4. DIGYA NATIONAL PARK

Digya National Park (DNP), situated partly in the Brong Ahafo, Ashanti and eastern Regions respectively, is the second largest park in Ghana, after Mole National Park (see fig.1). Three quarters of the park is bounded by water; on the north by the Sene river, and on the East by the Volta Lake and on the South East by the Obosum river. Covering an area of approximately 3,478.5 Km^2, it is one of the six National Parks in Ghana, and the first Wildlife Department (WD) protected area (PA) to be Established in the country. Digya falls under the Guinea Savanna classification Noted for its unique aquatic vegetation because of its proximity to the to the Volta Lake, it has an appreciable population of elephants and manatee.

The Management Plan for DNP, the result of a collaborative effort between WD counterpart staff and IUCN technical assistants, noted among other things that:

(i) The park has a high enough Elephant population to warrant conservation and tourist interest.

(ii) The presence of the manatee calls for urgent strategies for the conservation of this rare weed-eating water mammal.

(iii) There is mistrust and suspicion of the WD by the local people because of lack of conservation education resulting in negative perception of the park by the people.

The Plan stipulates specific management objectives which include:

- To actively ensure the protection and maintenance of the physical, biological and aesthetic features of DNP.
- To realise the exploitation of the Park's enormous potential based on it's interesting features and lake facilities for recreation.
- To integrate the development of the park into that of the local communities to ensure co-operation and wider acceptance of the park's value.
- To improve the welfare, morale and capabilities of the field staff of WD.

To achieve the above objectives, the infrastructure and staffing requirements as well as other logistic support which has been neglected for years need to be provided, hence the costing detailed in this document. The costing are based on implementation of programmes described in the management plan.

4.1 INFRASTRUCTURE

4.1.1 Roads

Present Situation and Needs Assessment

Currently, there are no roads within the park and access to it from outside is a problem.
Proposed development

Priority actions
Approximately a 50km road from Dome through Apapaso Nkaueku and Hwanyaso to Abomasu (See fig.12) would be constructed at an estimated cost of US $125,000 as detailed in table12 and 13.

Development Programme
As a later development, a good all-weather, profile graded road along the boundary from Hiamankyene to the Obosum river, a distance of 44 km will be constructed as an estimated cost of US $ 440,000. The road will give easy access to the southern parts of DNP by the anti-poaching team, serve as permanent boundary and as an effective fire break. A total of 252 km of circulatory road network estimated at US $2,950.000 will be established within DNP primarily for access to the range camps, for game viewing and to act as fire break. (see fig.12)

It is estimated that the construction of the above road network will involve about two major bridges (preferably Bailey Bridges) and approximately 34 culverts all estimated to cost US $250,000 and US $100,000 respectively. The details are given in table 14.

4.1.2 Staff Accommodation

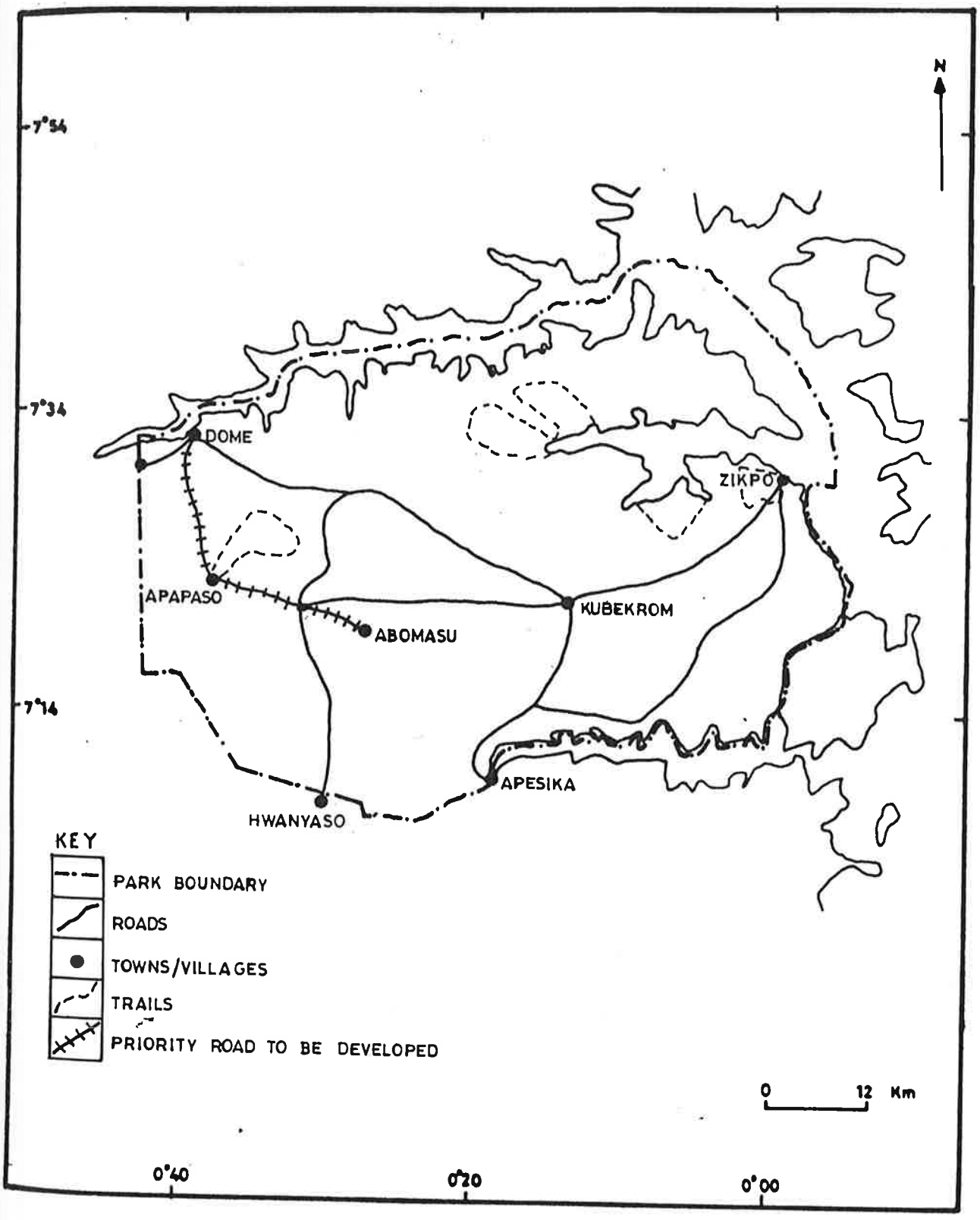
Present Situation and Needs Assessment
With the exception of Dome, Saabuso, Bomire and Apapasu camps, most of the staff accommodation is in a very deplorable state. Many of the buildings in these camps are mud and wattle houses roofed with thatch which have been seriously damaged by termite infestation. The existing buildings need to be refurbished and additional ones constructed to offer decent accommodation to the rest of the staff.

Proposed Development

Priority actions
As an immediate need, a new DNP HQ will be constructed at Kwame Danso where a new park office, stores, one middle grade and two junior staff accommodation would be developed at an estimated cost of US $ 90,000, US $ 20,000 and US $ 30,000 respectively. The run-down buildings at Apapaso would be refurbished as at a cost of US $ 50,000 and two bores holes provided for Dome and Apapasu at an estimated cost of US $40,000. Details of these costing are given in table12 and 13.

Development Programme
The development of the park HQ would be completed with the construction of one senior staff bungalow, one middle grade accommodation, four junior staff quarters and provision for water and electricity at an estimated cost of US $170,000.

FIGURE 12 : DIGYA NATIONAL PARK ROAD AND TRAIL DEVELOPMENT



A system of four ranges is proposed for DNP to enhance the efficient and effective management of the park and this will require the establishment of range camps, at Dome, Zikpo, Apensika and Hwanyaso (see fig 13) All staff currently at the existing camps will be apportioned among the four new range camps, thereby abandoning the old camps. About 28 staff and their families will be stationed at each of the new range camps. However, the abandoned camps would still be retained as duty posts for the park's mobile anti-poaching team. The development of each range camps is estimated to cost US $ 265,000 giving a total of US $ 1,060,000 for the four range camps. Detail these the costing of these developments are shown in table 14

4.1.3 Boundary Demarcation

Present Situation and Needs

Three quarters of DNP is bounded by water; on the north by the Sane river, on the east by the Volta lake and on the "South - east by the Obosum river. The land boundary is located on the western and South-Western part of the park and is pillared from Sane at Hiamankyene to Asesewa. The rest of the boundary to Obosum is unpillared and has been a source of conflict with the indigenous communities.

Proposed Development

Priority Actions

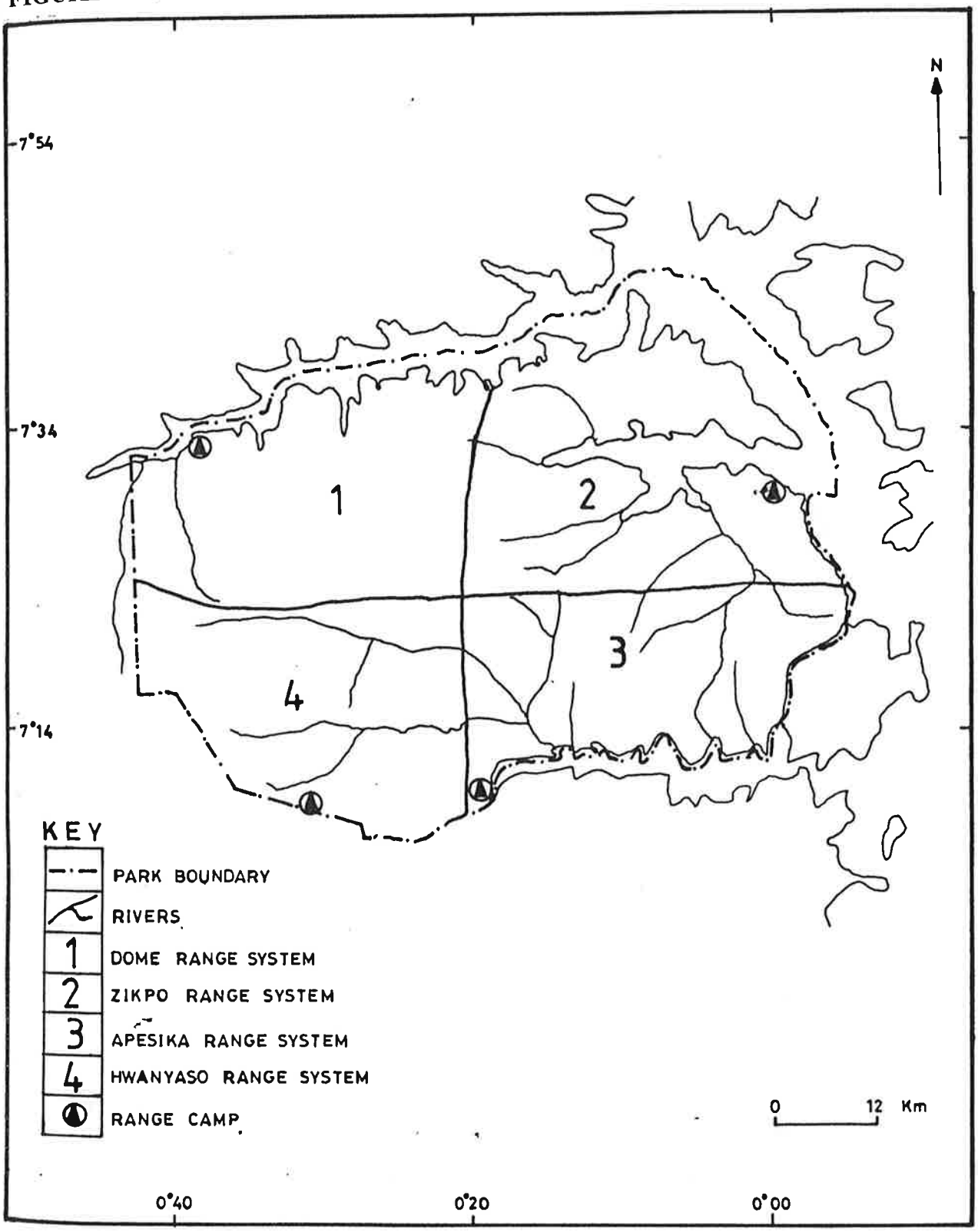
The presently recognized and undemarcated sections would be unambiguously marked and pillared using the Global Positioning System (GPS) satellite device at an estimated cost of US $ 12,000 as detailed in tables12 & 13. The land boundary from Hiawankyene to Obosum river will be signposts with "No Entry" signs toward of trespassers. A system of directional signs to the park will be positioned at Atebubu, Bantma, Mame Krobo Junction and Kwame Danso. All roads and road junctions within the park will be sign posted to give right Orientation to visitors. Signs will bland with the environment and will also make use of local materials. The signage development for the park is estimated to cost US$ 50,000 as detailed in tables 12 & 13.

4.1.4 Visitor Facilities

Present Situation And Needs Assessment

Presently, there are no accommodation facilities for visitors to DNP who might want to stay a day or two to enjoy the attractions it has to offer. The nearest hotel can be found in Atebubu about 50 km from the nearest point of the park. There is also no entrance gate.

FIGURE 13 : DIGYA N. P. PROPOSED NEW RANGE SYSTEM



Proposed Development

Development Programme

Three low visitor accommodation using local materials estimated to cost US $19,500 will be constructed at Dome, Zikpo and Nkaneku. Two entrance gates to cost US $56,000 will be established at Dome and Zikpo. Three camp sites estimated to cost US $ 5,400 will be developed at suitable locations in the four ranges namely Apesika, Dome, Zikpo and Hwanyanso and Ten observation hides using local materials to cost about US $ 5000 will be developed at Dome. Zikpo, Hwanyanso and Apesika. Two visitor centers with souvenir shops estimated at US $56,000 (i.e. $28,000 each) will be constructed at Dome and Zikpo. The details of these costing are provided in table 14.

4.1.5 Walking Trails

Present Situation and Needs Assessment
Experience from Mole National Park and other places in the world have indicated that visitors enjoy having an early morning walk into the wilderness without being confined to a vehicle. Similar facilities will be developed at DNP. Hence, the park will be provided with well sign-posted and labelled trails (See fig.12).

Proposed Development

Development Programme

As recommended in the management plan, only trails should be the means of access for the public in the protected zone (See fig.12) In view of this, walking trails would be developed from Zipto range camp to suitable places of interest along the Digya river, particularly, in the riverine forests. Trails will also be developed unto the other parts of the wilderness zone from one camp sites/tented accommodation to the other and from Apapaso Safari Lodge into the Sibi forest and other places of interest. The total distance of these walking trail is estimated at 110 km and will cost approximately US $ 52,800 to construct as detailed in table14.

All these trails will lead to places of interest where animals frequent or of scenic or natural beauty. The construction of trails will be implemented only after a thorough investigation by the Senior Wildlife Officer in charge of the park.

Five of the sixteen manned camps in the park border the Sene river and three the Obosum river. The staff of these camps utilise the water of these rivers as a source of drinking water. On the other hand, there is the problem of contraction of water borne diseases such as bilharzia and guinea worm. The other eight camps experience acute water shortage during the dry season. Staff in these camps have to go long distances on foot and some times on bicycles to be able to get to water. As a pressing need, US $ 40,000 has been estimated for the sinking of two boreholes at Dome and Apapasu. The details of the costs of these Infrastructural needs at DNP are given in tables 12 & 13.

4.2 EQUIPMENT

4.2.1 Vehicles

Present Situation And Needs Assessment
Currently, one transport facilities in Digya National Park are as shown in table 10:

Table 10: Present transport facilities of Digya National Park and their conditions

Type of Vehicle	Qty.	Approximate Year of Manufacture	Condition	Source	Remarks
4WD-Pick-up (Toyota)	1	1990	Serviceable	FRMP	
4WD-Pick-up (Nissan)	1	1995	Serviceable	FRMP	
4WD-Pick-up (Dodge)	1	1985	unserviceable	Friends of Animals (FOA)	Donation
4WD-Tractor (Ford)	1	1995	Serviceable	FRMP	
Motor-bike (Honda)	2	1993	unserviceable	FRMP	

All these vehicles are based at Atebubu, the park HQ and for the use of the Senior Wildlife Officer for administrative and field duties. All camps that are situated along the scene and Obosum rivers have been provided with canoes for patrol duties. However, they are all leaking badly and need replacement. The numbers and type of vehicles available are inadequate for the present and planned development and management of DNP.

Proposed Development

Priority Actions

As an immediate need, one 4WD tractor (with scraper, back-hoe, auger and trailer), two 4 WD vehicles, one towing bowser, two boats with outboard motors, five motor bikes and forty bicycles all at a total cost of US $ 121,000 would be provided as detailed in table 12 & 13.

Development Programme

For the successful implementation of the range management system, there is the pressing need for additional vehicles to be supplied to DNP. The following additional vehicle will be required: One 4WD tractor (with scraper, auger, back-hoe and trailer) estimated at US $ 35,000 for road works', 4 x 4WD tractors for carting supplies, one to be based at each of the four range HQ estimated at US$ 30,000 each giving a total of US$ 120,000, 5 x 4WD vehicles for anti-poaching operations but one of which should be a trekking vehicle for the park manager. Four of the 4WD vehicles should preferably be pick-ups estimated at US $ 35,000 per vehicle giving a total of US $ 140,000. The trekking vehicle would be a cross-

country 4WD vehicle estimated at US $ 40,000. Five motorbikes at US $ 4,000 per bike and 100 bicycles at US $80 per bicycle would also be procured for the middle grade technical staff and the Junior staff respectively. 3 x 17 - footer patrol boats with outboard motors would also be provided at an estimated cost of US $ 15,000 per boat totalling US $ 45,000. The boats would not be used only for patrol duty but also for ferrying tourists around the lake. The total cost of additional vehicles is estimated at US $ 408,000 as detailed in table 14

4.2.2 Other Equipment

- Communication Equipment

Present situation and needs assessments
The installation of Motorola at the Park HQ at Atebubu has improved communication link between the park HQ and Accra and the other protected areas. However, it is essential to have a radio network between range camps and the park HQ.

Proposed Development

Priority Action

An intra - park radio communication network connecting all ranges and camps would be established at an estimated cost of US $26,500 using Radio VHF/HF Equipment including mobiles.

- Field Equipment

Present Situation And Needs Assessment
Field equipment had been supplied in the past through the normal budgetary allocation (FEA) however, supplied had been insufficient and inconsistent due to inadequacy of the votes. Since 1990 when WD started benefiting from FRMP funding, supply of field equipment improved significantly as uniform were supplied twice annually and other field equipment and maintenance tools about once every four years.

Proposed Development

Priority Actions

A 5 year supply budget for uniform at an estimated cost of US$57,600 and field equipment as estimated cost of US$36,000 would be provided.

Development Programme

To continue with the consistency of supply, a 10 -year supply budget for uniform estimated at US $225,000 would be provided and estimated amounts of US$ 34,900 and US $3,000 provided for the supply of field equipment and maintenance tools respectively as retailed in tables 12 and 14.

Office Equipment

Present Situation And Needs Assessment

Formally the administrative office of DNP use to be housed in a rented private house but now it is housed in a building provided by the District Assembly in 1995. The Office comprises three rooms and a store. The equipment presently available in the office are as shown in table 11.

Table 11: Present Office Equipment at Digya National Park and Approximate Year of Supply

Equipment	Type	Qty.	Approx. Year of Supply	Source	Remarks
Furniture	Table	7	1989	WD	From MNP
	Chair	5	1989	WD	From MNP
	Arm-Chairs	3	1989	WD	From MNP
File Cabinet	Metal	4	1992	FRMP	
Typewriter	Mechanical	3	1992	FRMP	Only one serviceable
Office Safe		2	1989	WD	From MNP

The above equipment are obsolete and should be replaced with more modern equipment for the efficient functioning of the administrative setup.

Proposed Development

Priority Actions

A 100KVA electric generator a computer with software, Laser printer, a universal power stabiliser, a facsimile unite, Modem, a photocopier, and an office safe would be provided for the new office to be developed at Kwame Danso at an estimated cost of US $ 17,400 as detailed in tables 12,13

Education (Outreach) Equipment

Present situation and needs assessment.
Digya National Park, no doubt, has enormous potential for tourism based on its interesting features and lake facilities for recreation. The present elephant population in the park is high enough to warrant conservation and tourist a interest. The presence of manatee calls for urgent conservation measures to save them. All this necessitates a vigorous outreach programme to be directed towards the local communities and visitors to the park.

Proposed Development

Development Programme

Audio-visual equipment namely a video camera, video editing equipment, video (VTR) video screen and 35 mm SLR still Camera with telephoto lenses estimated to cost US $ 7,300 would be procured.
An amount of US $ 27,000 has also been estimated for the publishing of guide books brochures, posters and the provision of display cabinets. The details of these costs are provided in table 14.

4. 3 OPERATIONS AND MAINTENANCE

4. 3.1 Vehicles, Plant And Equipment

Present situation and needs assessment.
The funds for recurrent expenditure, which includes, operations and maintenance of vehicles, plants and equipment for DNP are provided by Government via Financial Encumbrance Adjustments (FEAs). However the funds are grossly inadequate. For the efficient running of DNP, the range of vehicles, plants and equipment presently available and those planned for acquisition will be required to be regularly maintained on regular service schedules.

Proposed Development

Priority Actions

A 5-year operations and maintenance budget has been worked out for new vehicles, plants and equipment to be purchased, the old existing vehicles and provision of stationery, all at a total estimated cost of US $ 130,500 as detailed in table 12 & 13.

Development Programme

As later development, a 5-year operations and maintenance budget has been drawn for the park's vehicles and plants totalling US $ 410,000 as detailed in table 14.

4. 3.2 Roads and Buildings

Present Situation and Needs Assessment.
Presently, there are no roads in DNP to be maintained. However, for the future maintenance of the new roads envisaged for the park, it is considered cost effective to institute a road maintenance unit to be equipped with the array of road maintenance tools to be procured and provided with other necessary logistics. The unit will be tasked with the routine maintenance of the park's roads as well as the construction of new ones where feasible. The new buildings envisaged to be constructed in the park would have to be maintained on regular basis.

Proposed Development

Development Programme

A 5-year budget for on amount of US $ 75,000 has been estimated for the maintenance of the roads and buildings to be developed in the park as detailed in table 14.

4.4 TECHNICAL ASSISTANCE AND SUPPORT SERVICES

Present Situation and Needs Assessment.
There has been very little formal conservation education with the resultant general lack of knowledge as to the purpose of the park's creation. There is, therefore, lack of appreciation for the park. This lack of appreciation could be due to the fact that the first users of the land were hunters who operated without restraint. The farming and fishing communities see the reservation of the park as an obstacle to their aspirations. Efforts were made in the past to evacuate the settler farming and fishing communities from the park. However, the efforts were not sustained as approximately 70% of the communities that were ejected returned to settle in the park. There is, therefore, a major resettlement problem to be solved for DNP before any meaningful conservation programme can be embarked on in the park.

Meanwhile, in general, the relationship between WD field staff and local communities around the park is reasonably cordial. There is, however, on doubt that WD staff are still viewed with suspicion and mistrust by the local people resulting in persistent conflicts between them and the staff over law enforcement and illegal exploitation of the parks resources.

On the other hand, there is now the recognition for the need of local communities living close to Protected areas to be involved in their Management and development. This participatory approach has been adopted world-wide in recognition of the fact the support and co-operation of local people are critical for the combined survival of Protected areas and DNP is no exception.

In order to achieve the above, the following strategies would be adopted:

(i) Consultations with the local people would be held to expel the suspicion and mistrust they have harboured over the years for contemporary PA Management systems. This is to win their support and full co-operation for the new approach envisaged for the running of DNP.

(ii) Help solve conservation problems of the local communities around the park and help bring their perspectives unto the new Management approach.

(iii) Assist in the formation of Community Conservation groups or Committees (CCC) in the local communities.

(iv) Organise the training of interested local people in appropriate technologies e.g. Bee Keeping, (small mammal breeding) for example cane rat etc.

(v) Assist the local communities to identify and initiate community conservation programme for instance, community wildlife management as proposed in the DNP management plan.

(vi) Assist the local communities to identify alternative Economic bases within their localities and help to develop them.

(vii) Assist community elders and leaders to identify important sacred and historical sites within DNP, for a example, the Nsogyanafo shrine (Kafrimosia). These sites may eventually be developed in accordance with their traditional values for tourism where permissible.

The above are but some of the additional and essential responsibilities that confront DNP management with the anticipated new management system. On the other hand, the staff presently at post lack the required expertise to handle these new responsibilities. Two senior technical staff need to be appointed as community liaison officers to be trained to enable them to serve as a link between WD and the communities. There is, therefore, a clear need for a well qualified professional, preferably, an Interpretative Technical Adviser who would not only handle and advise on the new area of community conservation (CC) but also address responsibility of the interpretative problem identified for DNP and most important of all train suitable staff on the job who would eventually take over.

Considering the magnitude of the responsibilities envisaged for the (CC) initiative at DNP, an NGO input to handle some aspects of the strategies to be adopted is considered imperative.

The formation of a Management Advisory Board (MAB) is important if (CC) is to successfully take off at DNP. Consequently, MAB headed by the Senior Wildlife Officer in charge needs to be convened with the district assembly, traditional authorities and representatives from community conservation communities (CCC) as members. The main functions of the Board, among other things, will be to assist with the implementation of the management of DNP, catalyse local conservation initiatives, oversee protection of cultural sites and allocate limited rights to the local communities for the use of the botanical resources of the Park.

Proposed Development

Development Programme

In respect of the development of (CC) initiatives at DNP and to address the need for a Technical Advisor, the following actions need to be taken as a matter of priority:

Contracting a well qualified Technical Advisor / Volunteer for a limited period of time to advise on the (CC) initiative in DNP, handle the interpretative problem, and most important of all train suitable staff on the job. An amount of US$15,000 for a 5-year period has been budgeted for such a TA.

Contracting a minimum of two NGOs to among other things, tackle strategies (i) to (vi) identified in section 4.1.4 (a) above for a period of 5 years for which an amount of US$100,000 have been budgeted.

Formation of MAB and CCC as important pre-requisites for the successful take off of (CC) at DNP. An amount of US$50,000 has been budgeted for a period of 5 years to cater for administrative requirements, logistics etc. that are inevitable for the convening of meetings and formation of bodies of this nature.

The Liaison officers that would be appointed have a crucial role to play at the initial stages or the teething period of (CC) at DNP. A budget of US$50,000 has, therefore, been provided to cater for allowances training and other logistics support for their operations.

Later as the strategies identified in paragraph 4.1.4 (a) above are being developed, funds have to be provided to finance any alternative income generating activity that would be identified in the local communities.
This is considered extremely important to further consolidate their trust and co-operation in the (CC) initiative.

An amount of US$250,000 for a 5- year period has been budgeted for to finance any such viable project (s) where possible and feasible.

Details of the costing of the TA / Support Services are given in tables 12 ,&14

Table 12: Digya National Park - Summary Budget

ITEM	CORE BUDGET			FULL IMPLEMENTATION COST
	NRMP. GENERAL US $	NRMP SITE US $	TOTAL US$	US $
INFRASTRUCTURE (CIVIL WORKS)				
Road Network (including Culverts,				
Parking Area etc.)		125,000	125,000	3,300,000
Boundary Demarcation		12,000	12,000	7,600
Staff Accommodation		190,000	190,000	1,790,000
Visitor Facilities (Walking Trials				
Camp sites, Observation Hides etc..)		6,000	6,000	198,700
Other Developments (Water supply etc.)		40,000	40,000	180,150
Sub-Total		**373,000**	**373000**	**5,476,450**
EQUIPMENT				
Vehicles	107,000		107,000	363,000
Motor Boats	14,000		14,000	45,000
Sub-Total	**121000**		**121000**	**408,000**
Other Equipment				
Communication Equipment	6,000		6,000	30,500
Field Equipment(Incl. Uniform, Maint. Tools)	94,200		94,200	262,900
Office Equipment(Incl. Stationery)	21,400		21,400	8,150
Education (Outreach) Equipment				34,300
Scientific Equipment				3,000
Sub-Total	**121600**		**121600**	**338,850**
OPERATIONS & MAINTENANCE				
(5-Year Budget)				
Vehicles, Plant and Equipment	166,500		166,500	258,500
Buildings, Roads etc.	75,000		75,000	317,500
Sub-Total	**241500**		**241500**	**576,000**
TECHNICAL ASSISTANCE AND				
SUPPORT SERVICES				
(5-Year Budget)				
Technical Advisor				25,000
NGO				50,000
MAB and CCC				25,000
Liaison Officers				30,000
Pilot Projects				150,000
Sub-Total				**280,000**
TOTAL	**484.1**	**373,000**	**857.1**	**7,059,800**

Table 13: Digya National Park : Management Plan Implementation - Detailed Cost of Priority Items (US 000)

ITEM	UNIT	QUANTITY 1998	1999	2000	2001	2002	2003	TOTAL	UNIT	BASE COST 1998	1999	2000	2001	2002	2003	TOTAL
INVESTMENT COSTS																
INFRASTRUCTURE																
Renovate existing facilities at Apapaso	Lsum				0.5	0.5		1	50.0				25	25		50.0
New Park Offices & Stores at Kwame Danso	m²				300			300	0.3				90.0			90.0
Dome-Apapaso- Nkaneku-Abomasu (Road)	Km		25	16.6	8.4			50	2.5		62.5	41.5	21			125.0
Water Supply (Boreholes)	Lsum		1		1			2	20		20.0		20.0			40.0
Boundary Demarcation / Pillaring	km		20	20	20			60	0.2		4.0	4.0	4.0			12.0
Signage	Lsum				0.5	0.5		1	5.0				2.5	2.5		5.0
Weather Station	No		1					1	1.0		1.0					1.0
Staff Accommodation (Middle Grade Qtrs.)	No		1					1	20		20					20.0
Staff Accommodation (Junior Staff Qtrs.)	No			2				2	15			30				30.0
Sub-Total											107.5	75.5	162.5	27.5		373
EQUIPMENT																
Vehicles																
4WD (4 Door)	No		1					1	20		20.0					20.0
4WD (Double Cabin Pickup)	No		1					1	15		15.0					15.0
Tractor with Trailer	No		1					1	30		30.0					30.0
Tractor Accessories (Incl., Scraper	No		1					1	10		10.0					10.0
Towing Boswer	No		1					1	5		5.0					5.0
Motor Boat with fibreglass hull	No			1				1	6			6				6.0
Motor Boat (25hp Outboard Motor)	No			1				1	8			8				8.0
Motor Bikes	No		5					5	3		15					15.0
Bicycles	No		40					40	0.3		12					12.0
Sub-Total											107.0	14				121.0
Other Equipment																
Communication Equipment																
Radio VHF/HE Mobiles	No		10					10	0.6		6					6
											6					**6**
Field Equipment																
Field Set (Bed, Rucksack, Net,																
Water bottle, Eating Utensils, etc.)	set		120					120	0.15		18.0					18.0
Camp Cookers	No		10					10	0.03		3.0					3.0
First - Aid Boxes	No		10					10	0.1		1.0					1.0
Anti-Snake Serum Kit	set		6					6	0.1		0.6					0.6
Chain saw	No		1					1	1.5		1.5					1.5
GPS	No		2					2	0.2		0.4					0.4
Binoculars	No		10					10	0.2		2.0					2.0
Prismatic Compass	No		3					3	0.04		0.12					0.12
Tents	No		6					6	0.3		1.8					1.8
Water Filters	No		6					6	0.015		0.09					0.09
Fire Extinguishers	No		2					2	0.06		0.12					0.12
Solar Lighting System	No		4					4	2		8.0					8
Sub-Total											**36.6**					**36.6**
Uniform	set	150	150	150	150	150	150	900	0.025	3.75	3.75	3.75	3.75	3.75	3.75	22.5
Boots	pairs	120	120	120	120	120	120	720	0.03	3.6	3.6	3.6	3.6	3.6	3.6	21.6
Belt, Berets	set	50	50	50	50	50	50	300	0.045	2.25	2.25	2.25	2.25	2.25	2.25	13.5
Sub-Total										**9.6**	**9.6**	**9.6**	**9.6**	**9.6**	**9.6**	**57.6**
Office Equipment																
Generator (100 kva)	No				1			1	5				5			5.0
Computer Incl., Software)	No				1			1	3.5				3.5			3.5
Laser Printer	No				1			1	1				1.0			1.0
Universal Power Stabilizer	No				1			1	0.5				0.5			0.5
Photocopier (Small)	No				1			1	2.0				2.0			2.0
Modem	No				1			1	0.5				0.5			0.5
Facsimile Unit	No				1			1	0.75				0.75			0.75
Office Furniture	No				1			1	4.0				4			4.0
Office Safe	No				1			1	0.15				0.15			0.15
Sub-Total													**17.40**			**17.40**
OPERATIONS AND MAINTENANCE																
Stationery	Year		1	1	1	1	1	5	0.8		0.8	0.8	0.8	0.8	0.8	4.0
											0.8	**0.8**	**0.8**	**0.8**	**0.8**	**4.0**
Equipment																
Vehicles																
Motor Boat x 2	Year		1	1	1	1	1	5	3.0		6.0	6.0	6.0	6.0	6.0	30.0
4WD (4 - Door) x 1	Year		1	1	1	1	1	5	2.5		2.5	2.5	2.5	2.5	2.5	12.50
4 WD(Double -Cabin Pick-up x 3	Year		1	1	1	1	1	5	2.5		7.5	7.5	7.5	7.5	7.5	37.50
Tractor with Trailer x 2	Year		1	1	1	1	1	5	3.5		7.0	7.0	7.0	7.0	7.0	35.0
Towing Bowser x 1	Year		1	1	1	1	1	5	1		1.0	1.0	1.0	1.0	1.0	5.0
Sub-Total											**24.0**	**24.0**	**24.0**	**24.0**	**24.0**	**120**
Other Equipment																
Communication Equipment																
Radio VHF/HF Mobiles x 10	Year		1	1	1	1	1	5	0.2		2.0	2.0	2.0	2.0	2.0	10
Sub-Total											**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**10**
Office Equipment																
Generator (100 x KVA X) 1	Year		1	1	1	1	1	5	3.6		3.6	3.6	3.6	3.6	3.6	18
Computer Incl., (soft Ware)	Year		1	1	1	1	1	5	0.5		0.5	0.5	0.5	0.5	0.5	2.5
Laser Printer	Year		1	1	1	1	1	5	0.5		0.5	0.5	0.5	0.5	0.5	2.5
Universal Power Stabilizer	Year		1	1	1	1	1	5	0.4		0.4	0.4	0.4	0.4	0.4	2.0
Photocopier (Small)	Year		1	1	1	1	1	5	0.4		0.4	0.4	0.4	0.4	0.4	2.0
Modem	Year		1	1	1	1	1	5	0.3		0.3	0.3	0.3	0.3	0.3	1.5
Facsimile Unit	Year		1	1	1	1	1	5	0.3		0.3	0.3	0.3	0.3	0.3	1.5
Office furniture	Year		1	1	1	1	1	5	1.0		1.0	1.0	1.0	1.0	1.0	5.0
Office Safe	Year		1	1	1	1	1	5	0.3		0.3	0.3	0.3	0.3	0.3	1.5
Sub-Total											**7.3**	**7.3**	**7.3**	**7.3**	**7.3**	**36.5**
Maintenance of Buildings	Year		1	1	1	1	1	5	5		**5**	**5**	**5**	**5**	**5**	**25**
Maintenance of Roads	Year		1	1	1	1	1	5	10		**10**	**10**	**10**	**10**	**10**	**50**
Total																**857.1**

Table 14: Digya National Park -Management Plan Implementation Cost of Full Programme

ITEM	EXPEND TYPE	LOCATION	UNIT	UNIT COST US $	QUANTITY	TOTAL AMOUNT
ROADS						
Periphery road	CW	Hiamankyene-Obosum river	km	10,000	44	440,000
Circulatory Roads	CW	Saabuso-Apapaso	km	9,000	10	90,000
	CW	Zikpo - Kubekrom	km	10,000	25	250,000
	CW	Kubekrom - Apapasu	km	10,000	36	360,000
	CW	Apapasu - Dome	km	10,000	20	200,000
	CW	Kubekrom - Dome	km	10,000	40	400,000
	CW	Dome - Hiamankyene	km	10,000	10	100,000
	CW	Dome - Apapasu / Kubekrom Junction	km	10,000	12	120,000
	CW	Apapasu -Kubekrom Junction - Hwanyanso		10,000	25	250,000
	CW	Kubekrom - Apesika	km	10,000	26	260,000
	CW	Zikpo - Kubekrom / Apesika Junction	km	10,000	48	480,000
Sub - Total						2,950,000
Culverts (600mm diam culverts)	CW	Zikpo - Dome	mrun	500	200	100,000
Sub - Total						100,000
Bridge (Bailey)	CW	Selected points	mspan	2,500	100	250,000
Trails	CW	Zikpo Range	km	480	85	40,800
	CW	Dome Range	km	480	25	12,000
Sub - Total						302,800
Boundary Demarcation						
Pillaring	CW	Hwanyanso - Hiamankyene	km	100	56	5,600
GPS	EQ	Park HQ.	Lsum	450	2	900
Signage	CW	Hwanyanso - Hiamankyene	No.	100	20	2,000
Signage	CW	Directional Signs within Park	No.	50	80	4,000
Sub - Total						12,500
Buildings						
Range Camp - New						
Bungalow Senior	CW	Range HQ. Dome, Apesika, Zikpo, Hwanyanso	No.	40,000	4	160,000
Middle Grade	CW	Range HQ. Dome, Apesika, Zikpo, Hwanyanso	No.	20,000	4	80,000
Junior Staff Accommodation	CW	Range HQ. Dome, Apesika, Zikpo, Hwanyanso	No.	15,000	48	720,000
Provision for Water	CW	Range HQ. Dome, Apesika, Zikpo, Hwanyanso	No.	25,000	4	100,000
Provision for Electricity	CW	Range HQ. Dome, Apesika, Zikpo, Hwanyanso	No.	25,000	4	100,000
Range Office & Store	CW	Range HQ. Dome, Apesika, Zikpo, Hwanyanso	m^2	300	150 x 4	180,000
Sub - Total						1,340,000
Park HQ. - New						
Bungalow Senior	CW	Park HQ. (Kwame Danso)	No.	40,000	1	40,000
Middle Grade	CW	Park HQ. (Kwame Danso)	No.	20,000	2	40,000
Junior Staff Accommodation	CW	Park HQ. (Kwame Danso)	No.	15,000	12	180,000
Provision for Water	CW	Park HQ. (Kwame Danso)	Lsum	25,000	1	25,000
Provision for Electricity	CW	Park HQ. (Kwame Danso)	Lsum	25,000	1	25,000
New Park HQ. Office & Stores	CW	Park HQ. (Kwame Danso)	m^2	300	300,000	90,000
Sub - Total						400,000
Renovation of facilities at Apapaso	CW	Apapaso	Lsum	50,000	1	50,000
Visitor Centre/Souvenir Shops	CW	Zikpo	m^2	350	80	28,000
Visitor Centre/Souvenir Shops	CW	Dome	m^2	350	80	28,000
Sub - Total						106,000
Visitor Accommodation (Low Cost)	CW	Nkaneku, Zikpo, Dome	Lsum	6,500	3	19,500
Entrance Gate	CW	Zikpo	m^2	350	80	28,000
Entrance Gate	CW	Dome	m^2	350	80	28,000
Camp sites	CW	Selected points	m^2	1	3600 x 3	5,400
Observation hides (Using local Materials)	CW	Selected Strategic Points	Lsum	500	10	5,000
Sub - Total						66,400
Water						
Water Purification Plant	EQ	Park HQ. and Ranges	Lsum	30,000	5	150,000
Borehole Pumps	EQ	Park HQ., Apapaso & Ranges	Lsum	900	6	5,400
Water Storage Tanks (1000 Litres)	EQ	Park HQ. and Ranges	No.	450	15	6,750
Water Supply Pump	EQ	Selected points	No.	6,000	3	18,000
Sub - Total						180,150
Equipment						
Weather Station	EQ	Selected points	No.	1,500	2	3,000
Sub - Total						3,000
Office Equipment						
Computer (Incl., Printer & Software)	EQ	Park HQ.	No.	4,500	1	4,500
Universal Power Stabilizer	EQ	Park HQ.	No.	600	1	600
Photocopier	EQ	Park HQ.	No.	1,800	1	1,800
Facsimile	EQ	Park HQ.	No.	850	1	850
Office Safe (Small)	EQ	Park HQ.	No.	200	2	400
Sub - Total						8,150
Field Equipment						
Tent (2-man)	EQ	Park HQ/Ranges	No.	150	25	3,750
Tent (4-man)	EQ	Park HQ/Ranges	No.	200	10	2,000
Water bottle	EQ	Park Staff	No.	10	150	1,500
Rucksack	EQ	Park Staff	No.	35	150	5,250
Mosquito net	EQ	Park Staff	No.	25	150	3,750
Water filter	EQ	Park Staff	No.	20	150	3,000
Torch	EQ	Park Staff	No.	10	150	1,500
Binoculars	EQ	Park HQ/Ranges	No.	200	5	1,000

Night Sight Binoculars	EQ	Park HQ/Ranges	No.	800	5	4,000
Prismatic Compass	EQ	Park HQ/Ranges	No.	80	5	400
Pedometer	EQ	Park HQ/Ranges	No.	50	30	1,500
GPS	EQ	Park HQ / Ranges	No.	750	5	3,750
Camp Cooker and Eating Utensils	EQ	Park HQ / Ranges	Set	300	5	1,500
Chain saw	EQ	Park HQ / Ranges	No.	150	5	750
First Aid Box	EQ	Park HQ / Ranges	Set	50	5	250
Snake Serum Kit	EQ	Park HQ / Ranges	Set	200	5	1,000
Sub - Total						**34,900**
Maintenance Tools	EQ	Park HQ, Ranges	Lsum	20	150	3,000
Uniform	UF	Park HQ, Ranges	Lsum	150	1,500	225,000
Education (Outreach)						
Guide Books Publishing	EQ	Park HQ, Ranges	Lsum	10,000	1	10,000
Brochure Publishing	EQ	Park HQ, Ranges	Lsum	10,000	1	10,000
Posters	EQ	Park HQ, Ranges	Lsum	6,000	1	6,000
Display Cabinet	EQ	Park HQ, Ranges	No.	1,000	1	1,000
Sub - Total						**27,000**
Audio Visual Aids						
Video Camera	EQ	Park HQ,	No.	2,000	1	2,000
Video Editing Equipment	EQ	Park HQ,	No.	1,500	1	1,500
Video (VTR)	EQ	Park HQ,	No.	800	1	800
Video Screen	EQ	Park HQ,	No.	1,500	1	1,500
35mm SLR still Camera / Telephoto Lens	EQ	Park HQ,	No.	1,500	1	1,500
Sub - Total						**7,300**
Communication Equipment						
Intra-Park Radio						
Radio VHF/HF Equipment Park HQ (Base)	EQ	Park HQ,	No.	4,500	1	4,500
Radio VHF/HF Equipment Range HQ (Base)	EQ	Range HQ,	No.	2,500	4	10,000

Radio VHF/HF Equipment (Mobiles)	EQ	Field Staff	No.	1,000	10	10,000
Radio VHF/HF Equipment (Vehicle Mounted)	EQ	Park HQ, and Range	No.	1,500	4	6,000
Sub - Total						**30,500**
Vehicles						
4 WD Tractor	VE	Range Hq, (Dome zikpo, Hwanyaso, Aperka)	No.	30,000	4	120,000
4WD Pickup (4 Door)	VE	Range HQ, (Zikpo)	No.	35,000	3	105,000
4WD Station Wagon	VE	Park HQ, (Kwame Danso)	No.	40,000	1	40,000
Motor cycles	VE	Range HQ, (Dome)	No.	4,000	5	20,000
Bicycles	VE	Range HQ, (Zikpo)	No.	80	100	8,000
Boat and Outboard	VE	Park HQ, (Kwame Danso)	No.	15,000	3	45,000
4 WD Tractor with (scraper, auger backhoe and trailer)	VE	Park HQ, (Kwame Danso)	No.	35,000	1	35,000
1WD Pickup (4 Door)	VE	Park HQ, (Kwame Danso)	No.	35,000	1	35,000
Sub - Total						**408,000**
OPERATION AND EQUIPMENT						
Vehicle/Plants/Equipment						
Tractor (4WD) X 4	OM	Park HQ,	Year	6,000	5	30,000
Vehicle (4WD) x 5	OM	Park HQ,	Year	5,000	5	25,000
Motor cycle x 5	OM	Park HQ/Ranges	Year	2,000	5	50,000
Bicycle x 100	OM	Park HQ/Ranges	Year	50	5	25,000
Boat & Outboard x 3	OM	Park HQ/Ranges	Year	6,000	5	90,000
Sub - Total						**220,000**
Maintenance of Buildings	MB	Park HQ,	Year	10,000	5	50,000
Maintenance of Buildings (4 Sites)	MB	4 Range HQ,	Year	5,000	5	125,000
Maintenance of Park HQ,	MB	Park HQ,	Year	7,500	5	37,500
Maintenance of Range HQ, Grounds	MB	Range HQ,		1,500	5	30,000
Maintenance of Roads	MR	Park HQ/Range HQ,	Year	15,000	5	75,000
COMMUNICATION EQUIPMENT						
Radio VHF/HF Equipmentx1	OM	Park HQ/Year	Year	500	5	2,500
Radio VHF/HF Equipment x 4	OM	Park HQ/Year	Year	500	5	12,500
Radio VHF/HF Equipment x 10	OM	Field Staff	Year	100	5	5,000
Radio VHF/HF Equipment x 4	OM	Vehicle	Year	300	5	6,000
Sub-Total						**26,000**
Office Equipment	OM	Park HQ,	Year	2,500	5	12,500
TECHNICAL ASSISTANCE AND SUPPORT SERVICES						
Technical Adviser	TA	Park HQ,	Year	5,000	5	25,000
NGO	TA	Park HQ, / Community	Year	10,000	5	50,000

MAB and CCC Support	MAB/CCC	Community	Year	5,000	5	25,000
Liaison Officers	TA	Community	Year	6,000	5	30,000
Pilot Projects	PP	Community	Year	30,000	5	150,000
Sub-Total						**280,000**
TOTAL						**7,060,700**