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Impacts of ports along the Pilbara Coast, Western Australia – a coastline of global geoheritage significance that services a mineral-rich hinterland

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The Pilbara region in north-western Australia is a mineral-rich geological province, and its mineral content has been mined/quarried and exported since the 1960s for the wealth of the Australian Nation. Being remote, and with substantial overseas markets, mineral export from this region is constrained to a range of ports that have been developed specifically for export shipping purposes. However, the Pilbara Coast, as one of only a few arid coasts around the World and most arid coast in Australia, and with its range of coastal types of archipelago shores, limestone barriers, and deltas, stands unique as the most geologically and geomorphologically diverse arid coast globally, *i.e.*, it is a region of Global coastal geoheritage significance. Archaeologically, the Pilbara coast also hosts globally important Indigenous rock art (petroglyphs) picked/carved over a period of 25,000 yrs BP to the present, with the Dampier Archipelago in the central Pilbara Coast containing the largest concentration of rock art in the world.

Ports along the Pilbara Coast have been developed without regard to their surrounding natural values, with consequent impacts on the coast mainly in terms of geoheritage and biological values, but also archaeological values. The parameters for port selection have been based on engineering and economic perspectives of coastal proximity and coastal bathymetry in spite of information available to direct proper coastal management and wise use of the coastal zone. Consequently, some of the most significant coastal areas have been destroyed or markedly modified for economic expediency. This contribution describes the significance of the Pilbara Coast, the ports therein, their impacts, the need to centralise ports rather than construct facilities dictated by proximity to mines and coastal suitability, and highlights the need for a component of geoethics and social responsibility in decision-making that considers all values of a site.

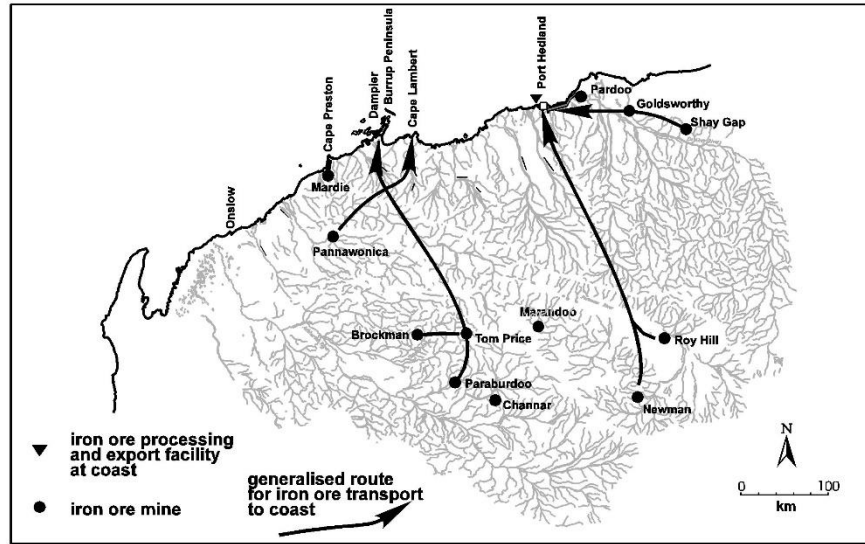


Figure 1: Drainage patterns of the hinterland of the Pilbara Coast, locations of some major iron ore mines, pathways by which ore is delivered to the coast, and locations of ports that export iron ore. The ports from south to north are: Onslow (solar salt export); Cape Preston (iron ore); Dampier (iron ore); Burrup Peninsula (gas export); Cape Lambert (iron ore); and Port Hedland (iron ore, solar salt, and ores of copper, chromium, manganese).

