

Ecosystem service economy aligns with culturally-aligned, resilient *Forever Industries*



Natural
Hazards
Research
Australia

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A situation analysis—Industries for and with community, culture and water

Beef pastoralism, mining and energy and irrigated agriculture offer few jobs or benefits to local and Indigenous communities. Ecosystem service (ES) industries—carbon, nature repair and tourism—may offer enduring, dispersed and accessible opportunities to support local self-led development and build resilience.

Martuwarra Living Waters (Fitzroy River, WA)

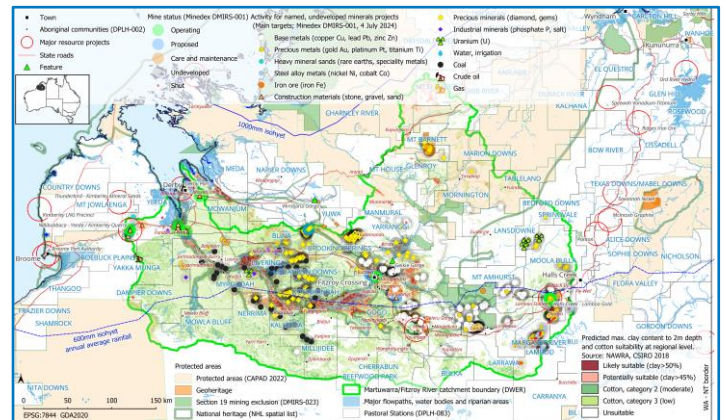
An entity of Country, Martuwarra relates in *ekokincentric*, mutually-reciprocal, *owneeship* with its people.

The current economy is mostly extractive and exclusionary of Aboriginal people, with nature framed as an extractable resource, with costs externalised and accrued locally with benefits exported. ES-based *Forever Industries* aligned to Indigenous worldviews, knowledges and values would be holistic, circular, inclusive and embrace complexity for the long-term wellbeing of people with nature/Country.

Economic situational analysis, current and potential futures

Using public, ABS, CSIRO and industry data, the author found:

- Pastoralism (beef cattle grazing) is mostly uneconomic when enteric emissions (burps & farts) are internalised to costs, with average Kimberley enterprises losing $-\$0.86/\text{ha}$. In 2021, catchment residents had 99 jobs (of whom 30% were Aboriginal)
- Mining and fossil energy yields about 10 jobs to catchment residents, with job growth focused on high skills and automation profiting private interests and State revenue
- Irrigated agriculture is set to expand and intensify with $\$100\text{M}-\$300\text{M}+$ gross margins from industrial and hay crops to benefit mostly private interests in absence of water rights or revenue to state, with land clearing reducing nature-based opportunities
- The carbon and nature repair industries potentially offer $>\$8.5\text{M}$ and $\$21\text{M}$ annually, respectively, or $>\$1/\text{ha}$ each, as extensive land uses that improve natural assets
- Tourism drives local jobs, opportunities and better circulates benefits compared to mining and energy, further increased by new national parks (Volgger et al., 2021)



Business as usual (BAU) limits future directions

Pastoralism, mining and energy and irrigated agriculture typically export benefits while (based on present patterns) offering few jobs to locals and externalise long-term climate and environmental costs, which undermines conservation-based opportunities. Impact risk is highest where activities co-occur with environmental and cultural assets, particularly in riparian zones (*map*), in likely conflict with opportunities seeking long-term outcomes for and based on healthy water, biodiversity, community and catchment/Country.

Forever industries reflect holistic, systems and long-term thinking

These results support a wider systems, all-sector and long-term perspective versus continuing BAU, and may be used as targets to assess point and area-based activities, e.g. natural hazard and disaster preparation, mitigation and adaptation. Co-design with and regard for all residents, future generations and the cultural and natural assets of Earth's largest intact savanna ecosystem will better serve current and future generations in relationship with Martuwarra Living Waters.

Further information

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