AFRICAN DEVELOPMENT FUND

PROJECT : INTEGRATED AGRICULTURAL AND AGRO-INDUSTRIAL GROWTH CLUSTER PROGRAMME IN SOUTH MADAGASCAR-PHASE 1 (PICAS-1)
(SAP: P-MG-A00-007)

COUNTRY : MADAGASCAR

APPRAISAL REPORT

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AFRICAN DEVELOPMENT FUND

MADAGASCAR

INTEGRATED AGRICULTURAL AND AGRO-INDUSTRIAL GROWTH CLUSTER PROGRAMME IN SOUTH MADAGASCAR-PHASE 1 (PICAS-1)

RDGS/AHFR/COMG DEPARTMENTS

May 2022

Translated version

TABLE OF CONTENTS

LIST OF TABLES

CURRENCY EQUIVALENTS - APRIL 2022

Currency unit: MGA (Ariary)
UA 1 : MGA 5498.54
UA 1 : USD 1.382
UA 1 : EUR 1.245
USD 1 MGA 3978.98
EUR 1 MGA 4415.469

FISCAL YEAR
1st January – 31st December

WEIGHTS AND MEASURES
Metric system

ACRONYMS AND ABBREVIATIONS

ADF	:	African Development Fund
AFD	:	French Development Agency
AfDB	:	African Development Bank Group
AFO	:	Administrative and Finance Officer
AHAI	:	Agriculture and Agro-Industry Department (AfDB)
AHFR	:	Agricultural Finance and Rural Development Department
AHHD	:	Human Capital, Youth and Skills Development Department (AfDB)
AIP	:	agro-industrial park
AUE	:	Association of Water Users
AWPB	:	Annual Work Plan and Budget
BD	:	bidding documents
DEFIS	:	Development Programme for Inclusive Agricultural Value Chains
CABIZ	:	Agro-business Centre
CC	:	climate change
COMG	:	AfDB Country Office in the Republic of Madagascar
COVID-19	:	2019 coronavirus disease
CSP	:	AfDB country strategy paper
DAF	:	Directorate of Administration and Finance
DGA	:	Directorate General for Agriculture
DWS	:	drinking water supply
E&S	:	environmental and social:
EIB	:	European Investment Bank
ESIA	:	Environmental and Social Impact Assessment
ESMP	:	Environmental and Social Management Plan
FAO	:	Food and Agricultural Organization
FDS	:	final design study
GDP	:	gross domestic product
GIZ	:	Deutsche Gesellschaft für Internationale Zusammenarbeit
HDI	:	Human Development Index
High 5	:	Top 5 Operational Priorities of the Bank
HSW	:	health and safety at work
IEC	:	information, education and communication
IFAD	:	International Fund for Agricultural Development
ISS	:	Integrated Safeguards System (of the Bank)

JICA	:	Japanese International Cooperation Agency
M/W	:	Men/Women
MES	:	monitoring/evaluation system
MFI	:	microfinance institution
MINAE	:	Ministry of Agriculture and the Livestock
NDC	:	intended nationally-determined contribution
ONE	:	National Environment Council
ONN	:	National Nutrition Office
OPA	:	Professional Agricultural Organization
PA	:	project area
PAR	:	project appraisal report
PCN	:	project concept note
PCN	:	project concept note
PDS	:	preliminary design study
PEM	:	Madagascar Emergence Plan
PIU	:	Project Implementation Unit
PND	:	National Development Plan
PO	:	Professional organization
PP	:	procurement plan
PPMP	:	Pests and Pesticides Management Plan
PPP	:	public-private partnership
PZTA	:	Agro-Industrial Processing Area Project
RAP	:	Resettlement Action Plan
SME	:	small and medium-sized enterprises
SMI	:	small and medium-sized industries
STECO	:	Steering Committee
TAAT	:	Technologies for African Agricultural Transformation
TFP	:	technical and financial partner
ToRs	:	terms of reference
TSF	:	Transition Support Fund
UA	:	Unit of Account
UNIDO	:	United Nations Industrial Development Organisation
USD	:	US dollar
USFWR	:	underground sand-filled water reservoir
WB	:	World Bank
WFP	:	World Food Programme
WUA		Water Users' Association

PROJECT INFORMATION SHEET

Client Information

Borrower : Republic of Madagascar

Project Title : Integrated Agricultural and Agro-Industrial Growth Cluster Programme in South Madagascar - Phase 1 (PICAS-1)

Project area : Androy and Anosy Regions

Executing Agency : Ministry of Agriculture and Livestock (MINAE) through the General Directorate for Agriculture (DGA)

Financing plan (in millions)

Source	Amount (UA)	Amount (MGA)	Instrument
ADF	5.72	31,479.05	Loan
ADF	6.81	37,425.87	Grant
IFAD	0.81	4,438.74	Loan
Government	0.71	3,924.94	National budget
Beneficiaries	0.12	644.39	Type
TOTAL COST	**14.17**	**77,912 97**	

Important financial information on the ADF loan (SAP: P-MG-A00-007)

Loan currency:	Unit of Account (UA)
Type of loan interest:	0%
Interest rate margin:	Not applicable
Service commission:	0.75% per year of the disbursed loan amount not reimbursed
Commitment fee:	0.5% of the loan amount not disbursed 120 days from the date of signature of the Loan Agreement
Other costs:	Not applicable
Maturity:	40 years
Grace period:	10 months from the date of signature of the Loan Agreement;
ERR; NPV (base-case scenario):	24.38%; USD 30.79 million
IRR, NPV (baseline scenario)	23.27%; USD 31.50 million

Timeframe – Main Milestones (expected)

Activities	(month, year)
Approval of the concept note	07/2021.
Project approval	05/2022.
Effectiveness	07/2022.
Mid-term review	01/2025.
Completion	12/2026.
Last disbursement	06/2027.
Last reimbursement (ADF loan)	07/2062.

Executive Summary

General Overview of Project

1.1 The South of Madagascar is experiencing several constraints, namely: (i) a semi-arid climate exacerbated by climate change (recurrent droughts and cyclones); (ii) subsistence agriculture based mostly on small-scale family farms with few resilient means of production; (iii) poor water control; (iv) limited access to inputs (including quality seeds), agricultural equipment and financing; (v) low storage, preservation and processing capacity; and (vi) the high cost of production factors, particularly energy and transportation, resulting from the inaccessibility of farming areas. During the last two farming seasons, severe drought, combined with other natural calamities (severe sandstorms as well as locust and armyworm invasions) and COVID-19, severely reduced water supply thus affecting harvests and causing famine (kere). The PICAS-1 project is consistent with the Agriculture, Livestock and Fisheries Sector Programme (PSAEP/PNIAEP, 2016-2025) which seeks to reduce the poverty rate among those living below USD 1.25 per day, from 82% to 20% by 2025, and to increase the sector's annual growth rate from the current 2.6% to of 6%.

1.2 Among its interventions to address famine in the south of the country, the Government, with AfDB support, identified PICAS, which has received a project preparation advance (PPF), and in particular Phase 1 (PICAS-1), as a short-term and urgent solution. Its objective is to ensure social and economic recovery by building on the achievements of other ongoing projects. This phase will also be the framework for completing the formulation of the PICAS program, which could not be done under the aforementioned PPF due to the absence of technical confirmation for the baseline option of water resource mobilization (dam) and the exhaustion of the PPF advance. Phase 2, a transformative and sustainable solution to definitively address the issue of food and nutritional insecurity in this part of the country, will focus on: (i) irrigation development on the vast expanses of land available on the Ambovombé plain, with an estimated potential of over 150,000 ha; (ii) the establishment and development of an agro-industrial park in Fort Dauphin and agribusiness centres; (iii) development of access and production-support infrastructure; and (iv) facilitation and incentive measures to attract private investments to agro-industrial processing.

1.3 PICAS-1 is implemented in the Androy and Anosy Regions and is in synergy with ongoing projects/programs in this area: DEFIS (IFAD), AFAFI Sud (EU), PRADA (GIZ) and PIC and MIONJO (World Bank), the PACT project for the rehabilitation of RN 13 (EIB), etc. Its objectives include: (i) the development of six (06) micro-farming areas totalling 1,159 ha; (ii) the rehabilitation of 52 km of access road; (iii) the construction of two (02) high-flow boreholes to water livestock, supply drinking water to 6,000 people and irrigate 31 ha of market gardening areas; (iv) the settlement of 120 households provided with decent housing on 200 m^2 per household, small livestock kits and market gardening farms (800 m^2 per household); (v) the development of 160 ha of community land for the settled families (green title); (vi) the construction of three (03) underground sand-filled water reservoirs (USFWRs) with a capacity of 1,000 m^3 each; (vii) the restoration of 2,000 ha of degraded land using agro-ecological techniques; (viii) the construction and rehabilitation of socio-economic infrastructure (markets, schools, health centres, vaccination corridors, storage warehouses, input and agricultural equipment stores, etc.); (ix) facilitation of access to good quality seeds and inputs, mechanization and agricultural financing; and (x) promotion of employment and entrepreneurship.

1.4 The project has the following 03 (three) components: (i) agricultural and rural infrastructure development; (ii) value chain development and resilience-building; (iii) project coordination and management. It will be implemented over a period of four (4) years and six (6) months at a total cost of UA 14.17 million, including an ADF loan of UA 5.72 million (40.4%), an ADF grant of UA 6.81 million (48.1%) an IFAD loan through the DEFIS program of UA 0.81 million (5.7%), a government contribution of UA 0.71 million (5.0%), and a beneficiary in-kind contribution of UA 0.12 million (0.8%). The PICAS project area covers two (02) regions (Androy and Anosy) whose vulnerable communities are the direct beneficiaries.

B. Needs Assessment

2.1. Despite its high arable land potential, the South of Madagascar is experiencing food and nutritional insecurity due to recurrent climatic shocks, including drought. For a long time, PICAS-1 has received emergency humanitarian aid and appears to be a short-term solution to food insecurity, pending the formulation of a sustainable solution that will be developed in the second phase (PICAS-2). The project focuses on multipurpose water management in order to break this dependence on highly irregular rainfall and thus help to improve agricultural production and productivity and also strengthen community resilience to the effects of climate change and food/nutritional insecurity. The project will also contribute to income generation through the development of irrigation facilities and vegetable farms.

C. Value-added of the Bank

3.1. In its first phase, the project will focus on the development of irrigation and multipurpose water management infrastructure (USFWRs, boreholes), an area in which the Bank has long experience, particularly in irrigation. It will help to improve food and nutritional security, reduce job insecurity for young people and strengthen community resilience. The project also considers women's inclusion while addressing the main factors of fragility at the national and local levels. PICAS-1 will complement the Phase 2 studies on the establishment of agro-industrial parks which is the Bank's value-added and innovative approach proposed in its 2016-2025 "Feed Africa" Strategy flagship programme, namely the "Special Agro-Industrial Processing Zones (SAPZ)". This approach seeks to create the conditions needed to increase private investments in the agricultural sector, through State establishment of the facilities and incentives needed to attract private sector financing. In this area, the Bank has experience and expertise in setting up this type of operation in Madagascar, but also in Togo, Côte d'Ivoire, Senegal, Ethiopia, DRC, etc. The project differs from conventional rural development projects in its design and phase-based intervention approach to addressing both food and nutrition insecurity and agro-industrial processing.

D. Knowledge Development and Management

4.1. The implementation of PICAS-1 will provide a body of knowledge that can be replicated throughout southern Madagascar by various projects developed by the different TFPs. This includes knowledge on the design of water management structures and irrigation schemes based on climate change resilience standards; the agro-ecological blocks technique adopted to fix dunes, break wind speed and regenerate the water retention and vegetation cover capacity of the soil; the establishment of large-capacity USFWRs (1,000 m^3) and multipurpose boreholes. Lessons learned from the implementation of this project will be documented and disseminated through the PIU, but also through quarterly and annual supervision reports, mid-term assessment reports, and project completion reports.

RESULTS FRAMEWORK

A	PROJECT INFORMATION		
Project Title: Integrated Agricultural and Agro-Industrial Growth Cluster Programme in South Madagascar-Phase 1 (PICAS-1)		SAP Code: P-MG-A00-007	**Country: Republic of Madagascar**
Development Objective of the Project: Contribution to the enhancement and development of production systems resilient to food and nutritional insecurity in the Anosy and Androy regions.			
Alignment indicators:	- The cereal yield is improved. - The number of persons suffering from hunger and malnutrition is reduced.		

B RESULTS MATRIX

Results Chain and Description of Indicators	RMF indicator	Unit of measure	Baseline value (2022)	Target value (2027)	Means of verification
OUTCOME 1:	**PRODUCTION SYSTEMS RESILIENT TO CLIMATE CHANGE AND FOOD AND NUTRITION INSECURITY ARE STRENGTHENED**				
Number of resilient farms	☐	Number	0	12	Progress reports (PIU), agricultural statistical surveys (MINAE)
% of the population not getting the minimum intake of 2,133 kcal/day	☐	Percentage	75%	60%	Progress reports (PIU), agricultural statistical surveys (MINAE), survey and ONN reports
OUTCOME 2:	**RICE AND MAIZE YIELDS INCREASE**				
Cereal yields (ton/hectare) (rice, maize)	☒	tonne/ha	Rice 1.5, Maize 1.4	Rice 4; Maize 2	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTCOME 3:	**ACCESS IS OPENED TO THE COMMUNES AND THE WATER SUPPLY IS IMPROVED**				
Number of additional inhabitants having access to drinking water	☒	Number	0	6,000, (including 3,000 women)	Progress reports (PIU), agricultural statistical survey (MINAE) and MEAH report
Number of communes with access	☐	Number	5	12	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTCOME 4:	**JOBS ARE CREATED**				
Number of additional jobs created	☒	Number	0	3,000, (including 1,200 women)	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTPUT 1:	**THE SURFACE AREA OF OPERATIONAL IRRIGATION AREAS AND MARKET GARDEN FARMS IS INCREASED.**				
Lands with an improved water management system	☒	Ha of irrigated rice fields	241.8	1,159	Progress reports (PIU), agricultural statistical surveys (MINAE)
Surface area of market gardening farms	☒	ha	0	201	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTPUT 2:	**MULTI-PURPOSE WATER POINTS ARE INCREASED**				

Number of high-flow boreholes completed and equipped	☐	Number	0	2	Progress reports (PIU), agricultural statistical survey (MINAE) and MEAH report
Number of mini water supply projects completed	☐	Number	0	2	Progress reports (PIU), agricultural statistical survey (MINAE) and MEAH report
Number of CC-resilient REEPs constructed	☐	Number	0	3	Progress reports (PIU), agricultural statistical survey (MINAE) and MEAH report
OUTPUT 3:	**THE NETWORK OF FARM-TO-MARKET ROADS IS DENSIFIED**				
Total length of climate-smart roads rehabilitated	☒	Km	0	52	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTPUT 4:	**STORAGE AND MARKETING INFRASTRUCTURE IS DEVELOPED**				
Number of storage warehouses constructed	☐	Number	0	6	Progress reports (PIU), agricultural statistical surveys (MINAE)
Number of markets rehabilitated with gender-sensitive infrastructure	☒	Number	0	1	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTPUT 5:	**THE FARMING AREAS ARE REHABILITATED AND OPERATED USING RESILIENT TECHNIQUES**				
Number of climate-smart hectares developed	☐	ha	0	3,360	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTPUT 6:	**INPUT SUPPLY IS SUPPORTED AND STAKEHOLDERS' CAPACITIES ARE STRENGTHENED**				
Number of farmers with access to quality inputs, disaggregated by gender	☐	Number	0	825, (including 413 women)	Progress reports (PIU), agricultural statistical surveys (MINAE)
Number of CC-resilient seed multiplication centres supported	☐	Number	0	2	Progress reports (PIU), agricultural statistical surveys (MINAE)
Number of POs strengthened	☐	Number	0	100	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTPUT 7:	**YOUTH ENTREPRENEURSHIP IS PROMOTED**				
Number of established start-ups, including green businesses, disaggregated by women-led enterprises	☐	Number	0	50 (of which 25 are women-led, and 5 are green)	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTPUT 8:	**THE COMMUNITIES RECEIVE SOCIAL INCLUSION SUPPORT**				
Number of settled landless families, disaggregated by women-led households	☐	Number	0	120 (of which 40 are women-led)	Progress reports (PIU), agricultural statistical surveys (MINAE)
OUTPUT 9:	**HOUSEHOLDS RECEIVE TARGETED SUPPORT TO IMPROVE THEIR NUTRITION**				
Number of people educated on good nutrition practices	☐	Number	0	4,592	Project progress reports - ONN reports
Number of vulnerable households receiving cash transfers (including % of households headed by women).	☐	Number	0	656 (of which 144 are women-led)	Project progress reports - ONN reports

Planned Project Implementation Schedule

Year	2022				2023				2024				2025				2026				2027			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preparatory Activities																								
Project appraisal (AfDB, Government)																								
AfDB loan negotiation and approval																								
Signature of loan agreement and fulfilment of conditions precedent to first disbursement																								
Publication of the general procurement notice (GPN)																								
Selection of key project personnel and official launch																								
A/ DEVELOPMENT OF AGRICULTURAL AND RURAL INFRASTRUCTURE																								
Development and rehabilitation works on irrigated farming areas, including warehouses.																								
Rehabilitation works on the Fenoevo - Ranomafana-Bevoay road (52 km).																								
Construction of three (03) underground sand-filled water reservoirs (USFWRs) with a capacity of 1,000 m3 each.																								
Works on multipurpose high-flow boreholes.																								
Capacity-building for water and sanitation sector agencies and entities.																								
Construction of socio-economic infrastructure (schools, DMM, CSB, market, vaccination. corridors, gendarmerie post).																								
Provision of school, medical and road maintenance equipment.																								
Techno-economic and environmental feasibility study on water transfer from the Efaho River to the sedimentary plains of Ambovombe, two (02) underflow micro-dams (underground dams).																								
Annual environmental and social performance audit (ESMP implementation) -																								
Preparation of the PPMP																								
Capacity-building for national entities to monitor ESMP implementation (SECRU, CSE, PIU).																								
ESMP implementation:																								
B/ DEVELOPMENT OF VALUE CHAINS AND THE RESILIENCE-BUILDING																								
Access to certified seed																								
Support for the supply of quality inputs for start-up through the FDA																								
Support to farmers in the irrigated areas for the ploughing of 1,159 ha																								
Agricultural mechanization (FDA).																								
Capacity-building for pest control and management																								
Structuring, strengthening and support of producers' organizations																								
Agricultural extension services and advisory support																								

Year	2022				2023				2024				2025				2026				2027			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Product processing and marketing support																								
Development of agricultural entrepreneurship for rural youth through the FDA																								
Capacity-building for SME/SMIs in agricultural processing and services																								
Land tenure security and conflict prevention (irrigated areas)																								
Support for social inclusion and community resilience for 120 households (Green titles)																								
Establishment of two (02) agro-ecological blocks of 1,000 ha each																								
Support for school meal programmes																								
Capacity-building and economic empowerment for women																								
Nutrition support																								
C. PROJECT MANAGEMENT AND COORDINATION																								
Establishment of the financial, administrative and accounting management system																								
Procurement of furniture, office equipment and vehicles																								
Coordination and management, and monitoring/evaluation																								
Annual audit reports																								
Monthly M&E reports																								
Mid-term review																								
Completion report																								

REPORT AND RECOMMENDATION OF BANK GROUP MANAGEMENT TO THE BOARD OF DIRECTORS ON THE AWARD OF A LOAN TO THE REPUBLIC OF MADAGASCAR TO FINANCE PHASE 1 OF THE INTEGRATED AGRICULTURAL AND AGRO-INDUSTRIAL GROWTH CLUSTER PROGRAMME IN SOUTH MADAGASCAR (PICAS-1)

Management submits this report and its recommendation on a proposal to award (i) an **ADF loan of UA 5,720,000** and (ii) an **ADF grant of UA 6,810,000** to the Republic of Madagascar to finance PICAS-1 activities.

I. STRATEGIC THRUST AND RATIONALE

1.1 Project Linkage with Country Strategy and Objectives

1.1.1 PICAS-1 is aligned with the Madagascar Emergence Plan (PEM), which is implemented through the General State Policy (PGE 2019-2023) adopted in 2019 and which targets, inter alia, food and nutritional self-sufficiency for Madagascar. The project is also aligned with the Multi-Sectoral Emergency Plan (PMDU) for post-COVID recovery. It will also contribute to achievement of the objectives of the Agriculture, Livestock and Fisheries Sector Programme (PSAEP, 2016-2025). PICAS-1 is also consistent with the South Madagascar Emergence Plan, formulated during the High-Level Colloquium held from 11 to 12 June 2021, for the revival of Southern Madagascar.

1.1.2 PICAS-1 is complementary and synergistic with various ongoing operations in southern Madagascar, namely the following: for IFAD (DEFIS, PAPCA and FORMAPROD), for the European Union and EIB (AFAFI Sud, development of RN13), for the World Bank (PIC, MIONJO, PACT), for the Bank (PACFC), and for GIZ (PRADA).

1.2 Project Linkage with Bank Policy

1.2.1 PICAS-1 is consistent with the priorities of the Bank's 2022-2026 Country Strategy Paper (CSP) for Madagascar, validated by CODE on 18 March 2022, particularly Focus Area II "*Support agricultural processing and the development of manufacturing industries*". PICAS is also consistent with three (3) of the Bank's High-5 priorities, namely: (i) Feed Africa; ii) Industrialize Africa; and iii) Improve quality of life for the people of Africa. It is in line with the priorities of the Bank's Ten-Year Strategy (2013-2022), which pays particular attention to the situation of fragile states, agriculture and food security. The project is also based on the Bank Group's strategy to address fragility and build resilience, particularly the pillar on promoting resilient societies, and the one on gender. PICAS-I is also aligned with the Bank's Youth Employment Strategy 2016-2025 which identifies agriculture as a sector with great potential for job creation, especially for the youth. The project is in line with the priorities of the Multisectoral Nutrition Action Plan 2018-2025, especially improvement of the production of safe and nutritious food, and the Bank's ten-year Climate Change and Green Growth Strategy (2021-2030).

1.3 Rationale for the Bank's Involvement

1.3.1 The agriculture, livestock and fisheries sector in Madagascar contributes nearly 30% of GDP, employs about 80% of the labour force and accounts for 30% to 40% of the country's exports. The annual growth rate of agricultural value added was about 2.8% in 2019, well below the 6% rate set by the 2003 Maputo summit of African Union heads of state. It also employs more than 70% of Malagasy families, corresponding to nearly 2.5 million family farms. The country has a huge cultivable land potential of 36 million ha, of which only less than 10% is exploited. Agriculture is predominantly traditional and mainly based on non-mechanized and extensive food-crop farming, with only the surplus from family consumption sold on the market. Farms are small (0.87 ha on average) and yields

are low (2.5 t/ha for rice, 1 t/ha for maize, 0.9 t/ha for beans and 7 t/ha for cassava) and are steadily dwindling in size. Farm yields in 2019 were estimated at 3.5 million tonnes for rice, 3.1 million tonnes for cassava, and 0.219 million tonnes for corn. National rice production remains below national demand. As a result, Madagascar imports between 150,000 and 400,000 tonnes of milled rice per year. Furthermore, the South of Madagascar is prey to climatic shocks that result in a cycle of droughts, cyclones, violent winds, and crop destruction that have put the area in a situation of recurrent food insecurity *(Kere*). As part of a rapid response to this situation, the Government has focused PICAS-1 on urgent investment activities aimed at ensuring the social and economic recovery of the population by building on the achievements of ongoing operations.

1.3.2 PICAS will help to strengthen and consolidate the Bank's interventions in the Grand Sud. These operations were hitherto concentrated in the southwestern part of the project under PRIASO and PEPBM I, which have been completed, as well as PEPBM which is currently being implemented. They have led to the development/rehabilitation of about 17,000 ha of irrigated farms. A new PTASO project (approved in September 2020), which is currently starting, will promote the processing of agricultural products. Similarly, the Bank has just approved the financing of feasibility studies for about 29,000 ha with resources from the PPF (PDA-RDM). In addition to emergency humanitarian assistance of USD 686,000, approved in December 2020 and disbursed in February 2021, the Bank will confirm, through PICAS-1, its commitment to support the recovery of the South through an urgent (short-term) investment operation, which will lay the groundwork for a second, more ambitious and transformative phase that will structurally address the problem of food insecurity in southern Madagascar.

1.4 Coordination of Assistance

1.4.1 During the monitoring of PEM 2019-2023, the government, in collaboration with development partners, began the process of reorganizing sectoral and thematic platforms to better align them with PEM priorities. Thus, 13 platforms have been defined in connection with the 13 commitments of PEM. Sectoral dialogue is carried out under the Strategic Coordination Platform - Rural Development (SCP-RD), bringing together the technical and financial partners of the rural development sector and co-chaired by the EU and GIZ with the Ministry of Agriculture and Livestock (MINAE). One of the challenges of coordinating and consolidating the national leadership is the need to strengthen the linkage between general dialogue on PEM priorities and dialogue on sectoral and thematic issues.

1.4.2 The Bank, through COMG, is an active member of several coordination platforms (including the rural development platform) and is the second largest partner in the infrastructure sector, after the World Bank. It is also an active member of the PCS-DR, whose rotating chairmanship it held before the current term of the European Union. In general, partners are widely dispersed in different sectors, despite the efforts of the Government. These efforts were reflected in the co-chairmanship of PCS-DR by MINAE, since May 2019, aimed at promoting dialogue and aid coordination in the agricultural sector.

II. PROJECT DESCRIPTION

2.1 Objectives and Expected Outcomes

2.1.1 The overall objective of the PICAS-1 is to contribute to poverty reduction and to the improvement of food and nutritional security of the community in South Madagascar. Its specific objectives are: (i) the development of climate change resilient production systems; and ii) the improvement of food and nutritional security in the Anosy and Androy regions through the development of production and market access infrastructures (irrigated farms, rural roads and waterpoints), the promotion of resilient agricultural value chains, and the development of employment and entrepreneurship for young people and women.

2.2 Description of Project Components

2.2.1 To achieve the project's objectives, this first phase of the program was structured around the following three (03) components: (A) agricultural and rural infrastructure development; (B) value chain development and resilience-building; and (C) project administration and coordination.

2.2.2 Component A, "*Development of agricultural and rural infrastructure*", comprises four (04) sub-components: (A.1) development of production and access infrastructures; (A.2) development of socio-economic infrastructure; (A.3) Environmental and Social Management Plan (ESMP); and (A.4) studies on water transfer and infrastructures of the future agropolis of PICAS. Component B, *"Value chain development and resilience-building"*, comprises three (03) sub-components: (B1) development of agricultural value chains; (B2) promotion of employment and entrepreneurship; and (B3) support to community resilience. The interventions planned under each component and sub-component are detailed in Table 1 below.

Table 1: Description of project components, sub-components and activities

COMPONENTS	COST (in UA millions)	DESCRIPTION OF COMPONENTS
Component A: Agricultural and rural infrastructure development	**8.88** (62.67%)	***Subcomponent A.1, development of production and access infrastructure*** ***Rehabilitation of irrigated areas***: Rehabilitation of six (06) irrigated farm sites totalling an area of 1,159 ha at Edazo (Bevoay Analasoa, 128 ha), Ambinany -Ivahona (320 ha), Ampitamalama (143 ha), Maromena (230 ha), Besaly Anivo (218 ha), and Vohibanda (120 ha): • Reconstruction works on water storage structures, irrigation and drainage networks and other watercourse crossing structures; • Works control and supervision. ***Rehabilitation of rural roads***: The road concerned, namely the 85 km long Soanierana - Bevoay road, is located in the District of Fort Dauphin in Anosy Region. It was the subject of detailed technical studies and ESIA under the DEFIS program (IFAD) and its environmental permit was issued by ONE on 30 November 2021. The section targeted by the project is the last 52 km, comprising 21 km (Esaka Ivondro-Fenoevo) for DEFIS and 31 km (Fenoevo-Bevoay) for PICAS-1. • Road rehabilitation works; • Works control and supervision. ***Development of water points:*** • Works on two high-flow boreholes and three USFWRs of 1000 m^3 each; • Works control and supervision.
		Subcomponent A.2, Development of socio-economic infrastructure: • Construction and equipment of six (06) storage warehouses of 100T, and two (02) Dokany Mora ho an'ny Mpamokatra (DMM: Input stores), a green title, a communal market, two (02) vaccination corridors, schools, a health center, a gendarmerie post in Agnarafaly; • Control and monitoring of socio-economic infrastructure works.
		Subcomponent A.3, Environmental and Social Management Plan: • Environmental protection activities resulting from studies on the irrigated areas, rural roads and water points. These works (ESMP sites) will be directly covered in the works contracts of the companies; • IEC activities on water-related diseases, hygiene, STIs/AIDS and COVID-19; • Support to beneficiaries of the 06 irrigated farms during the construction phase; • Development of a Pest and Pesticide Management Plan (PPMP), annual environmental and social performance audit, capacity-building of regional structures to monitor the PGES, monitoring of ESMP implementation.
		Subcomponent A.4, studies on water transfer and infrastructure of the future agropolis of PICAS: • Conduct technical, economic, and environmental feasibility studies of water transfer from Efaho to Ambovombe integrating a climate change vulnerability assessment, resilience, and GHG mitigation measures • Conduct a technical, economic, and environmental feasibility study of an underground dam integrating a climate change vulnerability assessment, resilience, and GHG mitigation measures
Component B: Agricultural value chain development	**3.21** (22.65%)	***Sub-component B.1, development of agricultural value chains:*** • Extension/advisory support and dissemination of best practices and technical approaches on resilience; • Improvement of access to certified seeds, support to the supply of quality inputs and establishment of input stores; • Promotion of agricultural mechanization and agricultural service centres; • Capacity-building for pest control and management; • Structuring, strengthening and guidance of producer organizations as well as processing and marketing support.
		Subcomponent B.2, Promotion of employment and entrepreneurship:

COMPONENTS	COST (in UA millions)	DESCRIPTION OF COMPONENTS
		• Development of agricultural entrepreneurship for rural youth, of whom 50% are young women; • Capacity-building for SME/SMIs in agricultural processing and services.
		Subcomponent B.3, Community Resilience Support: • Land tenure security and conflict prevention; • Support for social inclusion and community resilience through the installation and assistance of 120 landless households. • Support to the establishment of two (02) agro-ecological blocks of 1,000 ha each; • Support to school meal programmes and nutrition • Capacity-building and economic empowerment for women.
Component C: Project management and coordination	**1.29** (09.10%)	• Coordination of project activities; • Administrative, accounting and financial management; Procurement of goods, works and services, monitoring of studies, audit, monitoring-evaluation of project implementation supervision, mid-term review, completion.
Unallocated	**0.79** (5.58%)	Miscellaneous
TOTAL	**14.17** (100.0%)	

2.3 Technical Solutions Adopted and Alternative Solutions Considered

2.3.1 The project area remains exposed and sensitive to climatic hazards (drought, floods, etc.) and other natural disasters (locust and army worm invasions). The technical solutions adopted are based on criteria that allow for the development of resilience in the face of all of these threats, notably proper consideration of climate variability in the design of structures, while implementing specific participatory measures for the management and maintenance of irrigation infrastructure. Specific actions will be carried out to promote crop protection against pests and locust invasion through biological control and the use of green manure. The solutions adopted also aim to protect the environment by strengthening stakeholder capacity.

2.3.2. The project is based on an innovative approach, combining an emergency solution with a long-term approach to sustainably address the problem of food insecurity in southern Madagascar. The technical solutions adopted entail solving the problem of food insecurity by rehabilitating the irrigated farms, sinking high-flow boreholes which will be used for drinking water supply and farming; and building underground sand-filled water reservoirs (USFWRs) as a solution that prevents water from evaporation, with the layer of sand serving as a filter.

Table 2: Alternative Solutions Considered and Reasons for Rejection

Alternative Solution	Brief Description	Reasons for Rejection
Develop water storage ponds for watering livestock and for use in vegetable farming.	In areas where rainfall is low and of short duration, ponds are built on sites that retain water for a few months and that could be used by farmers and herders.	This solution is unsustainable, conducive to environmental degradation and likely to cause high evaporation and pollution.
Rehabilitate broken-down boreholes by sinking deeper and replacing equipment to supply the population with drinking water.	This solution would entail rehabilitating the boreholes and equipping them with manual pumps.	The problems of the project area relate to both drinking water supply and agriculture. Providing drinking water through such boreholes without providing water for agriculture would expose the population to rural exodus.
Support the extension of rain-fed rice cultivation in order to cut project costs.	In some regions of Madagascar, rice is only produced under rainy conditions, but this makes production dependent on climatic conditions.	The project area remains exposed to climatic hazards with irrigation appearing to be the solution to solving the problem of food insecurity and improving farmers' incomes.

2.4 Type of Project

2.4.1 PICAS-1 is a public investment operation intended to create the conditions for sustaining and building the resilience of the population, and to prepare for PICAS-2, which will seek to attract public and private investment in value-added sectors, particularly in the processing of agricultural products, the provision of agricultural inputs and services, and marketing.

2.5 Project Cost and Financing Mechanisms

2.5.1 **Project costs:** The total project cost is estimated at UA 14,17 million (approximately MAG 77.91 billion) net of taxes and customs duties. This cost is broken down as follows: a foreign currency share estimated at UA 8.48 million (~MGA 46.63 billion) and a local currency share estimated at UA 5.69 million (~MGA 31.28 billion). This cost includes provisions for physical and financial contingencies estimated at approximately 2% and 4% respectively. The estimate for financial contingencies was made based on current and projected annual inflation rates of the local currency and foreign currencies estimated to average 2.5% and 1.8% per year, respectively. A summary of estimated project costs by component and by expenditure category is presented in Tables 3, 4, and 5 below, while the details are provided in volume II of the appraisal report (Technical Annexes).

Table 3: Summary of Project Costs by Component

COMPOSANTE DU PROJET	(MAG Million)			(UA million)			% F.E.	% B.C
	Local currency	F.E.	Total	Local currency	F.E.	Total		
A. DEVELOPMENT OF AGRICULTURAL AND RURAL INFRASTRUCTURE	19,811.51	29,028.74	48,840.25	3.60	5.28	8.88	59	66
B. DEVELOPMENT OF VALUE CHAINS AND RESILIENCE-BUILDING	3,779.60	13,851.01	17,630.61	0.69	2.52	3.21	79	24
C. PROJECT MANAGEMENT AND COORDINATION	6,160.75	955.48	7,116.23	1.12	0.17	1.29	13	10
Total BASELINE COSTS	29,751.86	43,835.23	73,587.09	5.41	7.97	13.38	60	100
Physical Contingencies	343.56	760.91	1,104.47	0.06	0.14	0.20	69	2
Price Contingencies	1,182.15	2,039.26	3,221.41	0.21	0.37	0.59	63	4
Total PROJECT COSTS	**31,277.57**	**46,635.40**	**77,912.97**	**5.69**	**8.48**	**14.17**	**60**	**106**

Table 4: Summary of Project Costs by Expenditure Category

CATEGORIES DE DEPENSES	(MAG Million)			(UA Million)			% F.E.	% B.C
	Local currency	F.E.	Total	Local currency	F.E.	Total		
I. Investment costs								
A. WORKS	11,146.58	24,081.49	35,228.06	2.03	4.38	6.41	68	48
B. GOODS	713.71	1,282.19	1,995.90	0.13	0.23	0.36	64	3
C. SERVICES	7,521.92	18,471.55	25,993.48	1.37	3.36	4.73	71	35
D. PPF REIMBURSEMENT	4,569.81	-	4,569.81	0.83	-	0.83	-	6
Total investment cost								
II. Recurrent costs (personnel & fonctionnement	5,799.85	-	5,799.85	1.05	-	1.05	-	8
TOTAL BASELINE COST	29,751.86	43,835.23	73,587.09	5.41	7.97	13.38	60	100
Physical contingencies	343.56	760.91	1,104.47	0.06	0.14	0.20	69	2
Financial contingencies	1,182.15	2,039.26	3,221.41	0.21	0.37	0.59	63	4
TOTAL PROJECT COST	**31,277.57**	**46,635.40**	**77,912.97**	**5.69**	**8.48**	**14.17**	**60**	**106**

Table 5: Disbursement plan by component (in UA million)

COMPOSANTE DU PROJET	2022	2023	2024	2025	2026	Total
A. DEVELOPMENT OF AGRICULTURAL AND RURAL INFRASTRUCTURE	1.32	2.11	2.14	2.08	1.86	9.50
B. DEVELOPMENT OF VALUE CHAINS AND RESILIENCE-BUILDING	0.58	0.92	0.85	0.58	0.44	3.37
C. PROJECT MANAGEMENT AND COORDINATION	0.33	0.24	0.24	0.24	0.24	1.30
TOTAL PROJECT COST	**2.23**	**3.27**	**3.23**	**2.90**	**2.54**	**14.17**

2.5.2 **Financing sources:** The project will be financed by an ADF loan of UA 5.72 million (40.4%), an ADF grant of UA 6.81 million (48.1%), IFAD funding of UA 0.81 million (5.7%), a Malagasy Government contribution of UA 0.71 million (5.0%); and a beneficiaries' contribution of UA 0.12 million (0.9%). The detailed expenditure by funding source and by expenditure category are provided in Volume II (Technical Annexes).

Table 6: Project Financing Plan

FINANCING SOURCES	(MGA million)			(UA million)			%
	Local currency	F.E.	Total	Local currency	F.E.	Total	
ADF loan	12,846.79	18,632.26	31,479.05	2.34	3.39	5.72	40.4
ADF grant	15,187.47	22,238.40	37,425.87	2.76	4.04	6.81	48.0
IFAD	1542.57	2,896.17	4,438.74	0.28	0.53	0.81	5.7
STATE OF MADAGASCAR	1504.61	2,420.32	3,924.94	0.27	0.44	0.71	5.0
BENEFICIARIES	196.14	448.25	644.39	0.04	0.08	0.12	0.8
Total	**31,277.57**	**46,635.40**	**77,912.97**	**5.69**	**8.48**	**14.17**	**100.0**

2.6 Project Area and Beneficiaries

2.6.1 The PICAS intervention zone covers two regions (Androy and Anosy) and the vulnerable population of these regions are the direct project beneficiaries.

2.6.2 Located in the country's extreme south, the Androy Region covers 22,297 km^2. It has four (04) Districts: Ambovombe-Androy, Bekily, Beloha-Androy and Tsihombe, 51 communes and 881 fokontany. Its population is estimated at 904,598 inhabitants (2020). Agriculture, livestock, and fisheries are the population's main economic activities.

2.6.3 The Anosy Region covers an area of 30,198 km^2, and it includes three (03) districts: Amboasary south, Betroka and Tolagnaro (or Fort Dauphin), 70 communes and 682 fonkotany. Its population is estimated at 828,023 inhabitants (2020), with agriculture, livestock and fisheries being the population's main economic activities.

2.7 Participatory Approach to Project Identification, Design and Implementation

2.7.1 The involvement of all stakeholders has been a concern at all stages of the project's design. Indeed, during the studies, preparation and appraisal of the project, information and consultation sessions were held throughout the project's intervention area, with the decentralised and devolved administrative and technical authorities and services, future beneficiaries and their associations, civil society, project coordinators in the project area and TFPs. Similarly, public consultations were held during ESIA studies. These working sessions made it possible to collect and incorporate into the project design the main needs and expectations of the population and the main stakeholders. The Bank's project preparation and appraisal missions held working sessions, via videoconference, during the preparation mission and in-person during the appraisal mission, with all stakeholders. The project was also presented to the donor thematic group "Strategic Coordination Platform for Rural Development (PCS-DR)" in Madagascar.

2.7.2 The participatory approach adopted during the preparation of PICAS-1 will be continued during its implementation. At the institutional level, the beneficiaries and the communes concerned will be represented on the Steering Committee (SC) and on the USFWR, borehole, and road maintenance management committees which will be set up to guarantee good governance of the project and investment sustainability. At the technical level, under the management and maintenance framework contracts for irrigated areas, the AUEs and the communes will be made responsible for the management and maintenance of the irrigation facilities to be built or rehabilitated.

2.8 Consideration of Bank Group Experience and Lessons Learned during Project Design

2.8.1 The Bank has had long experience in Madagascar, especially in the South-West Region where it has rehabilitated and developed more than 20,000 ha. For this project, it is necessary to take into consideration certain lessons learned from other projects. Table 8 presents the lessons learned and how they were factored into the design of PICAS-1.

Table 7: Consideration of the Bank's experience & lessons learned

No.	Lessons Learned	Actions factored into the design of PICAS-1
01	Setting up a project implementation unit takes a long time.	To avoid these long delays, it was agreed under PICAS-1 that the ToRs be validated and recruitments launched even before the lifting of conditions precedent to effectiveness.
02	The procurement process for the recruitment of consultants for technical studies is long.	PICAS-1 will use the results of studies already conducted out by the DEFIS programme.
03	The total collected for the water rate is often low and insufficient to cover maintenance costs.	Awareness-raising and capacity-building have been planned for beneficiaries. A new framework is being popularised to review the rates. The study was conducted under PRIASO and relates to the establishment of an Irrigation Systems Maintenance Fund (FERHA).
04	Land disputes are a recurring problem in Madagascar.	The project will support producers with land tenure security and conflict management.
05	Inaccessibility to production areas is a handicap to the marketing of produce.	PICAS-1 provides for the rehabilitation of a road to ensure the rapid evacuation of agricultural produce.
06	There is need to involve and ensure the active participation of decentralised services of the State in project implementation.	The decentralised services of the ministries of agriculture and water resources will be included in the membership of the guidance and steering committee and the committee in charge of conducting studies for the future PICAS agropole.
07	Often, the operation of irrigated areas begins after the project has been completed. Hence, when the completion report is prepared, the data is not available.	Rehabilitation works on the irrigated areas must begin from the second year of the project such that their cultivation begins in the 3rd year, latest.

2.9 Key Performance Indicators

2.9.1 The key performance indicators identified and the expected outcomes at project completion contained in the results-based logical framework are organised as follows. Impact indicators: (i) cereal yields improve; and (ii) the number of people exposed to hunger and malnutrition reduces. Outcome Indicators: (i) number of resilient farms; (ii) % of inhabitants not getting the minimum intake of 2,133 kcal/day; (iii) cereal yield (ton/hectare) (rice, corn); (iv) number of additional inhabitants having access to drinking water; (v) number of communes to which access has been opened up. Output Indicators: (i) lands provided with an improved water management system; (ii) surface area of vegetable farms; (iii) number of high-flow boreholes drilled and equipped; (iv) number of mini water supply systems constructed; (v) number of USFWRs constructed; (vi) total length of roads rehabilitated; (vii) number of warehouse complexes constructed; (viii) number of markets rehabilitated; (ix) number of hectares developed; (x) number of farmers with access to quality inputs, disaggregated by gender; (xi) number of seed multiplication centres supported; (xii) number of POs strengthened; (xiii) number of budding businesses established, specifying the number operated by women; (xiv) number of settled landless families, disaggregated by female-headed household; (xv) number of people sensitized to good feeding practices; and (xvi) number of vulnerable households with vegetable gardens, disaggregated by female-headed household.

2.9.2 In addition to these outcome and output indicators in the logical framework, which are disaggregated by gender where applicable, there are also project implementation performance indicators that will be monitored. These have been selected in relation to the Bank's institutional performance indicators, which are mainly: (i) the time taken to ensure effectiveness and satisfy the conditions precedent to the first disbursement of funds; (ii) the time taken to award contracts; (iii) the average project progress indicator (PI); and (iv) the evolution of the disbursement rate relative to the expenditure schedule. The project will also monitor the degree of women's involvement in decision-making bodies and the rate of women's access to land and financing. The project's environmental and social performance will be measured by the level of implementation of planned management and

mitigation measures. These indicators will be monitored during supervision missions and in the project's daily management.

III. PROJECT FEASIBILITY

3.1 Economic and Financial Performance

3.1.1 The project is designed to boost agricultural production and the processing of produce from promising sectors. The increase of agricultural production targets crops such as rice, corn, cassava, and vegetables. The benefits are calculated based on an estimate of the additional yields that could be generated by the project plus the increase in sown surface area achieved through the project and the technology package adopted. The analysis explored the characteristics of the farms in the "project" and "no-project" situations and of the changes in technical level explained in the data sheets. For each model, the "no-project", "project" and "additional" situations were defined. These "no-project" and "project" situations reflect current practices and the additional benefits that the project will bring, including: the rehabilitation of irrigated areas, the dissemination of agricultural and resilience practices; the provision of support in terms of equipment, management, techniques for operating small service and processing/conservation businesses managed by women and young people.

3.1.2 **Financial Analysis:** Many of the above benefits are not tradeable or even tangible, meaning that they are not amenable to financial performance analysis based on existing markets. Accordingly, it was not considered relevant to include them in a quantitative analysis, based on a production model or profit-making activity approach. However, it was possible to carry out a cost-benefit analysis of agribusiness and miscellaneous agricultural production business models (FARMOD), as described above.

3.1.3 With regard to agro-industrial businesses, a hypothesis has been proposed based on three (3) types of processing units, namely small, medium, and large businesses, with respective investments of USD100,000, USD500,000, and USD 2 million each, in accordance with the average investment profile in this type of models. Under these conditions, the annual turnover per enterprise is USD 76,130, USD 392,830, and USD 1,603,820, respectively for the small, medium, and large businesses, from the 4th year onwards, over an operating period of about 20 years. Regarding agricultural crop production by farmers who supply the agro-industrial businesses of the parks, FARMOD-type production models, benefit/cost model (Input/Output, With and Without Project over a 20-year operating period).

3.1.4 Thus, the financial analysis yielded: (i) a financial impact of more than USD 1,507,940 per year from the 4th year of operation, projected to span over 20 years, in line with operations of this nature, depending on the duration of investments. This implies that the project's financial benefits over the operating period exceed the cost of the investments required to finance it; (ii) a benefit/cost ratio of 1.93, which means that the benefits are higher than the cost of the investments; (iii) an internal rate of return of 23.27%, which is higher than the opportunity cost of capital (the cost of tying up financial resources for investments in the project) estimated at 12%. Based on these results, it can be concluded that the project has a profitability profile that financially justifies the investment cost.

3.1.5 **Economic Analysis:** The economic analysis was carried out using the reference price method - i.e., prices under economically efficient conditions, which are, therefore, Pareto-optimal. It was conducted by comparing the "no-project" and "project" situations of the production models presented in the financial analysis. In this model, tradeable goods - i.e., goods that can be marketed outside the country (FOB at the port and CIF at the Port of Marseille) are considered. Under these conditions, the reference prices of these products (economic prices) are evaluated based on the ex-ante equilibrium of these crops which makes it possible to get the export-parity price at farmgate. Labour was economically valued at 65% of its financial value of USD 3/day to take into account the inelasticity of labour demand in the country in general and in the project area in particular. Based on the realistically defined assumptions, the programme's economic rate of return (ERR) was estimated at 24.38%, with a cost-

benefit ratio of 1.96. Accordingly, the overall profitability of the project can be deemed satisfactory, based on these results.

ERR (baseline scenario): 24.38%	NPV amount:	USD 30.79 Million
IRR (baseline scenario): 23.27%	NPV amount:	USD 31.50 Million

3.1.6 **Sensitivity Analysis:** Sensitivity tests conducted based on the reduction in production prices made it possible to measure the stability of the financial and economic performance indicators. Thus, the tests show that prices would have to be lowered to 40.3% (break-even point) to cancel out the additional financial and economic benefits generated, respectively, with IRR and ERR equal to the opportunity cost of capital, i.e., 12%. These tests show that the project profitability profile is robust, although it was not performed on all endogenous values in the model. However, the price variable is the most important one, it is the only one that cannot be controlled through project management and, consequently, through operations. The summary of the sensitivity analysis is presented in the annex to this report.

3.2 Environmental and Social Impacts

3.2.1 Environment

3.2.1.1 **Categorisation**: The project is classified under Category 1 according to Decree No. 99-954 of 15 December 1999, as amended by Decree No. 2004-167 of 3 February 2004 on the compatibility of investments with the environment (MECIE). This national classification corresponds to category 1 of the Bank's Integrated Safeguard System (ISS).

3.2.1.2 **Safeguard Instruments**: The ESIAs of the sub-projects: (i) rehabilitation of the six irrigated areas (Maromena, Edazo, Ampitamalana, Besaly, Ambignany, Vohibanda) and (i) rehabilitation of the RIP 118 Ranomafana road have been completed. Public consultations and meetings (local authorities, village communities, organisations working in the localities) have been carried out. According to the minutes of the said consultations that stakeholders involved had no objections to the works being carried out. However, some concerns were expressed by the population such as the possible non-respect of customs and sacred places (religious sites, tombs, steles in memory of their dead, etc.) by the workers. The studies were reviewed by the Bank and published on the website of the Ministry of Agriculture and Livestock (MINAE) (https://www.minae.gov.mg/rapports-eies/) on 15 December 2021. The Bank disclosed the said studies on 23 December 2021. The environmental clauses for these sub-projects are attached to the environmental permits issued by ONE and the environmental certificates issued by MINAE.

3.2.1.3 **Risks and adverse Impacts**: The main adverse effects expected from the project are (i) water and soil pollution by possible discharges of wastewater, waste oil and hydrocarbons and by solid waste (workers' camps, machinery parking lots, storage areas, vehicle movements); (ii) erosion of unprotected soil caused by run-off and/or excavations in borrow pits; slope instability due to stripping; (iii) modification of the natural flow of water (direction, flow rate, physical properties, etc.) resulting from the rehabilitation of bridges.

The main risks to prevent are:(i) risk of the spread of infectious diseases (STDs/HIV-AIDS); (ii) potential gender-based violence (GBV); and (iii) the risk of industrial accidents and occupational diseases for project workers during the works. The estimated cost of the measures included in the Environmental and Social Management Plan (ESMP) is about UA 133,615. This amount does not include the cost of measures for mitigating the impact of the works, which is directly included in the cost of the works. The total cost of the E&S measures is included as part of the Bank financing (see table in the technical annexes).

3.2.1.4 **Mitigation Measures:** The measures envisaged in the Environmental and Social Management Plans (ESMP) include the following: (i) before the commencement of any works, organise information

and awareness campaigns for the local population on the duration and details of future works to be carried out in the project areas; (ii) raise awareness among company staff on the habits and customs to be respected; (iii) give priority to the local population when recruiting unskilled workers; (iv) manage construction site waste (sorting, treatment, disposal, etc.); (v) ensure the effective implementation of occupational health and safety measures by contractors on the construction sites ; and (vi) develop the pest and pesticide management plan (PPMP) and train project staff and WUAs on integrated pest management and management of pesticides and empty pesticides containers.

3.2.1.5. **Implementation and Monitoring Arrangements**.

3.2.1.5.1 **Reporting and Audit:** As the project is classified under Category 1, and in accordance with ISS requirements, the PIU shall have an environmental safeguard specialist and a social safeguard specialist. The Borrower shall produce a monthly report on the implementation of environmental and social measures from the first disbursement, as well as an annual environmental and social compliance audit of the project at the end of each year.

3.2.1.5.2 **Monitoring of ESMP Implementation:** The regional environmental monitoring committee (CSER) in charge of monitoring project ESMPs in the Anosy and Androy regions is present in Fort Dauphin. The committee conducts close monitoring of projects and also manages complaints about ESMP implementation failures. The grievance redress mechanism (GRM) is prefigured in the ESIAs of the sub-projects and will be finalized and coordinated by the Project Implementation Unit at the start of the project. The operating cost of the GRM is included in that of the ESMP. ONE and SECRU, together with the national Environmental Monitoring Committee (CSE), periodically (annually) monitor implementation of the project's environmental TORs. The environmental and social safeguards specialists recruited within the PIU to monitor ESMP implementation will be based in the project area and will ensure that all national and Bank requirements pertaining to environmental and social safeguards and compliance as mentioned in the financing agreement are met.

3.2.1.6. **Involuntary Resettlement**

The Project does not give rise to any involuntary resettlement.

3.2.2 Climate Change and Green Growth

3.2.2.1 **Climate Vulnerability and Resilience**: According to the Bank's Climate Safeguard System, PICAS-1 is a category 2 project. In addition, the feasibility study on water transfer and agro-pole infrastructure (Sub-component A.4) are category 1 because they require a detailed study of climate risks and identification of low carbon resilience measures. Given the high exposure of this project area to cyclonic flooding, pockets of drought and erosion, there is great need to strengthen the climate-smart design of water structures and boost the climate resilience of local communities' livelihoods. Future climate risk trends may increase the area’s level of exposure, reduce the effectiveness of planned development works, induce additional costs for works maintenance and undermine the current resilience practices of the target communities as well as the planned water transfer system. Thus, with the Climate Risk Management Plan, design of the water-management aspects of production and access works and infrastructure will include climate-smart techniques that allow for the co-management of cyclonic, flood and drought risks (see Annex on Climate Change). Thus, nature-based solutions (NBS) such as soil and water conservation techniques, early warning systems and dyke protection will be factored into the rehabilitation and development of irrigated areas, rural roads and water points, including the USFWRs, and into the feasibility study on water transfer and agro-poles. Similarly, the development of value chains and resilience through the dissemination of farming techniques and circular processing will build the technical adaptation capacities of producers and extension services, especially SMEs, and the issuance of green titles. This will rapidly boost their resilience and, in turn, accelerate the implementation of the Madagascar National Climate Adaptation Plan.

3.2.2.2 **Carbon Footprint & Mitigation*:*** The carbon footprint is estimated at 1,174 tons of CO_2eq for 25 years for the 1,159 ha of irrigated areas - i.e., 187.84 tons of CO_2eq by 2026, 46.96 tons of CO_2eq/year including emissions resulting from the change of land use, rural roads. Thus, in keeping with Madagascar's intended nationally-determined contribution (NDC), the project's GHG Mitigation Plan outside of the agro-ecological blocks will promote the use of environmentally-friendly materials, irrigation systems powered by renewable (especially solar) energy, and the adoption of conservation agriculture and the circular approach to reduce the project's carbon footprint (see Annex on Climate Change).

3.2.2.3 **Alignment:** The project, by dint of its design, will not only boost the climate resilience of livelihoods in the country's southern region, but also, through the study on water transfer and agro-industrial park infrastructure, identify measures to increase the benefits of ecosystem services and promote the creation of green jobs, especially for SMEs. The development of climate-smart farming and product processing methods will accelerate the decarbonisation of the agricultural sector in Madagascar. This will contribute to the implementation of national climate change adaptation and mitigation plans for the agricultural sector and, consequently, of the NDC. The operation is thus consistent with the Paris Climate Agreement and the Bank's Policy and Strategic Framework on Climate Change and Green Growth 2021-2030 with 100% of the budget contributing to climate finance.

3.2.3 Gender

3.2.3.1 Existing indicators point to a gender disparity in agricultural sector participation and access and to a high agricultural potential for women in Madagascar. Although agriculture employs 77% of men and 73% of employed women, female-headed households earn less income from agricultural activities than male-headed households. The constraints and factors that hamper the development of agricultural activities (including climate change, deficient irrigation and transport infrastructure, inaccessibility to productive resources) affect women more. Due to social norms and cultural constraints, women are responsible for domestic chores, provision of care, as well as child and family nutrition. Consequently, they have less time to devote to productive activities. During the appraisal mission, government priorities in the area of gender equality and women's empowerment were identified and discussed. The team also met with women's cooperatives and groups. The various challenges specific to women in the agricultural value chain and opportunities for their empowerment were discussed.

3.2.3.2 The project is **classified under the GEN II category,** in accordance with the Bank's gender marker system, in which gender assessment identified four key entry points for improving socio-economic benefits to women through the project by: (i) providing adequate training in resilient agricultural best practices; (ii) ensuring equitable access to water infrastructure and vegetable farms; (iii) ensuring gender-sensitive rehabilitation of markets with the inclusion of amenities such as adequate water, sanitation and hygiene facilities; and (iv) building women's capacity and sensitising local couples/stakeholders with a view to ensuring the long-term transformation of gender dynamics. These activities are designed to address gender inequalities and increase opportunities for women in the agricultural sector. They are also aimed at strengthening the nutritional resilience of households and providing support to women who are responsible for child nutrition. Implementation of these measures will enable the project to have significant positive impacts on gender, women's empowerment, and community resilience.

3.2.4 Social

3.2.4.1 During the construction, the recruitment of local labour and specialised local workers (masons, ironworkers, etc.) will, in the short-term, help to improve the incomes and living conditions of households. Furthermore, the project will promote the development of petty trading, catering and related activities for women and some young people.

3.2.4.2 The rural communes concerned by RIP 118 are mainly populated by the Antanosy peoples. The habits and customs include many local prohibitions (fady or faly) related to cultural mores or to different aspects of daily life such as food or language. The Antanosy often bury their dead in the forests and erect large stone steles in their memory. These are sacred places for the local people. The project will help to enhance food security in the Androy and Anosy regions.

3.2.5 Nutrition and Health

The prevalence of stunting among under-five children is 40%, and 13% for the severe form. The situation is particularly alarming, with slight disparities between boys (50.2%) and girls (44.7%). This rate remains very high in the South, standing at 45.3% in Androy and 46.8% in Anosy. It is the most widespread form of malnutrition in the country and has the most irreversible effects on children (physical and cognitive development, learning abilities), in addition to their chronic vulnerability to diseases, thus affecting their productivity in adulthood. Among adolescent mothers, in a context where the prevalence of early pregnancy is high, stunting increases the risk of endangering their lives during childbirth and giving birth to undersized children. And undernutrition, affecting a quarter of women, causes intrauterine stunting (11% of newborns) which contributes to stunting in children under five. Maternal and child malnutrition is among the underlying causes of malnutrition causing more than one-third of deaths in under-five children. Acute malnutrition, affecting 9% of children in this age group, is also a serious public health issue: 56% of child deaths are attributable to the effects of malnutrition, 83% of which are due to moderate acute malnutrition. Analysis of simple deprivation shows that more than 93% of poor children aged 6 to 23 months do not consume at least 5 of the 8 recommended food groups (baby food). Among poor children aged 15 to 17 years, 84.4% are more than 3 years behind in their schooling. Targeted interventions will aim at reducing chronic malnutrition as well as recurrent episodes of acute malnutrition in the project area. Community resilience-building operations that have a nutrition component throughout the value chain will be implemented.

3.2.6 Training and Youth Employment

3.2.6.1 **Structuring, Strengthening and Supporting of Producers' Organisations**: In conjunction with the DRAEs and through confirmed service providers, the project will provide support for the creation, training and structuring of the various associations, groups and EIGs responsible for the operation and management of community infrastructure to ensure that they effectively assume all their responsibilities. Specific technical training will be organised according to the themes selected, resulting in the production of management tools and appropriate manuals. This technical and organisational support will concern irrigation schemes and networks, pumping systems, solar equipment, stores and shops, and structuring of the sectors in general. The project will also seek to promote the representation of women in all the decision-making bodies which will be strengthened or created. The project will support the establishment and strengthening of cooperatives with the aim of improving professionalism in rural areas.

3.2.6.2 **Development of Rural Youth Agricultural Entrepreneurship**: Through this activity, PICAS-1 will contribute to the creation of decent jobs through the targeting, training and setting up of young entrepreneurs. This will involve promoting entrepreneurship and the initiatives of 50 youths (50% of whom are women) towards different agricultural professions, through support and practical training and targeted support in the system. It should be noted that in addition to the selected sectors, this activity will be open to all promising value chains providing economic opportunities for the national market and for export. The project will be able to rely on young people trained by FORMAPROD in the regions. These young people will be financed through the Agricultural Development Fund (FDA) which will be supplemented by PICAS-1 in this regard.

3.2.6.3 **SMEs/SMIs Capacity-building in Processing and Agricultural Services:** Regarding young producers already operating at the zone level, PICAS-1 seeks to develop a capacity building mechanism including support for training as well as management modules. The training centres in the zone will be

put to use, especially the Agricultural Vocational Training Support Centre (CAFPA) under the supervision of MINAE which is being set up in CABIZ with funding from the FORMAPROD programme. The training will provide basic notions and will include specialisation modules, depending on the areas of interest targeted. The project also intends to promote the creation of para-agricultural trades related to facilities development. The following areas could be concerned: equipment maintenance, marketing of spare parts, input distribution, irrigated systems development, agricultural mechanisation work, pumps and solar equipment maintenance, hydro-agricultural infrastructure maintenance, etc.

3.2.6.4 **Women's Capacity-Building and Economic Empowerment**: This will cover sensitisation, training, and support activities for women related to the identification and setting up of nutrition-sensitive agricultural micro-projects, HCD approaches, home management as well as the financing of agricultural micro-projects (*Coup de pouce* [Helping hand]) in terms of inputs, equipment and small farm implements.

3.2.7 Fragility and Resilience

3.2.7.1 Agriculture in the southern part of the country faces many challenges that hamper an increase in production, namely: insufficient and dilapidated production and communication infrastructure; very difficult access to land; limited use of inputs and, above all, poor management of water distribution for irrigation. In addition to the climatic disasters that regularly hit the southern part of the country (cyclones, drought, locust invasions, increased soil erosion), the poor quality of drinking water and the frequency of famine are being aggravated by the effects of climate change.

3.2.7.2 The COVID-19 pandemic triggered a profound social, economic and health crisis. The pandemic has seriously affected the supply and demand of agricultural products and has caused considerable disruption in the agricultural sector. In southern Madagascar, the lockdown caused (i) interruptions or a reduction of activities in key sectors (tourism, transport, and the informal sector); (ii) disruptions in labour supply; and (iii) interruptions in the supply and marketing chain of agricultural products. The informal sector has been the most affected, with women and youths losing their jobs.

3.2.7.3 Overall, the country's fragility situation has not yet changed. According to the latest result of the Country Resilience and Fragility Assessment (CRFA), the fragility challenges are political, social, economic, infrastructural and governance-related.

3.2.7.4 PICAS-1 seeks to contribute to the reduction of food insecurity and strengthen the resilience of vulnerable segments of the population in the southern part of Madagascar (Anosy and Androy Region), through the economic and social development of the region. In the long term, the project will help to address the factors of fragility in this part of the country, while strengthening the sources of resilience of targeted rural communities, mainly by building the capacity of the mechanisms responsible for anticipating and managing food crises. This project will help to sustainably improve the food and nutritional security of rural households and strengthen their resilience to climatic and environmental shocks by reducing the impact of droughts on the most vulnerable segments of the population in southern Madagascar (see Annex presenting the Note on Fragility and Resilience).

IV. IMPLEMENTATION

4.1 Implementation Arrangements

The Ministry of Agriculture and Livestock (MINAE) is the Executing Agency of the project. It shall coordinate and implement the project through the General Directorate of Agriculture (DGA) and the Project Implementation Unit (PIU) created within the Ministry. Given the nature and scope of the project, several ministries and structures will be involved in its implementation. As the executing

agency, MINAE has enough experience, especially with Bank-financed projects such as PRIASO, PEPBM 1&2, PEJAA, PROJERMO.

4.1.1 Institutional Arrangements

4.1.1.1 Steering Mechanism: The project will be managed by the Steering Committee (SC) chaired by the MINAE Secretary General and comprising the Public Debt Directorate (DDP) of MEF, the Director of Rural Engineering, the Director General of Agriculture, the Regional Directors of Agriculture and Livestock (DRAE) from Anosy and Androy, the Regional Directors of Water, Sanitation and Hygiene (DREAH) of Anosy and Androy, the MATSF Regional Heads of Lands and Land Tenure Services from Anosy and Androy, the Regional Director of Public Works, the MEDD representative, representatives from the regions of Anosy and Androy, the Chairpersons of the *Maison de Paysans* in the regions from Anosy and Androy, and the Representative of the Chamber of Commerce and Industry (CCI) of Anosy. Its duties under the project are to: (i) formulate the project's strategic guidelines; (ii) examine and validate the AWPB; (iii) analyse and adopt the progress reports (including financial reports) and audit reports; and (iv) monitor all project activities.

4.1.1.2 Coordination and Management: MINAE will delegate to a Project Implementation Unit (PIU) the role of project executing agency tasked with the coordination and implementation of Phase 1 activities and based in Fort Dauphin. The PIU staff, whose profiles will be defined, will be recruited through a competitive process and shall comprise: (i) a Coordinator; (ii) an Administrative and Finance Manager (AFM); (iii) a Procurement Manager (PM); (iv) an Infrastructure Manager (IM); (v) an Environmental Manager (EM); (vi) a Monitoring and Evaluation Manager (MEM); (vii) a Social Development Expert; (viii) a Value Chain Development Expert; (ix) a Communication Expert; (x) an Accountant; (xi) an Assistant; and (xii) a Liaison Officer based in Antananarivo at the DGA. The PIU is responsible for the overall coordination of project activities through: (i) technical, administrative, accounting, and financial management; (ii) procurement of goods, works and services; (iii) monitoring and evaluation of the project; (iv) external audit; (v) management and monitoring of partnership agreements; and (vi) overall communication about the project. The PIU responsible for the project's day-to-day implementation will work in collaboration with the technical directorates involved in the project's implementation. The technical coordination of activities related to preparation studies for Phase 2 of the PICAS will be entrusted to a small team under the responsibility of the Directorate of Rural Engineering (DGR) and will include MEAH representatives. The procurement and administration processes are led by the project coordination team.

4.1.1.3 Related Structures: The project will establish partnerships with specialised bodies to execute or monitor tasks which fall within their field of competence. Thus, partnership agreements could be concluded between the PIU and these specialised bodies. During the appraisal mission, the following entities were identified: FOFIFA, DRAE, TAAT, DRS, DREN, DREAH, CTAS, ONN, ONE, CNA, and DPV. For the specific needs of project implementation, other structures may be proposed by the Executing Agency and submitted to the Bank for prior approval.

4.1.2 Procurement Arrangements

Procurement of goods (including non-consultancy services), works and consultancy services financed by the Bank under the Project will be carried out in accordance with the Procurement Framework for Bank Group Financed Operations of October 2015 and in accordance with the provisions set out in the Financing Agreement. Specifically, procurement will be carried out in accordance with:

4.1.2.1 **The Borrower's Procurement System (BPS):** The procurement methods and procedures (PMP) of the Borrower's procurement system governed by Law No. 2016-055 of 25 January 2017 on the Public Procurement Code (PPC) will be applied, using the National Standard Bidding Documents (NSBDs) or other bidding documents as approved during project negotiations and, generally, for standard and low-complexity goods and works available on the national market.

4.1.2.2 **Bank Procurement Methods and Procedures (BPM):** The Bank's standard procurement methods and procedures, based on the relevant standard bidding documents (SBDs), will be used for road construction and rehabilitation works and consultancy services contracts, deemed appropriate and in case the use of the Borrower's standard procurement method is not appropriate for a given activity or set of activities, considering the identified high risks that could undermine the effective implementation of project activities.

4.1.2.3 **Procurement Risks and Capacity Assessment:** An assessment of risks at the country, sector, and project levels and of the procurement capacity of the executing agency (EA) was conducted, and the results were used to determine whether or not a country's procurement system would be utilized for some of the project procurements. Appropriate risk mitigation measures will be included in the action plan outlined in Annex B5 of the Technical Annexes of the project appraisal report.

4.1.3 Financial Management Arrangements

4.1.3.1 In line with the provisions of the Paris Declaration on Aid Effectiveness, the Bank, like most development assistance partners, has agreed to maximise, to the extent possible, the use of country systems for project and programme management, including financial management. However, given the current context of Madagascar's national public finance management (PFM) system, it will not be efficient to use it for the financial management of the project. Consequently, the Bank and Madagascar have decided that the resources of the project will be managed through a system that is independent of the PFM system.

4.1.3.2 The project will be managed by the Ministry of Agriculture and Livestock (MINAE) through the General Directorate of Agriculture (DGA). Financial management will be under the responsibility of the Administrative and Financial Service of the Project Implementation Unit (PIU). The PIU will recruit an Administrative Manager and an Accountant, with appropriate qualifications and professional experience, who will be responsible for the project's financial management under the supervision of the Project Coordinator. The PIU will adapt the existing administrative and financial procedures manual currently used by the Mid-West Nascent Rural Businesses Project (PROJERMO). The project will also procure existing accounting software for transaction processing and financial reporting.

4.1.3.3 **Audit:** In accordance with the Bank's rules, the project's accounts will be audited annually by an independent, private external firm. The external audit will be tailored to the specific risks of the project and to the audit terms of reference agreed with the Bank. The hiring of an auditor and submission of the audit reports to the Bank shall be the responsibility of the project in accordance with the procurement guidelines. The audit report for each fiscal year will be submitted to the Bank no later than six months after the close of the fiscal year being audited.

4.1.4 Disbursement Arrangements

4.1.4.1 Bank resources will be disbursed in accordance with the provisions of the Bank's Disbursement Manual through: (i) the direct payment method (for the payment of services, goods, and works contracts); (ii) the reimbursement method in case of pre-financing by the national counterpart of expenditures attributable to Bank resources and previously authorised and approved by the Bank; and (iii) the special account method for operating expenditures. In this regard, and in accordance with the country’s regulations in force, a special account in local currency will be opened with the Central Bank of Madagascar. The project may also open a second account in a commercial bank accepted by the AfDB to facilitate recurrent expenditure payments. Advances of funds from the Bank to the special account shall be based on the Annual Work Programme and Budget (AWPB) previously approved by the Bank. The national counterpart contribution shall be provided for in the State budget. To ensure proper understanding of the Bank's financial management requirements, the Bank shall organize training for members of the Project Coordination team and the Steering Committee preparatory to the project's launch.

4.2 Monitoring and Evaluation

4.2.1 An internal monitoring and evaluation system will be run by the PIU and will cover physical and financial monitoring, by component, sub-component, and expenditure categories. A database will be set up including key indicators (disaggregated by gender when possible), but also those determined with the project's actors and partners. The internal monitoring and evaluation will produce quarterly and annual reports, as well as a report for the mid-term review carried out in year 3. At the end of the project, the Bank and the Government will produce a completion report no later than six (6) years after the completion of physical activities. In addition to this monitoring mechanism, the Bank's Madagascar Office (COMG) will provide additional support in terms of portfolio performance monitoring, including PICAS-1.

4.2.2 External monitoring and evaluation will be jointly carried out by the Ministry of the Economy and Finance (MEF), the Ministry of Agriculture and Livestock (MINAE) and the Ministry of Water Resources, Sanitation and Hygiene (MEAH). External monitoring and evaluation seeks to measure the effectiveness and efficiency of the project's outputs and their contribution to the achievement of development results, i.e., the project's outcomes and impacts. It will be conducted with the involvement of other stakeholders, in addition to the two annual supervision missions organised by the Bank. The project will be implemented over four (04) years and six (06) months, starting from the effective date, according to the following planned schedule.

Table 8: Project schedule

STAGES	DEADLINE	RESPONSIBLE AGENCY
Appraisal mission	January - February 2022	Borrower/Bank
Negotiations	April 2022	Borrower/Bank
Board approval	May 2022	Bank
Signing of the loan agreement	May 2022	Borrower/Bank
Fulfilment of conditions precedent to loan effectiveness	July 2022	Borrower
Fulfilment of conditions precedent to the first disbursement	September 2022	Borrower
1st disbursement	October 2022	Bank
Implementation of activities	October 2022 to September 2026	Project Implementation Unit/Borrower
Mid-term review	October 2024	Borrower/Bank
Submission of project audit report	30 June of each month	Borrower
Closing of all activities	December 2026	Borrower
Last disbursement	June 2027	Bank
Completion Report	September 2027	Borrower/Bank

4.3 Governance

4.3.1 The political context is marked by the country's stability following the end of the transition period in 2013. The last presidential election was held in late December 2018 in a peaceful atmosphere. Legislative, communal, and municipal elections were held in May and November 2019, respectively. Senatorial elections were also held in December 2020, making it possible for a new Senate to be inaugurated in January 2021. Despite efforts made in recent years, Madagascar continues to face significant governance challenges. Under the 2020 Ibrahim Index of African Governance, Madagascar scored 44.4/100 points, which is below the African average of 48.8 points. In 2019, therefore, Madagascar ranked 35th out of 54 countries in terms of governance. Thus, its political, economic, and social governance indicators remain uneven, despite progress made in recent years. This is mainly due to poor performance in terms of governance and corruption control, a consequence of successive political crises which have weakened state institutions.

4.3.2 In keeping with the country's priorities, the strategy (2022 - 2026) will, in a cross-cutting manner, help to address, inter alia, governance challenges by supporting, in conjunction with other partners, public revenue collection and the improvement of public spending efficiency, including the building of debt management capacity. For its part, the PICAS-1 project, by dint of its design, will help

to improve local governance by supporting stakeholder capacity-building at the institutional level, including the reduction of governance risks during project implementation. Such support includes the development and implementation of financial management and monitoring/evaluation tools, as well as the use of recognised transparency and competition methods in PIU staff recruitments and the establishment of a system to reduce procurement delays, which are one of the main reasons for the poor performance of the development project portfolio in Madagascar. The project design also mainstreams specific governance risk mitigation measures to ensure that resources are used efficiently and for their intended purpose. In this regard, the project provides for prior review and approval by the Bank of all procurement activities, as well as independent audit missions. Lastly, PICAS-1 will provide support for land tenure security and conflict prevention.

4.4 Sustainability

Sustainability of the project's achievements was taken into account at all stages of project preparation. The participatory approach adopted, the training of beneficiaries in the management and maintenance of the facilities, the provision of an upkeep and maintenance manual for the irrigated areas, and the involvement of their representatives in the project's implementation bodies should enable the beneficiaries to take ownership of the project's achievements, which is a guarantee of sustainability. Moreover, from a technical standpoint, the facilities will be designed and constructed in accordance with standards that guarantee greater resistance to climatic hazards. Particular attention will be paid to the quality and competence of works companies and of works control and supervision consultancy firms. User associations shall ensure maintenance of the secondary, tertiary and quaternary networks by collecting a fee for use the facilities (including water). Allocating at least 1 ha of developed land to each household should enable beneficiaries to generate a substantial income to pay this fee. Major maintenance works shall be done by the government through the irrigation network maintenance fund. Management of multipurpose boreholes by private operators selected through an open competitive bidding process, capacity-building for water/sanitation sector agencies and entities, and multi-purpose water use (human consumption, vegetable farming, livestock consumption) that will generate revenue are also factors that will guarantee the sustainability of the infrastructure. The project's provision of routine maintenance equipment as support to the communes through which the road crosses will supplement the road maintenance efforts of the Ministry in charge of public works.

4.5 Risk Management

4.5.1 Achievement of the results of PICAS-1 is threatened by several risks that need to be mitigated to ensure the success of the Project. In addition to those already identified for the entire portfolio, specific risks have been highlighted and mitigation measures proposed, as presented in the Annex. They include: (i) poor management of irrigated areas and water points; (ii) the rapid deterioration of rural roads; (iii) poor quality of the terms of reference (ToRs) for studies; (iv) difficulties in dealing with crop pests (army worms, locusts); (v) delays in the ratification of the loan agreement due to uncertainties in parliamentary review; and (vi) theft of livestock and agricultural produce.

4.6 Knowledge-Building

4.6.1 PICAS-1 is designed to address this famine situation in the short term and prepare the conditions for a sustainable solution (medium and long term) through phase 2 of the programme. To ensure the programme's success, PICAS-1 was designed to develop and generate knowledge on climate-change adaptation through water control for various uses and resilience-building in nutrition.

4.6.2 Implementation of this project, which involves the design of water-supply and irrigation structures according to the climate-resilience standards adopted by the Government, makes it possible to test the effectiveness of the recommended measures. Furthermore, the agro-ecological block technique (2 x 1,000 ha in small blocks of 5 to 10 ha) adopted to fix the dunes, break wind speed and regenerate the soil's water retention capacity and vegetation cover could provide knowledge on ways

to control the phenomenon of desertification and agricultural production in this area. The lessons learned from the resettlement of households in the developed areas (1,000 m2 per household) for housing, market gardening and small-scale livestock production purposes, as well as the nutritional education could be leveraged to disseminate this approach. Installing large-capacity (1,000 m^3) USFWRs is also an innovation and a source of knowledge that could be replicated in other communes in the southern sedimentary zone of the country. The multi-purpose boreholes will not only provide water for human and livestock consumption but also irrigate vegetable farms over relatively large expanses of land for the benefit of women, thus generating revenue that ensures the sustainability of the system, which shall be managed by a private structure.

4.6.3 Studies on the conveyance of water from the EFAHO river will undoubtedly provide knowledge on the hydrological regime of the said river and the possibilities of routing water over more than 80 km with reservoirs and relay stations and innovative management of this interdependent system to guarantee its sustainability. The studies on underflow micro-dams (underground dams) on rivers, hitherto found only on certain wadis in North Africa, will serve as innovative and critical knowledge on the diversification of water management structures in Madagascar and particularly in this part of the country where water is a very rare commodity.

4.6.4 Moreover, by involving the beneficiaries and their associations in the design, execution, management and maintenance of community structures, the project intends to demonstrate that if beneficiaries are well trained and well equipped, they would constitute a better guarantee of infrastructure sustainability.

4.6.5 The project will capitalise on and facilitate the dissemination of this knowledge, particularly on climate-resilient technological innovations, women and youth inclusion mechanisms, produce marketing opportunities and tools for developing productive partnerships. Successful implementation of this project will yield a body of knowledge that can be replicated throughout southern Madagascar by the various projects funded by technical and financial partners.

5. LEGAL FRAMEWORK AND INSTRUMENT

5.1 Legal instrument

5.1.1 The legal instruments will be: (i) an ADF loan agreement and (ii) an ADF grant agreement between the Republic of Madagascar (the "Borrower", the "Donee") and the African Development Fund (hereinafter referred to as the "Fund").

5.2 Conditions for Bank Intervention

The ADF loan and the ADF grant are subject to the following conditions:

5.2.1 Conditions precedent to effectiveness: The effectiveness of the loan agreement and the grant agreement is subject to the Borrower's/Donee's fulfilment of the conditions outlined in Section 12.01 of the *General Conditions Applicable to Bank Loan and Guarantee Agreements* (Sovereign Entities), to the satisfaction of the Bank.

5.2.2 **Conditions precedent to first disbursement of the ADF loan and grant:** In addition to the effectiveness of the loan and grant agreements, the first disbursement of the ADF loan and grant shall be subject to the Borrower fulfilling, to the satisfaction of the Fund, the following condition: provide the Bank with evidence of the establishment of the Project Implementation Unit (PIU)and the recruitment of key project staff, namely: (i) a Project Coordinator; (ii) a Procurement Specialist; and (iii) an Administrative and Financial Officer. This staff shall be recruited through a call for applications; the qualifications and terms of reference of the said staff shall be submitted to the Fund for prior approval.

5.2.3 Special conditions precedent to disbursement of ADF loan and ADF grant resources for high-flow borehole works

In addition to the effectiveness of the loan and grant agreements and satisfaction of the conditions precedent to first disbursement, ADF loan resources shall be disbursed subject to the completion of ESIA studies by the Borrower to the satisfaction of the Bank, in accordance with national regulations and the Bank's environmental and social safeguard standards.

5.2.4 Commitments to Environmental and Social Safeguards

The Borrower/Donee undertakes and shall ensure that the Implementing Agency, each of its contractors, subcontractors, and agents also undertake to:

(a) implement the Project in accordance with the ESMP, the Bank's Safeguards Policies and national legislation in a manner satisfactory to the Bank, both in substance and form;

(b) prepare and submit to the Bank, through the Project Report referred to in Section 7.01 of the Loan Agreement and the Grant Agreement, monthly reports on the implementation of the ESMP, including identified deficiencies and corrective measures taken in this regard;

(c) prepare and submit the annual environmental and social performance audit report of the programme to the Fund;

(d) refrain from any action that would prevent or hinder implementation of the ESMP, including any modification, suspension, waiver and/or cancellation of any provision of the ESMP, in whole or in part, without the prior written consent of the Bank;

(e) cooperate fully with the Bank in the event that project implementation or a change in the scope of the project results in hitherto unforeseen displacement and/or resettlement of persons and will not commence any work in the project-affected area unless all project-affected persons (PAPs) in those areas have been compensated and/or resettled in accordance with a Resettlement Action Plan (RAP), to be prepared by the beneficiary; and

(f) submit to the Fund, no later than six months prior to completion of works on the first irrigated area (in terms of works completion), a comprehensive predator and pest management plan.

5.2.5. Borrower's Counterpart Contribution

The Borrower/Donee shall contribute an amount of seven hundred and ten thousand units of account (UA 710,000) equivalent to three billion nine hundred and twenty-four million nine hundred and forty thousand Ariary (MGA 3,924,940,000) as counterpart contribution (the “Counterpart Contribution”) to the project costs. To that end, the Borrower/Donee shall, no later than six (6) months following the Agreement or such later date as may be acceptable to the Fund, ensure that counterpart contribution is included in the national budget in line with the Finance Law and submit a copy of the national budget to the Fund, no later than March 31 of each year following approval of the budget by the Parliament.

5.2.6 Other Commitments:

The Borrower/Donee undertakes to:

(a) submit to the Fund, no later than six (6) months following first disbursement of the loan, evidence of the recruitment of other PIU staff, namely: (i) a Monitoring and Evaluation

Specialist; (ii)an Infrastructure Specialist; (iii) an Environment Officer; (iv) a Social Development Specialist; (v) a Value Chain Development Officer; (vi) a Communication Specialist; (vii) an Accounting Officer; (viii) a Liaison Officer based in Antananarivo; and (ix) an Assistant;

(b) establish, three (03) months following the effectiveness of these agreements, a Project Steering Committee (PSC), whose composition and operational arrangements shall be submitted to the Fund for prior approval;

(c) prepare (while ensuring that the Executing Agency does the same), no later than six (6) months following the effectiveness of the Loan and Grant Agreements, an accounting, financial and administrative procedures manual for the project, to the satisfaction of the Fund;

(d) procure (while ensuring that the Executing Agency does the same), no later than six (6) months following the effectiveness of the Loan and Grant Agreements, accounting software to process transactions and generate financial reports to the satisfaction of the Fund; and

(e) submit to the Fund, no later than six (6) months following first disbursement of the loan and grant resources, the various agreements with government entities, partner institutions, Ministries and technical agencies expected to participate in the Project.

5.3 Compliance with Bank Policies

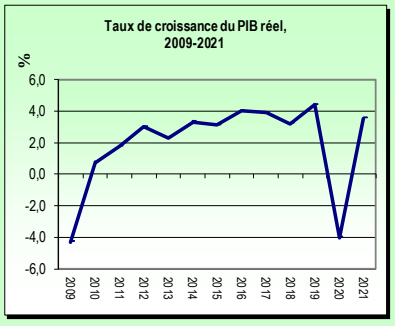
5.3.1 The Project complies with all applicable Bank policies. It will be implemented within the framework of the Bank's 2022-2026 Country Strategy Paper (CSP) for Madagascar.

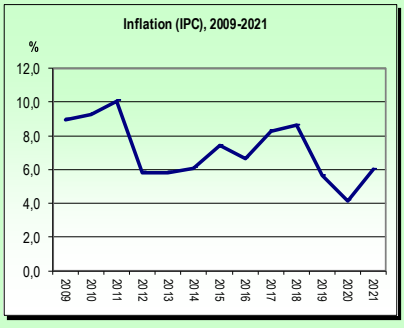
VI. RECOMMENDATION

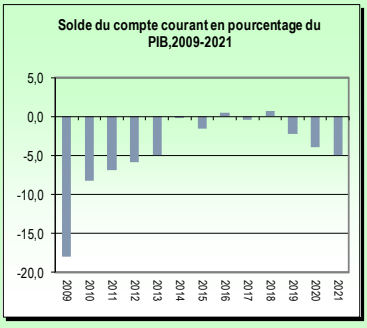
6.1 Management recommends that the Board of Directors of the Fund should approve the proposal to award (i) **an ADF loan of five million seven hundred and twenty thousand Units of Account (UA 5,720,000);** and (ii) **an ADF grant of six million eight hundred and ten thousand Units of Account (UA 6,810,000) to the Republic of Madagascar** for the purpose and under the conditions set forth in this report.

Annex I: Comparative Socio-economic Indicators

Indicateurs	Unité	2010	2016	2017	2018	2019	2020 (e)	2021 (p)
Comptes nationaux								
RNB aux prix courants du marché	Million $ E.U.	9 941	11 700	12 018	13 394	14 024	...	...
RNB par habitant	$ E.U.	470	470	470	510	520	...	...
PIB au prix courants	Million $ E.U.	10 250	11 849	13 176	13 760	14 105	14 216	15 718
PIB aux prix constants de 2010	Million $ E.U.	10 250	12 175	12 650	13 055	13 629	13 081	13 544
Croissance du PIB en termes réels	%	0,7	4,0	3,9	3,2	4,4	-4,0	3,5
Croissance du PIB par habitant en termes ré	%	-2,1	1,2	1,2	0,5	1,7	-6,5	0,9
Investissement intérieur brut	% du PIB	30,2	16,4	15,8	20,7	22,7	20,4	19,8
Investissement public	% du PIB	25,9	5,0	4,9	5,8	7,8	13,2	10,2
Investissement privé	% du PIB	4,3	11,4	10,9	14,9	14,9	7,3	9,5
Epargne nationale	% du PIB	11,5	13,4	10,9	12,2	14,4	15,3	...
Prix et Monnaie								
Inflation (IPC)	%	9,3	6,7	8,3	8,6	5,6	4,2	6,0
Taux de change (moyenne annuelle)	monnaie locale / $ E.U.	2 090,0	3 176,5	3 116,1	3 334,8	3 618,3	3 635,4	3 583,8
Masse monétaire, variations annuelles (M2)	%	9,9	18,2	17,1	12,7	7,2	9,9	...
Vitesse de circulation de la monnaie (PIB / M	%	28,8	30,8	33,1	33,4	32,1	34,9	...
Finances publiques								
Recettes totales et dons	% du PIB	11,2	12,7	12,8	13,0	14,4	14,3	13,0
Dépenses totales et prêts nets	% du PIB	12,0	13,3	14,9	14,4	15,8	20,6	17,6
Déficit (-) / Excédent global (+)	% du PIB	-0,7	-0,6	-2,1	-1,3	-1,4	-6,3	-4,6
Secteur extérieur								
Variation en volume des exportations (march	%	-11,2	-32,9	-3,8	-4,8	6,5	-23,3	27,5
Variation en volume des importations (march	%	-12,6	17,8	13,5	-0,2	3,4	-16,1	17,0
Variation des termes de l'échange	%	32,4	81,6	14,2	5,6	-15,5	1,9	6,8
Solde des comptes courants	Million $ E.U.	-845	57	-56	98	-322	-556	-781
Solde des comptes courants	% du PIB	-8,2	0,5	-0,4	0,7	-2,3	-3,9	-5,0
Réserves internationales	mois d'importations	2,9	4,0	4,3	4,3	4,3	6,2	...
Dette et flux financiers								
Service de la dette	% des exportations	1,9	3,8	8,7	5,5	14,4	20,5	13,0
Dette extérieure totale	% du PIB	25,0	49,7	49,3	49,6	49,2	53,3	52,4
Flux financiers nets totaux	Million $ E.U.	999	636	851	789	1 288	...	...
Aide publique au développement nette	Million $ E.U.	477	622	779	696	756	...	...
Investissements nets directs en prov. de l'étr	Million $ E.U.	765	451	358	353	227	...	...







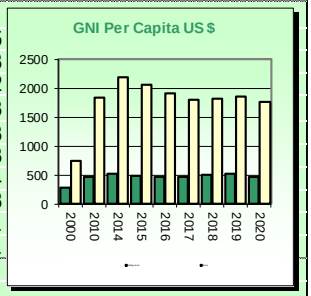
Source : Département de la statistique de la BAD; FMI: Perspectives de l'économie mondiale, october 2020 et Statistiques financières internationales, décembre 2020; Département de la statistique : Plateforme des données (base de donnée), décembre 2020; OCDE, Division des systèmes statistiques.

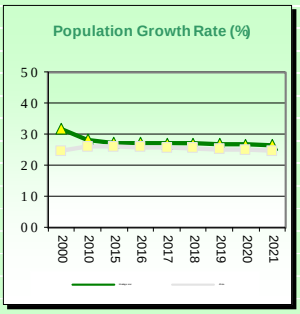
Notes: ... Données non disponibles ' (e) Estimations (p) Projections Dernière mise à jour : février 2021

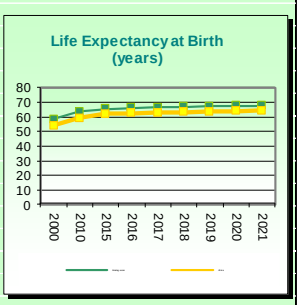
Madagascar

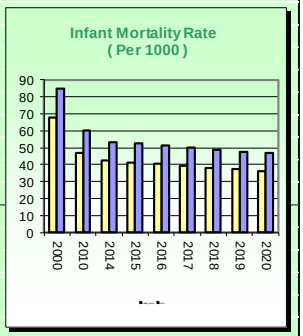
COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Madagascar	Southern Africa	Africa	Develo-ping Countries
Basic Indicators					
Surface Area ('000 Km²)	2021	587	6 571	30 064	96 535
Total Population (millions)	2021	28 4	218 0	1 371 7	6 518 3
Urban Population (% of Total)	2021	39 2	50 4	44 3	51 2
Population Density (per Km²)	2021	48 9	33 6	46 7	69 3
GNI per Capita (US $)	2020	470	2 582	1 767	4 843
Labor Force Participation *- Total (%)	2021	84 5	69 6	61 9	58 3
Labor Force Participation **- Female (%)	2021	81 5	65 6	53 3	44 4
Sex Ratio (per 100 female)	2021	99 6	96 8	99 9	106 8
Human Develop. Index (Rank among 189 countries)	2019	164	...	...	...
Popul. Living Below $ 1.90 a Day (% of Population)	2007-19	78 8	47 0	34 1	...
Demographic Indicators					
Population Growth Rate - Total (%)	2021	2 7	2 3	2 5	1 2
Population Growth Rate - Urban (%)	2021	4 5	3 2	3 6	2 2
Population < 15 years (%)	2021	39 8	38 6	40 1	27 2
Population 15-24 years (%)	2021	20 5	19 3	19 3	16 2
Population >= 65 years (%)	2021	3 2	3 6	3 6	7 6
Dependency Ratio (%)	2021	75 4	73 1	77 6	54 6
Female Population 15-49 years (% of total population)	2021	24 8	25 3	24 3	25 0
Life Expectancy at Birth - Total (years)	2021	67 7	64 0	64 1	71 2
Life Expectancy at Birth - Female (years)	2021	69 4	66 9	65 9	73 4
Crude Birth Rate (per 1,000)	2021	31 9	30 1	32 2	19 4
Crude Death Rate (per 1,000)	2021	5 7	7 7	7 7	7 3
Infant Mortality Rate (per 1,000)	2020	36 3	39 7	46 6	29 7
Child Mortality Rate (per 1,000)	2020	6 5	36 1	47 5	39 8
Total Fertility Rate (per woman)	2021	3 9	3 7	4 2	2 5
Maternal Mortality Rate (per 100,000)	2017	335 0	264 0	475 7	231 0
Women Using Contraception (%)	2021	49 5	47 9	38 3	59 1
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2010-19	18 1	35 4	38 1	138 5
Nurses and midwives (per 100,000 people)	2010-19	29 8	87 3	106 5	254 6
Births attended by Trained Health Personnel (%)	2010-20	46 0	73 2	64 4	79 3
Peop. Using at least basic drinking water services (% of Pop.)	2020	53 4	71 3	69 3	88 2
Peop. Using at least basic sanitation services (% of Population)	2020	12 3	46 9	41 9	74 0
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2020	0 3	10 9	3 0	...
Incidence of Tuberculosis (per 100,000)	2020	238 0	363 1	193 2	149 0
Child Immunization Against Tuberculosis (%)	2019	70 0	83 8	81 0	88 0
Child Immunization Against Measles (%)	2019	69 0	75 6	71 9	84 9
Underweight Children (% of children under 5 years)	2010-20	11 7	13 4	16 8	13 8
Prevalence of stunding	2010-20	38 1	31 6	31 9	...
Prevalence of undernourishment (% of pop.)	2019	43 2	20 2	17 7	10 4
Current health expenditure (% of GDP)	2019	3 7	7 6	5 1	5 3
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2011-21	134 1	114 2	103 0	101 8
Primary School - Female	2011-21	135 2	112 4	101 0	100 8
Secondary School - Total	2011-21	34 6	60 5	52 7	72 5
Secondary School - Female	2011-21	35 2	58 8	50 8	72 2
Primary School Female Teaching Staff (% of Total)	2010-21	53 0	59 7	50 5	63 6
Adult literacy Rate - Total (%)	2010-20	76 7	80 3	68 2	84 5
Adult literacy Rate - Male (%)	2010-20	...	82 9	72 4	88 5
Adult literacy Rate - Female (%)	2010-20	75 1	76 0	61 4	80 5
Gouvernment expenditure on Education (% of GDP)	2010-20	2 9	5 6	4 8	3 7
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2018	5 2	6 0	8 2	11 3
Agricultural Land (as % of land area)	2018	70 3	53 9	37 8	37 8
Forest (As % of Land Area)	2020	21 4	33 9	22 6	31 7
Per Capita CO2 Emissions (metric tons)	2018	0 1	2 5	1 1	3 4









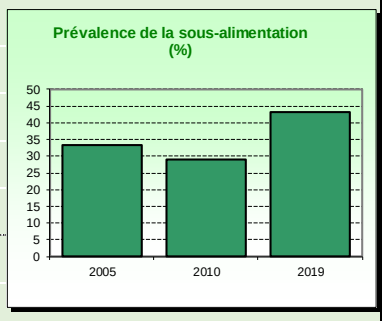
Sources : AfDB Statistics Department Databases; World Bank: World Development Indicators; UNAIDS; UNSD; WHO, UNICEF, UNDP; Country Reports. *last update : April 2022*

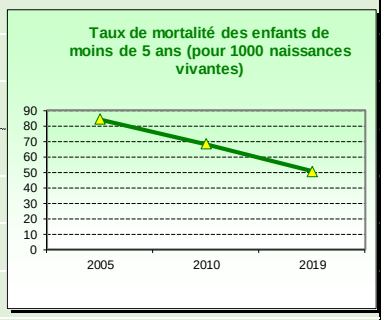
*Note : n.a. : Not Applicable ; ... : Data Not Available. * Labor force participation rate, total (% of total population ages 15+)*

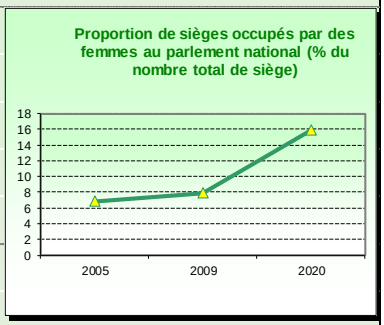
*** Labor force participation rate, female (% of female population ages 15+)*

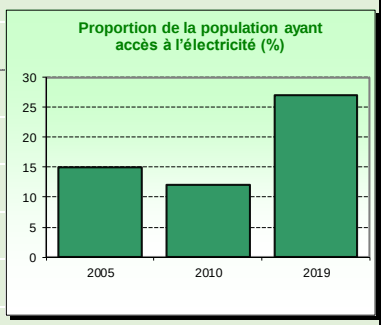
PROGRES REALISES DANS L'ATTEINTE DES OBJECTIFS DE DEVELOPPEMENT DURABLE

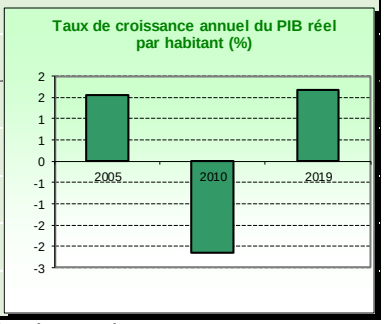
Objectif 1: Éliminer la pauvreté sous toutes ses formes et partout dans le monde	2000[1]	2010[2]	2020[3]
Proportion de la population vivant au-dessous du seuil de pauvreté fixé au niveau international de 1,90 $ EU par jour en PPA	71,7	78,2	78,8
Proportion de la population vivant au-dessous du seuil de pauvreté fixé au niveau national (%)	73,2	71,7	70,7
Employé en dessous du seuil de pauvreté international de 1,90 $ US par jour, 15 à 24 ans (%)	72,6	79,7	76,7
Employé en dessous du seuil de pauvreté international de 1,90 $ US par jour, 25 ans et plus (%)	66,4	74,8	71,3
Objectif 2 : Éliminer la faim, assurer la sécurité alimentaire, améliorer la nutrition et promouvoir l'agriculture durable			
Prévalence de la sous-alimentation (%)	33,4	29,0	43,2
Proportion d'enfant souffrant gravement ou modérément d'insuffisance pondérale	52,7	49,4	41,6
Indice d'orientation agricole des dépenses publiques	0,3	0,1	0,2
Total des apports publics alloués au secteur agricole (Millions de $ EU constants 2018)	71	55	89
Objectif 3 : Permettre à tous de vivre en bonne santé et promouvoir le bien-être de tous à tout âge			
Mortalité Maternelle ratio	526	453	335
Proportion d'accouchements assistés par du personnel soignant qualifié (%)	51,3	43,9	46,1
Taux de mortalité des enfants de moins de 5 ans (pour 1000 naissances vivantes)	84,4	68,5	50,6
Incidence paludisme (pour 1000 habitants)	35,9	42,2	76,1
Objectif 4 : Assurer l'accès de tous à une éducation de qualité, sur un pied d'égalité, et promouvoir les possibilités d'apprentissage tout au long de la vie			
Proportion d'enfants et de jeunes en fin de cycle primaire ayant un niveau minimum de compétence en: Lecture (%)	...	...	6,3
Proportion d'enfants et de jeunes en fin de cycle primaire ayant un niveau minimum de compétence en: Mathématique (%)	...	...	6,3
Indice de parité des enseignants formés, primaire (ratio)	...	...	1,4
Aide publique totale au développement consacrée aux bourses d'études (Millions de $ EU constants 2018)	...	1	5
Objectif 5 : Parvenir à l'égalité des sexes et autonomiser toutes les femmes et les filles			
Proportion de sièges occupés par des femmes au parlement national (% du nombre total de sièges)	6,9	7,9	15,9
Proportion de femmes qui prennent en connaissance de cause, leurs propres décisions concernant l'utilisation de contraceptive (% femmes agées de 15-49 ans)	...	92,6	...
Proportion de femmes qui prennent en connaissance de cause, leurs propres décisions concernant les sions de santé maternelle (% femmes agées de 15-49 ans)	...	90,2	...
Objectif 6 : Garantir l'accès de tous à l'eau et à l'assainissement et assurer une gestion durable des ressources en eau			
Proportion de la population utilisant des services d'alimentation en eau potable gérés en toute sécurité	10,0	14,0	21,0
Niveau de stress hydrique : prélèvements d'eau douce en proportion des ressources en eau douce disponibles (%)	11,40	11,40	11,34
Aide publique totale au développement consacréeà l'éau et à l'assainissement (Millions de $ EU constants 2018)	26,1	12,8	43,3
Objectif 7 : Garantir l'accès de tous à des services énergétiques fiables, durables et modernes à un coût abordable			
Proportion de la population ayant accès à l'électricité (%)	15,0	12,0	27,0
Proportion de la population utilisant principalement des carburants et technologies propres (%)	5,0	5,0	5,0
Part de l'énergie renouvelable dans la consommation finale d'énergie (%)	84,9	86,7	81,6
Objectif 8 : Promouvoir une croissance économique soutenue, partagée et durable, le plein emploi productif et un travail décent pour tous			
Taux de croissance annuel du PIB réel par habitant (%)	1,6	-2,2	1,7
Taux de chômage, âgés de 15-24 ans (%)	2,3	...	3,4
Taux de chômage, âgés de 25 ans et plus (%)	2,8	...	1,2
Proportion de jeunes non scolarisés et sans emploi ni formation (%)	...	...	7









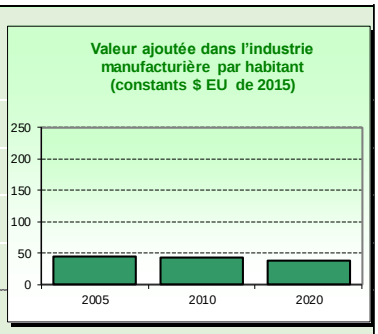


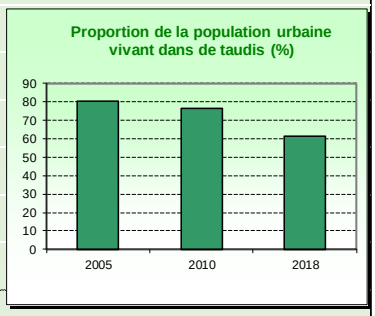
Sources : *Base des données du Département des Statistiques de la BAD;* *dernière mise à jour:* *Octobre 2021*
Division statistique des Nations Unies, Base de données en ligne sur les Objectifs de développement durable (https://unstats.un.org/sdgs/).

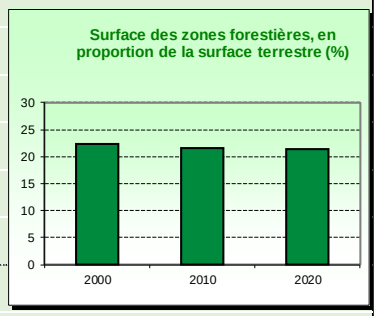
Notes: n.a. Non Applicable ; ... : Données non disponibles.

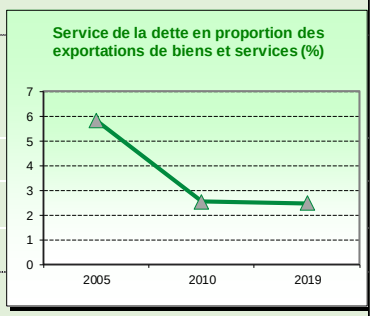
[1] *Dernière année disponible dans la période 2000-2005;* [2] *Dernière année disponible dans la période 2006-2010;* [3] *Dernière année disponible dans la période 2011-2020*

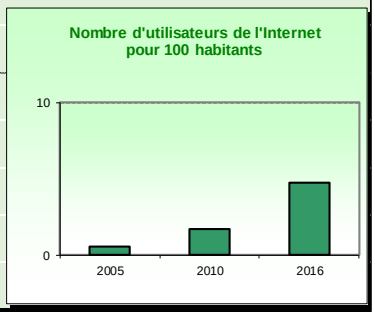
Objectif 9: Bâtir une infrastructure résiliente, promouvoir une industrialisation durable qui profite à tous et encourager l'innovation	2000[1]	2010[2]	2020[3]
Valeur ajoutée dans l'industrie manufacturière par habitant (constants $ EU de 2015)	45	43	39
Emploi dans l'industrie manufacturière, en proportion de l'emploi total (%)	...	...	6,7
Émissions de dioxyde de carbone provenant de la combustion de carburants (millions de tonnes)	...	...	...
Apport total au secteur public alloué aux infrastructures (Millions de $ EU constants)	149	62	184
Objectif 10 : Réduire les inégalités dans les pays et d'un pays à l'autre			
Part du travail dans le PIB (%)	44,6	49,8	47,2
Montant total des ressources allouées au développement (Millions $ EU constants)	723	999	1 181
Coûts des envois de fonds en proportion du montant transféré (%)	...	...	8,6
Objectif 11: Faire en sorte que les villes et les établissements humains soient ouverts à tous, sûrs, résilients et durables			
Proportion de la population urbaine vivant dans de taudis (%)	80,6	76,2	61,2
Nombre de décès attribuables à une catastrophe	55,0	144,0	72,0
Pertes économiques directes résultant de catastrophe par rapport au PIB (%)	0,0203	0,0226	0,0263
Objectif 12: Établir des modes de consommation et de production durables			
Consommation matérielle nationale par habitant , charbon (tonnes)	...	...	...
Consommation matérielle nationale par habitant , gaz naturel (tonnes)	...	...	...
Déchets électroniques générés par habitant (kg)	0,2	0,4	0,6
Objectif 13 : Prendre d'urgence des mesures pour lutter contre les changements climatiques et leurs répercussions			
Nombre de personnes décédées, disparues touchées lors de catastrophes, pour 100 000 personnes	1,8	0,9	0,39
Proportion d'administrations locales ayant adopté et mis en place des stratégies locales de réduction des risques de catastrophe, conformément aux stratégies suivies à l'échelle nationale	...	...	...
Objectif 14 : Conserver et exploiter de manière durable les océans, les mers et les ressources marines aux fins du développement durable			
Surface des aires marines protégées par rapport aux aires maritimes (Zones économiques exclusives)(%)	...	...	0,910
Proportion moyenne de zones marines clés pour la biodiversité (KBAs) couvertes par des aires protégées (%)			
Objectif 15 : Préserver et restaurer les écosystèmes terrestres, en veillant à les exploiter de façon durable, gérer durablement les forêts, lutter contre la désertification, enrayer et inverser le processus de dégradation des terres et mettre fin à l'appauvrissement de la biodiversité			
Surface des zones forestières, en proportion de la surface terrestre (%)	22,4	21,6	21,4
Taux de changement net annuel de la surface forestière (%)	...	-0,4	-0,1
Indice de la Liste rouge	0,80	0,78	0,75
Objectif 16 : Promouvoir l'avènement de sociétés pacifiques et ouvertes à tous aux fins du développement durable, assurer l'accès de tous à la justice et mettre en place, à tous les niveaux, des institutions efficaces, responsables et ouvertes à tous			
Proportion de la population carcérale en instance de jugement (%)	88,8	...	56,9
Proportion d'enfants de moins de 5 ans ayant été enregistrés par une autorité d'état civil (% d'enfa	...	...	78,0
Objectif 17: Renforcer les moyens de mettre en oeuvre le Partenariat mondial pour le développement durable et le revitaliser			
Proportion du budget national financé par les impôts nationaux (% PIB)	47,3	65,9	67,0
Volume des envois de fonds de travailleurs migrants ($EU) en proportion du PIB total (%)	1,7	4,6	2,9
Service de la dette en proportion des exportations de biens et services (%)	6	2,5	2,5
Nombre d'utilisateurs de l'Internet pour 100 habitants	0,6	1,7	4,7











Sources : *Base des données du Département des Statistiques de la BAD;* *dernière mise à jour:* *Octobre 2021*
Division statistique des Nations Unies, Base de données en ligne sur les Objectifs de développement durable (https://unstats.un.org/sdgs/).

Notes: n.a. Non Applicable ; ... : Données non disponibles.

[1] *Dernière année disponible dans la période 2000-2005;* [2] *Dernière année disponible dans la période 2006-2010;* [3] *Dernière année disponible dans la période 2011-2020*

Annex II: Note on Waiver of the National Counterpart Contribution Amount

This Note presents the financing parameters for the Integrated Agricultural and Agro-Industrial Growth Cluster Programme in South Madagascar-Phase 1 (PICAS-1), based on the Bank's policy on eligibility of expenditures (Bank's Expenditure Financing Policy, ADB/BD/WP/2007/106/Rev. 2, May 2008) and the memo dated 10 December 2014 from the Bank's Senior Vice-President on the guidelines for justifying costs proposed for Bank financing. This policy allows the Bank to use its resources to finance the expenditures necessary for the achievement of project development objectives. The note presents the risk assessment framework for public finance sustainability to ensure that Bank resources are used appropriately and in accordance with the terms of the Bank's mandate under PICAS-1.

Country's commitment to Combating Poverty

Since the election of Andry Nirina Rajoelina as the new President of the Republic of Madagascar in 2019, he has undertaken to combat poverty in the country. According to available data, the poverty level remains very high overall, standing at 73.7% nationally in 2013, with 79.6% in rural areas and 50.3% in urban areas. Over the 2016-2019 period, the national poverty rate fell by 2 points, from 76.3% in 2016 to 74.3% in 2019. However, the impact of the pandemic has pushed a huge segment of the population into poverty, raising the poverty rate to 77.4% in 2020. The country adopted a General State Policy (PGE) in 2019 and a Madagascar Emergence Plan (PEM) 2019-2023. The PEM seeks to lay the foundations for an emerging economy. The plan, which will serve as a reference framework for the country's development policy, is built around three (3) basic sustainable development pillars: (i) human capital development; (ii) accelerated inclusive and sustainable economic growth; and (iii) Madagascar as a green island. The plan also places good governance as a cross-cutting pivot for the three key pillars. It places transparency, participation, efficiency, inclusiveness, accountability, respect for the rule of law and social justice at the core of public action. The PEM focuses on providing the country with infrastructure to ensure its emergence.

Macroeconomic Context

Madagascar recorded sustained growth during the 2017-2019 period. The average annual economic growth rate was 3.8%, compared to 3.2% over the 2013-2016 period. This performance improved per capita income by 24 points, from USD 516 in 2017 to USD 540 in 2019. Unfortunately, the COVID-19 crisis completely wrecked these efforts, with per capita income plummeting by 38 points to USD 502 in 2020. The country experienced a recession in 2020, with a 7.1% decline in real GDP. The economic sectors most affected by the COVID-19 crisis are mineral extraction activities (-56.8%), hotels and restaurants (-55.8%), textiles (-15.7%), banking and insurance (-12.8%) and household services (-9.3%). In contrast, agriculture, livestock and fisheries have shown resilience, mainly as a result of good weather conditions, apart from the southern part of the country, which is going through a cycle of droughts. In 2021, economic recovery was recorded, with real GDP growth of 3%, driven by measures taken to address COVID-19 (vaccination, support measures). On account of the COVID-19 crisis, the current account deficit declined to 5.1% of GDP in 2020 compared to 1.1% in 2019. As regards trade, the country recorded a very sharp decline in exports (-26%) compared to imports (-18%) in 2020.

Budget Situation and Debt Sustainability

The crisis has severely weakened the public finance situation, which was positive overall. Tax revenue as a percentage of GDP fell from 10.5% in 2019 to 8.9% in 2020. The budget deficit ballooned from an average of 1.9% over the 2017-19 period to 4.0% of GDP in 2020. Public debt had dropped from 40% of GDP in 2017 to 38.7% in 2019. The risk of long-term debt distress had been deemed low by the IMF at the end of 2019. However, the health crisis contributed to the deterioration of debt sustainability indicators. The public debt ratio increased by 3.6 points to reach 43.6% of GDP in 2020, with 32.6% of GDP in external debt and 11.6% of GDP in domestic debt. Regarding debt sustainability, according to the baseline scenario of the IMF's debt sustainability analysis, Madagascar's risk of external debt distress was deemed moderate in March 2021. In the baseline scenario, all debt sustainability indicators remain below their respective long-term thresholds (until 2030). However, external debt sustainability is sensitive to export shocks, leading to a scenario in which 3 out of 4 indicators could exceed their thresholds.

Portfolio

As of 1 March 2022, the Bank Group's active portfolio in Madagascar had 18 public sector operations, comprising 16 projects and 2 studies, amounting to total commitments of UA 519.9 million, with almost 42% devoted to regional operations. Energy and transport infrastructure as well as agriculture dominate the portfolio (93%). The other sectors are industrialisation (6%) and governance (1%). The 2021 portfolio performance review concluded that performance was satisfactory, with a score of 3 on a scale of 1 to 4. The portfolio's disbursement rate was 21.65% in March 2022, following approval of the PACFC II project at the end of November 2021, which accounts for 24% of the portfolio. The portfolio has no at-risk projects and its main challenges are: (i) project start-up delays; (ii) procurement bottlenecks; (iii) late disbursement of counterpart funds; and (iv) the poor quality of studies. Appropriate mitigation measures have been adopted to address these risks, namely: (i) the inclusion of national counterpart funds in the 2022 Finance Law; (ii) the establishment of a task force which is already preparing the files for the recruitment of key personnel and for procurements; (iii) adoption of measures to ensure ratification of the Agreements during the May-June 2022 parliamentary session.

Cost Sharing

Due to the challenging fiscal context, marked by high economic vulnerability and budget pressures prompted by the COVID-19 pandemic, the Government's budgetary leeway and capacity to make its counterpart contribution to Bank-financed operations are expected to remain very limited. However, to promote country ownership of the Integrated Agricultural and Agro-Industrial Growth Cluster Programme in South Madagascar-Phase 1 (PICAS-1), it is recommended that the cost-sharing principle be maintained, with the possibility of in-kind contribution by Madagascar. The financing parameters for PICAS-1 are summarised in the table below.

PICAS-1 Financing Parameters

Expenditure	Criteria	Explanations / Remarks
Cost-sharing Maximum proportion of project costs that the Bank can finance	95% (Maximum financing)	Given the country's persistent economic fragility and financial constraints exacerbated by the COVID-19 crisis, it is recommended that the Bank contribute up to 95% of the financing for PICAS-1, with the possibility of an in-kind contribution from the country.
Financing of recurrent costs	No set ceiling	The Bank will finance specific PICAS-1 recurrent costs.
Financing of local currency costs	Yes	Costs in local currency are eligible for Bank financing. These costs are specified in PICAS-1 appraisal reports.
Taxes and duties	100%	There are no unreasonable taxes and duties. However, there is a low probability that the Government of Madagascar will borrow to pay taxes and duties under PICAS-1.

Annex III: AfDB Portfolio Table (as at 1 March 2022)

No	Project Name	SAP Code:	Approval Date	Completion Date:	Approved Amount (UA)	Disbursement Rate	Age	Financing Instrument
1	YOUTH RURAL ENTERPRISES PROJECT IN THE MIDWEST (PROJERMO)	P-MG-AA0-027	23/09/2015	31/12/2023	16,610,000.0	64.6	6.7	ADF
			23/09/2015	31/12/2023	8,000,000.0	66.00	6.7	TSF
2	YOUTH ENTREPRENEURSHIP PROMOTION PROGRAMME IN AGRICULTURE AND AGRIBUSINESS (PEJAA) P1	P-MG-AA0-039	11/01/2018	31/12/2022	700,000.0	84.5	4.3	ADF
			11/01/2018	31/12/2022	4,300,000.0	85.4	4.3	TSF
3	BAS MANGOKY REHABILITATION AND EXTENSION PROJECT -PHASE II (PEPBM)	P-MG-AAB-003	26/11/2014	31/12/2022	16,140,000.0	85	7.4	ADF
			26/11/2014	31/12/2022	24,000,000.0	80.8	7.4	TSF
4	MADAGASCAR -AFRICA DISASTER RISKS FINANCING (ADRIFI)PROGRAMME	P-MG-HZ0-001	30/05/2019	31/12/2023	1,500,000.0	59.2	2.11	TSF
5	PPF - AGRICULTURAL DEVELOPMENT POLE PROJECT ON THE RIGHT BANK OF THE MANGOKY DELTA (PDA-RDM)	P-MG-A00-012	30/11/2021	31/12/2022	2,000,000.0	0	0.4	ADF
	Total Agriculture				**73,250,000.00**	**65,69**		
6	AGRO-INDUSTRIAL TRANSFORMATION ZONE PROJECT IN THE SOUTH (PTASO)	P-MG-AA0-038	29/09/2020	15/01/2024	20,000,000.0	1.2	1.7	TSF
7	INDUSTRIALISATION AND FINANCIAL SECTOR SUPPORT PROJECT	P-MG-H00-002	28/10/2020	01/01/2024	2,080,000.0	0.0	1.5	ADF
	Total Industrialization				**32,080,000.00**	**0.6**		
8	MADAGASCAR SME BUSINESS LINKAGES PROGRAM (BLP)	P-MG-HAZ-001	15/05/2020	31/12/2023	1,000,000.0	6.6	1.10	TSF
09	SUPPORT FOR CAPACITY BUILDING AND PROMOTION OF THE BLUE ECONOMYE	P-MG-K00-014	25/03/2019	31/12/2023	1,000,000.0	25.7	3	TSF
10	SUPPORT FOR PUBLIC REVENUE MOBILIZATION	P-MG-K00-015	12/04/2019	31/12/2023	1,000,000.0	16	2.11	TSF
11	PROJECT FOR STRENGTHENING GOVERNANCE THROUGH DIGITIZATION (PREGODI)	P-MG-KA0-013	13/12/2021	31/12/2024	1,000,000.0	0	0.4	TSF
	Total Multi-sector				**4,000,000.00**	**12.07**		
12	POWER TRANSMISSION NETWORK REINFORCEMENT AND INTERCONNECTION PROJECT (PRIRTEM II)	P-MG-F00-006	11/12/2020	31/12/2024	20,000,000.0	0.0	1.3	ADF
			11/12/2020	31/12/2024	10,000,000.0	0.0	1.3	TSF
13	POWER TRANSMISSION NETWORK REINFORCEMENT	P-MG-FA0-019	16/12/2019	31/12/2024	9,650,000.0	9.3	2.3	ADF

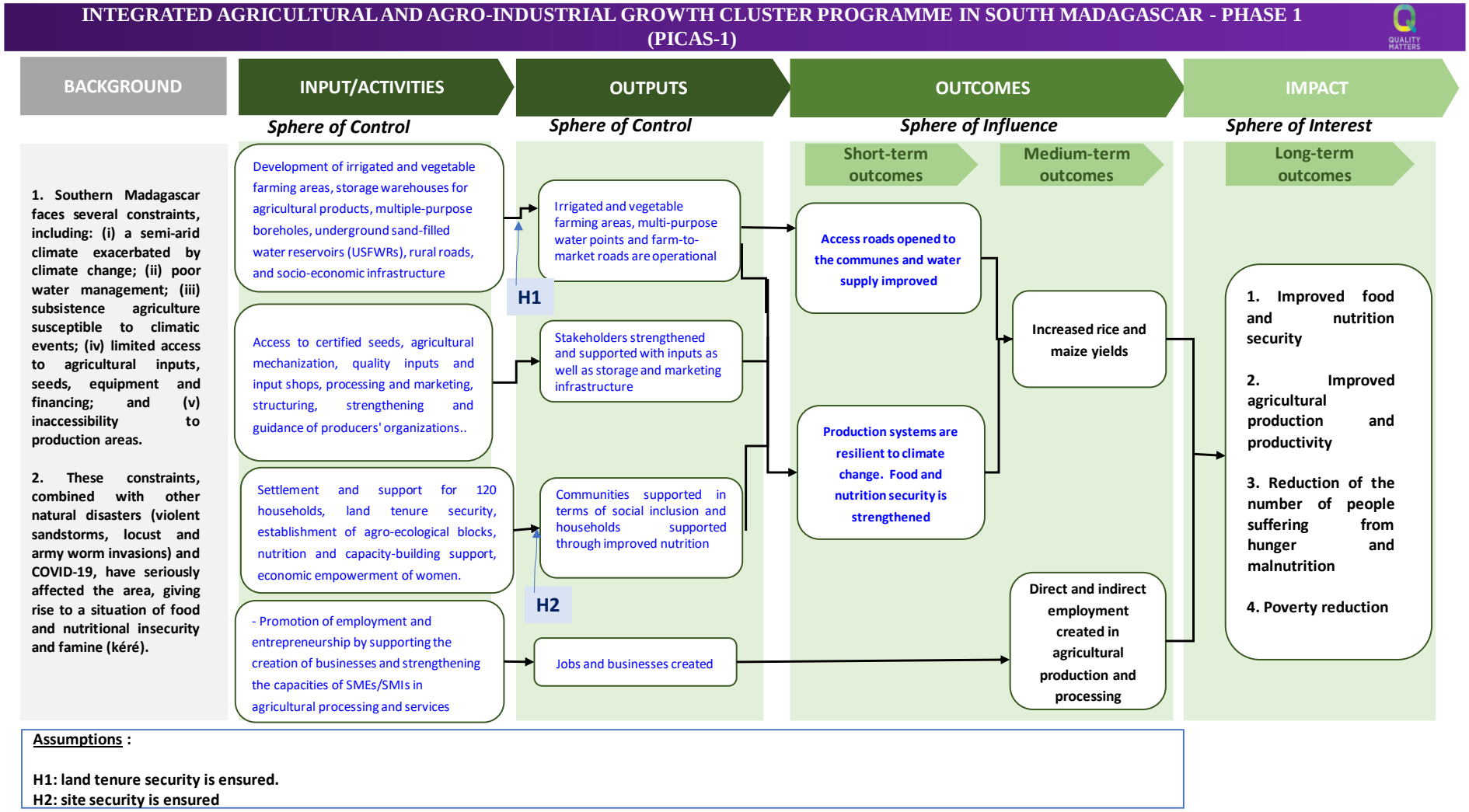
No	Project Name	SAP Code:	Approval Date	Completion Date:	Approved Amount (UA)	Disbursement Rate	Age	Financing Instrument
	AND INTERCONNECTION PROJECT (PRIRTEM I)		16/12/2019	31/12/2024	18,170,000.0	2.6	2.3	TSF
			16/12/2019	31/12/2024	23,037,000.0	00	2.3	EU-AIP
14	SAHOFIKA HYDRO PROJECT-GOM EQUITY IN NEHO	P-MG-F00-007	13/05/2020	01/01/2028	3,213,000.0	0.0	1.10	ADF
			13/05/2020	01/01/2028	7,000.0	0.0	1.10	ADF
15	MADAGASCAR - SAHOFIKA 192 MW HYDROPOWER PROJECT PARTIAL RISK GUARANTEE	P-MG-FA0-018	13/12/2019	31/12/2025	71,586,573.2	0.0	2.3	ADF
	Total Energy				**132,626,573.22**	**1.49**		
16	ROAD INFRASTRUCTURE DEVELOPMENT PROJECT (RN9, BRIDGE))	P-MG-DB0-015	14//12/2012	31/12/2023	46 140 000.0	100	9.3	ADF
			14//12/2012	31/12/2023	130 000.0	100	9.3	ADF
			14//12/2012	31/12/2023	11,930,000	0.0	9.3	OFID
17	MADAGASCAR-BEIRA CORRIDOR: CORRIDORS DEVELOPMENT AND TRADE FACILITATION PROJECT PACFCII)	P-Z1-DB0-242	24/11/2021	31/12/2026	125,000,000.0	0.0	0.4	ADF
18	MADAGASCAR-INDIAN OCEAN: CORRIDORS DEVELOPMENT AND TRADE FACILITATION PROJECT PACFCI	P-Z1-D00-045	27/11/2018	31/12/2024	22,680,000.0	14.3	3.4	ADF
			27/11/2018	31/12/2024	31,250,000.0	00	3.4	ADF
			27/11/2018	31/12/2024	32,398,336.0	00	3.4	EU-AIP
			27/11/2018	31/12/2024	8,450,000.0	13.1	3.4	TSF
	Total Transport				**277,978,336**	**28.42**		
	Grand Total				**519,934,909.22**	**21.65**	**2.8**	

Annex IV: Main Sub-Sector Projects Financed by Other TFPs

N°	Project	Description	Donors	Type	Signature	Completion	Equivalent allocation in USD
1	AD2M	Menabe and Melaky Development Support Project Phase 2 (AD2M 2)	*IFAD/ASAP*	*Grant*	*21/10/2015*	*30/06/2023*	6 000 000
			IFAD	*Loan*	*21/10/2015*	*30/06/2023*	34 400 000
			OFID	*Loan*	*16/06/2015*	*31/12/2023*	7 500 000
2	CASEF	Agricultural Growth and Land Security Project (CASEF)	*IDA*	*Loan*	*08/04/2016*	*30/06/2021*	53 000 000
			IDA	*Grant*	*26/03/2019*	*30/06/2022*	52 000 000
3	DEFIS	Inclusive Agricultural Commodity Chains Development Project	*IFAD*	*Grant*	*13/12/2017*	*30/09/2024*	26 150 000
			IFAD	*Loan*	*13/12/2017*	*30/09/2024*	26 150 000
			IDA	*Loan*	*05/10/2018*	*17/03/2020*	1 600 000
			OFID	*Loan*	*22/04/2018*	*31/01/2023*	20 000 000
4	FORMAPROD	Vocational Training and Agricultural Productivity Improvement Project (FORMAPROD)	*FFE*	*Loan*	*03/08/2012*	*31/12/2023*	18 830 000
			IFAD	*Grant*	*03/08/2012*	*31/12/2023*	2 008 000
			IFAD	*Grant*	*01/06/2018*	*31/12/2023*	5645000
			IFAD	*Loan*	*03/08/2012*	*31/12/2023*	32 995 000
			IFAD	*Loan*	*01/06/2018*	*31/12/2023*	5 645 000
5	PACPA	Agricultural Marketing Support Project (RPSF Initial Grant)	*IFAD*	*Grant*	*19/01/2021*	*30/06/2022*	824 677
		Supplementary RPSF grant	*IFAD*	*Grant*		*30/06/2022*	1 000 000
6	PADAP	Landscape Approach Sustainable Agriculture Project	*IDA/GEF*	*Grant*	*20/04/2017*	*01/08/2022*	13 699 083
			IDA	*Loan*	*20/04/2017*	*01/08/2022*	65 000 000
			IDA	*Grant*	*21/07/2021*	*01/08/2022*	40 000 000
			AFD	*Loan*	*08/06/2017*	*01/08/2022*	26 350 000
7	PAPAM	Agricultural Productivity Improvement Project in Madagascar (PAPAM)	*AFD*	*Grant:*	*07/01/2016*	*31/12/2022*	7 555 456
8	PEJAA		*ADB/TSF*	*Grant:*	*12/02/2018*	*31/12/2022*	6 000 000

N°	Project	Description	Donors	Type	Signature	Completion	Equivalent allocation in USD
		Youth Entrepreneurship in Agriculture and Agroindustry Program (Enable youth)	*ADB/KOAFEC*	*Grant*	*07/12/2018*	*31/12/2021*	964 032
			BAD/ADF	*Loan*	*12/02/2018*	*30/06/2022*	1 000 000
9	PEPBM	Bas-Mangoky Rehabilitation and Extension Project (PEPBM)	*BAD/ADF*	*Loan*	*06/03/2015*	*31/12/2022*	24 210 000
			BAD/TSF	*Loan*	*06/03/2015*	*31/12/2022*	36 000 000
10	PICAS	PPF - Integrated Agro-Industrial Growth Pole Project in the South	*BAD/ADF*	*Loan*	*23/03/2018*	*30/06/2020*	1 445 890
11	PRIASO	Agricultural Infrastructure Rehabilitation Project in the Southwest (PRIASO)	*BAD/ADF*	*Loan*	*08/07/2013*	30/09/2021	27 450 000
			ADB/NSF	*Loan*	*08/07/2013*	30/09/2021	9 750 000
			FEM	*Grant:*	*01/10/2014*	30/09/2021	6 272 000
12	PROJERMO	Youth Rural Enterprises Project in the Midwest	*ADB/EU*	*Grant:*	*09/11/2015*	*31/12/2021*	295 187
			BAD/ADF	*Loan*	*09/11/2015*	31/12/2023	23 044 376
			ADB/TSF	*Loan*	*09/11/2015*	31/12/2023	11 099 037
13	PROSPERER	Rural Micro-Enterprise Poles and Regional Economies Support Project - Initial (PROSPERER)	*IFAD*	*Grant:*	*30/04/2013*	*31/12/2021*	210 000
		Initial loan (PROSPERER)	*IFAD*	*Loan:*	*18/12/2017*	*31/12/2021*	17 788 000
		Supplementary loan	*IFAD*	*Loan:*	*30/04/2013*	*31/12/2021*	11 200 000
		2nd Supplementary Loan	*IFAD*	*Loan:*	*21/10/2015*	*31/12/2021*	19 000 000
14	PTASO	Agro-Industrial Processing Zone Development Project in the South-West Region of Madagascar	ADB/TSF	Loan:	15/10/2020	31/12/2026	28 000 000
15	RICE PLUS - PPF	Rice System Adaptation for Improved Resilience and Food Security Project	*IDA*	Loan:	22/07/2021	15/07/2022	2 400 000
TOTAL							**672 480 739**

Annex V: PICAS-1 Change Theory



Annex VI: PICAS-1 Monitoring and Evaluation Plan

A. Outcome indicators

Indicator	Definition/ description	Source	Baseline and targets (if possible)
Improved grain yields	*Grain yields per hectare, especially for rice and maize.*		
Reduction of the number of people suffering from hunger and malnutrition.	*Reduction of the number of people treated by health centres for hunger and malnutrition.*		

B. Outcome and output indicators (*performance indicators)*

Indicator	Definition/ description	Collection method	Responsibility for collection	Frequency of reporting	Results planning		
					DATE 1	DATE 2	DATE X:
I. Outcome indicators							
1.1 # Number of resilient farms	Number of micro-farms developed and/or rehabilitated to climate change standards	Project activity reports, MINAE statistics	PIU /MINAE	Quarterly	31 January 2023		End of project
1.2 # % of the population not getting the minimum intake of 2,133 kcal/day	The proportion of the population showing signs of nutritional deficiencies and whose daily calorie intake is less than 2,133 kcal/d.	NSB progress reports and MINAE statistics	ONN/ PIU /MINAE	Annually	Year 2	Mid-term	End of project
1.3 # Grain yields (ton/hectare) (rice, maize)	Rice and maize yields in tonnes per hectare.	Agricultural statistics	PIU /MINAE	Annually	Year 2	Mid-Term	End of project
1.4 # Number of additional inhabitants with access to drinking water	Number of inhabitants having water supply from the boreholes and supply systems promoted by the project.	Project progress reports	PIU /MEAH/MINAE	Quarterly	31 January 2023		End of project
1.5 # Number of communes rendered accessible	The number of communes with direct road access	Project progress reports	PIU /MINAE	Quarterly	31 January 2023		End of project
II. Output indicators					31 January 2023		
2.1 # Land equipped with an improved water management system	These are rice farms to be created with enhanced water control and management	Project progress reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.2 # Surface area of vegetable gardens	All vegetable patches and gardens to be created around water points and obtained through green titles.	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project

Indicator	Definition/ description	Collection method	Responsibility for collection	Frequency of reporting	Results planning		
					DATE 1	DATE 2	DATE X:
2.3 # Number of high-flow boreholes drilled and equipped	These are multipurpose boreholes with a flow rate that can supply water for market gardening activities and for livestock and human consumption.	Monitoring reports	PIU/MEAH/MINAE	Quarterly	31 January 2023		End of project
2.4 # Number of mini water supply systems constructed	Number of drinking water supply systems (DWSS) constructed	Monitoring reports	PIU /MEAH/MINAE	Quarterly	31 January 2023		End of project
2.5 Number of CC-resilient underground sand-filled water reservoirs (USFWRs) constructed	Number of 1,000 m3 underground reservoirs to be built	Monitoring reports	PIU /MEAH/MINAE	Annually	31 January 2023		End of project
2.6 Total length of climate-smart roads rehabilitated	Total length (in kilometres) of roads to be rehabilitated	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.7 Number of warehouse complexes constructed	Number of 100-ton shops with office, latrine and equipment for irrigated areas	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.8 Number of markets rehabilitated with gender-sensitive infrastructure	Number of market infrastructures developed or rehabilitated.	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.9 # Number of climate-smart hectares developed	Surface area developed and/or rehabilitated that is farmed by the beneficiaries.	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.10 Gender-disaggregated number of operators with access to quality inputs	Number of beneficiaries given access to quality inputs by the project.	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.11 Number of CC-resilient seed multiplication centres supported	Number of building complexes constructed for seed multiplication.	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.12 # Number of FOs strengthened	Number of farmers' organizations formed, trained and strengthened by the project.	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.13 # Number of start-ups (including green enterprises) established, disaggregated by women-led enterprise	Number of businesses promoted and financed by the project for project area youth	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.14 # Number of landless families resettled, disaggregated by female-headed households	Number of people settled on land developed by the project.	Monitoring reports	PIU /MINAE	Quarterly	31 January 2023		End of project
2.15 # # Number of people sensitized to good nutrition habits	Number of people trained in nutrition	Monitoring reports	ONN/ PIU /MINAE	Quarterly	31 January 2023		End of project
2.16 # Number of vulnerable households with vegetable gardens disaggregated by female-headed household	Number of resettled persons provided with agricultural means of subsistence	Monitoring reports	ONN/ PIU /MINAE	Quarterly	31 January 2023		End of project

Annex VII: Risk Analysis Matrix and Mitigation Measures

RISK CATEGORY	RISK DESCRIPTION	RATING	MITIGATION MEASURES	RISK MANAGER (responsible for risk monitoring
CAPACITY RISK FOR THE EXECUTING ENTITY	Poor management of irrigated areas and water points	Medium	Formalizing water users' associations (AUE), ensuring land tenure security, providing guidelines on the maintenance of irrigated areas and payment of the water fee; establishment of water-point management committees; preparation of a borehole maintenance manual; networking of small-scale repairers; and combining of market gardening and repair work to generate income. The management of high-flow boreholes will be entrusted to private entities.	AfDB/Project Executing Agency
MAINTENANCE CAPACITY RISK	Early deterioration of rural roads	High	Select a reliable works company and a reputable works control and supervision firm. Establish village committees for the routine maintenance of roads, provide them with a road maintenance manual, provide small-scale maintenance equipment, and choose a paving technique (pavestones) for critical sections of the roads (ramps, slopes).	Project Executing Agency
TECHNICAL DESIGN OF OPERATION	Poor quality of terms of reference (ToRs) for studies	Medium	Establish a MINAE - MEAH technical committee, supported by DEFIS, to draft the ToRs and ensure control at Bank level.	BAD/MINAE/MEAH/ Project Executing Agency
ENVIRONMENTAL RISKS	Difficulty in dealing with crop pest infestations (armyworms, locusts)	Medium	Institutional support will be provided to the Regional Directorate for Plant Protection (DRPV) and the Regional Directorate of the Locust Control Centre (DR-CNA). The TAAT Programme will contribute its expertise to the support provided to these structures. In addition, provision is made for an integrated predator and pest management plan for the project and will be a precondition for farming the irrigated areas.	AfDB/ Project Executing Agency
COUNTRY'S POLITICAL GOVERNANCE CONTEXT	Late ratification of the loan agreement due to parliamentary review uncertainties	Medium	Measures have been taken to ratify the Agreement during the May-June 2022 parliamentary session.	AfDB/MEF/ Project Executing Agency
SECURITY RISK	Theft of livestock and agricultural produce	Medium	Establish a police post in the project area, including the green title area.	Government/ Project Executing Agency

Annex VIII: Fragility and Resilience Note for PICAS-1

1. Introduction

Madagascar is an island nation with a rich biodiversity and numerous natural assets. Extreme poverty increased significantly in 2020, particularly for the poorest segments of the population. Job losses in the industrial, agricultural and service sectors and the sudden loss of income for informal sector workers hard-hit by the COVID-19 lockdown measures in the major cities contributed in plunging many people into extreme poverty. In 2020, the inflation rate which stood at 5.5% continued the downward trend noted in 2019 when it was 5.6% before rebounding to 6.5% in 2021.

2. Summary of the main fragility factors in Madagascar

The results of the end-2020 CRFA conducted by the Bank show that Madagascar has low capacity and experiences fairly strong pressures in the seven dimensions of fragility but does not have sufficient capacity to address them. In contrast, the 2019-2023 Madagascar Emergence Plan aims to boost the country's economic growth through increased public and private investment, strengthening human capital and improving governance. The country's persistent socio-economic challenges include poverty, corruption and the infrastructure deficit.

(i) Drought hinders the development of agriculture, which is the main livelihood of almost the entire population;

(ii) Inaccessibility to drinking water and the lack of infrastructure and health care personnel undermine hygiene, health and sanitation;

(iii) Lack of access to electricity prevents the establishment of large production and processing units;

(iv) Insecurity for goods and individuals demotivates breeders and farmers, thus encouraging rural-urban migration.

The southern regions of Madagascar have long been confronted with complex challenges related mainly to the adverse effects of drought and other socio-economic, cultural and security factors. These constraints have put the local population in extreme poverty leading to significant underdevelopment in this part of the island. Although successive governments have already undertaken various initiatives, the South of Madagascar is still known for its vulnerability due to recurrent drought, which gives rise to the phenomenon of *kere* (famine), well known to organisations working in the humanitarian field. The incidence of poverty here is higher than in other parts of the country such that, over the last few decades, the South has relied entirely on emergency response actions and humanitarian aid to combat *kere*.

3. Summary of the Agricultural Sector in Madagascar

In Madagascar, the agricultural sector is experiencing challenges coping with extreme weather-related events and other shocks and disasters affecting nutrition and poverty. The agricultural sector's contribution to GDP was 25,2% in 2021. Performance is severely undermined and limited by factors that account for the fragility of this sector, particularly the following:

(i) Agricultural production conditions are steadily deteriorating: prices are not competitive, there is increasing demand for space, and climatic crises are aggravating these tensions;

(ii) The infrastructure in agricultural services and research centres is outdated, there is a general lack of equipment (logistics, technical equipment), and finally, there is a shortage and the use of uncertified (poor quality) seeds;

(iii) There is poor quality control and use of uncertified seeds, while seed production remains fragile, which leads to a short-term response by producers.

Southern Madagascar is an arid zone which receives about 500 mm of rainfall on average, and less than 300mm annually during years of acute drought. This extreme lack of rainfall negatively affects agricultural production and water availability, resulting in critical food and nutrition insecurity that can rapidly deteriorate into a one-off or protracted humanitarian emergency. Food insecurity rates are among the highest, standing at 63.4% in Androy and 53.4% in Anosy.

4. Project's Contribution to Resilience-building

There are many challenges to address, since the local communities are not resilient and often tend to depend on humanitarian assistance. There is also an urgent need to match project actions with local realities so that the southern regions cease to be considered a project graveyard. Moreover, malnutrition in these regions is essentially attributable to the decline in agricultural production due to a significant shortage of rainfall and the lack of adequate irrigation infrastructure. In addition, the burden of daily water expenses only exacerbates the precarity of community living conditions due to the lack of drinking water supply infrastructure.

PICAS-1 will contribute to the food and nutritional security of the population and reduce the fragility in southern Madagascar. With a duration of four (04) years and six (06) months, the project will also help to build resilience, mainly by: (i) improving agricultural production systems; and (ii) promoting efficient and competitive agricultural value chains. It will also contribute to the growth and modernisation of agriculture and boost export earnings for Madagascar. Specifically, this will entail improving production systems and formalizing the economic activities of stakeholders to improve their incomes.

The goal of this support is to achieve Sustainable Development Goals (SDGs) 1 and 2, aimed at eradicating extreme poverty and ending hunger and malnutrition by 2030. This operation will address productivity gaps and marketing bottlenecks in agricultural supply chains by focusing on key regional priorities such as:

(i) The introduction of agroecological models that are adapted to climate change;

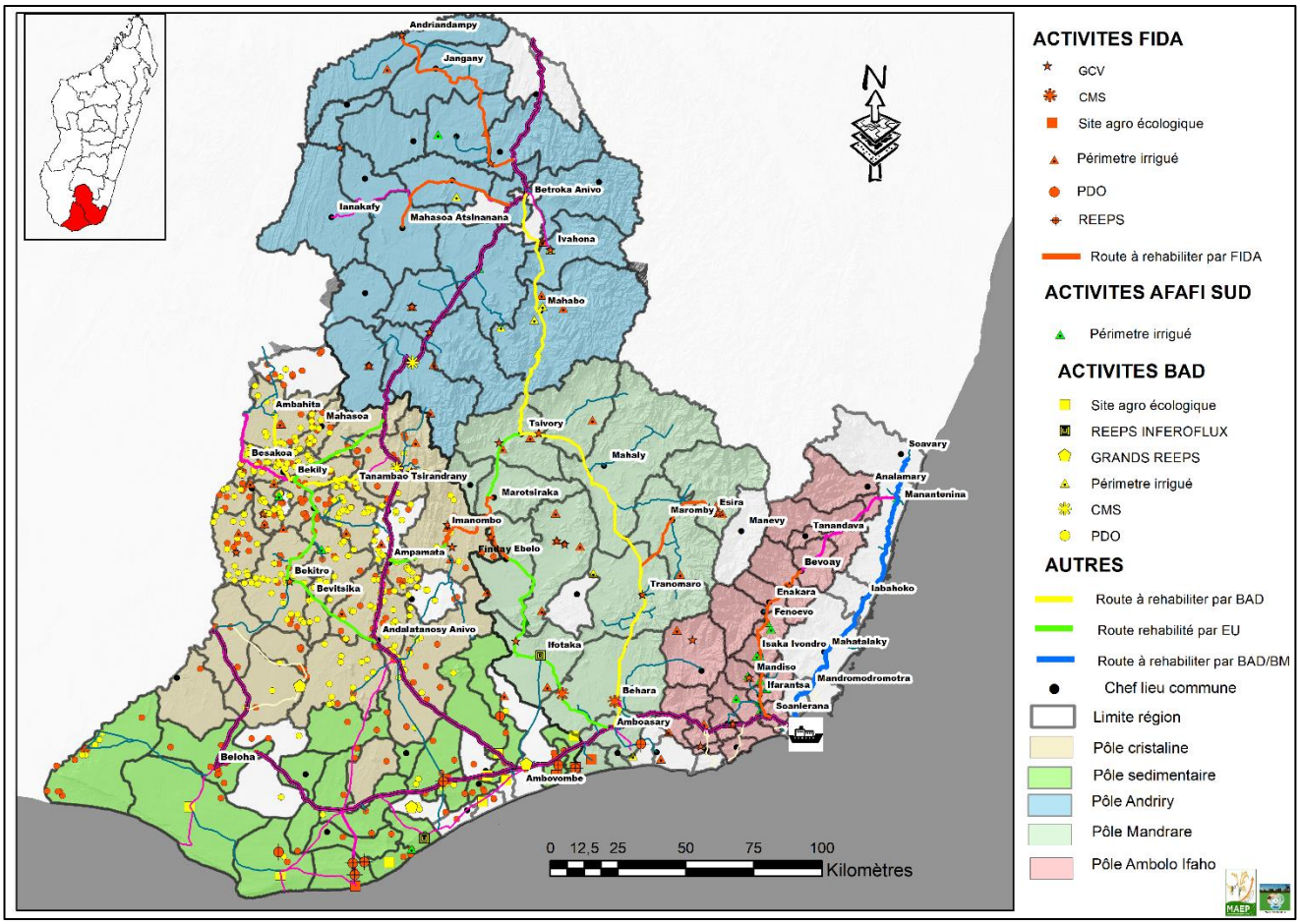
(ii) Capacity-building on the use of appropriate equipment and materials for carrying out production, storage, processing and preservation activities.

5. Conclusions and Recommendations

Despite their high arable land potential, the Anosy and Androy regions are experiencing food and nutritional insecurity due to recurrent climatic shocks, notably drought and famine. The Integrated Agricultural and Agro-industrial Growth Cluster Programme in South Madagascar-Phase 1 (PICAS-1) is the first project of an initiative that could be replicated at the regional level to increase agricultural yields. It is intended to reverse the pattern of poor agricultural and economic performance (more than half of the population is extremely poor).

This recommendation will also address strong demand from grassroots communities, given the clear discrepancy between existing potential and the insufficient agricultural development noted in the regions concerned. This participatory approach will be pursued during project implementation through (i) a Steering Committee that will bring together representatives of all stakeholders; (ii) capacity-building for the various institutions and communities through a participatory approach; (iii) the involvement of grassroots communities (farmers, youth, women, etc.) in the implementation of activities; and (iv) the establishment of a monitoring/evaluation system targeting the outcomes of the project.

Annex IX: Map of the PICAS-1 Project Area



Annex X: Environmental and Social Compliance Note (ESCON)

ENVIRONMENTAL AND SOCIAL COMPLIANCE NOTE (ESCON)

AFRICAN DEVELOPPEMENT BANK GROUP

A. Basic Information[1]

Project Title: Integrated Agricultural and Agro-Industrial Growth Pole Program in Southern Madagascar – Phase 1 (PICAS-1)		**Project ''SAP code'':** P-MG-A00-007
Country: Madagascar	**Lending Instrument**[2]: DI ☒ FI ☐ CL ☐ BS ☐ GU ☐ RPA ☐ EF ☐ RBF ☐	
Project Sector: AHFR	**Task Team Leader**: M. Morou MOUSSA	
Appraisal date: 17/01/2022	**Estimated Approval Date**: 17/05/2022	
Environmental Safeguards Officer: Jean Chrysostome RAKOTOARY/Modesta KINANE		
Social Safeguards Officer: Charlotte CHEUMANI NOUDJIEU		
Environmental and Social Category: 1	**Date of categorization**: 29/07/2021	**Operation type**: SO ☒ NSO ☐ PBO ☐
Is this project processed under rapid responses to crises and emergencies?		Yes ☐ No ☒
Is this project processed under a waiver to the Integrated Safeguards System?		Yes ☐ No ☒

B. Disclosure and Compliance Monitoring

B.1 Mandatory disclosure

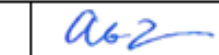
Environmental Assessment: ESIA 07 reports	
Were the documents disclosed *prior to appraisal?*	Yes ☒ No ☐ NA ☐
Date of "in-country" disclosure by the borrower/client	15/12/2021
Date of receipt, by the Bank, of the authorization to disclose	09/12/2021
Date of disclosure by the Bank	23/12/2021
Resettlement Action Plan: N/A	
Was the document disclosed *prior to appraisal?*	Yes ☐ No ☐ NA ☒
Date of "in-country" disclosure by the borrower/client	[Date]
Date of receipt, by the Bank, of the authorization to disclose	[Date]
Date of disclosure by the Bank	[Date]
Vulnerable Peoples Plan/Framework/Others: N/A	
Was the document disclosed *prior to appraisal?*	Yes ☐ No ☐ NA ☒
Date of "in-country" disclosure by the borrower/client	[Date]
Date of receipt, by the Bank, of the authorization to disclose	[Date]
Date of disclosure by the Bank	[Date]
If in-country disclosure of any of the above documents is not expected, as per the country's legislation, please explain why: N/A	

B.2. Compliance monitoring indicators

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes ☒ No ☐ NA ☐
Have costs related to environmental and social measures, including for the running of the grievance redress mechanism, been included in the project cost?	Yes ☒ No ☐ NA ☐
Is the total amount for the full implementation for the Resettlement of affected people, **as integrated in the project costs, *effectively mobilized and secured*?**	Yes ☐ No ☐ NA ☒
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes ☒ No ☐ NA ☐
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes ☒ No ☐ NA ☐

C. Clearance

Is the project compliant to the Bank's environmental and social safeguards requirements, and to be submitted to the Board?
Yes ☒ No ☐

Prepared by:	*Name*	*Signature*	*Date*
Environmental Safeguards Officer:	Jean Chrysostome RAKOTOARY/ Modesta KINANE		23/03/2022
Social Safeguards Officer:			
Task Team Leader:	Morou MOUSSA		28/03/2022
Submitted by:			
Sector Director:	Atsuko TODA		04/04/2022
Cleared by:			
Director SNSC:	ISSA Maman-Sani		19/04/2022

[1] **Note**: *This ESCON shall be appended to project appraisal reports/documents before Senior Management and/or Board approvals.*
[2] **DI**=Direct Investment; **FI**=Financial Intermediary; **CL**=Corporate Loan; **BS**=Budget Support; **GU**=Guarantee; **RPA**=Risk Purchase Agreement; **EF**=Equity Financing; **RBF**=Results Based Financing.