequate adaptation and mitigation measures while working in climate-vulnerable areas.

D. Debt sustainability

29. The Debt Sustainability Analysis of November 2021 of the International Monetary Fund and World Bank indicates that Cambodia remains at low risk of external and overall debt distress. The current debt-carrying capacity is consistent with a medium classification. Under the baseline scenario, external debt remains well below thresholds. In line with a wider fiscal deficit over the medium term, external debt is projected to gradually rise from 36 per cent of GDP in 2021 to 38.1 per cent of GDP in 2028, before stabilizing at around 37 per cent of GDP in early 2030.

IV. Implementation

A. Organizational framework

Project management and coordination

30. The executing entity for the project will be the Ministry of Water Resources and Meteorology, which is responsible for sustainable water resource management and irrigation in Cambodia. MOWRAM will establish a project management unit (PMU) for the coordination of all components and consolidation of the project planning and reporting. In addition, the National Committee for Sub-National Democratic Development Secretariat will be responsible for the implementation of component 1, which is designed to improve farm-level climate adaptation, resilience and water use efficiency. The NCDDS is a Direct Access Accredited Entity to the GCF and will have a project implementation unit (PIU) for implementing component 1 activities.

Financial management, procurement and governance

31. The PMU and PIU established by MOWRAM and the NCDDS respectively will be responsible for the FM arrangements. The PMU will be responsible for consolidating project IFRs and annual financial statements, and for arranging annual audit reports and submitting these to IFAD. Both implementing agencies have qualified government staff with relevant experience and expertise in donor-funded operations for the timely preparation and submission of project budgets, and who can ensure adequate internal controls and fund flow arrangements under the additional financing. However, the PMU and PIU will need to hire qualified consultants to handle daily FM tasks, including accounting record-keeping and financial reporting. Both implementing agencies will have accounting software to keep reliable accounting records and submit acceptable IFRs to IFAD. The project's internal control framework includes the standard operating procedures developed by the Government of Cambodia to manage projects funded by international financial institutions. Furthermore, the CAISAR project implementation manual will be revised and approved, as needed, to include any additional policies and procedures that are required time to time during the project's implementation.

Procurement

32. The PMU will be directly responsible for project procurement activities. It will have a procurement team that includes a procurement chief, a procurement officer, a procurement specialist and a procurement assistant. Procurement with IFAD funds will follow the standard operating procedures on procurement for all externally financed projects in Cambodia insofar as they are consistent with the IFAD Project Procurement Guidelines. The PMU will prepare annual procurement plans in alignment with the annual workplans and budgets, and submit them for IFAD's no objection before proceeding with procurement activities. IFAD's Online Project Procurement End-to-End System (OPEN) will be used for preparation and monitoring of the implementation of project procurement plans. Requests for IFAD's prior review and no objection will be routed through OPEN.

33. Procurement risk assessment of the project conducted as stipulated in the IFAD Project Procurement Manual shows that the overall inherent procurement risk is moderate.

Target group engagement and feedback and grievance redress

34. Target group engagement and feedback processes will be centred on the supported smallholder farmers.
35. The project will establish an accessible and transparent process for those affected by the project to make complaints, report wrongdoing or seek redress in compliance with the revised IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations, the IFAD Policy to Prevent and Respond to Sexual Harassment, Sexual Exploitation and Abuse of 2018, and IFAD's Social, Environmental and Climate Assessment Procedures of 2021.
36. The project will establish confidential reporting mechanisms and promote these mechanisms via project communication materials and platforms, and in the course of project activities.

B. Planning, monitoring and evaluation, learning, knowledge management and communications

37. The project's monitoring and evaluation system will be based on: (i) an outcome survey conducted at the household level, with baseline, midterm and endline measurement; and (ii) a management information system that captures information on production, training, early warnings, use of climate-smart technologies and sales at the farm level.
38. A communications plan for the project will be developed and implemented by the PMU in coordination with IFAD communications specialists. Knowledge-sharing will take place primarily through digital means.

Innovation and scaling up

39. The project fosters innovation and scalability through a blend of financial support and technical assistance aimed at smallholder farmers and entrepreneurs. It incorporates an investment financing model that combines loans and grants, channelled through partner financial institutions, to support climate-smart agricultural practices and improved production. By integrating water management with agricultural innovation, the project aims to address climate challenges in irrigated agriculture. The adoption of new climate-resilient technologies will be accelerated through direct collaboration with smallholders, providing training, facilitating access to finance and strengthening the value chains of four agricultural commodities. These strategies will be scalable based on proven success, ensuring long-term sustainability and broad-based impact.

C. Implementation plans

Implementation readiness and start-up plans

40. A project implementation manual has been prepared and includes terms of reference for key service providers. The Government will be encouraged to initiate the procurement process for these service providers in advance of project effectiveness. Resources from the ongoing Project Preparation Special Fund (PPSF) grant from AIIB have been used to support this activity for CAISAR.

Supervision, midterm review and completion plans

41. CAISAR implementation will be supervised jointly by the Government, IFAD and AIIB. There will be one supervision mission and one implementation support mission per year, with a midterm review planned for mid-2028.

V. Legal instruments and authority

42. A financing agreement between the Kingdom of Cambodia and IFAD will constitute the legal instrument for extending the proposed financing to the borrower/recipient. A copy of the negotiated financing agreement will be made available prior to the session.
43. The Kingdom of Cambodia is empowered under its laws to receive financing from IFAD.
44. I am satisfied that the proposed financing will comply with the Agreement Establishing IFAD and the Policies and Criteria for IFAD Financing.

VI. Recommendation

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

RESOLVED: that the Fund shall provide a loan on blend terms to the Kingdom of Cambodia in an amount of seventeen million United States dollars (US\$17,000,000) 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 loan on ordinary terms to the Kingdom of Cambodia in an amount of eight million United States dollars (US\$8,000,000) and upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented herein.

Alvaro Lario
President

Negotiated financing agreement

(to be made available prior to the session)

Logical framework

Results Hierarchy		Indicators				Means of Verification			Assumptions
		Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Outreach	1 Persons receiving services promoted or supported by the project					Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	Rural farmers are receptive to the services provided by the project; and the Farmer Water User Communities (FWUCs) support the outreach programs
	Males - Males		0	378172	709072				
	Females - Females		0	252115	866644				
	Young - Young people		0	63029	315143				
	Indigenous people - Indigenous people		0	12606	31514				
	Total number of persons receiving services - Number of people		0	630287	1575716				
	Male - Percentage (%)		0	60	45				
	Female - Percentage (%)		0	40	55				
	Young - Percentage (%)		0	10	20				
	1.b Estimated corresponding total number of households members					Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	
	Household members - Number of people		0	6302687	1575716				
	1.a Corresponding number of households reached					Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	
	Women-headed households - Households		0	75034	187586				
	Non-women-headed households - Households		0	75034	187586				
	Households - Households		0	150068	375171				
Project Goal	Enhanced food security					Project MIS; project GIS mapping; and outcome survey	Annual	Project Management Unit (PMU), supported by Project	The project impact on rural poverty has direct impact to national rural poverty
	Number of beneficiaries with		0	56000	1340000				
The goal of the project is to make the agriculture sector in Cambodia climate									

<p>resilient and sustainable</p> <p>Development Objective</p> <p>The objective of the project is to modernize the irrigation sector by installing resilient irrigation systems and enable farmers to adapt to climate risks and mitigate crop emissions through use of energy- and water-efficient technologies and practices, timely weather information and improved market integration</p> <p>Outcome</p> <p>1. Reduction in crop losses and improved (agricultural) production</p>	enhanced – food security (people)						Implementation Units (PIUs)	percentage Global economic slowdown and/or global reduction in demand does not affect growth As outlined in the EX-ACT Annex
	Male		28000	67200				
	Female		28000	67200				
	GHG emissions reduced, avoided or removed/sequestered				Household surveys, EX-ACT	Annual	PMU, supported by FAO and IFAD	
	GHG Emissions reduced by year 7 - tCO ₂ eq - Number	0	45750.34	213501.58				
	Beneficiaries adopting improved and/or new climate-resilient livelihood options				Project MIS; project GIS mapping; and outcome survey	Project completion	PMU and PIUs and their project implementation consultants, and individual survey consultants	Catastrophic flooding or drought, vastly exceeding the vulnerability and climate risk assessments does not occur
	Total number of people - Number of people		75000	192000				
	Male		33000	83200				
	Female		42000	108800				
	Increase in annual rice production with increase in HH income				Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	Catastrophic flooding or drought, vastly exceeding the vulnerability and climate risk assessments does not occur
	% yield increase for rice in targeted HH benefiting directly from the project - Percentage (%)	0	15	30				
	% yield increase for vegetables in targeted HH benefiting directly	0	10	20				

Output
1.1 Increased farmer capacity in climate resilient agriculture

from the project - Percentage (%)			
% decrease in post-harvest losses for rice in targeted HH benefiting directly from the project - Percentage (%)	0	10	20
% decrease in post-harvest losses for vegetables in targeted HH benefiting directly from the project - Percentage (%)	0	15	30
3.2.1 Tons of Greenhouse gas emissions (tCO2e) avoided and/or sequestered			
Hectares of land - Area (ha)	0	22046	22046
tCO2e/20 years - Number	0	45750	1006507
tCO2e/ha - Number	0	2.1	45.7
tCO2e/ha/year - Number	0	0.8	2.3
Farmers trained in climate smart agriculture			
Total number of farmers (male and female) trained in CR technologies through the FFS training programme - Number of people	0	20000	40000
Number of trainers (male and female) trained to demonstrate and propagate the CR technologies and practices to farmers - Number of people	0	100	200
Percentage of farmers adopting climate resilient farming practices promoted by the project - Percentage (%)	0	50	80

Project MIS;
household
surveys; EX-ACT

Annual

Project
Management Unit
(PMU), supported
by Project
Implementation
Units (PIUs)

Project MIS;
household surveys

Annual

Project
Management Unit
(PMU), supported
by Project
Implementation
Units (PIUs)

Project
Management Unit
(PMU), supported
by Project
Implementation
Units (PIUs)

	Average percentage of beneficiaries who are satisfied with the knowledge gained from the trainings provided - Percentage (%)	0	70	90				
Output 1.2 Climate adaptive value chains developed by 4Ps and increased access to finance	Value chains developed by 4Ps and increased access to finance				Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	a. Beneficiaries apply some or all of the climate adaptation measures every cropping season during the project; b. access to the credit line only; and c. local authority engagement defined by monthly contact with the CCs during the project
	Number of farming households benefiting from the 4P model through increased access to finance - Number	0	14000	28000				
	Number of MSMEs with increased access finance due to the linkages facilitated by the 4P model - Number	0	50	120				
Output 1.3 Increased access to and use of climate information and advisory services for climate responsive water-use and crop planning	3.1.2 Persons provided with climate information services				Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	a. Beneficiaries apply some or all of the climate adaptation measures every cropping season during the project; b. access to the credit line only; and c. local authority engagement defined by monthly contact with the CCs during the project.
	Males - Males	0	168827	337654				
	Females - Females	0	112441	225103				
	Young - Young people	0	28138	56276				
	Persons provided with climate information services - Number of people	0	281378	562756				
Output 1.4 Increased resilience of farm road infrastructure to climate change	Hydromet station installed for improved Climate Data and Warning				Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	authority engagement defined by monthly contact with the CCs during the project.
	Number of hydromet stations and agrometeorological stations rehabilitated - Number	0	5	10				
	2.1.5 Roads constructed, rehabilitated or upgraded				Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	Catastrophic flooding or drought, vastly exceeding the vulnerability and climate risk
	Length of roads - Km	0	5	90				

Outcome 2. Rehabilitated/upgraded, climate proofed, and modernized irrigation infrastructure for increased resilience	Roads constructed, rehabilitated or upgraded cont				Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	assessments does not occur.
	farmers benefiting from improved road connectivity in the project areas - Number	0	5000	10683				
	1.2.1 Households reporting improved access to land, forests, water or water bodies for production purposes				Project MIS; household surveys		Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	
	Households reporting improved access to water - Percentage (%)	0	8	30				
	Size of households reporting improved access to water - Number of people	0	30000	135000				
	Women-headed households - Households	0	4125	16500				
	Total no. of households reporting improved access to water - Households	0	8250	33000				
Output 2.1 Modernized irrigation schemes and ponds	Modernization of irrigation scheme and ponds				Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	
	Area provided with irrigation services - Improved - Area (ha)	0	10000	22051				
	6 Irrigation schemes finalised of rehabilitated/upgraded, climate proofed, and modernized - Percentage (%)	0	2	6				
Output 2.2 Flood-proofing and drainage improvement	Flood-proofing and Drainage improvements				Project MIS; household surveys	Annual	Project Management Unit (PMU), supported by Project Implementation Units (PIUs)	
	Area provided with drainage services - Improved - Area (ha)	0	5000	10005				
	Polder detailed design and procurement - Number	0	1	2				
Output 2.3 Farmers Water User	Establishments and training of Farmers Water User Communities (FWUC)				Project MIS, GIS	Annual	PMU	

Communities (FWUC) established and trained	Number of FWUC established and trained - Number	4	6	11	Project MIS, GIS	Annual	PMU	
	Establishment of Water information and Management (SCADA)							
	farmer-households using Climate information and early warning (CIEWS) advisory services promoted by the project - Percentage (%)	0	20	75				
	people trained in using the Supervisory Control and Data Acquisition (SCADA) system - Number	0	20	40	Project MIS, GIS	Annual	PMU	
	Percentage of farmer households using Climate information and early warning (CIEWS) advisory services promoted by the project	0	20	75				
	Number of people trained in using the Supervisory Control and Data Acquisition (SCADA) system	0	20	40				
Output 2.4 Water information system established and operational in three subprojects					Project MIS	Annual	PMU	
Strengthened MOWRAM and NCDDs					Project MIS	Annual	PMU	

Outcome 3: Enhanced environmental governance	Number of MOWRAM and NCDDS Staff Trained - Number		200	600	Project MIS	Annual	PMU	Training sessions are attended by actual SCADA and M&E staff
	Strengthened MOWRAM Capacity (MOWRAM staff trained in river basin management, water accounting, SCADA system operation, and the design and implementation of climate-resilient green technologies)							
	staff trained - Males	0	75	150				
	staff trained - Females		50	100				
	total staff trained - Number	0	125	250				
Output 3.1: Strengthened MOWRAM capacity					Project MIS	Annual	PMU	
	NCDDS strengthened at national and provincial level (NCDDS staff trained on project management, policy formulation and implementation and resource mobilization)							
	staff trained - Males	0	105	210				
	staff trained - Females	0	70	140				
	total staff trained - Number	0	175	350				

Integrated project risk matrix

Overall Summary Risk Category / Subcategory	Inherent risk	Residual risk
Country Context	Moderate	Moderate
<i>Political Commitment</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Macroeconomic</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Governance</i>	<i>Moderate</i>	<i>Low</i>
<i>Fragility and Security</i>	<i>Low</i>	<i>Low</i>
Sector Strategies and Policies	Moderate	Moderate
<i>Policy alignment</i>	<i>Low</i>	<i>Low</i>
<i>Policy Development and Implementation</i>	<i>Moderate</i>	<i>Moderate</i>
Environment and Climate Context	High	High
<i>Project vulnerability to environmental conditions</i>	<i>High</i>	<i>High</i>
<i>Project vulnerability to climate change impacts</i>	<i>Substantial</i>	<i>Substantial</i>
Project Scope	Moderate	Moderate
<i>Project Relevance</i>	<i>Low</i>	<i>Low</i>
<i>Technical Soundness</i>	<i>Moderate</i>	<i>Moderate</i>
Institutional Capacity for Implementation and Sustainability	Moderate	Moderate
<i>Implementation Arrangements</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Monitoring and Evaluation Arrangements</i>	<i>Moderate</i>	<i>Moderate</i>
Project Financial Management	Substantial	Substantial
<i>Project Organization and Staffing</i>	<i>Substantial</i>	<i>Substantial</i>
<i>Project Budgeting</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Project Funds Flow/Disbursement Arrangements</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Project Internal Controls</i>	<i>Substantial</i>	<i>Substantial</i>
<i>Project Accounting and Financial Reporting</i>	<i>Substantial</i>	<i>Substantial</i>
<i>Project External Audit</i>	<i>Substantial</i>	<i>Substantial</i>
Project Procurement	Moderate	Moderate
<i>B.1 Assessment of Project Complexity</i>	<i>Moderate</i>	<i>Moderate</i>
<i>B.2 Assessment of Implementing Agency Capacity</i>	<i>Low</i>	<i>Low</i>
<i>Project Procurement Overall</i>	<i>Moderate</i>	<i>Moderate</i>
<i>A.1 Legal, Regulatory and Policy Framework</i>	<i>Moderate</i>	<i>Moderate</i>
<i>A.2 Institutional Framework and Management Capacity</i>	<i>Moderate</i>	<i>Moderate</i>
<i>A.4 Accountability, Integrity and Transparency of the Public Procurement System</i>	<i>Moderate</i>	<i>Moderate</i>
<i>A.3 Public Procurement Operations and Market Practices.</i>	<i>Low</i>	<i>Low</i>
Environment, Social and Climate Impact	High	High

Overall Summary Risk Category / Subcategory	Inherent risk	Residual risk
<i>Biodiversity Conservation</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Resource Efficiency and Pollution Prevention</i>	<i>High</i>	<i>High</i>
<i>Cultural Heritage</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Indigenous People</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Labour and Working Conditions</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Community health, safety and security</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Physical and Economic Resettlement</i>	<i>High</i>	<i>High</i>
<i>Greenhouse Gas Emissions</i>	<i>Low</i>	<i>Low</i>
<i>Vulnerability of target populations and ecosystems to climate variability and hazards</i>	<i>Substantial</i>	<i>Substantial</i>
Stakeholders	Moderate	Moderate
<i>Stakeholder Engagement/Coordination</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Stakeholder Grievances</i>	<i>Moderate</i>	<i>Moderate</i>
Overall	Substantial	Substantial