

Lateritic Ni-Cu-PGE

Province :

Potential:

Certainty:

Critical Elements (Assessment Criteria)	Identified	Not Identified, but likely	Unlikely	Weighting
<p>Setting</p> <ul style="list-style-type: none"> • Weathered komatiites, layered complexes and other ultramafic rocks in stable Archaean and Proterozoic cratons. <p>*(15% of world's lateritic resources; Most of Australia's lateritic Ni of this type).</p> <ul style="list-style-type: none"> • Phanerozoic accretionary terrains containing weathered upthrust/obducted ophiolite complexes and alpine serpentinite intrusions. <p>*(~85% world's lateritic Ni resources)</p> <ul style="list-style-type: none"> • • 				
<p>Source (fluid, metal, energy)</p>				
<p><i>Fluids</i></p> <ul style="list-style-type: none"> • Meteoric; tropical and seasonal environment. <p><i>Metals</i></p> <ul style="list-style-type: none"> • Ni in olivine-rich ultramafic protholiths peridotite, dunite, serpentinitised equivalents. 				

<ul style="list-style-type: none"> • <p><i>Energy</i></p> <ul style="list-style-type: none"> • Rainfall (warm humid tropical and seasonal climates including Cretaceous and Tertiary palaeoclimates) • Gravitational (groundwater movements in moderate topography). • 				
Fluid/magma pathway				
<ul style="list-style-type: none"> • Permeable zones in the weathering profile/regolith. • Shear/fault zones in regolith. • Water courses along faults • Groundwater movements downslope at less than 20° 				
Trap (any of the following)				
<ul style="list-style-type: none"> • Chemical traps <ul style="list-style-type: none"> – Presence of serpentine or smectite. – Presence of Fe oxides and hydroxides in saprolite. • Structural traps <ul style="list-style-type: none"> – Faults in regolith. 				
<p>Signs of mineralising process (any of the following, but if occurrences have been identified the level of certainty increases)</p> <ul style="list-style-type: none"> • Regionally extensive unaltered or serpentinised olivine rich ultramafic rocks. • Regionally extensive lateritic profiles. • Presence of garnierite bearing saprolite (weathered ultramafics) zone in lateritic 				

<p>profile</p> <ul style="list-style-type: none"> • Presence of smectitic clays in upper saprolite or pedolith zones • Ni oxide deposits dominated by oxyhydroxides (eg. goethite) • Known occurrences of Ni, particularly lateritic Ni. • Regions with known palaeoclimatic conditions for lateritic profiles. • • • • 				
<p>Preservation/Age</p>				
<ul style="list-style-type: none"> • Long periods of tectonic stability. • Moderate relief. • Warm climates humid tropical or seasonal, savanna or Mediterranean. 				