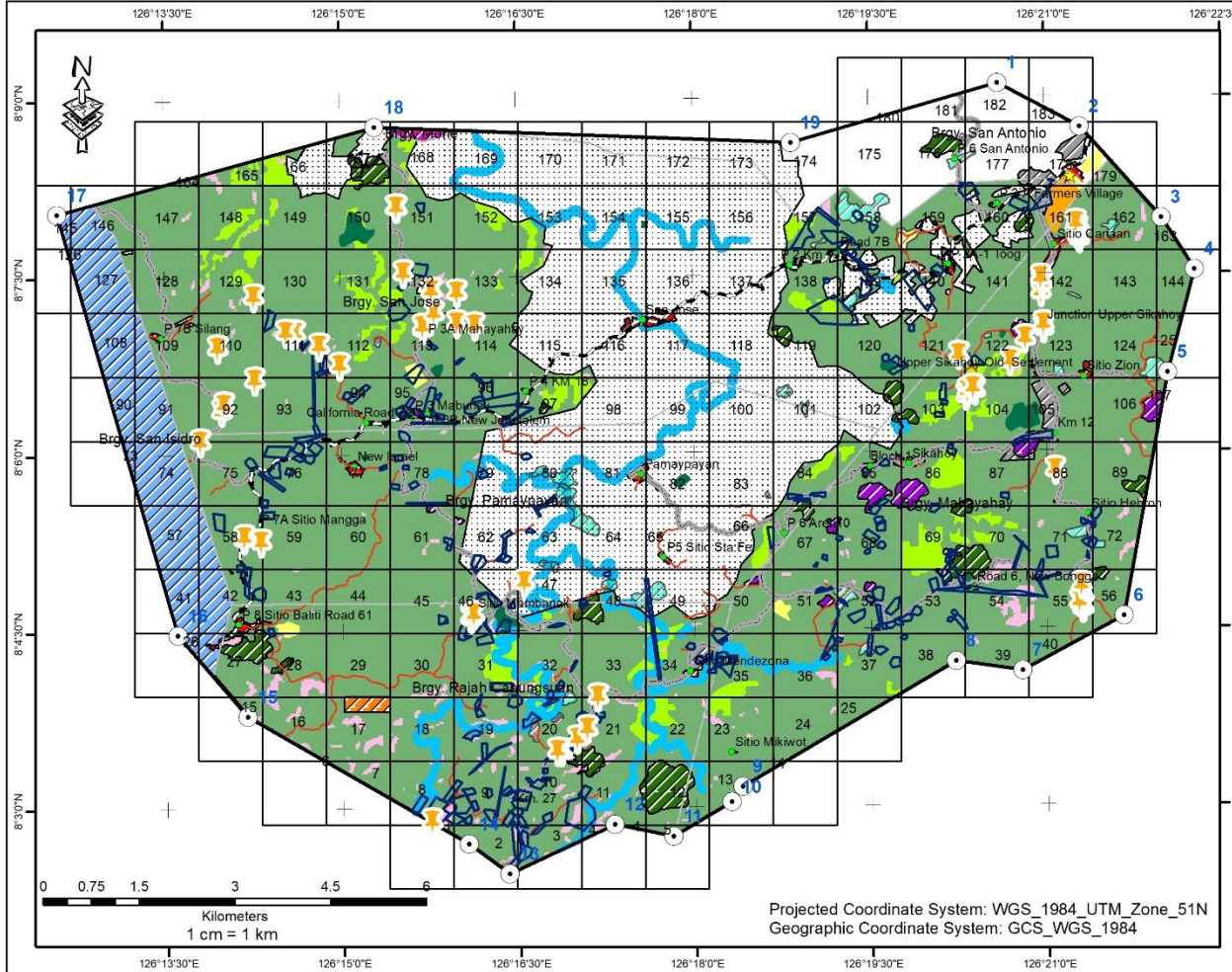


Lumino Energy Plantations, Inc. (LEPI) Bislig Plantation Summary





Lumino Energy Plantations, Inc. (LEPI) entered into a Memorandum of Agreement (MOA) with the Manobo and Mandaya Indigenous Cultural Communities/Indigenous Peoples Rights Holders-Beneficiaries of Certificate of Ancestral Domain Title 070 with a total area of 15,431 hectares. It is located in Bislig City (8,816.77 ha) and the Municipality of Lingig (6,002.67 ha) in the province of Surigao del Sur and a portion in Trento (612.51 ha), Agusan del Sur. The duration of the MOA signed between Manobo and Mandaya Indigenous Cultural Communities, LEPI, and NCIP is 25 years renewable for any period as agreed to by the First Party (CADT Holder) and the 2nd Party (LEPI). Considering this, the Sustainable Forest Management Plan (SFMP) will be for 25 years in compliance with the existing Philippine policies such as Environmental Compliance Certificate (ECC), LGUs Resolutions, and Memorandum of Agreement (MOA). In pursuant to the IPRA Law and NCIP Administrative Order 2012-03 and AO 2018-02, the Free and Prior Informed Consent (FPIC) and Certification Precondition were secured for the proposed Bislig Biomass Tree Plantation Project.

The LEPI Bislig Project will be implemented in 10,507.11 hectares of CADT No. R13-Bis-0308-070 (referred hereto as CADT 070). Of the total project area, the tree plantation project covers 8,833.94 hectares of CADT 070. It is distributed in the Pamaypayan and San Jose Barangays in Bislig City, Mahayahay, and Rajah Cabunguan Barangays in the Municipality of Lingig.

Bislig Tree Plantation Site Development Plan







Legend

-  Management Block
-  CADT 070
-  Barangay within CADT 070
-  A&D

Excluded from the Project Area

-  Barangay San Isidro, Trento
-  Barangay Mone, Bislig City
-  Highway
-  Built-up Area
-  Quarry Site
-  Sanitary Landfill
-  Mineral Area
-  Agricultural Area
-  CADT Proposed Development Area
-  CADT Communal & Production Forest
-  Plantable Area (Reserved for Expansion)

-  Community Household Survey (Phase 1)
-  Community Farm Lot Survey
-  Demarcation Survey
-  Built-up Areas (Phase 2&3)

PREPARED BY:

For: Hannah G. Balassu
Sr. GIS Specialist, LEPI

LEPI Project Area

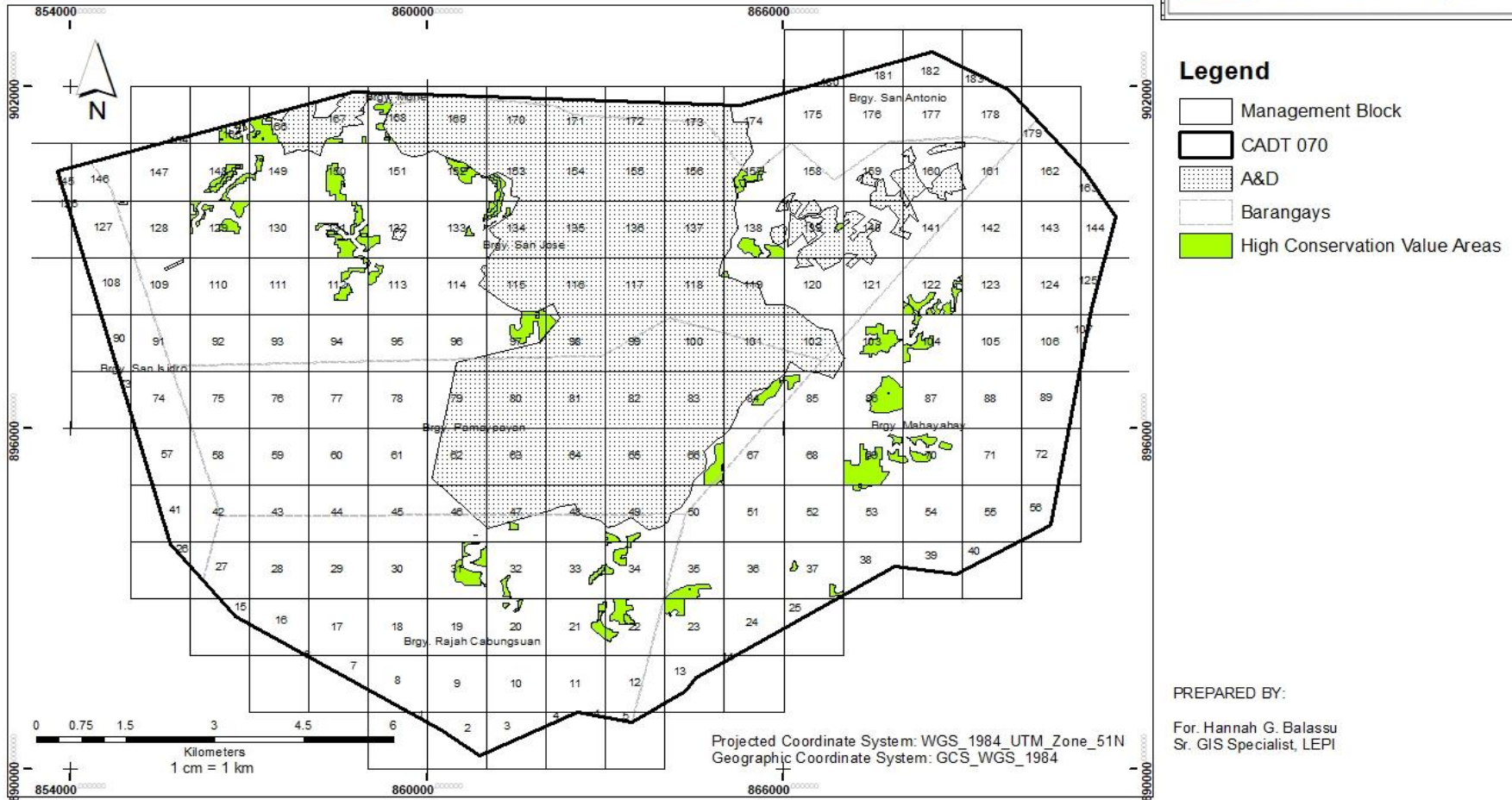
-  LEPI Plantable Area
 -  LEPI Headquarter
 -  LEPI Main Nursery
 -  LEPI Indicative Satellite Nursery
 -  Logging Road: Secondary Road
 -  Logging Road: Tertiary Road
- LEPI Conservation Area:
-  Inland Water w/ 40m Buffer Zone
 -  HCVIA Area
 -  Slope Class: 30% - >50%
 -  CADT Protected Area

SFMP should be aligned with and guided by the Forestry Stewardship Council's (FSC) Ten (10) Principles and Criteria for Sustainable Forest Management. The goal is to put in place a Sustainable Forest Management Plan (SFMP) that will fulfill the requirements of the company's objective to secure a Forest Certification and ultimately for the plan to serve as the management's tool for the sustainable management of the tree plantation and CADT area. It is also in compliance with the Philippine government's main policy thrust of implementing sustainable forest management (SFM) to guarantee the long-term stability of the country's forest resources. In addition, sustainable forest management lays the foundation of forest certification, and at the same time, forest certification is a tool that promotes SFM.

To ensure the sustainable forest management of the area, a map survey and ground validation was conducted to determine the boundaries, land classification, existing vegetation, terrain, and land use status. The protected areas in CADT 070 identified by the Manobo and Mandaya Ancestral Domain Management Council (MMADMC) are the burial grounds, hunting grounds, sacred places, and watershed areas, with a total area of 37.82 hectares.

The alienable and disposable (A & D) area in CADT 070 is 3,756.78 hectares, and forestland is 11,675.16 hectares. Within the forestland, the LEPI's project area is 10,507.11 hectares. The total plantable area for the Bislig tree plantation project is 8,833.94 hectares. The conservation area is 1,005.46 ha (10% of the LEPI Bislig Project Area) which covers the high conservation value areas/representative sample areas (HCVA/RSA) 40 m buffer zone of inland water, areas with slope $\geq 30\%$ and CADT Protected Areas. Based on the NAMRIA 2015 land cover map, the land cover in the plantable area include brush/shrubs, grassland, annual and perennial crops, and open forest. It was observed that most areas earmarked for plantation development are already planted with fast-growing species such as *falcata*, *Acacia mangium*, and other plantation species by the present CADT landowners.

Map showing the High Conservation Value Areas



Acacia mangium was selected for its suitability to the area in terms of soil, climate, elevation, and slope. Its chemical and physical properties are also suitable as biomass feedstock for the company's cogeneration plant and raw materials for its biofuel plant.

The SFMP of the Bislig Tree Plantation Project covers the following: 1. Description of the Project Area; 2. Situational Analysis; 3. Vision, Mission, Goals, and Objectives; 4. Development Plan; 5. Harvesting and Transport; 6. Chain of Custody; 7) Wood Production; 8) Regeneration/Redevelopment; 9) Monitoring and Evaluation on the Implementation of the Management Plan; 10) Economic Feasibility; and 11) Administration and Management of the area.

In the description of the project area, the discussions focused on the following: location and area, the biophysical features, socio-economic and demographic features, environmental conditions, the existing land use/land cover, other resources, stakeholders, infrastructures, current policies and programs, and the research and extension activities. Based on the available maps, management plans, data, and references from various institutions/sectors, a comprehensive situational analysis was done to assess the present condition of the area for plantation development.

The vision, mission, goals, and objectives of LEPI were formulated. The vision is a sustainable energy tree plantation establishment that will be responsive to protecting the environment and the forest landscape. LEPI will advocate sustainable forest management practices in all forest operations, ensuring compliance with FSC standards, and will collaborate with the IP partners to deliver exceptional and effective economic livelihood benefits and employment while respecting and upholding the rights of the indigenous people. The mission is to develop globally competitive and exceptional energy tree plantations for biomass production. The general objective is to implement the sustainable management of the plantations for producing high-yielding biomass by-products without waning the existing forest landscape and ensuring the Indigenous People's rights (IP).

The project intends to produce woody biomass as feedstock for the company's biofuel and cogeneration plants. The development plan ensures the company complies with the ten Forest Stewardship Council (FSC) standards for Forest Management Unit (FMU) certification. The development plan covers the following strategies: 1. Establishment of forest nurseries in the area; 2. Establishment of tree plantations; 3. Protection, conservation, and rehabilitation program of HCVA/RSA and Protected Areas; 4. Sustainable livelihood development; 5. Management of vulnerable areas; 6. Forest protection; 7. Buffer zone management; 8. Infrastructure establishment/ improvement; 9. Community organizing and development; 10. Research and extension development; 11. Policies and programs; 12. Waste management; and 13. Gender and Development. The identified strategies on policies and programs are a. Livelihood program; b. Employment assistance program; c. Health and safety program; d. Educational assistance program, e., Local government assistance, and f. Environment and Sanitation.

The management, conservation, and protection programs of high conservation value areas were provided. The following mitigating measures were identified to prevent, reduce, or control the project's environmental effects in the conservation areas. 1. Avoid cutting/extraction of threatened and endemic trees; 2. Minimize expansion of community settlements; 3. Minimize expansion of fuelwood area sourced by communities; 4. Minimize dirt road widening; 5. Minimize expansion of kaingin or slash-and-burn agriculture; 6. Minimize bushmeat hunting; 7. Minimize carbon or coal mining; 8. Minimize the use of fertilizers in nursery facilities to prevent soil and water pollution; 9. Minimize expansion of facilities; 10. Assisted natural Regeneration (ANR) with enrichment planting in the designated area of the conservation area.; and 11. On-site rehabilitation along perimeters of forest areas with no change or regeneration.

LEPI's Onsite Forest Restoration and Rehabilitation Plan (OnFRRP) key points were designed to improve the habitat quality of the conservation areas by applying several activities influenced by the slope classification, canopy coverage, and existing vegetation within the area. Areas for avoidance measures, particularly the conservation areas, will have On-site Restoration and Rehabilitation (OnFRR) to assist forest growth and development, assisted natural regeneration (ANR), assisted natural regeneration with enrichment planting, spontaneous natural regeneration, Miyawaki or frameworks species method, and seed broadcasting shall be employed.

The total area for a conservation intervention is 871.11 hectares and is composed of the following:

Activities	Area (ha.)	Percentage of Intervention
Assisted Natural Regeneration (ANR)	328.77	30.62
ANR with Enrichment Planting	294.52	27.43
Spontaneous Natural Regeneration (SNR)	194.52	18.12
Miyawaki or Framework Species Method	41.58	3.87
Seed Broadcasting	11.71	1.09

The OnFRRP envisions that 100% of the conservation areas will be restored and rehabilitated within 20 years from the start of the project operations. It is estimated that at least 25% will be restored/rehabilitated during the first 5 years, and at least 25% to 100% will be restored/rehabilitated in the next 10 and 20 years, respectively.

The success of the restoration and rehabilitation could be determined according to the expected means of verification, and outputs are indicated in the OnFRRP. Specific indicators such as landscape stability programs, program efficiency, and flexibility are used to quantify the success of the implementation.