

Catchment Management: integrated support to sustain quality and quantity of Dili's water supply (Augmenting the Long-term Water Supply for Dili via Construction of Dams)

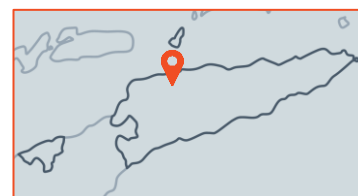


LOCATION SNAPSHOT

Location & description

A *Feasibility Study of Surface Water Resources Development for the Water Supply of Dili Metropolitan Area*¹ has been completed. Two dams have been proposed to address anticipated future water shortages in the Greater Dili Area: one in the Railaco catchment on the Mota-hare River and the other in Gleno catchment (on the Gleno River).

The proposed Catchment Management Project will complement recommendations in the Dams Feasibility Study, and the proposals for the construction of the two dams. The project will be implemented within the water catchment areas for the two dams and support this major engineering investment by I engaging with local communities to focus on improved and modified catchment management practices to ensure water quality and quantity, and reduce soil erosion and therefore dam siltation.



1. PROJECT CONTEXT AND RATIONALE

1.1. Sector & Sub-sector(s)

Sector: **Forestry Sector**

Dili's population is expected to grow from 267,000 in September 2016 to 467,000 in 2036, resulting in a strong need for an expanded urban water supply.

A *Feasibility Study of Surface Water Resources Development for the Water Supply of Dili Metropolitan Area* has been completed (2020) and the construction of two dams proposed: one in the Railaco catchment on the Mota-hare River and the other in Gleno catchment (on the Gleno River).

Under the Catchment Management Project, land-use in the dam catchment areas will require enhanced tree cover and changed agriculture production practices (and the adoption of best practice conservation agriculture techniques) to limit/minimise soil erosion and siltation, and thereby sustain water supplies in terms of both quality and quantity. In addition, other sources of siltation, such as poorly constructed and maintained rural roads and civil construction sites, will also need to be addressed, using a broad community approach to overall improved water catchment management

The activity is classified under the following NACE codes:

A1.2.9 - Growing of other perennial crops

A1.4 - Animal production

A1.5.0 - Mixed farming

¹ A Feasibility Study of Surface Water Resources Development for the Water Supply of Dili Metropolitan Area. Dongsung Engineering Co Ltd. 2020. Ministry of Public Works.

	<p>A2.1.0 - Silviculture and other forestry activities</p> <p>E - Water supply; sewerage; waste management and remediation activities</p> <p>F42.1 - Construction of roads and railways</p>
<p>1.2. Rationale for PPIP intervention and IFI loan</p>	<p>The need for a sustainable and safe water supply for Dili is urgent: two dams, Gleno and Railaco, have been proposed to address this need.</p> <p>Effective land management in the catchment areas for the dams (across all economic sectors) is essential to prevent siltation and maintain water quality and quantity and to protect expected substantial dam investments.</p> <p>This will require broad modifications to existing land-use and sanitation practices, including:</p> <ul style="list-style-type: none"> • Adoption of agricultural practices to minimise soil erosion in line with conservation agriculture practices which preserve surface organic matter • Enhancing perennial and annual vegetative cover in the catchment areas, particularly through reducing the incidence of fires • Increasing tree cover with species of commercial use • Upgrading roads and other infrastructure to minimise soil movement, and • Upgrading sanitation management and disposal systems within the catchment areas.
<p>1.3. Relevance to Strategic Development Plan & overall planning framework</p>	<p>The Government of Timor-Leste (GOTL), in its Strategic Development Plan (2011-2030), has demonstrated its commitment to water supplies and aims that, by 2030, all citizens in Timor-Leste will have access to clean water. The Economic Recovery Plan (2020) recognises that good management of agriculture resources is crucial to protecting the environment, biodiversity, water resources and management of fires. Further, the Plan acknowledges the importance of building neighbourhoods with proper infrastructure and to ensure the sustainability of water resources and basic household water supply.</p> <p>The Revised National Forest Policy (2017) re-commits the GOTL to the goal of forestry development “<i>the sustainable management of forest resources and watersheds to provide environmental, social and economic benefits to the people of Timor-Leste</i>”. Three of the six policy objectives focus on forest, and watershed management and development:</p> <ol style="list-style-type: none"> 1. protection and sustainable management of existing forest, 2. establishment of new and regeneration of degraded forest lands, and 3. rehabilitation and sustainable management of degraded watershed areas. <p>Key in the actions to achieve these objectives is the active participation from local communities and other stakeholders.</p>
<p>1.4. Relevance to Sustainable Development Goals</p>	<p>The Project contributes to the following 6 Sustainable Development Goals:</p> <ul style="list-style-type: none"> > Goal 1. No Poverty: Access to basic human needs of health, education, sanitation > Goal 6. Clean Water and Sanitation: Improving access for billions of people who lack these basic facilities > Goal 15. Life on Land: Reversing man-made deforestation and desertification to sustain all life on earth <p>(See final table for a more detailed description of contributions to achievement of SDGs)</p>
<p>1.5. Project promoter(s)</p>	<p>The project promoter is the Ministry of Agriculture and Fisheries (MAF), Directorate General of Forestry, Coffee and Industrial Plants (DGFCPI) which is the Government agency with prime responsibility for forestry development and watershed management.</p> <p>Financing: EIB and other partner (s)– to be determined (GoTL/EUD/JICA?)</p>
<p>1.6. General institutional set-up</p>	<p>MAF is the Government agency with prime responsibility for forestry and watershed development. The Directorate General of Forestry, Coffee and Industrial Plants (DGFCPI) is one of four directorates general within the Ministry, and has broad responsibilities for community forestry, watershed management, forest protection, plantation forestry, protected natural areas development, and other aspects of forestry development. The roles and responsibilities of the</p>

DGFCIP, its three national directorates and its municipal offices are defined in the Ministerial Diploma No.10/2016. Within DGFCPI, the National Directorate of Forestry and Watershed Management has responsibility for catchment management.

In addition, because of the close and complementary links between dam construction and catchment management, it will be essential for the proposed Catchment Management Project to liaise and cooperate with the proponent of the Dili Dams Project which is the Ministry of Public Works (MoPW), National Directorate for Water Resources Management (DNGRA).

Similarly, it will be essential for the Catchment Management Project to work in close cooperation with GOTL's Directorate of Roads, Bridges and Flood Control (DRBFC). This GOTL organization is responsible for the construction and maintenance (and therefore indirectly, erosion resulting from inappropriate or inadequate road construction) with the latter contributing to siltation of the two proposed Dili dams. Rural road development in Timor Leste is supported by two major Development Partners (EU and DFAT) and therefore liaison and cooperation with these two agencies will also be important if road-related siltation is to be minimized in the dam catchment areas.

And, finally, it will also be important for the Catchment Management Project to work closely with the National Directorate for Basic Sanitation (DNSB) as treated and/or untreated effluent from septic tanks, and effluent from basic backyard toilets are dangerous water supply pollutants. Such multi-agency coordination is difficult and complicated, and therefore the final design of the Dili Dams and the Catchment Management Projects will need to include an important component on inter-agency cooperation.



2. INVESTMENT PROJECT INFORMATION

2.1. Scope of proposed project and type of investment measures to be implemented

The general concept for the Project is to engage with local communities to encourage improved land management, and civil engineering and sewerage treatment practices within the catchments. This will minimise soil erosion and siltation (and unwanted sewerage-related runoff) and result in sustainable supplies of water of suitable quality for Dili's growing population.

The focus for the work will be two catchments targeted for Dili's water supply. The activities proposed and the outcomes expected align with the UN's SDGs, the Paris Agreement, the EU Green Deal, and the EU Taxonomy, and are consistent with the EIB Group Climate Bank Roadmap (2021-2025).

The overall objective is to contribute to a sustainable supply of high-quality water for Dili's growing urban population; and to support the nation's Strategic Development Plan (2011-2030), Economic Recovery Plan (2020), Revised National Forest Policy (2017) and the draft Forestry Sector Investment Plan (2019-2030).

Pilot projects, particularly those supported by JICA, have demonstrated the effectiveness of various types of support to small holders and community groups to improve land-use management in watershed areas, expand areas of commercial trees, regenerate degraded natural forest and manage forests and plantations sustainably.

Success with watershed management has been achieved in Timor-Leste through adoption of an Community Based Natural Resource management (CBNRM) approach which commits to effective engagement with involved households and communities. Based on this approach, the specific objectives for the Catchment Management Project are:

- > Adoption of sustainable agricultural and tree planting practices to minimise soil loss, and in line with conservation agriculture practices
- > Protecting remnant forests and enhancing vegetative cover in the catchment areas, particularly through reducing the incidence of fires
- > Increasing tree cover
- > Upgrading sanitation systems within the catchment areas.
- > Upgrading roads and other infrastructure to minimise soil movement, and
- > Enhance capacity through appropriate institutional development, capacity building, and public awareness/education.

These objectives will be achieved by investments in nurseries, financial and other incentives to adopt improved land management practices and increase tree cover, new equipment, structures and plants where necessary, supplemented by investments in institutional development, capacity building, and public awareness/education.

2.2. Level of maturity

The project concept has been based on the Ministry of Public Works' - *Feasibility Study of Surface Water Resources Development for the Water Supply of Dili Metropolitan Area*, stakeholder dialogue and experience from the DGFCIP initiatives of CBNRM supported by JICA.

2.3. Approach chosen for project implementation

The proposed Institutional set-up for project implementation is as follows:

PMU (Project Management Unit)	Implementing Agency: Within the DGFCIP, comprising representatives from Municipalities, and supported by a Technical Assistance (TA) Consultant to oversee, monitor, and support component implementation during all phases. Include a inter-agency liaison unit to support cooperation with DRBFC, MoPW, DNGRA and DNSB
TA Consultant:	Institutional development; Technical Monitoring; Capacity building; Public education
Private Contractors	<ul style="list-style-type: none"> • Nurseries • Roads' and sanitation improvement • Facilities improvements <p>Works contracts: Via contracts with PMU</p>

2.4. Identification of preliminary alternatives for the works

Detailed consideration of the strategies to be adopted in engaging communities to achieve effective catchment management in the Railaco and Gleno watersheds will be provided in the pre-feasibility study. There are limited alternatives for the approach to be adopted to engage communities to achieve the objectives of sustainable water supply of suitable quality, noting that JICA has developed and tested an approach to CBNRM which has proven successful and sustainable in Timor-Leste's rural sector for many years.

The options analysis will comprise elements such as:

- > Delineation and characterisation of the affected areas using field surveys, GIS and imagery
- > Identification and characterisation of affected stakeholders and communities through livelihoods analysis
- > Description of current land use and opportunities for change.
- > Identification of major contributing factors (and locations) to soil movement (agriculture, roads and other infrastructure, mines, vegetation removal, fire etc).
- > Identifying contributing factors to other issues of water quality (sanitation, urban discharge etc)
- > Identify "hot-spots" which might compromise water quality, and which can act as the focus for project activity.
- > Capacity building within Government and the communities.

Based upon the preliminary analysis, a program of effective operational activities will be developed, which is likely to include:

- > Tree planting, particularly of species with commercial value
- > Protecting remnant forests and enhancing vegetative cover in the catchment areas, particularly through reducing the incidence of fires
- > Changes to agricultural practices and adoption of sustainable agricultural and tree planting practices to minimise soil loss and in line with conservation farming approaches
- > Identification of and support for alternative sustainable livelihoods options
- > Upgrading sanitation systems within the catchment areas to maintain water quality
- > Upgrading, repair and possible relocation of roads and other infrastructure to minimise soil movement
- > Enhance capacity through appropriate institutional development, capacity building, and public awareness/education

2.5. Total estimated project investment costs	A first order indication of the investment costs (est €3.5 mill) is shown below:																
	<table border="1"> <thead> <tr> <th>Output</th> <th>Approx. cost (EUR ,000)</th> </tr> </thead> <tbody> <tr> <td>Delineation and characterisation of the affected areas</td> <td>200</td> </tr> <tr> <td>Identification and characterisation of affected stakeholders and communities.</td> <td>200</td> </tr> <tr> <td>Nurseries</td> <td>150</td> </tr> <tr> <td>Engineering (roads, other infrastructure)</td> <td>1000</td> </tr> <tr> <td>Equipment, Vehicles and materials</td> <td>400</td> </tr> <tr> <td>TA project: Institutional developments, including capacity building and public education/information</td> <td>1500</td> </tr> <tr> <td>Total</td> <td>3450</td> </tr> </tbody> </table>	Output	Approx. cost (EUR ,000)	Delineation and characterisation of the affected areas	200	Identification and characterisation of affected stakeholders and communities.	200	Nurseries	150	Engineering (roads, other infrastructure)	1000	Equipment, Vehicles and materials	400	TA project: Institutional developments, including capacity building and public education/information	1500	Total	3450
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2.6. Approach to finance the project	<p>Considering that the EIB's contribution to a project's cost is limited to 50% of the overall investment, the following financing sources have been identified:</p> <ul style="list-style-type: none"> > To be determined during Feasibility Study (PPIP). 																



3. IMPLEMENTATION ARRANGEMENTS

3.1. Provisional schedule for project implementation	TBD																
3.2. Estimated time and resources for PFS and FS	<p>The estimated time and resources required are as follows:</p> <table border="1"> <thead> <tr> <th>Phase</th> <th>Time (months)</th> <th>Level of Effort (person days – KE and Backstopping)</th> <th>Level of Effort (person days – NKEs)</th> </tr> </thead> <tbody> <tr> <td>Pre-Feasibility study</td> <td>10-12</td> <td>70</td> <td>250</td> </tr> <tr> <td>Feasibility study</td> <td>18</td> <td>200</td> <td>800</td> </tr> <tr> <td>Total</td> <td>28-30</td> <td>270</td> <td>1,050</td> </tr> </tbody> </table>	Phase	Time (months)	Level of Effort (person days – KE and Backstopping)	Level of Effort (person days – NKEs)	Pre-Feasibility study	10-12	70	250	Feasibility study	18	200	800	Total	28-30	270	1,050
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Total	28-30	270	1,050														
3.3. Main barriers to develop the project	<p>The main barriers to develop and implement the project identified at this stage are:</p> <ul style="list-style-type: none"> > Engagement and agreement with GoTL at all levels (and across all involved agencies/departments – see above) and with co-financing organizations, on areas of responsibility, scheduling, etc. > Coordination of catchment activities with the construction of two large dams, which has never been attempted in Timor Leste before. > Institutional arrangements between national and municipal authorities, and between GOTL agencies. 																
3.4. Estimation of required TA activities to implement the planned investment	<p>The TA activities required to implement the investment include: coordination of physical and financial responsibilities between national, regional, and municipal entities; community cooperation/involvement, land tenure and changed land use; institutional strengthening to enable responsibilities to be fulfilled, tendering and contracting of road and infrastructure repairs/upgrades; marketing commercial tree crops and other new agriculture products; and capacity building and public education.</p>																



4. SAFEGUARDS AND ELIGIBILITY

4.1. Environmental and Social issues, recommended ESIA needs

A screening of environmental and social aspects will be performed at the pre-feasibility stage. The environmental and social safeguards that may become relevant are listed below:

Assessment and management of environmental and social impacts and risks	Y	Involuntary resettlement	N
Pollution prevention and abatement	Y	Rights and interests of vulnerable groups	N
Biodiversity and ecosystems	Y	Labour standards	Y
Climate-related standards	Y	Occupational and public health, safety and security	Y
Cultural heritage	N	Stakeholder engagement	Y

4.2. Eligibility: Alignment with Paris Agreement

The proposed investment falls within the following sector(s) supported by the EIB Group under the Paris alignment framework:

- > Investment in nature and biodiversity conservation and restoration.
- > Investment in subsectors such as sustainable forestry and sustainable, resilient agricultural land management, and erosion control (LULUCF).

As the EU Climate Bank, the EIB Group commits to aligning all its financing activities with the principles and goals of the Paris Agreement. Investments proposed to EIB should be consistent with the Paris alignment framework to adopt low-carbon pathways in support of the European Union (EU) pathway to net zero emissions. Investments should also build greater resilience to future climate change.

The Catchment Management Project addresses these issues by creating a positive carbon balance through tree planting, and improved forest management and enhanced vegetative cover. Through adopting changes to agricultural practices and adoption of sustainable agricultural and tree planting practices to minimise soil loss (and in line with conservation farming) the project will ensure resilience to future climate change.

4.3. Eligibility: Alignment with EU Taxonomy

A summary of the technical screening criteria for "substantial contribution" and "do-no-significant-harm" (DNSH) in relation to the six environmental objectives of the EU Taxonomy is shown below.

The following project activities are/will be aligned with the EU Taxonomy:

Environmental objective	Afforestation: Activity NACE A02.10 Silviculture and other forestry activities
Climate change mitigation	Substantial Contribution: 1. Afforestation plan and subsequent forest management plan or equivalent instrument; 2. Climate benefit analysis 3. Guarantee of permanence 4. Audit 5. Group assessment <i>Note: Meeting these requirements will be administratively burdensome and time consuming, especially for smaller forest holdings.</i>
Climate change adaptation	DNSH: Climate risk and vulnerability assessment performed. The PPIP anticipates this for the PFS and FS stages.
Water and marine resources	DNSH: Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving good water status and good ecological potential (EU Water Framework Directive), and a water use and protection management plan is developed for the potentially affected water bodies in consultation with relevant stakeholders. However, no assessment is

		needed if such risks are considered in an EIA in accordance with the EU EIA Directive and Water Framework Directive.
	Circular economy	NA
	Pollution prevention & control	DNSH: The use of pesticides is reduced and alternative approaches or techniques; the activity minimises the use of fertilisers and does not use manure. Well documented and verifiable measures are taken to avoid the use of active ingredients that are listed in Annex I, part A, of Regulation (EU) 2019/1021. Pollution of water and soil is prevented and cleaning up measures are undertaken when pollution occurs.
	Biodiversity and ecosystems	DNSH: In areas designated by the national competent authority for conservation or in habitats that are protected, the activity is in accordance with the conservation objectives for those areas. There is no conversion of habitats specifically sensitive to biodiversity loss or with high conservation value, or of areas set aside for the restoration of such habitats in accordance with national law.
	Activity A1.26 - Growing of oleaginous fruits (including coconuts) and A1.29 - Growing of other perennial crops may be covered under Crop Production in the second Delegated Act of, but it is still in draft form.	
4.4. Eligibility: Clean Oceans Initiative	N/A	

Relevant Sustainable Development Goals (SDGs) and indicators

Goals and targets	Indicators
Goal 1. No Poverty: Access to basic human needs of health, education, sanitation	
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day.	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)
The project will provide: <ul style="list-style-type: none"> Enhanced opportunity for men and women to improve their livelihoods through increased and more sustainable incomes from a range of commercial trees crops, and other agriculture products including annual and perennial food crops, grown on the target watersheds; thereby addressing 1.1. Stable and productive watersheds will contribute to improved resilience and reduced vulnerability to the events referred to in 1.5. 	
Goal 6. Clean Water and Sanitation: Improving access for billions of people who lack these basic facilities	
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.	6.6.1 Change in the extent of water-related ecosystems over time
The Project will provide: Protection of critical Dili dam watersheds through improved and sustainable land use; and therefore access to clean water and improved sanitation	
Goal 15. Life on Land: Reversing man-made deforestation and desertification to sustain all life on earth	
15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	15.1.1 Forest area as a proportion of total land area
15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.	15.2.1 Progress towards sustainable forest management
The project will provide: <ul style="list-style-type: none"> Enhanced forest cover through tree planting and restoration of forest areas Improved soil conservation through increased ground cover from annual and perennial crops. 	