



PANGKALAHATANG BUOD

A. BUOD NG IMPORMASYON TUNGKOL SA PROYEKTO

Pangalan ng Proyekto	Panukalang Nickel Laterite Mining Project															
Lugar kung nasaan ang Proyekto	Barangays Pantukan at Adlay, Carrascal, Surigao del Sur atd Barangay Cagdianao, Claver, Surigao del Norte															
Uri ng Proyekto	Resource Extraction – Nickel Laterite Mining															
Sukat ng Proyekto	2,320.0881 ektaryang napapaloob sa MPSA 322-2010-XIII SMR na iginawad noong February 11, 2010															
Kapasidad ng Proyekto	5,000,000 Metriko Tonelada kada taon															
Paglalarawan	<p>4D Ventures and Dev't Inc. (4DVDI) ay ang kumpanyang magimimina at diretsong mag-eexport ng nickel laterite na mamimina sa 322-2010-XIII SMR (Annex ES-1) na dating minimina ng North Dinagat Mineral Resources Corporation (NDMRC) at na-assign sa 4DVDI na mattagpuan sa Barangays Pantukan and Adlay, Carrascal sa Surigao del Sur at sa Barangay Cagdianao, Claver sa Surigao del Norte). Ang kabuuang sukat ng minahan ay 2,320.0881 has.</p> <p>Ang Deed of Assignment (Annex ES-2) ay napagkasunduan ng 4D Ventures and Dev't Inc. noong September 21, 2020 at naisumite para irehistro sa Mines and Geosciences Bureau (MGB) noong June 7, 2021.</p> <p>Ang kopya ng rehistro sa Securities and Exchange Commission (SEC) ng 4DVDI at kalakip sa Annex ES-3.</p> <p>Pagmimina sa pamamagitan ng “open cut” method ang gagamitin. Ito ay isa ding “cut and fill method” kung saan ang mas matarik na parte ay tinatabas at ang mga natabas na parte ay ilalagak sa sa stockpile na lugar malapit sa pinagmiminahan at ito ay maaring magamit na pantambak sa gagawing kalsada, pang rehab at pang maintain ng lugar.</p> <p>Mga bulldozers, backhoes, payloaders, at breakers ang mga gagamiting ekwipo. Ang mga malalaking bato ng saprolite ore boulders ay dudurugin sa iba-ibang sukat para mas madali ang handling Payloading hanggang hauling sa mga trucks ang susunod kung saan ito ay ikakarga na sa mga truck papunta sa Malayan Nickel Mining Corporation kung saan merong Authority to na naigawad noong Jan. 11, 2022 (Annex ES-4). Ang mga nickel ay ikakarga na sa barge or LCT at iluluwas na upang iproseso sa Mainland China.</p>															
Mga komponents ng proyekto	<table border="1"> <thead> <tr> <th>Komponents</th> <th>Paglalarawan</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Major components</td> <td>Mining Area / extraction area</td> </tr> <tr> <td>Stockpile area</td> </tr> <tr> <td>Mine Road Network</td> </tr> <tr> <td>Hauling Road Network</td> </tr> <tr> <td rowspan="6">Support facilities</td> <td>Campsite and related facilities</td> </tr> <tr> <td>Assay Laboratory</td> </tr> <tr> <td>Motor pool</td> </tr> <tr> <td>Powerhouse and Power Supply System</td> </tr> <tr> <td>Elevated Tank and Water Distribution System</td> </tr> <tr> <td>Warehouse</td> </tr> <tr> <td>Fuel Storage Facility</td> </tr> </tbody> </table>	Komponents	Paglalarawan	Major components	Mining Area / extraction area	Stockpile area	Mine Road Network	Hauling Road Network	Support facilities	Campsite and related facilities	Assay Laboratory	Motor pool	Powerhouse and Power Supply System	Elevated Tank and Water Distribution System	Warehouse	Fuel Storage Facility
Komponents	Paglalarawan															
Major components	Mining Area / extraction area															
	Stockpile area															
	Mine Road Network															
	Hauling Road Network															
Support facilities	Campsite and related facilities															
	Assay Laboratory															
	Motor pool															
	Powerhouse and Power Supply System															
	Elevated Tank and Water Distribution System															
	Warehouse															
Fuel Storage Facility																



		Road Network	
		Nursery	
		Parking Areas	
		Promenade Area	
		Stockyard	
		Stockpile Areas	
		Nursery Extension	
		Sampling House	
		Pump boat House	
		Checker House	
		Trapal Men House	
		Collector Sump	
		Sampling Houses	
		Satellite Nursery	
	Pollution Control Facilities	Siltation ponds / silt traps / contour settling ponds	
		Sabo dam	
		MRFs	
		Hazardous waste storage area	
		Disposal of residual wastes	
		Non-hazardous waste storage/lay-down areas	
		Oil-water separators	
	Septic tanks		
Manggagawa	Ang kumpanya ay mangangailangan ng 500 (295 on Mine Operator side and 205 on Mine Contactor side) na manggagawa sa kalakasan ng operasyon nito. Sa development year (Year 0), 60 lamang ang kakailanganin nito at ito ay madadagdagan sa mga susunod na panahon.		
Pahunang kinakailangan	PhP 309,838,841.00		
Pagkakakilanlan ng Kumpanya			
Pangalan ng Kumpanya	4D Ventures and Dev't Inc. thru a Deed of Assignment with North Dinagat Mineral Resources Corporation (NDMRC)		
Address			
Awtorisadong Lalagda / Kinatawan	Mr. Dave Lerio Presidente		
Mga Detalye ng Pakikipag-ugnay	Mobile No.: 0917-8972470 Email address: davelerio@gmail.com		
Pagkakakilanlan ng Preparer			
EIA Preparer	Mediatrix Business Consultancy		
Address	L29 Joy-Nostalg Center, 17 ADB Ave., Ortigas Center, Pasig City		
Awtorisadong Kinatawan	Matilde R. Jimenez-Fernando General Manager		
Detalye ng Pakikipag-ugnay	Telephone No.: (02) 689 7114 Mobile No.: +63917-5064499 Email Address: mediatrixbusinessconsultancy@gmail.com		



B. Proseso ng Dokumentasyon sa Pagsasagawa ng EIA

EIA Team

Ang pag-aaral para sa EIA ay isinagawa ng grupong may iba't-ibang kakayanan at kahusayan sa iba't-ibang larangan ng paggawa nito gaya ng baseline characterization at impact assessment at pakikipag-ugnayan sa pagitan ng Mediatrix Business Consultancy (Mediatrix) at 4D Ventures and Dev't Inc. (4DVDI). Ang mga naunang Information, Education at Communication (IEC), Public Scoping, Technical Scoping, baseline survey, and impact assessment ay isinagawa ng GECl. Itinuloy ito ng kasama ng mga revision at updating ng Environmental Impact Statement Report (EISR) ng Mediatrix. Makikita sa Table ES-1 ang komposisyon ng EIA Team samantalang ang sinumpaang salaysay ng 4DVIDI at Mediatrix ay kalakip sa **Annex ES-5**.

Table ES-1: EIA Team Composition

EIA Team	Areas of Expertise	EMB Registry No.
Mediatrix Business Consultancy		
Matilde J. Fernando	Team Leader, Socio-Economics and Legal Framework	IPCO-035
Fritzie Jane Salido	Water and Air Module	IPCO-114
Ria Caramoan	Air Module	IPCO-106
Xairus De Guzman	Geology Module	IPCO-058
Benjamin Francisco	Freshwater Ecology and Marine Biology	IPCO-038
Mark Angelo Bucay	Terrestrial Ecology	
John Benrich Zuniga		
Alexis Fernando	Field Assignment and Drone Operation	IPCO-034
Juvinal Esteban	IEC and Community Relations	IPCO-091

EIA Schedule

Ang paggawa ng EIA ay sinimulan sa pagkakaroon ng Information, Education at Communication (IEC) at Public Scoping. Sumunod naman ang Technical Scoping kasama ang EMB at EIA Review Committee (EIARC) members noong February 11, 2016 na isinagawa sa Conference Room of EMB Central Office, DENR Compound, Visayas Ave., Diliman, Quezon City at ayon sa napagkasunduang saklaw ng pag-aaral, sinimulan na ang pagkolekta ng primary at secondary data. Ang nakolektang data at sinuri, pinroseso, at inanalisa para sa impact assessment at paggawa ng Environmental Management Plan (EMP) at Environmental Monitoring Plan (EMoP). Ang mga impormasyong ito ang isinulat sa Environmental Impact Statement Report (EISR) na isusumite sa EMB-Central Office para pagkalooban ng Environmental Compliance Certificate (ECC). Nasa **Table ES-2** ang iba't-ibang mga Gawain upang makumpleto ang pag-aaral ng EIA:

Table ES-2: EIA Study Schedule

Activity	Date
IEC Activities	November 2012, April 2021
Public Scoping	February 5, 2016
Technical Scoping	February 11, 2016
Primary and Secondary Data Gathering	
Geology and Geological Hazards	February – March 2016, April 2021
Pedology	February – March 2016, April 2021
Hydrology/Hydrogeology	February – March 2016, April 2021
Terrestrial Ecology	January 2016, April 2021
Water Quality	January 2016, April 2021
Freshwater and Marine Ecology	January 2016, April 2021



Activity	Date
Air Quality and Noise	February – March 2016, January 2018
Perception Survey	February 5-14, 2016, June 2021
Preparation of EISR - revision	March to June 2021
Resubmission of EISR to EMB	July 23, 2021
First EIARC Meeting	February 18, 2022
Public Hearing	April 5, 2022
Second EIARC Meeting	
ECC Issuance	

EIA Study Area

Ang EIA Study area ng proyekto ay ang kabuuang 2,320.0881 hectares MPSA sa Barangays Pantukan at Adlay, Carrascal sa Surigao del Sur at sa Barangay Cagdianao, Claver sa Surigao del Norte. Isinama rin sap ag aarala ang watersheds; streams draining the mining claim including Marga River, Adlay River, and Kay-ongan River at ang coastal waters where these rivers drain.

EIA Methodology

Alinsunod sa Department Administrative Order (DAO) No. 30 Series of 2003 ang Revised Procedural Manual ng Philippine EIS System (PEISS) at EMB Memorandum Circular 005 na may petsang July 7, 2014, ang panukalang proyekto ay A-1 Category ng Environmentally Critical Projects (ECPs) na kinakailangang magsagawa ng isang EISR para aplikasyon ng ECC.

Ang EIA din ng proyektong ito ay sumusunod sa panuntunan ng Revised Procedural Manual ng DAO 2003-30 at DAO 2017-15 sa pagsasagwa ng ga sumusunod na gawain: (i) IEC at Scoping, (ii) pangangalap ng primary at secondary data, (iii) identification/prediction/assessment ng environmental impacts, (iv) paggawa ng EMP at (v) EMoP. Ang mga nakalap na impormasyon ay nagmula sa impormasyon mula sa lokal na pamahalaan, DENR, Philippine Statistics Authority (PSA), PAGASA, at iba pang ahensya ng pamahalaan. Ang mga nakalap na impormasyon ay alinsunod din sa inapubahang EIA Scoping at Screening Form na nasa **Annex ES-2** na napagkasunduan noong Technical Scoping. Ipinapakita sa **Table ES-3** ang mga impormasyon, pinangalingan nito at methodologies na ginamit sa paggawa ng EIA Study.

Table ES-3: EIA Methodology

EIA Study Module	Parameters/Scope	Methodology and Approach on Impact Assessment
Land		
Geology/ Geomorphology, Pedology, Land Use and Classification	Reconnaissance, land use, land classification assessment, slope, soil types and classification, erosion	<ul style="list-style-type: none"> Assessment of the compatibility of the project vis-à-vis approved land use plan and zoning classification. Review of available reports, geologic literature and information from Mines and Geosciences Bureau (MGB), Philippine Institute of Volcanology and Seismology (PHIVOLCS), Philippine Atmospheric, Geophysical and Astronomical Services (PAGASA), and National Mapping and Resource Information Authority (NAMRIA) Assessment of construction and operation impacts based on the construction and operation activities of the project, and the susceptibility of the project area to natural hazards.
Terrestrial Ecology		<ul style="list-style-type: none"> Conduct of field survey using transect, quadrat, and cruising method. Assessment of impacts based on the construction and operation activities of the project to the existing ecosystem.
Water		
Hydrology/ Hydrogeology	Regional hydrogeology, catchment and drainage system	<ul style="list-style-type: none"> Review of existing literatures and maps from DENR and MGB. Discharge measurement of streams using flotation method.



EIA Study Module	Parameters/Scope	Methodology and Approach on Impact Assessment
		<ul style="list-style-type: none"> • Computation of monthly streamflow using area discharge ratio method for ungauged streams • Measurement of streams and rivers using curvimeter and topo map • Calculation of water balance • Assessment of impacts based on the construction and operation activities of the project to the existing environment and the susceptibility of the project area to flooding.
Water Quality	Physico-chemical and bacteriological characteristics of freshwater and effluent	<ul style="list-style-type: none"> • Review of existing water quality monitoring reports. • Sampling and analysis of water • Assessment of impacts based on the construction and operation activities.
Freshwater Ecology	Benthic habitats, species, composition, density, and diversity of sea grass resources and associated macro benthic algae in front of the project site, commercially-important macro invertebrates in the inter-tidal areas, plankton community	<ul style="list-style-type: none"> • Use of primary and secondary data and interviews • Assessment of impacts based on the construction and operation activities of the project to the existing ecosystem.
Marine Ecology		<ul style="list-style-type: none"> • Review of existing literatures • Conduct of manta tow, transect, quadrat, visual census, pond net, and sampling • Assessment of impacts based on the construction and operation activities.
Air		
Meteorology/ Climatology	Monthly average rainfall, climatological normal and extremes, wind rose diagrams, and frequency of tropical cyclones	<ul style="list-style-type: none"> • Assessment of impacts based on the construction and operation activities. • Calculation of GHG emissions using emission factor-based estimation method prescribed in The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, Revised Edition, World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI), 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National GHG Inventories and 2014 IPCC Assessment Report. • Projection of monthly average temperature and rainfall and frequency of extreme events.
Air Quality and Noise Level	Ambient air quality and noise levels	<ul style="list-style-type: none"> • Review of existing literatures • Conduct of sampling and analysis for PM10, NO2, and SO2 • Assessment of impacts based on the construction and operation activities of the project to the existing air quality
People		
Socio-economic and Public health	Morbidity and mortality trends, Demographic data of impact area: <ul style="list-style-type: none"> - Number of households and household size - Land area - Population - Population density /growth - gender and age profile, - literacy rate, profile of educational attainment Socioeconomic data: Main sources of Income, Employment rate/ profile, sources of livelihood, Poverty incidence, commercial establishments and activities, banking and financial institutions	<ul style="list-style-type: none"> • Conduct of IEC, Public Scoping, and Perception Survey • Review of CLUP and other secondary data from LGUs and PSA. • Assessment of impacts based on the results of IEC, Public Scoping, perception survey and construction and operation activities of the project.
Environmental Risk Assessment		
Risk Assessment	Safety risks and physical risks	Conduct consequence and Frequency analyses using the methodology described in the Revised Procedural Manual (RPM) for DAO 2003-30



Public Participation Activities

Ang pakikilahok ng publiko ay naisakatuparan sa pamamagitan ng iba't-ibang social research methodologies gaya ng site investigation, key informant interviews, perception survey, Public Scoping at ang pasasagawa ng Public Hearing sa hinaharap at patuloy na IEC. Ang mga ito ay inilahad sa **Table ES-4**. Ang mga gawaing ito, both formal and informal, ay nagbigay-daan sa mga stakeholders na ibahagi ang kanilang mga issues, concerns, at pananaw tungkol sa proyekto. Ipinapakita sa **Table ES-4** ang buod ng mga issues at concerns na inilahad ng mga stakeholders sa iba't-ibang public participation na ginanap.

IEC

Ang IEC ay isinagawa noong 03-25 May 2021 upang magbigay ng updated na information tungkol s apanukalang proyekto at hikayatin ang mga stakeholders na lumahok ss EIA Study. Ang IEC ay ginawa sa pamamagitan ng pagbibigay ng IEC materials sa mga opisyal ng barangay at mga mamamayan ng bayan at barangay na nakaksakop sa proyekto. Ang mga ginamit na IEC materials at larawan na nakuhanan noong IEC ay nakalahad sa **Annex ES-7**.

Perception Survey

Ang perception survey ay isinagawa sa mga host barangays noong February 5-14, 2016 at 03-25 May 2021 sa pamamagitan ng Mediatrix Business Consultancy. Ang sample perception survey questionnaire ay kalakip sa **Annex ES-8** at ang resulta ay nakapaloob sa People Module.

Public Scoping

Ang Public Scoping ay isinagawa noong February 5, 2016. Ito ay isinagawa upang magbigay ng impormasyon yuingkol sa proyekto at kolektahin ang mga hinaing, opinion at suhestiyon tungkol sa proyekto at isama ito sa EIA Study. Ang Public Scoping ay dinaluhan ngn mga barangay officials at residente at LGU Officials. Walang oposisyon na naitala noong idinaos ang Public Scoping.

Ang buod ng mga issues na nakalap noong public participation activities ay nakatala sa **Table ES-4**. Samantyla, ang mga invitation letters, attendance sheets at photos noong Public Scoping ay hindi na nakalap sapagkat ang dating tagapaghawak nityo ay namayapa na noong 2020.

Table ES-4: Buod ng Issues na nakalap noong Public Participation Activities

Activity	Issues Raised	Response/Committed Action	Public Perception
IEC	<ul style="list-style-type: none"> Boundary issues 	Resolution rests with the DILG and the LGUs concerned	Mining in the area is widely accepted by the residents.
Public Scoping	<ul style="list-style-type: none"> Employment Dust generation Siltation and stream discoloration, Lack proper coordination with LGUs, municipal boundaries Participation of Indigenous People (IP) during rehabilitation Protection of watershed of water supply source. 	To be included in the EIA Study including the corresponding mitigating measures.	Mining in the area is widely accepted by the residents but wishes the mining would not push through
Perception Survey	<ul style="list-style-type: none"> Adverse impacts of the project to air and water quality 	Results will be presented in the EISR	Residents perceived mining as a hope to improve their lives.
	<ul style="list-style-type: none"> Livelihood 	This will be part of the SMDP	



C. BUOD NG EIA

Buod ng mga Alternatibo

Pagmimina sa pamamagitan ng “open cut” method ang gagamitin. Ityo ay isa ding “cut and fill method” kung saan ang mas matarik na parte ay tinatabas at ang mga natabas na parte ay ilalagak sa sa stockpile na lugar malapit sa pinagmiminahan at ito ay maaring magamit na pantambak sa gagawing kalsada, pang rehab at pang maintain ng lugar.

Mga bulldozers, backhoes, payloaders, at breakers ang mga gagamiting ekwipo. Ang mga malalaking bato ng saprolite ore boulders ay dudurugin sa iba-ibang sukat para mas madali ang handling Payloading hanggang hauling sa mga trucks ang susunod kung saan ito ay ikakarga na sa mga truck papunta sa Malayan Nickel Mining Corporation kung saan merong Authority to na naigawad noong Jan. 11, 2022 (Annex ES-4). Ang mga nickel ay ikakarga na sa barge or LCT at iluluwas na upang iproseso sa Mainland China. Walang pagpo-proseso ng mina na gagawin maliban sa paghihiwalay ng hi-grade ore sa low-grade ore.

Summary of Key Environmental Impacts and Management Plans

Nakatala sa **Table ES-6** ang buod ng key environmental impacts ng proyekto ang ang karampatang management plan at mitigating measures.

Table ES-5: Summary of Key Environmental Impacts and Management Plan

Activity per Project Phase	Potential Impacts	Mitigating / Enhancement Measures	Rating/Performance of Mitigating Measures
Construction Phase			
Vegetation Clearing	Reduction of vegetation and fauna disturbance and/or displacement	<ul style="list-style-type: none"> Replacement of trees cut as per DMO 05 of 2012 with endemic species combined with fruit bearing trees to be planted at the buffer zone of the MPSA. Establishment of bamboo plantation following the instruction of the DENR Secretary to establish Bamboo Plantation for the Mining Sector (contractors/ permittees/ permit holders) equivalent to 10% of the declared mined-out areas and 10% of the final mine area. 	100% replacement of removed vegetation as per DMO No. 05 of 2012 and DENR Secretary's instruction for a Bamboo Plantation
	Potential siltation of nearby bodies of water due to surface water run-off	<ul style="list-style-type: none"> Provision of temporary bunds around the stockpiles of overburden wastes and drainage systems to convey the storm run-off to siltation ponds. Provision of siltation ponds 	100% conveyance of run-off water to siltation ponds
	Air pollution due to generation of dust from site/access road preparation	<ul style="list-style-type: none"> Sprinkling of water at least once a day along the access road and project area Sprinkling of water at least twice a day during hot weather, one in the morning, one in the afternoon 	100% compliance with RA 8749
Development of access roads, mining areas, and support facilities	Degradation of surface water quality due to contamination from domestic wastewater	<ul style="list-style-type: none"> Provision of Septic Tanks with regular desludging by third party contractor as needed, usually once every two years and two (2) Wastewater Treatment Facility for domestic wastes 	100% no discharge of untreated domestic wastewater to nearby bodies of water
	Siltation of surface waters	<ul style="list-style-type: none"> Provision of settling ponds as sediment barrier structure Provision of sediment barrier structure such as silt booms during port construction 	100% compliance with RA 9275
	Contamination of surface and ground water quality due to accidental oil spill	<ul style="list-style-type: none"> Provision of oil residue recovery and reuse system Implementation of oil spill contingency plan 	100% compliance with RA 9275



Activity per Project Phase	Potential Impacts	Mitigating / Enhancement Measures	Rating/Performance of Mitigating Measures
Operational Phase			
Extraction and hauling of materials and materials transport	Siltation to streams due to erosion of exposed soil and Overburden materials	<ul style="list-style-type: none"> Progressive rehabilitation and revegetation of mined out quarries and planting barren lots to prevent soil erosion as per DMO 05 of 2-12 Utilize the recovered topsoil for re-soiling or as soil cover on waste dumps and other disturbed areas for rehabilitation and revegetation. All stockpiles shall be maintained and managed below the angle of repose of 450. Continue to implement sediment and erosion control plan Proper drainage design at the bench toes and access roads, to control the flow of runoff water, and divert it to series of 2 stage siltation ponds (5m. width x 10m. length x 5m. depth = 250 m³) Rainwater and runoff collecting systems from crusher platform shall be provided with primary and secondary silt traps 	100% compliance to TSS standards
	Generation of domestic wastewater that may contaminate the soil and receiving body of water	<ul style="list-style-type: none"> Provision and proper maintenance of Septic Tanks with regular desludging by third party contractor as needed, usually once every two years and settling ponds for runoff water 	100% conformance to DENR effluent standards (RA 9275)
	Generation of solid wastes	<ul style="list-style-type: none"> Proper management of domestic solid i.e. provision of Material Recovery Facility for proper waste management and Hazardous Materials Facility (segregation, collection, minimization, reuse, recycle, treatment and disposal) 	100% compliance to RA9003
	Generation of hazardous wastes from waste oil/grease and spills from the heavy equipment and vehicles	<ul style="list-style-type: none"> Provision of 2,000 liter storage capacity for used oil provided with bund wall Regular (at least once a year) hauling of hazardous waste by DENR accredited transporter and treater 	100% no oil spills and compliance to RA6969
	Generation of fugitive dust during mining operations	<ul style="list-style-type: none"> Regular water spraying (minimum once a day, twice a day for hot weathers) of exposed dusty areas during high winds, and dry months. Establishment of a 20 – meter wide buffer zone planted with different species combination of shrubs, small and medium sized trees around the mine sites such as commercial hardwood tree species such as Gmelina and Santol as well as fruit-bearing trees/ herbs/ shrubs such as Papaya, Mango, Coconut, star apple and santol (endemic) and other endemic species such as but not limited to narra, molave, banaba, mamalis, and bitaog (endemic) as per DMO 05 od 2012. 	100% no dust be seen in the area