# Name of Protected Area: Libano-Hose Wildlife Management Area Part 1: Basic information about the protected area

#### **Table 1. Protected area information**

| Name, organisation and contact details for person(s) conducting the assessment <b>Person 1:</b> Name, Organisation, Address, Email, Phone           | Vagi Rei, CEPA, Boroko, National Capital District, Port Moresby, vrei@dec.gov.pg.   |  |
|---|---|--|
| Person 2: Name, Organisation, Address,<br>Email, Phone  | Fiona Leverington, SPREP/Protected Area Solutions, 38 Foothill Place The Gap Q4061, Fiona@protectedareas.com.au, 617476006295.  |  |
| Today's Date  | 28/02/2017  |  |
| Name (or names) of protected area   | Libano-Hose   |  |
| Size of protected area (ha)   | 4,830   |  |
| PNG Code or number  |   |  |
| World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/)   | none  |  |
| What level or kind of protected area is it?<br>(National Park, Wildlife Management Area,<br>Sanctuary, Reserve, Locally Managed Marine<br>Area etc) | Wildlife Management Area  |  |
| IUCN Category   | V (not officially recorded)   |  |
| International protected area? e.g. World Heritage or Ramsar?  | Part of the WMA Tentative List "Kikori River Basin"   |  |
| Country   | Papua New Guinea  |  |
| Province/s  | Southern Highlands  |  |
| District/s  | Mt Bosavi   |  |
| Local level governments   | Nipa-Kutubu   |  |
| Ward/s  | 3   |  |
| Nearest big town  | Mendi   |  |
| Location of protected area (brief description)  | The WMA is located on the north-eastern slopes of Mt Bosavi in the Kikori River Basin/Great Papuan Plateau area. The WMA is contiguous with Libano-Arisai WMA and together they form a protected block of 9500ha. Mt Bosavi is a 2,507m collapsed cone of an extinct volcano. The area has karst landscapes (Darai limestone) and waterfalls (Hegigio Gorge, Wassai and Wawoi waterfalls) and contains a large tract of undisturbed forest with many species of fauna. The WMA is very remote, with no road access to WMA or nearby settlements. An airstrip connects the community to Mendi. |  |
| Map references  |   |  |
| When was the protected area gazetted or formally established?   | 02/02/2008  |  |
| Reference for gazettal or Memorandum of Understanding (MoU)   |   |  |

| Who owns the protected area? please enter<br>Government Private Community/ customary<br>landowners, private, Other (name) and  | Customary landowners; 4 clans: Senisi mahi (bandicoot), Senesi wallabiso,<br>Senesi kata and Senesi Widdisi. Orogo people.   |
|--|--|
| include <b>Clan name(s)</b>  |  |
| Number of households living in the protected area  | 0  |
| Population size within the protected area  | 0 (about 1500 people altogether in the whole area. The villages are about 25 kms from the WMA).  |
| Who manages the protected area? (e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender])  | Customary landowners; 4 clans: Senisi mahi (bandicoot), Senesi wallabiso,<br>Senesi kata and Senesi Widdisi.   |
| Total number of staff (this means anyone working on the protected area in <b>paid jobs</b> – whether NGOs, community, rangers or customary landowners  | 0  |
| Temporary paid workers   | 0  |
| Permanent paid workers   | 0  |
| Annual budget (US\$) – excluding staff salary costs  | 0  |
| Operational (recurrent) funds  | 0  |
| Project or special funds   | 0  |
| Reason for protected area establishment  | To prevent logging in the WMA.   |
| What are the main values for which the area is designated (Fill this out after data sheet 2)   | Forest and plants, forest animals, rivers and fish, insects, and diverse landscape and geology.  |
| List the primary protected area management objectives (add lines if needed after the most important objectives):  Management objective 1   | To protect the forest from logging.  |
| Management objective 2   | To maintain the natural resources needed for subsistence: clean water and fish and animals for food.   |
| Management objective 3   |  |
| Number of people involved in answering the assessment questions  | 2  |
| Name/organisation/contact details of people participating in the assessment  | Obei Wasa, Chairman, Libano-Hose WMA, Wabimisen Village, Konedo<br>Brotheers Ltd, PO Box 746 Mendi; Osa Yami, Customary landowners,<br>Wabimisen Village.                        |
| Customary landowners/other community;<br>CEPA, Other national government agency;<br>Provincial govt; local level govt; Protected<br>area staff (anyone working on the protected<br>area in paid jobs; NGO; Donors; External<br>experts; Others | Customary landowners.  |
| 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?

In 1995 the World Wildlife Fund explained to us that logging would 'bagarap' the forest. The whole village went into an agreement, that logging could take place but not within the area to be dedicated as a WMA. We like many thinks about the WMA. The rivers are important. The Hose River is very fresh and it cures some sicknesses. The He-Gigio River is brown, a different colour, but this is natural, and it has straight running water. The Libano and other rivers are blue. These rivers are very beautiful and there are some waterfalls. The fish are important. There are common ones and some special ones for eating (for taste). We have freshwater crocodiles and we kill them for meat and for their skins (sometimes these are sold) and we take eggs and grow the crocodiles. We have many trees with insects and they tell us the time. The butterflies are in the forest and when they are flying around they look colourful and good. When the crocodiles are sleeping on the beach, the butterflies try to sit on them. We also have many caves and there are flying foxes in the caves and in the trees (these are the special ones – they are bigger and the meat is very tasty). We also have frogs, megapodes and beetles.

Table 2. Key values of the protected area

| No. | Key values  | Brief description  | Note if endangered<br>species or<br>ecosystem (IUCN) |
|-----|---|--|--|
| 1   | Forest and plants   | Tall virgin rainforest with diverse species. This is related to the large altitudinal extent of Mt Bosavi and the WMA (i.e. including alpine, montane and lowland forest).   |  |
| 2   | Forest animals  | There are many animals, including the New Guinea crocodile Crocodylus novaeguineae (this is important for income mainly from selling the skin), flying foxes and many bird species (e.g. palm cockatoo). The forest animals and fish provide food and protein. We try to make sure that the animals remain easy to catch and there are plenty of them.   |  |
| 3   | Rivers and fish   | There are many rivers that flow down Mt Bosavi and there is clean water for drinking and also water comes from the caves (often underground).  |  |
| 4   | Insects   | There are many insect species. We like them as they help us to tell the time, and they are important for science.  |  |
| 5   | Landscape and geological significance (not nominated by landholders and not assessed) | Libano-Hose is on the slopes of Mt Bosavi, which is a rugged and dissected landscape centered around the cone and crater of the extinct Pleistocene strato-volcano. It is 2,500m above the floodplain of the Fly-Strickland Rivers. Its caldera is approximately 4km wide and 1 km deep. It is the highest volcano in the East Asia/West Pacific and retains continuous intact tracts of vegetation from the summit to the lowlands, an altitudinal range of about 2,400m. |  |

#### Table 3. Checklist of values/benefits

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

Note: people live about 20-30km outside the protected area – don't use the area for taking trees etc as it is too far away

| How important is the protected area for each  | Score       | Comment   |
|---|-------------|---|
| of the listed values/benefits?  | (0,1,2, DK) | The bindings of the MANAA and the Political College   |
| <ol> <li>Biodiversity – the presence of many<br/>different kinds of plants, animals and<br/>ecosystems</li> </ol>                   | 2           | The biodiversity of the WMA supports the livelihoods of the customary landholders. Many animals are hunted for food.  Additional information: The Kikori region supports more unique animal species than many other parts of PNG – birds of paradise, cassowaries, freshwater crocodiles, tree                      |
|   |             | kangaroo, echidna, bats, several birds, frogs, fish, insects and spiders, bats, and rats). The forest have value for timber, non-timber forest products (eaglewood) and ecotourism (Hitchcock & Gabriel 2015).  |
| Presence of rare, threatened, or<br>endangered species (plants and animals)   | 2           | Palm cockatoo, bird of paradise, crocodiles.  |
| 3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas | 2           | The forest, wetlands and cave ecosystems are important. The WMA is important to protect these ecosystems, because outside the protected area the resources can be taken from these ecosystems.  |
| Protecting clean, fresh water   | 2           | There are several streams flowing down the side of Mt Bosavi and these provide clean fresh water. There are cave systems with pure water as well.   |
| 5. Sustaining important species in big enough numbers that they are able to survive here  | 2           | The WMA is large enough to support a diversity of species, some of which are unique to the area.  |
| Providing a source of employment for local communities now  | 0           | Does not provide any income to the customary landowners.  |
| 7. Providing resources for local subsistence (food, building materials, medicines etc.)   | 2           | The WMA provides all of the customary landowners' food.   |
| Providing community development opportunities through sustainable resource use  | 0           | There has been no community development.  |
| <ol><li>Religious or spiritual significance (e.g. tambu places)</li></ol>   | 0           | Customary landowners could not recall or did not share any tambu places. However, the whole area is important as part of their traditional lands.   |
| 10. Plant species of high social, cultural, or economic importance  | 0           | There are plenty of plants in the WMA, but we don't use them as the WMA is too far from the village.  |
| 11. Animal species of high social, cultural, or economic importance   | 1           | Animals are important for clothing and ceremonies. They were very important in traditional times, but now many of the ceremonies have been replaced. Some crocodiles are sold if there is a market, but there is not a regular sale of animal products as the area is remote areas, with no easy access to market). |
| 12. Attractive scenery  | 2           | We appreciate the scenery when we look down from the mountain. There are beautiful rivers, waterfalls, caves, forests and animals.  |
| 13. Tourism now   | 0           | There is currently no tourism. We do not have good communicate and information (e.g. internet) or facilities for visitors.  |
| 14. Potential value for tourism in the future   | 2           | Tourism is important as a source of income in the future.  The people are willing to construct places for tourists to sleep, and would like training in ecotourism.   |
| 15. Educational and/or scientific value   | 2           | The WMA does not currently play a role in education, but it could be an important educational resource in the future.   |
| 16. Maintaining culture and tradition on customary land and passing this on to future generations                                   | 2           | Our culture is not as strong as it was. However, we still have our longhouse culture and Tokples is still very strong and spoken every day. There a no special cultural sites within the WMA.   |

#### 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<br>(H,M,L,0) | Notes  |
|--|--------------------|--|
| 1.1 Housing and settlement             | 0                  | There are no houses or settlement near the WMA. The villages are   |
|  |                    | located about 25 kms from the WMA.   |
| 1.1a Population increase in the        | Н                  | There are four major clans and the population is increasing. This may  |
| protected area community               |                    | increase the pressure to extract resources from the WMA. The people  |
|  |                    | go into the WMA only for hunting purposes.   |
| 1.2 Commercial and industrial areas    | 0                  |  |
| 1.3 Tourism and recreation             | 0                  |  |
| infrastructure                         |                    |  |
| 2.1 Customary land owner and           | 0                  |  |
| community gardens and small crops      |                    |  |
| 2.1a Drug cultivation                  | 0                  |  |
| 2.1b Commercial plantations            | L                  | There is potential for commercial plantations in the future. People  |
|  |                    | grow a few betel-nut trees. There are no Special Agricultural Business   |
|  |                    | Leases (SABL) in the area.   |
| 2.2 Wood and pulp plantations          | 0                  |  |
| 2.3 Livestock farming and grazing      | 0                  |  |
| 2.4 Marine and freshwater              | 0                  |  |
| aquaculture                            |                    |  |
| 3.1 Oil and gas drilling               | L                  | We are aware that exploration for oil and gas has been undertaken on   |
|  |                    | two occasions. There is potential for new exploration as gas and oil   |
|  |                    | have been found in the area. The companies are still trying to   |
|  |                    | negotiate exploitation of the resource. A new gas pipeline will join the   |
|  |                    | main existing pipeline. Generally, the mining companies fly equipment, people and other materials in by chopper. They usually do not build |
|  |                    | roads and this minimises the on-ground impacts. The community  |
|  |                    | supports oil and gas development.  |
| 3.2 Mining and quarrying               | 0                  | There may be potential for underground mining in the future.   |
| 3.3 Energy generation                  | 0                  | There may be potential for underground mining in the fature.   |
| 4.1 Roads and railroads (include       | 0                  |  |
| road-killed animals)                   |                    |  |
| 4.2 Utility and service lines (e.g.    | 0                  |  |
| electricity cables, telephone lines)   |                    |  |
| 4.3 Shipping lanes                     | 0                  |  |
| 4.4 Flight paths                       | 0                  |  |
| 5.1 Hunting, killing and collecting    | 0                  | Hunting is not a problem, as people only hunt in the WMA if there is a   |
| terrestrial animals (including killing |                    | special ceremony. A WWF person taught us that we should hunt in the  |
| of animals as a result of              |                    | WMA only if we really need to. This helps to protect the animals in the  |
| human/wildlife conflict)               |                    | WMA.   |
| 5.2 Gathering terrestrial plants or    | 0                  | As the villages are a long way from the WMA, there is little or no   |
| plant products (non-timber)            |                    | extraction of plant materials.   |
| 5.3a Logging and wood harvesting       | 0                  | There is no logging as the WMA is too far to carry logs back to the  |
| for local/customary use                |                    | village.   |
| 5.3b Logging and wood harvesting –     | 0                  | The customary landowners established the WMA as a means to   |
| commercial logging                     |                    | prevent commercial logging – we did not agree for logging to take place.   |
| 5.4a Fishing, killing and harvesting   | 0                  | We fish with a line and use nets only on special occasions and this has  |
| aquatic resources for                  |                    | very little impact on the abundance of fish species.   |
| local/customary use                    |                    |  |
| 5.4b Fishing, killing and harvesting   | 0                  |  |
| aquatic resources for commercial       |                    |  |
| use                                    |                    |  |

| Threat type  | Score<br>(H,M,L,0) | Notes   |
|--|--------------------|---|
| 6.1 Recreational activities and tourism  | 0                  | There is no tourism activity within the WMA.  |
| 6.2 War, civil unrest and military exercises   | 0                  |   |
| 6.3 Research, education and other work-related activities in protected                           | 0                  |   |
| areas 6.4 Activities of protected area managers (e.g. construction or vehicle use)               | 0                  | Few people go to the WMA and there is little or no management of the area.  |
| 6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors | 0                  |   |
| 7.1 Fire and fire suppression (including arson)  | L                  | There is potential for fires in the area, but these have not been experienced to date.  |
| 7.2 Dams, hydrological modification and water management/use                                     | 0                  | onperiorite and a date.   |
| 7.3a Increased fragmentation within protected area   | 0                  |   |
| 7.3b Isolation from other natural habitat (e.g. deforestation)                                   | 0                  | Our protected area is joined with Libano-Arisai, forming part of a large contiguous forest block.   |
| 7.3c Other 'edge effects' on park values   | 0                  | Logging and exploration have taken place on the edge of the WMA, but nothing occurs now.  |
| 7.3d Loss of keystone species (e.g. top predators, pollinators etc.)                             | 0                  | Overall, there has not be a loss of keystone species. There are plenty of cassowaries and crocodiles and their numbers are not declining.                               |
| 8.1 Pest plants  | 0                  | Piper species are found only in the village, and not in the protected area.   |
| 8.1a Pest animals  | Н                  | Tilapia and carp are in the rivers and these species pose a threat to the endemic fish species. We notice that the preferred native species have declined in abundance. |
| 8.1b Diseases such as fungus or viruses that make native plants or animals sick                  | L                  | Pigs have a virus; and there is some fish disease in the main stream (occurs only once each year).  |
| 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   | 0                  |   |
| 10.2 Earthquakes/Tsunamis  | М                  | Earthquakes occur about twice a year and cause some damage, including landslides.   |
| 10.3 Avalanches/Landslides   | L                  | These occur mainly during the rainy seasons.  |
| 10.4 Erosion and siltation/  | Н                  | There are serious problems with erosion and siltation. This is reducing   |
| deposition (e.g. shoreline or riverbed changes)  |                    | the size of the sago plants (Note it is not clear if this erosion has any human-induced causes).  |
| 11.1 Habitat shifting and alteration   | М                  | No changes observed in the forest animals. However, there are landslides and these have effects on food crops.  |
| 11.2 Droughts  | Н                  | Droughts occur and they affect food crops, pumpkin and potato. They also affects our food supply as there are more insects.   |
| 11.3 Temperature extremes  | Н                  | It is hotter after rain.  |

| Threat type                              | Score     | Notes   |
|--|-----------|---|
|  | (H,M,L,0) |   |
| 11.4 Storms and flooding                 | M         | There are more frequent storms, lightning and landslides after very     |
|  |           | heavy rain.   |
| 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 | M         | People don't dress up traditionally on a regular basis, but children do |
| knowledge and/or management              |           | for specially occasions.  |
| practices                                |           |   |
| 12.2 Natural deterioration of            | 0         |   |
| important cultural site values           |           |   |
| 12.3 Destruction of cultural heritage    | 0         |   |
| buildings, gardens, sites by people      |           |   |
| Other (please explain)                   |           |   |

#### Table 5. Worst threats and ways forward

| Threat | Threat  | Threat number     | Nature of the threat, impact and how to reduce the impact.   |
|--------|---|-------------------|--|
| No.    | (Most significant first)                        | or name (copy     |  |
|        |   | no. from Table 4) |  |
| 1      | Climate change (droughts, temperature extremes) | 11.2,11.3         | People observe changes in the climate and indicate that the main impact is on their food crops; need to develop appropriate climate change adaptation plans. |
| 2      | Culture   | 12.1              | Culture is mainly practices in ceremonies, but our Tokples is strong.  |
| 3      | Invasive pest animals                           | 8.1a              | Tilapia and carp have entered the waterways; implement a threat abatement plan in consultation with relevant stakeholders to remove these invasive species.  |

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

# Table 6. Management effectiveness scores, comments, next steps

| Issue                          | Score<br>(0,1,2,3, NA) | Comment   | Next steps   |
|--------------------------------|------------------------|---|--|
| 1a. Legal status               | 3                      | The WMA was gazetted in 2008.   | Revise the protected area type under PNG's new protected area Bill and progress WHA nomination.  |
| 1b. Legal status               |                        |   |  |
| 2a. Protected area regulations | 1                      | Traditional laws are in place, including restricted take of resources from the WMA. Hunting is only permitted to obtain materials for special ceremonies.   | Develop an improved system of regulations for the WMA.   |
| 2b. Protected area regulations |                        |   |  |
| 3. Law enforcement             | 0                      | There are no resources to implement the WMA's rules, but this is not a big problem. All sides of the WMA have customary landowners and there is a watch kept on the area. There are no problems with outsiders. | We need to come up with incentives for conservation to ensure that people comply with the rules. The landowners should take leadership on this issue and hence they need training to be empowered to do this – law enforcement is not about money. |

| Issue   | Score<br>(0,1,2,3, NA) | Comment   | Next steps  |
|---|------------------------|---|---|
| 4. Protected area objectives                                      | 1                      | The WMA has agreed objectives but sometimes young people come into the WMA and do the wrong thing.  | The management committee needs to gain the respect of the landowners and community and feel empowered to implement the objectives of the WMA.     |
| 5. Protected area design  | 2                      | The people will extend the boundary of the WMA if they see some benefits coming out of the WMA. However, if there are no benefits, they might make it smaller. If there are no benefits we cannot continue to maintain the excitement of the commitment to the WMA. There has been no action in 23 years, so it is difficult to continue. | Investigate possible extensions to the WMA. However, the landowners are unlikely to want to extend it unless some benefits start to flow from it. |
| 6. Protected area boundaries                                      | 3                      | The boundaries were walked when doing the GIS, so this is clear. However, not all people in the community know the location of the boundaries. Four clans represent the protected area, so it is hard for outsiders to disrespect the WMA boundaries.   |   |
| 7. Management plan  | 0                      | There is no Management Plan. We have some ideas about management, but they are not written down. However, we do have some traditional practices that assist management e.g. hunting in the WMA is only permitted on special occasions.  | Seek assistance to develop and implement a Management Plan.   |
| 7a. Planning process – input<br>of rights' holders                | 0                      | There is no active management and hence no opportunity for input into management.   |   |
| 7b. Planning process – regular plan review                        | 0                      | There has been little action in relation to management of the WMA.  |   |
| 7c. Planning process –<br>monitoring/research informs<br>planning | 0                      | There has been no research or monitoring.   |   |
| 8. Regular work plan  | 0                      | There is no regular work plan and no activities are undertaken.   | The community should develop a Management Plan and then try to agree on a work plan for the WMA.  |
| 9. Resource inventory   | 0                      | No information is available to the customary landowners. Some information is available in published papers, but this is not useful to the management committee as they don't have the information.  | Seek assistance to identify the resources/values of the WMA, e.g. undertake resource mapping and land use mapping.                                |
| 10. Protection systems  | 0                      | There are no protection systems in place. The people keep watch on the area, but it is a long way from the villages.  |   |
| 11. Research and monitoring                                       | 1                      | There was some research in 2002, but customary landowners do not have a copy of the results.  | Engage with other agencies and universities to undertake relevant research in the WMA and ensure that the results are shared with the landowners. |

| Issue   | <b>Score</b> (0,1,2,3, NA) | Comment  | Next steps  |
|---|----------------------------|--|---|
| 12. Resource management                         | 0                          | No activities are undertaken at present as the forest looks after itself.  | Establish a planning process to control the spread of tilapia and carp.   |
| 13a. Staff numbers                              | 0                          | There are no paid staff.   |   |
| 13b. Other people working on the protected area | 3                          | Some customary landowners work on the WMA.   | More help provided by the customary landowners would be beneficial.   |
| 14. Training and skills                         | 1                          | There has been no recent training, but the landowners have many traditional skills. In the past there was some training in how to collect specimens.   | Provide more training in specimen collection, guiding (male and female) to take people into the field, and environment management.  |
| 15. Current budget                              | 0                          | It is not easy to get money from the local level government.   | Seek funds to assist in the management of the area.   |
| 16. Security of budget                          | 0                          |  |   |
| 17. Management of budget                        | NA                         |  | We would need training in budget management if we had a budget.   |
| 18. Equipment                                   | 0                          | There is no equipment (as no management is undertaken).  | We need solar panels and batteries, a communication system, and resource centre. If funds become available and when a Management Plan is developed, seek guidance from the community on the equipment that may be needed. |
| 19. Maintenance of equipment                    | NA                         |  | Would need training in maintaining equipment if some is provided.   |
| 20. Education and awareness                     | 0                          | There has been no education or awareness program provided since WWF was involved in 1995.  | Would like more training and awareness raising in relation to conservation and management   |
| 21. Planning for land use or marine activities  | 0                          | Developments happened outside the protected area before the WMA was declared. However, there are likely to be expansions in oil and gas development in the region.   | Ensure that the WMA is consulted in decisions relevant to the WMA, including oil and gas developments.  |
| 22. State and commercial neighbours             | 0                          | There has been no communication with the local level government, the provincial administration or national government.   | Now that we have met CEPA staff (i.e. at this assessment) we will continue to communicate with them.  |
| 23. Indigenous people/<br>Customary landowners  | 3                          | All decisions are made by the customary landowners.  |   |
| 24a. Impact on communities – open communication | 0                          | Has been no communication with other stakeholders/government, until now.   | "Now that you have invited us, we will start communicating with you".   |
| 24b. Impact on communities  – welfare programs  | 0                          |  |   |
| 24c. Impact on communities – landowner support  | 0                          | About 70% of the community does not support the WMA. These are mostly people who live outside the area. The village people who live near the area are generally supportive of the WMA, while others would like to have some economic benefits from their land. | We need to see some benefits from the WMA and resolve internal conflicts. We should investigate the possibility of establishing an Incorporated landowner group.  |
| 25. Economic benefit                            | 0                          | No economic benefits have been derived from the WMA, so other uses are looking more attractive.  | We need to see some benefits derived from the WMA to maintain support for the WMA.  |

| Issue                            | Score<br>(0,1,2,3, NA) | Comment   | Next steps   |
|----------------------------------|------------------------|---|--|
| 26. Monitoring and evaluation    | 1                      | The area is regularly visited by the customary landowners (both men and women), who observe what is happening in the WMA.   | Some training in monitoring would be useful to check species status etc.   |
| 27. Visitor facilities           | 0                      | There are no visitor facilities now but landowners feel that the potential for tourism is high. The area is safe for tourists but transport and communication are difficult at present. | We need infrastructure to support tourism (e.g. roads, communication). People are happy to set up a resource centre and huts for people to stay. We need solar panels and laptops. We have mobile phone coverage, but we cannot charge our mobiles or computers. |
| 28. Commercial tourism operators | 0                      | There are no commercial tour operators.   | Investigate the potential for small-scale adventure tourism.   |
| 29. Fees                         | NA                     | No fee structure.   |  |
| 30. Condition of values          | 3                      | Overall, the condition of the WMA values is very good, with forest largely intact. This assessment is based on landowner inspections.   |  |
| 30a.Condition of values          | 1                      | Assessment is based on traditional knowledge.   |  |
| 30b. Condition of values         | 0                      | There are no specific threat abatement programs or activities.  | A threat abatement plan is required to address the impacts of tilapia and carp in the waterways.   |
| 30c. Condition of values         | 0                      | No routine activities are undertaken to maintain the WMA's values.  |  |

# 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  |
| Forest and plants   | VG                | S             | Little disturbance as there is no settlement within the WMA.   |
| Forest animals      | VG                | S             | There are plenty of animals.   |
| Rivers and fish     | VG                | S             | The rivers and caves provide clear undisturbed water. The only issue is the decline of fish due to the introduction of tilapia; develop a threat abatement plan to eradicate invasive fish species such as tilapia and carp. |
| Insects             | VG                | S             | Plentiful insects including butterflies.   |
| Landscape & geology | DK                | DK            |  |

# Table 8. Recommendations and ways forward

| 1.                                    | 2.   | 3.  |
|---------------------------------------|--|---|
| We would like a resource centre for   | Training – in biodiversity field                   | Project proposals to fund the WMA – what  |
| management and to support ecotourism. | skills, tourist guiding and ecotourism management. | are the funding opportunities (we need to get some benefits from the protected area). |

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

|   | Strengths  | Challenges   |
|---|--|--|
| 1 | Area of very high natural importance in very good                    | Customary landowners are divided with maybe 70%        |
|   | condition. Part of the Kikori Basin tentative World Heritage         | no longer supportive of the WMA. The non-              |
|   | Area.  | supporters are mostly people not living in the village |
|   |  | area.  |
| 2 | No settlements or incursions from outside people and <b>few</b>      | Lack of support or contact from any source since       |
|   | threats.   | 1995, with no funding or training or communication.    |
| 3 | People who still live in the area are committed to                   | Tilapia are reducing populations of the most           |
|   | conserving forest – if there was some benefit or income to           | desirable fish to eat and are difficult to remove from |
|   | be derived.  | waterways.   |
| 4 | Potential and willingness for <b>ecotourism</b> – scenic attractions | Isolation and difficult access, lack of facilities and |
|   | include waterfalls, caves, birds and other animals and               | ability to communicate with outside world. There are   |
|   | orchids; and <b>education and research</b> related to biodiversity   | social issues due to extreme isolation (e.g. long walk |
|   | and culture.   | to the airstrip, no road access, long distance from    |
|   |  | health care and many women die in childbirth). They    |
|   |  | would really like some improved road access. There     |
|   |  | are no ID cards or email access. They do have mobile   |
|   |  | phone access, but no remote power. Education at        |
|   |  | primary level in villages is patchy as some years      |
|   |  | there are no teachers. For secondary schools,          |
|   |  | children need to go to Mende or Moro and this is       |
|   |  | expensive (~1500Kina/ year).                           |
| 5 | Culture and local language are still strong. Crafts are made—        | The Kosuo Orogo Resource Holders Association has       |
|   | billum, string bag, sago basket, grass skirt. The women's'           | not been active in this area and is not supporting     |
|   | group is keen to sell these if a market could be found.              | Libano-Hose.   |