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Appendix I: Gazetted Village Rules

Appendix II: Additional Detailed Information

Kanashen Description and History

History of Kanashen

In the year 1984, we moved from Old Kanashen to Akutopono to be closer to a newly refurbished airstrip and began to have more regular contact with the outside world. In the year 2000, heavy flooding caused us to move from Akutopono. Some residents moved to Erepoimo (Parabara), for enhanced trading relationships and other advantages but the majority moved to Masakenari - once a settlement of another forest dwelling nation. We remain at Masakenari but would regularly visit Akutopono to collect fruits and conduct other cultural practices.

Managing and securing resource availability for our development was always a priority of the Wai-Wai at Kanashen. The presence of intact forests and abundance of wildlife in the area are an indication that we have been promoting and practising very good environmental management many years before most of the conservation organizations that now exist.

As years went by, we observed that changes are taking place within and around us including increased mining activity (some illegal) in the vicinity of Erepoimo (Parabara), and urban expansion and infrastructure development in Region Nine (e.g. the Guyana-Brazil bridge across the Takatu River). We considered these developments as threats to our culture and biodiversity, especially since we were without legal title to our lands.

To secure our future at Kanashen, we applied for Absolute Title to the entire Kanashen Indigenous District, which was granted in 2004. Upon receipt of the Title, we made a collective decision to manage the area for conservation and sustainable economic development.

Recognizing that we lacked skills in modern conservation management, we sought and gained the assistance of the Government of Guyana (GoG) and Conservation International Guyana (CI-Guyana). Our tripartite agreement commits CI-Guyana to collaborate with us to develop a conservation management plan that allows us to maintain our culture; conserve our lands, ecosystems and biodiversity while achieving socio-economic development; enhance our capacity for management; and establish our lands as a Community Owned Conservation Area (COCA) that is recognized by the National Protected Area System (NPAS).

Together with our partners, we have implemented many activities in fulfillment of our agreement. A summary of the major activities completed to date is presented below:

Conducted community consultations, and education and awareness: During October-November 2005 and January-March 2006: CI-Guyana and partners conducted engagements and awareness sessions with our village. These engagements were part of a participatory approach undertaken for the

development of a draft management plan for our lands, and to create greater awareness amongst residents on biodiversity conservation and the management of our lands. A draft management plan that set out our long term vision for conservation management of our titled lands was prepared, reviewed and endorsed by the village.

Training of Rangers: In April-September 2006, CI-Guyana supported the training of six (6) of our residents as park rangers. These persons are mainly responsible for on-going environmental and other monitoring and patrolling of our lands, and for supporting data collection.

Baseline biological surveys: In September 2006, our rangers collaborated with CI-Guyana and other entities to gather baseline data on water quality at the headwaters of the Essequibo River and conduct baseline inventories of the birds, fishes, amphibians, reptiles and mammals that we traditionally utilize. A team of international scientists conducted a Rapid Assessment Programme (RAP) survey which helped to improve scientific knowledge on the biological diversity and water quality in our lands.

Legal operation as Kanashen Community Owned Conservation Area (KCOCA): In 2007, we declared our lands the Kanashen Community Owned Conservation Area (KCOCA) under the Amerindian Act (2006). Since then, with support from CI-Guyana, we have been implementing the actions we designed in a draft management plan.

International exposure: CI-Guyana and other partners have supported selected residents to attend international workshops and conferences on enterprise development, conservation, indigenous leadership and other topics. These meetings provided us with exposure to other experiences in community-based conservation projects and allowed for international promotion of our efforts in Kanashen.

Assessment of management: In 2011, together with our main partners, we assessed our management planning process, our draft management plan and progress towards achieving our vision. This assessment has provided us with good guidance to strengthen management of our lands to address challenges identified and especially in light of the new protected area law. This assessment provided key information for the revision of our management plan.

Applied to the PAC for KCOCA to be part of NPAS: The passing of the PA Act 2011 and establishment of the PAC provided the opportunity for us to apply for recognition of the KCOCA as an Amerindian Protected Area in June, 2013. The application letter to the PAC is one of the first steps towards the goal for the KCOCA to be recognized as part of the NPAS under the PA Act (2011).

Build capacity in the community to support management: With support from CI-Guyana and other partners, we have established some infrastructure and strengthen human capacity in our village to help us achieve our goals. We have built a village office and installed solar power, internet and other facilities, constructed two ranger stations, and acquired boats and engines and other equipment. Some

residents of our village have had their capacity to engage in several economic and other activities improved through training in hospitality skills, museum management, craft production and Wai Wai language instruction. This capacity has assisted us greatly in the management of our lands thus far.

Physical Conditions

Climate

The climate of Kanashen is tropical with alternating wet and dry seasons. There are usually two dry seasons, a long dry season from mid-July to October and a short one between January and mid-April. A very short rainy period (referred to as *Perai* or *Poni rain*) occurs in February during the short dry season. A long wet season occurs between mid-April to mid-July and a short one between November and December. We call the short wet season the Frog Rain.

Hydrology and Water Quality

Kanashen houses the headwaters of the Essequibo River. The area drains into the Kassikaityu, Kamoia, Sipu and Chodikar Rivers. These rivers all empty into the Essequibo River which carries the water northward to the Atlantic Ocean through lowland and other forests. The KCOCA is located in this southern half of the Essequibo watershed which contributes about twenty percent (20%) of the total freshwater produced in the country (US Army, 1998).

The water quality of the main rivers and creeks in our KCOCA appear free from human and industrial pollution (Trotz, 2006). Trotz (2006) reported that the baseline pH of the natural waterways was similar to certain parts of the Amazon Basin ranging between 4.74 to 6.4 pH units.

Geology

Kanashen overlays some of the oldest rocks of the Guiana Shield dating from the Trans-Amazonian Event of 1.8-2.4 billion years ago (GL&SC, 2013). These include the sub-volcanic alkaline basalts that make up the Wassarai, Kamoia, Acarai (Hammond, 2005) and other mountains of the area. These rock outcrops are part of the Guiana (or Guyana) Highlands, the second most important landform in the Guiana Shield Region (Hammond, 2005). The Acarai Mountains reach a maximum height of approximately 1,200 m above mean sea level (Alonso et al 2008) in the KCOCA.

Soils

The soils of Kanashen are mainly Lithosols (FAO Classification) of the acidic rock phase (Ustchrepts with Ustorthents, Kanhaplustults – USDA classification), which are shallow, excessively drained with high gravel content and prone to erosion on steep slopes (GL&SC, 2013).

Biodiversity

The forests and other ecosystems of our KCOCA are in very good condition, with respect to conservation, and have high species diversity (but low endemism) and very good water quality. Most species are abundant and could be considered to have sufficiently large population size. Frequently hunted species, on the other hand, appear to be

decreasing, particularly in areas closer to the village (Alonso, et al 2008). See Appendix X for a list of species known to occur in Kanashen.

The forest composition in our KCOCA is different from many other parts of Guyana. Expeditions to the summit of the major mountains in the area revealed that although each has its own unique flora, there are a few common plant species such as *Rhodostemonodaphne scandens* (D. Clarke, unpubl.). Other species reported to be common in the KCOCA include non-timber plants species such as Brazil nuts (*Bertholletia excelsa*), Manicole palm (*Euterpe spp*), Ite palm (*Mauritia spp.*); *Apodanthes caseariae* Poit. (Rafflesiaceae) and *Clusia spp* (D. Clarke, unpubl; Kelloff et al 2004). Kanashen is believed to be Guyana's largest stand of Brazil nuts (*Bertholletia spp*) (D. Clarke, unpubl.) – a very important keystone species. Ter Steege (2000) reported that Baramalli (*Catostemma spp*), Manyokinaballi (*Geissospermum spp.*) and Kakaralli (*Eschweilera spp.*) are the most common of the known timber species.

Non-volant Mammals

Field surveys have so far recorded the presence of 21 species of large mammals (Alonso et al 2008) including yaypi i.e. the tapirs (*Tapirus terrestris*), amaci i.e. the anteater (*Myrmecophaga tridactyla*) and kamara i.e. Jaguar (*Panthera onca*). Our local knowledge suggests that twice this number of species exist within our lands. Five species of mammals considered to be of global conservation concern by the International Union for the Conservation of Nature (IUCN) can be found within our lands, including the Giant River Otter (*Pteronura brasiliensis*), Giant Armadillo (*Priodontes maximus*) and Bush Dog (*Speothos venaticus*) (IUCN, 2012).

Birds

To date, a total of 319 bird species – approximately 40% of the total number of species recorded in Guyana – were recorded in our KCOCA. Included in this list is the Large-Headed Flatbill (*Ramphotrigon megacephalum*) – a new record for Guyana, four species of macaws and parrots – including the Scarlet macaw (*Ara macao*) and the near-threatened Blue-cheeked Parrot (*Amazona dufresniana*). Seven additional species of birds found in this area have the IUCN's Near Threatened status, while four species have the vulnerable status, including the Red Billed Toucan (*Ramphastos tucanus*). Twenty-seven of the bird species recorded in our KCOCA are endemic to the Guiana Shield including the Guianan Cock of the Rock (*Rupicola rupicola*) (Alonso, et al 2008).

Fishes

A total of 113 species of fishes were identified representing six Orders and 27 families (Lasso et al 2008). Some of the most abundant species recorded include the Haimara (*Hoplias aimara*), the Tiger fish (*Pseudoplatystoma fasciatum*) and Lukanani (*Cichla ocellaris*). None of the fish species recorded in our KCOCA is listed as globally threatened by the IUCN or restricted by the Convention for International Trade of Endangered Species (CITES).

Reptiles and Amphibian

Twenty-six species of amphibians and 34 species of reptiles were identified in the area (Alonso, et al 2008). Potentially new records for Guyana include an aquatic lizard (*Neustriacus cf. rudis*), a snake (*Helicops spp.*) and an unnamed caecilian that according to Senaris et al (2008), will require further taxonomic investigations for confirmation. The abundance of medium to large sized species of reptiles and amphibians which make up the Wai-Wai diet appears to be lower in areas closest to Masakenari but the population of other species were reported to be healthy (Senaris et al 2008). A number of reptiles and Amphibians have not been assessed or catalogued under the IUCN's red list, deeming it an important area for research. However, the black caiman (*Melanosuchus niger*) is classified as lower risk and is conservation dependant.

Invertebrates

The RAP survey identified 101 species of Katydid (Order Orthoptera) of which 58 were new records for Guyana and seven new to science. These records increased the number of known Katydid of Guyana by 130% (Alonso et al 2008). Though species diversity is high, the population density is low – this is typical of pristine undisturbed primary rainforests (Naskrecki, 2008).

More than 200 ant (Hymenoptera: *Formicidae*) species were identified by the RAP surveys. At least one of the species identified (*Trachymyrmex spp.* - a leaf cutting ant - is likely new to science, and one genus (*Mycetarotes*) was recorded for the first time outside of the Amazon Basin (Schultz and Sosa-Calvo, 2008). Fifty species of dung beetles (*Coleoptera: Scarabaeidae*) were identified during the RAP surveys, with at least one being new to science (Marshall, 2008).

Ecosystems

The KCOCA is comprised mostly of forests with a small patch of grassland savannahs. Most of the forests are tall evergreen highland and lowland types with large patches of flooded forests along rivers, small patches of deciduous vegetation and a native bamboo (*Guadua spp.*).

Socio-economic and Cultural Context

Transportation

Transportation to our village is either by air or overland and river. Travel from Masakenari to Erepoimo (Parabara) is done either completely on foot, or partly by river – through the Essequibo and Kassikaityu Rivers – and on foot from Kassikaityu Landing to the Kuyuwini River. Without an outboard engine this journey can take as much as eight days but with outboard engines, travel time is reduced to about five days. Trails to accommodate motorized transport are available between Erepoimo and the rest of the Rupununi. Air transport is facilitated only by chartered aircraft to the Gunns Airstrip – covered with compressed lateritic loam – located about 3 km from Masakenari.

Communication and Information dissemination

The Guyana Post Office Corporation (GPOC) does not serve Kanashen. As such, we rely on each other to relay packages, letters and messages whenever someone travels out of

the village. There are also three HF radios in our village that are used to transmit messages. Internet access is available in our village, via a satellite internet service provider, and facilitates electronic communication via emails, voice and video. Some radios in the village access public radio transmission from Brazil. Internal communication is usually facilitated in person either house to house or at village meetings.

Health and Medical Care

The residents of Kanashen are generally healthy but are affected mainly by common illnesses and diseases caused by changing diet and unhygienic practices. Fevers and colds occur mainly during the wet seasons and recently there has been an increase in the occurrence of diabetes and hypertension probably due to changes in our diet. Another potential health problem facing the village is mercury toxicity as a result of our preference for the large-sized food fishes (Mangal, unpubl) which were reported to carrying high levels of naturally soluble mercury in their tissues (Couture, et al 2005). There is a Village Health Centre – part of the national health care system – operated by a Community Health Worker (CHW) which provides very basic health care for residents. The centre is sometimes challenged by the shortage of medicines and other supplies. Remote Area Medical (RAM), a United States of America based charity, provides assistance with medical care through the facilitation of visits by medical personnel and medical evacuation.

Education

Formal education in our village through a public school which provides nursery and primary level classes. The village school is staffed by three teachers, one of whom is fully trained and serves as the Head Teacher. Villagers access secondary education outside the village mainly at Aishalton and St. Ignatius. Primary education is the highest level of formal education received by most residents but there are a few residents who have received tertiary education.

In addition to the formal school system, there is also a traditional education system whereby traditional knowledge is passed on to the younger generations for continuation of the Wai-Wai culture. The coexistence of these two systems sometimes presents us with challenges.

Utilities

We have access to running water for domestic uses, electricity, and internet but no access to telephone services. Water is supplied from the village well by a solar pump and a storage and distribution system. Electricity is supplied in our village mainly by solar-voltaic power installations in each house and at the village office.

Village Economy

Kanashen is a semi-subsistence economy as villagers rely on access to some goods and services from outside of the community. Some amount of cash trade is undertaken by villagers but barter remains the principal medium of exchange within the village, though its use has declined in the recent past. Cash is used to purchase items (e.g. agricultural

tools, clothing, cooking utensils and certain types of groceries) from businesses outside of the village.

Aside from the few persons with permanent employment (i.e. KMT, the CHW, the Hinterland Affairs Worker, teachers) the majority of households have only occasional access to cash income. The most common source of income comes from the sale of farm produce and food items. Persons with paid employment would occasionally supplement their income through sewing, mining, and the sale of agricultural products and by-products such as cassava bread, farine, cassareep and salted fish. The current main economic activities at Kanashen include those described below.

- Farming and Farmland: Farming is done mainly within 12 kilometers of the village along the banks of the Essequibo River and on the slopes of Masakenari Hill. Each family has about one to three farms ranging between one and three acres in size. Only a narrow range of food crops is produced in the village - mostly for subsistence- but surpluses are sold either fresh or preserved (dried or smoked). The traditional technology of slash and burn is practised as fire remains our most common tool for land clearing. A few villagers are also rearing creole chickens at a subsistence level or as a commodity to barter in the village. There is also a small flock of sheep and one or two sheep are occasionally culled and sold as mutton within the village. The biggest constraints to the agricultural programme are inadequate capacity, jaguar attacks on chickens and sheep and flooding of the farm-lands during heavy rains.
- Village Market: Though not regularly held, there is a market-day in the village that provides opportunities for residents to barter their produce or exchange them for cash. Externally, the village would also barter cultural commodities (e.g. hunting dogs, guns, craft) with neighbouring Wai-Wai communities in Brazil and Suriname. A vibrant cash-based market exists in the Savannah communities as far as St. Ignatius but getting produce from KCOCA to these areas is difficult and costly. It is hoped that marketing of produce from the KCOCA would improve with improvements in transportation. Villagers would also take the opportunity to market produce whenever they visit Georgetown or travel overseas.
- Shopkeeping: At present, there are two shops in the community. One owned by the Village Council and the other belonging to a resident. Both shops sell basic foods materials and other items such as combs, batteries, washing soap, school books, pencils, etc. - all of which comes into the village from Lethem, Georgetown or Brazil and resold at high prices to residents. The high cost of the items is due to the cost of transportation rather than the need for high profit margins by the shopkeepers. The KCOCA Management Team looks forward to assistance from our partners to help reduce the cost of transportation as much as can be sustained as a means of reducing the cost of items offered for sale at the village shops.
- Craft Sales: Craft is produced in the village for two main reasons: i.e. to preserve the Wai-Wai culture and to earn income for residents. Craft is also produced as a

means of exchange when bartering. However, the community does not possess the skills to undertake a market survey or feasibility study to determine the economic opportunities for craft production in relation to the types of products and volumes desired by the potential markets. As a result, craft production is basically an opportunistic business with residents taking craft whenever they have a chance to travel to Georgetown or respond to infrequent orders or requests of businesses in the city.

- Eco-Tourism: Tourism as a cultural product provides revenue while preserving the Wai-Wai culture and protecting our lands and resources. However, although there is an Agreement with Rupununi Tours (a tour operation based at Dadanawa Ranch in the Rupununi), tourism is not yet established as an official business in the KCOCA.
- Fresh and Dried Fish: The Essequibo River and nearby tributaries are the main fishing grounds for the community. About 20 species of fish are harvested from 13 identified fishing grounds located within 20 km of the village (Alexander, et al unpubl.). Harpoons (bow and arrow) and seines are the principal tools used to fish. Fishes are caught mainly for food but surplus quantities are also sold either fresh or dried (salted or smoked).
- Bushmeat Marketing: The forests along the Essequibo River within 10 km of the village and along the first 12 km of the trail to Erepoimo from the village are the main areas visited for hunting. Though hunting is done mainly to provide food, the hunters would occasionally sell part of their kill as bushmeat to the miners operating at Parabara. The common hunting tools include traps, shotguns and bow and arrows.
- Gathering: Grater stones and Shuwe shells are collected for making utensils and decorating craft pieces. The stones are collected in the Acarai Mountains south of the area along the Sipu and Chodikar Rivers and in the uppermost extremes of the Kamoia River. Brazil nuts are collected mainly in the north along the Titko and Bure-Burwau (*Kurko*) Rivers, tributaries of the Kassikaityu River. Building and craft materials are collected from areas closer to the community at Wanakako and Urano.
- Gold mining: Gold mining is more common among the younger persons (≤ 25 years) in the village and it is currently done at a very small and negligible scale outside the village lands as a means to provide cash. The village preference is for gold mining to continue in a traditional manner, but is concerned that the scale of operations by villagers might change within the next 15 years, especially if a good 'spot' is found in Kanashen.
- Traditional subsistence/home provisioning: The main provisioning systems in our KCOCA are: i) subsistence; ii) trading/bartering and iii) sharing. Bartering and sharing are cultural traits and not responses to limited cash flow (Mangal,

unpubl.). Sharing as a cultural practice in the village is not as it used to be years ago.

Cultural Context

Wai-Wai culture includes, among other things, our language, utensils, craft, tools, the way we dress, our ornaments/craft, archaeological sites, artifacts, pottery, petroglyphs, music and dance, the foods we eat, knowledge of the land, techniques for farming, hunting, fishing, and gathering, our beliefs, practices and spirituality, system of organization, and values. As previously mentioned, there is some amount of cultural degradation (for example, people not knowing how to read and write the Wai-Wai language and traditional musical instruments being replaced by modern types) that needs to be addressed through the management plan for our KCOCA.

Values of the KCOCA

Importance to REDD+/Norway

The KCOCA presents a viable mechanism through which Guyana can meet its commitment to REDD+ agreements such as the Memorandum of Understanding (MOU) with the Government of Norway. Under the MOU with Norway, Guyana is required to keep deforestation below a pre-determined baseline in order to receive payments. The KCOCA being Guyana's largest protected area can help to balance the national deforestation budget (i.e. permitting higher levels of deforestation from other land uses such as mining) and allow the State to remain in compliance.

Ecosystem Goods and Services

Our KCOCA provides environmental goods and services to us, the people of Guyana and to the international community as a whole. The main goods and services provided by our lands are briefly described below. Our KCOCA also contributes to national and international conservation goals by linking to other conservation areas in Guyana and Brazil.

- Watershed services (water quality and flow regulation): Our lands include the source of the Essequibo River – Guyana's largest river – in the Acarai Mountains. The main rivers and creeks in the KCOCA are free of pollution (Alonso, et al 2008). Protecting the forests in the KCOCA will therefore secure the headwaters of the Essequibo River and help to maintain the quality and flow of freshwater originating from this portion of the Essequibo watershed.
- Carbon storage, sequestration and climate regulation: The forests of the Kanashen District consist of tall, evergreen trees, which are excellent carbon reservoirs. Our forests store an estimated 250 million tons CO₂e¹, therefore, managing them in a sustainable way reduces carbon emissions into the atmosphere and so helps to maintain the global climate.

¹ This is calculated based on a conservative national value of an average of 400 tC/ha (GFC, 2012) in Guyana's rainforests.

- Habitat services and provision of raw materials: The forests of the KCOCA serve as habitats for a large number of species and provide materials for our daily sustenance and are part of our tradition and culture. Managing our KCOCA as a protected area will minimize habitat destruction, provide *niche refugia* for species existing here, prevent extinction of globally threatened species and sustain the availability of ecosystem goods.
- Cultural and Recreational: Both our titled and nearby lands are important for our traditional practices and therefore our livelihoods and well-being. Maintaining the KCOCA will provide us with opportunities to develop and progress while also maintaining the essential components of our culture. The KCOCA is also a potentially viable eco-tourist attraction due mainly to the beauty of the surrounding mountains and forests, the presence of attractive wildlife such as the Cock-of-the-Rock (*Rupicola rupicola*), and our culture.
- Mineral resources: Our lands contain many minerals which are either important for our culture, of economic value, or both. We mine minerals such as gold, special stones and clays which are part of our traditional ways and economy. Though gold can be found within our lands, we currently only mine it outside our lands using traditional methods (bucket and spade) – with very little environmental impact – when we need cash. We do not permit the use of mechanised technology for mining. Surface clay (Ermo) is collected for making pottery and plastering of the “*fireside*” areas. We collect and use special stones (Sama) – a volcanic rock – to make Wai Wai graters which we sell and use in our homes. Lateritic gravel from our lands is also mined and used to repair our village airstrip.
- Research: Our lands have great potential to contribute to knowledge, especially because of its location – headwaters of the Essequibo River; the intact and unexplored nature of our ecosystems; and our strong cultural relationship with our environment. Very little is documented about the biodiversity and ecosystems found in our KCOCA and how we interact with it. Thus opportunities exist for a wide range of research including species cataloguing, ecological studies, and social research. Additionally, the KCOCA offers an opportunity to contribute to national forest monitoring efforts.
- Tourism: Our KCOCA also supports many species, our culture and other features with great tourism potential. The presence of charismatic species such as the Giant River Otter (*Pteronera braziliensis*), large cats including the jaguar (*Panthera onca*), an amazing array of birds such as the Cock-of-the-Rock (*Rupicola rupicola*), spectacular invertebrates like the glittering Peacock katydid (*Pterochroza ocellata*) (*Morpho spp.*), butterflies, and our way of life can become attractions for eco-tourists.
- National Security: Our location on the southern border of Guyana with Brazil is of strategic importance to national security. We regularly travel to the borders on

our way to the neighbouring Wai-Wai villages in Brazil and Suriname and our Rangers conduct routine patrols in the area to mitigate the threats of illegal entry, thereby contributing to national efforts on border and hinterland security.

Limitations

There are limitations to our KCOCA including the high cost of access to the village, our current capacity and unfavourable legislative provisions. These are elaborated below.

Lack of access

Access to our village is currently either by costly chartered aircraft, a five-day journey by river and trail from Erepoimo, or between one to two weeks on foot from Erepoimo. This makes access difficult and presents challenges for access to services, trade and business opportunities.

Threats

Currently, there are no major threats to our biodiversity but threats to our lands and culture are likely to increase in the near future due to the expansion of mining in the Rupununi, the planned upgrade of the Georgetown-Lethem Road, improvements to the bush-trail between Masakenari and Erepoimo (Parabara) and road expansion in the neighbouring regions of Brazil. Nevertheless, we believe that the opportunities offered by our KCOCA outweigh the limitations and threats, which we will manage over time in collaboration with our partners. See **Table VI.1** below for a summary of threats and the main drivers.

Mechanised Mining

Our community only permits artisanal gold mining which we engage in as a means of accessing cash to purchase goods and services not available in our village. There has however been increasing interest from outsiders to carry out mechanised mining within our lands. This poses a threat to the management of our KCOCA as persons may attempt to illegally operate dredges on our land. By current legislation, portions or all of our land can be allocated for large-scale mining in the national interest if ample quantities of precious minerals are found.

Migration and Cultural Shifts

Although many aspects of our culture remain intact we have recognized that changes are occurring within the community. A major cause for these changes is the voluntary or otherwise departure of residents from the village. Secondary education is currently only accessible at Aishalton or Lethem. Secondary education is important to us but because our young are away from the village for long periods when at school, their parents and community elders cannot teach them Wai Wai values. Consequently, our children are exposed to a range of new behaviours, some of which are contrary to those expected in our village. People also migrate from our village to access opportunities for regular income and young ladies sometimes leave to start families outside the village.

Migration from the village has contributed to changes and shifts in our culture as residents return to the village having learnt and engaged in different practices, some of them negative. Some of the impacts migration has contributed to include:

- Reduction in the ability to read and write our language.

- Reduction in the transfer of traditional knowledge and skills, including our history.
- Introduction of harmful practices and behaviours such as smoking and watching bad movies.
- The introduction of new types of food.

Overharvesting

Some of our resources may be overharvested, especially those closer to our community. These include the fish poison (haiari) and the special firewood tree (Piskoyereskru).

Table VI.1: Threats and Drivers

Threats	Drivers
Internal Threats (<i>Tantonokomo</i>)	
Cigarette (<i>Kamashu</i>) smoking	Copying of bad practices (<i>Epokacho</i>); lack of village regulations
TV Shows i.e. bad shows	Introduction of bad DVDs into the village; children with a reduced interest in school work; temptations
No haiari (fish poisoning plant)	Haiari used out (exhausted) by the earlier residents
Unavailability of gasoline	Distance and difficulties with transportation from Parabara to Kanashen; lack of transportation
Persons leaving village to look for jobs	Peer pressure by other persons who had left earlier. These persons would encourage residents to leave (<i>ito</i>) for more lucrative salaries such as that paid by mining; not enough jobs and insufficient opportunities for everyone to earn income in the village; slow progress in community; insufficient amount offered for stipends.
Young girls leaving to find husbands and living home with people of other culture and races	Disobedient/wayward girls; absence of nice/right men in the village
External Threats (<i>Mehsankomo</i>)	
Outsiders bringing items for sale into the village (outsiders' businesses)	Circulation of money within the village
Unauthorised movie makers and photographers in the village (<i>yukuknon kane komo estekatomra</i>)	No enforcement of regulations for visitors
Gold mining by outsiders (<i>koru poehtopo</i>)	High international price for gold; no enforcement of national and village regulations

National context

Guyana, the only English speaking country in South America, is located on the north-eastern coast of South America – between coordinates 1° 10' and 8° 32' North, and 59°

30' and 61° 20' West – within the Guiana Shield (see Figure 1). It has a total land area of approximately 215,000 square kilometers of which more than 91.5% is terrestrial and covered by natural rainforest, savannah and wetlands, and about 8.5% of natural waterways.

The total population of Guyana was 747,884 people in 2012 (Guyana Bureau of Statistics, 2012) with the majority of people living on a narrow strip on the Atlantic coast. The population is comprised of people of European, African, East Indian, Amerindian and Chinese ancestry as well as different mixtures of these groups. Nine groups of Amerindians are recognised in Guyana – Akawaio, Arecuna, Arawak, Caribs, Macushi, Patamona, Wai-Wai, Wapishana and Warao – collectively making up about 9% of the national population (Guyana Bureau of Statistics, 2002). The Amerindians in Guyana live mostly in the hinterland regions.

Guyana is made up of five separate physiographic regions (FAO, 1966 *cf* GL&SC, 2013). These are:

- The Coastal Plain
- Interior Alluvial Plains and Low-lying Land
- The 'White Sand' Plateau and Older Pedi-plains
- Crystalline Shield Uplands
- Highlands, Mountains and Plateau

The climate is seasonally tropical and sub-divided into: i) the wet marine sub-climate of the northern two-thirds of the country which experiences two wet (i.e. November – January and May -August) and two dry (i.e. February-April and September-October) seasons per year and, ii) the continental sub-climate of the Rupununi Region where there is a weather pattern of one dry season from around November to April and one wet season from May to October. The average national rainfall varies between 2,200 mm on the coast to over 4,000 mm in the Upper Mazaruni/Pakaraima Mountains area. In the Rupununi Region, which is drier, the average annual rainfall ranges between 1,400-1,800 mm. The national average temperature is between 25 to 27.5°C for most of the year in most parts of the country, except the interior upland regions where it is cooler with mean temperatures between 20 to 23°C (GL&SC, 2013).

In terms of land ownership, there are three broad land tenure arrangements in Guyana; private lands, State lands and Titled Amerindian villages. Amerindian villages cover approximately 14% of Guyana.

The country's economy is primarily based on forestry, agriculture and mining; with agriculture primarily on coastal soils and forestry and mining occurring in the hinterland. Though forestry and mining occur in the hinterland, Guyana has articulated a Low-Carbon Development Strategy (LCDS) based on forest protection and revenues from climate services provided through Reduced Emissions from Deforestation and Degradation plus Conservation (REDD+) agreements. The Kingdom of Norway has one such agreement with Guyana in support of the LCDS for a five-year period ending in 2015.

A key component of Guyana's vision for green development is the National Protected Areas System (NPAS) which complements the principles of the LCDS by allowing for the protection of the country's natural and cultural heritage, whilst at the same time facilitating sustainable social, environmental and economic development. The Protected Areas Act (2011) provides the legislative framework for the establishment and management of the NPAS – including a mechanism for sustainable long-term financing of protected areas i.e. the Protected Areas Trust (PAT) and establishment of a Protected Areas Commission (PAC). Under the PA Act (2011), existing and new state-owned protected areas, Amerindian protected areas, privately managed protected areas, and urban parks such as the Botanical Gardens and the Zoological Park are all part of the NPAS.

Currently, the NPAS comprises the Shell Beach Protected Area, Kanuku Mountains Protected Area, Kaieteur National Park (KNP) and Iwokrama Rainforest Reserve, covering approximately five and a half percent of Guyana's landmass. The residents of Kanashen Village have applied to make their Kanashen Community Owned Conservation Area (KCOCA) – approximately 3% of Guyana – part of the NPAS.

National Policy Context

Guyana's commitment to sustainable development is enshrined in the 1980 Constitution of the country in Articles 2:25 and 2:36 (NPAS Strategy, 2002).

Article 2:25 – Every citizen has a duty to participate in activities to improve the environment and protect the health of the nation.

Article 2:36 – In the interest of the present and future generations the state will protect rational use of its flora and fauna and will take all appropriate measures to conserve and improve the environment.

Other present legal instruments governing the use of natural resources, which have implications for the establishment, and management of protected areas are as follows:

The Environmental Protection Act 1996: The Environmental Protection Act is the main legislative vehicle for coordinating environmental management activities of all persons, organizations and agencies in Guyana. It recognises and endows responsibilities to the Environmental Protection Agency (EPA) in various areas of environmental management including monitoring, public awareness, enforcement and conservation of natural resources (NPAS Strategy, 2002).

Protected Areas Act 2011: The Protected Areas Act is the main legislative instrument that provides for the protection and conservation of Guyana's natural heritage and natural capital and the creation, financing and management of a national system of protected areas. It also seeks to provide for the maintenance of ecosystem services that are of national and global importance including climate regulation, the establishment of a protected areas commission, the establishment and management of a national protected areas trust fund, and public participation in protected areas management and conservation.

Amerindian Act 2006: This Act seeks to provide the recognition and protection of the collective rights of Amerindian communities, the granting of land to Amerindian communities and the promotion of good governance in order to manage, regulate and encourage the sustainable use, protection and conservation of community lands and their resources.

Forestry Act 2007: This Act seeks to repeal and replace the Guyana Forestry Commission Act 1979, re-establish the Guyana Forestry Commission, and provide for incidental matters. The object of the Commission as stated in this Act is to encourage the development and growth of forestry in Guyana on a sustainable basis. The Act also makes provisions for portions of the State Forest to be designated as protected areas.

Mining Act 1982: This legislative document makes provision for prospecting and regulation of mining of metals, minerals and precious stones.

Species Protection Regulations 1999: These Regulations seek to provide protection of particular species of prescribed flora and fauna by taking steps that are necessary for the protection of endangered species of animals and plants against over-exploitation through importation and exportation. Currently, there is no official wildlife policy, however, Guyana is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This Convention seeks to protect endangered species from over-exploitation by tightly controlling trade in live or dead animal or animal parts through a system of permits.

Wildlife Management and Conservation Regulations 2013: These Regulations seek to provide for the management and conservation of wildlife, to regulate the capturing, gathering, collecting, hunting, killing or taking of wildlife, for any purpose and use, including but not limited to bushmeat, scientific research, medicines; and to make appropriate arrangements for the classification of wildlife areas in Guyana.

Land Use Policy: A Draft National Land Use Policy is in existence and provides the policy context for all land uses, including conservation land uses.

National Land Use Plan 2013: The primary objective of the National Land Use Plan is to provide a strategic framework to guide land development in Guyana. The plan also seeks to provide a spatial element to development planning by showing what the current situation is, where resources are located, where potential exists and what linkages may be necessary to develop those resources.

National Biodiversity Action Plan (NBAP): The GoG adopted its first National Biodiversity Action Plan (NBAP I) in 1999, reviewed it in 2005, and developed its second NBAP in 2007 (NBAP II). The third National Biodiversity Strategy and Action Plan (2012) has been completed. The NBSAP is the strategic framework for Biodiversity Management in Guyana. These documents outline several programme areas, one of which is the establishment of a National Protected Areas System in Guyana.

Low Carbon Development Strategy (LCDS): In 2009, the Government of Guyana set out a vision to forge a new low carbon economy in Guyana. The vision was translated into a national low carbon development strategy, which aims to achieve two goals. These include the transformation of Guyana's economy to deliver greater economic and social development for the people of Guyana by following a low carbon development path; and the provision of a model for the world on how climate change can be addressed through low carbon development in developing countries, if the international community takes the necessary collective actions, especially relating to REDD Plus.

Fisheries Act 2002: This Act puts in place the legal framework for effective fisheries management and development. It includes a number of new provisions, such as: authorizing the Minister to promote the development and management of fisheries to ensure the optimum utilization of fisheries resources; and mandating the Chief Fisheries Officer to prepare and keep under review a plan for the management and development of fisheries, including consultations with fishermen and stakeholders. It also provides for the creation of a Fisheries Advisory Board.

National Development Strategy 2001 to 2010: In this document, it is outlined that the principal environmental policy objectives are to improve living standards by focusing on environmental health, ensuring the availability of a natural resource base to allow for future economic growth, and broadening quality of life through the preservation of unique habitats, natural treasures, biodiversity, and cultural heritage.

Water and Sewerage Act 2002: This Act provides for the ownership, management, control, protection, and conservation of water resources. It provides for safe water and sewerage services, their regulation and all connected matters and incidents.

International Legal Context

Guyana is signatory to several Conventions related to the environment such as the United Nations Convention on Biological Diversity (CBD) (1994), United Nations Framework Convention on Climate Change (UNFCCC) (1992); United Nations Convention on the Law of the Sea (UNCLOS) (1982); Vienna Convention for the Protection of the Ozone Layer (1985), as amended by the Montreal Protocol of 1987; United Nations Convention to Combat Desertification (UNCCD) in those countries experiencing serious drought/desertification, particularly Africa (1994); and, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973). These Conventions require that Guyana effectively manage and use its environment sustainably in a way that will ensure continued use and benefits for future generations. Guyana is yet to sign on to the Ramsar Convention on Wetlands, however, parts of the Iwokrama rainforest and the North Rupununi wetlands have been identified as proposed Ramsar sites (NRAMP, 2007).

Article 8 (*in situ* conservation) of the CBD states that, “*Each contracting Party shall as far as possible establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity*”. These measures include development of guidelines for selection, management and sustainability of protected areas and their surrounds.

Target 11 of the Aichi Biodiversity Targets, which form part of the CBD's Strategic Plan for Biodiversity 2011-2020 states that *“By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved.”* This is to be done *“through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes”*.

Appendix III: Management Targets

Socio-economic and Cultural Targets

Household health practices including Food and Nutrition

The most prevalent illnesses experienced in our households are preventable. These include diabetes, high blood pressure, joint pains, dysentery-like conditions, scabies and respiratory illnesses. Improved diet and nutrition, and improved household and personal hygiene and care can help reduce the occurrences of these illnesses.

Our traditional diet is based on farine and other cassava products as the main staple, wild meat and fish, and cultivated and wild fruits and nuts. This diet remains intact but consumption of sugary and new starchy foods (e.g. soft drinks, rice, and wheat flour) has increased. This change is particularly more evident in households with reliable access to cash. The changes in our diet together with lack of consumption of particular minerals and other nutrients are strongly suspected to be responsible for recent increases in the occurrence of diet-related illnesses such as diabetes and hypertension at Kanashen. It is therefore important that we manage our diets for cultural preservation and improved health in our community.

Main Constraints

- Changes in diet including increased consumption of processed sugars and other potentially harmful foods.
- Easier access to non-traditional foods through shops in the village and introduction by visitors.
- Increased dependency on external sources for food supplies, particularly during the wet season.
- Increased travel outside of the village causing residents to develop a taste for new foods.
- Lack of awareness on healthy household and personal hygiene practices.
- Lack of awareness on the negative effects of bad dietary practices on human health.
- Lack of knowledge and practice of growing certain vegetables.

Traditional Education and Subsistence/Home Provisioning Activities

Knowledge of our history and historical practices would unite the village on sustainable management of the land for the present and future generations. In order for the people of Kanashen to continue to develop without compromising our culture, it is important for us to continue to pass down knowledge of our traditional ways to new generations. The younger residents are very interested in learning and continuing our traditional ways of fishing, hunting, gathering and farming – our main provisioning activities. This transfer mostly occurs within the household with older members taking young relatives to the farm to work and on hunting, fishing and gathering trips.

Increasingly the access to modern tools and equipment, and supplies such as gasoline, clothing and hygiene products, are becoming necessary. Bartering and sharing are cultural practices we still use in the village, though not as much as we used to years ago,

to provide for our households. However, cash is becoming increasingly important in order to access things we need from outside of the community. Though there is an increase in demand for cash in the community only a few persons are with permanent employment and other regular means of earning money. The uneven distribution of permanent employment and other forms of income earning opportunities are beginning to cause strife, discord, and the migration of young people from the village.

Main Constraints

- Inadequate availability and unequal distribution of cash income earning opportunities.
- Decreasing interest in the use of bartering as the means of exchange in the village.
- Lack of expertise in skills needed by the village.
- Remoteness and difficulties in travel to and from KCOCA.
- Lack of feasibility studies on other sources of income, such as new enterprises.
- Lack of awareness on the importance of traditional education to cultural preservation.
- Challenges between the formal and traditional education systems with young people being outside of the village for long periods to attend secondary school and children needing to be in school at times that adults tend to farms or carry out other traditional practices.

Health Services

There is a Government supported Village Health Centre staffed by a CHW in our village to provide primary health care. Additional care is also provided through the regional health authorities and Remote Area Medical (RAM), an NGO.

Main Constraints:

- Absence of backup primary care giver in times of absence of the CHW.
- Delays in supplies of medicines.
- Irregularity of visits by MoH personnel to the village.
- Difficulty in access to emergency care especially in the wet season when access is difficult.

Education, including Secondary Education

Nursery and primary education are offered in the village but attendance and availability of school uniforms are major challenges. To access secondary education our children are sent to either Aishalton or St. Ignatius. Parents are required to cover the cost of transportation and other needs whilst the children are away at school. Absenteeism is relatively high given the nature of the village at least partly because of clashes between the requirements of the traditional and formal systems of education. The GoG provides the community with school uniform materials but the community is expected to produce the uniforms for students. The national Hot Meal Programme for primary schools is not yet fully functional in the village.

Main Constraints

- Lack of awareness on importance of attending and completing formal school.

- An inefficient system for the production of school uniforms – persons with sewing skills motivated to produce uniforms for children outside of their households only if cash stipends are provided.
- Challenges between the formal and traditional education systems, with young people in the village away with adults on farms or carrying out other traditional practices during school hours.
- Lack of qualified secondary school teachers in village.
- Low number of students to justify construction of a secondary school in the village.
- High costs of sending children to secondary school out of the village both in terms of finance and cultural impact.

Village Governance

The system of management of our village is influenced by three main factors: i) the Amerindian Act (2006); ii) our traditional governance structure, and iii) management of our lands as part of NPAS. The Amerindian Act (AA) sets out rules for the election of a Toshao and Council every three years and their function as Village Trustees in consultation with the village. Our traditional governance requires a high level of trust and openness. Traditionally, decision-making is by consensus with households being the most important decision making unit. Our village leadership traditionally engages the village in decision making. Our elected leaders are assisted in governing the affairs of the village by Village Elders, Church Leaders, the CHW, Teachers and the District Development Officer. Management of our lands as part of NPAS requires new and different skills within the villages but must essentially be formed around the other two factors mentioned before.

Main Constraints

- Poor leadership and communication skills within the Management Team and between the team and the village at large.
- Decreasing levels of trust within the village.
- Tensions amongst the three factors influencing the village management system.
- Lack of clarity of roles of various persons and entities in village management.

Transportation

The very poor transportation links to the village limit income earning opportunities and access to markets, and might also be responsible for emigration from the village. The most common transportation route used by villagers traveling from Masakenari is via river to Kassikaityu Landing and then overland to Parabara. At present, the village owns a tractor that is based at Parabara and has begun construction of a road from Parabara to Kassikaityu Landing.

Main Constraints

- Lack of funding to support completion of the road to Kassikaityu Landing.
- Increased possible threats to the culture and biodiversity with improved access.
- Lack of adequate supplies of fuel to the village.
- Absence of faster (40-75 hp) outboard engines within the village.

- High costs of air transport to the village.

Skills for Improved Management

The village needs a KCOCA Manager to help implement and monitor the success of the management plan, and to assist the Village Council to establish effective relationships with external partners, especially the PAC. The Manager could be someone from within the village or it can, at least initially, be an outsider who is willing to work for the KCOCA.

Also, in order to properly implement the Management Plan, we will need to be equipped with essential skill-sets such as repairing small engines (outboard engines, chain saws, generators, brush-cutters) and tractor, furniture manufacture and repairs, electrical installations and carpentry, and computer skills (including repairs and maintenance). The remoteness, high cost and difficulties of travel to the village make it difficult for the IT service provider and computer technicians to execute repairs to the equipment in the village. Once the IT capacity becomes developed we will be able to independently conduct repairs and implement a community-based maintenance programme for the on-site facilities.

Main Constraints

- Limited capacity within the village for financial management, record keeping and field-based management
- The tendency for villagers to not return when sent on training programmes outside of the village
- Absence of a Capacity Building Plan for the village
- Lack of funding

Wai-Wai History and Culture

The history and archeology of the Wai Wai people and other indigenous groups (e.g. Taruma) which are our ancestors are not well known by the villagers. These days the traditional forms of music and dance are beginning to be replaced by modern music and instruments.

The Wai Wai language is the preferred means of verbal communication in our village. However, many persons, especially our younger residents, are unable to write and read the Wai-Wai language. Increasing the ability to read and write our language is an essential part of preserving our culture. We have already made some efforts to ensure use of the language remains intact.

Residents are also moving away from the use of some of the Wai-Wai utensil and tools, which are distinct and unique to our culture. For instance, they are observed to be using less of Wai-Wai made matapi, hammocks and combs. The increasing replacement of Wai Wai utensils and tools with manufactured products sold in the shops is resulting in a reduced desire to make products at the household level and limited opportunities for the young people to learn our unique artistry.

Main Constraints

- The exclusive use of English in the formal education system in the village

- Villagers’ non-attendance of Wai-Wai language classes
- Inadequate awareness on the importance of retaining the language, on the importance of learning to make Wai-Wai utensils, and on the importance of retaining artifacts as exhibits for our museum
- The incomplete and inconsistent Wai Wai dictionary
- Lack of capacity in museum curator skills
- Historic artifacts widely dispersed among private and national collectors
- Absence of formal agreement between the KCOCA Management Team and Walter Roth Museum (WRM) for support in the design and management of a cultural museum
- Some adults do not know how to make every utensil and tool

Long-term funding

Secured sources of funding for the management of our lands in the long term are essential. Measures being put in place for the financing of the NPAS will go a long way in ensuring availability of core costs but other sources will also be necessary. Hence, an independent fundraising strategy to support the achievement of specific objectives of the management plan is necessary.

Main Constraints

- Delays in the full establishment and functioning of the PAT to the point of making disbursement for protected areas management.
- Limited skills in the village for fund raising, financial management and accountability of large grants.
- Lack of feasibility studies on current and on-going enterprises and other income generating measures compatible with the rules and goals of KCOCA and the NPAS.

Farmlands

Kanashen has an increasing population, and most persons depend upon agriculture for income. In recent years, many villagers’ farms were regularly flooded, especially during extended rainy seasons. Farmlands may need to be extended and new skills learnt to improve food and nutrition security and develop potential opportunities for new and larger markets for agriculture produce and products. An expanded agricultural programme can also reduce the dependence on imports and restrict the flow of cash out of the village.

Main Constraints

- Lack of capacity in poultry rearing
- Limited capacity in vegetable farming
- Lack of support from the Ministry of Agriculture
- Climate change and unpredictable weather patterns

Drinking water

Our village has a centralized system for the distribution of drinking water. This system was recently extended to improve coverage in the village.

Main Constraints

- The extended system for potable water in the village requires a bigger pump for all households to receive sufficient and steady supplies of water.
- Limited collaboration between the KCOCA Management Team and the Guyana Water Incorporated (GWI).
- Poor follow-up by the KCOCA Management on promises made by the MoIPA.

Firewood and Other Important Trees

Firewood is an important fuel for cooking and baking farine in our village. The species Piskoyereskru is a special firewood tree used by the majority of residents and its harvest sometimes causes conflict and tension. The rate of harvest and the techniques employed are also not sustainable. To sustainably harvest firewood and other important trees, especially turu, we will develop and implement a management regime that includes baseline data collection, establishment of sustainable harvesting thresholds, rules and enforcement, and education and awareness.

Main Constraints

- Lack of baseline inventory data for firewood and other important tree species.
- Lack of established sustainable harvesting thresholds, rules and enforcement, and education and awareness

Biodiversity Targets

Forests

Most of our lands are covered by intact forests of various types. These forests are important for the many services and goods they provide to us in the village and beyond. It is important that we maintain these forests in as intact a form as possible to maintain their ability to provide. Baselines and sustainable management regimes for our trees are important not only to guide plans for sustainable harvest but also for emerging opportunities under the national Reduced Emissions from Deforestation and Forest Degradation with Sustainable Forest Management (REDD+) plans.

Main Constraints

- Kanashen is not yet a part of the national programme for REDD+
- Data collection on forest use constrained by the demands of cultural practices
- Absence of a relationship between the KCOCA and the GFC

Threatened species

Many species of animals and plants found within our lands are threatened globally or are important nationally or internationally. The species and ecosystems of greatest concern are those gazetted for national and international protection (e.g. IUCN Red listed species). Avoiding the loss of these species within the KCOCA without compromising socio-economic and cultural development is an overarching goal of the KCOCA management plan.

Main Constraints

- Insufficient capacity for species-specific studies in the community
- Absence of species-specific monitoring plan

- Lack of formally established relationships with Universities and research institutions

APPENDIX IV: KCOCA Logical Framework

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumption
Programme 1: Keeping Biodiversity and Land Management				
Goal	1. To manage our land in a manner that uses resources sustainably and keeps biodiversity.	<p>A stable or positive trend in key endangered and important species' populations from baseline survey.</p> <p>A reduction in the percentage of high threats and increase in "<i>not applicable</i>" threats (pressures outlined in METT that are not relevant to the PA)</p>	<p>Conservation Target and Pressure Monitoring (CTPM) annual reports</p> <p>METT Assessment</p>	<p>No unforeseen catastrophic event that negatively affects species populations occurs.</p> <p>Pressures are tractable</p>
Outcomes	1.1 To have enough Firewood, Karakru, Turu, boat, timber and other important trees close by.	After five years, the number of mature firewood, Karakru, Turu, Ite, Bow, Boat, and timber trees within 10 km of Masakenari remain the same or increases from baseline.	Monitoring Surveys (Permanent Sample Plot (PSP) Surveys)	Trees within 10km are sufficient to meet current and future village needs.

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumption
	1.2 To make sure that the populations of endangered and other important animal species remain good in the KCOCA.	Relative abundance of threatened and other important animal and fish species remain the same or increases from baseline.	Monitoring Surveys (PSP Surveys)	No unforeseen catastrophic event that negatively affects species populations occurs.
	1.3 To ensure that we use our resources wisely and gain a better understanding of the things found within our lands.	50% of the priority research commenced by the end of year 2 and completed by the end of year 5.	Annual reports	Researchers will be interested in the priority research topic identified Funding is available to conduct research priorities identified
Outputs / Deliverables	1.1.1 Inventory of important trees (Firewood, Boat, Karakru, Turu, Ite, Lumber) completed. 1.1.2 Village rules for using important trees,	Data on the number and location of each important tree within 10km of the village available by Year 2. A survey of the number of mature important trees within 10 km of the village is completed every year beginning Year 3. Written village rules include guides on the use of each important tree species by Year 2.	Monitoring Surveys (PSP Surveys) Village rules	

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumption
	including avoiding cutting young trees and Turu trees, established.			
	<p>1.2.1 Annual inventory of threatened and important species in our village conducted</p> <p>1.2.2 Village rules for the use of threatened and important species established.</p>	<p>Data on the number of each important animal species identified as per monitoring programme within 10km of the village available by Year 2.</p> <p>A survey of the number of important animals as identified in monitoring programme within 10 km of the village is completed every year beginning Year 3.</p> <p>Written village rules include guides on the use of each important animal species by Year 2.</p>	<p>Monitoring Surveys (PSP Surveys)</p> <p>Village rules</p>	
	<p>1.3.1 Rules for the conduct of research in our lands are established.</p> <p>1.3.2 Priority areas for research</p>	<p>Written village rules include guidance for the conduct of research in KCOCA by Year 2.</p> <p>A list of important areas for research is available by Year 1 and updated regularly.</p>	<p>Village rules</p> <p>Annual Report</p>	

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumption
	identified.			

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
Programme 2: Cultural Preservation				
Goal	2. To preserve our traditions and ways of life.	The percentages of residents who know the Wai Wai history and can read and write the Wai Wai Language increases from years 2 to 5.	Wai Wai History and Language Surveys	Knowledge of Wai Wai history and ability to read and write the Wai Wai Language are sufficient to preserve the traditions and ways of life.
Outcomes/ Objectives	2.1 To ensure that every resident (especially school children) know to read and write the Wai Wai language.	All children above the age of 8 years old complete the Wai Wai Language course by the end of year 2. All residents complete the Wai Wai Language Course by the end of year 5.	Wai Wai Language classes records	Villagers continue to be interested in attending the classes. Adults who cannot read and write Wai Wai are willing to participate in classes.
	2.2 To ensure that young people know to make traditional items such as matapi, sifters, bows and craft.	At least 60% of all residents older than 12 years old involved in making utensils and craft for use and sale by year 3.	Wai Wai craft records	Villagers continue to be interested in learning to make craft.
	2.3 To ensure that the history of our village is known by	Every resident attended at least two Wai Wai story telling sessions by year	Records of attendance of Wai Wai story	Attendance at two story telling sessions is sufficient to know the history of the

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	residents and visitors.	3.	telling sessions	village.
Outputs/ Deliverables	2.1.1 Wai Wai language classes continued.	Wai Wai language classes are held regularly throughout each year.	Wai Wai Language classes records	
	2.1.2 Reading materials in the Wai Wai language produced.	Key parts of the Management Plan are translated to Wai Wai and available in every household by Year 1. Appropriate signs are erected in the village lands in English and Wai Wai by Year 1. Village rules are available in Wai Wai in every household by Year 2.	Annual Report Annual Report Annual Report	
	2.2.1 Classes to teach traditional craft making continued.	Wai Wai craft classes are held regularly throughout each year.	Wai Wai craft records	
	2.3.1 A village museum is established and functioning.	The Museum building is stocked with a variety of artifacts and craft and used on a regular basis.	Museum inventory and records	
	2.3.2 Stories of Wai Wai history are documented	Wai Wai Story telling sessions are held regularly throughout the years. At least one Wai Wai storybook is	Records of Wai Wai story telling sessions Museum inventory and	

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	in writing, video and audio.	available in the village by Year 2. At least one DVD or video compilation of stories of the history of the Wai Wai is available in the village by Year 3	records Museum inventory and records	

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
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Programme 3: Community Development

Goal	3. To improve health, education, transportation, and village governance so that our community would develop as a whole.	No referral of common illnesses and basic injuries to facilities outside the village by Year 5. The percentage of households that report a highest education level of at least secondary school increases annually from Year 1 to 5. A high level of trust is maintained in the village.	Health Post Records Village livelihood surveys	The level of trust measured through the village livelihood survey is a good measure of village governance.
Outcomes/ Objectives	3.1. To maintain and enhance the services offered at the Community Health Post.	All common illnesses and simple injuries are properly treated in the village by Year 3. All children are fully vaccinated on	Health Post records	

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	<p>3.2. To ensure that all children receive good education, up to the secondary school level, in our village.</p> <p>3.3 To make the cost of people and goods getting into and out of our village more affordable.</p> <p>3.4 To improve governance in our village by better informing and involving households and individuals in making decisions for the village.</p>	<p>time by Year 4.</p> <p>The percentage of students who pass the national grade 2, 4 and 6 assessments increase every year between Years 1 and 5.</p> <p>All students from the village who write CXC examinations pass at least 4 subjects by Year 5</p> <p>By Year 3, villagers make more trips into and out of the village via the road than in Year 1.</p> <p>Every year, more households say they are always informed about important things in the village and able to influence village decisions.</p>	<p>School records</p> <p>Village records</p> <p>Village livelihood surveys</p>	<p>The number of trips villagers make via the road is a good measure of the affordability of travel to and from the village.</p>
Outputs/	3.1.1 A trained Dentex is employed in the	The Village Health Post has a Dentex on staff by Year 3.	Village and Health Post records	The Ministry of Public Health has resources to train and employ a Dentex

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
Deliverables	<p>village.</p> <p>3.1.2 The Health Post is maintained in a good condition and can treat all basic sicknesses and injuries.</p>	<p>There are no deficiencies of key basic capacities, drugs, facilities and equipment at the Health Post by year 2 and every year afterwards.</p>	<p>Health Post records</p>	<p>The Ministry of Public Health ensures supplies and other support is available and delivered to the village in a timely manner.</p>

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	<p>3.2.1 All children attend school regularly and complete school successfully.</p> <p>3.2.2 All children attending school receive assistance with meals, uniforms and other supplies.</p> <p>3.2.3 Secondary school teaching commenced in the village.</p>	<p>All school aged children are enrolled and attend school regularly by Year 2.</p> <p>All children that are of age complete minimum requirements for award of School Leavers Certificate by Year 4.</p> <p>Hot meal programme commences in Year 2 and continues to benefit all children to Year 5.</p> <p>Residents benefit from school uniform and supplies assistance every year.</p> <p>At least one secondary level teacher is employed in the village by Year 3.</p>	<p>School records</p> <p>School records</p> <p>Village records</p> <p>Village records</p> <p>School records</p>	<p>Conflicts between tradition and formal education systems are properly addressed.</p> <p>Ministry of Education supports the commencement of secondary teaching in the village.</p>

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	<p>3.3.1 A road for tractor and trailer between Parabara and Kassikaityu Landing is completed.</p> <p>3.3.2 A Village tractor and trailer is acquired and maintained.</p>	<p>The road link is completed by Year 2.</p> <p>A village tractor is acquired by Year 2 and remains functional at all times.</p> <p>At least 2 residents receive training to operate and perform basic maintenance of village tractor by Year 2.</p>	<p>Village records</p> <p>Annual report</p> <p>Village records</p>	<p>Adequate financial and technical assistance is received for proper completion of the road.</p> <p>Support is received for the repair of existing village tractor or purchase of a new one and for training residents.</p>
	<p>3.4.1 Village Council makes sure that every household know about and come to village meetings and events.</p>	<p>Village household tracking tool is in place by Year 1 and consistently used every year afterwards.</p> <p>Leadership engages any household that is consistently absent from meetings and events to inform them of important issues and address any challenges they may have been facing.</p>	<p>Village Records</p>	

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
Programme 4: Family Development				
Goal	4. To improve the livelihood of each of our families.	<p>Each year, the differences in items purchased and assets between households with and households without village jobs does not exceed 10%.</p> <p>The number of households with (and number of new cases of) serious preventable illnesses decreases by at least 20% annually from year 2 to 5.</p> <p>All households report that nothing prevents them from accessing the resources they require to provide for themselves.</p>	Village Livelihood Survey	Equity in access to benefits, prevention of illnesses, and access to resources are sufficient to improve household livelihood.
Outcomes/ Objectives	<p>4.1. To ensure that households are kept well and families eat the right foods to keep away sickness.</p> <p>4.2. To ensure that households</p>	<p>The percentage of the households that report consuming vegetables at least 4 to 6 times per week increases annually from Year 1 to Year 5.</p> <p>All households report using only clean sources of drinking water by Year 2.</p> <p>All households report having at least 4 traditional skills by Year 5.</p>	<p>Village livelihood surveys</p> <p>Village livelihood</p>	Good diet and access to clean water are sufficient to keep illnesses away.

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	have access to the resources and opportunities, including traditional skills and practices, to provide for their needs.	The percentage of households who report having at least two ways to earn cash increases every year from Year 1 to Year 5.	surveys	A minimum of two means of earning cash is needed for resilience in household's ability to provide for themselves.
Outputs/ Deliverables	<p>4.1.1 Households make kitchen gardens and grow vegetables.</p> <p>4.1.2 The village standpipe system is improved and maintained.</p> <p>4.1.3 Rangers and CHW teach households about practices for good personal and household hygiene and health, including</p>	<p>More households grow vegetables every year and every household regularly grows at least one vegetable by Year 5.</p> <p>The storage and distribution capacity of the standpipe system is improved by Year 2 and maintained every year.</p> <p>Village ensures water in standpipe system is always safe for use.</p> <p>Rangers and CHW regularly visit households to help them understand good health and hygiene practices.</p> <p>Simple printed material on health and hygiene are available to each household.</p>	<p>Village livelihood surveys</p> <p>Village records Annual Report</p> <p>Village records</p> <p>Village records Health Post records</p>	Technical and other assistance is received to help the village understand how to grow vegetables.

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	food and nutrition.			
	<p>4.2.1 Relationships with regular buyers of craft and farm products established.</p> <p>4.2.2 Feasibility studies for potential new enterprises are completed.</p> <p>4.2.3 The Village continue to hold market days.</p> <p>4.2.4 The Sewing Centre is revived and functioning.</p>	<p>At least one regular purchaser of craft and farm produce secured by Year 2.</p> <p>At least one feasibility study completed by Year 3 and at least 3 by Year 5.</p> <p>Market days are held at least 4 times every year.</p> <p>The sewing group is resuscitated by Year 1 and continues to operate regularly every year.</p>	<p>Annual Report Village records</p> <p>Feasibility study reports Annual report</p> <p>Village records</p> <p>Village records Sewing group records</p>	

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
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Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
Programme 5: Operations, Monitoring and Administration				
Goal	5. To build our capacity to manage our village lands well, and by ourselves, as an Amerindian Protected Area in the NPAS.	A 25% increase in METT scores between baseline and Year 5 All capacity, equipment and infrastructure needs are fulfilled by residents by Year 4	METT Assessment Year 4 Annual report	Sufficient funding is available throughout the implementation of the management plan. Full complement of capable staff are in place.
Outcomes/ Objectives	5.1. To strengthen the ability of our people to independently manage our lands. 5.2. To ensure the availability of funding to implement our management plan. 5.3. To ensure that the rules of our village are obeyed by outsiders and	An improvement in the basic capacity scores for all staff from baseline Year 1 to Year 5. The difference between the money needed to implement the plan and the money we actually have gets smaller each year2. Every year, no serious violation of the rules of the KCOCA.	Capacity assessments Annual reports Annual reports	There are clearly defined ToRs for each position. Communities keeping records of activities and their outputs

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	<p>villagers, and protect our resources against unauthorized access and use.</p> <p>5.4 To ensure success in achieving our goals by implementing a programme for adaptive management of our KCOCA.</p>	<p>25% of all equipment and infrastructure needs fulfilled by Year 2.</p> <p>At least 75% of all equipment and infrastructure needs fulfilled by Year 4.</p> <p>Every year, all required plans and reports completed within the required timelines.</p>	<p>Annual reports</p> <p>Village and PAC records</p>	
Outputs/ Deliverables	<p>5.1.1 A KCOCA Manager is trained and capacity continually improved.</p> <p>5.1.2 Rangers and Monitors trained in monitoring and law enforcement systems</p> <p>5.1.3 Training of</p>	<p>KCOCA Manager is hired in Year 1</p> <p>KCOCA Manager attends at least 1 training session every year.</p> <p>At least one training session held with Rangers and Monitors every year.</p> <p>A list of training needs is available by Year 1 and all needs are satisfied by Year 5.</p>	<p>Annual reports</p> <p>Signed contract between VC and KCOCA Manager</p> <p>Annual reports</p> <p>Annual reports</p> <p>Capacity Assessment</p>	<p>A suitably qualified person, preferably a resident, can be found to fill the position.</p> <p>Money secured to finance position</p>

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	<p>selected residents in technical skills for the achievement of the goals of our KCOCA, including mechanics and computer skills, completed.</p>		report	
	<p>5.2.1 Recognition as an Amerindian Protected Area under the NPAS Achieved.</p> <p>5. 2.2 Good practices for financial management and reporting established.</p> <p>5.2.3 Fund raising plan developed and being implemented.</p>	<p>KCOCA has full recognition by Year 1.</p> <p>All systems are in place for proper financial management by Year 1.</p> <p>A business and fundraising plan identifying funding sources and strategies to access them is completed by Year 1.</p>	<p>National Gazette</p> <p>Annual report</p> <p>Business plan report Annual report</p>	<p>All systems are in place for the inclusion of Amerindian Protected Areas into the NPAS</p> <p>Guidelines and systems for access to PAT funding are clearly defined in Year 1.</p>

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	<p>5.3.1 Education and awareness plan focused on rules of KCOCA designed and implemented in the village.</p> <p>5.3.2 Monitoring patrols conducted regularly within the KCOCA.</p>	<p>Education and awareness plan completed and implementation commenced by Year 1</p> <p>All education and awareness activities included in the plan fully implemented each year commencing Year 2.</p> <p>Community's knowledge of the management plan and village rules increased by yr 5.</p> <p>Patrols to all accessible boundaries are conducted at least once every quarter throughout the implementation of the management plan.</p>	<p>Education and Awareness plan</p> <p>Annual report</p>	
	<p>5.4.1 Infrastructure and equipment, including boats and engines, signboards, and ranger stations established and maintained.</p>	<p>Infrastructure and equipment needs clearly identified by Year 1.</p> <p>Facilities to support research established by Year 3.</p> <p>All key patrol and monitoring infrastructure and equipment (Ranger Outposts, signage, GPS, boats and engines, radios, and others) secured by Year 2</p> <p>A plan for the conduct of all activities to monitor the implementation of the</p>	<p>Annual report</p> <p>Monitoring plan</p> <p>Annual reports</p>	

Structure	Intervention	Objectively Verifiable Indicators of Achievement	Source and Means of Verification	Assumptions
	<p>5.4.2 Monitoring plan being implemented and informs adaptation of the Management Plan.</p>	<p>management plan is completed and relevant staff and residents trained in its implementation by Year 1.</p> <p>Annual Operational Plans are completed every year informed by progress in the preceding years.</p> <p>A mid-term review of the implementation of the management plan is conducted in Year 3 and the management plan adapted accordingly.</p> <p>A final review of the implementation of the Management Plan is conducted in Year 5 and informs the revision of the Management Plan.</p>	<p>Annual operational plans Annual reports</p> <p>Mid-term review report</p> <p>Adapted management plan</p> <p>Annual report for Year 3</p> <p>Revised management plan</p> <p>Annual report for Year 5</p>	

Appendix V: Five-year Operational Plan

Programme 1: Keeping Biodiversity and Land Management					
Key Activities	Time frame (Year)				
Objective 1.1: To have enough Firewood, Karakru, Turu, boat, timber and other important trees close by.	1	2	3	4	5
<i>Output 1.1.1 Inventory of important trees (Firewood, Boat, Karakru, Turu, Ite, Lumber) completed.</i>					
1.1.1.1 Get help from partners and develop a plan and train KCOCA staff to conduct inventory					
1.1.1.2 Complete initial inventory and put together information to help the village manage important trees					
1.1.1.3 Complete annual count of important trees					
<i>Output 1.1.2 Village rules for using important trees, including avoiding cutting young trees and Turu trees, established.</i>					
1.1.2.1. Hold village meetings to present the inventory information and discuss rules for the management of important trees.					
1.1.2.2 Finalize and write down village rules for the use of important trees.					
Objective 1.2: To make sure that the populations of endangered and other important animal species remain good in the KCOCA.	1	2	3	4	5
<i>Output 1.2.1 Annual inventory of threatened and important species in our village conducted</i>					
1.2.1.1 Get help from partners and develop a plan and train KCOCA staff to conduct inventory					
1.2.1.2 Complete initial inventory and put together information to help the village manage threatened and important animals					
1.2.1.3 Complete annual survey of threatened and important animals					
<i>Output 1.2.2 Village rules for the use of threatened and important species established.</i>					
1.2.2.1. Hold village meetings to present the inventory information and discuss rules for the management of threatened and important animals.					
1.2.2.2 Finalize and write down village rules for the use of threatened and important animals.					
Objective 1.3: To ensure that we use our resources wisely and gain a better understanding of the things found within our lands.	1	2	3	4	5
<i>Output 1.3.1 Rules for the conduct of research in our lands are established.</i>					
1.3.1.1 Develop and write down rules for researchers working in our lands to share with interested researchers.					
<i>Output 1.3.2 Important things for research identified.</i>					
1.3.3.1 Develop and write down a list of important things we would like to research and share with potential researchers.					
1.3.3.2 Update the list of important things we would like to research.					
1.3.3.3 Promote KCOCA to students for research					

Programme 2: Cultural Preservation					
Objective 2.1: To ensure that every resident (especially school children) know to read and write the Wai Wai language.	1	2	3	4	5
<i>Output 2.1.1 Wai Wai language classes continued.</i>					
2.1.1.1 Continue and improve Wai Wai Classes.					
2.1.1.2 Help households understand the importance of learning to read and write in Wai Wai					
<i>Output 2.1.2 Reading materials in the Wai Wai language produced.</i>					
2.1.1.1 Produce materials with important information from the Management Plan in the Wai Wai language.					
2.1.1.2 Produce signs and other reading materials in the Wai Wai language.					
Objective 2.2: To ensure that young people know to make traditional items such as matapi, sifters, bows and craft.	1	2	3	4	5
<i>Output 2.2.1 Classes to teach traditional craft making continued</i>					
2.2.1.1 Continue and improve Wai Wai craft classes					
Objective 2.3: To ensure that the history of our village is known by residents and visitors.	1	2	3	4	5
<i>Output 2.3.1 A village museum is established and functioning.</i>					
2.3.1.1 Identify and train a resident to manage the museum.					
2.3.1.2 Purchase and collect artifacts and craft for the museum.					
<i>Output 2.3.2 Stories of Wai Wai history are documented in writing, video and audio.</i>					
2.3.2.1 Hold Wai Wai story-telling sessions and ensure that they are recorded in video and audio.					
2.3.2.2 Compile Wai Wai story book and DVD with stories from Wai Wai Language Classes and story-telling sessions.					
Programme 3: Community Development					
Objective 3.1: To maintain and enhance the services offered at the Community Health Post.	1	2	3	4	5
<i>Output 3.1.1 A trained Dentex is employed in the village.</i>					
3.1.1.1 Engage the Ministry of Public Health formally to have a Dentex trained and stationed in the village					
<i>Output 3.1.2 The Health Post is maintained in a good condition and can treat all basic sicknesses and injuries.</i>					
3.1.2.1 Ensure that request for drugs, equipment and other supplies are sent out in a timely manner and follow up to ensure they are received.					
3.1.2.2 Ensure that the Village Health Post is kept in a proper way and request for repairs in a timely manner.					
Objective 3.2: To ensure that all children receive good education, up to the secondary school level, in our village.	1	2	3	4	5
<i>Output 3.2.1: All children attend school regularly and complete school successfully.</i>					
3.2.1.1 Talk to parents to ensure that they understand the importance of sending their children to school regularly.					
3.2.1.2 Discuss and implement ways to fix the things that make children not go to school regularly (including conflicts with traditional education).					

<i>Output 3.2.2: All children attending school receive assistance with meals, uniforms and other supplies.</i>					
3.2.1.1 Formally engage the Ministries of Indigenous Peoples Affairs and Education for assistance to provide school uniforms and supplies.					
3.2.1.2 Arrange for villagers to sew uniforms for all children in the village.					
3.2.1.3 Formally engage partners to develop a plan for the operation of the Hot Meal programme in the village.					
3.2.1.4 Operate the HotMeal programme in the village.					
<i>Output 3.2.3: Secondary school teaching commenced in the village.</i>					
3.2.1.1 Formally engage the Ministry of Education to start secondary level teaching in the village.					
Objective 3.3: To decrease the cost of people and goods getting into and out of our village.	1	2	3	4	5
<i>Output 3.3.1 A road for tractor and traylor between Parabara and Kassikaityu Landing is completed.</i>					
3.1.1.1 Complete the tractor road between Parabara and Kassikaityu.					
3.1.1.2 Develop rules for monitoring and use of the road.					
<i>Output 3.3.2 An operational Village tractor and traylor is acquired and maintained.</i>					
3.1.2.1 Repair broken tractor or purchase a new tractor.					
3.1.2.2 Train at least two residents to operate and maintain the village tractor.					
Objective 3.4: To improve governance in our village by better informing and involving households and individuals in making decisions for the village.	1	2	3	4	5
<i>Output 3.4.1 Village Council makes sure that every household know about and come to village meetings and events.</i>					
3.1.1.1 Implement the Household Tracker Tool to keep track of attendance at village events and meetings.					
3.1.1.2 Engage households that do not attend village meetings and events to update them on important issues and address any issues that may be causing them to not participate.					
Programme 4: Family Development					
Objective 4.1: To ensure that households are kept well and families eat the right foods to keep away sickness.	1	2	3	4	5
<i>Output 4.1.1 Households make kitchen gardens and grow vegetables.</i>					
4.1.1.1 Formally engage the Ministry of Agriculture for assistance with the establishment and management of vegetable gardens.					
4.1.1.2 Support households to establish and manage vegetable gardens and use vegetables.					
<i>Output 4.1.2 The village standpipe system is improved and maintained.</i>					
4.1.2.1 Formally engage partners for assistance in expanding the capacity of the water storage and distribution system.					
4.1.2.2 Complete expansion of the system.					
4.1.2.3 Maintain the system and ensure supplies to ensure that the quality of the water is healthy.					
<i>Output 4.1.3 Households are taught about practices for good personal and household hygiene and health, including food and nutrition by the Rangers and CHW.</i>					

4.1.3.1 Produce and distribute materials to help villagers improve their health and hygiene.					
4.1.3.2 Rangers and CHW visit households to help them improve practices for better health and hygiene.					
Objective 4.2: To ensure that households have access to the resources and opportunities, including traditional skills and practices, to provide for their needs.	1	2	3	4	5
<i>Output 4.2.1 Relationships with regular buyers of craft and farm products established.</i>					
4.2.1.1 Formally engage partners for assistance to identify and engage potential regular buyers of village craft and farm produce.					
4.2.1.2 Establish formal relationship with buyers who understand the Wai Wai culture and the objectives of our KCOCA.					
4.2.1.3 Organize villagers to produce craft and other produce in the appropriate quality and quantity for regular buyer.					
<i>Output 4.2.2 Feasibility studies for potential new enterprises are completed.</i>					
4.2.2.1 Engage partners for assistance to assess the feasibility of further developing appropriate tourism in our village lands.					
4.2.2.2 Identify other potential enterprises and engage partners for assistance to assess their feasibility.					
<i>Output 4.2.3 Village continue to hold market days.</i>					
4.2.3.1 Organize and hold village market days regularly.					
Programme 5: Operations, Monitoring and Administration					
Objective 5.1: To strengthen the ability of our people to independently manage our lands.	1	2	3	4	5
<i>Output 5.1.1 A KCOCA Manager is trained and capacity continually improved.</i>					
5.1.1.1 Identify and hire a villager with the appropriate skills as the KCOCA Manager.					
5.1.1.2 Train KCOCA Manager in relevant areas to improve performance.					
<i>Output 5.1.2 Rangers trained in monitoring and law enforcement systems</i>					
5.1.2.1 Train rangers in monitoring data collection methods					
5.1.2.2 Train rangers in law enforcement					
<i>Output 5.1.3 Training of selected residents in technical skills for the achievement of the goals of our KCOCA, including mechanics and computer skills, completed.</i>					
5.1.3.1 Identify training needs.					
5.1.3.2 Identify and train appropriately skilled residents in necessary areas such as mechanics and computer repairs.					
Objective 5.2: To ensure the availability of funding to implement our management plan.	1	2	3	4	5
<i>Output 5.2.1 Recognition as an Amerindian Protected Area under the NPAS achieved.</i>					
5.2.1.1 Follow up with the PAC on the status of the application by the village.					
5.2.1.2 Complete all necessary remaining steps to achieve recognition as an Amerindian Protected Area under the Protected Areas Act 2011.					
<i>Output 5.2.2. Good practices for financial management and reporting established.</i>					

5.2.2.1 Build capacity for financial and administrative management					
5.2.2.2 Develop and implement all necessary systems to ensure sound financial management.					
<i>Output 5.2.3. Fund raising plan developed and being implemented.</i>					
5.2.3.1 Develop a business and fundraising plan.					
5.3.3.2 Implement identified business and fund raising actions including annual requests for funding from the PAT.					
5.3.3.3 Seek and develop opportunities for payments for ecosystem services, including National REDD+ Opt-in.					
Objective 5.3: To ensure that the rules of our village are obeyed by outsiders and villagers, and protect our resources against unauthorized access and use.	1	2	3	4	5
<i>Output 5.3.1 Education and awareness plan focused on rules of KCOCA designed and implemented in the village.</i>					
5.3.1.1 Develop education and awareness plan for KCOCA					
5.3.1.2 Implement education and awareness plan for KCOCA					
<i>Output 5.3.2. Monitoring patrols conducted regularly within the KCOCA.</i>					
5.3.2.1 Conduct quarterly patrols of village lands, especially to the most accessible areas (Kassikaityu mouth and head, Sipu, and Suriname Line).					
5.3.2.2 Conduct annual patrols to less accessible areas (Acarai and Kamoia)					
5.3.2.3 Establish more permanent monitoring and patrolling presence at Kassikaityu Landing to monitor road use.					
Objective 5.4: To ensure success in achieving our goals by implementing a programme for adaptive management of our KCOCA.	1	2	3	4	5
<i>Output 5.4.1 Infrastructure and equipment, including boats and engines, signboards, and ranger stations established, procured and maintained.</i>					
5.4.1.1 Identify infrastructure and equipment needs.					
5.4.1.2 Acquire all essential equipment and establish all essential infrastructure.					
5.4.1.3 Acquire all other equipment and establish all other infrastructure.					
5.4.1.4 Establish basic research facilities in the Acarai.					
<i>Output 5.4.2. Monitoring plan being implemented and informs adaptation of the Management Plan.</i>					
5.4.2.1 Develop and implement conservation threat and pressure monitoring protocols					
5.4.2.2 Establish and implement procedures and systems to collect and manage all monitoring data.					
5.4.2.3 Prepare Annual Operational Plans and Annual Reports					
5.4.2.4 Conduct a mid-term review of the implementation of the management plan and adapt the management plan accordingly if necessary.					
5.4.2.5 Conduct a final review of the implementation of the management plan and prepare a revised five-year management plan.					

Appendix VI: KCOCA 2017 -Year One Operational Plan

Programme 1: Keeping Biodiversity and Land Management
Key Activities
Outcome 1.1: To have enough Firewood, Karakru, Turu, boat, timber and other important trees close by.
<i>Output 1.1.1 Inventory of important trees (Firewood, Boat, Bow, Karakru, Turu, Ite, Lumber) completed.</i>
1.1.1.1 Start inventories of important trees species.
<i>Output 1.1.2 Village rules for using important trees, including avoiding cutting young trees and Turu trees, established.</i>
Outcome 1.2: To make sure that the populations of endangered and other important animal species remain good in the KCOCA.
<i>Output 1.2.1 Annual inventory of threatened and important species in our village conducted</i>
1.2.1.1 Start inventory of important and endangered animals.
<i>Output 1.2.2 Village rules for the use of threatened and important species established.</i>
Outcome 1.3: To ensure that we use our resources wisely and gain a better understanding of the things found within our lands.
<i>Output 1.3.1 Rules for the conduct of research in our lands are established.</i>
1.3.1.1 Write down rules for researchers to share with them
<i>Output 1.3.2 Important things for research identified.</i>
1.3.2.1 Put list of research needing to be done together and share with researchers
Programme 2: Cultural Preservation
Outcome 2.1: To ensure that every resident (especially school children) know to read and write the Wai Wai language.
<i>Output 2.1.1 Wai Wai language classes continued.</i>
2.1.1.1 Continue Wai Wai classes (twice a week)
<i>Output 2.1.2 Reading materials in the Wai Wai language produced.</i>
2.1.2.1 Interpret and produce sections of the management plan in Wai Wai
2.1.2.2 Contact Adrian Gomes about Wai Wai stories to be published
Outcome 2.2: To ensure that young people know to make traditional items such as matapi, sifters, bows and craft.
<i>Output 2.2.1 Classes to teach traditional craft making continued</i>
2.2.1.1 Continue craft lesson sessions

2.2.1.2 Produce and use craft from lessons to be marketed
Outcome 2.3: To ensure that the history of our village is known by residents and visitors.
<i>Output 2.3.1 A village museum is established and functioning.</i>
2.3.1.1 Start holding story telling sessions in the museum
<i>Output 2.3.2 Stories of Wai Wai history are documented in writing, video and audio.</i>
Programme 3: Community Development
Outcome 3.1: To maintain and enhance the services offered at the Community Health Post.
<i>Output 3.1.1 A trained Dentex is employed in the village.</i>
3.1.1.1 Write to the Ministry of Health, requesting information about application forms and possible training opportunities for a Dentex
<i>Output 3.1.2 The Health Post is maintained in a good condition and can treat all basic sicknesses and injuries.</i>
3.1.2.1 Maintain health post infrastructure
3.1.2.2 Ensure steady supply of medications to be available in the village
Outcome 3.2: To ensure that all children receive good education, up to the secondary school level, in our village.
<i>Output 3.2.1: All children attend school regularly and complete school successfully.</i>
<i>Output 3.2.2: All children attending school receive assistance with meals, uniforms and other supplies.</i>
3.2.2.1 Write to the Ministry of Indigenous Peoples' Affairs to ask about assistance in getting uniform cloth and other school supplies
3.2.2.2 Ensure that the hot meal program is established and functioning
<i>Output 3.2.3: Secondary school teaching commenced in the village.</i>
3.2.3.1 Talk to Ministry of Education about Secondary teaching within the village
Outcome 3.3: To decrease the cost of people and goods getting into and out of our village.
<i>Output 3.3.1 A road for tractor and trailer between Parabara and Kassisaityu Landing is completed.</i>
3.3.1.1 Complete work started on Parabara to Kassikaityu trail
<i>Output 3.3.2 A Village tractor and trailer is fixed and maintained.</i>
3.3.2.1 Get someone to check the tractor, to identify what parts are needed to be fixed
Outcome 3.4: To improve governance in our village by better informing and involving households and individuals for their contributions to making decisions for the village.
<i>Output 3.4.1 Village Council makes sure that every household know about and come to village meetings and events.</i>
3.4.1.1 Village Council to check that all households attend meetings to ensure proper representation at decision making

Programme 4: Family Development
Outcome 4.1: To ensure that households are kept well and families eat the right foods to keep away sickness.
<i>Output 4.1.1 Households make kitchen gardens and grow vegetables.</i>
4.1.1.1 Write to the Ministry of Agriculture and request an extension officer to visit to give advice on soil type and how to grow vegetables
<i>Output 4.1.2 The village standpipe system is improved and maintained.</i>
4.1.2.1 Invest and buy a new pump and more pipes to support the water system in the dry season
<i>Output 4.1.3 Rangers and CHW teach households about practices for good personal and household hygiene and health, including food and nutrition.</i>
4.1.3.1 Re-commence ranger and CHW visits to households to talk about health and hygiene
Outcome 4.2: To ensure that households have access to the resources and opportunities, including traditional skills and practices, to provide for their needs.
<i>Output 4.2.1 Relationships with regular buyers of craft and farm products established.</i>
4.2.1.1 Discuss with the Protected Areas Commission and other craft buyers to establish a relationship and start selling craft more mainstream
<i>Output 4.2.2 Feasibility studies for potential new enterprises are completed.</i>
4.2.2.1 Re-commence sewing group to be able to earn additional income and help families
<i>Output 4.2.3 The Village continue to hold market days.</i>
4.2.3.1 Continue to hold market days every month end
Programme 5: Operations, Monitoring and Administration
Outcome 5.1: To strengthen the ability of our people to independently manage our lands.
<i>Output 5.1.1 A KCOCA Manager is trained and capacity continually improved.</i>
5.1.1.1 Commence basic training for person who has been identified as manager for KCOCA and the management team
<i>Output 5.1.2 Rangers trained in monitoring and law enforcement systems</i>
<i>Output 5.1.3 Training of selected residents in technical skills for the achievement of the goals of our KCOCA, including mechanics and computer skills, completed.</i>
Outcome 5.2: To ensure the availability of funding to implement our management plan.
<i>Output 5.2.1 Recognition as an Amerindian Protected Area under the NPAS Achieved.</i>
5.2.1.1 Sign an agreement with the Protected Areas Commission to become part of NPAS
<i>Output 5.2.2. Good practices for financial management and reporting established.</i>
5.2.2.1 Continue and improve financial management

<i>Output 5.2.3. Fund raising plan developed and being implemented.</i>
5.2.3.1 Develop plan to get funding
Outcome 5.3: To ensure that the rules of our village are obeyed by outsiders and villagers, and protect our resources against unauthorized access and use.
<i>Output 5.3.1 Education and awareness plan focused on rules of KCOCA designed and implemented in the village.</i>
<i>Output 5.3.2. Monitoring patrols conducted regularly within the KCOCA.</i>
5.3.2.1 Collect all monitoring data
Outcome 5.4: To ensure success in achieving our goals by implementing a programme for adaptive management of our KCOCA.
<i>Output 5.4.1 Conservation threat and pressure monitoring protocols developed and implemented</i>
5.4.1.1 Hold workshop to develop monitoring priorities
<i>Output 5.4.2 Infrastructure and equipment, including boats and engines, signboards, and ranger stations established and maintained.</i>
5.4.2.1 Fix and maintain Ranger stations; especially at Kassikaityu (roof and steps need replacing)
5.4.2.2 Purchase necessary equipment and supplies for core monitoring and management: <ul style="list-style-type: none"> ✓ Gasoline and oil ✓ Boat ✓ GPS (that works in the jungle) and supplies ✓ Chainsaw and parts and oil ✓ Uniforms for rangers and monitors ✓ First AID kit ✓ Tarpaulin
5.4.2.3 Make and erect signage at various entry points displaying advisory rules about KCOCA
<i>Output 5.4.3. Monitoring plan being implemented and informs adaptation of the Management Plan.</i>
5.4.3.1 Start implementing management plan and monitor activities being implemented

Appendix VII: KCOCA Monitoring Plan

KCOCA Management Impact: Achieving Management Plan Goals and Objectives

Baseline Codes: DD = Data Deficient DP = Data in progress

Attribute / Characteristic / Incentive....	Indicator	Targets	Baseline	Method of data collection	Frequency	Responsible institution/Department
Goals						
1. To manage our land in a manner that uses resources sustainably and keeps biodiversity.	Population trends of key species	Populations maintained or increasing as per CTPM plan	DD	as per CTPM plan	as per CTPM plan	KCOCA Management
	Threat levels as per METT	An annual reduction in the % high threats occurring and stable of increasing trend in the % of "not applicable" threats	DD	METT Analysis	Annually	KCOCA Management
2. To preserve our traditions and ways of life.	Percentage of residents with adequate knowledge of Wai Wai language and history	The percentages of residents who know the Wai Wai history and can read and write the Wai Wai Language increases from years 2 to 5.	DD	Wai Wai history and language surveys	Annually	Wai Wai Teacher and Monitors
3. To improve health, education, transportation, and village governance so that our community can develop as a whole.	Referrals of sicknesses for treatment	No referral of common illnesses and basic injuries to facilities outside the village by year 5.	DD	Health Post Records	Daily	CHW
	Highest education levels in households	The percentage of households that report a highest education level of at	40%	Village Livelihood	Annually	Monitors

		least secondary school increases annually from year 1 to 5.		Surveys		
	Trust in the Village	More than 75% of households say they trust most people in the village	58%	Village Livelihood Surveys	Annually	Monitors
4. To improve the livelihood of each of our families.	Household spending and wealth	Each year, the differences in basic items purchased and assets owned between households with and households without village jobs does not exceed 10%	Basic Items = 5% Assets = 42%	Village Livelihood Surveys	Annually	Monitors
	Serious preventable illnesses in households and individuals	The number of households with (and number of new cases of) serious preventable illnesses decreases by at least 20% annually from year 2 to 5.	Households = 30 New Cases = DD	Village Livelihood Surveys Health Post Records	Annually Daily	Monitors CHW
	Household access to resources	All households report that nothing prevents them from accessing the resources they require to provide for themselves.	85% GY\$ 12,150,000	Village Livelihood Surveys	Annually	Monitors
5. To build our capacity to manage our village lands effectively (well), and by ourselves, as an Amerindian Protected Area in the NPAS.	METT Score	A 25% increase in overall METT scores between baseline and year 5	72	METT Analysis	Annually	KCOCA Manager
	Capacity, equipment and infrastructure acquired	All capacity, equipment and infrastructure needs are fulfilled by residents by	DD	Annual Report	Annually	KCOCA Manager

		year 4				
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Attribute / Characteristic / Incentive....	Indicator	Targets	Baseline	Method of data collection	Frequency	Responsible institution/Department
Objectives						
1. Keeping Biodiversity and Land Management						
1.1 To have enough Firewood, Karakru, Turu, boat, timber and other important trees close by.	Number of mature trees	After five years, the number of mature firewood, Karakru, Turu, Ite, Bow, Boat, and timber trees within 10 km of Masakenari remain the same or increases from baseline.	DD	Monitoring Surveys (PSP Surveys)	Annually	Monitors
1.2 To make sure that the populations of endangered and other important animal species remain good in the KCOCA.	Relative abundance of important animals	Relative abundance of endangered and other important animal and fish species remain the same or increases from baseline.	DD	Monitoring Surveys (PSP Surveys)	Annually	Monitors
1.3 To ensure that we use our resources wisely and gain a better understanding of the things found within our lands.	Priority research commenced	All priority research commenced by the end of year 2 and completed by the end of year 5.	0%	Annual Report	Annually	KCOCA Manager

Attribute / Characteristic / Incentive....	Indicator	Targets	Baseline	Method of data collection	Frequency	Responsible institution/Department
2. Cultural Preservation						
2.1 To ensure that every resident (especially school children) know to read and write the Wai Wai language.	Percentage of children older than 8 years old that complete Wai Wai Language course	All children above the age of 8 years old complete the Wai Wai Language course by the end of year 2.	DD	Wai Wai Language classes records	Daily	Wai Wai Language teachers
	Percentage of all residents who complete the Wai Wai Language Course	All residents complete the Wai Wai Language Course by the end of year 5.	DD	Wai Wai Language classes records	Daily	Wai Wai Language teachers
2.2 To ensure that young people know to make traditional items such as matapi, sifers, bows and craft.	Percentage of residents older than 12 years old who make utensils and craft	At least 60% of all residents older than 12 years old involved in making utensils and craft for use and sale by year 3.	DD	Wai Wai craft records	Daily	Wai Wai Craft teachers
2.3 To ensure that the history of our village is known by residents and visitors.	Percentage of residents who attend at least two Wai Wai story telling sessions	Every resident attended at least two Wai Wai story telling sessions by year 3.	DD	Records of attendance of Wai Wai story telling sessions	Every session	Record Keeper

Attribute / Characteristic / Incentive....	Indicator	Targets	Baseline	Method of data collection	Frequency	Responsible institution/Department
3. Community Development						
3.1 To maintain and enhance the services offered at the Community Health Post.	Common illnesses treated in the village	All common illnesses and simple injuries are properly treated in the village by year 3	DD	Health Post records	Daily	CHW
	Percentage of children fully vaccinated	All children are fully vaccinated on time by year 4.	DD	Health Post records	Daily	CHW
3.2 To ensure that all children receive good education, up to the secondary school level, in our village.	Percentage of students who pass national primary school assessments	The percentage of students who pass the national grade 2, 4 and 6 assessments increase every year between years 1 and 5.	DD	School Records	Annually	Head Teacher
	Percentage of students who pass at least 4 subjects at CSEC examinations	All students from the village who write CXC examination pass at least 4 subjects by year 5	DD	School Records	Annually	Head Teacher
3.3 To make the cost of people and goods getting into and out of our village more affordable.	Number of overland trips made by villagers	By year 3, villagers make more trips into and out of the village via the road than in year 1.	DD	Village Records	Daily	Record Keeper
3.4 To improve governance in our village by better informing and involving households and individuals for their contributions to making	Percentage of households informed and influencing community decisions	Every year, more households say they are always informed about important things in the village and able to influence	Informed = 95% Influencing decision =	Village Livelihood Survey	Annually	Monitors

decisions for the village.		village decisions.	87%			
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Attribute / Characteristic / Incentive....	Indicator	Targets	Baseline	Method of data collection	Frequency	Responsible institution/Department
4. Family Development						
4.1 To ensure that households are kept well and families eat the right foods to keep away sickness.	Percentage of households consuming vegetables	The percentage of the households that report consuming vegetables at least 4 to 6 times per week increases annually from year 1 to year 5.	15%	Village Livelihood Survey	Annually	Monitors
	Percentage of households using clean water	All households report using only clean sources of drinking water by year 2.	100%	Village Livelihood Survey	Annually	Monitors
4.2 To ensure that households have access to the resources and opportunities, including traditional skills and practices, to provide for their needs.	No. of traditional skills in households	Every year, all households report having at least 4 traditional skills by year 5.	92%	Village Livelihood Survey	Annually	Monitors
	Percentage of households with at least 2 ways to earn cash	The percentage of households who report having at least two ways to earn cash increases every year from Year 1 to Year 5.	62%	Village Livelihood Survey	Annually	Monitors
5. Operations, Monitoring and Administration						
5.1 To strengthen the ability of our people to	Capacity scores	An improvement in the basic capacity scores for all	DD	Capacity Assessment	Baseline, mid term,	KCOCA Manager (with help from PAC)

independently manage our lands.		staff from baseline yr. 1 to yr 5.		s	5 years	
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Attribute / Characteristic / Incentive....	Indicator	Targets	Baseline	Method of data collection	Frequency	Responsible institution/Department
5.2 To ensure the availability of funding to implement our management plan.	Number of activities not implemented because of lack of funds	Every year, no activity in the annual operational plan is reported as “not being completed because of a lack of funding”.	DD	Annual Reports	Annually	KCOCA Manager
5.3. To ensure that the rules of our village are obeyed by outsiders and villagers, and protect our resources against unauthorized access and use.	Number of serious violations of KCOCA rules	Every year, no serious violation of the rules of the KCOCA.	DD	Annual Reports	Annually	KCOCA Manager
5.4 To ensure success in achieving our goals by implementing a programme for adaptive management of our KCOCA.	Equipment and Infrastructure needs fulfilled.	75% of all equipment and infrastructure needs fulfilled by year 2.	DD	Annual Reports	Annually	KCOCA Manager
		All equipment and infrastructure needs fulfilled by year 4	DD	Annual Reports	Annually	KCOCA Manager
	On-time submission of plans and reports	Every year, all required plans and reports completed within the required timelines.	DD	Village and PAC records	Annually	Records Keeper PAC

Appendix VIII: KCOCA Baseline METT Assessment

(a) KCOCA Baseline METT Assessment: THREATS to Ecological Integrity

All relevant existing threats were considered either of high, medium or low significance. Threats ranked as high significance are those which are seriously degrading values; medium are those threats having some negative impact and those characterised as low are threats which are present but not seriously impacting values or N/A where the threat is not present or not applicable in the KCOCA.

1. Residential and commercial development within a protected area

Threats from human settlements or other non-agricultural land uses with a substantial footprint

High	Medium	Low	N/A	
		X		1.1 Housing and settlement
			X	1.2 Commercial and industrial areas
		X		1.3 Tourism and recreation infrastructure

2. Agriculture and aquaculture within a protected area

Threats from farming and grazing as a result of agricultural expansion and intensification, including silviculture, mariculture and aquaculture

High	Medium	Low	N/A	
		X		2.1 Annual and perennial non-timber crop cultivation
			X	2.1a Drug cultivation
			X	2.2 Wood and pulp plantations
		X		2.3 Livestock farming and grazing
			X	2.4 Marine and freshwater aquaculture

3. Energy production and mining within a protected area

Threats from production of non-biological resources

High	Medium	Low	N/A	
			X	3.1 Oil and gas drilling
			X	3.2 Mining and quarrying
			X	3.3 Energy generation, including from hydropower dams

4. Transportation and service corridors within a protected area

Threats from long narrow transport corridors and the vehicles that use them including associated wildlife mortality

High	Medium	Low	N/A	
		X		4.1 Roads and railroads (include road-killed animals)
			X	4.2 Utility and service lines (e.g. electricity cables,

				telephone lines)
			X	4.3 Shipping lanes and canals
			X	4.4 Flight paths

5. Biological resource use and harm within a protected area

Threats from consumptive use of "wild" biological resources including both deliberate and unintentional harvesting effects; also persecution or control of specific species (note this includes hunting and killing of animals)

High	Medium	Low	N/A	
		X		5.1 Hunting, killing and collecting terrestrial animals (including killing of animals as a result of human/wildlife conflict)
		X		5.2 Gathering terrestrial plants or plant products (non-timber)
		X		5.3 Logging and wood harvesting
		X		5.4 Fishing, killing and harvesting aquatic resources

6. Human intrusions and disturbance within a protected area

Threats from human activities that alter, destroy or disturb habitats and species associated with non- consumptive uses of biological resources

High	Medium	Low	N/A	
		X		6.1 Recreational activities and tourism
			X	6.2 War, civil unrest and military exercises
			X	6.3 Research, education and other work-related activities in protected areas
			X	6.4 Activities of protected area managers (e.g. construction or vehicle use, artificial watering points and dams)
			X	6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors

7. Natural system modifications

Threats from other actions that convert or degrade habitat or change the way the ecosystem functions

High	Medium	Low	N/A	
			X	7.1 Fire and fire suppression (including arson)
			X	7.2 Dams, hydrological modification and water management/use
			X	7.3a Increased fragmentation within protected area
			X	7.3b Isolation from other natural habitat (e.g. deforestation, dams without effective aquatic wildlife passages)
		X		7.3c Other 'edge effects' on park values
		X		7.3d Loss of keystone species (e.g. top predators, pollinators etc.)

8. Invasive and other problematic species and genes

Threats from terrestrial and aquatic non-native and native plants, animals, pathogens/microbes or genetic materials that have or are predicted to have harmful effects on biodiversity following introduction, spread and/or increase

High	Medium	Low	N/A	
			X	8.1 Invasive non-native/alien plants (weeds)
			X	8.1a Invasive non-native/alien animals
			X	8.1b Pathogens (non-native or native but creating new/increased problems)
			X	8.2 Introduced genetic material (e.g. genetically modified organisms)

9. Pollution entering or generated within protected area

Threats from introduction of exotic and/or excess materials or energy from point and non-point sources

High	Medium	Low	N/A	
		X		9.1 Household sewage and urban waste water
		X		9.1a Sewage and waste water from protected area facilities (e.g. toilets, hotels etc)
			X	9.2 Industrial, mining and military effluents and discharges (e.g. poor water quality discharge from dams, e.g. unnatural temperatures, de-oxygenated, other pollution)
		X		9.3 Agricultural and forestry effluents (e.g. excess fertilizers or pesticides)
		X		9.4 Garbage and solid waste
		X		9.5 Air-borne pollutants
		X		9.6 Excess energy (e.g. heat pollution, lights etc)

10. Geological events

Geological events may be part of natural disturbance regimes in many ecosystems. But they can be a threat if a species or habitat is damaged and has lost its resilience and is vulnerable to disturbance. Management capacity to respond to some of these changes may be limited.

High	Medium	Low	N/A	
			X	10.1 Volcanoes
			X	10.2 Earthquakes/Tsunamis
			X	10.3 Avalanches/ Landslides
		X		10.4 Erosion and siltation/ deposition (e.g. shoreline or riverbed changes)

11. Climate change and severe weather

Threats from long-term climatic changes that may be linked to global warming and other severe climatic/weather events outside of the natural range of variation

High	Medium	Low	N/A	
		X		11.1 Habitat shifting and alteration
		X		11.2 Droughts
		X		11.3 Temperature extremes
	X			11.4 Storms and flooding

12. Specific cultural and social threats

High	Medium	Low	N/A	
	X			12.1 Loss of cultural links, traditional knowledge and/or management practices
		X		12.2 Natural deterioration of important cultural site values
		X		12.3 Destruction of cultural heritage buildings, gardens, sites etc.

(b) KCOCA METT Baseline Assessment

Issue	Criteria	Score	Next steps/Remarks
1. Boundary of the area Is the boundary of the area agreed and well defined? <i>Context</i>	The boundary is not agreed and not known by all key stakeholders	0	
	The boundary is known to village members but not to other stakeholders	1	
	The boundary of the area is agreed and known by key stakeholders but is not marked	2	
	The boundary of the area is agreed by key stakeholders and demarcated	3	
	The boundary is legally recognized (gazetted or certified)	+1	
2. Members of Village Are the village members known and are they informally or formally organised? <i>Context</i>	Members are not clearly defined	0	
	Members are loosely defined (by geography or social group)	1	
	Members are clearly defined and internally recognise each other	2	
	Members are defined, registered and externally recognised.	3	
3. Legal status Does the protected area have legal status? <i>Context</i>	The village is in the process of establishing a Protected Area under the Amerindian Act.	0	
	The village has declared a protected area on its land under the Amerindian Act but it is not recognised under the Protected Areas Act.	1	
	The village has declared a protected area on its land under the Amerindian Act and is in the process of applying for recognition under the Protected Areas Act.	2	
	The village has declared a protected area on its land under the Amerindian Act and the area is fully recognised as an Amerindian Protected Area under the Protected Areas Act.	3	
4. Protected area regulations Are inappropriate land uses and activities (e.g.	There are no mechanisms for controlling inappropriate land use and activities in the protected area	0	
	Mechanisms for controlling inappropriate land use and activities in the protected area exist but there are major problems in implementing them effectively	1	
	Mechanisms for controlling inappropriate land use and activities in the protected area exist but there are some problems in effectively implementing them	2	

Issue	Criteria	Score	Next steps/Remarks
poaching) controlled? <i>Context</i>	Mechanisms for controlling inappropriate land use and activities in the protected area exist and are being effectively implemented	3	
5. Law enforcement Can staff enforce protected area rules well enough? <i>Context</i>	The staff have no effective capacity/resources to enforce protected area legislation and regulations	0	
	There are major deficiencies in staff capacity/resources to enforce protected area legislation and regulations (e.g. lack of skills, no patrol budget)	1	
	The staff have acceptable capacity/resources to enforce protected area legislation and regulations but some deficiencies remain	2	
	The staff have excellent capacity/resources to enforce protected area legislation and regulations	3	
6. Protected area objectives Have objectives been agreed? <i>Planning</i>	No firm objectives have been agreed for the protected area	0	
	The protected area has agreed objectives, but is not managed according to these objectives	1	
	The protected area has agreed objectives, but these are only partially implemented	2	
	The protected area has agreed objectives and is managed to meet these objectives	3	
7. Protected area design Does the protected area need enlarging, corridors etc. to meet its objectives? <i>Planning</i>	Inadequacies in design mean achieving the protected areas major management objectives of the protected area is impossible	0	
	Inadequacies in design mean that achievement of major objectives are constrained to some extent	1	
	Design is not significantly constraining achievement of major objectives, but could be improved	2	
	Reserve design features are particularly aiding achievement of major objectives of the protected area	3	
8. Management plan Is there a management plan	There is no management plan for the protected area	0	
	A management plan is being prepared or has been prepared but is not being implemented	1	
	An approved management plan exists but it is only being partially implemented because of funding constraints or other problems	2	

Issue	Criteria	Score	Next steps/Remarks
and is it being implemented? <i>Planning</i>	An approved management plan exists and is being implemented	3	
Additional points <i>Planning</i>	There is an established schedule and process for periodic review and updating of the management plan	+1	
	The results of monitoring, research and evaluation are routinely incorporated into planning	+1	
9. Area rules or by laws Are there clearly defined rules (bylaws) that govern resource use? <i>Planning</i>	There are no rules (bylaws) to regulate use	0	
	Rules (bylaws) to regulate use exist but are not adhered to by all stakeholders	1	
	Rules (bylaws) to regulate use exist and are partially adhered to by stakeholders	2	
	Rules (bylaws) to regulate use exist and are well adhered to by all stakeholders	3	
10. Regular work plan Is there an annual work plan? <i>Planning/Outputs</i>	No regular work plan exists	0	
	A regular work plan exists but activities are not monitored against the plan's targets	1	
	A regular work plan exists and actions are monitored against the plan's targets, but many activities are not completed	2	
	A regular work plan exists, actions are monitored against the plan's targets and most or all prescribed activities are completed	3	
11. Resource inventory Do you have enough information to manage the area? <i>Context</i>	There is little or no information available on the critical habitats, species and cultural values of the protected area	0	
	Information on the critical habitats, species and cultural values of the protected area is not sufficient to support planning and decision making	1	
	Information on the critical habitats, species and cultural values of the protected area is sufficient for key areas of planning/decision making but the necessary survey work is not being maintained	2	
	Information concerning on the critical habitats, species and cultural values of the protected area is sufficient to support planning and decision making and is being maintained	3	

Issue	Criteria	Score	Next steps/Remarks
12. Research Is there a programme of management-orientated survey and research work? <i>Inputs</i>	There is no survey or research work taking place in the protected area	0	
	There is some <i>ad hoc</i> survey and research work	1	
	There is considerable survey and research work but it is not directed towards the needs of protected area management	2	
	There is a comprehensive, integrated programme of survey and research work, which is relevant to management needs	3	
13. Staff numbers Are there enough people employed to manage the protected area? <i>Inputs</i>	There are no staff	0	
	Staff numbers are inadequate for critical management activities	1	
	Staff numbers are below optimum level for critical management activities	2	
	Staff numbers are adequate for the management needs of the site	3	
14. Personnel management Are the staff managed well enough? <i>Process</i>	Problems with personnel management constrain the achievement of major management objectives	0	
	Problems with personnel management partially constrain the achievement of major management objectives	1	
	Personnel management is adequate to the achievement of major management objectives but could be improved	2	
	Personnel management is excellent and aids the achievement major management objectives	3	
15. Staff training Is there enough training for staff? <i>Inputs/Process</i>	Staff are untrained	0	
	Staff training and skills are low relative to the needs of the protected area	1	
	Staff training and skills are adequate, but could be further improved to fully achieve the objectives of management	2	
	Staff training and skills are in tune with the management needs of the protected area, and with anticipated future needs	3	
16. Current budget Is the current	There is no budget for the protected area	0	
	The available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage	1	

Issue	Criteria	Score	Next steps/Remarks
budget sufficient? <i>Inputs</i>	The available budget is acceptable, but could be further improved to fully achieve effective management	2	
	The available budget is sufficient and meets the full management needs of the protected area	3	
17. Security of budget Is the budget secure? <i>Inputs</i>	There is no secure budget for the protected area and management is wholly reliant on outside or year by year funding	0	
	There is very little secure budget and the protected area could not function adequately without outside funding	1	
	There is a reasonably secure core budget for the protected area but many innovations and initiatives are reliant on outside funding	2	
	There is a secure budget for the protected area and its management needs on a multi-year cycle	3	
18. Management of budget Is the budget managed to meet critical management needs? <i>Process</i>	Budget management is poor and significantly undermines effectiveness	0	
	Budget management is poor and constrains effectiveness	1	
	Budget management is adequate but could be improved	2	
	Budget management is excellent and aids effectiveness	3	
19. Facilities and equipment Are facilities and equipment adequate? <i>Process</i>	There is little or no equipment and facilities	0	
	There is some equipment and facilities but these are wholly inadequate	1	
	There is equipment and facilities, but still some major gaps that constrain management	2	
	There is adequate equipment and facilities	3	
20. Maintenance of facilities and equipment	There is little or no maintenance of equipment and facilities	0	
	There is some <i>ad hoc</i> maintenance of equipment and facilities	1	
	There is maintenance of equipment and facilities, but there are some important gaps in maintenance	2	

Issue	Criteria	Score	Next steps/Remarks
Is equipment adequately maintained? <i>Process</i>	Equipment and facilities are well maintained	3	
21. Education and awareness programme Is there a planned education programme? <i>Process</i>	There is no education and awareness programme	0	
	There is a limited and <i>ad hoc</i> education and awareness programme, but no overall planning for this	1	
	There is a planned education and awareness programme but there are still serious gaps	2	
	There is a planned and effective education and awareness programme fully linked to the objectives and needs of the protected area	3	
22. Transparency Are there transparent management procedures? <i>Governance</i>	There is no clear operational procedure for financial and other management decisions and this significantly undermines effectiveness	0	
	There are clear operational procedures for financial and other management decisions but implementation is not transparent	1	
	There are operational procedures for financial and other management decisions that are transparent and available for inspection by villagers but could still be improved	2	
	There are clear operational procedures for financial and other management decisions that are transparent and easily available for inspection by villagers	3	
23. Accountability of Management body Are there clear	The management body's roles and responsibility are not clearly defined	0	Some positions cannot be easily replaced.
	The management body's roles and responsibility are defined, but no mechanisms to replace members who do not adhere to them	1	
	The management body role and responsibility are clearly defined, mechanisms to replace members who do not adhere to them, but these are difficult to invoke or activate	2	

Issue	Criteria	Score	Next steps/Remarks
mechanisms of upward and downward accountability for members of the Management body and are these easy to invoke? <i>Governance</i>	The management body has clear roles and responsibilities and can easily be replaced if necessary	3	
24. Adaptive governance Can management body respond to changes, lessons and external factors by changing internal structure and institutions? <i>Governance</i>	The governance body has no mechanism to change its internal structure, processes and rules in response to lessons learnt and external factors	0	
	The governance body has some mechanisms to change its internal structure, processes and rules but these are not exercised though it is demanded	1	
	The governance body has clear mechanisms to change its internal structure, processes and rules and these are partially exercised when demanded	2	
	The governance body has clear mechanisms to change its internal structure, processes and rules and these have been or can be fully exercised.	3	
25. Cooperation with Government Is there cooperation or support between the management	The management body is not effectively connected to government bodies at different levels and thus there is no support or cooperation	0	
	The management body is connected to some government bodies at local level but there is limited support and cooperation	1	
	The management body is connected to government bodies at local and regional levels and there is reasonable support and cooperation	2	
	The management body are effectively connected to government bodies at different levels and there is regular support and cooperation	3	

Issue	Criteria	Score	Next steps/Remarks
body and government organ different levels (local, regional, central)? <i>Governance</i>	Government responsibilities are clear and embedded in management agreements	+1	
26. Visitor facilities Are visitor facilities (for tourists, pilgrims etc.) good enough? <i>Outputs</i>	There are no visitor facilities and services	0	
	Visitor facilities and services are inappropriate for current levels of visitation or are under construction	1	
	Visitor facilities and services are adequate for current levels of visitation but could be improved	2	
	Visitor facilities and services are excellent for current levels of visitation	3	
27. Commercial tourism Do commercial tour operators contribute to protected area management? <i>Process</i>	There is little or no contact between managers and tourism operators using the protected area	0	
	There is contact between managers and tourism operators but this is largely confined to administrative or regulatory matters	1	
	There is limited co-operation between managers and tourism operators to enhance visitor experiences and maintain protected area values	2	
	There is excellent co-operation between managers and tourism operators to enhance visitor experiences, protect values and resolve conflicts	3	
28. Fees If fees (tourism, fines) are applied, do they help protected area management? <i>Outputs</i>	Fees are not applied	0	
	Although fees are theoretically applied, they are not collected	1	
	The fee is collected, but is not used to support the protected area	2	
	There is a fee for visiting the protected area that helps to support this protected area	3	

Issue	Criteria	Score	Next steps/Remarks
29. Condition assessment Is the protected area being managed consistent to its objectives? <i>Outcomes</i>	Important biodiversity, ecological and cultural values are being severely degraded	0	
	Some biodiversity, ecological and cultural values are being severely degraded	1	
	Some biodiversity, ecological and cultural values are being partially degraded but the most important values have not been significantly impacted	2	
	Biodiversity, ecological and cultural values are predominantly intact	3	
<i>Additional points</i> <i>Outputs</i>	There are active programmes for restoration of degraded areas within the protected area and/or the protected area buffer zone	+1	No areas need restoring.
30. Access assessment Are the available management mechanisms working to control access or use? <i>Outcomes</i>	Protection systems (patrols, permits etc) are ineffective in controlling access or use of the reserve in accordance with designated objectives	0	The construction of the road may present some challenges.
	Protection systems are only partially effective in controlling access or use of the reserve in accordance with designated objectives	1	
	Protection systems are moderately effective in controlling access or use of the reserve in accordance with designated objectives	2	
	Protection systems are largely or wholly effective in controlling access or use of the reserve in accordance with designated objectives	3	
31. Economic benefit assessment Is the protected area providing economic benefits to local communities? <i>Outcomes</i>	The existence of the protected area has reduced the options for economic development of the local communities	0	
	The existence of the protected area has neither damaged nor benefited the local economy	1	
	There is some flow of economic benefits to local communities from the existence of the protected area but this is of minor significance to the regional economy	2	
	There is a significant or major flow of economic benefits to local communities from activities in and around the protected area (e.g. employment of locals, locally operated commercial tours etc.)	3	
32. Monitoring	There is no monitoring and evaluation in the protected area	0	

Issue	Criteria	Score	Next steps/Remarks
and evaluation	There is some <i>ad hoc</i> monitoring and evaluation, but no overall strategy and/or no regular collection of results	1	
Planning/Process	There is an agreed and implemented monitoring and evaluation system but results are not systematically used for management	2	
	A good monitoring and evaluation system exists, is well implemented and used in adaptive management	3	
33. Empowerment	Management decisions are predominantly influenced by external bodies	0	
Are the village members fully empowered to make management decisions?	Village members partly influence management decisions under significant external influence	1	
	Village members are influencing most decisions, but there is some external influence	2	
	Village members are fully empowered to make management decisions	3	
Outcomes			
34. Livelihoods and well-being of village members	The livelihood options and well-being of the village members have reduced in the short and long term as a result of formation of the NRM area	0	
Is the area providing direct and indirect livelihoods benefits to and well-being of the village members?	The livelihood options and well-being of village members are slightly negatively affected as a result of the formation of the area.	1	
	The livelihood options and well-being of village members have at least been neutrally affected as a result of formation of the protected area	2	
	The livelihood options and well-being of the village members have been positively affected in the short and long term as a result of formation of the protected area	3	
Outcomes			
TOTAL SCORE		73/107	

METT Baseline Assessment Score: 68%

Appendix IX Detailed Budget Estimates by Programme

Programme 1	Amount (G\$)					Total (G\$)
	2017	2018	2019	2020	2021	
Capital Costs						
<i>Infrastructure</i>	-	-	-	-	-	-
<i>Transportation</i>	-	-	-	-	-	-
<i>Office Equipment</i>	-	-	-	-	-	-
<i>Communication Equipment</i>	-	-	-	-	-	-
<i>Field Equipment</i>	-	-	-	-	-	-
<i>Power Generation</i>	-	-	-	-	-	-
<i>Sub-Total</i>	-	-	-	-	-	-
	Amount (G\$)					Total (G\$)
	2009	2010	2011	2012	2013	
Recurrent Costs						
<i>Human Resource</i>	4,745,250	4,745,250	4,745,250	4,745,250	4,745,250	23,726,250
<i>Services</i>	-	-	-	-	-	-
<i>Supplies</i>	50,000	50,000	50,000	50,000	50,000	250,000
<i>Travel</i>	566,000	566,000	566,000	566,000	566,000	2,830,000
<i>Contractual/training/research</i>	3,000,000	1,500,000	-	-	-	4,500,000
<i>Infrastructure & Equipment Depreciation and Maintenance</i>	-	-	-	-	-	-
<i>Sub-Total</i>	8,361,250	6,861,250	5,361,250	5,361,250	5,361,250	31,306,250
TOTAL	8,361,250	6,861,250	5,361,250	5,361,250	5,361,250	31,306,250

Programme 2	Amount (G\$)					Total (G\$)
	2017	2018	2019	2020	2021	
Capital Costs						
<i>Infrastructure</i>	-	-	-	-	-	-
<i>Transportation</i>	-	-	-	-	-	-
<i>Office Equipment</i>	-	700,000	-	-	-	700,000
<i>Communication Equipment</i>	-	-	-	-	-	-
<i>Field Equipment</i>	-	-	-	-	-	-
<i>Power Generation</i>	-	-	-	-	-	-
<i>Sub-Total</i>	-	700,000	-	-	-	700,000
	Amount (G\$)					Total (G\$)
	2009	2010	2011	2012	2013	
Recurrent Costs						
<i>Human Resource</i>	1,937,250	1,937,250	1,937,250	1,937,250	1,937,250	9,686,250
<i>Services</i>	340,000	-	100,000	-	-	440,000
<i>Supplies</i>	60,000	60,000	60,000	60,000	60,000	300,000
<i>Travel</i>	-	-	-	-	-	-
<i>Contractual/training/research</i>	-	-	-	-	-	-
<i>Infrastructure & Equipment Depreciation and Maintenance</i>	-	140,000	140,000	140,000	140,000	560,000
<i>Sub-Total</i>	2,337,250	2,137,250	2,237,250	2,137,250	2,137,250	10,986,250
TOTAL	2,337,250	2,837,250	2,237,250	2,137,250	2,137,250	11,686,250

Programme 3	Amount (G\$)					Total (G\$)
	2017	2018	2019	2020	2021	
Capital Costs						
<i>Infrastructure</i>	20,000,000	20,000,000	-	-	-	40,000,000
<i>Transportation</i>	-	-	-	-	-	-
<i>Office Equipment</i>	-	300,000	300,000	-	-	600,000
<i>Communication Equipment</i>	-	-	-	-	-	-
<i>Field Equipment</i>	-	-	-	-	-	-
<i>Power Generation</i>	-	500,000	500,000	-	-	1,000,000
Sub-Total	20,000,000	20,800,000	800,000	-	-	41,600,000
	Amount (G\$)					Total (G\$)
	2009	2010	2011	2012	2013	
Recurrent Costs						
<i>Human Resource</i>	523,125	1,198,125	5,653,125	5,653,125	5,653,125	18,680,625
<i>Services</i>	-	-	-	-	-	-
<i>Supplies</i>	12,000	12,000	12,000	12,000	12,000	60,000
<i>Travel</i>	-	1,050,000	-	-	-	1,050,000
<i>Contractual/training/research</i>	-	-	-	-	-	-
<i>Infrastructure & Equipment Depreciation and Maintenance</i>	400,000	885,000	970,000	970,000	970,000	4,195,000
Sub-Total	935,125	3,145,125	6,635,125	6,635,125	6,635,125	23,985,625
TOTAL	20,935,125	23,945,125	7,435,125	6,635,125	6,635,125	65,585,625

Programme 4	Amount (G\$)					Total (G\$)
	2017	2018	2019	2020	2021	
Capital Costs						
<i>Infrastructure</i>	-	3,000,000	-	-	-	3,000,000
<i>Transportation</i>	-	-	-	-	-	-
<i>Office Equipment</i>	-	-	-	-	-	-
<i>Communication Equipment</i>	-	-	-	-	-	-
<i>Field Equipment</i>	-	-	-	-	-	-
<i>Power Generation</i>	-	-	-	-	-	-
<i>Sub-Total</i>	-	3,000,000	-	-	-	3,000,000
	Amount (G\$)					Total (G\$)
	2009	2010	2011	2012	2013	
Recurrent Costs						
<i>Human Resource</i>	523,125	523,125	523,125	523,125	523,125	2,615,625
<i>Services</i>	10,000	10,000	10,000	10,000	10,000	50,000
<i>Supplies</i>	6,000	6,000	6,000	6,000	6,000	30,000
<i>Travel</i>	-	-	-	-	-	-
<i>Contractual/training/research</i>	-	1,500,000	1,500,000	1,500,000	1,500,000	6,000,000
<i>Infrastructure & Equipment Depreciation and Maintenance</i>	-	200,000	200,000	200,000	200,000	800,000
<i>Sub-Total</i>	539,125	2,239,125	2,239,125	2,239,125	2,239,125	9,495,625

TOTAL	539,125	5,239,125	2,239,125	2,239,125	2,239,125	12,495,625
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Programme 5	Amount (G\$)					Total (G\$)
	2017	2018	2019	2020	2021	
Capital Costs						
<i>Infrastructure</i>	-	1,000,000	10,000,000	1,000,000	-	12,000,000
<i>Transportation</i>	500,000	-	-	1,500,000	-	2,000,000
<i>Office Equipment</i>	105,000	550,000	625,000	-	-	1,280,000
<i>Communication Equipment</i>	750,000	800,000	1,000,000	750,000	-	3,300,000
<i>Field Equipment</i>	1,860,000	60,000	720,000	-	-	2,640,000
<i>Power Generation</i>	-	-	2,000,000	-	-	2,000,000
Sub-Total	3,215,000	2,410,000	14,345,000	3,250,000	-	23,220,000
	Amount (G\$)					Total (G\$)
	2009	2010	2011	2012	2013	
Recurrent Costs						
<i>Human Resource</i>	6,235,650	6,235,650	6,235,650	6,235,650	6,235,650	31,178,250
<i>Services</i>	700,000	700,000	700,000	700,000	700,000	3,500,000
<i>Supplies</i>	100,000	100,000	100,000	100,000	100,000	500,000
<i>Travel</i>	1,204,000	1,204,000	1,204,000	1,204,000	1,204,000	6,020,000
<i>Contractual/training/research</i>	1,500,000	1,500,000	3,000,000	-	3,000,000	9,000,000
<i>Infrastructure & Equipment Depreciation and Maintenance</i>	816,000	1,046,000	2,691,000	3,166,000	3,166,000	10,885,000

<i>Sub-Total</i>	10,555,650	10,785,650	13,930,650	11,405,650	14,405,650	61,083,250
TOTAL	13,770,650	13,195,650	28,275,650	14,655,650	14,405,650	84,303,250

TOTAL	Amount (G\$)					Total (G\$)
	2017	2018	2019	2020	2021	
Capital Costs						
<i>Infrastructure</i>	20,000,000	24,000,000	10,000,000	1,000,000	-	55,000,000
<i>Transportation</i>	500,000	-	-	1,500,000	-	2,000,000
<i>Office Equipment</i>	105,000	1,550,000	925,000	-	-	2,580,000
<i>Communication Equipment</i>	750,000	800,000	1,000,000	750,000	-	3,300,000
<i>Field Equipment</i>	1,860,000	60,000	720,000	-	-	2,640,000
<i>Power Generation</i>	-	500,000	2,500,000	-	-	3,000,000
<i>Sub-Total</i>	23,215,000	26,910,000	15,145,000	3,250,000	-	68,520,000
	Amount (G\$)					Total (G\$)
	2009	2010	2011	2012	2013	
Recurrent Costs						
<i>Human Resource</i>	13,964,400	14,639,400	19,094,400	19,094,400	19,094,400	85,887,000
<i>Services</i>	1,050,000	710,000	810,000	710,000	710,000	3,990,000
<i>Supplies</i>	228,000	228,000	228,000	228,000	228,000	1,140,000
<i>Travel</i>	1,770,000	2,820,000	1,770,000	1,770,000	1,770,000	9,900,000
<i>Contractual/training/research</i>	4,500,000	4,500,000	4,500,000	1,500,000	4,500,000	19,500,000

Infrastructure & Equipment Depreciation and Maintenance	1,216,000	2,271,000	4,001,000	4,476,000	4,476,000	16,440,000
Sub-Total	22,728,400	25,168,400	30,403,400	27,778,400	30,778,400	136,857,000
TOTAL	45,943,400	52,078,400	45,548,400	31,028,400	30,778,400	205,377,000

Appendix X: Species Lists

Sources:

1. Alonso, L. E.; J. McCullough; P. Naskrecki; E. Alexander and H. E. Wright. **(2008). A Rapid Biological Assessment of the Kanashen Community Owned Conservation Area, Southern Guyana.** RAP Bulletin of Biological Assessment 51. Conservation International, Arlington. VA, USA.
2. A combination of
 - a. Clarke, D (**unpubl.**). Concluding Report on Visit to Gunns
 - b. Redden, K (**unpubl.**). A Kanashen Plant List
 - c. ter Steege, H *et. al.* **(2000). Plant Diversity in Guyana. Implications for establishment of a National System of Protected Areas.** Tropenbos Series 18. Tropenbos International.
 - d. Couture, R., C.; LaFleur, and J. Lambert **(2005). Path of mercury in the environment of alluvial gold mining and pristine areas of Guyana;** in GENCAPD I 2005, Natural Resources Canada: Ottawa.

AMPHIBIANS¹

Allophryne ruthveni
Ameerega picta
Caecilidae sp.
Chaunus marinus
Dendrobates tinctoris
Hypsiboas boans
Hypsiboas calcaratus
Hypsiboas cinerascens
Hypsiboas geographicus
Hypsiboas ornativissimus
Hypsiboas wavrini
Leptodactylus mystaceus
Leptodactylus knudseni
Leptodactylus rhodomystax
Leptodactylus sp 1
Leptodactylus sp 2
Osteocephalus leprierii
Osteocephalus cabrerai
Osteocephalus sp
Phyllomedusa hypocondriialis
Phyllomedusa tricolor
Phyllomedusa tricolor
Phyllomedusa vaillanti
Pipa pipa
Rhaebo guttatus
Rhinelia margaritifera
Scinax ruber

BIRDS¹

Actitis macularia
Aeronatutes montivagus
Agamia again
Amazilia versicolor
Amazilia viridigaster
Amazona amazonica
Amazona festiva bodini
Amazona dufresniana
Amazona ochrocephala
Anhinga anhinga
Ara Americana
Ara chloroptera
Ara macao
Aratinga leucophthalmus
Aratinga pertinax
Ardea alba
Ardea cocoi
Arremon taciturnus
Atticora fasciata
Attila cinnamomeus
Attila spadiceus
Aulacorhynchus derbianus

Automolus rubiginosus
Automolus rufipileatus
Basileuterus rivularis
Brotogeris chrysoptera
Bucco tamatia
Buco capensis
Buteo brachyurus
Butorides striata
Butteogallus urubittinga
Cacicus cela
Cacicus haemorrhous
Cairina moschata
Calibri delphinae
Campephilus melanoleucos
Camptostoma obsoletum
Campylopterus largipennis
Campyloramphus procurvoides
Capita niger
Caprimulgus nigrescens
Caryothraustes canadensis
Cathartes melambrotus
Celeus elegans
Celeus flavus
Celeus torquatus
Celeus undatus
Cercomacra cinerascens
Cercomacra tyrannina
Chaetura chapmani

Chaetura spinicaudus
Chelidoptera tenebrosa
Chloroceryle aenea
Chloroceryle amazona
Chloroceryle americana
Chloroceryle inda
Chlorophanes spiza
Chlorophonia cyanea
Chondoheirax uncinatus
Cyclarhis guianensis
Cymbilaimus lineatus
Cyphorhinus arada
Cypseloides cryptus
Dacnis lineata
Daptrius ater
Dendrexetastes rufigula
Dendrocincla fuliginosa
Dendrocincla merula
Dendroica striata
Deropteryx accipitrinus
Dromococcyx pavonius
Dryocopus lineatus
Dysithamus mentalis
Egretta caerulea
Euphonia cayennensis
Euphonia chrysopasta
Euphonia sp.s
Eurypyga helias
Falco rufugularis
Florisuga mellivora
Formicarius analis
Formicarius colma

Frederickena viridis
Galbula albirostris
Galbula dea
Galbula leucogastra
Geotrygon montana
Glaucidium hardyi
Glyphorhynchus spirurus
Grallaria varia
Granatellus pelzelni
Gymnophithys rufigula
Heliornis fulica
Heliophryx auritus
Hemithraupis flavicollis
Hemitriccus josephinae
Hemitriccus zosterops
Henicorhina leucosticta
Herpsilochmus stictocephalus
Herpsilochmus rufomarginatus
Herpsilochmus sticturus
Hirundinea ferruginea
Hirundo rustica
Hylexetastes perrotii
Hylocharis sapphirina
Hylopezus macularius
Hylophilus muscicapinus
Hylophilus ochraceiceps
Hylophylax naevius
Hylophylax poecilonotus
Hypocnemis cantator

<i>Hypocnemoides melanopogon</i>	<i>Mionectes macconnelli</i>	<i>Nyctibius griseus</i>	<i>Pipra pipra</i>	<i>Tachyphonus surinamus</i>
<i>Ibycter americanus</i>	<i>Momotus momota</i>	<i>Nyctibius leucopterus</i>	<i>Piprites chloris</i>	<i>Tadirostrum pictum</i>
<i>Icterus cayanensis</i>	<i>Monasa atra</i>	<i>Ortalis motmot</i>	<i>Pitangus sulphuratus</i>	<i>Tangara chilensis</i>
<i>Jacamerops aureus</i>	<i>Myiarchus tuberculifer</i>	<i>Oxyruncus cristatus</i>	<i>Pithys albifrons</i>	<i>Tangara gyrola</i>
<i>Lamprospiza melanoleuca</i>	<i>Myiobius barbatus</i>	<i>Pachyramphus marginatus</i>	<i>Platyrinchus coronatus</i>	<i>Tangara punctata</i>
<i>Lanio fulvus</i>	<i>Myiopagis caniceps</i>	<i>Pandion haliaetus</i>	<i>Platyrinchus saturatus</i>	<i>Tangara velia</i>
<i>Laniocera hypopyrra</i>	<i>Myiopagis flavivertex</i>	<i>Panyptila cayennensis</i>	<i>Procnias albus</i>	<i>Terenura spodioptila</i>
<i>Lathrotriccus euleri</i>	<i>Myiopagis gaimardii</i>	<i>Paroaria gularis</i>	<i>Progne chalybea</i>	<i>Tersina viridis</i>
<i>Legatus leucophaius</i>	<i>Myiornis ecaudatus</i>	<i>Parula pitaiayumi</i>	<i>Progne tapera</i>	<i>Thalurania furcata</i>
<i>Lepidocolaptes albolineatus</i>	<i>Myiozetetes luteiventris</i>	<i>Patagioenas plumbea</i>	<i>Psarocolius viridis</i>	<i>Thamnomanes caesius</i>
<i>Lepidothrix serena</i>	<i>Myrmeciza ferruginea</i>	<i>Patagioenas subvinacea*</i>	<i>Sophia crepitans</i>	<i>Thamnophilus amazonicus</i>
<i>Leptopogon amaurocephalus</i>	<i>Myrmoborus leucophrys</i>	<i>Penelope jacquacu</i>	<i>Pteroglossus aracari</i>	<i>Thamnophilus murinus</i>
<i>Leptotila rufaxilla</i>	<i>Myrmothera campanisona</i>	<i>Percnostola ruifrons</i>	<i>Pteroglossus viridis</i>	<i>Thamnophilus punctatus</i>
<i>Leucopternis albicollis</i>	<i>Myrmotherula axillaris</i>	<i>Perissocephalus tricolor</i>	<i>Pulsatrix perspicillata</i>	<i>Thamnophilus punctatus</i>
<i>Leucopternis melanops</i>	<i>Myrmotherula brachyura</i>	<i>Phaeothlypis rivularis</i>	<i>Pygmyptila stellaris</i>	<i>Thryothorus coraya</i>
<i>Lipaugus vociferans</i>	<i>Myrmotherula guttata</i>	<i>Phaethornis bourcieri</i>	<i>Pyrrhura picta</i>	<i>Tigrisoma lineatum</i>
<i>Lophornis ornatus</i>	<i>Myrmotherula longipennis</i>	<i>Phaethornis ruber</i>	<i>Querula purpurata</i>	<i>Tinamus major</i>
<i>Lophotrix cristata</i>	<i>Myrmotherula menetriesii</i>	<i>Phaethornis superciliosus</i>	<i>Ramphastos tucanus*</i>	<i>Tolmomyias poliocephalus</i>
<i>Lophotriccus galeatus</i>	<i>Myrmotherula longipennis</i>	<i>Philydor erythrocerum</i>	<i>Ramphastos vitellinus*</i>	<i>Tolmomyias poliocephalus</i>
<i>Lophotriccus vitiensis</i>	<i>Myrmotherula menetriesii</i>	<i>Philydor pyrrhodes</i>	<i>Ramphocaelus melanurus</i>	<i>Topatza pella</i>
<i>Lurocalis semitorquatus</i>	<i>Myrmotherula menetriesii</i>	<i>Philydor ruficaudatum</i>	<i>Ramphocelus carbo</i>	<i>Touit purpuratus</i>
<i>Malacoptila fusca</i>	<i>Myrmotherula surinamensis*</i>	<i>Phoenicercus carnifex</i>	<i>Ramphotrigon megacephalum</i>	<i>Tringa solitaria</i>
<i>Manacus manacus</i>	<i>Neochelidon tibialis</i>	<i>Phyllomyias griseiceps</i>	<i>Ramphotrigon ruficauda</i>	<i>Trogon collaris</i>
<i>Megascops guatemalae</i>	<i>Neomorphus rufipennis</i>	<i>Piaya melonogaster</i>	<i>Rhynchocyclus olivaceus</i>	<i>Trogon melanurus</i>
<i>Megascops watsonii</i>	<i>Neopelma chrysocephalus</i>	<i>Piculus flavigula</i>	<i>Rhytipterna simplex</i>	<i>Trogon rufus</i>
<i>Mesembrinibis cayennensis</i>	<i>Neopipo cinnamomea</i>	<i>Piculus rubiginosus</i>	<i>Rupicola rupicola</i>	<i>Trogon violaceus</i>
<i>Micrastur gilvicollis</i>	<i>Nonnulla rubecula</i>	<i>Picumnus exilis</i>	<i>Sakesphorus melanothorax</i>	<i>Turdus albicollis</i>
<i>Micrastur mirandollei</i>	<i>Notharchus macrorhynchos</i>	<i>Pionites melanocephalus</i>	<i>Synallaxis rustilans</i>	<i>Turdus fumigatus</i>
<i>Micrastur ruficollis</i>	<i>Nyctibius brachteatus</i>	<i>Pionopsitta caica</i>	<i>Tachornis squamata</i>	<i>Tyranneutes virescens</i>
<i>Microbates collaris</i>		<i>Pionus fuscus</i>	<i>Tachycineta albiventer</i>	<i>Tyrannulus elatus</i>
<i>Microrhophias quixensis</i>		<i>Pipile cumanensis</i>	<i>Tachyphonus cristatus</i>	<i>Tyrannulus melancholicus</i>
		<i>Pipra erythrocephala</i>		<i>Veniliornis cassini</i>
				<i>Vireo olivaceus</i>
				<i>Vireolanius leucotis</i>
				<i>Xenopipo atronitens</i>
				<i>Xenops milleri</i>

Xipholena punicea
Xiphorhynchus
guttatus
Xiphorhynchus
obsoletus
Zebrilus undulatus
Zimmerius gracilipes

Aphyocharax
erythrurus
Apistogramma
steindachneri
Auchenipterus
demerarae
Brachyhalcinus
orbicularis
Brachyhyopomus
brevirostris
Bryconops affinis
Bryconops
caudomaculatus
Bujurquina sp.
Callichthys callichthys
Chalceus
macrolepidotus
Characidium sp.
Characidium
steindachneri
Charax gibbons
Chasmocranus
longinor
Corydoras bondi
Corydoras sp.
Creagrutus
melanzonus
Crenicichla alta
Crenicichla cf
lenticulata
Crenicichla lugubris
Curimata cyprinoides
Curimatella dorsalis
Curimatopsis
crypticus
Cynodon gibbus
Cynopotamus
essequibensis
Cyphocharax sp.
Doras cf. *micropoeus*

Eigenmannia
humboldtii
Eigenmannia
virescens
Erythrinus erythrinus
Geophagus
surinamensis
Guianacara sp.
Gymnorhamphichthys
petitti
Gymnotus coropinae
Gymnotus carapo
Harttia sp.
Helogenes
marmoratus
Hemiancistrus sp.
Hemigrammus
guayanensis
Hemigrammus sp.
Hemigrammus
unilineatus
Hemiodus
semitaeniatus
Hemiodus
vorderwinkleri
Hoplerythrinus
unitaeniatus
Hoplias cf
malabaricus
Hoplias
macrophthalmus
Hydrolycus armatus
Hydrolycus tatauaia
Hypheosobrycon
bentosi
Hypheosobrycon
minor
Hypopygus lepturus
Hypostomus cf
hemiurus
Hypostomus sp.

Hypostomus taphorni
Imparfinis cf *pijpersi*
Jupiaba abramoides
Jupiaba pinnata
Jupiaba polylepis
Jupiaba potaroensis
Leporinus arcus
Leporinus gr.
Maculates
Leporinus
nigrotaeniatus
Lithoxus cf
surinamensis
Megalechis thoracata
Melanocharacidium
blennoides
Moenkhausia collettii
Moenkhausia gr.
lepidura
Moenkhausia
grandisquamis
Moenkhausia
lepidura lata
Moenkhausia
lepidura lepidura
Moenkhausia
oligolepis
Moenkhausia
oligolepsis
Myleus rhomboidalis
Nannostomus
marginatus
Ochmacanthus
flabelliferus
Parodon guyanensis
Pertilipinnis
grunniens
Phenacogaster
megalostictus
Phenacogaster
microstictus

Pimelodella cf *gracilis*
Pimelodella cristata
Pimelodella sp.
Pimelodus ornatus
Poptella longipinnis
Prochilodus
rubrotaeniatus
Pseudoancistris
nigrescens
Pseudoancistrus
barbatus
Pseudocetopsis
macilena
Pseudoplatystoma
fasciatum
Pyrrhulina
filamentosa
Rhamdia cf *foina*
Rineloricaria
platyura
Rivulus sp.
Schizodon fasciatum
Serrasalmus
rhombeus
Steindachnerina sp.
Sternopygus
macrurus
Synbranchus
marmoratus
Tatia intermedia
Tetragonopterus
chalceus
Trachylopterus
galeatus
Triportheus sp.

FISHES¹

Acestrorhynchus
falcatus
Acestrorhynchus
microlepis
Aequidens
marmoratus
Aequidens tetramerus
Amnocriptocharax
lateralis
Amnocriptocharax
vintoni
Ancistrus cf
lithurgicus
Ancistrus sp.1
Ancistrus sp.2
Anostomus
anostomus

INVERTEBRATES¹**Ants**

Acropyga
 Atta sp.
 Crematogaster .
 Acromyrmex
 Anochetus
 Azteca spp.
 Apterostigma.
 Camponotus .
 Daceton
 Cephalotes.
 Cyhomyrmex .
 Dolichoderus
 Eciton
 Ectatomma .
 Gigantiops.
 Gnamptogenys
 Hypoponera
 Labidus sp.
 Leptogenys
 Mycetarotes
 Mycocephurus
 Mymicocrypta
 Odontomachus
 Pachycondyla
 Paraponera
 Paratrechina
 Pheidole
 Prionopelta
 Procryptocerus
 Pseudomyrmex
 Rogeria.
 Solenopsis.
 Strumigenys
 Trachymyrmex
 Wasmannia

Dung Beetles

Ateuchus

Canthon
 Cryptocanthon
 Deltochilum
 Dichotomius
 Eurysternus
 Ontherus
 Oxysternon sp
 Oxysternon festivum
 Phanaeus

Katydid

Acanthododis
 longicauda
 Anaulacomera sp. 1
 Anaulacomera sp.2
 Anaulacomera sp.3
 Anaulacomera sp.4
 Anaulacomera sp.5
 Bliastes contortipes
 Ceraia sp. 1
 Ceraia sp. 3
 Ceraia sp.2
 Ceraiaella sp.1
 Cf. Leptotettix sp.1
 Chondrosternum sp.1
 Chondrosternum
 triste
 Copiphora gracilis
 Cycloptera speculata
 Daedalellus apterus
 Diacantbodis granosa
 Eschatoceras sp
 Eubliastes adustus
 Euceraia
 rufovariegata
 Euceraia sp. 1
 Euceraia subaquila
 Eumecopterus
 nigrovittatus
 Gen. 1 sp.1
 Gen. 3 sp.2

Gen. 5 sp.1
 Gen.2 sp. 1
 Gen.4 sp.1
 Gnathoclitia vorax
 Gryporhynchium
 acutipennis
 Hyperphrona
 bidentata
 Ischyra sp.1
 Itarissa sp.1
 Lamineps sp.
 Leptotettix sp.1
 Leptotettix
 spinoselaminatus
 Leurophyllum
 consanguineum
 Leurophyllum sp. 2
 Listrosceles armata
 Neoconocephalus
 purpurascens
 Panoploscelis
 scudderi
 Paralobaspis gorgon
 Paraphidnia
 verrucosa
 Parapleminia sp.1
 Pezochiton sp.1
 Phlugiola sp.
 Phlugis cf
 bimaculatoides
 Phylloptera sp.1
 Platychiton brunneus
 Platyphyllum sp.1
 Platyphyllum sp.2
 Platyphyllum sp.3
 Pleminia sp. 2
 Pleminia sp.1
 Pleminia sp.3
 Pterochroza ocellata
 Pycnopalpa sp.1
 Rhinischia surinama

Roxelana crassicornis
 Scopioricus latifolius
 Steirodon
 dentiferoides
 Steirodon
 maroniensis
 Steirodon sp.3
 Subria grandis
 Syntechna sp.1
 Typophyllum
 flavifolium
 Typophyllum
 rufifolium
 Uchuca similis
 Vestria diademata
 Viadana sp.1
MAMMALS¹
 Agouti paca
 Alouatta seniculus
 Ateles paniscus
 Bradypus tridactylus
 Cabassous unicinctus
 Cebus olivaceus
 Cerdocyon thous
 Chiropotes satanas
 Choloepus didactylus
 Myoprocta acouchy
 Coendou prehensilis
 Cyclopes didactylus
 Dasypus kappleri
 Dasypus
 novemcinctus
 Dasypoprocta leoprina
 Didelphis marsupialis
 Eira Barbara
 Galictis vittata
 Herpailurus
 yaguarondi
 Hydrochaeris
 hydrochaeris
 Cebus apella

Metachirus
 nudicaudatus
 Leopardus pardalis
 Leopardus tigrinus
 Leopardus weidii
 Mazama americana
 Mazama gouazoubira
 Myrmecophaga
 tridactyla
 Odocoileua
 virginianus
 Panthera onca
 Philander opossum
 Pithecia pithecia
 Potos flavus
 Priodontes maximus
 Procyon cancrivorus
 Pteronura brasiliensis
 Puma concolor
 Saguinus midas
 Saimiri sciureus
 Sciurus aestuans
 Speothos venaticus
 Sylvilagus brasiliensis
 Tamandua
 tetradactyla
 Tapirus terrestris
 Tayassu peccary
 Tayassu tajacu

PLANTS²

Aciotis sp
Anthurium gracile
Apodanthes caseariae
Banisteriopsis martiniana
Bertholettia sp
Catopsis berteroniana
Catostemma sp.
Cecropia spp
Clidemia minutiflora
Ficus paraensis
Clidemia minutiflora
Clusia spp.
Coutoubea ramosa
Cyperus odoratus

Dialium guianense
Dioclea reflexa
Elizabetha fanshawei
Eperua rubiginosa
Eperua spp.
Epidendrum carpophorum
Calycolpus goetheanus
Ficus Americana
Epidendrum nocturnum
Eragrostis uniolooides
Erythroxylum sp.
Euterpe sp.
Euterpe sp.
Ficus pertusa
Ficus pulchella
Ficus sp
Fimbristylis quinquangularis
Genipa sp.
Guadua sp
Gymnosiphon guianensis
Hevea sp.
Humiria balsamifera
Hydrochorea corymbosa
Hypolytrum longifolium
Hypolytrum longifolium
Inga sp.
Lacistema aggregatum
Lactuca sp.
Licania sp.
Macrocentrum gesneriaceum

Macrocentrum vestitum
Macrolobium acaciifolium
Macrolobium bifolium
Macrolobium spp.
Marlierea schomburgkiana
Martinella obovata
Mauritiela sp
Maximiliana sp.
Meriania urceolata
Miconia marginata
Miconia ciliate
Miconia mirabilis
Mimosa myriadenia
Mimosa myriadenia
Myrcia porphyrea
Oenocarpus sp.
Paloue guianensis
Paloue induta
Parkia igneiflora
Posoqueria latifolia
Thurnia sphaerocephala
Posoqueria atifolia
Protium altsonii
Pterocarpus santalinoides
Pterocarpus santalinoides
Rhodostemonodaphne scandens
Schlegelia violacea
Sloanea sp
Socratea sp
Spahgnum sp
Spigelia spp.
Paepalanthus fasciculatus
Tapirira guianensis

Stenospermation spp.
Swartzia schomburgkii
Swartzia anomala
Swartzia panacoco
Tachia schomburgkiana
Tillandsia monadelpha
Tococa aristata
Tradescantia sp.
Trichomanes hostmannianum
Urospatha sagittifolia
Vismia sp.
Voyria aphylla

REPTILES¹

Ameiva ameiva
Amphisbaena vanzolinii
Anilius scytale
Anolis punctatus
Atractus torquatus
Chelonoidis carbonaria
Chelonoidis denticulate
Chironius scurrulus
Corallus caninus
Plica plica
Corallus hortulanus
Dipsas indica
Erythrolamprus aesculapii
Eunectus murinus
Gonatodes humeralis
Helicops angulatus
Helicops sp
Iguana iguana
Imantodes cenchoa
Kentropyx calcarata
Boa constrictor
Paleosuchus trigonatus
Leptodeira annulata
Mabuya nigropunctata

Melanosuchus niger
(dependant on
conservation)
Neusticurus sp
Norops chrysolepis
Rhinoclemmys
punctularia
Siphlophis
compressus
Taeniophalus
brevirostris
Thecadactylus
rapicauda
Tupinambis teguixin
Typhlophis
ayarzaguenai
Uranoscodon
superciliosus