

12 April 2024

# 27km of Manganese Host Formation within Estrella's Lautém Project

## **HIGHLIGHTS**

- Preliminary Geological Reconnaissance within the newly granted 503.7km<sup>2</sup> tenure (ASX release on 27<sup>th</sup> March 2024) has defined prospectivity for Manganese (Mn) and Copper-Gold (Cu-Au).
- The Noni Formation has been defined from historical maps over <u>27km strike</u> within Estrella's Lautém project (Figure 1).

#### Lalena Mn Prospect

- 60.8% Mn assay (ASX release on 3 April 2024) has been identified as mineralisation associated within the Noni formation.
- > Mineralised outcrop spread over a **2km strike length**, full extent yet to be defined by mapping

#### ➔ Luro Cu-Au prospect

Cu and Au occurrences are recorded in historical data reviews are associated with the Legumau Range which strikes for ~ 14km within the Lautém project.



Figure 1: Lautem project with Noni Formation highlighed (in pink) and the two prospects defined to date



Estrella Resources Limited (ASX: ESR) (Estrella or the Company) is pleased to announce an update to exploration activities in the Lautém Municipality of Timor-Leste.

**Commenting on the anticipated work program, Estrella Managing Director Chris Daws said:** Our initial exploration work is continuing to prove very exciting with over 27km strike of the manganese host Noni Formation having been defined from historical maps within our Lautém project. The very high-grade manganese mineralisation already located at surface is closely associated with the 27km long exposure of the Noni Formation.

Estrella has wasted no time in getting to work at identifying the prospective areas in what is a vast tenure package. We have secured a site in Dili for our team to work with the samples that are being collected in the field with a small office and sample preparation area established.

Select samples will be returned to Australia for standard laboratory analysis as standard reference checks. This will alleviate sample bottlenecking and vastly improve analysis times to enable exploration to progress at a much faster pace.

I look forward to providing regular updates as we continue to progress our exploration campaigns across our 503.7km<sup>2</sup> of tenure in Timor-Leste.

# Geology

The Island of Timor is part of the Outer Non-Volcanic Banda Arc that was formed from the collision between the Volcanic Banda Arc and the Australian Continental Crust, which occurred in Late Miocene. Consequently, the Island of Timor has a complex geological setting.

The geology of the island is grouped into three distinct units:

- Allochthon/Banda Terrane (pre-collision Banda Forearc/Asian affinity);
- Para-autochthones (Gondwana Megasequence and Australian Margin Megasequence); and
- Autochthon (Syn-Orogenic Megasequence).

Estrella's in country team is undergoing systematic geological mapping and sampling and has identified the Noni Formation as the host to the extensive manganese mineralisation identified across the project.

The Noni Formation occurs as part of the Banda Terrane and has been mapped across Estrella's project for over 27km (Figure 1). It is described as a Middle Jurassic to Cretaceous bedded unit of over 100m thickness comprising arenites and chert beds within which can be found the massive manganese and ferro manganese bands and nodules.

#### Lalena Manganese prospect

The Manganese mineralisation defined by Estrella to date is closely associated with the 27km long exposure of the Noni Formation. The Company has completed preliminary mapping around the Daudere village area, which identified numerous manganese outcrops over a 2km by 300m zone, with outcropping banded Manganese and arenites upto 50m in width identified in a quarry. The manganese bands are between 2 to 10cm wide with sample LRG\_031 returning 48.1% Mn\* from the pXRF and located ~ 1km from LRG\_015 which returned an assay of 60.8% Mn (see Figures 2 and 3 below).

\* Please refer to the cautionary statement on pXRF results at the end of this announcement.





Luro Cu-Au prospect

This prospect has been identified by historical mineral occurrence maps located by the Estrella team. The occurrences are located along the Legumau range which has limited to no geological information published to date. It is potentially associated with the Permian aged rocks which are up thrusted from the Australian continental shelf.

An initial visit was made by the team and identified roadside black shales, schists (figure 4) and hydrothermal breccias (figure 5) which potentially relate to Australian continental margin crust.



#### **Grab Sample Summary**

Estrella has taken a total of 15 grab samples during the recent site visit. These were taken for a combination of stratigraphic characterisation along with Manganese mineralisation. The following table is a summary of all samples with a trigger value reported >1% Mn.



Sample ID	Prospect	Beau Desc (waiting Edwin )	Lat (WGS84)	Long (WGS84)	Ti (ppm)	V (ppm)	Mn %	Fe %	Co (ppm)
LRG-026	Lalena Mn	Mn (Same location as LRG_015	126.8270	-8.4399	665	621	57.2	0.2	3915
LRG-029	Luro Cu-Au	Schist Unit	126.8016	-8.5737	1682	0	11.7	4.7	333
LRG-030	Luro Cu-Au	Breccia	126.8237	-8.5635	7249	0	2.9	4.9	14
LRG-032	Lalena Mn	Mn outcrop 10cm	126.8318	-8.4325	0	1224	48.1	0.0	3086

Table 1: Results of samples taken with pXRF. Please see cautionary note on pXRF analysis below.

The company is mobilising crushing and other laboratory equipment to Timor-Leste to give it the ability to test and report multi-element pXRF results from within the country, including the use of the Portable ppb gold detection system. Select samples will be returned to Australia for standard laboratory analysis as standard reference checks. This will alleviate sample bottlenecking and vastly improve analysis times to enable exploration to progress at a much faster pace.

The Board has authorised for this announcement to be released to the ASX.

#### FURTHER INFORMATION CONTACT

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#### **Cautionary Statement of pXRF**

PXRF results that are announced in this report are preliminary only. The use of the PXRF is an indication only of the order of magnitude of expected final assay results. The samples that are the subject of this report will be submitted for laboratory assay and some variation from the results presented herein should be expected.

#### **Competent Person Statement**

The information in this announcement relating to Exploration Results is based on information compiled by Beau Nicholls, who is the Exploration Manager for Estrella Timor-Leste, and a fellow of The Australasian Institute of Geoscientists. Mr. Nicholls has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resource and Ore Reserves". Mr Nicholls consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.



#### **APPENDIX 1 JORC TABLE 1 – TIMOR-LESTE EXPLORATION**

## Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary			
Sampling techniques	<ul> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation.</li> </ul>	<ul> <li>Determination of mineralisation has been based on geological mapping, visual mineral estimates and confirmation of metallic concentration using a Bruker S1 Titan Portable XRF instrument.</li> <li>Initial rock-chip samples were taken and dispatched through customs and quarantine to ALS in Malaga for multi-element analysis.</li> <li>Samples were analysed using a 4-acid digest, ME-MS for 61 elements and Pt, Pd and Au by fire assay and ICP-MS finish on a 50g sub-sample.</li> </ul>			
Drilling techniques	<ul> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul> <li>No drilling has been undertaken to date.</li> </ul>			
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/goarse material</li> </ul>	<ul> <li>No drilling has been undertaken to date.</li> </ul>			
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>Rock-chip samples were geologically logged for mineral content prior to sending for assay or screening by pXRF.</li> </ul>			
Sub- sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all</li> </ul>	<ul> <li>Sample sizes are appropriate to the grain size of the mineralisation.</li> <li>The exploration program is in its very early stages and initial sample sizes were kept small due to freight and customs / quarantine restrictions. They are not considered representative of the bulk of mineralisation.</li> </ul>			



Criteria	J	ORC Code explanation	Со	mmentary
		sub-sampling stages to maximise		
		representivity of samples.		
	•	Measures taken to ensure that the sampling		
		is representative of the in-situ material		
		collected, including for instance results for		
		field duplicate/second-half sampling.		
	•	Whether sample sizes are appropriate to the		
Ovelity of		grain size of the material being sampled.		
Quality of	•	The nature, quality and appropriateness of	•	Samples are selected based on geological
assay uala and		used and whether the technique is		dispatched to an accredited commercial
laboratory		considered partial or total		laboratory in Perth for analysis
tests		For geophysical tools spectrometers	•	Preliminary samples are being analysed at
	-	handheld XRF instruments, etc. the		ALS in Malaga using a 4-acid digest, ME-
		parameters used in determining the analysis		ICP for 61 elements and all samples are
		including instrument make and model,		also being tested for Pt, Pd and Au by fire
		reading times, calibrations factors applied		assay and ICP-MS finish on a 50g sub-
		and their derivation, etc.		sample.
	•	Nature of quality control procedures adopted	•	Standards and blanks have not been
		(e.g. standards, blanks, duplicates, external		Included in this early phase of the program.
		laboratory checks) and whether acceptable	•	by pXRF. The Cautionary statement is
		levels of accuracy (i.e. lack of bias) and		included when assessing pXRF
		precision have been established.		
Verification	•	The verification of significant intersections	•	No prior modern exploration has been
of sampling		by either independent or alternative		conducted in the area.
and .		company personnel.		No adjustments to assay data were
assaying	•	The use of twinned holes.	•	undertaken.
	•	Documentation of primary data, data entry		
		procedures, data verification, data storage		
		(physical and electronic) protocols.		
Location of	•	Discuss any adjustment to assay data.		CPS aquipment using MCA04 Zone 52
data points	•	locate drill holes (collar and down-hole	•	coordinate system with an accuracy of +/-
		surveys), trenches, mine workings and other		5m.
		locations used in Mineral Resource	•	Topographic control using 30m spaced
		estimation.		satellite point data.
	•	Specification of the grid system used.		
	•	Quality and adequacy of topographic		
		control.		
Data spacing	•	Data spacing for reporting of Exploration	•	No systematic sampling has been
distribution		Results. Whether the data spacing and distribution is		conducted at this early stage.
aisanbaaon	•	sufficient to establish the degree of		
		geological and grade continuity appropriate		
		for the Mineral Resource and Ore Reserve		
		estimation procedure(s) and classifications		
		applied.		
	•	Whether sample compositing has been		
		applied.		
Orientation	•	Whether the orientation of sampling	•	No orientation-based sampling bias has
of data III relation to		achieves unbiased sampling of possible		been identilied.
geological		known considering the denosit type		
structure		If the relationship between the drilling		
		orientation and the orientation of key		
		mineralised structures is considered to have		
	1	introduced a sampling bias, this should be		
		assessed and reported if material.		
Sample	•	The measures taken to ensure sample	•	Exported samples are in the possession of
security		security.		ESR personnel from field collection to
	1			customs submission in Dili.
	1		•	Non-exported samples remain with ESR
Audits or	-	The results of any audits or reviews of	•	No independent audit or review has been
reviews	1	sampling techniques and data.	Ī	undertaken.



#### Section 2 - Reporting of Exploration Results

Critoria	IOPC Code explanation	Commontary
Criteria		Commentary
<i>Mineral</i>	• Type, reference name/number, location and	• Exploration and Evaluation Concessions
tenement and	ownership including agreements or material	MEL2023-CA-ZA001, MEL2023-CA-
land tenure	issues with third parties such as joint	ZA002 and MEL2023-CA-ZA003 are
status	ventures, partnerships, overriding royalties,	awarded to Estrella Murak Rai, forming
	native title interests, historical sites,	the joint-venture between Estrella
	wilderness or national nark and	Resources Representante Permanente
	environmental settings	(70%) and Murak Rai Timor (30%).
	The eccurity of the territy hold at the time	Reconnaissance Permits ESR-RP-01
	• The security of the tenure held at the time	$ESP_PD_02 = ESP_PD_03 = ESP_PD_04$
	of reporting along with any known	
	impediments to obtaining a license to	and ESP DP 09 are owarded to Estrolla
	operate in the area.	and ESR-RP-06 are awarded to Estrelia
		Resources Limited Representante
		Permanente (100%)
		<ul> <li>Estrella Resources Limited</li> </ul>
		Representante Permanente is registered
		in Timor-Leste and is a wholly-owned
		subsidiary of Estrella Resources Limited
		(Australia).
		All of the Concessions and Permits are
		current and in good standing
Exploration	- Advised amont and approved of	The first exploration was conducted by
		<ul> <li>The first exploration was conducted by Allied Mining Corporation in 4027 during</li> </ul>
done by other	exploration by other parties.	Allied Mining Corporation in 1937 during
parties		which mineral potential was discovered.
		Very small scale mining of manganese,
		gold and construction material was
		conducted. The exploration was not
		systematic and hampered by difficult
		access.
		<ul> <li>Other work in the early 2000's has been</li> </ul>
		conducted by the Pacific Economic
		Cooperation Council -PECC Minerals
		Notwork to assist Timor Losto to
		understand and develop its minorals
		understand and develop its minerals
		<ul> <li>Other local geologists and companies</li> </ul>
		have sporadically explored the area
		however there has been no
		documentation collected nor systematic
		exploration to quantify mineral
		occurrences.
		<ul> <li>No minerals drilling has taken place.</li> </ul>
		<ul> <li>No close-spaced geophysics has taken</li> </ul>
		nlace
		No evotomatic modern evolutation has
		• No systematic, modern exploration has
		taken place.
		The Geological Institute of Limor-Leste
		(IGIL) has recently (and still is)
		conducting stratigraphic analysis and
		fossil dating to reconstruct the geological
		history of Timor-Leste.
Geology	• Deposit type, geological setting and style of	• The current Permits host three main forms
	mineralisation.	of manganese mineralisation.
		<ul> <li>Primary mineralisation can be found in</li> </ul>
		stratigraphic banded cherts and banded
		irons formed from direct precipitation of
		manganese onto the sea floor. Evidence
		for both microbial and increasion
		processes exist
		Additional primary mineralisation exists
		as pisolithic concretions and direct
		precipitates within deep-sea limestones.
		Secondary mineralisation exists in the
		form of small to extremely large clasts of
		manganese mineralisation associated
		with the Bobonaro Formation. a melance
		that is a lithotectonic unit composed
		mostly of broken, clav-rich lavers that are
		mixed to varying degrees with structurally



Criteria	JORC Code explanation	Commentary
		<ul> <li>and stratigraphically overlying units. This unit represents an under-sea collapse zone containing multiple manganese clasts over a very large area.</li> <li>Tertiary mineralisation exists where high rainfall and erosion has sorted and concentrated detrital manganese into river paleo-channels.</li> <li>Alluvial gold mineralisation has been reported in the area however no exploration has been undertaken.</li> <li>Estrella will use and expand upon the current known stratigraphy to evaluate and document mineralisation styles and relate them back to the tectono-stratigraphic genesis of the area.</li> </ul>
Drill hole information	<ul> <li>A summary of all information material to the under-standing of the exploration results including a tabulation of the following information for all Material drill holes: <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>No drilling has been undertaken in the area.</li> </ul>
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>Exploration results with all relevant drillhole information are reported in the body of the text.</li> <li>No aggregation methods have been used.</li> <li>Metal equivalent values have not been used.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul> <li>Any relationships have been discussed within the body of the text.</li> </ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul> <li>Relevant diagrams have been included within the main body of text.</li> </ul>
Balanced Reporting	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and</li> </ul>	No new information has been withheld.



Criteria	JORC Code explanation	Commentary
	<ul> <li>other locations used in Mineral Resource estimation.</li> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples - size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	<ul> <li>No other substantive data exists as the program is in its early stages.</li> <li>All observations are discussed within the body of the text.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large- scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Further work by ESR will include systematic mapping and sampling along with stratigraphic and structural classification.</li> </ul>