

WHY WE EXIST – WHAT WE DO – HOW TO HELP

1. Organisation Overview
2. Lighthouse Projects (LHP) Strategy
3. Current Research Activities
 - LHP1 – Regulatory & Industry Practices > *Legal*
 - LHP2 – Business Case Methodology > *Financial*
 - LHP3 – Pilot Site Development > *Technical*
4. Supporting New, Innovative and Sustainable Post-Mining Land Use Solutions

Finding Higher Value Post Mining Land Use



Scars from the Past
Resource Value Focus



Restore & Return
Environmental Value Focus



Higher Value Land Use
Regional Development Focus



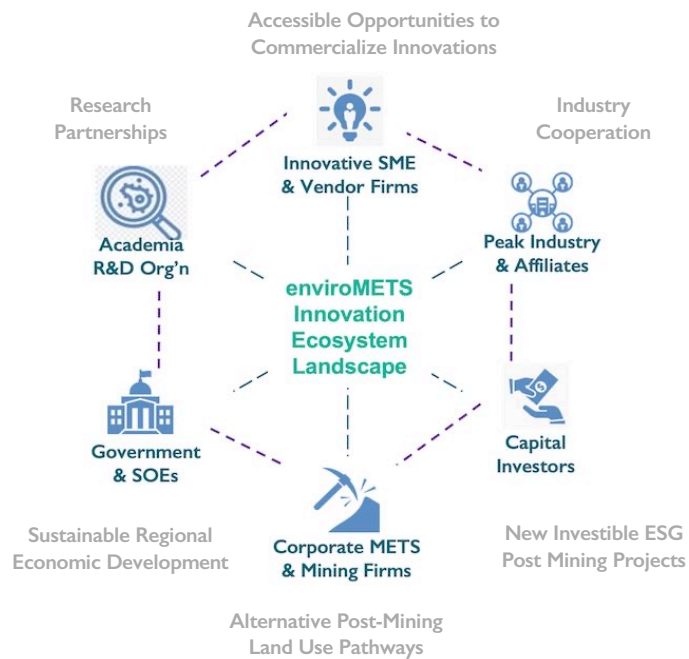
***enviroMETS* – an independent, industry-led not-for-profit company – an actor for change**

To find and implement innovative and sustainable repurposing, recommercialising, and remediation solutions to ensure mining affected land is more valuable and usable to both its current, and future custodians.

Benefiting Queensland's industry, communities, government and METS sector.

Collaborative Capability

285 INNOVATION ECOSYSTEM STAKEHOLDERS



Building Queensland's PMLU Solutions Strategy

RESEARCH STEPS

Ensure Regulatory Framework Supports Innovative PMLU Opportunities. Approval



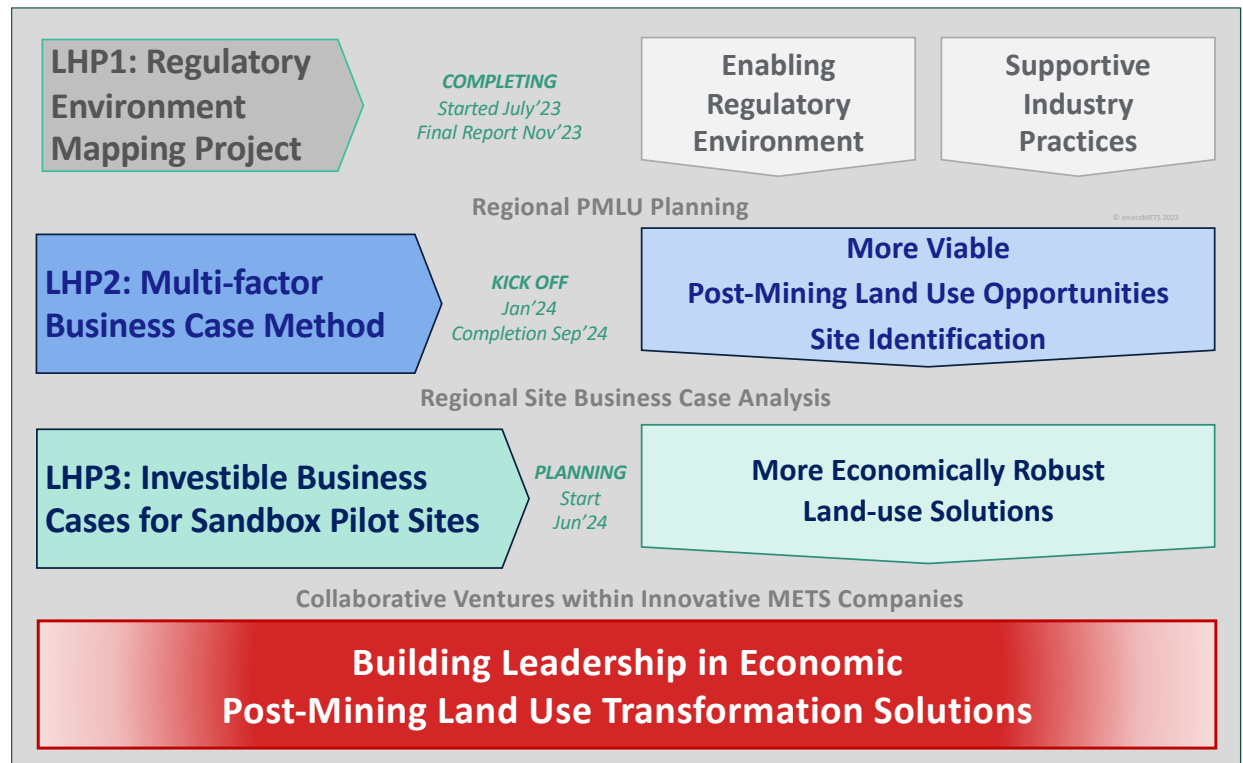
Establish Economic Viability of Pilot Project Sites. Financed



Operate Pilot Site to Demonstrate Technologies at Scale. Proved



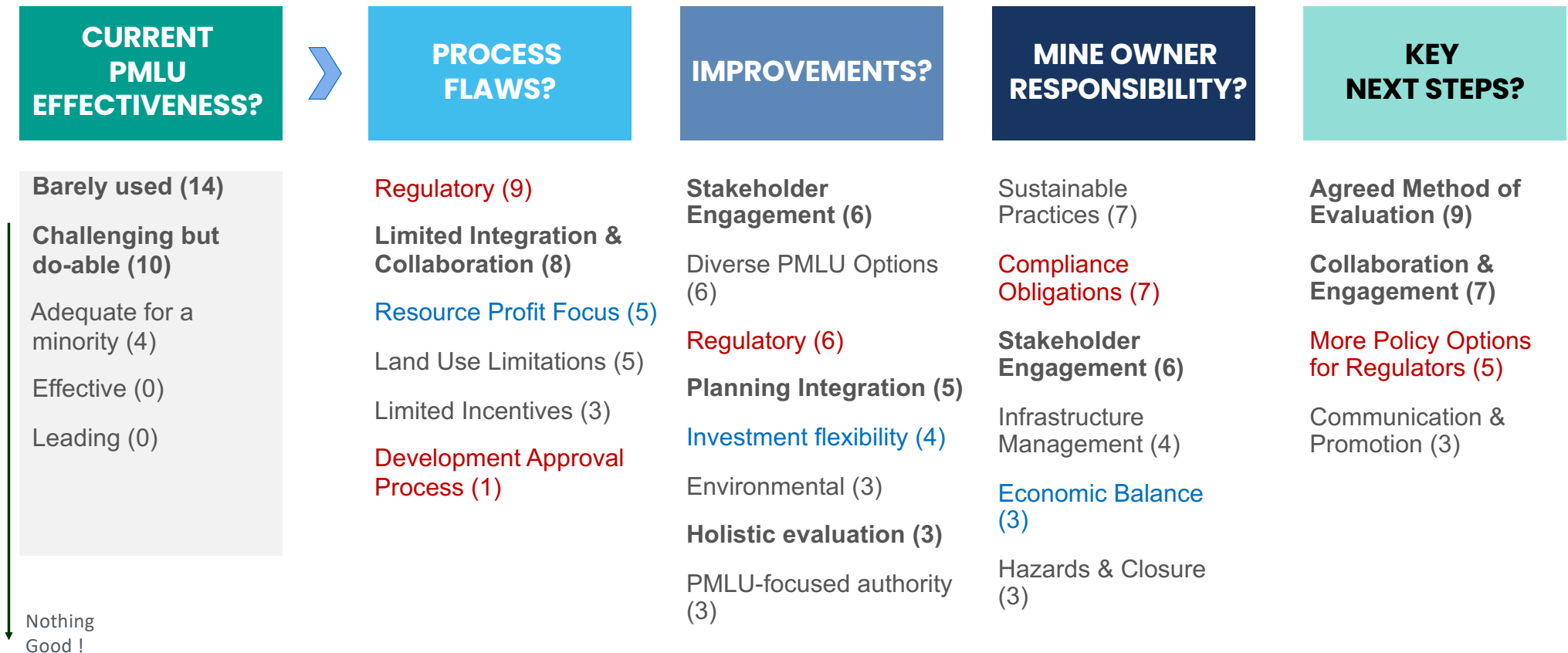
Develop Global Market Opportunities for PMLU Solutions. Exports



- LHP1: Technical Advisory Group established
Confidential whitepaper in progress
- LHP2: Detail scope completed
and pending project funding approval

Where are We Now – Innovative PMLU in Qld?

5 QUESTIONS – 31 RESPONSES



What We Learned

PATHWAYS TO INNOVATIVE ALTERNATIVE LAND USE

Feb'23 LHP0 Workshop identified Key Challenges that reprioritised three projects

Key Challenges to Consider

- 1st to 6th associated to impact of regulatory framework
- 11th & 12th are technical and non-issues

Priority Outcomes to Address

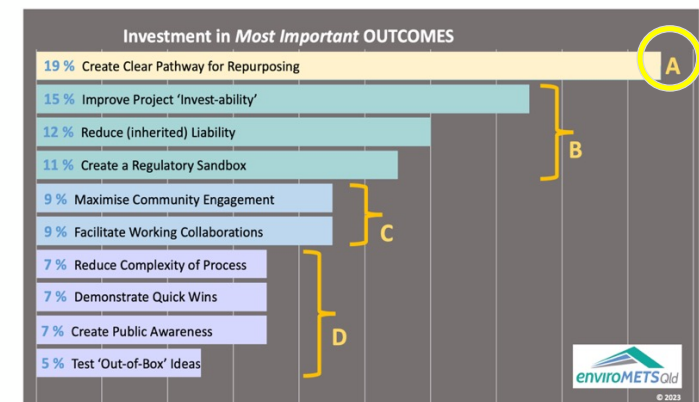
1. Identify a clear pathway for innovative repurposing [LHP 1]
2. Improve investibility for PLMU [LHP 2]
3. Test new ideas in 'sandbox' environment. [LHP 3]

Societal Engagement

- LHP1 – Develop understanding that “Policy” and “Strategies” are hitting regulatory roadblocks
- LHP2 – Both public and industry investment must be quantified and justified
- LHP3 – Showcase innovative repurposing and remediation



enviroMETS is directing its activities towards creating a pathway for innovative PLMU business opportunities (beyond revegetation) to sustain local communities, whilst making a net positive improvement to the environment.



Key Outcomes from Lighthouse Projects Workshop – 15 Feb 2023

© enviroMETS 2023

Lighthouse Project Strategy

3 INTEGRATED PROJECTS

Working with partners in Government, Research and Industry to achieve improved community outcomes on land that was previously set aside for the sole purpose of mining.

LHP 1: Navigating the regulatory framework impacting the economic transformation of mine affected land

- ✓ Identify and map the regulatory pathways and challenges for repurposing scenarios
- ✓ Specifically identify the hurdles for establishing 'sandbox' pilot/trial sites
- ✓ Provide recommendations on solutions to experienced regulatory environment challenges
- ✓ Provide industry support for reshaping of a future regulatory enabling environment

LHP 2: Develop a reliable, repeatable methodology of assessing 'Net Best Value' of various PMLU options

- Develop a system architecture for quantitative analysis
- Distill viable options from site & regional characterization
- Identify net value (\$ sum) of mineral, new commercial, social, environmental, cultural
- Standardize format to make QLD.gov 'authorization process' comparable and efficient
- Test a 'practitioner toolkit' with five pre-feasibility pilot site regional business cases.

LHP 3: Establish several pilot/test site facilities in QLD where stakeholders can find and prove new innovative economic purposes

- Detailed feasibility studies for open pit / underground, Coal / Metalliferous, Abandoned or Operating
- Establish collaborations of technical viable PMLU options
- Engage investment partners into appropriate governance structures for each site.
- Ensure accessible to METS companies, researchers, entrepreneurs and locals
- *anyone with an idea to test and commercialise.*



Develop capability for Queensland to be a leader in innovative PMLU solutions

DONE
FOLLOW-UP



SCOPING &
FUNDING



IDENTIFY SITES
& PLANNING



LHPI Find Better Regulatory Outcomes

3 EXIT STRATEGIES

Evolving Community Expectations

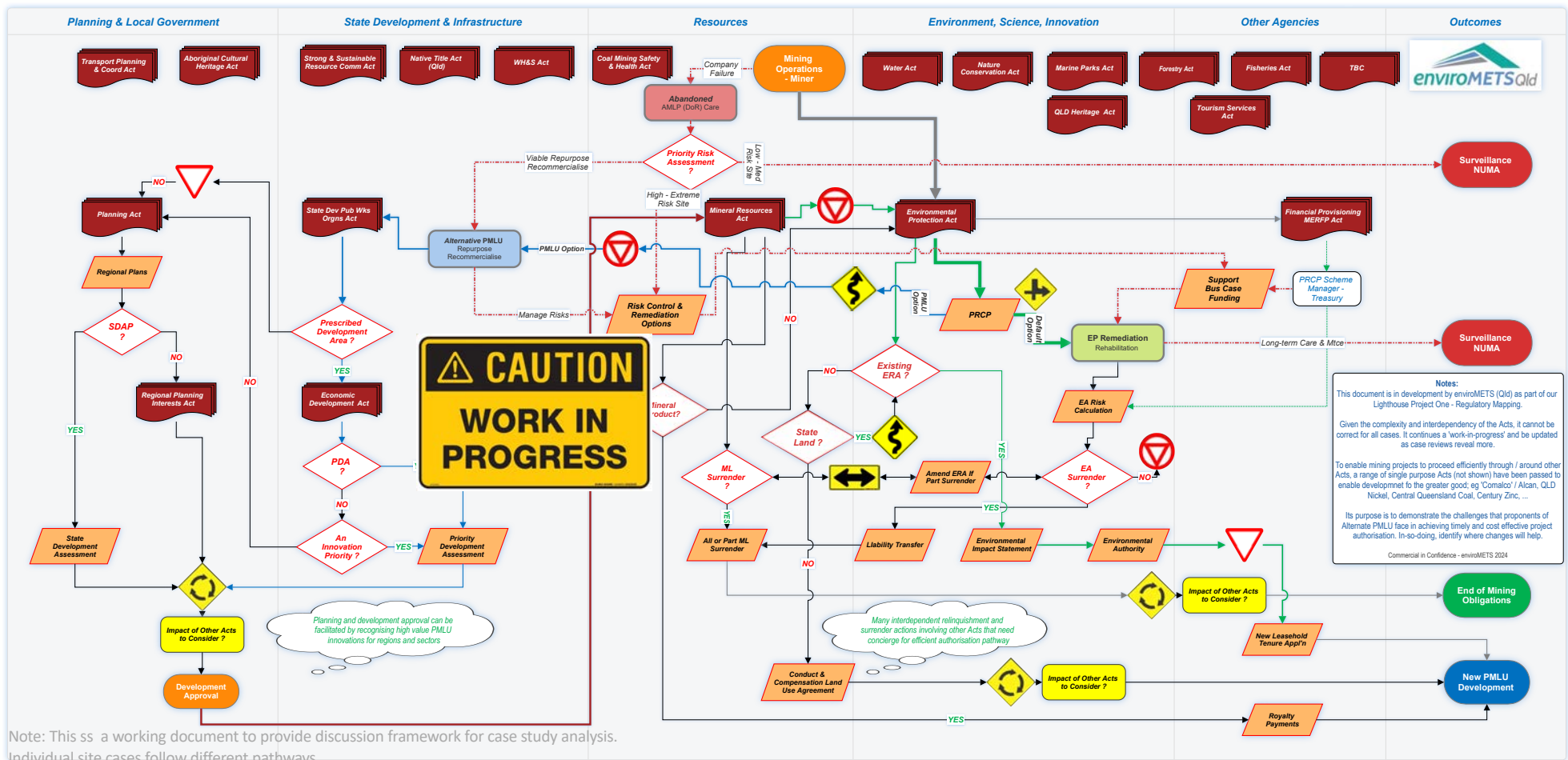
- Mining unattractive
- Activism distractive
- Legislative challenges
- Communicate benefits
- Industry behaviour
- Global economics

Refreshing goodwill towards mining desperately needs exemplar projects of good social, environmental, cultural and positive regional economic transformation



LHPI Regulatory Pathway – Concierge?

20+ ACTS TO NAVIGATE



LHP2 Seeking Higher Value Land Use

CREATING NEW VALUE

Creating and Recognising Measurable Value in PMLU

- Mineral Resources
- New Commercial Activities
- Social / Community Uplift
- Environmental Benefits
- Cultural / Heritage Gains

Sustainable mining regional communities relying on development of new PMLU value, (blue triangle)



LHP2 Business Case Methodology

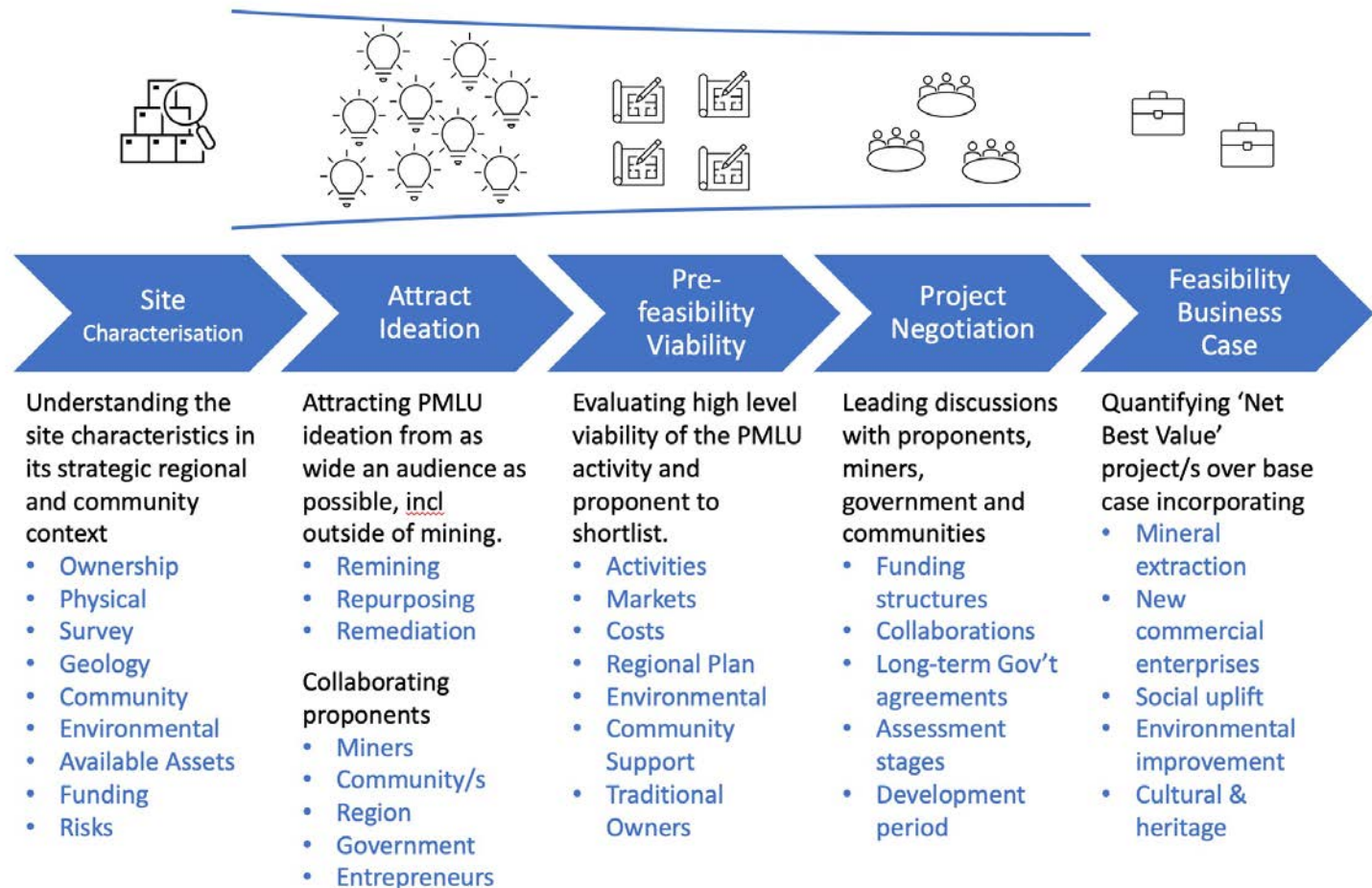
NET BEST VALUE

Establishing an Investible PMLU Business Case

- Regional planning
- Mining operators
- Community participation
- Expert analysis
- Public policy makers
- Innovation investors
- Financial assessment

Design a reliable 'Economic PMLU Options Assessment Process' that identifies viable options that fits the public policy decision-making framework of Queensland to find higher value PMLU options for current and abandoned mine sites.

Economic Options Development



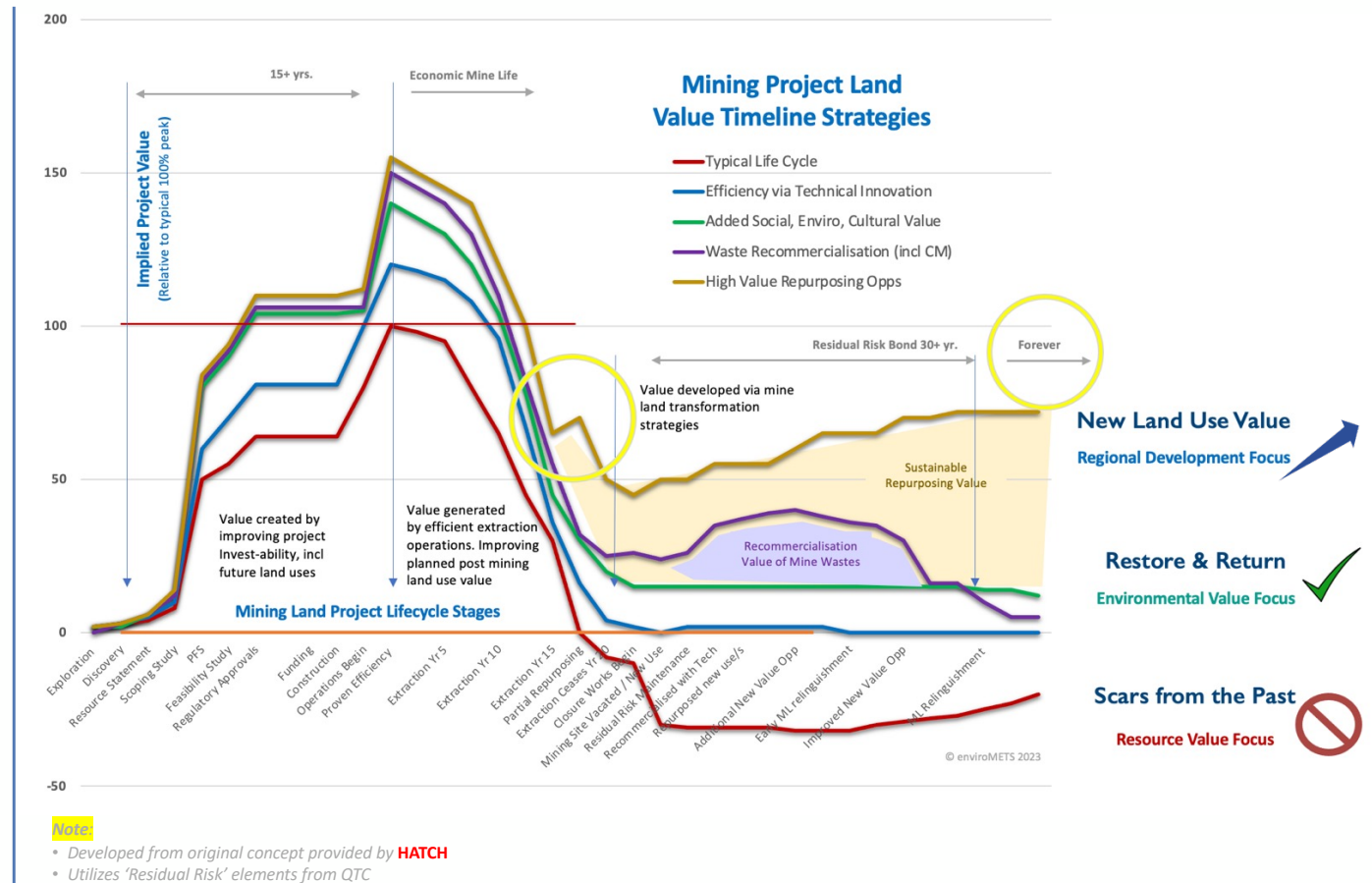
LHP3 Planning for Economic Transition

SOONER THE BETTER

Timing

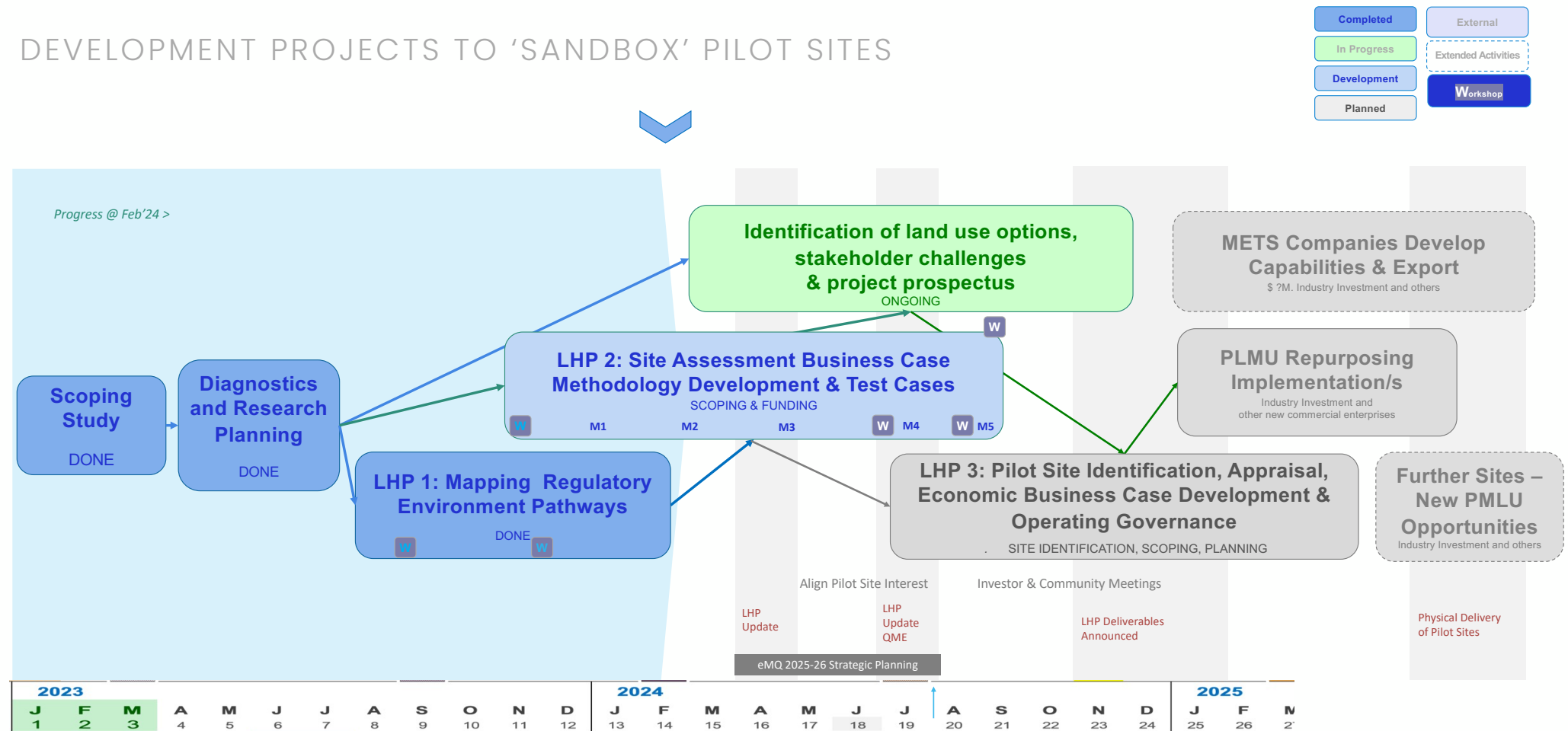
- Life value of mining is enhanced by earliest planning for economic transition.
- Harder with operating mine and changing economics.
- 'Prescriptive' PRCP and cost of variations reduces incentive to consider options beyond restore to past.
- Implementation on innovative PMLU best done early and while mine is operational.
- Shared use of infrastructure supports future use PMLU start-up.

State / Regional Development is the enabling factor for innovative PMLU. Mining regulators need to accommodate and support the transformation activities.



LHP Timeline

DEVELOPMENT PROJECTS TO 'SANDBOX' PILOT SITES



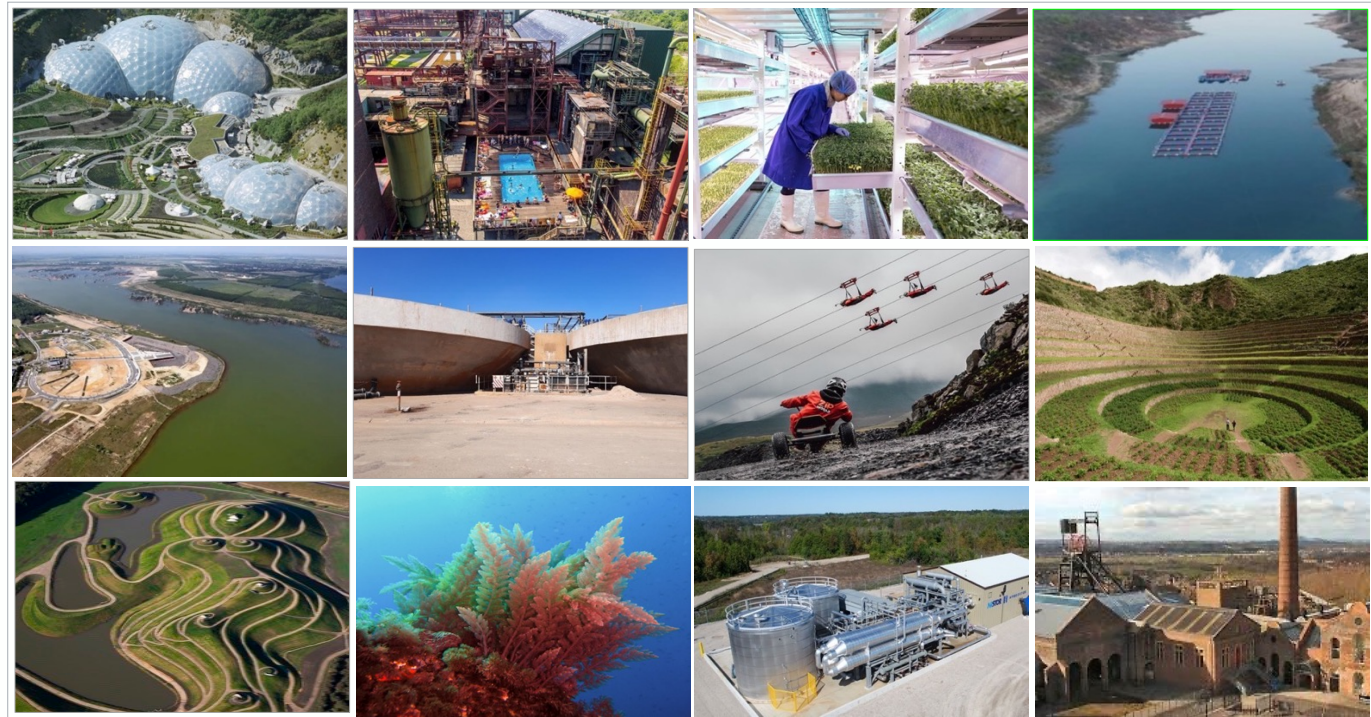
Innovative Post-Mining Land Uses

WHAT SUCCESS LOOKS LIKE

Successful Repurposing Projects Require*:

- Visionary leadership
- Engaging communications
- Beneficial knowledge
- Practical research
- Creative ideas
- Cultural connections

➤ Sustainable Business Case leading to confident investors in proven ideas and new technical solutions



* Peter Whitbread-Aburutat. Consultant to enviroMETS and author of "102 Uses for a Hole in the Ground" to be published by the Eden Project, 2023

How to Support our Mission

THINKING DIFFERENTLY ABOUT PMLU

1. Change the Language to “Economic Transformation”

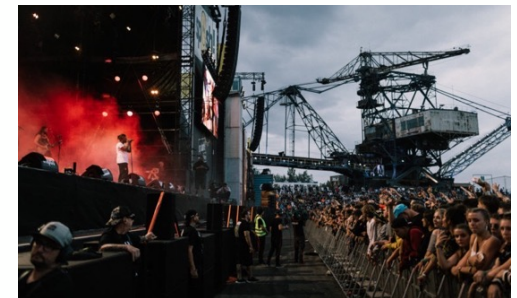
- “Economic Transformation” - NOT “Closure”

2. Find, Clarify and Build our LHP Pathway

- Understand the Regulatory Inhibitors & Enablers → *Easier Legal Authorisation*
- Build a Standardised Business Case Method → *Expand Financial Alternatives*
- Develop ‘sandbox’ Pilot Sites in PMLU regions → *Increase Technical Innovation*

3. Work Collaboratively - Build Trust – Explore New Ideas

- Policy Makers
- Innovation Investors
- Mining Operators
- Community Advocates



It's time to start thinking differently about the future of mining impacted land.

Contact

Allan Morton
Executive Director

enviroMETS (Qld) Limited
Lev 5, Y Block, QUT
2 George St, Brisbane, 4000
projects@enviroMETS.net.au
www.enviroMETS.net.au

Lead Research Partner



Lighthouse Project Partners



Supported by



Queensland
Government