



ISSUES SURROUNDING DEEPSEA TAILING DEPOSITION:

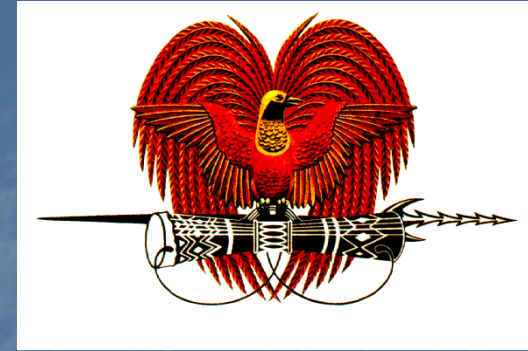
Case Studies of Misima and Lihir Mines in Papua
New Guinea from Regulatory Perspective

James Wanjik & Patricia Pepena

Presentation at the PECC Minerals Network
Brisbane, Queensland
17-19 November 2003

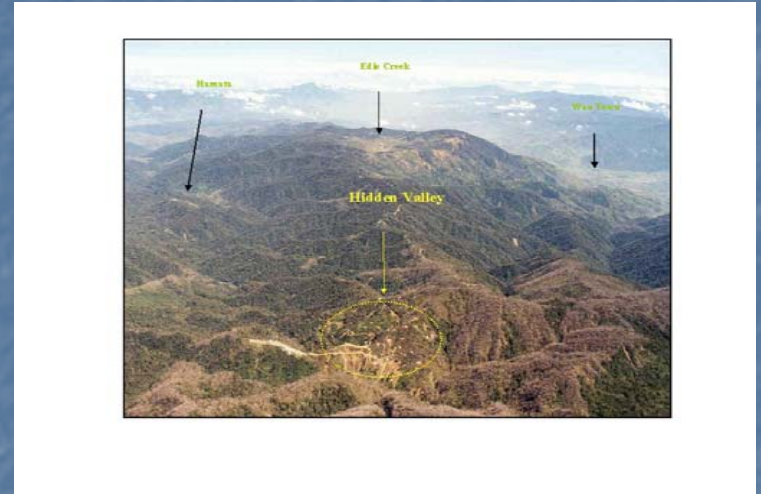


OUTLINE



- Introduction & Background
- Regulatory Framework for DSTP
- Case Studies of Misima and Lihir Mines
- Relevant issues of and for DSTP
- Initiatives- Company & Government
- Conclusion & Recommendation

Introduction & Background





Regulatory Framework

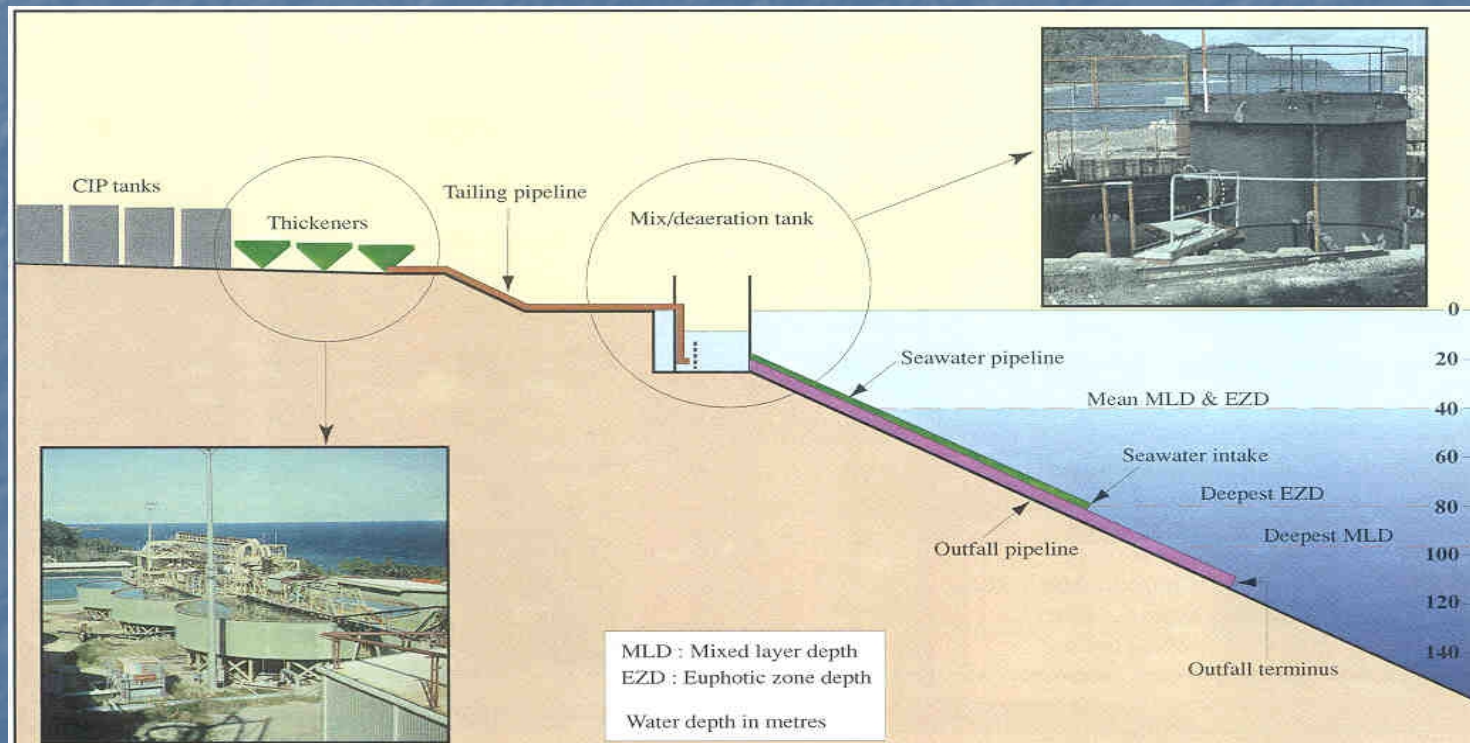


- Mining Act 1992
- Mining (Safety) Act Chapter 195A
- Environment Planning Act 1978
- Environment Contaminant Act 1978
- Water Resources Act 1982
- Environment Act 2000 (effective Jan'04)

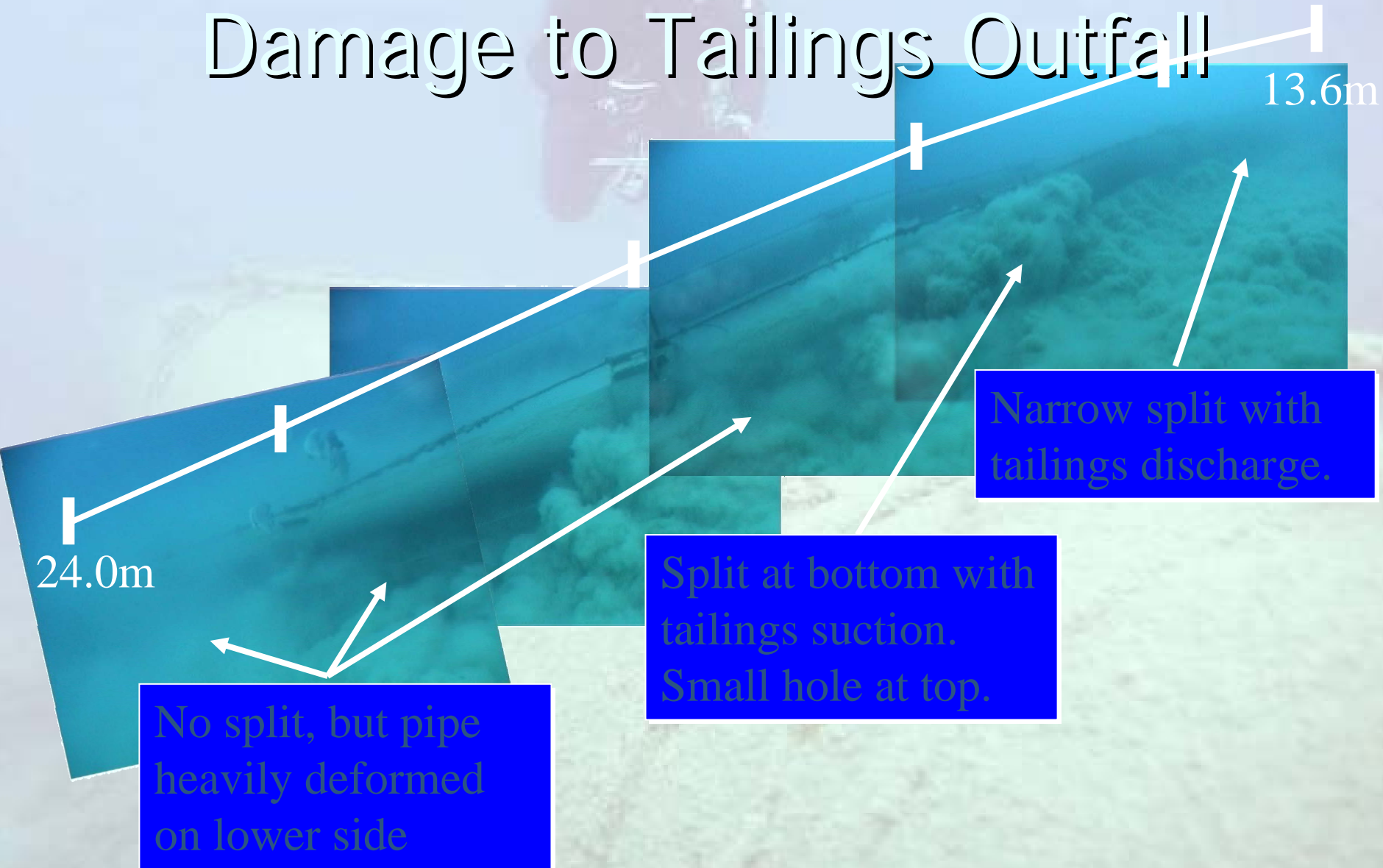
Misima Case Study



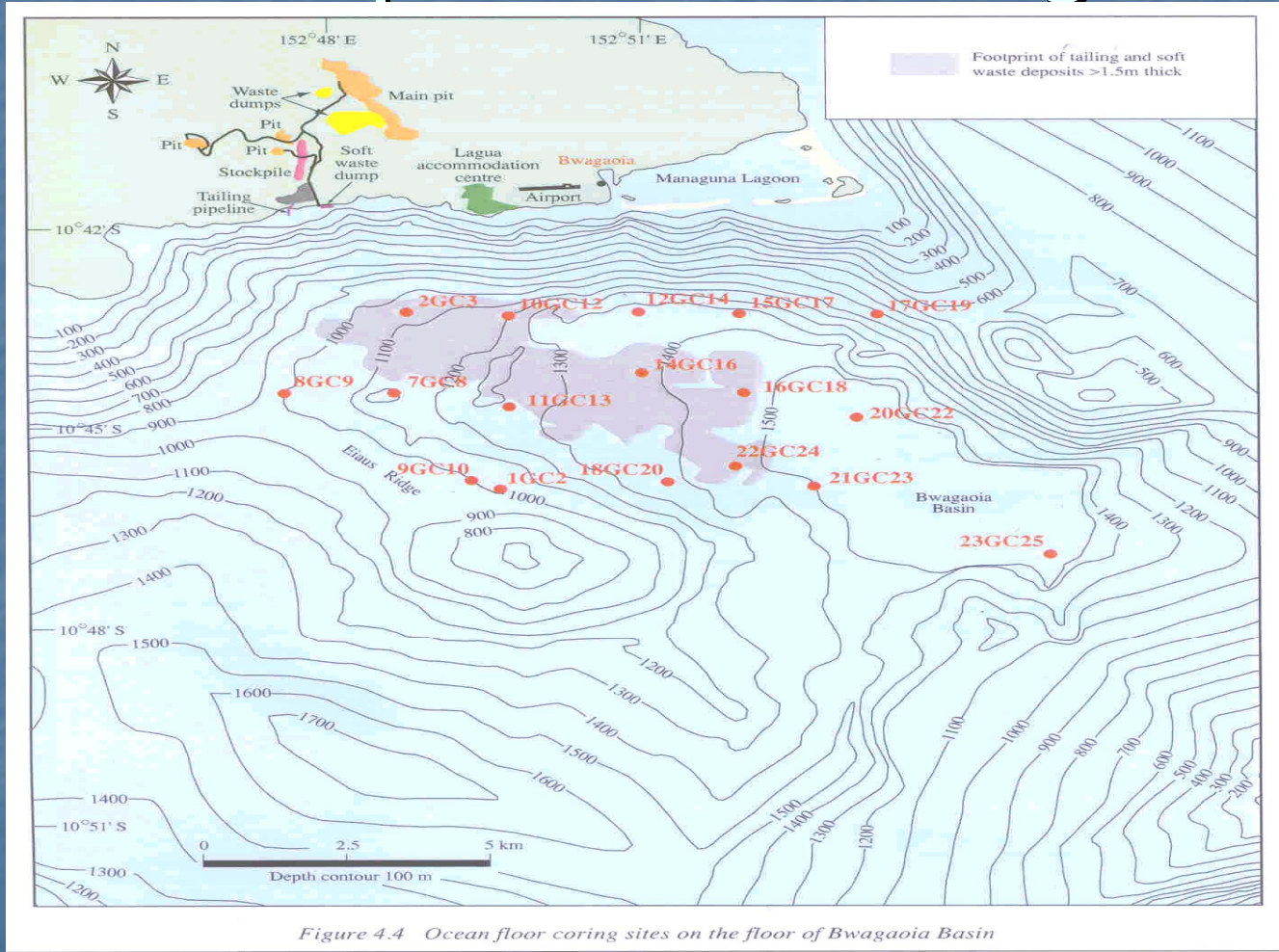
Misima Tailings Disposal System



Damage to Tailings Outfall



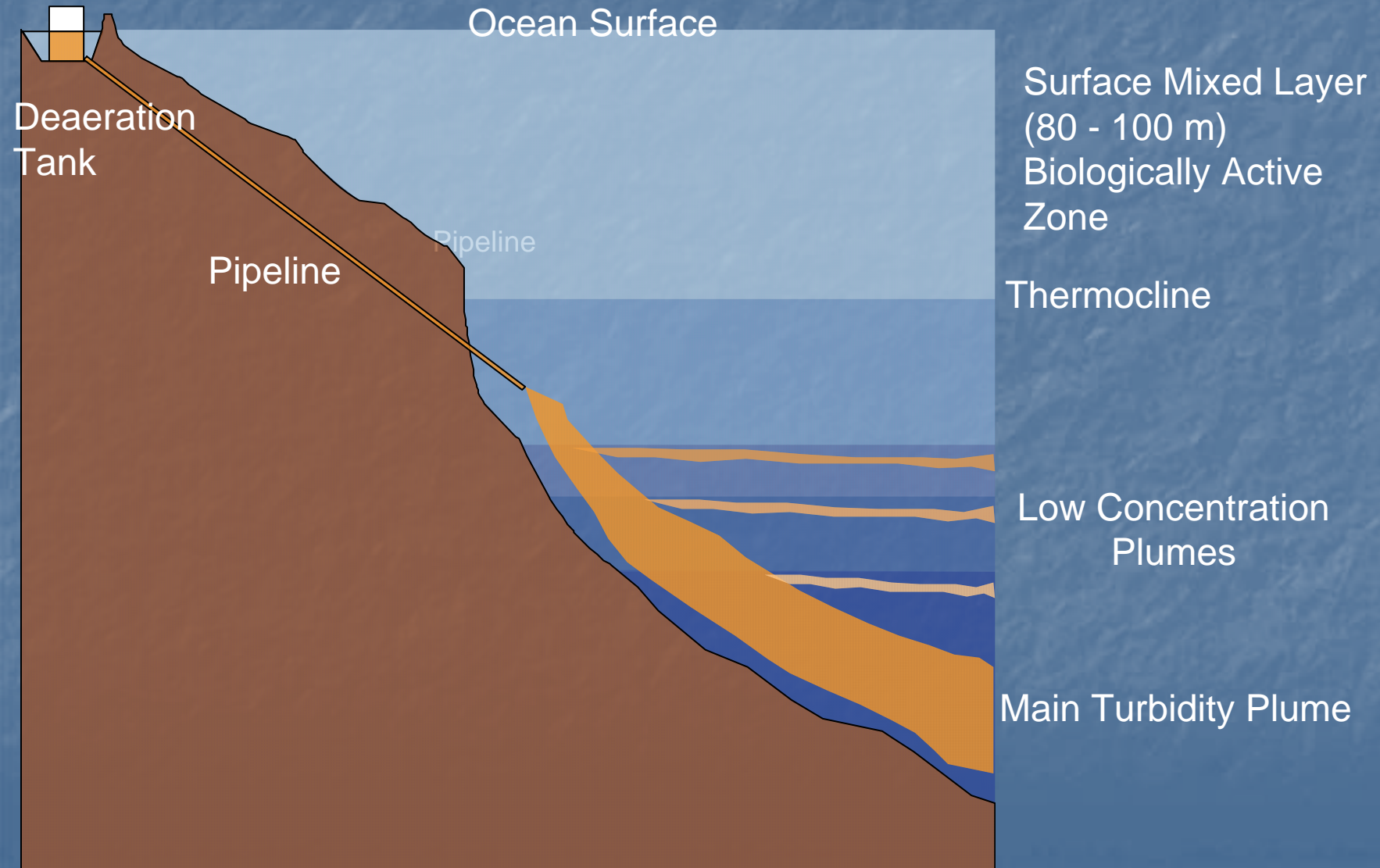
Footprint of Tailings



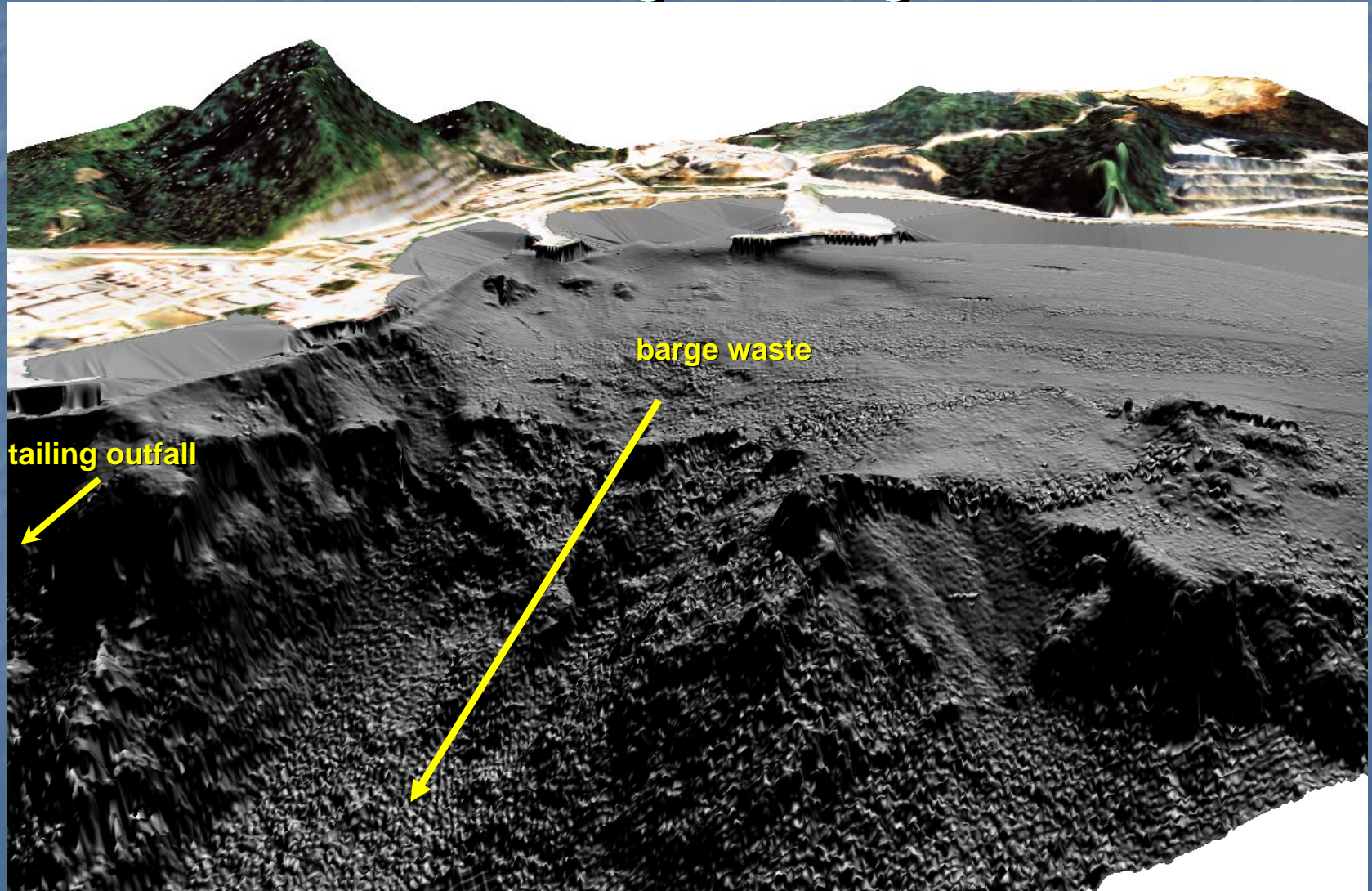
Lihir Case Study



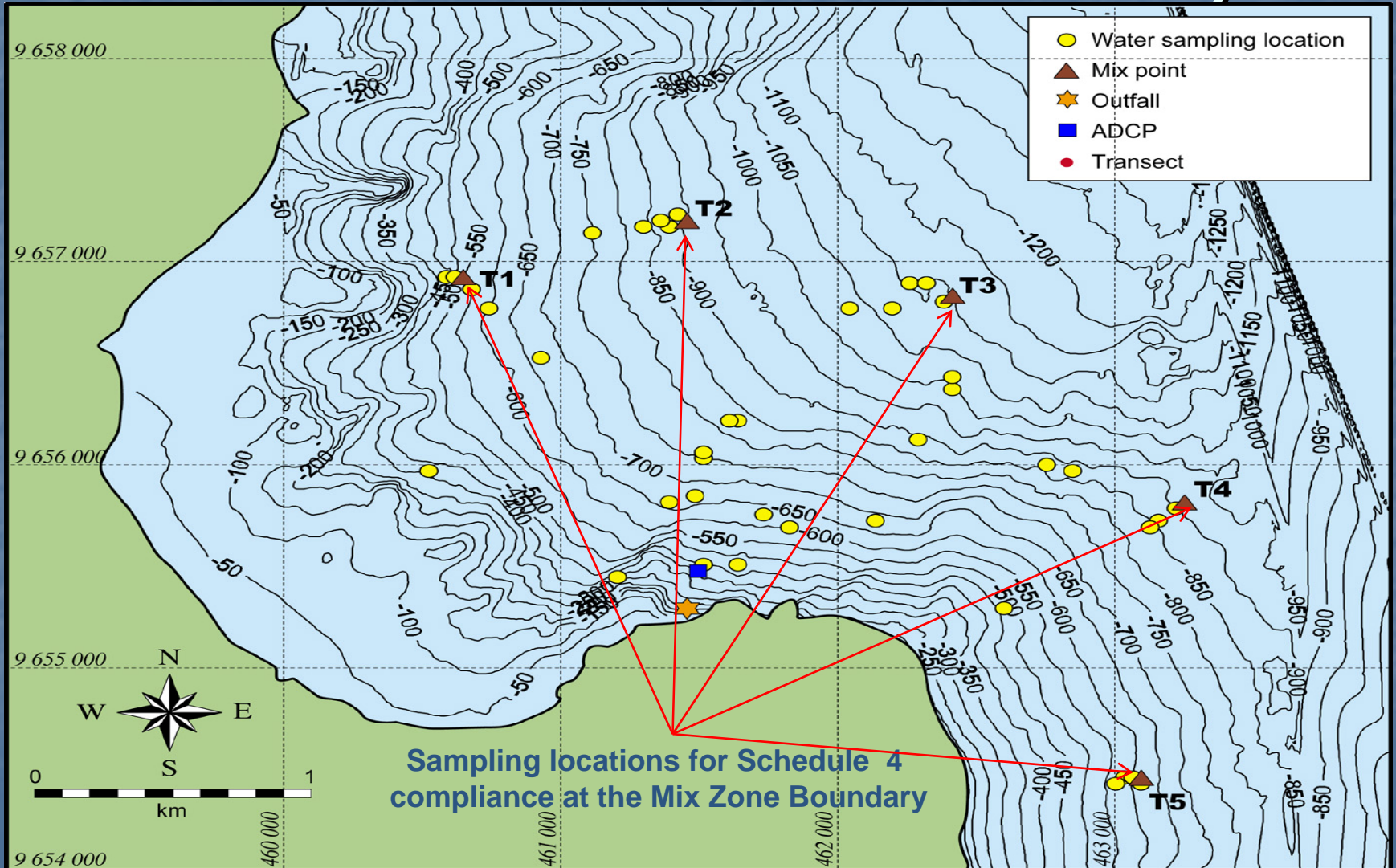
DSTP - Tailing Discharge



DSTP - Luise Harbour Bathymetry



DSTP - Mix Zone Boundary





Issues & Steps Taken



- Acid Rock Drainage
- Land tenure/ use/compensation
- Stakeholder participation and community acceptance
- Impacts of tailings
- Integrity of pipeline
- Closure Criteria (Decommissioning & Rehabilitation)
- Costs, Liability
- Validation Studies e.g. Review of Deep Sea Tailing Placement, 1994-1996 for Misima Mine
- Risk assessment & research as part of EMMP and “best practice”
- Socioeconomic programs for local communities
- Conceptual MCP (Lihir) & MCSP (Misima)



Government Initiatives



- 'Independent' DSTD Validation Study – Sysmin project
- Environment Act 2000 and Regulations
- Draft Offshore Mining Policy
- Draft Mine Closure Policy
- Mine Closure Planning (socioeconomic and biophysical components)
- Mining Act and Mining (Safety) Act review



Conclusions



- DSTD has proven to be a viable alternative to land-based tailings disposal in PNG
- Subject to Ideal/Pre-conditions
- Gaps in knowledge such as benthic ecosystems recovery, impacts of low concentration plumes for DSTD.
- Research:
 - Self
 - Independent
 - Collaborative



Recommendations



- Periodic Independent Validation studies.
- Long term validation studies.
- Common definition and standards needed for DSTD but should take account of unique circumstances e.g. PNG
- It is recommended that those countries or companies planning to use DSTD in conditions similar to PNG may wish to collaborate with PNG entities to study the impacts of DSTD especially in areas where there are gaps in knowledge.



Recommendations



- Peer Review Process should be undertaken.
- Holistic approach to mine development, operations and closure is a must.
- Policies and regulations should be based on good science.