



**PACIFIC
ENVIRONMENTAL
SECURITY FORUM**

**ENVIRONMENTAL
SUSTAINABILITY WORKSHOP
SUMMARY**

Co-Sponsored by: | Australian Department of Defence and
the U.S. Pacific Command

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BACKGROUND INFORMATION

Environmental Considerations in planning a peace keeping operation on Trinder Island in the Coral Sea (fictitious scenario)

CONTEXT

In the operational context, visiting forces are expected to avoid significant impacts on the environment, remediate pollution and 'make good' the environment to offset adverse impacts caused by activities. This workshop will demonstrate how effective environmental planning can support these goals during military operations. It will also consider the role of baseline and close-out surveys in measuring the performance and effectiveness of the environmental management practises of visiting forces.

Sound environmental management is considered an integral part of operations and can be incorporated into the planning processes and set out in administrative arrangements – (*concept of operations*). An example environmental annex is attached.

Environmental Baseline (at commencement of operation) and Close-Out surveys (re-deployment) can be undertaken to determine the prior and post condition of the environment at forward operating bases.

OUTCOMES

1. Relevant issues that should be included in environmental planning that will occur during the concept of operations [CONOPS] (pre-deployment) planning; and,
2. Environmental aspects that should be included in baseline and close-out surveys at Trinder Island.

SCENARIO

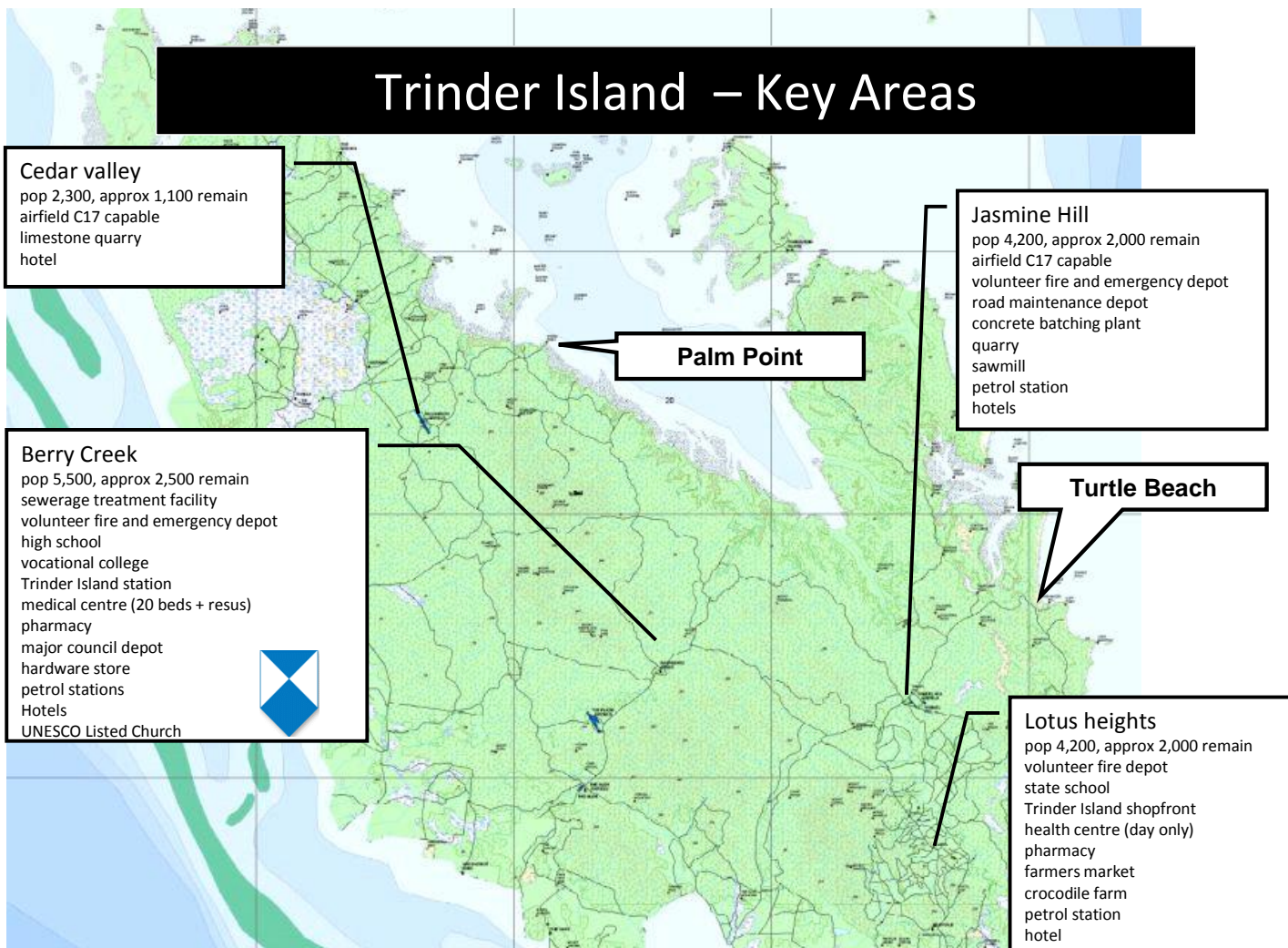
Trinder Island is located in the Coral Sea, on the western boundary of the Pacific Ocean. The residing Government has been under increasing external pressure from outside sources over Trinder Island. Following an escalation of activity, a United Nations resolution has been produced declaring that a United Nations peacekeeping operation be undertaken. The operation is expected to be in place for at least 12 months.

A UN peacekeeping force is to assist the Trinder Government. The UN lead force will develop the CONOPS. The CONOPS will include strategic directions and tasking related to environmental management to reduce the impacts of the military activities of Trinder Island.

Trinder Island has four small communities: Cedar Valley, Berry Creek, Jasmine Hill and Lotus Heights. Its economy is centred on agriculture, forestry, fishing and tourism. Surrounding the island are pristine coral reefs that support internationally renowned marine ecosystems which contribute to Coral Triangle, the largest known marine biodiversity in the world. The waters surrounding the island provide vital nursery and recruitment areas for a large variety of marine species including fish (supporting two commercial export fisheries), turtles, corals, invertebrates and are a known humpback whale breeding ground.

This information will form a Draft Environmental Annex that should include environmental mitigation measures or procedures that can assist in minimising the identified environmental impacts. These can be specific environmental management plans or other plans that take account of environmental risks, or specific operating procedures.

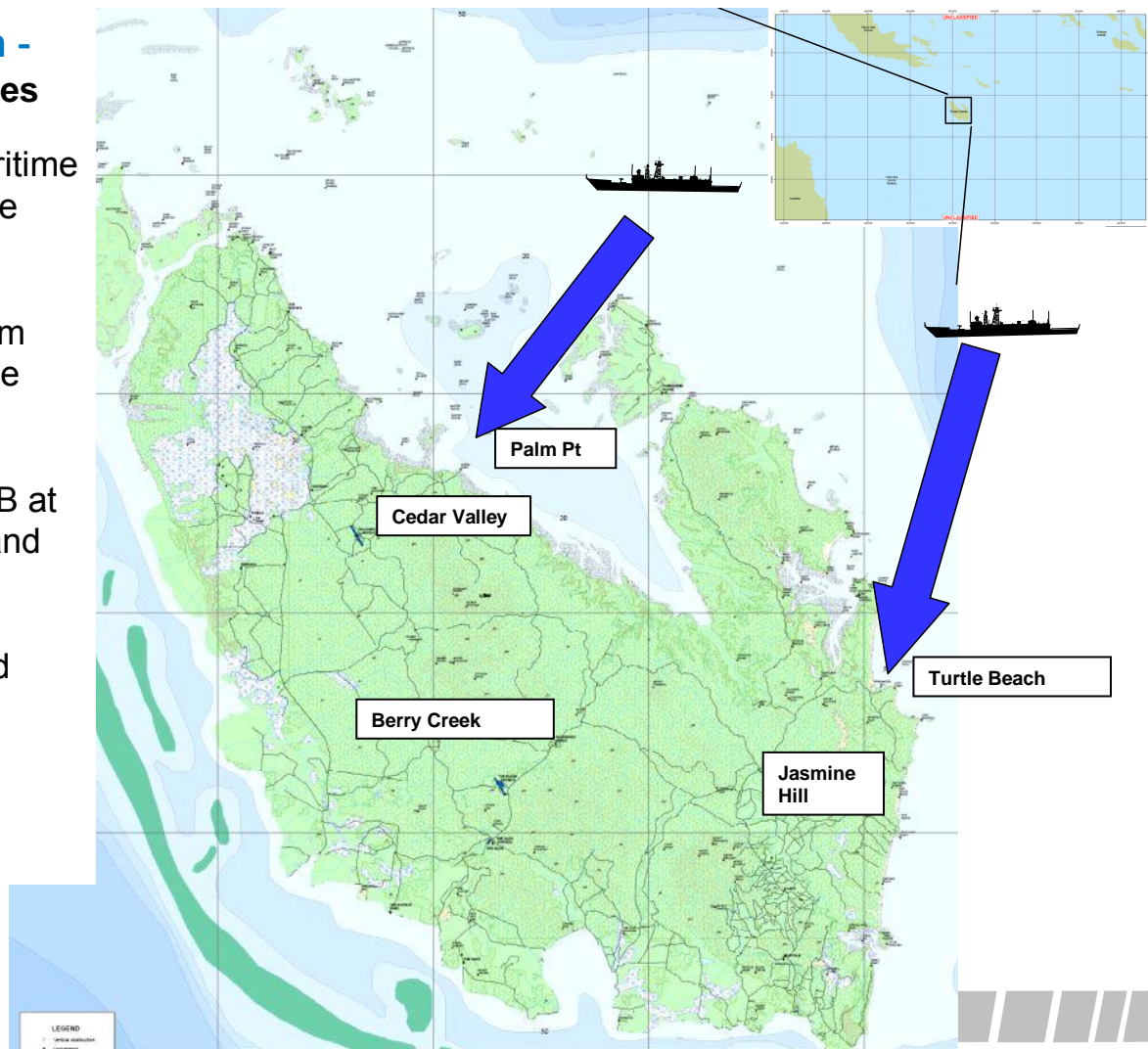
Graphic 1: Trinder Island population centres, locations and activities



Graphic 2: Planned locations of proposed military operations as part of peace keeping force on Trinder Island

Execution - Key activities

- Conduct Maritime Mine Clearance
- Amphibious Landing at Palm Point and Turtle Beach
- Establish FOB at Cedar Valley and Jasmine Hill
- Establish field hospital
- Stability Operations



WORKSHOP 1

Planning and mitigating the impacts of military activities at Trinder Island

This task is to scope the environment issues and mitigation measures that need to be considered to take account of the military activities planned for Trinder Island.

With your facilitator consider the issues and characteristics of the locations involved. Identify potential environmental impacts and mitigation measures for each of the military activities a-e below. Your planning should consider land uses on the island and any environmental/social and heritage impacts.

- a) Maritime mine sweeping activities in Trinder Island waters;
- b) An amphibious landing at Turtle Beach and Palm Point;
- c) Establishing a forward operating base¹ (FOB) at Cedar Valley and Jasmine Hill
- d) Establish a field hospital at Cedar Valley; and
- e) Stability operations.

a) Maritime Mine Sweeping to re-establish freedom of navigation in Trinder Island Waters

- What are some of the environmental issues that should be considered when undertaking mine sweeping activities in support of the operation?
- What mitigations could be developed to support this activity?

b) Amphibious landings at Turtle Beach and Palm Point

The UN peacekeeping force will need to conduct an amphibious lodgement to put troops and stores ashore. This will involve ship to shore transfer of personnel, stores, vehicles, equipment and fuel using landing vessels and helicopters.

- What are some of the environmental considerations and mitigation measures to consider when planning for the amphibious landing at the two points?

c) Forward Operating Base at Cedar Valley and Jasmine Hill

The FOBs at Cedar Valley and Jasmine Hill will provide facilities and accommodation for 250 UN peacekeeping personnel. A construction team will be deployed to facilitate this. They will store provisions, fuel vehicles, and equipment. Some land may need to be cleared of vegetation to develop the FOBs.

¹A Forward Operating Base is defined as any secured forward military position that is used to support tactical operations. (<http://www.idga.org>)

- What are some of the environmental considerations to be considered at Cedar Valley and Jasmine Hill in establishing the FOBs?
- What mitigation measures could be developed to support the operation and reduce environmental impacts?

d) Field Hospital

Once on the ground, a field hospital will be developed at the Cedar Valley forward operating base to provide immediate first aid to the deployed force and provide effective aero medical evacuation if required.

- What are the environmental considerations and mitigations related to facility construction?
- What are the special waste management issues to be considered?

e) Stability Operations

Once established, the peacekeeping force will undertake routine activities as part of its mission. These activities will require the effective management of sensitive environmental and heritage areas, such as activities in Ramsar² wetlands and the world heritage site. Providing security for the local population will allow normalcy to return to the Island.

- What are some of the environmental considerations and mitigations related to stability operations?

² The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. (<http://www.ramsar.org>)

WORKSHOP 2

Environmental Baseline and Close-out Surveys at the Forward Operating Bases, Trinder Island

Having planned the operation and developed some inclusions for the concept of operations, the task here is to scope out inclusions for environmental baseline and close out surveys. This survey will take account of your findings in Workshop 1 on possible environmental impacts at the forward operating base. The surveys will consider the matters or characteristics of the environment that should be monitored and measured.

Baseline surveys are intended to determine the environment and conditions present prior to visiting forces establishing base camps in the area of operations.

- What environmental issues might you monitor in an environmental baseline survey at the commencement and close-out survey at the end of the operation?
- What are some of the benefits of these surveys?
- Taking into account some of the risks identified in Workshop 1, list some of the specific environmental monitoring requirements involved?
- What methodologies would you apply to these environmental monitoring requirements?
- Who performs the various tasks involved with closeout and baselines?
- What second order effects do you need to consider outside the Forward Operating Base?

BLUE TEAM

WORKSHOP 1

MINE SWEEPING

ENVIRONMENTAL ISSUES:

(Ex: considerations)

Operations

Sonar
Small boats
Large boats
Detonation in place

Remove
Ditch to deep water

Location

Close to shore

Resources

1. Fish
2. Reef
3. Turtles
4. Cultural
5. Whales

Environmental impacts

Low risk to fish (mammals)
Strikes to mammals
Interruption to feeding
Destroy reef
Kill fish / mam / rept
Cratering

AMPHIB LANDINGS

OPERATIONS

Multiple times landing craft

Equipment off-road
Beach matting
Tractors, bulldozers

Fuel, hazmat, tents
Admin area

Location

Sandy Beach
Trees, need roads
Resources: turtle (endangered)
Dugong, \$trees, Ramsar wetlands, migratory birds

IMPACTS

Damage from anchors multiple landings, erosion

High tide, choose beach, id several zone – harassing,
killing migratory birds/turtles
Selecting a beach based on season conditions
spills
Spill kits plans in place move off beach quickly to
secure area

WORKSHOP 2

Environmental Baseline and close out surveys

What issues would you monitor?

- Water quality
 - Fauna survey
 - Heritage/culture/religious
 - Land use
 - Air quality
 - Socioeconomic drivers
 - Pre-existing contamination
- Main effort of op cost/benefit planned/existing
Use compensation/reputation

LESSONS LEARNED:

- Stimulation of economy
- Sensitivity of local culture/customs
- Integration with local population (human terrain)
- Ask first (e.g. dump sites) and the right people
- Capacity building
- Prosperity must be the aim

WORKSHOP 1

MINE SWEEPING IMPACTS

RISK

1. Ship Operations
 - Grounding risk
 - Oil spill
 - Anchoring
2. Ship Based Equipment
 - Sonar sound impacts – whales/dolphins/dugong
 - Entanglement – whales
3. Mine Disposal
 - Detonate mine = localised damage to reef, fish, whales and marine environment
 - Cultural/social impacts
 - Contamination – unexploded ordnance
 - Tourism declination

MITIGATION

- Accurate maps/charts/bathymetry (divers/remote-sensing)
- Oil spill response kit and adequate training
- Site selection and reef identification
- Use local pilots
- Minimise, separate, recycle, dispose in appropriate sites
- Lookouts onboard to spot whales and dolphins = avoid
- Early planning of operation = avoid
- Inform community and evacuate
- Establish lookouts on ships
- Ascending detonations
- Early planning for amphibious landing site selection

WORKSHOP 2

FORWARD OPERATING BASE

Monitoring baseline together with local group

1. Monitoring of waste management
 - a. Clinical
 - b. Construction
 - c. Others
2. Contamination of water sources above ground and ground water – find source of contamination (ex: soil)
3. Soil contamination
4. Erosion/deforestation –revegetation
5. Unexploded ammunition – heavy metal contamination (long term monitoring)
6. Soil compaction / land degradation
7. Heritage site damage
8. Monitor structures that are handed over – fit for purpose / maintenance (Who will use it in the future? Can they maintain it, or will it be a burden?)

WORKSHOP 1

Key Points

1. Establish local liaison officer
2. Baseline environmental survey (Environmental Assessment; social effects, what laws apply; any gaps) included in site selection (includes assessment of infrastructure).
 - a. Document this
 - b. Scientific basis – photos
3. Site that meets requirements, minimize environmental footprints, minimize impacts on community
 - a. Risk
 - b. What is required to achieve the mission?
4. Operational Issues

EMS (Need documentation on how to do all of this)

- Fuel storage/POL
- Waste/waste streams/waste disposal
- Sewage
- Water availability/usage/treatment
- Construction issues/vegetation clearance
- Power/energy usage/renewables
- Biosecurity
- Pollution prevention
- Logistics/risk of ongoing support (supply of site)
 - Ex: no water bottles
 - Use of support ships to backload waste
- Only equipment that is required
- Security requirements
- Peacekeeping

FOB Environmental Issues

Assumptions:

1. Host nation support
 - a. Use of all infrastructure/facilities
2. We are the UN – compliant with international environmental legislations
3. FOB – 250 personnel in a town of 4,600 of which 2,000 remain. Ergo, capacity issues

WORKSHOP 2

Lessons Learned

- Baseline – confirmation that all coalition partners are operating under the same requirements.
- International Maritime Pollution Requirements, e.g. Ballast water and disposal.
- Document previous experiences, philosophy of continuous improvement.
- Implementation of improvements from lessons learned
- Integration into military doctrines.
- An effective close-out team. Dedicated to the close-out process.
- Issues with environmental data from baseline.
- Clear deliverables, objectives.
- Local buy-in from the beginning.
- Pictures of GPS coordinates.
- Whole of life approach to the issue.
- Corrective action plan and monitoring system.
- Collaborate with locals, assisting disposal and environmental mitigation measures.
- Continual review, questioning processes.
- Lead time for close-out, necessary preparation
 - Creation of database early and build on.

Close Out

- All facilities would be left behind for future use
 - Comply with all relevant laws
 - Due diligence
 - Instructions for use
- Assess against baseline
 - Remediate to baseline
- Make good offsite impacts (roads/bridges etc.)
 - Ongoing?

WORKSHOP 1

FIELD HOSPITAL

ISSUES TO CONSIDER

- Footprint (size)
- Sharing services
- Access – roads/aircraft
- Security / force protection
- Environmental – prioritise existing conditions
 - Specific hospital related environmental hazards
 - Protection of wildlife adherence to local law
- Local engagement – concerns specific local needs
- Waste management – secure storage – removal from island – liquid waste treatment purification
- Possibility of introducing exotic pest on imported equipment
- Minimize impact on local population
- Water – facilities – water production for medical purposes / purification
- Vaccines / medication for known diseases

WORKSHOP 2

1. Topography – GLS/Remote sensing
2. Cultural – existing infrastructure
3. Flora and fauna
4. Ecosystem – drainage – flooding – water quality
5. Economy impact – local economy level
6. Agriculture – land used, damage to agriculture land
7. Sensitive to existing area
8. Population – demographic change
9. Contamination – existing contamination
 - Agriculture – pesticide – herbicide
10. Notifications to local authorities
11. Waste treatment – hazardous and normal waste
12. Financial mitigation to the local authority
 - ex: damage done to agriculture land

LIST TO MONITOR

1. Water quality
2. Air quality
3. Level of sickness disease
4. Soil
5. Children development
6. Noise level
7. Location of the local community
 - ex: press

LESSONS LEARNED

1. Investing time and money ahead – Iraq mission
2. Information sharing – database – ex: drop box/documentated information
3. Specific environmental policy

WORKSHOP 1

1. Mine Sweeping

Impacts:

- Deep water
 - Cetaceans
 - Sonar
 - Protected coral reefs
 - Secondary impacts
- Shallow water
 - Sea grass
 - Nesting seabirds
 - Migratory species

Mitigations:

- Be aware of migratory routes
- Aerial species observation
- Route planning – avoiding protected reefs and seagrass
- Minimize use of explosives to what is necessary

2. FOB

Impacts:

- Water
 - Usage
 - Contamination
- Waste
 - Solid
 - Liquid
 - Hazardous
- Construction
- Land clearance
- Fuel handling
- Vehicle/air ops
- Explosive handling/HAZMAT handling/UXO
- Social/economic
- Cultural heritage
- Noise

- Biosecurity
- Bushfire

Mitigation:

- Fuel storage SOPs
- Minimize contamination
- Import water
- ROWPU/Desal
- Use local manpower
- Noise restrictions
- Remove/backload waste
- Composting from mess
- STP
- Initial surveys
- Hardstands

3. Stability Ops

Impacts:

- Noise
- Vehicle Ops
 - Erosion
 - Infrastructure damage
- Air ops
- Construction
- Cultural heritage (wooden church)
- Socio-economic
- XO/UXO
- Contamination

Mitigation:

- Local employment

WORKSHOP 2

Sustainability

Receptors:

- Water quality
- Water supply
- Drainage
- Work with HNLO (Host Nation Liaison Officer)
- Air quality
- Community
- Health/disease
- Vegetation
- Heritage values
- Threatened species/biodiversity

Method:

- Spatial mapping
- Demographic study
- Shifting baseline throughout deployment
- Photo point monitoring
- Community engagement

Case Studies:

- Haiti – cholera, airborne disease
 - Vaccination
- Marine pests
 - Pre and post deployment ship hull inspections to prevent translocation
- Heritage (Iraq and Afghanistan)
- Maldives
 - Coral Islands