Name of Protected Area: Kokoda Historical Track Reserve Part 1: Basic information about the protected area

Note: This assessment includes the Kokoda Historical Track Reserve and the Interim Protection Zone

Table 1. Protected area information

Name, organisation and contact details for person(s) conducting the assessment Person 1: Name, Organisation, Address, Email, Phone	Bernard Suruman, Conservation and Environment Protection Authority, PO Box 6601, Boroko, NCD, bsuruman@dec.gov.pg, +675 301 4500; and Warren Jano, PO Box 6601, Boroko, National Capital District, wjano2009@gmail.com, +675 7378 0347, +675 7358 8867.
Person 2: Name, Organisation, Address, Email, Phone	Ann Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur, Q4570, Australia, a.peterson@uq.edu.au, 0414300955.
Today's Date	23/11/2016
Name (or names) of protected area	Kokoda Track Historical Reserve and Interim Protection Zone
Size of protected area (ha)	71 (Track); 238,000 (Interim Protection Zone)
PNG Code or number	Nil
World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/)	377710
What level or kind of protected area is it? (National Park, Wildlife Management Area, Sanctuary, Reserve, Locally Managed Marine Area etc)	Historical Reserve
IUCN Category	
International protected area? e.g. World Heritage or Ramsar?	UNESCO World Heritage Register Tentative List – for Owen Stanley Ranges and Kokoda Track (submitted in 2006); and recognised on the List of Overseas Places of Historic Significance to Australia (this enables Australia to officially identify overseas places of significance to the development of the nation in a way that respects the rights of other nations. The Kokoda Track is one of three places on the list, along with Anzac Cove, Gallipoli and Howard Florey's Laboratory, UK. The listing for the Kokoda Track notes: "The Kokoda Track marks the course of one of the most important battles for Australians in the Second World War. Between 21 July and 16 November 1942, the Australian Army halted the furthermost southward advance by Japanese forces in Papua New Guinea and then pushed the enemy back across the mountains. It is one of the most striking places of Australian wartime history that can be visited".
Country	Papua New Guinea
Province/s	Central and Oro
District/s	Hiri and Sohe
Local level governments	Koiari and Kokoda
Ward/s	Wards on the Kokoda side include: Ward 2 (Kovelo), Ward 8 (Abuari) and Ward 9 (Alola); on the Central /Koiari side the track corridor runs through; Ward 5 (Depo), 6 (Vesulogo), 16 (Kagi), 17 (Efogi), 18 (Manari). The IPZ, includes all the previous mentioned wards as well as Ward 15 (Boridi, Koiari LLG) and 19 (i.e. there are 9 Special Purpose Authority Wards: (Kokoda LLG- Wards 2,8,9, Koiari LLG- Wards 5, 6, 16, 17, 18 and 15). The IPZ also has a non-SPA ward which is Ward 19 Edevu.
Nearest big town	Popondetta and Port Moresby

Location of protected area (brief description)	The Historical Reserve is located in Central and Oro Provinces and is 96km in length (straight line), but within a 20m corridor (10m each side of the track). The track runs from Owers' Corner on the southern side of the Owen Stanley Ranges, across the mountains to the Kokoda plateau in the Yodda Valley. The track follows the wartime tracks used by the soldiers, although there are some variations and deviations. An Interim Protection Zone (IPZ) has been identified, which represents a core area for possible legal protection of the Brown River catchment area and most of the Kokoda Track. The IPZ incorporates the Brown, Naoro and Goldie Rivers.	
Map references		
When was the protected area gazetted or formally established?	1972 (no specific date) – the Gazettal notice cannot be located and it is thought that the Track was not formally gazetted although the instruments were prepared. In 1972 the PNG Landmark and Names committee officially recognised and gazetted the name of the protected area as the Kokoda Trail and not track (refer to the PNG Government Gazette no 88 of 12 October 1972, p1363.	
Reference for gazettal or Memorandum of Understanding (MoU)	Current interim protection under the Environment Act Section 5 (a), (c) and (e) NEC Decision 27/2008; Joint Declaration (9 Sept 2014)	
Who owns the protected area? please enter Government Private Community/ customary landowners, private, Other (name) and include Clan name(s)	Customary landowners – it covers the lands of the Koiari and Orokaiva people.	
Number of households living in the protected area	>1000	
Population size within the protected area	~ 1500 (i.e. living within the 20m corridor); ~2,500 within the IPZ.	
Who manages the protected area? (e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender])	Customary landowners and the Kokoda Track Authority (KTA) which manages the Track to ensure that it is safe to walk. KTA is a Special Purpose Authority (SPA) created in 2008 to support the two Local Level Governments of Kokoda and Koiari, through which the Kokoda Track passes.	
Total number of staff (this means anyone working on the protected area in paid jobs – whether NGOs, community, rangers or customary landowners	6 (full-time rangers work on the Track during the trekking season and are employed by the KTA)	
Temporary paid workers	Unknown (The landowners in the villages along the track engage people to maintain the track)	
Permanent paid workers	6	
Annual budget (US\$) – excluding staff salary costs	The Australian Government provides funds to maintain and manage the Track The KTA receives payments from permit fees and tour operator licences and this money is used on the Track (this is minimal). KTA allocates some money to the wards along the track to assist with maintenance.	
Operational (recurrent) funds	Unknown - paid by the Australian government; some funds from the trekking fee.	
Project or special funds	0	
Reason for protected area establishment	To protect the historical significance of the Track as an important mail route, means of communication and supply line for soldiers and supplies during the Kokoda campaign in World War II; to improve the quality of life of the people living along the Track and adjacent areas and to protect the Brown River catchment.	

What are the main values for which the area is designated (Fill this out after data sheet 2)	Military history; Tourism/trekking; Economic; Biodiversity; and Sacred/cultural/archaeological sites; catchment.
List the primary protected area management objectives (add lines if needed after the most important objectives): Management objective 1	Protect the Track because of its historic military significance, its importance as a mail route and path for local communities to use (i.e. to walk from Kokoda to Port Moresby and other provinces); and its natural and cultural values.
Management objective 2	To sustainably develop the Owen Stanley Ranges and Brown River Catchment.
Management objective 3	To support the Ward development programs.
Number of people involved in answering the assessment questions	5
Name/organisation/contact details of people participating in the assessment	Elton Kaitokai, Conservation and Environment Protection Authority, PO Box 6601, Boroko, NCD, ekaitokai@dec.gov.pg, ekaitokai@gmail.com, +675 301 4500; James Sabi, CEPA, PO Box 6601, jsabi@dec.gov.pg; Mark Nizette, CEPA, PO Box 6601, Boroko, NCD, mark.nizette@gmail.com, +6753014520, +67572856556; and two customary landowners (names not provided).
Customary landowners/other community; CEPA, Other national government agency; Provincial govt; local level govt; Protected area staff (anyone working on the protected area in paid jobs; NGO; Donors; External experts; Others	Customary landowners, CEPA, Kokoda Track Initiative
Please note if assessment was carried out in association with a particular project, on behalf of an organisation or donor	SPREP through the PNG Protected Area Assessment Project, which is a component of the GEF Community-based Forest and Coastal Conservation and Resource Management Project in PNG.

Part 2: What makes this protected area special and important?

The Kokoda Track was historically used by PNG people as an important means of communication (Nelson, nd). The Track was also used in the 1890s by Australians and others trying to reach the Yodda goldfield on the north coast. In 1899 the track was surveyed and marked. The track was used regularly from 1904 – 1942 when a government station was established at Kokoda and a regular mail service began between Port Moresby and the north coast. The mail route was also used by miners, explorers and many local people. The Kokoda Track played an important part in the World War II PNG campaign. The Kokoda campaign was fought between July and November 1942 and the Track was crucial for moving soldiers and supplies along the route and was ultimately crucial in turning back the Japanese advance on Port Moresby. PNG people along the Track played a crucial role in this campaign (KI 2015). More recently the Kokoda Track has attracted trekkers who are not only interested in its military history, but also in the Track's reputation as a test of endurance. The Australian government has placed the Kokoda Track on its List of Overseas Places of Historic Significance because of its importance to Australia's wartime history and the PNG government has placed the Track and the surrounding Owen Stanley Ranges on its World Heritage Tentative List as a mixed cultural and natural site. The current Track used by trekkers generally follows the wartime tracks, although there are some variations and deviations. The track passes through several clan areas and villages and also areas with diverse habitats which are important for several species. The Kokoda Track Authority (KTA) is a Special Purpose Authority of the Koairi and Kokoda Local Level Governments commissioned to promote and manage the Kokoda Tract for tourists, while improving the way of life for communities living along the track, through funding and development programs. The Kokoda Initiative (KI), is a joint venture between the PNG and Australian governments that commenced in 2008 and aims to sustainably develop and protect the Kokoda Track and surrounding areas. The KI has established an Interim Protection Zone (IPZ) which covers the entire water catchment of the Brown River and parts of Vanapa and Laloki/Goldie Rivers. A Kokoda Initiative Master Plan (TRIP Consultants 2015) is being prepared by the PNG Government and has three development pillars: The Track (a safe and well managed Track); The People (enhanced quality of life and income for landowners and communities in the region); and The Environment (the sustainable use of the catchment area). The IPZ includes priority areas in Central Province for future development of hydro power and water supply for Port Moresby. It also provides a buffer that protects the historic values of the Kokoda Track.

Table 2. Key values of the protected area

(IUCN)
1

Table 3. Checklist of values/benefits

Not important 0; Important 1; Very important 2; don't know DK

Но	w important is the protected area for	Score	Comment
ea	ch of the listed values/benefits?	(0,1,2, DK)	
1.	Biodiversity – the presence of many different kinds of plants, animals and ecosystems	2	The Owen Stanley Ranges is a very large area of relatively intact rainforest close to Port Moresby. The Ranges are a significant element of the globally outstanding (G200) South East Papua Rainforest Ecoregion. Altitudinal and climatic variation have produced a diversity of vegetation types including savanna woodland dominated by Eucalyptus species, tropical wet evergreen forest, tropical montane forest, subalpine herb and grasslands. The area contains diverse plant species including many local endemics. The IPZ is important for: mammal species (e.g. wallaby, echidna, rats, tree kangaroos e.g. Doria's Dendrolagus dorianus and Pesquet's Goodfellow's Dendrolagus goodfellowi); birds (birds of paradise [raggianna and goldies], hornbills, dwarf cassowary Casuarius bennetti, parrots e.g. Psittrichas fulgidus, finches, bowerbirds and wildfowl); frogs (e.g. Bellamy Aphantophryne sabini; butterfly and aquatic insects; fish;

		and trees (e.g. New Guinea rosewood, <i>Pterocarpous indicus</i>) and intact forest on often very steep terrain. The biodiversity provides an important resource for customary
		use.
Presence of rare, threatened, or endangered species (plants and animals)	2	The Track itself is not critical for biodiversity. However, as part of the IPZ it plays an important role. The Kokoda Initiative is continuing to undertake a biodiversity values assessment.
3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas	2	The Track passes through grasslands and dry lake beds, as well as tropical forest ecosystems. The Owen Stanley Ranges are biologically important, consisting of 3,800m high ranges that are part of the globally outstanding 200 SE Papua Rainforest Ecoregion. Extreme altitudinal and climatic variation results in a rich variety of vegetation (e.g. savanna, monsoon, lowland rainforest and cloud forest; subalpine herb and grasslands).
4. Protecting clean, fresh water	2	The water is so clean – it is pristine. The Track is within the headwaters of the Brown River, Mamba and Camp Welsh Rivers and provides clean drinking water. The IPZ area contains several rivers and it is important to protect this catchment which provides water to Port Moresby and other settlements.
5. Sustaining important species in big enough numbers that they are able to survive here	2	Numbers of species remain stable.
6. Providing a source of employment for local communities now	2	The trekking industry allows for local men to be porters and guides. The communities along the track provide accommodation and people are employed in this local tourism sector. They also provide other service and items (e.g. food, timber)
7. Providing resources for local subsistence (food, building materials, medicines etc.)	2	Resources are not usually obtained from along the Track, but rather from the areas adjacent to the Track (i.e. timber for buildings, as well as traditional medicinal herbs). Communities within the wider IPZ utilize the resources for subsistence purposes (e.g. wildlife, timber and non-timber products).
Providing community development opportunities through sustainable resource use	2	Programs for the community are delivered through the Kokoda Initiative. This includes health clinics and schools.
Religious or spiritual significance (e.g. tambu places)	2	There are sacred and cultural sites along the Track (e.g. burial sites and tambu areas).
10. Plant species of high social, cultural, or economic importance	2	The narrow width of the Track corridor means that it has limited habitat for flora, but the Track together with the IPZ are important for a range of plant species.
11. Animal species of high social, cultural, or economic importance	2	The Track has limited habitat for fauna, but the IPZ is important for species such as the bird of paradise and many more.
12. Attractive scenery	2	Diverse scenery can be observed from the Track and throughout the IPZ. This area has several rivers, waterfalls, gorges, the Owen Stanley Ranges with largely intact forest and significant biodiversity values.
13. Tourism now	2	Tourism is in its initial stages. There are approximately 3000-4000 trekkers per year.
14. Potential value for tourism in the future	2	The Track has great potential for future tourism and a wider range of tourism products.
15. Educational and/or scientific value	2	There is potential for research within the Track corridor and adjacent habitat.
16. Maintaining culture and tradition on customary land and passing this on to future generations	2	The culture of the customary landowners is important. There are several archaeological sites that provide evidence of past societies and these are important to protect.

Part 3: What are the threats to the protected area?

Table 4: Threats to the protected area

- **H High** significance threats are seriously degrading values. This means they are badly damaging some value –it might be a kind of animal or plant, or your traditional gardens
- M Medium threats are having some negative impact they are damaging values but not so badly
- Low threats are present but not seriously damaging values
- **0 N/A** where the threat is not present in the protected area or where something is happening but is not threatening the values at all

Threat type	Score (H,M,L,0)	Notes
1.1 Housing and settlement	M	The Track passes through several villages. The Track thus impacts on the people, especially when the trekkers overnight and may disturb the community. Customary landowners cut trees for housing and firewood. Settlements are expanding in the IPZ and this may pose additional threats to resource extraction.
1.1a Population increase in the protected area community	М	Higher populations can cause impacts by clearing the vegetation for a range of customary purposes (e.g. gardens, housing and firewood).
1.2 Commercial and industrial areas	L	There is currently little development. However, hydro power plants are proposed within the IPZ and this may attract industrial development.
1.3 Tourism and recreation infrastructure	М	There are guesthouses and campsites in the villages or near the villages along the track. This results in more clearing for buildings and for firewood. Trekkers may also impact on areas adjacent to the Track.
2.1 Customary land owner and community gardens and small crops	Н	Local gardens are located within and near to the Track and this can cause loss of vegetation and lower the natural amenity of the area. We try to encourage gardeners not to garden within 10m of the Track. There is some small scale walk-about saw milling, introduced by KTA in some areas, to discourage people from taking trees that can be seen from the Track or are near rivers — maps have been drawn and these are used to talk with landonwers about suitable areas for timber harvesting. This is having some success. This needs to be monitored by the rangers, who now focus mainly on the trekking industry. This will require clear delineation of the rangers' roles and responsibilities and training to improve their biodiversity monitoring skills and also the military heritage skills.
2.1a Drug cultivation	0	
2.1b Commercial plantations	L	There are old rubber plantations and there may be palm oil expansion in the future. A portion of the track at the end runs through rubber plantations.
2.2 Wood and pulp plantations	L	
2.3 Livestock farming and grazing	L	
2.4 Marine and freshwater aquaculture	L	Very few local people are venturing into fish farming. However, those that do are using introduced fish, which may enter the streams along the Track and impact on the native species.
3.1 Oil and gas drilling	L	Some lowland areas may have potential for hydrocarbon resource extraction and this may be a potential future threat (Hitchcock and Gabriel 2015).
3.2 Mining and quarrying	L	The Owen Stanley Ranges are thought to contain metalliferous ore bodies, but few have been discovered. Mineral exploration and mining are an "ongoing and significant threat" to the heritage values of the area (Hitchcock and Gabriel 2015:59).
3.3 Energy generation	М	There is a possibility of future hydro-electric power generation and this may impact on the rivers and water flow and reduce visual amenity. Currently there is no impact.
4.1 Roads and railroads (include road-killed animals)	0	
4.2 Utility and service lines (e.g. electricity cables, telephone lines)	0	
4.3 Shipping lanes	0	
4.4 Flight paths	L	Helicopters are used in the area and these cause noise impacts.

Threat type	Score	Notes	
5.1 Hunting, killing and collecting terrestrial animals (including killing of animals as a result of human/wildlife conflict)	(H,M,L,0) M	There is some vandalism, poaching and hunting and this is reported to be as a result of the activities of some of the porters employed by the trekking groups. Hunting in the wider IPZ area is also a threat to several species of mammals, particularly in lowland and foothill habitats (Hitchcock & Gabriel 2015).	
5.2 Gathering terrestrial plants or plant products (non-timber)	М	Some plants are extracted by the trekking groups e.g. orchids; and customary landowners extract cane and plants for medicinal purposes.	
5.3a Logging and wood harvesting for local/customary use	М	Timber is harvested mainly by locals for their own use or community use and for track maintenance. In the future these trees should not been removed.	
5.3b Logging and wood harvesting – commercial logging	L	Some areas have been logged in the Brown River (by Rimbunan Hijau). Little information was available on current timber concessions. However, future logging would be a threat to the forest values of the IPZ and also to the water catchment values.	
5.4a Fishing, killing and harvesting aquatic resources for local/customary use	L	The impact of fishing is very low as the main species fished is the rainbow trout which is an introduced species.	
5.4b Fishing, killing and harvesting aquatic resources for commercial use	0		
6.1 Recreational activities and tourism	М	The main activity is the trekking which takes place from March to November each year. The Track is affected by the trekkers who use it. This degrades the Track turning it to mud after rain and this may cause accidents. There are about 3000-4000 trekkers per annum and a similar number of customary landowners who use the Track. There is a need to improve track planning and management to minimise the impact of trekking on the natural and heritage values and to ensure the safety of people using the Track.	
6.2 War, civil unrest and military exercises	0		
6.3 Research, education and other work-related activities in protected areas	L	KTA has undertaken research in relation to exotic species on the Track.	
6.4 Activities of protected area managers (e.g. construction or vehicle use)	L	There is track maintenance and construction that may cause some low impacts.	
6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors	М	Historic artefacts from the Kokoda campaign are being removed by souvenir hunters and dealers. The monuments along the Track may be damaged and some of the sites can be affected by the visitors. The War Surplus Material Act 1952 invests ownership of the material remains relating to WWII (i.e. including the Kokoda Track) to the PNG Government, for those materials located in PNG. The Act is administered by the PNG National Museum. There is a need to enhance the enforcement capability of the National Museum, increase ranger presence in the Track area and raise awareness among all stakeholders.	
7.1 Fire and fire suppression (including arson)	L	Fire can escape from gardens and have an impact on the Track. The Track runs through some grasslands, which easily burn in drier periods. Fire is a major vector in deforestation, especially in steep mountain slopes such as the Owen Stanley Range. The area is particularly prone to fire during El Nino events.	
7.2 Dams, hydrological modification and water management/use	L	An important purpose of the IPZ is to secure a safe area for water and power. In the future the construction of dams and hydro-electric power may cause impacts (e.g. the proposed Naoro Brown Hydro-electric plant). Two hydro power plants have been agreed to: Edivu is a small weir and the impacts are likely to be minimal; and the Madilogo (a larger dam that will result in water backing up almost to the Kokoda Track – abut 500m from the track). The hydro station will be on the Brown River and has funding from the World Bank to complete the environmental impact statement. The KI has been undertaking social mapping to ensure that the correct customary landowners are consulted and is also examining the impacts of this project on biodiversity and social values (it is thought that the projects will have	

Threat type	Score (H,M,L,0)	Notes
		minimal impacts on the biodiversity and archaeological values). Additional hydro plants may be built in later years.
7.3a Increased fragmentation within		Short tracks have been developed from the main track and are used by
protected area	L	tourists, but the impact is minimal.
7.3b Isolation from other natural		The Track passes through natural vegetation for most of its length and
habitat (e.g. deforestation)	L	the IPZ is largely adjacent to natural areas.
7.3c Other 'edge effects' on park values	L	The oil palm companies respect the Track and their impact is minimal.
7.3d Loss of keystone species (e.g.		
top predators, pollinators etc.)	0	
8.1 Pest plants	М	There is a high number of exotic species along the track. The KTA has undertaken research to identify these species and is beginning to address these.
8.1a Pest animals	L	These are rare and their impacts are minimal.
8.1b Diseases such as fungus or		
viruses that make native plants or	0	
animals sick		
8.2 Introduced genetic material (e.g. genetically modified organisms)	0	
9.1 Household sewage and urban		Campsites and villages have pit toilets and hence there are few
waste water	L	impacts on the Track.
9.1a Sewage and waste water from	0	impacts on the riddi.
protected area facilities		
9.2 Industrial, mining and military	0	
effluents		
9.3 Agricultural and forestry effluents	0	
(e.g. excess fertilizers or pesticides) 9.4 Garbage and solid waste		Garbage and solid waste are produced mainly by the trekkers,
5.4 Garbage and solid waste	L	however the trekking companies have a trash porter who is responsible for removing all waste.
9.5 Air-borne pollutants	0	
9.6 Excess energy (e.g. heat	0	
pollution, lights etc.)	0	
10.1 Volcanoes	0	
10.2 Earthquakes/Tsunamis	0	
10.3 Avalanches/Landslides	0	
10.4 Erosion and siltation/ deposition (e.g. shoreline or riverbed changes)	L	
11.1 Habitat shifting and alteration	0	
11.2 Droughts	L	1997 drought/frost and bushfire.
11.3 Temperature extremes	L	
11.4 Storms and flooding	L	
11.5 Coral bleaching	0	
11.6 Intrusion by saltwater into	0	
gardens etc.	-	
11.7 Sea level rise	0	
Other (please explain) 12.1 Loss of cultural links, traditional		The older landowners who were engaged in the Kokoda campaign and
knowledge and/or management		others who have knowledge of the Track and cultural practices are
practices	M	dying and this knowledge is being lost. There is an urgent need to
practices		capture the traditional knowledge of the area.
12.2 Natural deterioration of		Archaeological research has uncovered a number of important sites
important cultural site values		showing evidence of long-term cultivation and use (e.g. at Madilogo
	L	and Myolo Lakes). These sites need to be conserved to ensure that their values are protected.
12.3 Destruction of cultural heritage		
buildings, gardens, sites etc.	L	
Other (please explain)	М	Management of the IPZ is complex, with diverse stakeholders. A major threat is that of governance (i.e. staying in contact and working

Threat type	Score	Notes
	(H,M,L,0)	
		together). The KTA does not have strong governance (e.g. it does not report to government and is unstable – it can be influenced by diverse groups – customary landowners, mining, agricultural expansion/fish farming etc. There is not one organisation with control over the area, although CEPA tries to hold the other stakeholders together.

Table 5. Worst threats and ways forward

Threat	Threat	Threat number or	Nature of the threat, impact and how to reduce the impact.
No.	(Most significant first)	name (copy no.	
		from Table 4)	
1	Population Increase	1.1a	Increase in population and expansion of land uses, which may
			impinge on natural, cultural and historic values.
2	Tourism	6.1	Increasing numbers of tourist walk on the Track and effective
			management must be in place.
3	Customary landowner	2.1	Gardens are expanding into natural areas and will impact on
	gardens		biodiversity values.

Part 4: What is the management like in the protected area?

Table 6. Management effectiveness scores, comments, next steps

Issue	Score (0,1,2,3, NA)	Comment	Next steps
1a. Legal status	2	There is some lack of clarity in relation to the gazettal notification in PNG. It is believed that the Gazettal notice was prepared in 1972, but was not formally gazetted. The Track is identified on the List of Overseas Places of Historic Significance to Australia. In PNG most of the Track is included in the Interim Protection Zone (IPZ) that covers the catchment of the Brown, Naoro and Goldie Rivers.	The IPZ, including the Track needs to be gazetted under PNG's new Protected Area legislation.
1b. Legal status			
2a. Protected area regulations	2	The Track operates under three separate sets of regulations, which are focused on: the Track itself and the regulation of the tourism/trekking industry (porters, guides, guest house accommodation); the military heritage, which is regulated by the National Museum; and the environmental values which are regulated under environmental legislation.	Finalise a Master Plan for the IPZ that better integrates the management of the Track and ensures environmentally sustainable outcomes. This process will help to clarify the regulations relevant to the Track and IPZ.
2b. Protected area regulations			

Issue	Score	Comment	Next steps
3. Law enforcement	(0,1,2,3, NA) 2	In relation to the Track, the KTA has a system of rangers (however, they have no powers under legislation). If some of the porters do not comply with the regulations (e.g. hunting, collecting) the rangers have limited effective enforcement powers. The customary landowners are self-regulated. Most of the disputes are in Kokoda and Koiari LLGs and these are resolved through LLG and Provincial administrative processes. There are no major threats to flora and fauna on the Track and there are no major pest species – this requires minimal enforcement. However, the removal of military heritage is a major problem. Trekkers and others are 'souvenir hunters' and collect a range of items. There is currently no education program to tell trekkers that this is illegal. Scrap metal dealers and souvenir hunters encourage people to bring material in and it is then exported, mainly to the American market. Control and enforcement of this trade is difficult.	Awareness raising and training of: porters and guides; and the trekkers (e.g. protecting military heritage items and understanding the joint Australian and PNG military history and engagement in the Kokoda campaign). Establish a 'Tourism Police' to walk the Track and enhance compliance (similar to the Tourism Police instituted at Mt Wilhelm WMA). Ensure effective training and certification of the Tourism Police. In relation to souvenir hunters, this needs improved enforcement by the National Museum, which is responsible for administering the War Surplus Material Act 1952. As the Museum is currently underresourced, the Australian Government has agreed to employ an adviser to the National Museum in 2017. This will provide a strong foundation for the development of relevant policies and actions to prevent the removal of historic
4. Protected area objectives	3	Management aims to meet the objectives that have been agreed over several years. However, these objectives may not always be achieved. A joint declaration on the preservation of the Kokoda Track region has been signed by the Australian and PNG prime ministers (2015). It provides for the sustainable development of the Owen Stanley Ranges, Brown River Catchment and the Kokoda Track region and protection of its special natural, cultural and historic values.	items. Complete a Master Plan for the IPZ, and including the Track and ensure that objectives are agreed by all relevant stakeholders, in particular the customary landowners.
5. Protected area design	3	The IPZ includes protection of the catchments of several major rivers and hence this allows for comprehensive water and biodiversity planning and management, as well as protection of important archaeological sites and military heritage sites associated with the Kokoda campaign. The IPZ includes the Kokoda Track, which consists of several trails, with historic origins, e.g. use as a communication route in the 1890s and early 20 th century and then as a military track during WWII.	Progress gazettal of the IPZ as a protected area under PNG's new protected area legislation and finalise nomination of the broader Owen Stanley Range as a World Heritage Area.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
6. Protected area boundaries	3	The boundaries of the Kokoda Track are clear i.e. 10m either side of the Track. The boundaries of the IPZ are mapped.	
7. Management plan	1	Through the Kokoda Initiative, established in 2008, the PNG and Australian Governments have agreed to sustainably develop and protect lands within the IPZ, including the Kokoda Track. The Kokoda Track Authority (KTA) was established in 2005 to develop the management regime for the Track region. It is primarily responsible for the Track and the trekking industry. The Kokoda Track Management Committee is responsible for the strategic direction of the KTA, forward planning and management issues. No formal management plan exists for the IPZ area.	Several plans are needed including: (1) Master Plan for the IPZ that provides guidance for traditional land owners to maintain control of their land while promoting sustainable development in the region and protecting their diverse values; (2) Track Management Plan which includes specific targets to improve outcomes (e.g. the carrying capacity of the Track in terms of the number of trekkers permitted to use the track over a given planning period) and to minimise negative impacts on the values of the Track and to maintain and improve the trekking experience; (3) Site management plans for priority sites (e.g. Kokoda Memorial, Owers' Corner); (4) Tourism Plan to manage the increasing number of trekkers that walk the Kokoda Track; (5) Military Heritage Management Plan to ensure effective protection and management of the Track's historic values; and (6) a Regional Environment Plan to protect the region's diverse biological values. Development of these plans requires comprehensive and effective engagement of relevant stakeholders, in particular the customary landowners.
7a. Planning process – input of stakeholders	1	While there is no overall formal management plan, customary landowners and other key stakeholders are involved in management planning.	Continue to engage with diverse stakeholder groups to develop and implement required planning documents.
7b. Planning process - review	1	Review is part of the KTA management approach. However, there is no plan for the IPZ at the moment.	
7c. Planning process - monitoring	1	There has been a range of research activities that inform planning.	
8. Regular work plan	2	There is a work plan in place. The new model revolves around the two sources of funding. The Australian Government provides \$5million per annum and has prioritised where best to spend the money, e.g. it is invested in KTA (governance, upskilling, capacity building and ranger training). The PNG Government, following two years of discussions, has signed an agreement with the Queensland Parks and Wildlife Service, whose rangers will work with PNG rangers on the Kokoda Track to develop their capacity). This agreement was based on an Australian Government survey of the Track, which examined the major management issues and the most appropriate ways to deal with them (2015).	Ensure that all relevant agencies are working together to develop and implement the most appropriate plans and actions, e.g. the KTA is working with the Australian Government, but must also ensure effective integration within the CEPA's administrative structures. A national ranger system is important, with the Kokoda rangers being a part of this national network.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
9. Resource inventory	2	The KTA is responsible for Track management and has undertaken a resource inventory. There is some information on the biodiversity, archaeological and cultural values of the area: (1) There have been biodiversity surveys along the length of the Track and several transects were used to identify exotic species along the Track, that may have been introduced as a result of trekking; (2) two military Cultural Heritage Management Plans have been developed (e.g. The Lost Battlefields of Etoa, Eora Creek [Kelly et al. 2016] and Blamey's Garden, Hombrom Bluff [Kelly 2016] in Namanatabu WMA). These Plans identify the values of these sites and prioritise actions. (3) Oral histories have been collected from the people along the Track (Kokoda Initiative 2015) and a video has been produced. This provides important insights into the role of Papua New Guineans during the Kokoda campaign and provide a basis for developing the Military Heritage Plan; (4) a social mapping project has been undertake to develop an understanding of the genealogical make-up and land ownership systems of the communities within the KI program area or IPZ – this will help to guide effective consultative processes; (5) Archaeological surveys e.g. Madilogo (archaeologists from UPNG, the PNG National Museum and Art Gallery and the Australian National University are engaged in long-term research focussed on the traditional lands of the Mountain Koiari people, and there may be evidence for occupation going back 45,000 years, where people focused on tree nut production for thousands of years and also trade [MRI 2015]); and Myola Lakes along the Track, where there is evidence of human occupation for more than 35,000 (Extent Heritage 2016).	More information is required on the military heritage values of the region. It is important to consult with the customary landowners and learn what is important to them in the IPZ area. If people do not value the area, then it will be difficult to protect the values.
10. Protection systems	2	Trekkers are required to obtain permits although customary landowners can walk their land as they have done in the past. Trekking companies must be licensed to operate along the Track and there is certification of these companies to ensure that minimum standards are adhered to and Track safety is enhanced. There may be some illegal trekking operators who may not get the appropriate approvals. The KTA rangers walk the Track to ensure compliance. However, they have no powers to enforce penalties.	There needs to be greater awareness by the trekkers and also the trekking companies of the required rules and this will help to increase compliance (e.g. relating to souvenir hunting). Consider introducing a Tourism Police force, which has relevant authority to enforce the required rules.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
11. Research and monitoring	2	Several research projects have been undertaken: (1) Biodiversity; (2) Archaeological – Madilogo, Myolo Lakes (3) Military heritage sites - Eroa, Blamey's Garden, (4) Oral histories (refer to No. 9 Resource Inventories).	A Military Heritage Strategy would assist in identifying significant WWII heritage sites and other sites of significance. Gathering information or stories of the land from the local people is needed also.
12. Resource management	2	KTA is responsible for Track management. This includes training of the ranger workforce, porters and guides and ensure that the Track itself is well maintained.	Resource management needs to be strengthened by means of the Kokoda Initiative.
13a. Staff numbers	2	The KTA has limited staffing and a small revenue source (TRIP Consultants 2015). There are KTA rangers. The KTA staff manage the daily operations of the authority e.g. liaising with Kokoda communities, tour operators, government agencies and media, providing on-track management, and they collect and distribute a proportion of the trekking fees to Kokoda Track communities. Through the KI, the Australian Government provides funding for a selection of KTA staff positions to assist the PNG government to effectively manage the Track. The KTA also funds a number of PNG staff.	Additional resourcing of the KTA is required to improved delivery of its core functions, including on-ground staff to manage and maintain the Track and work with customary landowners along the Track.
13b. Other people working on the protected area	2	The Kokoda Initiative provides funding for customary landowners to be involved in track maintenance activities; and people are also employed as porters and guides.	
14. Training and skills	1	Training is low for the protected area. However, there has been some basic first aid training and wilderness first aid training for porters and guides; and track maintenance capacity building with Queensland Parks and Wildlife Service, Australia.	Continue to improve the training of rangers working on the Track. Identify the roles and responsibilities of the rangers and consider training in first aid, emergency procedures, radio communications and map reading and consider the development of a peer mentoring program. Consider the introduction of a porter accreditation scheme to provide basic training and qualifications for porters (Newman et al. 2015).

Issue	Score (0,1,2,3, NA)	Comment	Next steps
15. Current budget	2	The PNG and Australian Governments together fund the Kokoda Initiative and administer its implementation. The Australian Government provides AUD \$5 million per annum for Track maintenance, community development projects (e.g. health education, training for nurses, school supplies) and environmental projects, museums and tourism development. The PNG Government has agreed to provide K10 million per annum (but this is more usually about K2-3 million which is spent according to the Kokoda Track Master Plan. Several NGOs undertake work in conjunction with Provincial Governments e.g. the Kokoda Track Foundation (2017) (exists to improve the wellbeing and futures of the PNG people by assisting with education, healthcare, improving livelihoods and fostering leadership) - has built a teacher training college outside Kokoda and sponsors people to go there. The Global Environment Facility has three programs (4,5,6), which involve work in the Owen Stanley Ranges and New Britain, investment into three protected areas (Varirarta, Tenkile, and Baiyer River) with a focus on using indigenous knowledge and resources – some of this money will also flow to Kokoda. The KTA can collect trekking fees (K350 per trekker) and this raises about K1.2 million per annum; and impose licencing fees on trekking companies, which raises about K100,000 per annum and this money is used by the KTA to manage its operations and distribute some money to the landowners on the track and to Ward Development (this funding may have ceased).	Additional funds are required to invest in more and improved guesthouses for the trekkers, the development of small businesses, more interpretative signage and more social mapping and historical information. The focus is also to formally gazette the IPZ, engage the stakeholders in discussions to finalise the Master Plan and to implement it.
16. Security of budget	3	The budget is secure, with funding provided by both the Australian and PNG governments. However, the amount of funding is insufficient to meet the extensive management needs of the IPZ.	
17. Management of budget	2	Budget management is good.	
18. Equipment and facilities	2	The main facility is the Track itself which is maintained by the KTA and local communities. There is ranger accommodation, visitor shelters and toilet and shower facilities.	Identify minimum safety standards across the Track; incorporate traditional knowledge; develop a field guide to assist selection of appropriate timbers and materials for track infrastructure (e.g. this could be based on livelihood projects for the supply and purchase of appropriate timbers and materials); and improve river crossing infrastructure to enhance safety (Newman et al 2015).

Issue	Score (0,1,2,3, NA)	Comment	Next steps
19. Maintenance of equipment & facilities	2	Facilities and equipment are generally well maintained. However, increased trekking numbers places pressure on the ability to maintain the Track and ensure the highest level of safety.	Develop a policy on basic infrastructure management. Encourage landowners to increase their involvement in track maintenance (e.g. through formal agreements) (Newman et al 2015).
20. Education and awareness	2	This is undertaken through the Kokoda Initiative. There are several interpretive plaques along the Track and trekking companies make a significant effort to inform trekkers of the historic, cultural and natural values of the site. There is a self-interpretive display at Owers' Corner and at Kokoda. It is unclear whether educational programs are operating in the wider IPZ area.	Strive to work with the local communities and tourism operators and guides to improve the trekking experience.
21. Planning for land use or marine activities	2	CEPA is striving to improve the level of cooperation between adjacent planning frameworks and the Kokoda Track. Major hydrological and power plants are planned for the future.	Effectively engage with relevant planning frameworks and stakeholders to ensure effective consultation when planning decision making takes place.
22. State and commercial neighbours	2	There is close contact with CEPA, PNG Power and Oil Palm companies and other resource sector agencies within government.	
23. Indigenous people/ Customary landowners input into decision making	2	Customary landowners are involved in decision making relevant to the Kokoda Track.	Continue to work collaboratively with the customary landowners and encourage their participation and engagement in programs along the Track and within the wider IPZ, especially in relation to proposed dams and power plants.
24a. Impact on communities – communication/trust	1	Currently tourism/trekking is the main activity undertaken along the Track and there is communication between the KTA and customary landowners.	Continue to ensure open communication with all stakeholders.

Issue	Score	Comment	Next steps
	(0,1,2,3, NA)		
24b. Impact on communities – programs to improve welfare	1	Several programs have delivered a range of benefits: (1) Education – increase in the number of registered schools along the Track; increase in number of teachers; increase in primary and elementary school enrolments; construction of classrooms in >12 villages and workshop buildings at the Vocational Training Centre; supply of curriculum materials and stationery; training of teachers; (2) Health services – renovation of three health centres and aid posts (including water supply and toilets); opening of a new aid post at Naoro; distribution of equipment and supplies to all health facilities, building waiting houses for pregnant women; greater access to vaccines/medicines; provision of clean water; training of village health volunteers and health workers; establishing HIV counselling and testing centre; regular health patrols; and (3) Other activities – women's leadership and organisational training programs; food preparation and small scale business training; training on toilet construction; provision of community water supply and toilets to Naoro community; business support (purchase of sewing machines); timber milling/chainsaw training; guesthouse and campground management training; community mentor program; agricultural pilot projects; clothes drying room. Locally communities support the IPZ and	Build a stronger base for livelihoods development and business enterprises for communities along the Track and within the IPZ. This however, is reliant on improved transport infrastructure (air and road), telecommunications (e.g. internet along the entire Track), power and water security. KI must continue to work with the Provincial Administration Development Plans, the private sector (e.g. trekking companies) and NGOs. With proposals for dams/weirs and roads in the IPZ, this will provide opportunities for people from Port Moresby and other areas to visit the region and undertake activities other than trekking (e.g. water sports/ canoeing on the dams, walking on easy-grade tracks, shorter treks and visiting archaeological/cultural sites/ museums).
communities – support for the protected area		Track and the broad historical purposes of the Track.	Track and the IPZ and their values to ensure continuing support for the IPZ.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
25. Economic benefit	2	The KTA regulates the trekking industry and provides permits for trekkers and issues Commercial Operations Licences for any enterprise operating along the Track (i.e. to Track tour operators). The KTA aims to maximise the proportion of trekker fees used for track maintenance and contributions to the communities along the Track. The fees paid are used for KTA administration and authority operating costs (50%); payments to the 13 villages along the Track to undertake track maintenance (25%); and cash payments to local communities for a variety of purposes (Kelly et al. 2016). These payments acknowledges that the land that the Track travels through is owned by individuals and communities. Benefits are also received by the locals who are engaged as porters and guides by the trekking companies and from the sale of products and artefacts to the trekkers. The trekking companies pay for accommodation in village guest houses, employ local guides and porters, purchase local food, equipment, transport and pay for various ceremonies (singsings). Trekkers and trekking companies also support a range of activities and programs e.g. school scholarships and improvements in water supplies. Carlsen (2012) estimated that about 40% of trekkers employ a personal porter (about AUD \$550 per trek), and that the average expense per trekker is about \$90 on accommodation on the Track, \$155 on food supplies, \$462 on porters, as well as additional costs for pre/post accommodation, transport etc. In 2011 \$70,000 was paid to landowners in Track Wards and \$18,000 was paid in track maintenance payments (Carlsen 2012). The total revenue for the KTA in 2011 was \$420,000. \$88,000 was returned directly to landowners/ communities in cash and/or provision of services and facilities. KTA management costs are about \$265,000 (wages, salaries, rent, track maintenance, board fees and office utilities) and the Tourism Promotional Authority PNG spends a further \$50,000 on promotional activities. Thus, about K4-5 million is directly received/invested into th	Further sustainable tourism options are needed to provide greater benefits to communities, while maintaining the trekking experience. This can include diversification of the tourism products available (e.g., including bird watching, cultural tourism), widening of the tourism experience to other areas (e.g., Blamey's Garden, Varirata National Park and Sogeri), improved marketing and infrastructure development. This should be based on an assessment of the Track's carrying capacity. Communities can also improve their guest facilities and services provided to trekkers. Villagers should be encouraged to cater fully for the food requirements of the trekkers to earn more income i.e. including locally produced fruit, vegetables, as well as beverages and souvenirs.
26. Monitoring and evaluation	2	KTA rangers monitor the Track, particularly during the trekking season.	Monitoring is needed to ensure that the Track values are not diminished.
27. Visitor facilities	2	There are no facilities on the Track.	Expand the offering of camping areas
		However, guesthouses and trade stores exist along/adjacent to the Track.	in villages during busy trekking periods (Carlsen 2012).

Issue	Score (0,1,2,3, NA)	Comment	Next steps
28. Commercial tourism operators	3	Kokoda Track tour operators provide opportunities for visitors to walk the track. About 57 trekking companies from Australia and PNG operate across the Kokoda Track (Kelly et al. 2016), although respondents indicated that this was perhaps about 100 trekking companies (i.e. about 20 Australian-based and 80 from PNG). In 2012 there were reported to be about 41 actual operators (Carlsen 2012). Australian tourists are the dominant trekking cohort and most join a trek with one of the top 10 companies. Trekking numbers increased from very few in the early 2000 to a peak in 2008 of 5,621 (Carlsen 2012). Numbers then declined, perhaps due to the negative media exposure related to the plane crash on the Track and the broader impacts of the Global Financial Crisis. The number of tour operators has increased and is supported by a licensing system and associated code of conduct for tour operators (there is no accreditation system) and some conditions that must be met (e.g. must have first aid training, a satellite phone, vhf radio and pay porters correctly). There is some selfmonitoring. The KTA Tour Operators Association accounts for about 75% of the traffic on the track and has its own rules and regulations. Not all tour operators who hold a licence in PNG are conducting tours. About 80% of trekkers join one of the top 10 Australian based operators. The average duration of treks in 2011 was nine days and an average cost was about \$4000 (Carlsen 2012). KTA's role includes the regulation of the trekking operators. Most tour operators are protective of their product e.g. military heritage sites and they generally work to minimise impacts on sites.	Ensure that all tourism operators (i.e. including the small operators) offer a high quality product and experience to the trekkers/visitors and have adequate emergency communications, medical services and insurance cover. Improve certification requirements to ensure that all operators operate in a culturally and socially responsible way (Carlsen 2012). The National Museum in consultation with tour operators needs to develop protocols for managing the area, including the development of an accreditation scheme for tour operators. Tourism operators could play more active role in helping to manage the track itself, by reporting to the KTA any unsafe and degraded areas and also reporting if there are any serious injuries along the track (some operators currently don't comply). This would assist the KTA to know if their procedures are working effectively.
29. Fees	2	Fees are charged by the Kokoda Track Authority - AUD150 (K350) per trekker (half price for student). A Trekkers' database and online booking and permitting system has been developed.	
30. Condition of values	2	Currently the Track is in good condition and similarly for the wider IPZ.	
30a.Condition of values	1	Some research and work has been conducted by the Kokoda Initiative and is the basis for the assessment of values.	
30b. Condition of values – threat abatement	1	Specific management programs are in place to manage the threats along the track.	
30c. Condition of values – active management	1	Activities are directed at maintaining the diverse values within the IPZ.	

Part 5: Condition and trends of protected area values

Table 7. Values, condition and trend

Key value	Condition Score	Trend Score	Information source and justification for Assessment and
(from Table 2)	(VG, G, F, P, DK)	(I, S, D, DK)	HOW the condition can be IMPROVED
Military history	G	S	These values are high and well respected and remain stable.
			The role of PNG people in the military history needs to be
			explored further and a Military Heritage Strategy developed to
			better manage war sites and remains.
Tourism/trekking	G	1	The trekking industry is expanding. Need to improve tour
			operators' accreditation, raise awareness, expand on the
			products offered, expand accommodation, improve transport
			and communication infrastructure, increase ranger presence,
			improve track infrastructure and increase opportunities for
			benefit sharing with local communities.
Economic	G	1	There are benefit sharing arrangements with local
			communities and some are employed as porters and guides.
			An increase in trekking will increase these benefits. Need
			greater resources and financing to improve economic
			outcomes for landowners.
Biodiversity	VG	S	The IPZ region that the Track passes through has high
			biodiversity values
Sacred/cultural/	VG	S	The sacred sites are well maintained and stable; several
archaeological sites			archaeological sites have been identified and need funding for
			further research to identify their values and plan for their
			protection.
Catchment	VG	S	The catchment is to be dammed to provide a secure water
			supply and power to the region.

Table 8. Recommendations and ways forward

1.	2.	3.
The PNG government and the tourism operators should provide some funding to the KTA to improve the management of the track and support community livelihoods.	Support funding for local communities to build good tourist facilities along the track, e.g. guest houses and interpretation sites.	Awareness raising of all the stakeholders and develop more simple, streamlined governance structures. The KTA could be the governing body, but this would require a different structure and organization (e.g. perhaps reporting to a minister to increase accountability in manage this area).

Table 9. Strengths and challenges (facilitator/recorder synthesis)

	Strengths	Challenges
1	Secure funding from the Australian and PNG Governments to help with management of the site and improve the livelihoods of surrounding customary landowners.	Achieving sustainable outcomes for the environment and people in the face of several proposed dams and hydro-electric power plants.
2	Supported by the customary landowners because trekkers/tourists provide opportunities for the customary landowners to generate income e.g. as potters and by providing accommodation, food and other services, thus improving livelihoods and community development.	Achieving a high level of Track maintenance when not all levels of government (e.g. local and provincial) are contributing.
3	It is an iconic Tr ack that will continue to bring in business opportunities for local communities	Continuing to increase awareness and education of trekking companies and their support workers.

	along the Track and expanded opportunities for tourism development.	
4	The mythology of the Track has become embedded in many Australian's sense of national identity with values associated with mateship and endurance. The Track has become a site of pilgrimage for many Australians.	Improving the governance arrangements to ensure transparency and greater accountability.
5	The Kokoda Track Authority , a special purpose authority, provides oversight of activities undertaken in relation to the Track and is providing a sound basis for leadership and management of the IPZ and Track.	
6	The diverse values (cultural, historic, archaeological and environmental) of the IPZ remain relatively intact.	

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