CASE STUDY

PROJECT POTABLE WATER FOR PNG DEFENCE BASE
PRODUCT Lamella Clarifier (LC), Multimedia Filtration (MMF)
INDUSTRY Defence
LOCATION Lombrum, PNG

BACKGROUND

The Lombrum Joint Initiative involves significant upgrades to the Lombrum Naval Base located on Manus Island in Papua New Guinea (PNG). The project, which was officially launched in August 2025, stands as Australia's biggest security infrastructure undertaking in the Pacific region.

MAK Water was engaged early in the design phase by the ADF consultant to develop a robust potable water treatment solution capable of operating in a harsh tropical environment with highly variable raw water quality due to an uncontrolled catchment and extreme rainfall. Without a reliable system, the client faced risks to operational continuity, increased costs, and compliance challenges associated with water quality and system resilience.

SOLUTION

MAK Water drew on over 20 years' experience to design a robust water treatment solution capable to producing potable water in a harsh operating environment with variable raw water quality attributed to an uncontrolled catchment in a tropical high rainfall area. After a competitive tender process, MAK Water was selected due to its involvement in the design and proven track record delivering robust modular potable water treatment plants to remote areas.

MAK WATER KEY SOLUTIONS

- Lamella clarifier, multimedia filtration, granular activated carbon, UV and chemical disinfection.
- Calcium hypochlorite makeup plant eliminating the need for liquid hypochlorite, which degrades in extreme heat.
- Polymer makeup skids to reduce the requirement to transport bulk liquids to site.
- Two 100% treatment trains providing full redundancy
- Remote access with premium-grade instrumentation for optimised monitoring and performance insights.
- AS1210-compliant to meet long-term project design life
- Participation in Hazard & Operability Study (HAZOP) and Safety in Design (SID) processes.
- Formal on-site training delivered for local operators.
- Completion of proof-of-performance testing

Lamella Clarifier (LC) installed on site

Multimedia Filtration (MMF) in MAK Water workshop

RESULTS AND BENEFITS

- **Sustainability.** Reliable potable water system designed for extreme tropical conditions, ensuring long-term environmental and operational resilience.
- **Operational reliability.** Dual treatment trains and premium instrumentation enabled continuous uptime, reducing risk to defence operations.
- **Cost efficiency.** Reduced chemical transport needs and improved system durability lowered ongoing operational costs.
- **Compliance assurance.** Advanced treatment processes and proof-of-performance testing ensured compliance with stringent defence water quality standards.