

Name of Protected Area: Lake Lavu Wildlife Management Area

Part 1: Basic information about the protected area

Table 1. Protected area information

Name, organisation and contact details for person(s) responsible for completing this form - Person 1: Name, Organisation, Address, Email, Phone	Ann Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur, Q4570, Australia, a.peterson@uq.edu.au, 0414300955
Person 2: Name, Organisation, Address, Email, Phone	
Today's Date	17/6/2016
Name (or names) of protected area	Lake Lavu Wildlife Management Area
Size of protected area (ha)	2640
PNG Code or number	
World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/)	9718
What level or kind of protected area is it? (National Park, Wildlife Management Area, Sanctuary, Reserve, Locally Managed Marine Area etc)	Wildlife Management Area
IUCN Category	
International protected area? e.g. World Heritage or Ramsar?	
Country	Papua New Guinea
Province/s	Milne Bay
District/s	Esa'ala
Local level governments	West Fergusson Rural
Ward/s	
Nearest big town	Mapamoiwa Government Station
Location of protected area (brief description)	Located on Fergusson Island (1,437km ²) in the D'Entrecasteaux island group and biogeographic region. It is situated 3km across the Dawson Strait from Normanby Island and 4km from Goodenough Island across Moresby Strait. The island is about a 3 to 4 hour boat ride from Alotau. The WMA is located in a central position on Fergusson Island and consists of the lake, surrounding flat land and vegetation (rainforest, reed beds, grassland and swamp).
Map references	Papua New Guinea 1:100 000 Topographic Survey – Sheet 9078 (Esa'ala); 09° 31', 150° 37'
When was the protected area gazetted or formally established?	5/3/1981
Reference for gazettal or Memorandum of Understanding (MoU)	

Who owns the protected area? please enter Government Private Community/ customary landowners, private, Other (name) and include Clan name(s)	Customary land owned by lamalele (2 clans living in the villages of lamalele and Ebadidi); other villages use the WMA for fishing (tilapia). Patrilineal society.
Number of households living in the protected area	Large number
Population size within the protected area	Approx. 3000+
Who manages the protected area?(e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender])	Customary landowners (i.e. lamalele). There is no formal Management Committee, or Management Plan, but there is some self-regulation through traditional rules and methods of hunting. In the beginning a committee of seven representatives from the surrounding villages set the rules (e.g. prohibition on the use of shotguns and only landowners, using traditional methods, may hunt in the area). There remains some adherence to these rules.
Total number of staff (this means anyone working on the protected area in paid jobs –whether NGOs, community, rangers or customary landowners	0
<i>Temporary paid workers</i>	0
<i>Permanent paid workers</i>	0
Annual budget (US\$) – excluding staff salary costs	0
Operational (recurrent) funds	0
Project or special funds	0
Reason for park establishment	Protection and conservation of fauna and flora. To protect the crocodiles (<i>Crocodylus novaeguineae</i>) and to limit their exploitation to local communities. “In the 1980s, an Australian man came and brought a boat and motor and launched it into the lake and he lived there for 6 months and killed so many crocodiles. The people were skinning them and couldn’t keep up with the amount of crocodiles he was killing (people were eating the meat). This prompted them to see the government and a person came and did a report and after that it was declared a WMA”. The reserve was initiated by Alfred Kalupi, a customary landowner and proposed in 1975 by the West Fergusson Island Local Government Council. However, the park “has not been actively supported” (Ingram 1994).
What are the main values for which the area is designated (Fill this out after data sheet 2)	The lake ecosystem, including fish, crocodiles and eels and the adjacent vegetation with important birds and trees. In the beginning people were concerned about the hunting of crocodiles for the commercial sale of their skins and there were concerns about over harvesting. In response the people decided to put a 6-12 month ban on the killing of crocodiles, after which time they again started hunting. This was a process of self-regulation as there was no formal Management Committee or Plan.
List the primary protected area management objectives (add lines if needed after the most important objectives): <i>Management objective 1</i>	To manage the lake and its ecosystems to ensure a plentiful supply of fish for the local community.
<i>Management objective 2</i>	To sustainably manage the crocodile population.
<i>Management objective 3</i>	
Number of people involved in answering the assessment questions	1

Name/organisation/contact details of people participating the assessment <i>(Please do not insert return/enter or dot points)</i>	Augustine Jonathan, Customary Landowner, Lake Lavu WMA, PO Box 555, Alotau, Milne Bay Province, judithjonathan@gmail.com, (675) 6411646;
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 landowner
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 **land and the environment are important for future generations**. In our village and in our context we worry about our everyday needs. We make gardens, we make feasts and we worry about our immediate area. Now because of global warming and other changes we are becoming more aware that **we must take ownership and take care of the land**. One way to do this is to create a wildlife management area. Traditions are changing. Now, if people see a cuscus, they will cut the tree down to get the cuscus. If someone wants a cockatoo or a hornbill then someone will cut the tree to get the hornbill. There is **less valuing of the environment by the current generation** – it has less meaning now. Before there was no demand for money. We depended on the land. These days you need money and we don’t worry about the environment. We sell our land to logging companies and we are worrying about what we can get now – for cash – to buy modern western products. With the movement of boats from villages to the town, people start copying that stuff and it influences their actions. The protected area is important to help us to **maintain our traditional customs and pass these on** to future generations and in this way they will value the environment. We used to have fresh water fish and crocodiles in the lake. However, the Fisheries Division from Alotau introduced tilapia. The people made ponds to keep tilapia for household consumption. Then the floods came and washed tilapia into the river and lake. Now people are buying modern nets and fishing six days per week to catch **tilapia. It is very profitable**. They are even brought to the Alotau market. People from other parts of Fergusson now travel to the lake to get fish. The other change is that the seas around the eastern and southern side of the island have no fish due to over fishing. The **native fish are disappearing**. You can hardly find a native fish. There were freshwater trout before, but now they are mostly gone”. The rural population of Fergusson Island is dependent on a subsistence economy. There are few businesses, and poor delivery of services. The WMA is quite small, with the lake as the centre of the WMA. It has swampy surrounds that are difficult to use for alternative purposes. Only a few crocodiles are hunted, but there has been no population study to assess the sustainability of the harvest and its impact on the crocodiles. Crocodile eggs are not sold/exported (as there is no monitoring and survey work to underpin this enterprise). The surrounding area (outside the WMA) is important for the cassowary. If the boundaries of the WMA were reviewed and realigned it could have greater value, as many important areas are in the lowland areas.

Table 2. Key values of the protected area

No.	Key values	Brief description	<i>Note if endangered species or ecosystem (IUCN)</i>
1	The lake	It is providing a source of fish (tilapia), which is a good source of protein and income from sale of the fish. The forest and the environment around the lake is important. It has birds (white egrets, Goldies Bird of Paradise), bandicoots, snakes and other species. It is a very big valley with everything – wildlife, fish, forest, timber and it looks nice. It sits between two big mountains.	
2	Potential for tourism	Because of the lake environment, forest and attractive scenery the WMA has potential tourism values, although these have not been realised currently.	
3	Cultural/spiritual	There is a legend about the lake – about creation and our origin – an explanation of how we came to be. By looking after the WMA, our traditions and skills can be passed on to future generations.	
4	Tilapia	Tilapia have taken over the lake and provide an important source of protein and income for the people. Customary landowners and others from outside come in and take this resource. Without tilapia it would be difficult for the community to survive.	

Table 3. Checklist of values/benefits

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

How important is the protected area for each of the listed values/benefits?	Score (0,1,2, DK)	Comment
1. Biodiversity – the presence of many different kinds of plants, animals and ecosystems	1	Birds (e.g. Goldies Bird of Paradise, white egrets, several water birds), forest, lake vegetation (e.g. submerged aquatics such as <i>Ceratophyllum</i> and semi-submerged water lilies, genera <i>Nymphaea</i> and <i>Nymphoides</i> . On the lake fringes are herbaceous swamp communities (sedges, herbs and ferns, swamp grasses, <i>Ohragmite karka</i> and <i>Typha latifolia</i> , wild taro of the <i>Alocasia</i> genera and <i>Crinum</i> , pandanus. The higher western part of the lake has patches of grassland and regrowth.
2. Presence of rare, threatened, or endangered species (plants and animals)	1	Little <i>knowledge</i> of rare species and habitats
3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas	1	Fresh-water ecosystems
4. Protecting clean, fresh water	2	
5. Sustaining important species in big enough numbers that they are able to survive here	1	
6. Providing a source of employment for local communities now	0	
7. Providing resources for local subsistence (food, building materials, medicines etc.)	2	
8. Providing community development opportunities through sustainable resource use	1	
9. Religious or spiritual significance (e.g. tambu places)	2	
10. Plant species of high social, cultural, or economic importance	2	
11. Animal species of high social, cultural, or economic importance	1	
12. Attractive scenery	2	
13. Tourism now	0	
14. Potential value for tourism in the future	2	
15. Educational and/or scientific value	2	
16. Maintaining culture and tradition on customary land and passing this on to future generations	2	

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
- L** 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	0	
1.1a Population increase in the protected area community	0	
1.2 Commercial and industrial areas	0	
1.3 Tourism and recreation infrastructure	0	
2.1 Customary land owner and community gardens and small crops	0	
2.1a Drug cultivation	0	
2.1b Commercial plantations	0	
2.2 Wood and pulp plantations	0	
2.3 Livestock farming and grazing	0	
2.4 Marine and freshwater aquaculture	0	
3.1 Oil and gas drilling	L	The lake could have potential for oil/gas. The plains/valleys going to the coast once held large trees/jungle (hardwood species and sago palm), but now they are dying. The people have no explanation for it. This may be a sign that there is gas or oil underneath. The people are worried.
3.2 Mining and quarrying	0	
3.3 Energy generation	0	
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	0	
5.1 Hunting, killing and collecting terrestrial animals (including killing of animals as a result of human/wildlife conflict)	0	
5.2 Gathering terrestrial plants or plant products (non-timber)	0	
5.3a Logging and wood harvesting for local/customary use	0	
5.3b Logging and wood harvesting – commercial logging	0	
5.4a Fishing, killing and harvesting aquatic resources for local/customary use	L	Most freshwater species have disappeared, due to tilapia. However, the community thought that the current high rate of harvesting of tilapia may endanger the tilapia species and industry that has grown up around it. The community want to ensure a plentiful supply of tilapia to bring in an income. Other communities on the coast have lost their fish and now depend on tilapia from our lake.
5.4b Fishing, killing and harvesting aquatic resources for commercial use	0	
6.1 Recreational activities and tourism	0	
6.2 War, civil unrest and military exercises	0	

Threat type	Score (H,M,L,0)	Notes
6.3 Research, education and other work-related activities in protected areas	0	
6.4 Activities of protected area managers (e.g. construction or vehicle use)	0	
6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors	0	
7.1 Fire and fire suppression (including arson)	0	
7.2 Dams, hydrological modification and water management/use	0	
7.3a Increased fragmentation within protected area	0	
7.3b Isolation from other natural habitat (e.g. deforestation)	0	
7.3c Other 'edge effects' on park values	0	
7.3d Loss of keystone species (e.g. top predators, pollinators etc.)	H	Lost native fresh water trout (only a few remain). They have been taken over by tilapia.
8.1 Pest plants	L	Water lily are covering the lake and sometimes the landowners cannot get access for fishing If the water level is low the water lilies can rot and cause a health problem.
8.1a Pest animals	H	Tilapia has eaten the native fresh water fish.
8.1b Diseases such as fungus or viruses that make native plants or animals sick	0	
8.2 Introduced genetic material (e.g. genetically modified organisms)	0	
9.1 Household sewage and urban waste water	0	
9.1a Sewage and waste water from protected area facilities	0	
9.2 Industrial, mining and military effluents	0	
9.3 Agricultural and forestry effluents (e.g. excess fertilizers or pesticides)	0	
9.4 Garbage and solid waste	0	
9.5 Air-borne pollutants	0	
9.6 Excess energy (e.g. heat pollution, lights etc.)	0	
10.1 Volcanoes	L	The geologists believe that the lake formed following a volcanic eruption, which formed the crater and the water collected in it. We also have legends about how the lake was created. We don't know if the volcano will erupt again. Graben is the name for the volcano
10.2 Earthquakes/Tsunamis	0	
10.3 Avalanches/Landslides	0	
10.4 Erosion and siltation/deposition (e.g. shoreline or riverbed changes)	0	
11.1 Habitat shifting and alteration	H	Some change in habitat – the cranes used to be abundant, now there are only a few; forest is disappearing in the valley going to the coast.
11.2 Droughts	H	Droughts can be severe. There was one in 2015 that lasted for 12 months and this had severe impacts on the lake environment.
11.3 Temperature extremes	H	Water in lake is getting warmer and it is not fresh anymore. This could affect the fish.
11.4 Storms and flooding	H	The frequency of storms has increased. It is not like before. Because of constant flooding and storms the temperature and the level of the lake is changing. Recently we had nearly a one year drought and the water

Threat type	Score (H,M,L,0)	Notes
		went dangerously low and this was followed by three months of heavy rain.
11.5 Coral bleaching	0	
11.6 Intrusion by saltwater into gardens etc.	0	
11.7 Sea level rise	0	
Other (please explain)		
12.1 Loss of cultural links, traditional knowledge and/or management practices	H	There is a legend about the lake, which relates to creation and our origin. For us in this generation we have no idea about this. We are only interested in the tilapia fish that the lake can provide. People don't care about lake temperature or flooding. It is not a major concern. That is a trend and as a result, we don't appreciate the lake and then we can't take care of it.
12.2 Natural deterioration of important cultural site values	0	
12.3 Destruction of cultural heritage buildings, gardens, sites etc.	0	
Other (please explain)		

Table 5. Worst threats and ways forward

Threat No.	Threat (Most significant first)	Threat number or name (copy no. from Table 4)	Nature of the threat, impact and how to reduce the impact.
1	Climate change	11.1,11.2,11.3,11.4	Lake is becoming warmer and there is constant change in the water level. This will affect our fish.
2	Loss of cultural significance and value	12.1	Traditions are not being passed on to the new generations. Children go to school now and they have little time to learn about traditional practices. Due to population growth, many people are leaving the island and going to the towns on the mainland. They also are losing their culture and traditions.

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	3	Legally gazetted.	
1b. Legal status			
2a. Protected area regulations	1	There are different tribes who own different parts of the land. We try to get people to go to their own land and they fish there. They don't trespass to other people's land. These are unwritten rules that ensure access to the WMA's resources. Firearms are prohibited and also the taking of crocodile eggs. Neighbouring villages are given rights, by the lamalele chieftains, to use the lake, based on inter-marriage relationships.	Develop a Management Plan and an effective management structure (e.g. Committee). We could create the position of a wildlife ranger/inspector, with committees in each village. The ranger could work with the landowners and they could enforce the rules, do awareness training and reporting.
2b. Protected area regulations			
3. Law enforcement	0	Previously there was a wildlife coordinator/councillor. As the land is traditionally owned, the landowners have some say in what takes place in their area. The main rules centre on people having designated areas from which to harvest resources. Other people must seek permission to enter another person's land and take resources. The people try to enforce these rules.	Need other rules to complement the traditional rules. A ranger system would be useful to raise awareness about the rules and then enforce the rules (e.g. harvesting, size of crocodiles to be taken etc)
4. Protected area objectives	0	Generally everybody agrees we should protect the lake area as it has cultural meaning and gives us fish and incomes. Apart from that the bigger issues (e.g. environment and why it is important) are not considered – there is no clear reason why we should protect the WMA.	Awareness raising is needed. People know we should protect the lake, but apart from that we need some incentives to encourage further protection for the future (e.g. to develop tourism and other income generating activities).
5. Protected area design	0	The protected area was set up around the lake and does not include other important areas and habitats, e.g. there is a river that comes from the mountains and it feeds into the lake; there is a big 100m waterfall that drops into a pool and this is where the freshwater eels spawn and move into the lake. The coast where the river flows out into the sea is also important.	We need to expand the park to cover the source of the water for the lake and the exit point at the coastline. They are critical in the dry season because the water level drops. We need to know about this and protect these areas so we can manage them to protect the water in the lake. The villages around the lake are not concentrated – they are far apart from each other – and the area is mainly forest/jungle. We need to include these areas if we are to preserve the lake and its wildlife.

Issue	Score (0,1,2,3,NA)	Comment	Next steps
6. Protected area boundaries	0	The boundaries are not known by the people, and hence they do not know whether they are trespassing and hunting illegally within the WMA.	The boundary needs to be established with GPS coordinates and marked on the ground using traditional markers. The landowners need to be taken around the boundary so that we can show them the traditional marks e.g. creeks, important trees, and we can describe this and they will know the boundary.
7. Management plan	0	There is no formal management plan. "People don't know about Lake Lavu WMA". There are traditional rules that give use rights to the owners on their part.	We need to know the boundaries, explain the importance of the WMA and why we need to take ownership in protecting the area.
7a. Planning process	0		It is Important to have a network or framework in place e.g. councillor in each village to help with management.
7b. Planning process	0		
7c. Planning process	0		
8. Regular work plan	0		If we have a management plan and people (e.g. ranger etc) appointed to carry out the plan to achieve particular objectives and landowners to help – this will be important to inform the work plan.
9. Resource inventory	1	We know what is there, but it is not documented. We have our fish, crocodiles, and lake – but it is not written.	We need a management plan and wildlife officers to take stock of what is there e.g. the lake and forest (how many species). We need to research tilapia e.g. how it breeds, rates of production and what can affect it or endanger the spawning period. Once we have more knowledge we can use that to help us manage the resource (i.e. to ensure that it remains viable and is not over-harvested and provides protein and income for the people).
10. Protection systems	1	This is a big problem, because of the plentiful supply of tilapia and the value of the fish to customary landowners and outsiders. Everyone wants to enter the WMA to fish. The customary landowners try to stop outsiders taking the fish and also over-harvesting themselves. Outsiders are supposed to get permission from the landowner to put their nets in and stay on the land and fish. That does not always happen, and often it may end up in fighting. People question the ownership of the land and insist on their right to take fish. The control of entry is an informal traditional method.	The extended family system can help with disputes; or disputes can be taken to mediation through the Land Court.

Issue	Score (0,1,2,3,NA)	Comment	Next steps
11. Research and monitoring	0		This is very important in the long term, for the lake, the forest and other ecosystems. We need to know what species are in the WMA and their importance to the WMA and its future survival.
12. Resource management	0		
13a. Staff numbers	0		
13b. Other people working on the protected area	1	Management is undertaken by the customary landowners in relation to their individual plots.	
14. Training and skills	0		If we appoint people to be rangers it is important that they are well trained. They are the first line and can spread the message among the people.
15. Current budget	0		CEPA should make grants available or have an incentive program (e.g. a small amount of money that can be invested so that the community can make more money to help the WMA). Local people are resourceful e.g. we can use the lake and take fish and sell them and with the money we can then run a workshop that will raise awareness. If there is a committee and they share the passion for the environment then people will come up with ideas to raise money.
16. Security of budget	0		
17. Management of budget	NA		
18. Equipment	0		We need a gauge to measure lake water height – there is concern about the lake drying out and this will cause disaster (e.g. stench from dead fish, eels, crocodiles etc). We need information on trends and then we can inform the government if conditions deteriorate (e.g. to move people away from the lake if there is a health hazard). A rain gauge would also be helpful to track the changes in the weather/rainfall patterns that are affecting the lake.
19. Maintenance of equipment	NA		
20. Education and awareness	0		

Issue	Score (0,1,2,3,NA)	Comment	Next steps
21. Planning for land use or marine activities	0	Nobody in the outside planning area knows about the WMA or considers it in their planning.	The planning system must look to see if there is a WMA before any decisions are made concerning development near the WMA i.e. check with the Environment Department. If the decision makers don't know then development will occur that will damage the WMA. We need proper consultation with the community before development is approved and undertaken.
22. State and commercial neighbours	0		
23. Indigenous people/ Customary landowners	0		CLOs need some input into decisions within the WMA. Their rights need to take precedence over how the WMA is managed. We must involve and consult the customary landowners so that we have no problems, and then they will help us to protect the area.
24a. Impact on communities	0		
24b. Impact on communities	0		We should go to NGOs to seek assistance because the community is doing what they can to protect the WMA.
24c. Impact on communities	1		We want the WMA to be extended. We don't want commercial logging or mining or large agricultural development.
25. Economic benefit	2	People receive benefit from the sale of tilapia and crocodile skins. Crocodiles are not hunted using guns, but are taken and skinned using traditional methods. There is no crocodile farming, but rather crocodiles are taken from the wild, and skinned using traditional methods. The meat is eaten by the customary landowners. There is little hunting. People now prefer western foods.	Tourism could be a potential economic benefit i.e. for ecotourism/wilderness experiences.
26. Monitoring and evaluation	0		
27. Visitor facilities	0		
28. Commercial tourism operators	NA		
29. Fees	0		
30. Condition of values	1	Freshwater fish have been lost from the lake, overtaken by tilapia and water quality is in decline.	
30a. Condition of values	0		
30b. Condition of values	0		
30c. Condition of values	0		

Part 5: Condition and trends of protected area values

Table 7. Values, condition and trend

Key value (from Table 2)	Condition Score (VG, G, F, P, DK)	Trend Score, (I, S, D, DK)	Information source and justification for Assessment and HOW the condition can be IMPROVED
The lake	G	D	The native fresh water fish have disappeared, replaced with super tilapia; crocodiles remain and are hunted for their skins; the vegetation surrounding the lake is in good condition. The amount of water in the lake varies depending on rainfall. In 2015 a year of prolonged drought caused the water level in the lake to become dangerously low i.e. the customary landowners believed that the fish and crocodiles could die and this would have impacted significantly on their wellbeing and income. They believe this is due to a change in climate and indicated that “the quality of the lake is not what it used to be – perhaps it is getting too warm. When rain comes it is usually heavy and causes flooding and it overflows the lake and washes to the sea and takes the plants and fish”. The cranes that were once abundant on the lake have disappeared and the forest leading from the lake to the east coast is disappearing (although the community are unsure why this is happening). The community do not want the tilapia removed as it is an important source of food and income. They believe that the rest of the world should better protect their environment and address climate change and this would put less pressure on “us to protect all of our land in PNG”.
Potential for tourism	F	D	Tourism is hard for us because facilities have to be provided. It also depends on a good quality environment. “Our WMA has gone through a lot of wear and tear”.
Cultural/spiritual	VG	S	The spiritual and cultural sites remain. However, the people are losing their traditional practices. Children go to school now and there is less time to pass on traditional skills and knowledge. Some people are leaving the community because the population is growing and there is no room for them to survive here. No solutions were offered.
Tilapia	VG	I	Provide economic benefit. They have found a natural habitat and reproduce at alarming rates. People from about 25 villages fish from Monday to Saturday and the tilapia population is not decreasing despite large numbers of fishers. We want the tilapia to remain, but we need to sustainably manage the fish and better understand how it reproduces and what threatens it. We don’t want to over-harvest it and have no tilapia left.

Table 8. Recommendations and ways forward

1.	2.	3.
The local people must own and manage the environment. But the people also want money and will go to any length to destroy the environment to get money. We need to build in incentives to protect the environment, but at the same time get a little money in return. Then it becomes meaningful to them. “They protect it and then benefit from it”. This must be backed by environmental education for the local community and focusing on social recognition and valuation of local environmental/ biodiversity values.	Others (i.e. those from the developed world) are telling us to protect our environment, but we need to know the best way to do it. This is a global village and we need to work together to save our planet. This requires more technical knowledge and science and capacity building at the provincial and local government levels and integrating this knowledge with local knowledge and traditional customs.	Give us (i.e. the customary landowners) the money and we will create the incentives to encourage people to protect the WMA. We also need to consider conservation in the whole Milne Bay Province.

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

	Strengths	Challenges
1	Biodiversity (i.e. forest) surrounding the lake is in relatively good condition.	Tilapia have killed all the native fish and provide an important source of protein and income for the people.
2	Tilapia, while an invasive pest species, does provide protein and income to the customary landowners.	Lack of input into the WMA from government at all levels, NGOs and others.
3		Loss of traditional values and practices. The people around the Lake come from ancient cultures, with diverse language groups, and knowledge of their environment. The elders, with the traditional knowledge are dying and there are not many people to pass on the traditional culture.
4		Addressing the impacts of climate change on the lake environment and water quality.
5		Raising awareness of the WMA, its importance and values, and establishing structures and processes to more effectively manage the WMA.

References:

Broome, EL (1989). Field report on Lake Lavu Wildlife Management Area, Fergusson Is, Milne Bay Province, 23 August – 1 September 1989. National Crocodile Management Unit, Division of Nature Conservation, Department of Environment and Conservation, Boroko.

Ingram, GB (1994). "Institutional Obstacles to Conservation: Fergusson Island, Papua New Guinea". *Pacific affairs* (0030-851X), 67 (1), p. 26.