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COUNTY ASSEMBLY OF EMBU

SECOND ASSEMBLY- FIRST SESSION

REPORT OF THE COMMITTEE ON TRADE, TOURISM, INVESTMENTS AND INDUSTRIALIZATION ON STATUS OF MWEA NATIONAL GAME RESERVE AND MOUNT KENYA SOUTH EASTERN TOURISM ROUTE.

SUBMITTED TO THE COUNTY ASSEMBLY FOR APPROVAL

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OCTOBER, 2018

Clerk's Office
County Assembly of Embu
P.O BOX 140-60100
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ABBREVIATIONS AND ACRONYMS

1. A.D.P - Annual Development Plan
2. A.F.E.W - Africa Fund for Endangered Wildlife
3. C.A.E - County Assembly Of Embu
4. C.B.D - Central Business District
5. C.E.C.M - County Executive Committee Member
6. C.I.D.P - County Integrated Development Plan
7. C.O.K - Constitution of Kenya, 2010.
8. FY - Financial Year
9. I.F.A.C.O - Irangi Forest Community Association
10. K.W.S - Kenya Wildlife Services
11. KES - Kenya Shillings
12. M.C.C - Mbeere County Council
13. M.O.U - Memorandum of Understanding
14. S/O - Standing Orders

EXECUTIVE SUMMARY

The report of the committee on Trade, Tourism, Investments and Industrialization on the status of Mwea National Game Reserve and Mount Kenya South Eastern tourism route was born out of a tour done by this committee to establish the status of the reserves and Mount Kenya South Eastern tourism route.

The committee did two fact finding tours to Mwea National Game Reserve and Mount Kenya South Eastern tourism route held from 10th and 13th July 2018 respectively and came up with this report for tabling in the assembly. The recommendations therein will go a long way in boosting the operations of this department and make Embu County an important tourism destination in this region. In Embu County there are only six gazetted tourists attraction centres namely; Mwea National Game Reserve, Old provincial commissioner's house, Old provincial commissioners' servant quarters, The old armory, Mount Kenya National Game reserve and Maranga forest.

The committee resolved through its recommendations that the department of Trade and Tourism should develop good road networks as well as building camping sites in Mwea National Game Reserve and Mount Kenya South Eastern tourism route to be used by the tourists thereby of making them important tourists destinations. It was further recommended that department of Trade and Tourism should build animal sanctuaries in Mwea National Game Reserve for the visitors to be able to see animals at a close range. This will go a long way in improving tourists turnover and subsequently bring substantive amount of revenue to Embu County Government. It was further resolved by the committee that Embu County Government should market both Mwea National Game Reserve and Mount Kenya South Eastern tourism route. The marketing of Mwea National Game Reserve should be done both in the social media and also physically by way of erection good billboards branded by Embu County Government. The committee came up with a recommendation that Embu County Government should liaise with the department of Kenya Wildlife Services to renew the expired Memorandum of Understanding and develop a management plan for better operationalisation of the reserve. The committee further recommended that that CEC Member Trade and Tourism should liaise with

the Kenya Wildlife Services (Mwea National Game Reserve) to initiate Community Social Responsibility (CSR) projects in the neighboring community. The committee also visited Nairobi Animal Orphanage, Nairobi Safari Walk as well as Giraffe Centre for a comparison tour. The tour gave the committee a better understanding of how wild animals can be managed better in sanctuaries. Out of this comparison tour the committee recommended that the idea can be put into use in Mwea National Game Reserve as a way of improving tourists' turnover and subsequently revenue turnover.

1.0 BACKGROUND

This report is made by the Committee on Trade, Tourism, Investments and Industrialization after doing the fact-finding tour to Mwea National Game Reserve and Mount Kenya South Eastern tourism route held from 10th and 13th July 2018 respectively. During the budget making process for the FY 2018/2019, the department of Trade, Tourism, Investments and Industrialization was allocated three millions for enhancing service delivery in Mwea National Game Reserve and opening up of road net works in and outside the reserve. This occasioned the need for the committee to carry out a fact-finding tour of the two parks. The Mt. Kenya South Eastern tourism route is in Mt. Kenya National Park. The allocations made the committee want to know the current status of these two tourists' destinations. The two are part of major county projects under the department of Trade, Tourism Investments and Industrialization as outlined in The Embu County Annual Development Plan (ADP), 2017 and The Embu County Budget Estimates for FY 2018/2019.

The report aims at establishing the status of the two tourism attraction destinations in Embu County. The committee further took note of the fact that there has been limited allocation of funds to this department in the past Budget Appropriations estimates, something which raised concern from the committee.

Pursuant to Embu County Standing Order No. 204 which requires a sectoral committee to investigate and inquire into matters which are in line with the mandate of the committee, it became necessary for the committee to move with speed and give this matter the attention it deserved.

1.1 MANDATE OF THE COMMITTEES

The committee on Trade, Tourism and Industrialization has its mandate pursuant to Standing Order No 204(5) of Embu County Assembly which defines functions of the committee as being to;

- a) Investigate, inquire into and report on all matters relating to the mandate, management, activities, administration, operations and estimates of the assigned departments;
- b) Study the program and policy objectives of the departments and the effectiveness of implementation;
- c) Study and review all County legislation referred to it;
- d) Study, assess and analyze the relative sources of the department as measured by the results obtained as compared with the stated objectives.
- e) Investigate and inquire into all matters relating to the assigned departments as they may deem necessary, and as may be referred to them by the County Assembly.
- f) To vet and reports on all appointments where the constitution or any law requires the county assembly to approve , except those under Standing Order 185(committee on appointments) and,
- g) Make reports and recommendations to the County Assembly as often as possible including recommendations of proposed legislation.

1.2 THE COMMITTEE MEMBERSHIP.

The committee on Trade, Tourism Investments and Industrialization is comprised of the following members:

- | | | |
|---|---|---------------|
| 1. Hon. Masters Leonard Mwaniki Muriuki | - | Chairperson |
| 2. Hon. Steve Mugendi Munene | - | V/Chairperson |
| 3. Hon. Jane Ann Muthoni Murithi | - | Member |
| 4. Hon. Rose Ruguru Kinyua | - | Member |
| 5. Hon. Morris Muchiri Nyaga | - | Member |
| 6. Hon. Philip Kinyutu Nzangi | - | Member |
| 7. Hon. Paul Muchangi Njiru | - | Member |

1.3 PROBLEM STATEMENT

The committees undertook to investigate and enquire into the status of Mwea National Game Reserve and Mount Kenya South Eastern tourism route. This was done with an aim of coming up with a report with recommendations for adoption by the Assembly. The anticipated recommendations will be used to make the two tourist attraction sites more robust in generation of revenue for Embu County Government.

1.4 TOOLS OF REFERENCE

In the execution of their mandates, the committee was guided by the following provisions of Acts, Laws and documents;

- a) The Constitution of Kenya, (COK) 2010.
- b) The County Governments Act, 2012.
- c) The Approved Budget Estimates 2018/2019-June 2018
- d) The Embu County Integrated Development Plan(CIDP) 2013 - 2017
- e) The Embu County Assembly Standing Orders.
- f) Findings from Mwea, National Game Reserve, Mt. Kenya South Eastern route gate at Irangi.
- g) Submissions from the CEC Member Trade, Tourism, Investments and Industrialization.
- h) Copies of expired Memorandum of Understanding (M.O.U) between the defunct Mbeere County Council and Kenya Wildlife Services (KWS).
- i) Copies of Integrated Management Plan(IMP) for Mwea National Game Reserve and Adjacent areas.

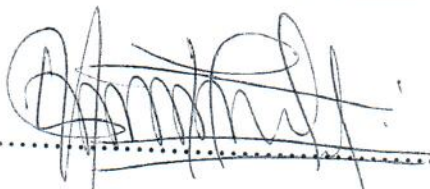
1.5 TERMS OF REFERENCE

To consider, interrogate and enquire into the status of Mwea National Game Reserve and Mount Kenya East Tourists Route and establish their status as envisaged in County Integrated Development Plan (CIDP) 2013 - 2017, Annual Development Plan, 2018 and the Budget Estimates for FY 2018/2019.

16 ACKNOWLEDGEMENT

The committee wishes to thank the office of the Speaker for according the committee appropriate guidance and support.

The committee also thanks the office of the Clerk for the facilitation in terms of materials; finance and advice which enabled the committee transact business and achieve its mandate. The committee finally thanks the members of the committee for the insights and able leadership offered. The committee further thanks the secretariat for the direction and the technical support offered throughout the working period.

Signed  Date 29th July 2018

HON. MASTERS LEONARD MWANIKI MURIUKI, MCA
CHAIRMAN, COMMITTEE ON TRADE, TOURISM INVESTMENTS AND
INDUSTRIALIZATION

2.0 COMMITTEE OBSERVATIONS

The Committee gathered its findings by way of conducting fact-finding visits to the two tourism destinations in Embu County namely Mwea National Game Reserve and Mt. Kenya South Eastern tourism route. The committee further carried out a comparative tour to Nairobi Animal Orphanage, Safari walk and Nairobi Giraffe Centre.

2.1 VISIT TO MWEA NATIONAL GAME RESERVE.

The committee visited Mwea National Game Reserve on 10th July 2018 and made several observations. The committee was received by the warden in charge of the reserve Mr. Mitau who responded to all matters raised by the committee. The warden in-charge of the reserve responded to all the questions asked by the members to their satisfaction. While engaging the warden regarding the status of the reserve, the committee was guided by a questionnaire developed for the purposes of ensuring orderliness in the investigations of the matter in reference.

The below questionnaire was used to gather findings during the two visits.

- i. What are the tourism activities carried out in the reserve.
- ii. How is the accessibility status to and inside the reserve.
- iii. What is the average tourists turnover for the last twelve months?
- iv. How many tourists attraction sites are found in the reserve.
- v. Has the county government done any marketing of the reserve? Whether physically, in the social media or otherwise?
- vi. How is the security of people visiting the reserve ensured?
- vii. What are some of the challenges which have hampered the smooth running of the reserve.
- viii. How is the local community involved in improving the activities offered in the reserve.
- ix. Are there any Community Social Responsibility (C.S.R) activities which the reserve has given the area residents.

Based on the above questionnaire and other matters which are incidental to this report, the committee observed the following:

1. THAT, in 1996, a Memorandum of Understanding for joint management of Mwea National Game Reserve was signed between KWS and Mbeere County Council, *vide Annexure 4 & 2 (pg 10)*
2. THAT, there is an Integrated Management Plan for Mwea National Reserve and Adjacent Areas which has never been renewed after the introduction of County Governments, *vide Annexure 2.*
3. THAT, the reserve had one camping site and a trail of scanty view points for the wild animals established along the access roads of the reserve.
4. THAT, on average the reserve had received two hundred visitors in the last twelve months.
5. THAT, the road network in the reserve was in a deplorable state, lacking connecting bridges/culverts and hanging bushes along the way. The committee took note of one bridge which had literally broken down making communication between two ridges in the reserve impossible.
6. THAT, the defunct Mbeere County Council (M.C.C) had initiated a roads construction project in the reserve which was not taken up by the county government, being its successor.
7. THAT, the County Government of Embu has not marketed the Game Reserve. There were no billboards by the county government along the roads leading to the reserve. There were only two old sign boards done by the KWS which not conspicuous.
8. THAT, the County Government had not erected billboards at Machang'a-Makima and Makima-Mburutani roads junctions as well as at the entrance to the reserve.
9. THAT, the reserve has started a number of Community Social Responsibility (CSR) activities to the community around. Among them was a borehole sank to serve both Mburutani and Namuri Primary Schools and construction of two classrooms in Namuri Primary School. These CSR activities were done during the tenure of the defunct Mbeere County Council.
10. THAT, occasionally the reserve management has been allowing the area residents to fetch grass for their animals especially during dry spells.

CHALLENGES FACED BY MWEA NATIONAL GAME RESERVE.

After the introduction of the County Governments Mwea National Game Reserve has been faced with challenges of management since the Memorandum of Understanding (M.O.U) which was there between the defunct Mbeere County Council and Kenya Wildlife Services (KWS).

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4. THAT, on average the reserve had received two hundred visitors in the last twelve months.
5. THAT, the road network in the reserve was in a deplorable state, lacking connecting bridges/culverts and hanging bushes along the way. The committee took note of one bridge which had literally broken down making communication between two ridges in the reserve impossible.
6. THAT, the defunct Mbeere County Council (M.C.C) had initiated a roads construction project in the reserve which was not taken up by the county government, being its successor.
7. THAT, the County Government of Embu has not marketed the Game Reserve. There were no billboards by the county government along the roads leading to the reserve. There were only two old sign boards done by the KWS which not conspicuous.
8. THAT, the County Government had not erected billboards at Machang'a-Makima and Makima-Mburutani roads junctions as well as at the entrance to the reserve.
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Another M.O.U is yet to be signed between Embu County Government and Kenya Wildlife Services.

2.2 TOUR OF MOUNT KENYA SOUTH EASTERN TOURISM ROUTE

The committee toured Mount Kenya South Eastern tourism route on 13th July 2018. During this fact-finding tour the committee was unable to gain entry into the park due to wet weather conditions which were prevailing in the area. Members were only able to go up to the entrance of Irangi forest gate. The committee had earlier been informed that the resident warden was on leave. However, upon contacting the forest officers from the department of Kenya Forests Research Institute (KEFRI) the officers agreed to meet the committee at Irangi forest gate offices. At Irangi gate (KEFRI Offices) the members were welcome by the chairperson of Irangi Forest Community Association (IFACO) Mr. John Murithi Nyaga and the manager of Mount Kenya East Forestry department M/S Nancy Gacharia. The officers assisted the committee in establishing the status of Mount Kenya South Eastern tourism route. It was established that this is one of the routes which are used to climb Mount Kenya by tourists. However the route has been dormant for a long time because the roads networks have never been developed. The committee was informed that most of the tourists who climb Mount Kenya have been mostly using Chogoria and Nanyuki routes because these routes have developed road networks.

The committee engaged the above mentioned officers and observed the following:

1. **THAT**, a feasibility study on, Climbing Mount Kenya From An Alternative Route - Embu, (South Eastern Tourism Route) and the mapping of the route done in 2009, *vide Annexure 3*(Pg 8).
2. **THAT** the route is managed by both Kenya Wildlife Services (KWS) and Kenya Forests Research Institute (KEFRI).
3. **THAT**, the route is not a major tourists entry point for climbing Mount Kenya since Kenya Forestry Department and Kenya Wildlife Services have not developed road network services into the park.
4. **THAT**, Mount Kenya South Eastern tourism route did not have a Management Plan. The department of Tourism is in the process of working on a feasibility study done by defunct Embu County Council so as to subsequently develop a Management Plan for the route. (*vide Annexure 3*).

Challenges of Nairobi Animal Orphanage

The committee interacted with the official tour guides and established the following as the main challenges.

1. Poachers
2. Noise from the neighboring Wilson Airport
3. Pollution of the ecosystem by the visiting tourists.
4. Lack of adequate funds from the both the National and Nairobi City County Governments, well-wishers and other sponsors.

NAIROBI SAFARI WALK

Nairobi Safari Walk is located close to Nairobi's Central Business District (CBD). It provides a scenic view of wild animals at close range. One is able to view a variety of wild animals while walking along clearly marked foot paths. The walk is a unique source of revenue from both the local and international visitors. Tourists have opportunity of viewing hundreds of species of animals such as pigmy hippos, ostriches, buffalos, black and white rhinos among others.

GIRAFFE CENTRE

The Nairobi Giraffe Centre was founded by the Africa Fund for Endangered Wildlife (A.F.E.W.). In Kenya the Centre was founded in 1979 by the late Jock Leslie-Melville, a Kenyan citizen of British descent, and his American-born wife, Betty Leslie-Melville. They began the Giraffe Centre after discovering the sad plight of the Rothschild Giraffe a subspecies of the giraffe found only in the grasslands of East Africa.

The Giraffe Centre has also become one of the world's most famous, Nature Education Centre, serving thousands of visitors from diverse parts of the world.

At the time, the animals had lost their habitat in Western Kenya, with only a hundred and thirty of them left on the eighteen thousands acre Soy Ranch that was being sub-divided to resettle squatters. Their first effort to save the subspecies was to bring two young giraffes, Daisy and Marlon, to their home in the Lang'ata suburb, southwest of Nairobi. Here they raised the calves and started a programme of breeding giraffe in captivity. This is where the centre remains to date.

Betty and Jock then registered A.F.E.W. in the United States. Funds were raised to move five other groups of giraffe to different safe areas. Breeding herds of twenty six giraffes were translocated from Soy Ranch to the Ruma Game Reserve in present-day Homa Bay County, Lake Nakuru National Park in Nakuru and Nasolot Game Reserve in modern-day West Pokot County. In 1985, seven giraffes were translocated and shared between Yoder Flower Farm in Mbeere District (currently Mbeere South sub county) and Mwea National Game Reserve in Eastern Kenya.

In 1983, funds raised by A.F.E.W. USA helped in building the Educational Centre on a 60-acre sanctuary. The Giraffe Centre opened its doors to the general public and students the same year, receiving over eight hundred students. There are now over three hundred Rothschild Giraffe safe and breeding well in various Kenyan national parks. Recent herds have been introduced to Soysambu Ranch, Lake Elementaita in the Great Rift Valley, Kigio Conservancy and the Sergoit Ranch in the Mount Elgon region. Upon touring the above mentioned three tourism sites the committee observed the following:

1. **THAT**, the Nairobi Animal Orphanage was managed by trained guards whereas Mwea National Game Reserve did not have trained guards.
2. **THAT**, the following animals were found in Nairobi Animal Orphanage and that they were all seen from a close range. The animals are namely crocodiles, buffalos, hyenas, zebras, giraffes, warthogs and Thomson gazelles.
3. **THAT**, Nairobi Animal Orphanage attracts an average of two thousands visitors per year who come from local and international destinations.
4. **THAT**, both Nairobi Animal Orphanage and Nairobi Safari Walk have sponsored education of pupils and students from the surrounding schools as one way of offering Community Social Responsibility (CSR) activities.
5. **THAT**, in Giraffe Centre, seven giraffes were translocated from the Centre and shared out to other locations as follows:
 - i. Two giraffes were translocated to Yoder Farm in Embu County, Mbeere South sub county.
 - ii. Five giraffes were translocated to Mwea National Game Reserve in Embu County, Mbeere South Sub County.

6. **THAT**, there were only ten (10) giraffes in giraffe centre which attracted an average of two hundred (200) tourists per day.

SUBMISSIONS BY THE CEC MEMBER TRADE, TOURISM, INVESTMENTS AND INDUSTRIALIZATION

The committee invited the CEC Member Trade, Tourism, Investments and Industrialization on 28th July 2018 in Nairobi to come and shed light on matters regarding Mwea National Reserve and Mt. Kenya South Eastern tourism route.

The CEC Member informed the committee that the department was in the process of signing a Memorandum of Understanding between Embu County Government and Kenya Wildlife Services since the old one expired (*Vide Annexure 4*). It was further submitted that plans were underway to construct animal sanctuaries whereby visitors will be able to see animals in sanctuaries. The CEC Member informed the committee that if this project kicks off as planned, then Mwea National Game Reserve will be a good source of revenue for Embu County.

3.0 COMMITTEE RECOMMENDATIONS

Upon consideration of the above observations, on the Mwea National Game Reserve, Mount Kenya South Eastern Tourism route, Nairobi Animal Orphanage and Giraffe Centre, the committee came up with the following recommendations.

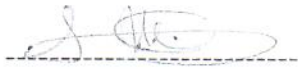
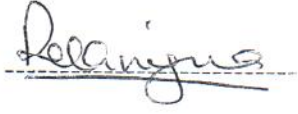
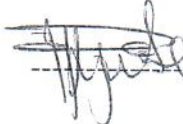
1. **THAT**, the CEC Member of Trade and Tourism should establish camping sites in Mwea National Game Reserve as way of making the reserve more attractive to visitors.
2. **THAT**, the CEC Member of Trade and Tourism should build animal sanctuaries in the reserve for the visitors to be able to see animals at a close range. This will improve tourists turnover and subsequently bring good revenue for Embu County Government.
3. **THAT**, the CEC Member of Trade and Tourism should come up with marketing strategies to market Mwea National Game Reserve and Mount Kenya South Eastern Tourism Route.

4. **THAT**, the CEC Member of Trade and Tourism should endeavor to make the roads leading to the reserve passable as well as open up all the road networks inside the reserve for the visitors to access various animal view points with ease.
5. **THAT**, the CEC Member for Trade Tourism Investments and Industrialization should fast track institution of a Memorandum of Understanding (M.O.U) between Embu County Government and Kenya Wildlife Services and a management plan for better operationalisation of the reserve.
6. **THAT**, the CEC Member Trade Tourism Investments and Industrialization should liaise with the management of Mwea National Game Reserve and start Community Social Responsibility (CSR) projects in the neighboring community.
7. **THAT**, the CEC Member Trade Tourism Investments and Industrialization should institute measures to ensure that Irangi, Thambana, Rwikithia, Kirimiri, and Rutune tourism routes are operational.

4.0 CONCLUSION AND ADOPTION OF THE REPORT

On behalf of the committees on Trade, Tourism Investments and Industrialization I hereby urge this honorable house to adopt this report and the recommendations therein.

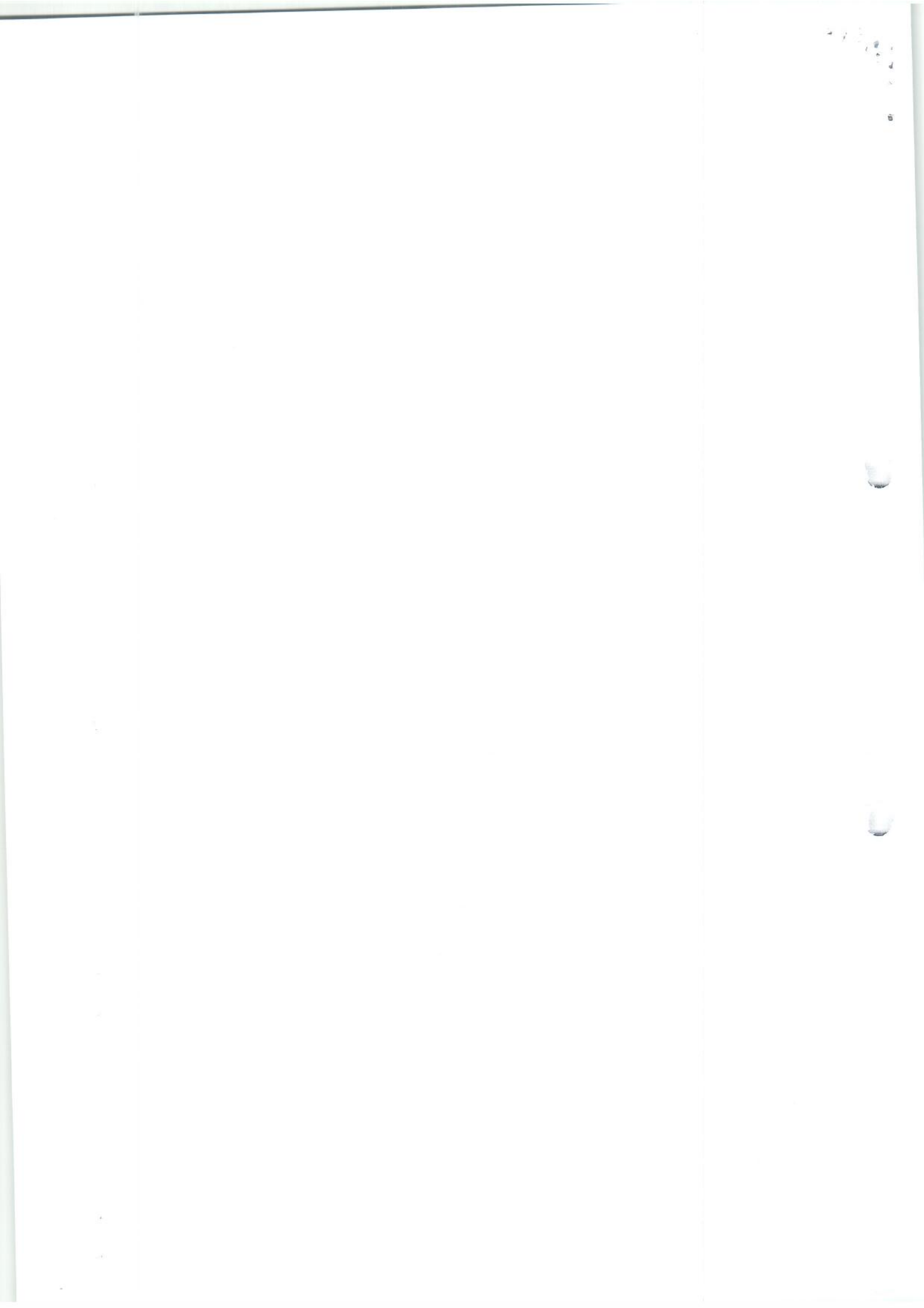
The recommendations of this report were agreed upon by the members without any dissenting opinion.

NAME		POSITION	SIGNATURE
1. Hon. Steve Mugendi Munene	-	V/Chairperson	
2. Hon. Jane Ann Muthoni Murithi	-	Member	-----
3. Hon. Rose Ruguru Kinyua	-	Member	
4. Hon. Morris Muchiri Nyaga	-	Member	-----
5. Hon. Philip Kinyutu Nzangi	-	Member	
6. Hon. Paul Muchangi Njiru	-	Member	-----

SIGNED: 

DATE: 29/7/2018

HON. MASTERS LEONARD MWANIKI MURIUKI, MCA
CHAIRMAN, COMMITTEE ON TRADE, TOURISM INVESTMENTS AND
INDUSTRIALIZATION



ANNEXURE #1



MEMORANDUM OF UNDERSTANDING

KENYA WILDLIFE SERVICE

AND

COUNTY COUNCIL OF MBEERÉ

COLLABORATION IN THE MANAGEMENT OF MWEA NATIONAL RESERVE

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter referred to as the "MOU") is made on the _____ day of _____ 2009 between-

- 1 Kenya Wildlife Service, a body corporate established under Section 3 of the Wildlife (Conservation and Management) Act, Cap 376 of the Laws of Kenya, of P.O Box 40241-00100, Nairobi (hereinafter referred to as "KWS"); and
- 2 The County Council of Mbeere, a local authority established under the provisions of the Local Government Act, Cap 265 of the Laws of Kenya, of P.O Box 202, Siakago (hereinafter referred to as the "Council").

WHEREAS -

- (a) By virtue of the aforesaid Wildlife (Conservation and Management) Act, KWS is vested with the statutory mandate of conserving and managing wildlife and enforcement of related laws and regulations in Kenya.
- (b) By virtue of the aforesaid Local Government Act, the Council holds Mwea National Reserve (the "Reserve") in trust for and administers it on behalf of the local community.
- (c) KWS and the Council are desirous of collaborating with respect to the professional management of Mwea National Reserve.
- (d) KWS and the Council have in the past collaborated in the management of the Reserve, and are committed to furthering and strengthening the said collaboration.
- (e) KWS and the Council have complementary skills, capacity and mandate that, when combined, form a powerful and winning force for the management of the Reserve.
- (f) KWS and the Council believe that a formal memorandum will provide the structure and basis for effective and efficient collaboration in the management of the Reserve.

NOW THIS MEMORANDUM WITNESSES AS FOLLOWS—

1 DEFINITIONS AND INTERPRETATION

In this Memorandum of Understanding, unless inconsistent with the context, or otherwise specified, the following words and phrases shall have the meanings set out below—

- 1.1 "Costs" means operational and management costs.
- 1.2 "Effective Date" means the date of this MOU.
- 1.3 "MOU" means this memorandum of understanding as amended or modified from time to time by the mutual consent of the parties in accordance with the procedure contained in clause 19.
- 1.4 "Revenue" means gate collection, camping fees, guiding fees, security fees, boat excursion fees, filming fees and proceeds from sale of merchandise including maps and guide books.
- 1.5 "Term" means the period of three (3) years commencing on the Effective Date, and includes any period of the Term where the Term shall determine otherwise than by effluxion of time.
- 1.6 Any reference in this MOU to a party shall mean either the Council or KWS, and any such reference to parties shall, as the case may be, mean all or any of them.
- 1.7 The headings in this MOU are inserted for ease of reference only and shall not be taken into account in the construction or interpretation of any provision to which they refer.
- 1.8 Words importing the singular number shall include the plural and *vice versa*, and words importing the masculine shall include the feminine and neuter and *vice versa*.
- 1.9 The recitals in this MOU and appearing as part of this MOU form part of and shall be deemed to be incorporated in this MOU.
- 1.10 References to clauses and sub-clauses are to clauses and sub-clauses of this MOU, and the words "hereunder", "hereof", "hereto", "herein", and words of similar meaning, shall be deemed to be references to this MOU as a whole and not to any particular clause of this MOU.

NOW THEREFORE KWS and the Council agree to enter into this Memorandum of Understanding for the term hereinafter defined and subject to the covenants and obligations hereinafter contained.

2 MAIN PURPOSE OF COLLABORATION

The purpose of this MOU is to provide a framework for collaboration between KWS and the Council to bring about effective and efficient management of the Reserve, especially in the following aspects:

- 2.1 General Management of the Reserve.
- 2.2 Financial Management of the Reserve.
- 2.3 Management of infrastructure within the Reserve.
- 2.4 Wildlife Conservation and research in the Reserve.
- 2.5 Community Conservation related work.
- 2.6 Tourism Development.

3 OBLIGATIONS OF BOTH PARTIES

Both parties to this MOU agree to:

- 3.1 Nominate a responsible officer from each party, who will be the focal point for all communication, collaboration and relevant action concerning the fulfillment of obligations under this MOU subject to clause 22.
- 3.2 Put in place a Reserve Management Advisory Committee which shall consist of three (3) officers from KWS and four (4) from the Council. The committee may co-opt members from other stakeholders whenever the need arises.
- 3.3 Collect revenue accruing from the reserve and account for such revenue subject to the provisions of clause 6.
- 3.4 Review the management plan for the reserve and implement the same.
- 3.5 Take responsibility for the implementation of those activities for which it is assigned responsibility in accordance with the defined timeframe.
- 3.6 Meet once a year to review progress under this MOU and to define the specific obligations, inputs and activities to be delivered by each of the parties in the following year. The parties will alternately take the lead in convening these meetings.
- 3.7 Inform and consult with one another on any activities that they plan to undertake, or of which they are aware, that are outside the scope of or not included in the management plan.

- 3.8 Maintain proper records and books of accounts of all revenues and expenditure pertaining to the Reserve, and make summaries of this information available to the other party.
- 3.9 Promote harmonious cooperation with one another in the management of the Reserve and facilitate coordination and collaboration amongst all stakeholders in the Reserve.

OBLIGATIONS OF KWS

KWS agrees to:

- 4.1 Take lead responsibility in the management and monitoring of the Reserve's ecological systems, habitats and species.
- 4.2 Build capacity of the Council to manage the Reserve by supporting the Council with training of Council security rangers and wardens.
- 4.3 Promote and, where feasible, assist with the development of tourism activities in the Reserve in order to improve tourism revenues and to enhance the conservation and effective management of the Reserve.
- 4.4 Negotiate agreements for leases, franchises and other contracts with intending investors with respect to the Reserve, subject to the approval of the Council.
- 4.5 Promote good relations with the communities surrounding the Reserve, including enhancing community benefits from the Reserve, mitigating human-wildlife conflicts, providing employment opportunities where appropriate, supporting social projects that enhance community livelihoods and raising awareness about the Reserve's purpose and values.

OBLIGATIONS OF THE COUNCIL

The Council agrees to:

- 5.1 Support KWS in the general management of the Reserve.
- 5.2 Establish a Wildlife Conservation sub-committee of the Council, which shall be responsible for steering the Council's management activities in the Reserve and for supporting conservation initiatives both within and outside the Reserve.

- 5.3 Make financial provisions in annual budgets for carrying out improvements and maintenance to the roads and other infrastructure in the Reserve, within the constraints of available finances.
- 5.4 Post rangers within the Reserve with the responsibility for law enforcement and enhancing security in the Reserve.
- 5.5 Post wardens within the Reserve with the responsibility of managing the Reserve and taking over the day to day running of the reserve.
- 5.6 In collaboration with KWS law enforcement and security officers, raise awareness of and promote the importance of the Reserve with the relevant communities.
- 5.7 Discourage and take measures to prevent the encroachment of livestock, settlement and/or agriculture into any part of the Reserve, especially by the communities living within the Council's jurisdiction.
- 5.8 Develop land-use plans that will promote the conservation of wildlife, facilitate the continued movement of wildlife along wildlife corridors, and enhance the sustainable use of natural resources.
- 5.9 Implement development projects within its jurisdiction such as development and maintenance of access roads and protection of rivers from depletion and pollution.

6 REVENUE SHARING

- 6.1 The parties shall open a joint revenue account in which the revenue accruing from the Reserve shall be banked intact. Each party shall nominate a signatory to this account.
- 6.2 The revenue shall be shared on a quarterly basis between the parties without deductions of any costs whatsoever according to the ratios shown below;
 - (a) 1st year - Council 50% and KWS 50%
 - (b) 2nd year - Council 60% and KWS 40%
 - (c) 3rd year - Council 70% and KWS 30%
- 6.4 The parties agree to monitor the revenues and expenditure on a regular basis at the annual meetings convened pursuant to clause 3.6 above, and to make

such modifications to the above revenue arrangements as the parties may deem appropriate and mutually agree upon.

COST OF MANAGEMENT

- 7.1 The Council and KWS will jointly bear the cost of management of the Reserve according to the ratios shown below;
- (a) 1st year - Council 50% and KWS 50%
 - (b) 2nd year - Council 60% and KWS 40%
 - (c) 3rd year - Council 70% and KWS 30%
- 7.2 The Council may obtain funds from any lawful sources.

ASSETS

At the end of the term, all movable assets owned by KWS will be withdrawn from the Reserve.

TOURIST FACILITIES & ACTIVITIES

- 9.1 The steps for tourism facility site selection, bid evaluation and award process which shall be applied in the Reserve shall be as follows;
- 9.1.1 Site selection will be carried out jointly by the parties.
 - 9.1.2 The parties will jointly evaluate and select investors to be invited to bid for the sites;
 - 9.1.3 KWS will invite investors to bid for all the sites;
 - 9.1.4 Once the bids are received, they will be evaluated jointly; and
 - 9.1.5 The Council will then enter into lease agreements with successful bidders for sites in the Reserve.
- 9.2 The Council will be responsible for the overall management of the Reserve's tourism product, including management of recreational activities, production of promotional materials, and maintenance of campsites and facilities.

LIMITATIONS

- 10.1 This MOU in no way restricts either of the parties from participating in any activity with other organizations or individuals.

10.2 This MOU constitutes the entire agreement between the parties for its stated purpose, and no modification or addition will be valid unless signed by the parties and appended to this agreement.

11 NO LEGAL PARTNERSHIP

Nothing herein contained shall constitute or be construed to be, or create, a legal partnership or agency between the parties. Neither party shall have the power or right to act as an agent or representative of the other, or to transact business or incur obligations on the name of the other party or for the account of the other party or to pledge the credit of the other party or any joint credit. Neither party shall be bound by any acts, representations or conduct of the other party in this respect.

12 ASSIGNMENT

This MOU is specific to the parties and no party shall have the right to assign or otherwise dispose of the benefit of this MOU.

13 ACKNOWLEDGMENT AND COMMUNICATION

Each party agrees to explicitly acknowledge the other party's support provided pursuant to this MOU on all media announcements, documentation, programme reports and publications.

14 INTELLECTUAL PROPERTY RIGHTS

Each party shall retain any intellectual property rights over any material (documents, reports, maps, diagrams, audio-visual works, charts and tables, photographs (including negatives), computer programmes, tables and compilations of data including Geographical Information Systems (GIS) data sets and any analysis derived from such data sets, including tables and compilations of data stored and embodied in a computer or a medium used in conjunction with a computer, or other work developed by that party for use for the purposes of this MOU. Each party may use such materials for non-commercial conservation purposes subject to acknowledgement of the source of such material.

15 FURTHER ACTIONS

Each party agrees to perform all further acts that are within its ability to perform, and undertakes to execute, acknowledge and deliver any documents which may be reasonably necessary, appropriate or desirable to enable the implementation of the provisions of this MOU.

16 SPECIFIC SUBSIDIARY AGREEMENTS

16.1 Without prejudice to their respective roles and obligation under this MOU, the parties may enter into further agreements to give effect to any provision of this MOU.

16.2 Any agreement or agreements entered into pursuant to sub-clause 13.1 shall specify at least the following details –

- (a) Nature of agreement;
- (b) Objectives and duration of the particular activity;
- (c) The terms of reference for the activities to be undertaken by each party;
- (d) All financial terms and conditions applicable to each party; and
- (e) Any other provisions as may be applicable in the specific circumstances.

16.3 Each subsidiary agreement shall be in English and shall be signed by the chief officers of the parties or their designated representatives duly authorised to contract for the parties.

17 INSURANCE, LIABILITY AND INDEMNIFICATION

17.1 Each party shall be solely responsible for payment of any and all claims for loss, personal injury, death, property damage, or otherwise, arising out of any act or omission of its employees or agents in connection with the performance of this MOU.

17.2 Each party agrees to indemnify the other party against, and hold it harmless from, any claim for damages, demand for performance or any other matter or thing arising out of any act or omission of such party, its employees or agents with respect to this MOU.

18 DURATION OF MOU

This MOU will come into effect when executed by the parties and will subsist for a period of 3 years. It may be amended at any time by the mutual written consent of the parties. The parties will review the MOU at least once every year to determine whether it should be revised, renewed, or cancelled. Either party to the MOU may terminate it if by giving ninety (90) days prior written notice to the other.

19 AMENDMENT

This MOU may be amended from time to time by mutual consent of the parties. Any such amendment shall be in writing and shall be signed on behalf of each party by the chief officer of that party.

20 APPLICABLE LAW

The laws of Kenya shall govern this MOU

21 DISPUTE RESOLUTION

In the event of any dispute arising between the parties touching on any provision of this MOU, the parties shall use their best endeavours in good faith to resolve such dispute.

22 CONTACT PERSONS AND ADMINISTRATION OF THIS MOU

22.1 Each party shall provide a duly authorised senior officer to act as the contact person for the respective party for the purposes of facilitating planning, feedback and supporting implementation of this MOU.

22.2 Whenever under the terms of or in connection with this MOU, any notice or other information is proper or required to be given to any of the parties hereto, such notice or other information shall be given by sending the same in writing by electronic mail, registered mail, postage prepaid, or courier addressed to the appropriate party to the attention of the respective contact person at the address set forth hereinabove or at such other place and such other means as such party may designate in writing.

IN WITNESS WHEREOF the parties hereto have executed this Memorandum of Understanding on the day, month and year first herein above written.

SIGNED for and on behalf of
KENYA WILDLIFE SERVICE
In the presence of :

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)
)

DIRECTOR

SIGNED for and on behalf of the
COUNTY COUNCIL OF MBEERE
In the presence of :

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)
)
)

CHAIRMAN

CLERK

COUNTERSIGNED BY:

THE PERMANENT SECRETARY
MINISTRY OF FORESTRY AND WILDLIFE

THE PERMANENT SECRETARY
MINISTRY OF LOCAL GOVERNMENT





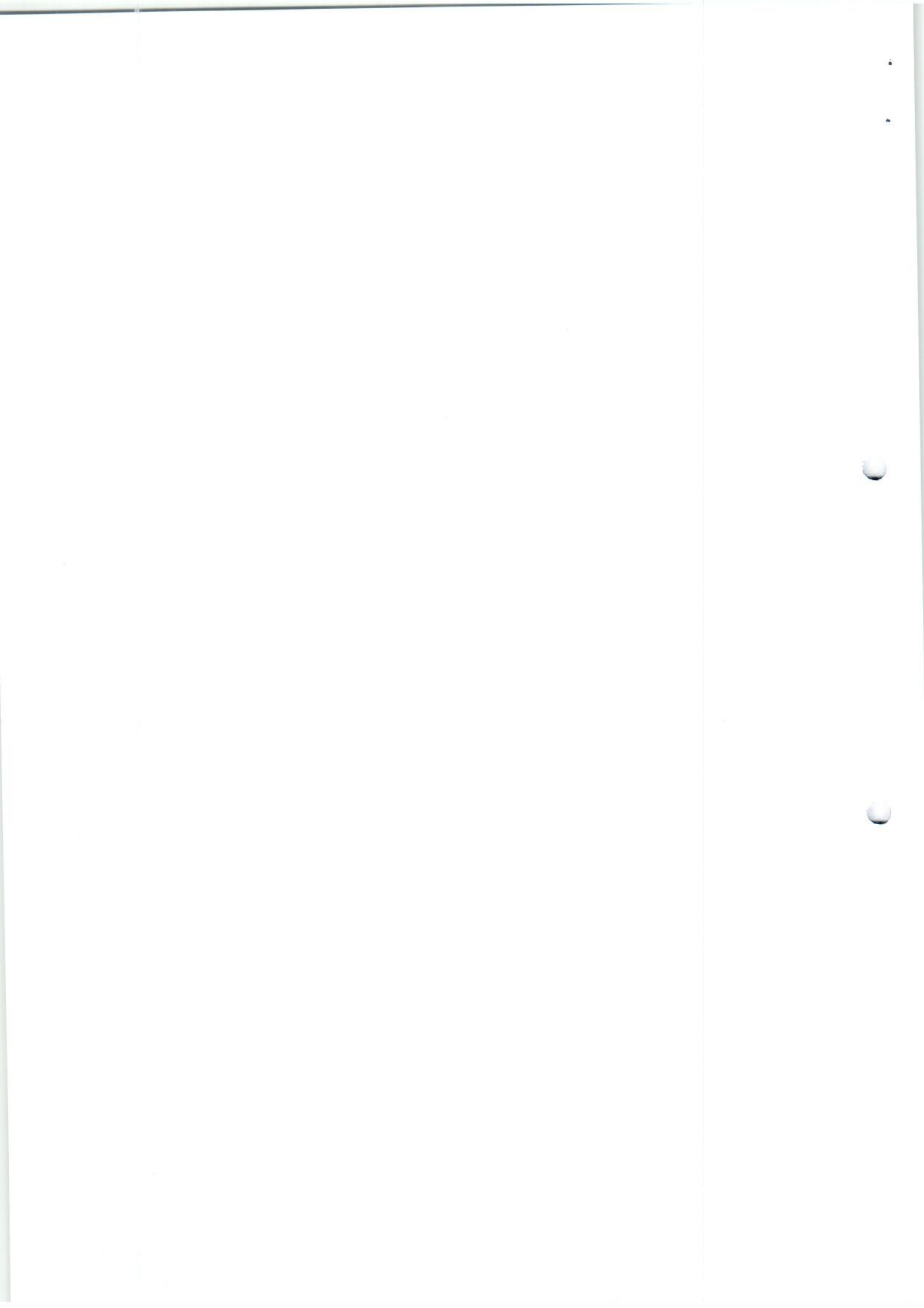
KENYA WILDLIFE SERVICE

AND

MBEERE COUNTY COUNCIL

INTEGRATED MANAGEMENT PLAN
FOR
MWEA NATIONAL RESERVE AND
ADJACENT AREAS

1999-2004

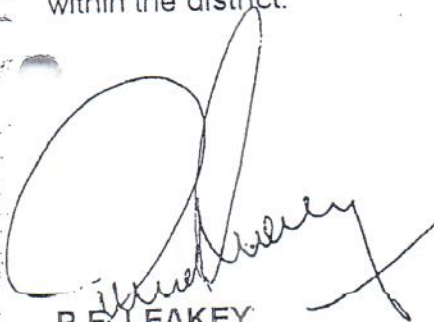


FOREWORD

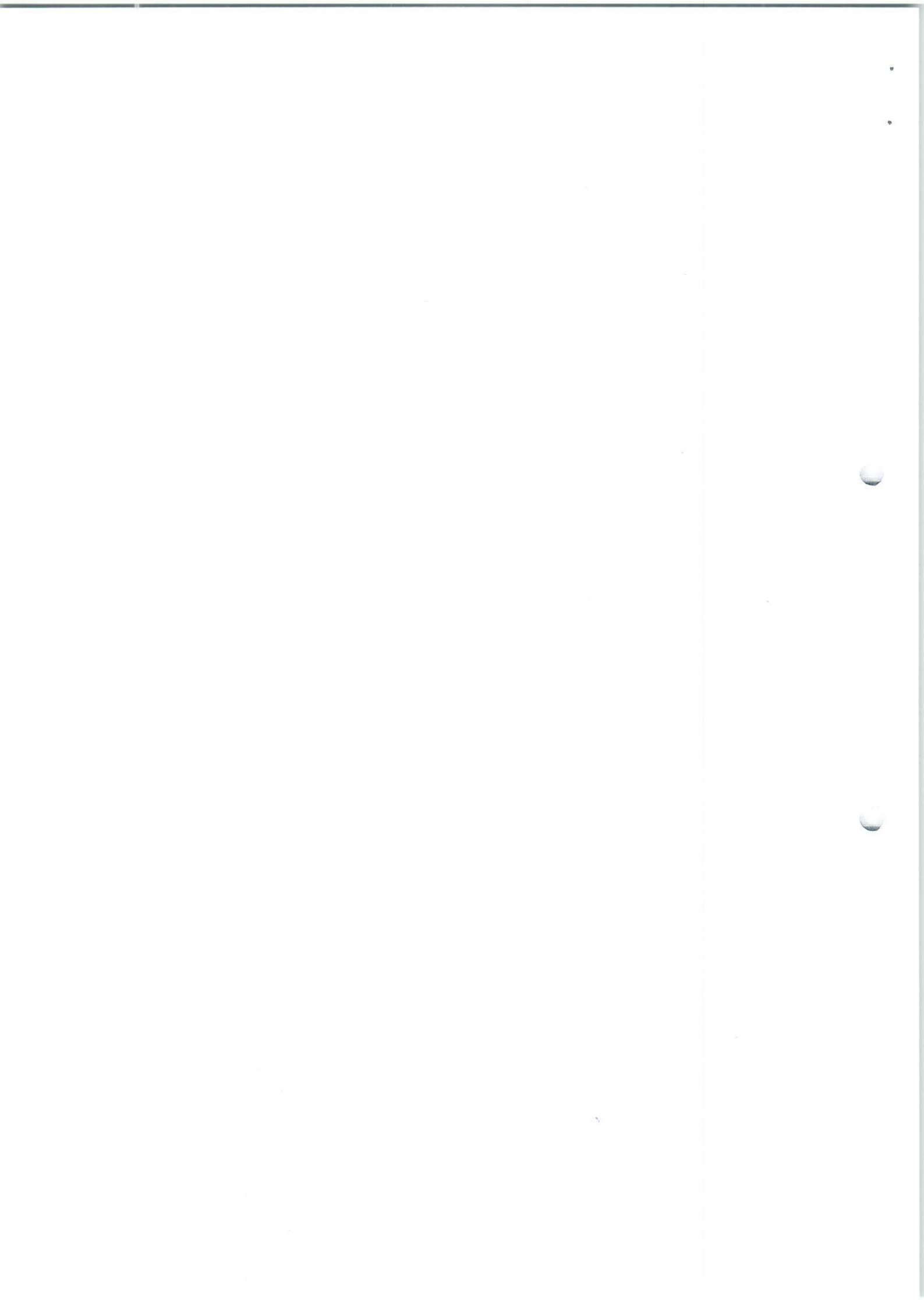
The Completion of an integrated Management Plan for the Mwea National Reserve is an important step towards moving forward with the full utilization of this delightful and important National Reserve.

Mwea is well situated to take advantage of the so called northern circuit and once the game viewing tracks and bridges are completed, there is every reason to believe that many people will take advantage of this protected area. The rivers, the nearby dam and the elevation make this reserve one of the more interesting of the small areas that are available for ecotourism.

The Kenya Wildlife Service will work with other partners, especially the Mbeere County Council, to facilitate the development of the necessary infrastructure within and adjacent to the reserve. It is our hope that tourism will not only enhance the wildlife in the area but also bring direct benefits to the people living within the district.



R.E. LEAKEY
DIRECTOR



ACKNOWLEDGEMENTS

This Integrated Management Plan for Mwea National Reserve is the product of extensive consultation between all the stakeholders and was facilitated by a planning team from Kenya Wildlife Service comprising; S. Manegene (Team Leader), S. Gitau, A. Kariuki and B. Kaaria. Many people have contributed in different ways to accomplish this project.

First, the planning team expresses gratitude to all the people who participated in the Management Planning Workshop in 1996 and 1998 for their enthusiasm and time consuming support. Their vision, pragmatism and concern for the future of the National Reserve was a great source of encouragement. Special thanks to the Reserve adjacent community for their interest and support during the entire planning process.

We appreciate the support of the Mbeere County Council, Mbeere District Development Committee, TARDA, PLAN International and the local Catholic Mission.

The KWS/Netherlands Wetlands Programme through A. Koyo and Ben Zech provided financial support for inventories and workshop as well as logistical support during the entire planning process.

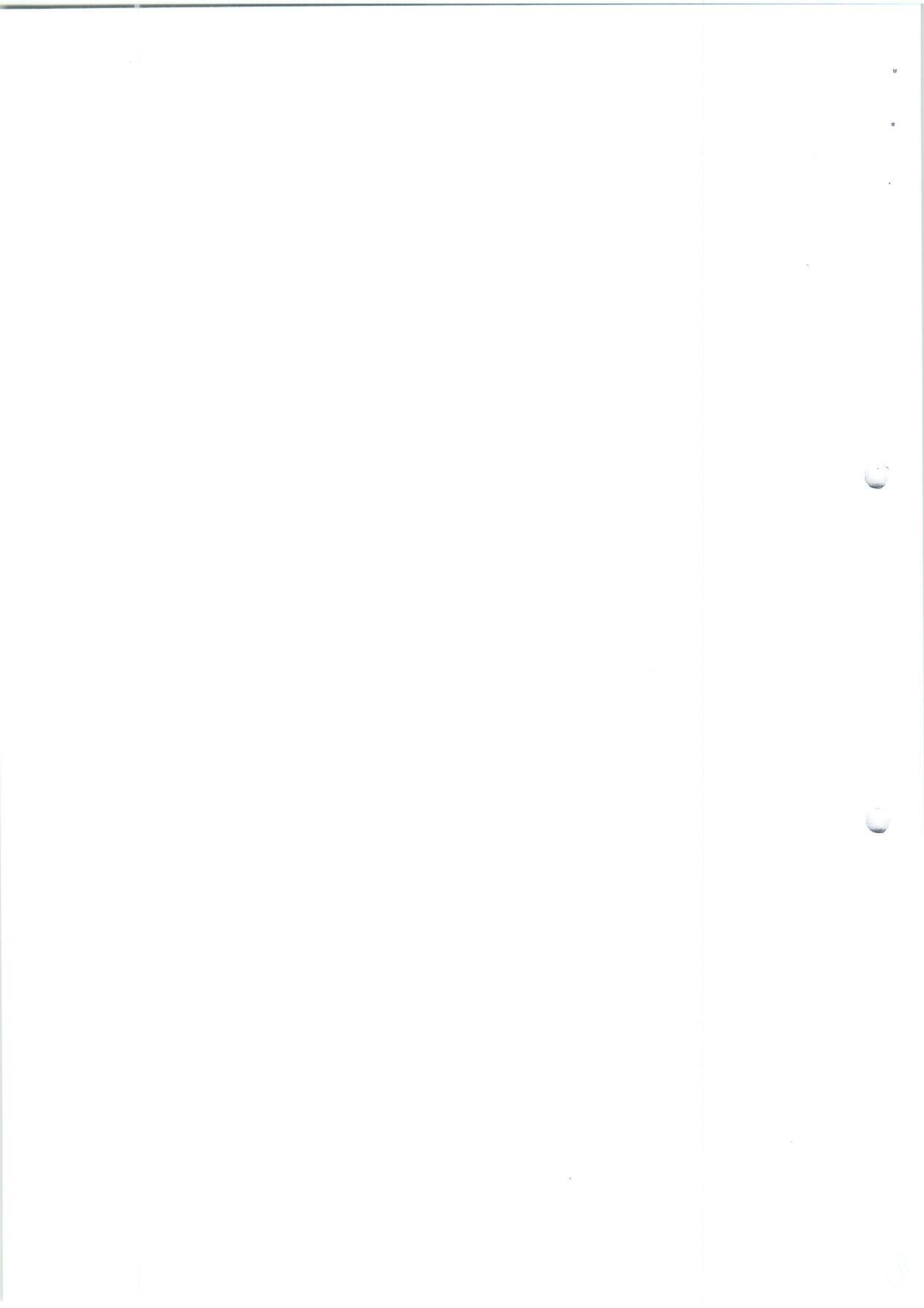
Mr. John Sylvester of Mwea Reserve Trust for his special interest and concern for the development of the Reserve;

Mr. Mohammed Rashid the District Commissioner Mbeere for continued support Mr Muteru Njau-ini Area Warden, Embu for his participation and contribution during the entire planning process.

Mr. Richard Odongo and Teresa Muthui for preparing the location map.

All these people, and many others we may not be able to mention by names, were able to develop a capacity to find genuine and productive congruence of views on most issues during the preparation of this plan. We are most grateful to all of them.

We hope this plan will positively contribute in the conservation and development of the area.



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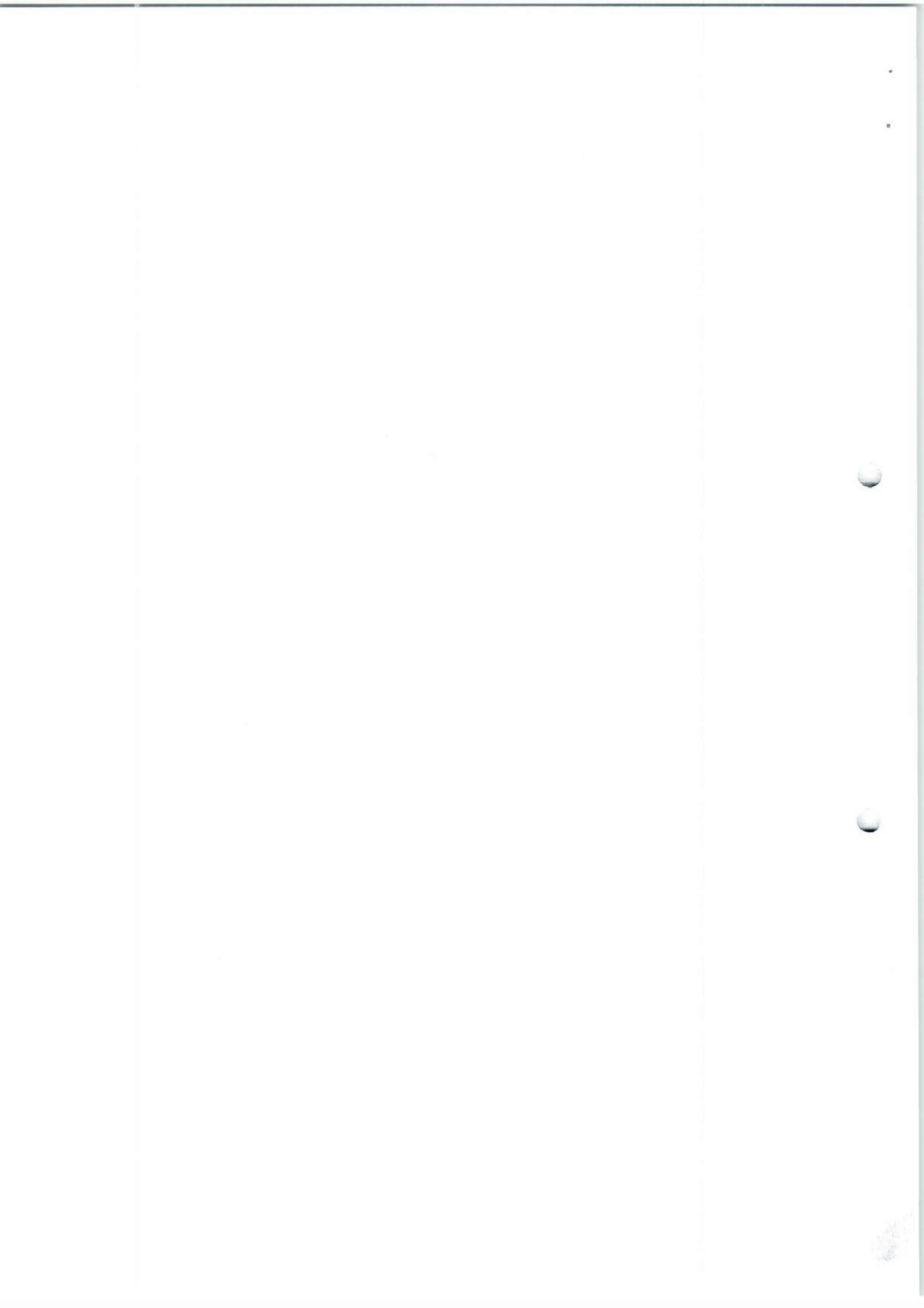
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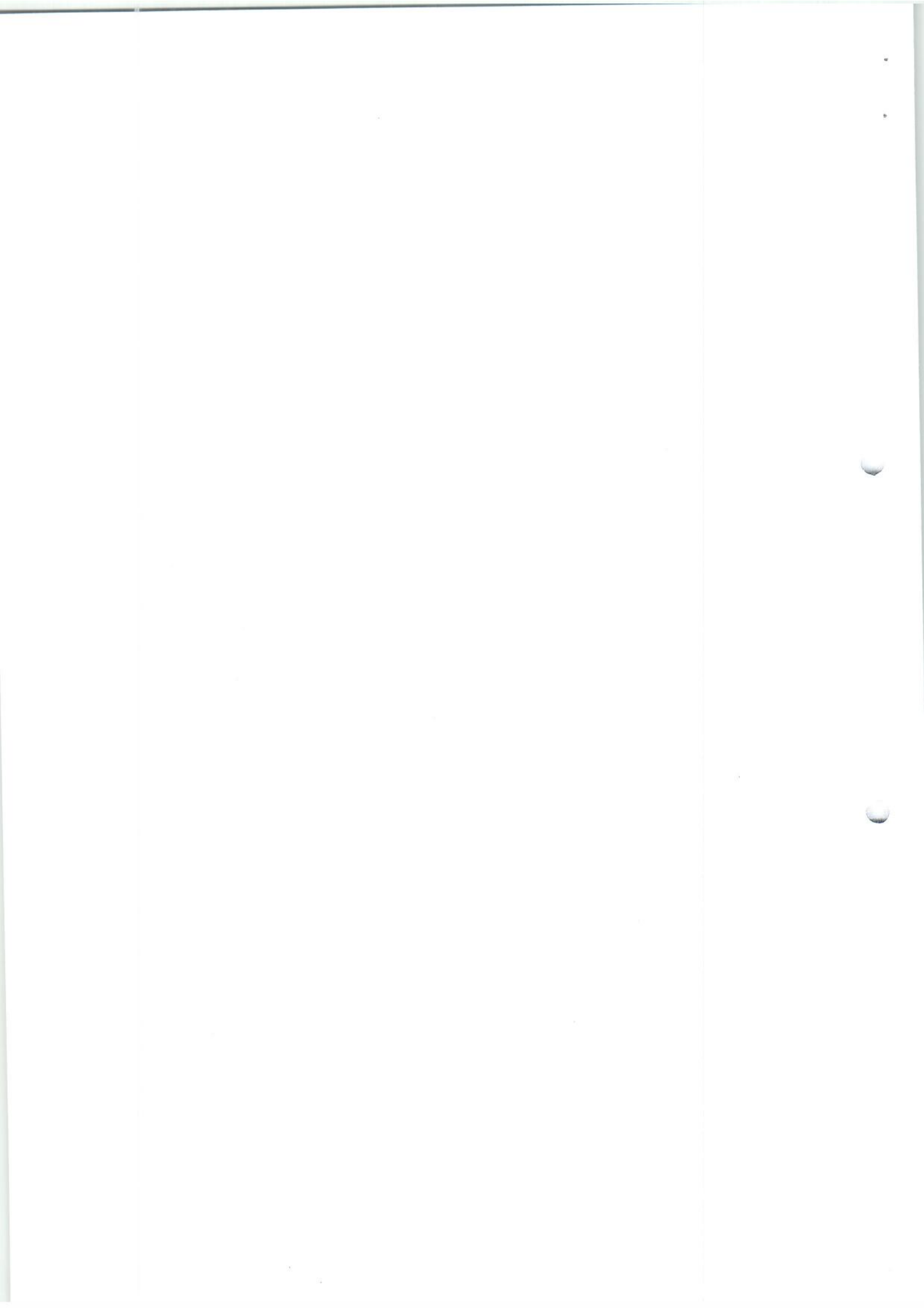
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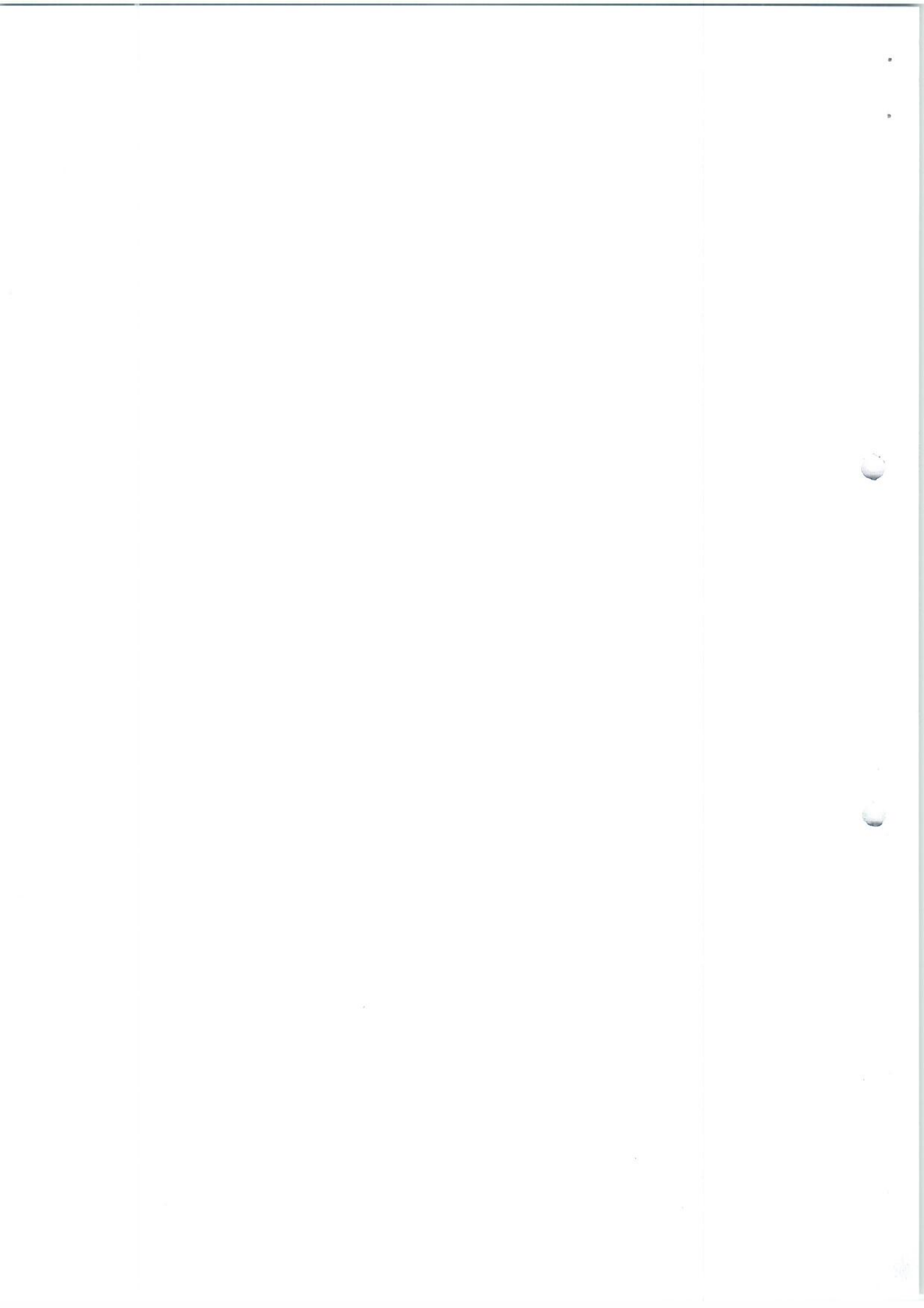
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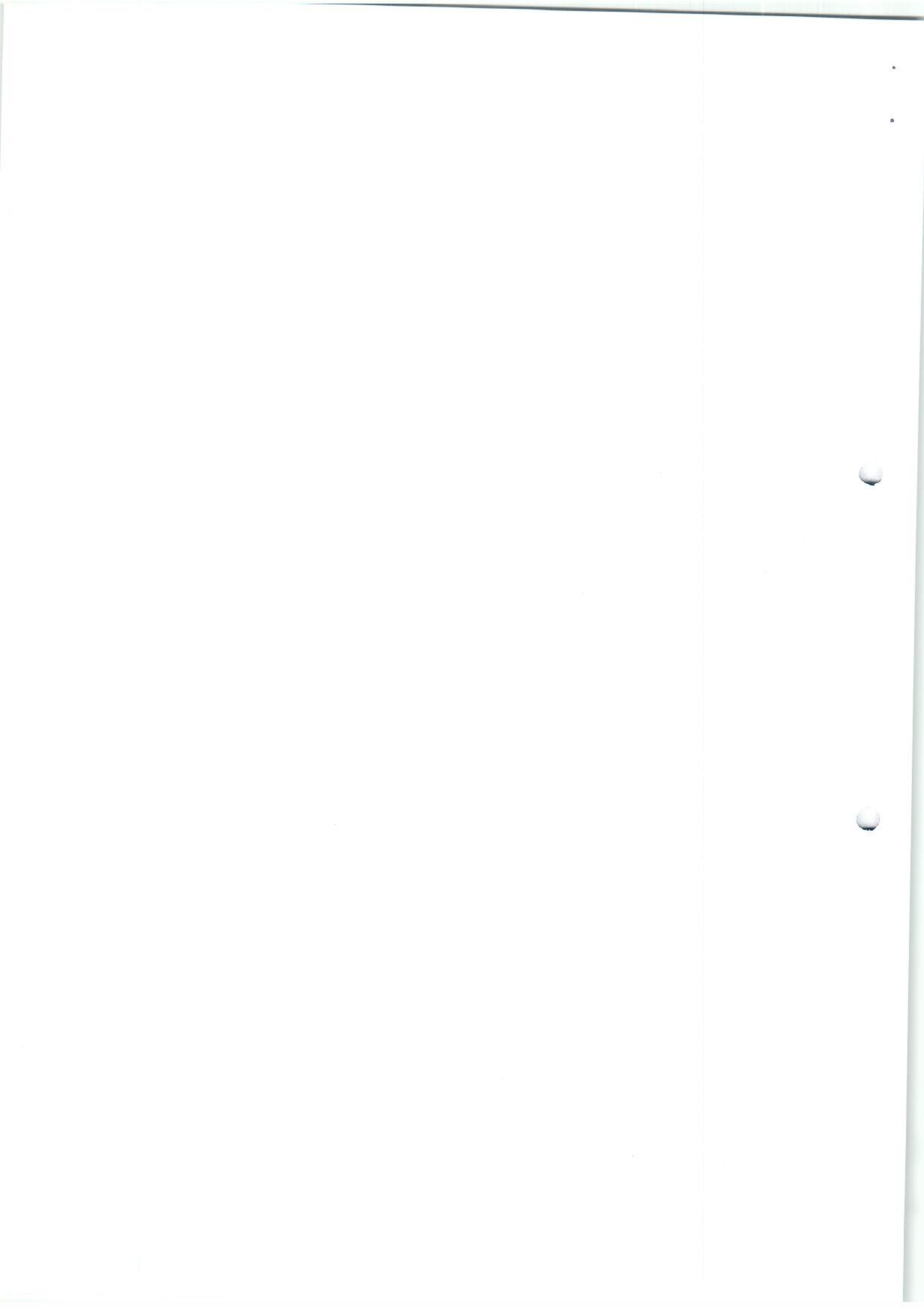
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LIST OF ACRONYMS

ASK	-	Agricultural Society of Kenya
COBRA	-	Conservation of Biodiverse Resource Areas
DAO	-	District Agricultural Officer
DDC	-	District Development Committee
DDO	-	District Development Officer
EANHS	-	East African Natural History Society
EAWLS	-	East African Wildlife Society
FD	-	Forest Department
HWCR	-	Human Wildlife Conflict Resolution Coordinator
KATO	-	Kenya Association of Tour Operations
KETRI	-	Kenya Trypanosomiasis Research Institute
KTBH	-	Kenya Top Bee-hive
KWS	-	Kenya Wildlife Service
MNRC	-	Mwea National Reserve Committee
MNRT	-	Mwea National Reserve Trust
MOPW&H	-	Ministry of Public Works and Housing
MOU	-	Memorandum of Understanding
NMK	-	National Museums of Kenya
PAC	-	Problem Animal Control
PAWS	-	Protected Areas and Wildlife Service
PRA	-	Participatory Rural Appraisal
RAC	-	Reserve Advisory Committee
RPC	-	Regional Biodiversity Coordinator
TARDA	-	Tana and Athi River Development Authority
WCK	-	Wildlife Clubs of Kenya
WCMD	-	Wildlife Conservation and Management Department



PART ONE: INTRODUCTION

1.0 Background to planning

Mwea National Reserve was gazetted in 1976 under Embu County Council. In 1996, Mbeere District was carved-off from Embu District and the entire reserve now falls under the jurisdiction of Mbeere County Council. In 1996, Mbeere County Council and Kenya Wildlife Service (KWS) signed a Memorandum of Understanding (MoU) for the joint management of the reserve, and in which the preparation of an integrated plan was recommended to serve as a tool to rationalise reserve management and development.

Within the framework of the MoU, a Reserve Advisory Committee will be constituted and whose mandate will be to oversee the implementation of the Management Plan. The Management plan will define and analyse a variety of roles and responsibilities.

As a follow up to this KWS and Mbeere County Council organised a management planning workshop in 1996 to discuss management and development issues in the reserve and adjacent areas and chart the way forward. All the interested and affected parties were represented in this workshop and the proceedings from the workshop have been used to produce this integrated plan for the reserve and adjacent areas.

1.1 Previous Plans

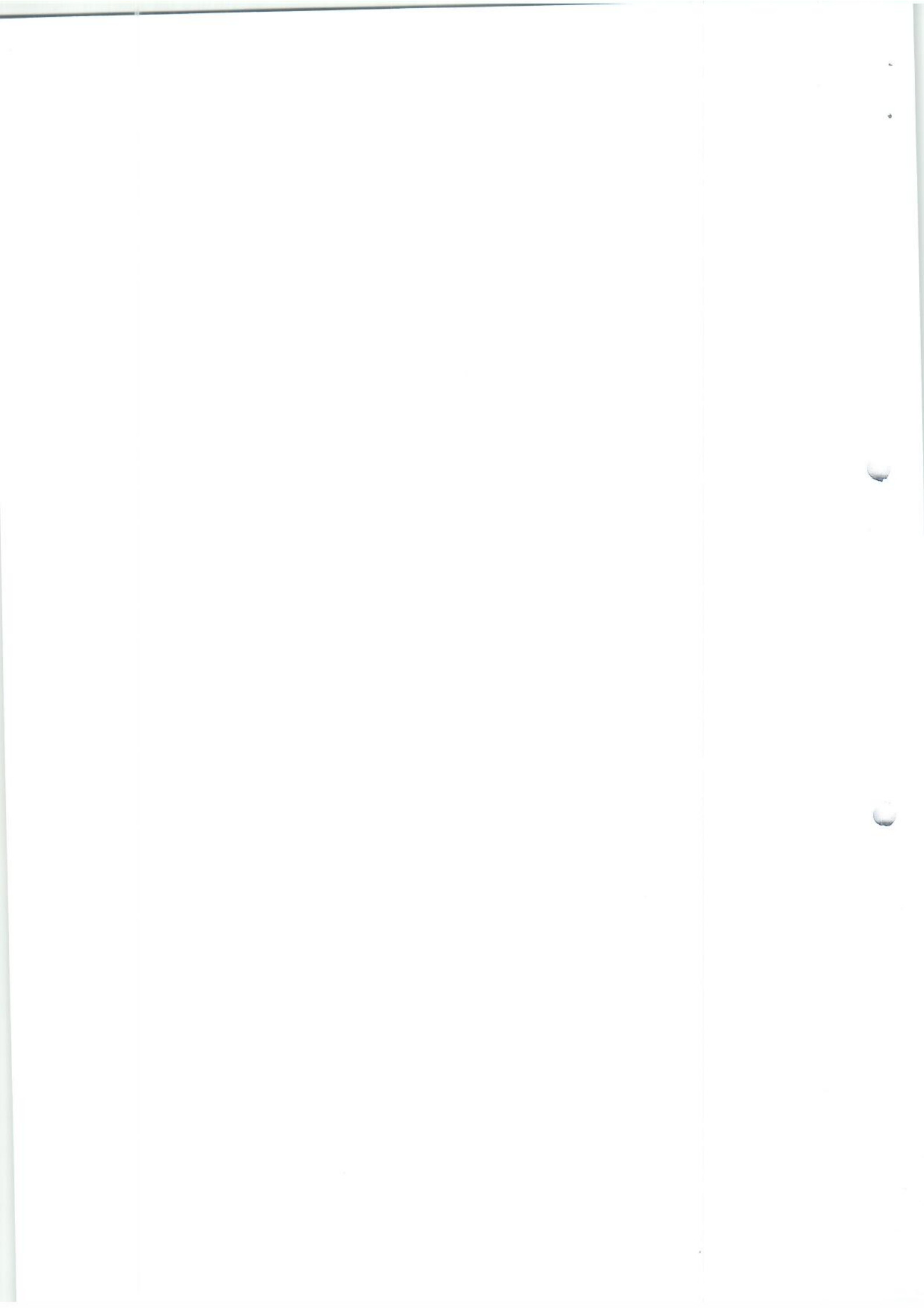
In 1989, the then Wildlife Planning Unit of the Wildlife Conservation and Management Department (WCMD) had prepared a draft management plan for the Mwea National Reserve. This plan focussed mainly on the issues pertaining to the reserve. The role of other stakeholders was not given due consideration. This draft plan was not approved and thus was not implemented.

1.2 Planning approach

The planning process adopted in this plan is participatory in which all the possible stakeholders have been consulted in one way or the other in the entire planning process. An integrated management-planning workshop was jointly prepared in 1996 by KWS and Mbeere County Council and in which management planning proposals for Mwea National Reserve and the adjacent areas were identified and discussed.

In the same year, KWS conducted a Participatory Rural Appraisal (PRA) in Makima Location. The PRA exercise gave the local people an opportunity to identify and prioritise their development needs as contained in the Community Action Plan developed at the end of the exercise.

Further to this KWS in collaboration with the National Museums of Kenya (NMK) has conducted several biodiversity inventories including, elephant population surveys, crocodile counts, waterbird counts and floral inventories in the reserve. The crocodile and waterfowl counts are part of the wetland-monitoring programme. In addition, five permanent vegetation monitoring transects have been established to monitor elephant/habitat interactions on completion of the electric fence towards the end of 1998.



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All these studies have provided useful background information during the development of this management plan.

Based on the information from the 1996 integrated planning workshop, the PRA Community Action Plan and the biodiversity inventories reports, a Draft Integrated Plan was prepared. The draft Plan was discussed and adopted by the stakeholders in a planning workshop held in September 1998 at the Masinga Dam Resort.

This plan therefore has the approval of the interested and affected parties around Mwea National reserve.

1.3 Structure of Plan

This plan is divided into five parts.

Part one is the introduction to this plan; previous management planning attempts for Mwea National Reserve; the scope and structure of the plan. A description of the physiography and ecological attributes of the area is given. Socio-cultural and administrative issues are also discussed. This part therefore describes the area in sufficient detail to give a background to the plan.

Part two explains the resource management goals and objectives of the plan. A zonation plan, which is aimed at indicating how areas within the reserve should be allocated to meet the management objectives, is also given under this part.

Part three discusses management programmes and projects. The programmes are broadly categorised into, tourism, partnership, and biodiversity and park infrastructure. Projects are discussed and summaries of management actions are given for each programme.

Part four gives the activity schedules. The activity schedules show institutions or individuals who are responsible for implementing each activity.

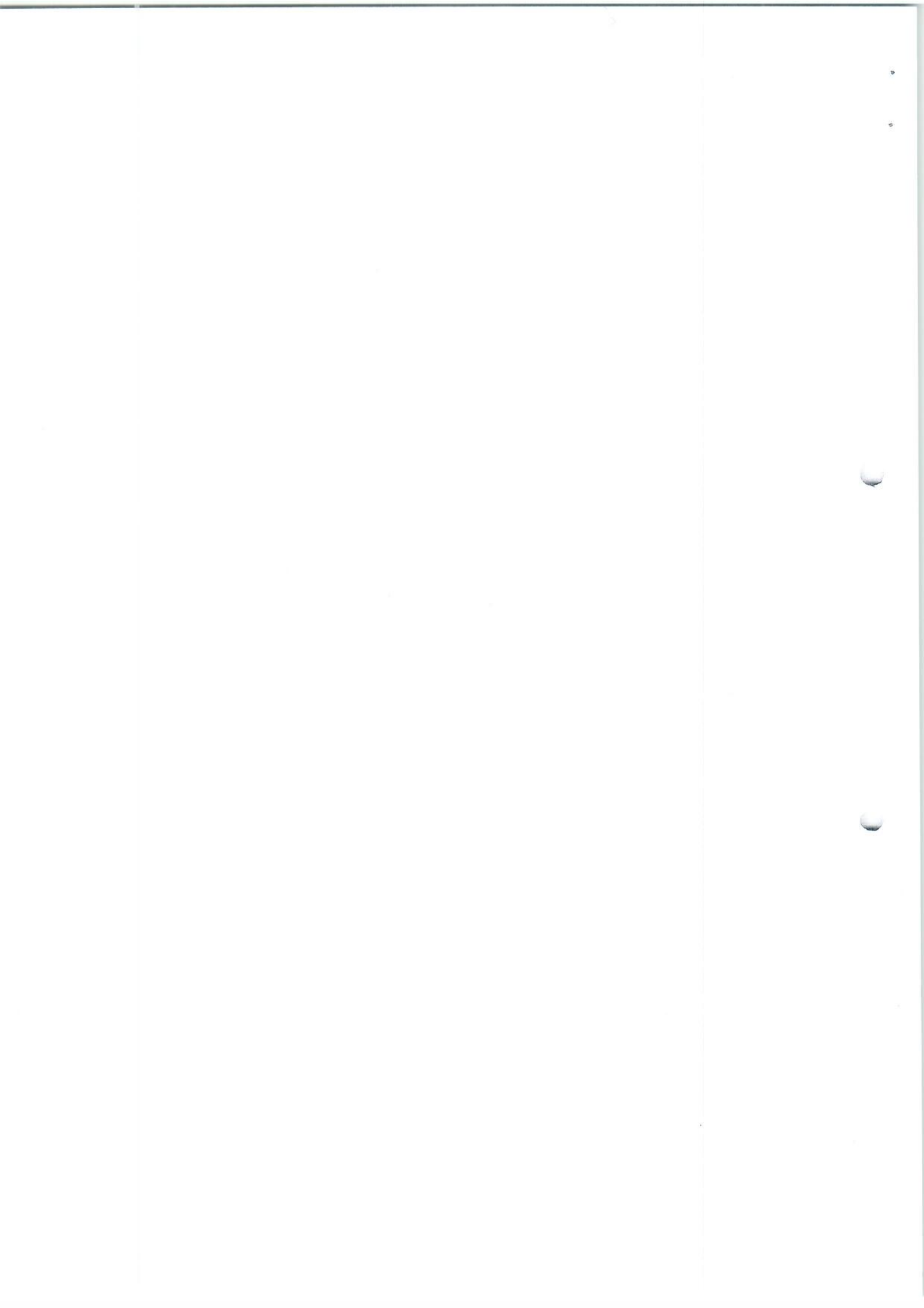
Part Five discusses the budget and revenue projection situation in the reserve.

2.0 General Description

2.1 Location and Legal status

Mwea National Reserve is located between latitudes 0 45 and 0 52 N and longitude 37 35 and 37 40 E. The reserve is in Makima Location, Mbeere District of the Eastern province of Kenya. The reserve is a trustland under the auspices of the Mbeere County Council. It was gazetted as a national reserve through legal notice No. 2 of 29th January 1976. The Reserve covers an area of approximately 42 Km².

The Reserve is approximately 40 Km South of Embu town, the Eastern provincial headquarters and 170 Km from Nairobi. It lies between Thiba and Tana rivers.



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The reserve boundary is marked by the Thiba River to the east, and by Kamburu Dam and Tana river in the south. The western and northern the reserve borders the Makima settlement scheme (Fig 1).

2.2 Access

By road the reserve can be accessed through four major access routes, namely:

Nairobi-Thika-Matuu via Kangonde-Masinga dam. This is tarmac road except for the 10 Km between the reserve gate and Masinga Dam Bridge. The total distance from Nairobi to the reserve along this route is about 160 km.

Nairobi-Thika-Makutano via Wamumu-Karaba-Gategi-Makima. This is also an all weather tarmac road up to Kiang'ombe. From Kiang'ombe the road is gravelled up to Gategi, a distance of 16 Km. The remaining 20 km between Gategi and Makima is not gravelled making it impassable during the wet season.

Embu-Makima via Gachuriri. From Embu town, 10 Km along the Embu-Kangonde road, then branching off to the gravelled road at Gachuriri to Makima town, a distance of 27 Km. The 27 Km stretch has some impassable section during the wet season.

Embu-Makima via Machan'ga. The road is tarmac from Embu to Machan'ga. From Machan'ga to Makima, a distance of 9 Km, the road is a dry weather road only. However, most of the road is motorable except for three sections totalling 1km overlaid with black cotton soil.

By air. By air, the reserve is accessible through the Masinga Airstrip near Masinga Resort.

2.3 Existing infrastructure

Roads: The reserve has an internal road network estimated at 60 Km of main road and 55 Km of circuit roads (fig 2). These roads are currently in a very poor condition due to poor maintenance and lack of bush clearing along the roads. No funds have been allocated to the reserve by either Mbeere County Council or KWS for road and bridge maintenance including bush clearing over the last ten years. There are six crossings at various locations within the road network that require construction of bridges and drifts.

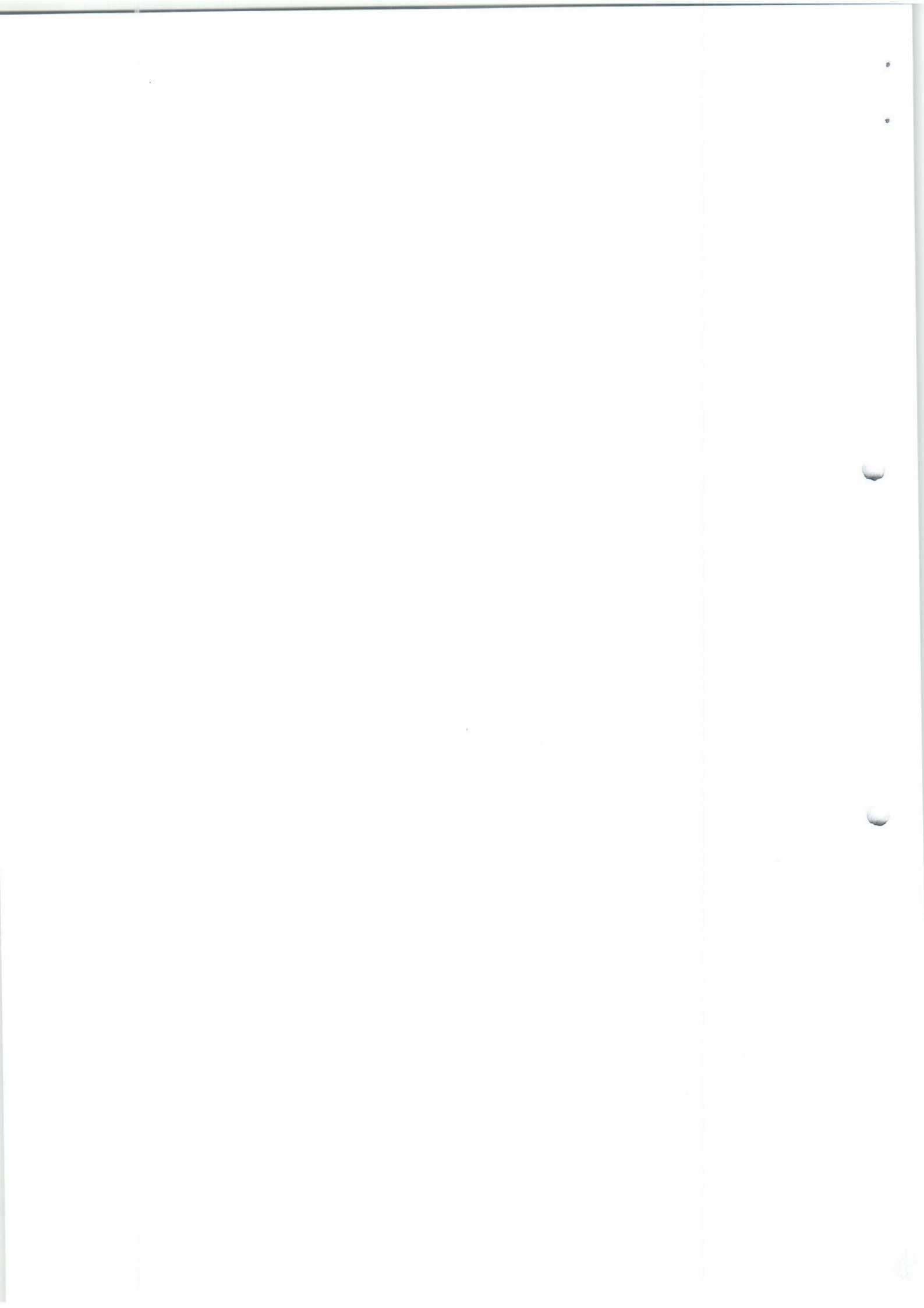
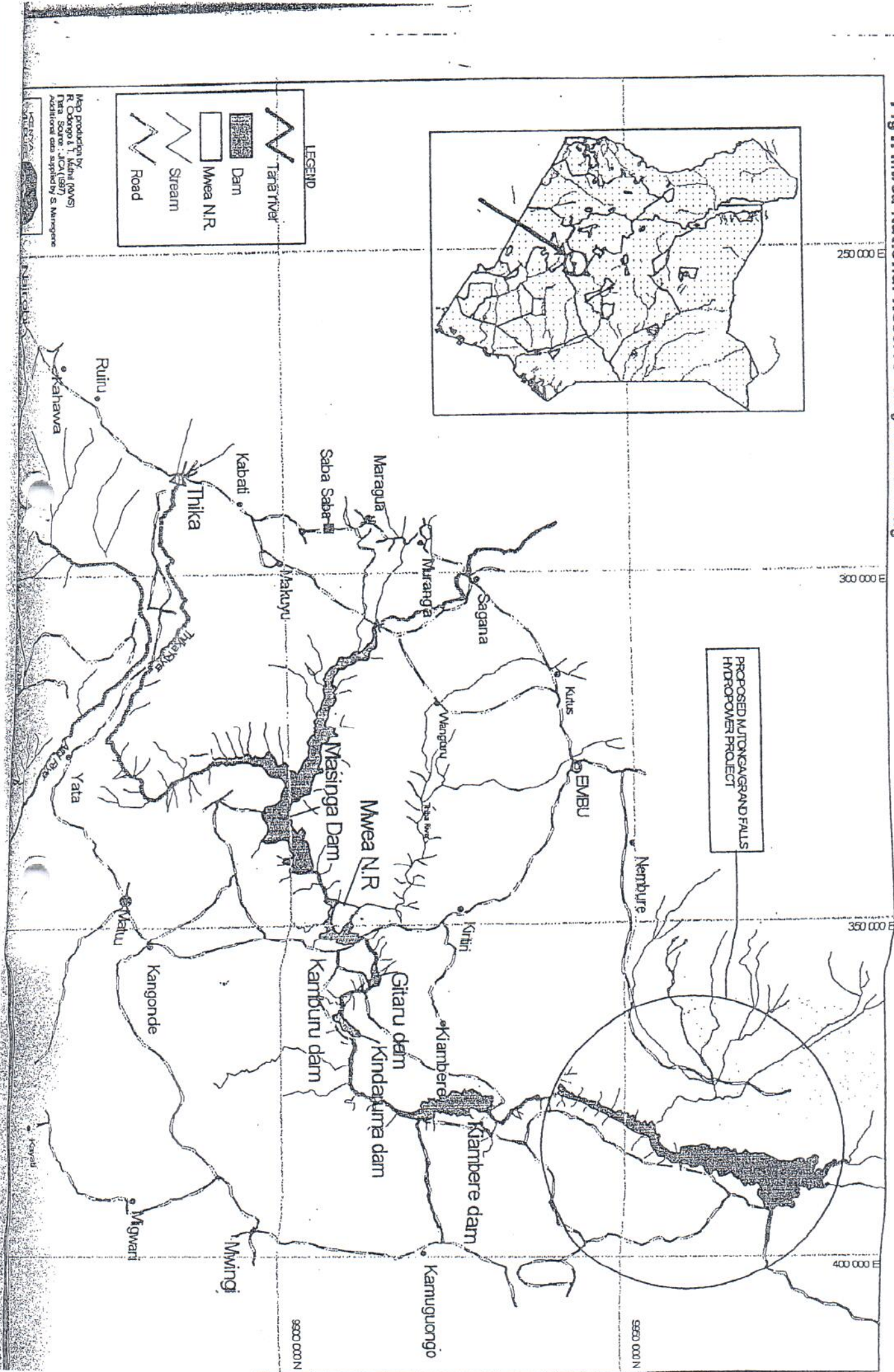


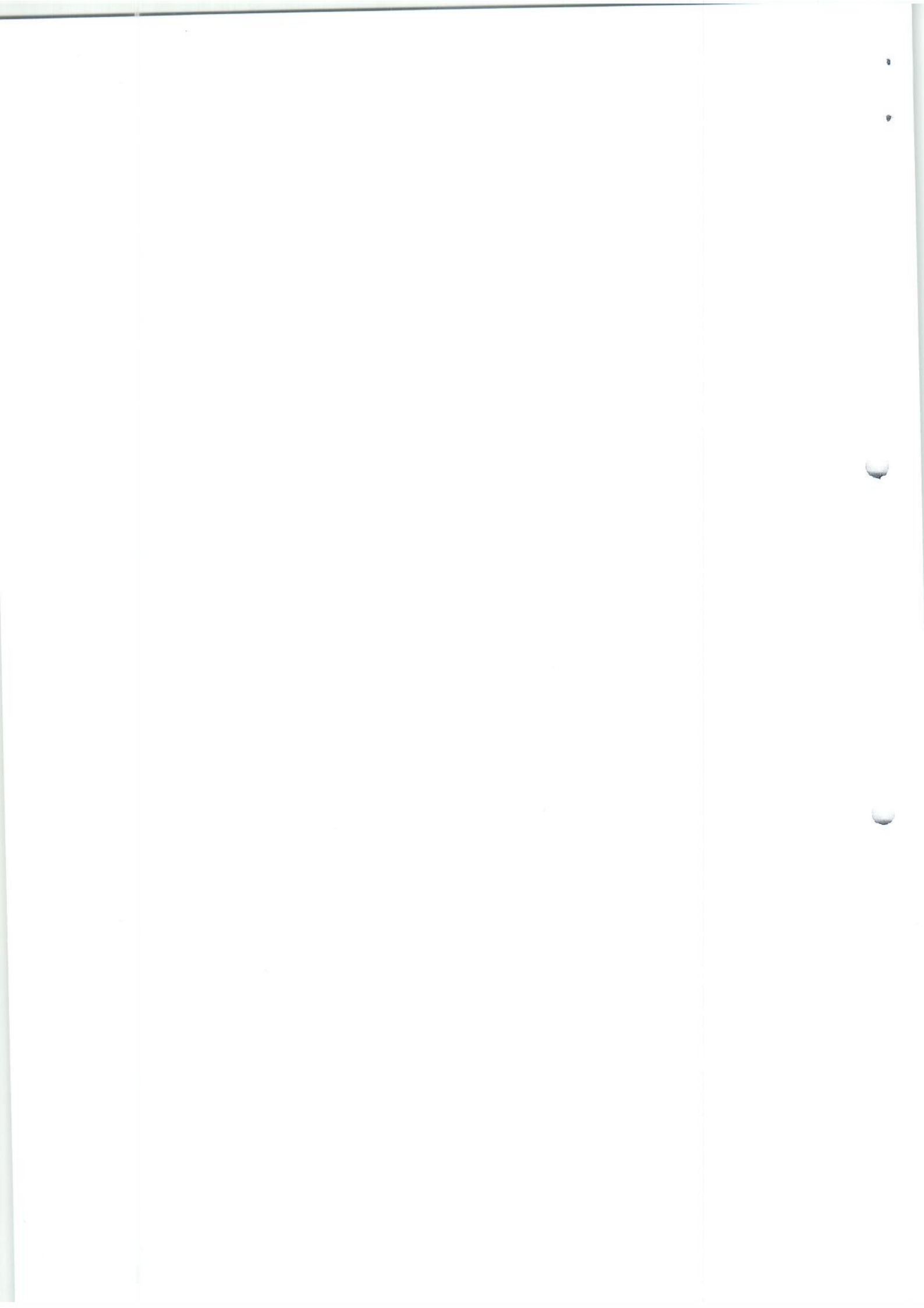
Fig1: Mwea National Reserve - Regional Setting



LEGEND

- Tana River
- Dam
- Mwea N.R.
- Stream
- Road

Map production by
R. Odongo & I. Muturi (MWS)
Data Source: S. Mwangi
Additional data supplied by S. Mwangi



Mwea NR Integrated Management Plan

Council rangers. The Tourism officer's main responsibility is to promote tourism activities within the reserve and the adjacent areas while at the same time co-ordinate security matters. The KWS and County Council rangers are inter-changed to undertake revenue collection, security patrols, sentry and VHF radio communication duties. PAC,

2.4.2 Vehicles, Plants and Machinery

The reserve management has one 4X4 Land Rover pick-up and one outboard motor boat and trailer. Mwea National Reserve Trust donated the boat, engine and trailer. The 25 HP engine boat has a capacity of eight people.

2.5 Physiography

Terrain: Most of the Mwea National Reserve, is a peneplain that is moderately dissected by dry valleys. The entire reserve lies between 950 and 1150 meters above sea level.

Soils: Black cotton soil is dominant within the Reserve. In the Western part of the reserve, sandy soils occur in patches whereas in the eastern part, reddish brown soils dominate.

Hydrology: The Mwea area is part of the continuum of the Tana River catchment area. The Tana Basin can be divided into three sections that include the upper catchment, the middle catchment and the lower Tana.

The **catchment area** is mainly mountainous with deeply incised valleys and is prone to severe erosion especially where the vegetation cover is low. The area is of high agricultural potential and is heavily populated.

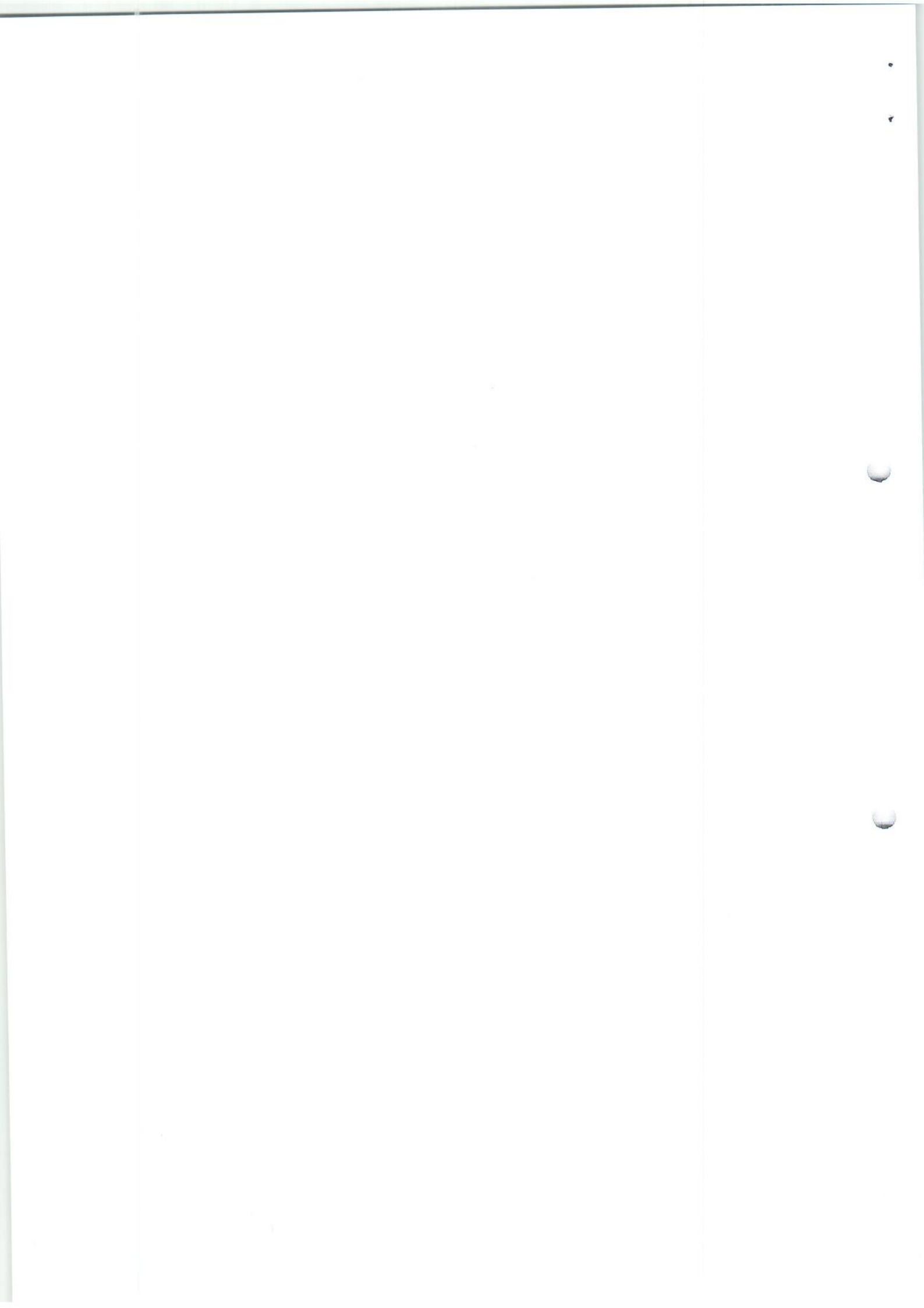
The **middle Tana** often referred to as the 'cataract zone' is the area that has considerable potential for hydroelectric power development. Already, five hydropower reservoirs have been constructed. These include Masinga- 120 Km² (1982), Kamburu- 15 Km² (1974), Gitaru- 3.1 Km² (1974), Kindaruma- 10 Km² (1967) and Kiambere 25 Km². Additional sites for hydroelectric power development include Mutonga Grand falls, Usueni, Adamson falls and Kora.

The **lower Tana** occupies mainly the peneplain and has the potential for the development of irrigated agriculture. Existing irrigation projects in this area include; Bura west, Hola and the Tana Delta irrigation project that is under implementation. The river enters the sea through an ecologically important area, the Tana delta, which forms an interface between marine and fresh water ecosystem.

Thiba river is an important tributary of the Tana river and supplies water to Mwea Tebere Irrigation Scheme. The Thiba river in turn has two major tributaries namely Ruringazi and Nyamindi rivers.

2.6 Climate: The rainfall pattern is bimodal, i.e. March-May (long rains) and October-December (short rains); the months of June, July and August are cool and dry. The mean annual rainfall ranges between 510 mm and 760 mm.

Minimum temperature ranges between 10 and 14 C and maximum temperatures range between 26 and 30 C.



2.7 Flora

The vegetation of Mwea National Reserve can be divided into five distinct types i.e. thicket, bushland, open bush land, dense bush land, wooded grassland and woodland. The shoreline in the five dams of Mwea are largely devoid of typical wetland vegetation as most of the dams are very recent. Kindaruma dam, the oldest, (1967) has small areas covered with typha and cyperus species which are characteristic wetland vegetation.

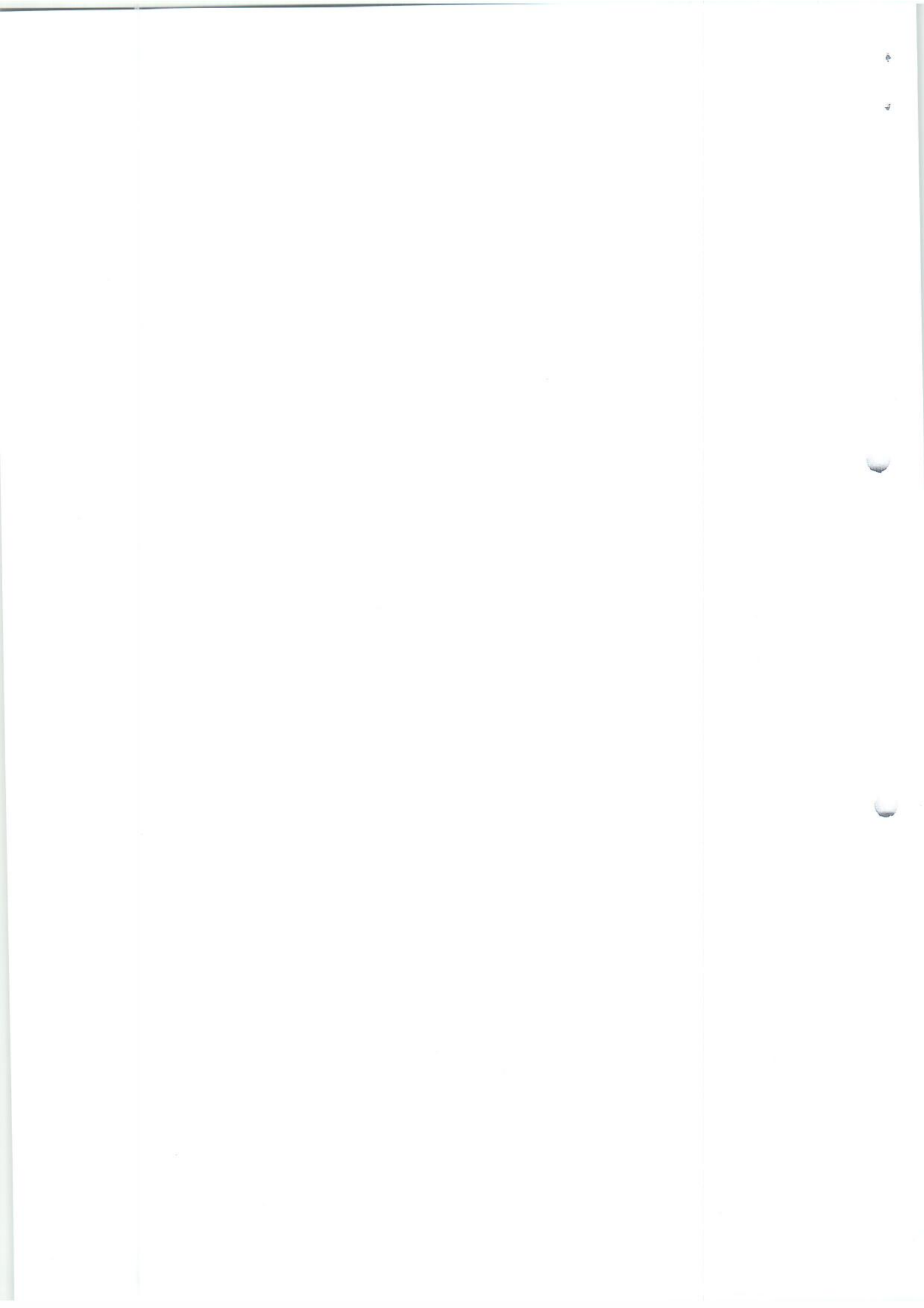
(i) **Thicket:** The thicket vegetation is not very extensive in the Reserve. The thicket is characterised by virtually closed canopy with trees normally higher than 15 m. This is mainly found towards the confluence of Thiba and Tana Rivers. Common trees are *Acacia mellifera*, *A. tortilis* and *Commiphora* sp. Shrub layer within this thicket is dominated by *Acacia brevispica* and *Combretum denhardtiorum*. Other bushes are *Grewia bicolor*, *G. villosa*, *Cassine aethiopica* and *Carissa edulis*. In the herb layer are found *Apilia mossambicensis*, *Agave* sp, *Achyranthus aspera*, *Bidens pilosa*, *Sida ovata*, *Leucas* sp, *Commelina benghalensis*, *solanum incanum* and *Cythula cylindrica*.

(ii) **Open bushland :** Dominant tree species in this vegetation type is *Commiphora* spp. Other tree species are *Acacia mellifera* and *A. tortilis*. The most common shrub is *Grewia sichocorpa* and common herbs are *Sida ovata*, *Tribulus terrestris*, *Acanthospermum* sp and *Amaranthus* sp.

(iii) **Dense bushland :** This is found in formerly settled areas. The common trees in this area are scattered *Acacia tortilis*, *A. Mellifera*, *Albizia anthementica*, *Dalbergia melanoxylon*, *Terminalia* sp. Shrubs include scattered *Grewia villosa*, *G. bicolor*, *Acacia brevispica* and *Combretum denhardtiorum*. Common herbs are *Apilia mossambicensis*, *Triumfetta* sp and *Lantana camara*, *Solanum incanum*.

(iv) **Wooded grass land:** Approximately 15 square kilometres of the Reserve is wooded grassland. This stretches from the south west part of the reserve, near Masinga Dam extending along the western flank of the reserve to the northern part of the reserve. The tree layer is characterised by *Combretum* sp, *Acacia drepanolobium*, *Acacia tortilis*, and *Acacia senegal*. The common shrub is *Grewia bicolor*. The herb community includes scattered *Sida ovata* and *Indigofera spicata*. The dominant grass is *Heteropogon contortus*. Other common grasses include: *Eragrostis superba*, *Aristida adscensionis*, *Themeda triandra*, *Chloris gayana*, *Chloris myriostachya*, *Panicum maximum*, *Cymbopogon* spp., *Cynchelytrum roseum*, *Bothriochla inculpta* and *Cenchrus* sp.

(v) **Wood land :** Occurs in central part of the Reserve and approximately 18 square kilometre. The vegetation is characterised by trees growing up to 18 m in height. Dominant tree species are *Acacia* such as *Acacia mellifera*, *Acacia* sp and *A. brevispica*. Others include *Combretum* sp. The middle canopy is composed of shrubs dominated by *Triumfetta* sp and common scattered species of *Grewia villosa*, *G. bicolor*, *G. trichocarpa*, *Combretum denhardtiorum*, *Abutilon mauritianum*, and *Cordia ovalis*. Also in this layer are *Euphorbia cylindrica*, *Solanum* sp. Understorey canopy is composed of herbs, containing the following plant species which vary from site to site. *Abutilon mauritianum*, *Acanthospermum* sp and *Triumfetta* sp. At the edge of the woodland especially with the wooded grassland the following grasses are found; *Themeda*



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triandra, *Chloris roxburghiana*, *Aristida adscensionis*, *Enteropogon macrotastachyus* and *Digitaria macroblephara*.

2.8 Fauna

The Reserve has a wide variety of wild animals. At least 18 wildlife species of importance to the management of Mwea area are given. This includes endangered species; threatened species; species of economic importance; and problem animals.

Endangered species includes the African elephant (*Loxodonta africana*) which exhibit seasonal migratory behaviour. During the wet season they move out of the Reserve to the area east of the reserve commonly referred to as "scheme", about 13 km away from the Reserve. During the dry season the elephants move back to the Reserve. In 1984 their estimated number was 27.

Threatened species include the Nile crocodile (*Crocodilus niloticus*). This is found in the Tana, Thiba river and the network of Tana basin dams. The African darter found in the dams is also threatened.

Species of economic importance include wildlife species that are of tourist appeal in the reserve. These are the African buffalo (*Cyncerus caffer*), The African elephant (*Loxodonta africana*), Hippopotamus (*Hippopotami amphibius*), the grey duiker, black backed jackal, lesser kudu, Impala, bush buck, water buck, spotted hyena, Olive baboon, rock hyrax, Warthog, hartebeest, bush pig, reptiles and fish.

Problem animals include the elephant, the buffalo, hippopotamus, bush pig, warthog and the crocodile. The herbivores raid farms adjacent to the reserve causing heavy losses. However, the construction of an electric fence will to a large extent minimise the crop raiding problem. The crocodile is the main threat to human life. It causes injuries and even death to members of the local community who have to draw water or wash their cloths along the banks of the infested Tana and Thiba rivers. Over the last three years, over 25 people have been killed by crocodiles in Mbeere and Machakos Districts.

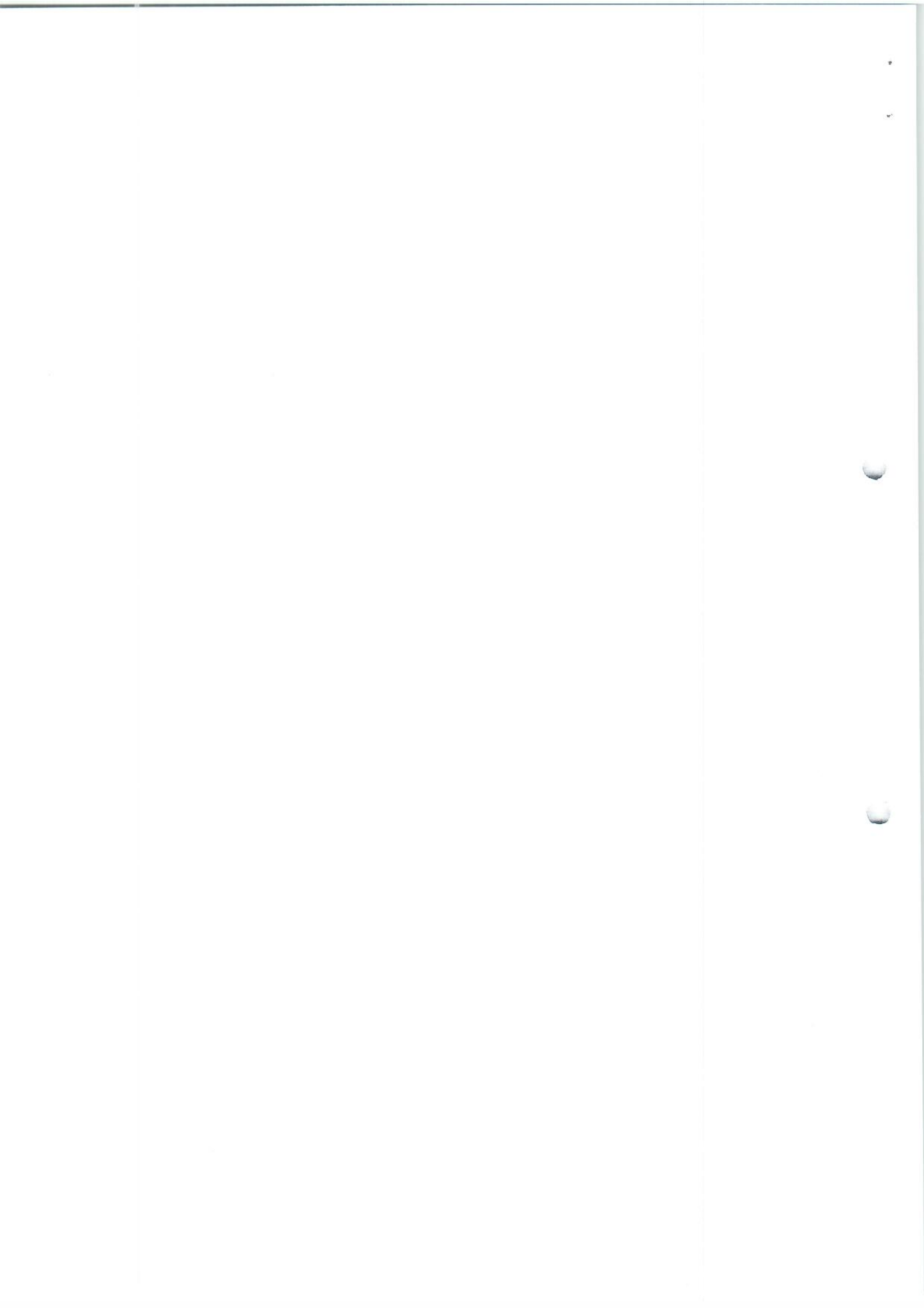
The reserve has a variety of birdlife. Over 150 bird species have been recorded in the Mwea area. Most of these are waterfowls but land species are also common.

2.9 Socio-economic and cultural information

2.9.1 History of the area

Human settlement in Makima area dates back to 1914. However, conservation management intervention by the government in the area started in 1972 when the first Warden visited Makima area accompanied by the District Commissioner, Embu, to sensitise the local community on the importance of wildlife conservation.

In 1972, the first outpost of the then Game Department was established at Kithecu near Tana River followed by Ciakithingo Outpost near Thiba river.



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Before the gazettelement of the reserve, peasant farmers with their Livestock occupied the area. On 18th November 1975, the area was declared a Game Reserve under the management of Embu County Council. In 1976, the present Mwea National Reserve was gazetted and the local people were evicted from the gazetted area and in the same year each family was allocated 10 acre plots each outside the reserve. The reserve then covered an area of 68 Km² with its headquarters at Kithecu.

In 1976, Kamburu dam was constructed giving the Reserve a worthwhile water frontage.

In 1978, twenty-six square kilometres of the Reserve was excised from the reserve for the settlement of the local community. The headquarters shifted to the current site.

In 1996, a Memorandum of Understanding for joint management of the reserve was signed between KWS and Mbeere County Council.

2.9.2 Land use

Land use types in the area are largely influenced by climatic conditions and existing land tenure systems in the Mwea area. The major land use types in the Mwea area includes: wildlife conservation; tourism; fishing; subsistence crop farming; irrigated farming; bee keeping and livestock production.

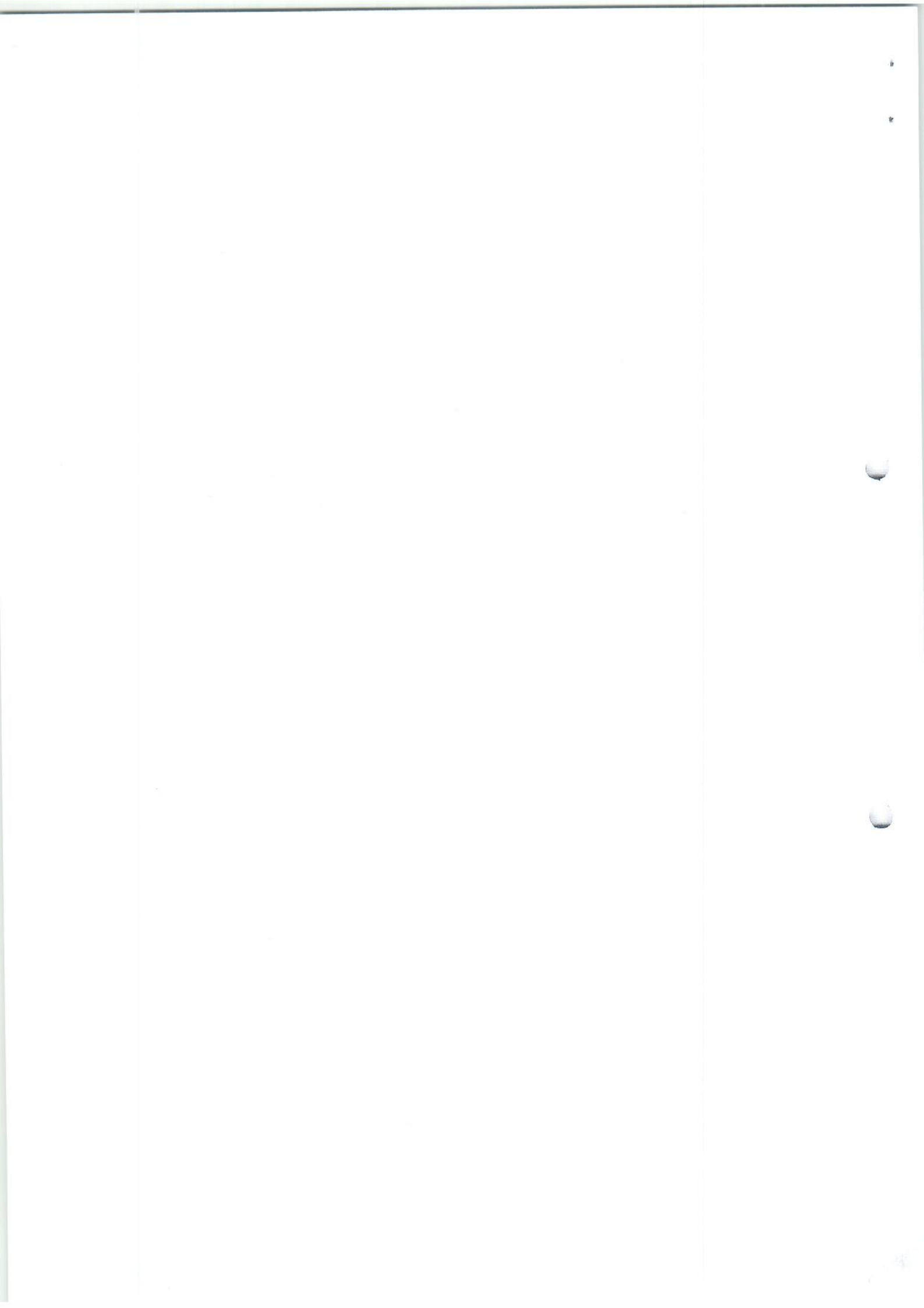
Wildlife conservation and tourism: This is largely confined in the Mwea national reserve, and Masinga dam. Masinga Resort (formerly Masinga Lodge) established in 1989 and with a bed capacity of 50 people was in its earlier days of operation very popular during the weekends. The Resort was very popular for holding workshops and seminars. However, due to inadequate management capability by a private operator the services deteriorated to an extent that it was temporarily closed in 1996. It was re-opened in February 1998 and has attracted many seminars since re-opening. The resorts offers boat trips to Gichuki Island in Masinga dam for picnics.

Fishing: This activity is mainly practised in the Tana river dams. The fishermen have been using small non-technical traditional crafts and gears. Average fish production in the dams has been erratic. The fish are sold locally and in urban areas such as Nairobi and Embu.

In 1995, Kamburu dam produced 58,040 Kg fish while Masinga dam produced 331,031 Kg. Statistics on fish production in the other three dams was not available by the time of producing this report.

Most of the fishermen live as squatters on TARDA land in a village named "Kisumu Ndogo" in Machakos District. The village comprises of about 150 households headed by a beach leader. Most of the fishermen in the dams are migrants from Western Kenya.

Subsistence crop farming: The main crops grown adjacent to the reserve include; maize, beans, sorghum, green grams, yellow grams, cow peas, coriandra, bananas, sugarcane and millet.



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Irrigated farming: Rice growing is practised at Mwea Tebere Irrigation Scheme in Kirinyaga District with a human population estimated at 125,936 people. The cash crop grown in this scheme is rice. The National Irrigation Board (NIB) manages the irrigation scheme. TARDA has two irrigation projects in Masinga and Kiambere. Rice growing in the scheme involves extensive use of agro-chemicals and fertilizers which eventually find their way into the dams. There is therefore need to establish a water quality monitoring programme in the five dams.

Livestock Keeping: Domestic animals kept include dairy and beef cattle, goats and sheep. These are kept by the peasant farmers and at Yoder Ranch.

Livestock population estimates for Makima Location in 1996 were as follows:
Cattle- 19,230; Goats -19,682; Sheep- 3,780; and Donkeys- 48.

Bee keeping is also an important activity in the area. In 1996, seven hundred and seventy two traditional bee hives were recorded by the livestock department in Makima Location. 772 hives

Further to this KWS has provided 1500 beehives for the reserve adjacent community.

Afforestation : Tana River Development Authority (TARDA) has established tree nurseries and plantations around the Tana dams to curb soil erosion and in essence avert siltation of these dams. The trees grown are mainly trees with valuable wood for building and fuelwood such as *Grevillia* sp and some indigenous species TARDA has also initiated the rehabilitation of denuded areas during the time of dam construction through landscaping and planting of trees.

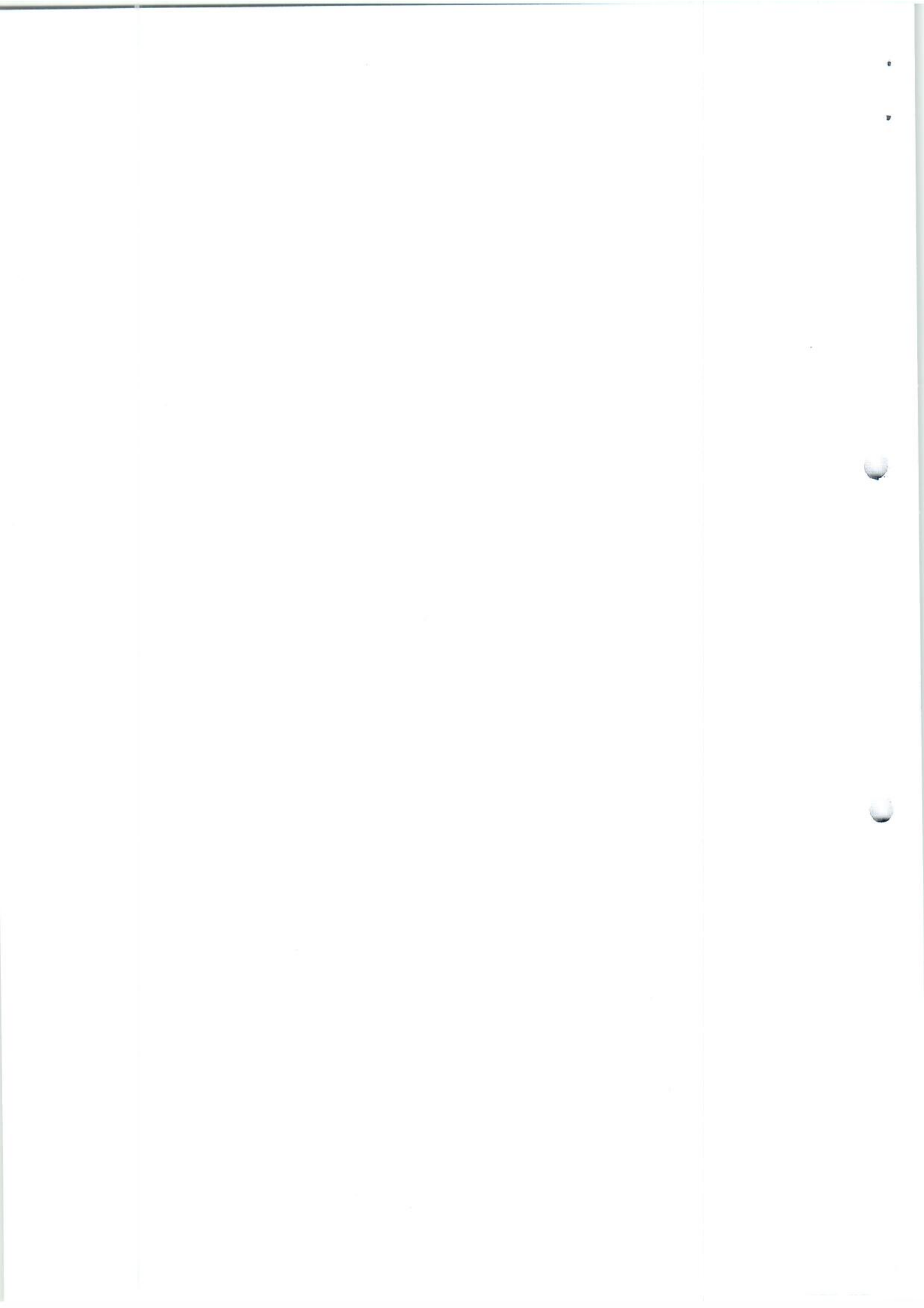
2.9.3 Human-Wildlife Interactions

Due to the proximity of the reserve to the settlements, conflicts between human activities and wild animals are heavily pronounced. Crop raiding by elephants and warthog is the major problem in the area. Elephants, crocodiles and hippopotamus also cause human deaths and injuries resulting in physical and emotional stress to the affected people. For instance between 1996 and 1997, there were 25 human deaths and 9 injuries caused by wildlife. In the same period, nine elephants, seven crocodiles and one hippopotamus were killed on PAC activities.

Wild ungulates act as a reservoir for trypanosomiasis. This disease is transmitted from livestock to humans by the tsetse flies, which are found in the reserve. The epidemiology of the disease in Mwea is not documented. Wildlife herbivores also compete with livestock for forage particularly in the buffer zone of the reserve.

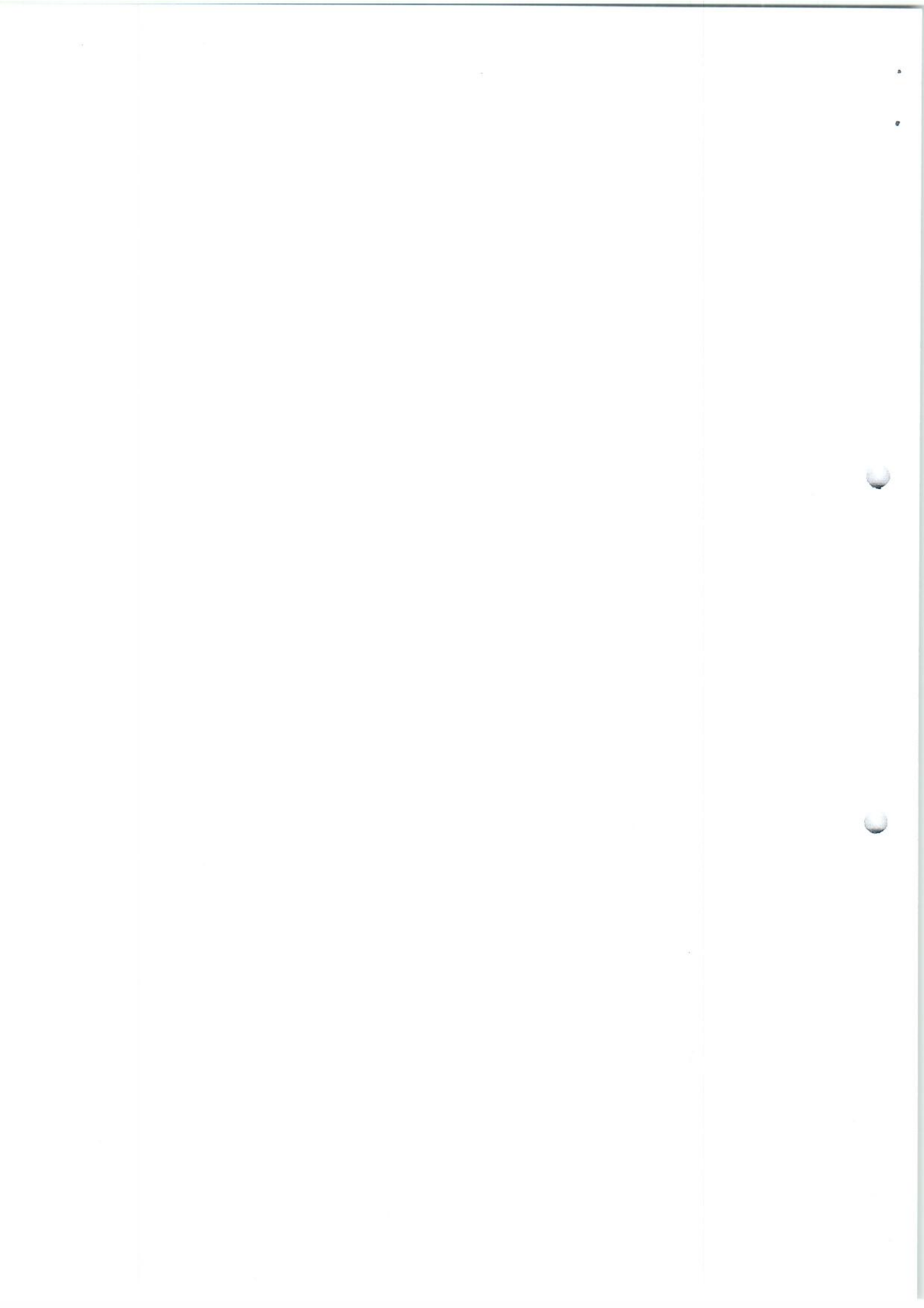
2.9.4 Visitor statistics and revenue

The reserve has a very low visitation and tourism is in its infancy. However, with appropriate developments in tourist infrastructure and marketing, the reserve and the adjacent areas exhibits high tourism potential. Between August 1996 and November 1998 only 238 visitors visited the reserve. The revenue that accrued from tourism activities in the same period was Ksh. 99,479.00.



2.10 Key Stakeholders in the Mwea area

Within the Mwea area, the key stakeholders include: the Mbeere County Council; Kenya Wildlife Service; Mwea National Reserve Trust; Plan International; TARDA; Fisheries Department, Provincial Administration, Ministry of Agriculture, Ministry of Livestock Development, the Fishing community and the local settlement community.



PART TWO: OBJECTIVES

3.0 Management Issues in the Mwea area

Key management issues can be categorised broadly into, biodiversity, partnership and tourism issues.

3.1 Biodiversity conservation issues

- Tsetse fly control and management
- Habitat management
- Elephant management
- Crocodile management
- Re-introduction and introduction of species
- Biodiversity inventory
- Ecological monitoring
- Pollution
- Soil erosion
- Siltation of the rivers and dams

3.2 Partnership issues

- Establishment of a buffer zone
- Problem Animal Management
- Fence maintenance
- Fisheries management
- Building and strengthening partnerships
- Implementation of the Integrated management plan for Mwea area
- Lack of adequate safe drinking water supply
- Lack adequate fuel wood

3.3 Tourism issues

- Lack of easy access from the tarmac road
- Inadequate maintenance of roads in the reserve
- Lack of adequate tourist accommodation inside the reserve
- Lack of a marketing and promotion strategy
- Lack of water supply
- Poor wildlife visibility
- Limited tourist activities

3.4 Assessment of Potential and Threats

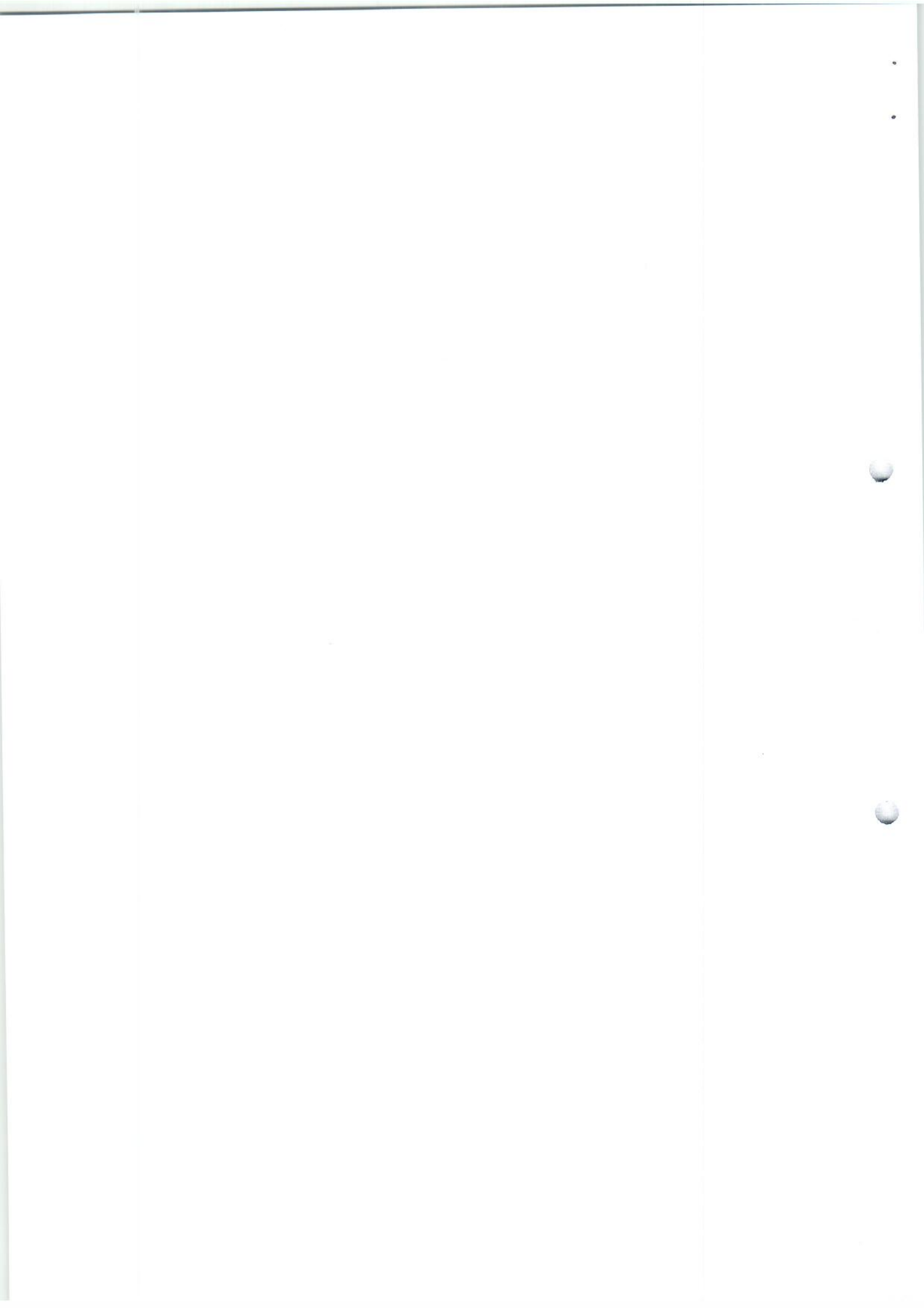
The diverse landscapes and associated wildlife offer opportunities for further development of Mwea as a tourist destination and also as an area where the local community and other stakeholders are actively involved in natural resource management and utilization. The opportunities and the potential of the area in terms of biodiversity conservation, tourism and partnership development is given below (Table 1).

Table 1. The Potential of Natural resource use in Mwea area

Opportunity	Potential
Presence of Dams	Boating, hydro power production sailing, sport fishing, educational tourism, Irrigation
Diverse bird life	Bird watching, bird shooting
Presence of wildlife	Game viewing, bird watching, research
Diverse landscapes	Tourist attraction
Interested stakeholders	Active and viable partnerships
Proximity to Nairobi	Reserve easily accessed
Protected area	Breeding sites for wildlife and particularly fish and birds

3.4.1 Threats and remedial measures

This section broadly considers the threats to exceptional resource values considered above. The crucial management objective is to contain or minimise these threats as far as possible. Table 2 below lists the major threats and possible remedial measures.



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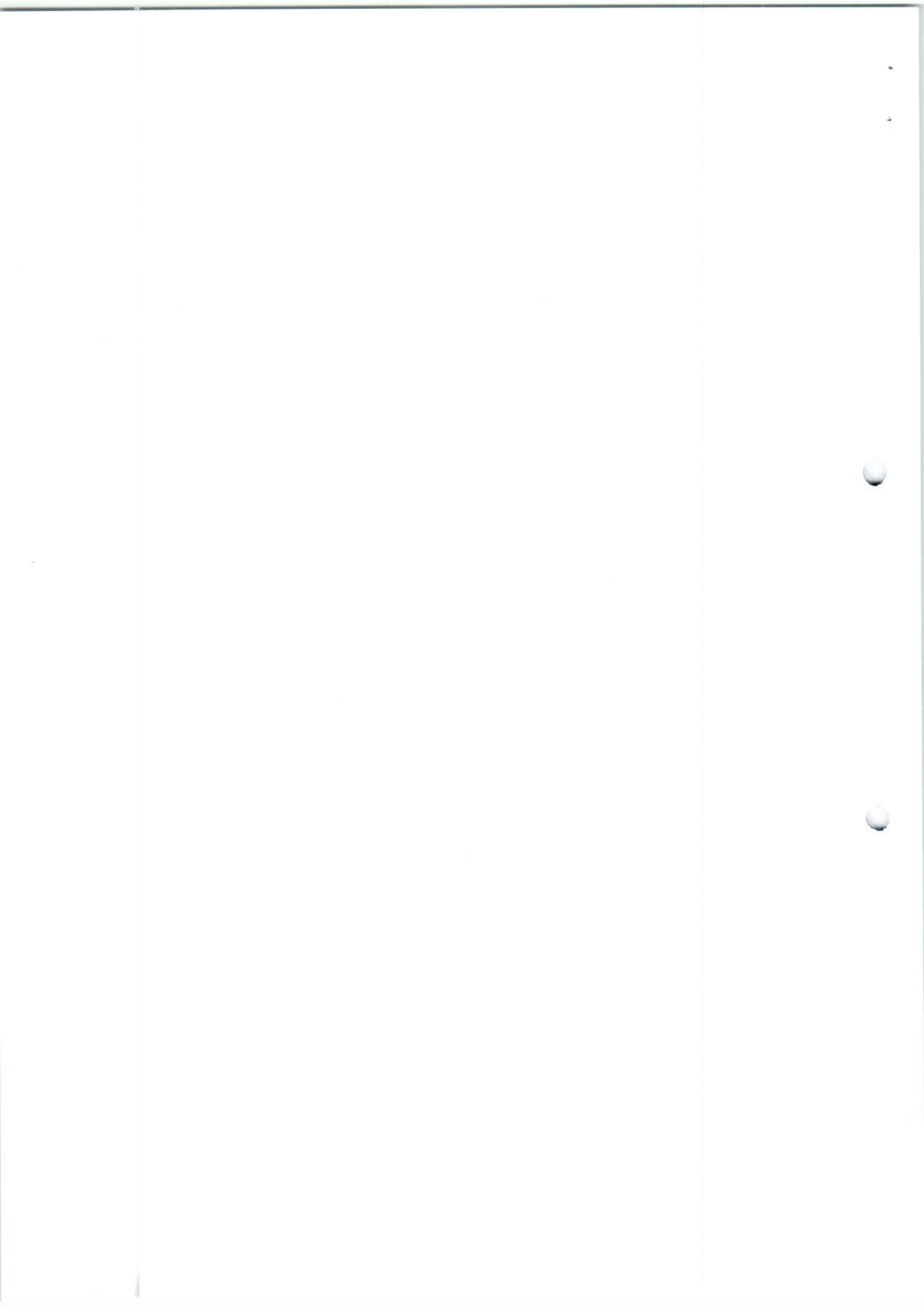
Table 2 Threats and possible remedial measures

Threats	Remedial measures
Tsetse fly infestation	Develop tsetse control and management program
Malaria	Ensure that campsites are cleared and visitors are warned to take precautions
Low wildlife visibility	Initiate bush management program
Poor road network in the reserve	Rehabilitate road network and bridges
Poor state of access roads	Rehabilitate access roads
Human-wildlife conflict	Problem animal management
Lack of marketing and promotion strategy	Develop a marketing and promotion plan
Fires	Fire breaks should be constructed
Low wildlife diversity	Re-introduce wildlife species
Siltation in the dams	Soil conservation initiatives in the catchment area
Water pollution from agro-chemicals	Community education and awareness programs
Inappropriate fishing methods	Create community centred regulatory mechanisms

5 Overall management goals

The broad objective of this management plan is to maintain and develop a viable conservation area in Mwea, ensure that the stakeholders benefit from the natural resources and develop sustainable nature tourism

Given the issues considered above, three management goals for Mwea area have been identified to guide the formulation of development of projects and programmes under this plan.



Goal I : Enhance biodiversity conservation;

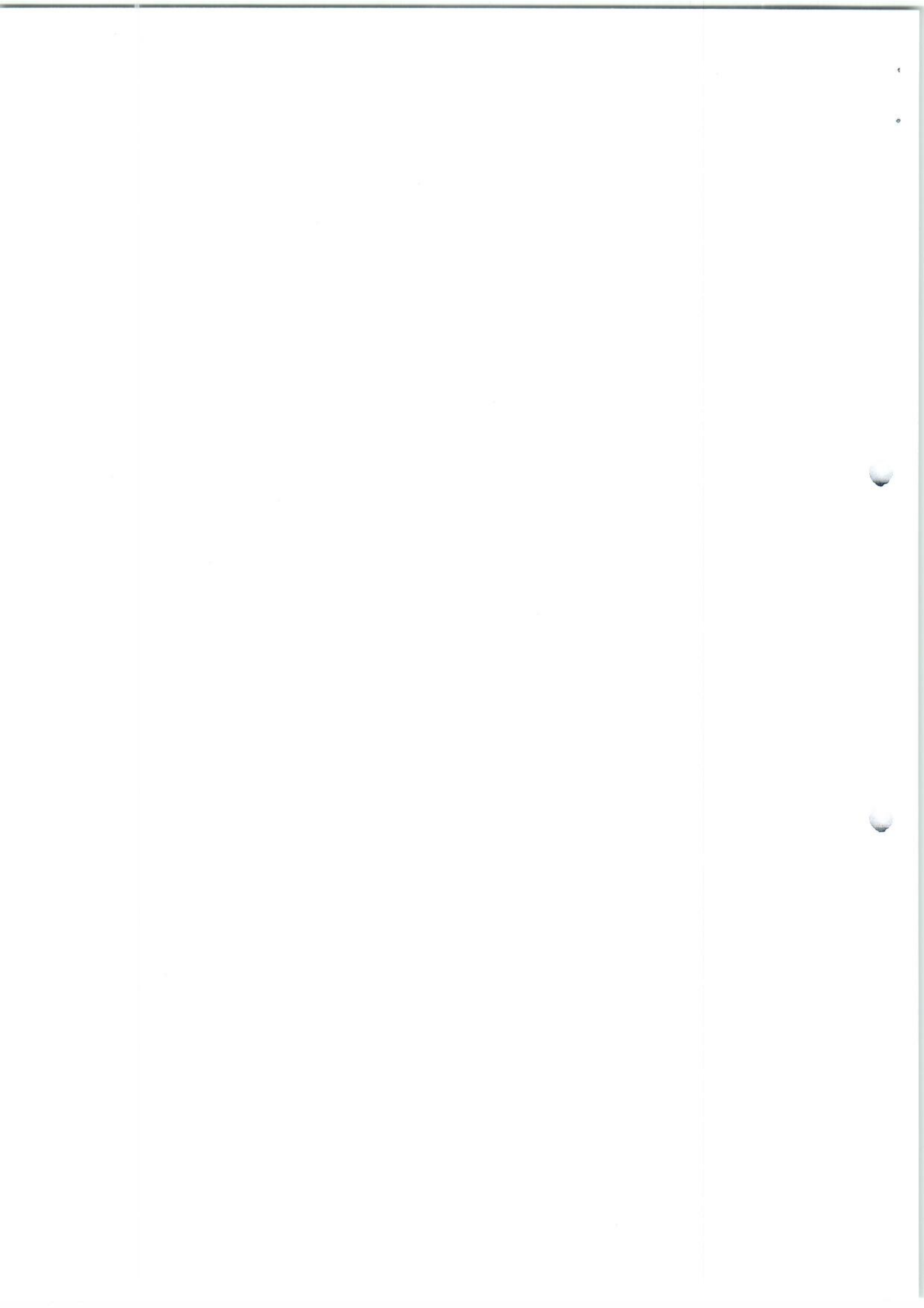
Goal II : Promotion of partnership in biodiversity conservation and;

Goal III : Promotion of sustainable nature tourism.

3.5.1 Specific Management Objectives

In order to achieve the above stated management goals, the plan has the following specific objectives:

- i To maintain a healthy wildlife population and a stable habitat in the Mwea area through maintenance of an ecological balance between the habitat and wildlife populations.
- ii To minimise human/wildlife conflict through adoption of effective problem animal control measures such as fencing, problem animal management and relocating them.
- iii To increase the reserve visitation by improving and diversifying visitor facilities and services.
- iv To support and encourage participation and contribution of other conservation stakeholders in the management and conservation of biodiversity in Mwea.
- v To give short-term benefits or incentives to sustain community support even if real environmental and economic benefits will emerge over the long term.
- vi To enhance visitor experience and satisfaction through habitat management programmes focussing on increasing wildlife visibility in the reserve.
- vii To rehabilitate the reserve road network and bridges to allow for easy access to sites of visitor interest.
- viii To enhance visitor comfort and to control transmission of trypanosomiasis to both people and livestock through control of tsetse flies by establishing tsetse traps in the reserves.
- ix To explore the types of opportunities existing for conservation related enterprise projects that can contribute to alleviating poverty in the Mwea area such as crocodile farming among others by undertaking feasibility studies.



- x To maintain the ecological integrity of the area by monitoring changes in both the floral and fauna and making appropriate management interventions.

4.0 Zoning

Zoning of the reserve and adjacent areas is intended to protect rare and endangered species and ecosystems, provide a variety of tourism opportunities, separate potentially conflicting uses and provide long term guidelines for resource management. The zonation plan should provide direction for daily management as well as long term decision making to protect the resources and regulate activities.

A comprehensive resource inventory of the reserve and adjacent areas has not been undertaken. In order to compile a zonation map of the area, aerial photos and ground truthing resource analysis must first be completed. It is recommended that resource inventories and analysis continue as one of the highest priorities to help determine the range, composition and size of the habitats in the area. This should be completed in year one of this plan and a zonation plan prepared.

Consideration should be given to the following issues in creating the zones:

- Current and projected visitation to the reserve and adjacent areas
- The role of partners especially in areas outside the reserve
- Protection of exceptional or unique or exceptional resources
- Separation of research, tourism and administration
- Provision of a range of tourism opportunities

The following five zone categories will be used:

- Utility zone
- Tourism zone
- Conservation zone
- Buffer zone
- Transition zone

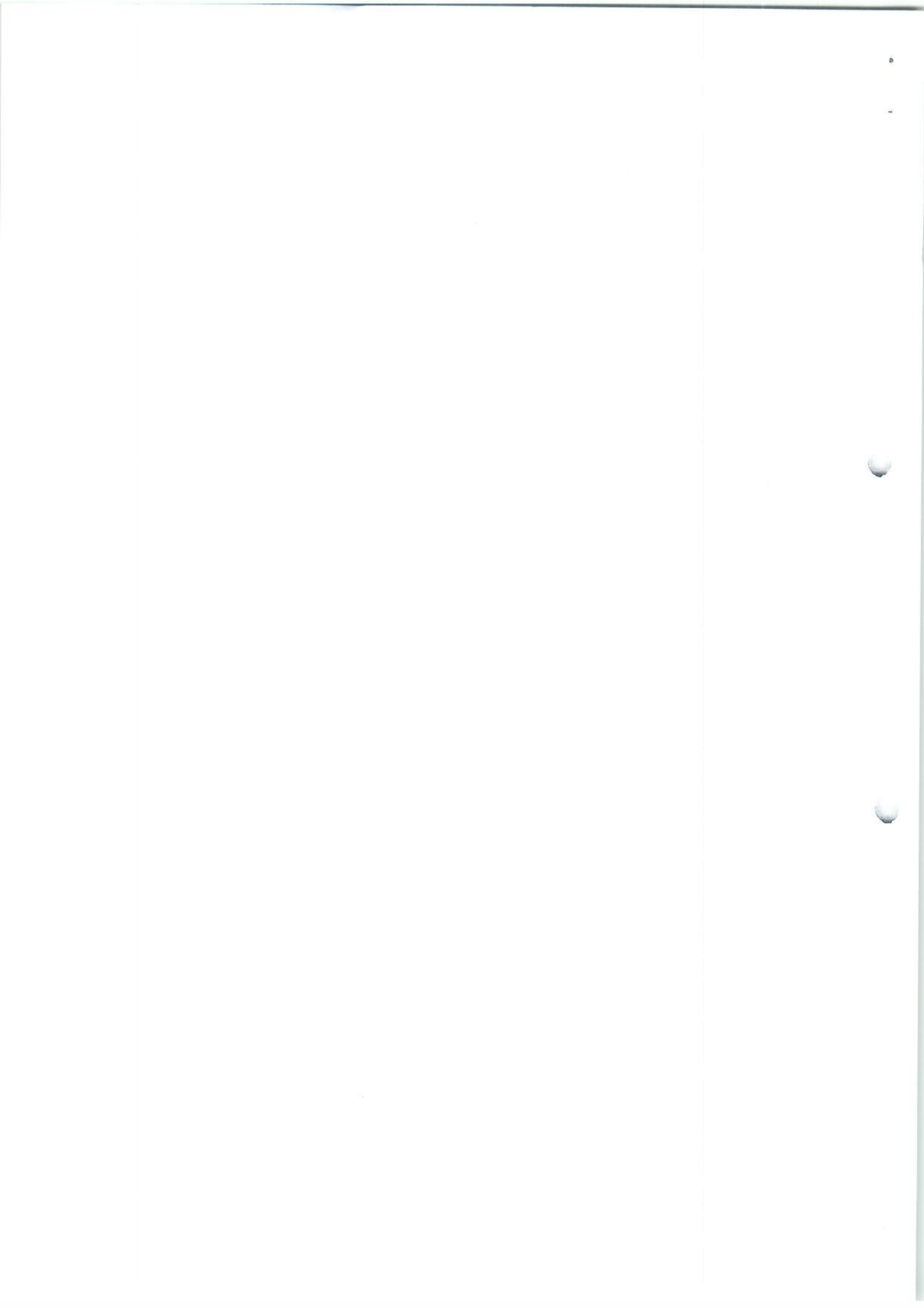
4.1 Utility zone

Purpose:

To provide sites for management services such as reserve headquarters, staff houses, gates and outposts for the reserve.

Management strategy:

The installations should be visually and acoustically isolated from other parts of the Reserve.



4.2 Tourism zone

Purpose:

To provide high- quality visitor experience in the Mwea area.

Management strategy:

To develop tourist facilities such as tented camps, campsites, picnic sites and viewing circuits. The aesthetic qualities of current structures will be improved. Walking in the reserve shall be encouraged.

4.3 Conservation zone

Purpose:

To protect sites and areas which have unique, unusual or otherwise important biotic and abiotic features. These sites will be determined during year one of the plan after sufficient information is gathered in the entire area.

Management strategy

As much as is possible, there should be minimal disturbance to the environment including plants and animals. Activities allowed here include guided walks, and viewing hides. Scientific research will also be allowed in this zone.

4.4 Buffer zone

Purpose:

The purpose of this zone is to enhance conservation and to dampen disruptive human activities in areas surrounding the reserve. This is the area surrounding the reserve where land use activities are compatible with wildlife conservation. It includes the dams and adjacent TARDA land.

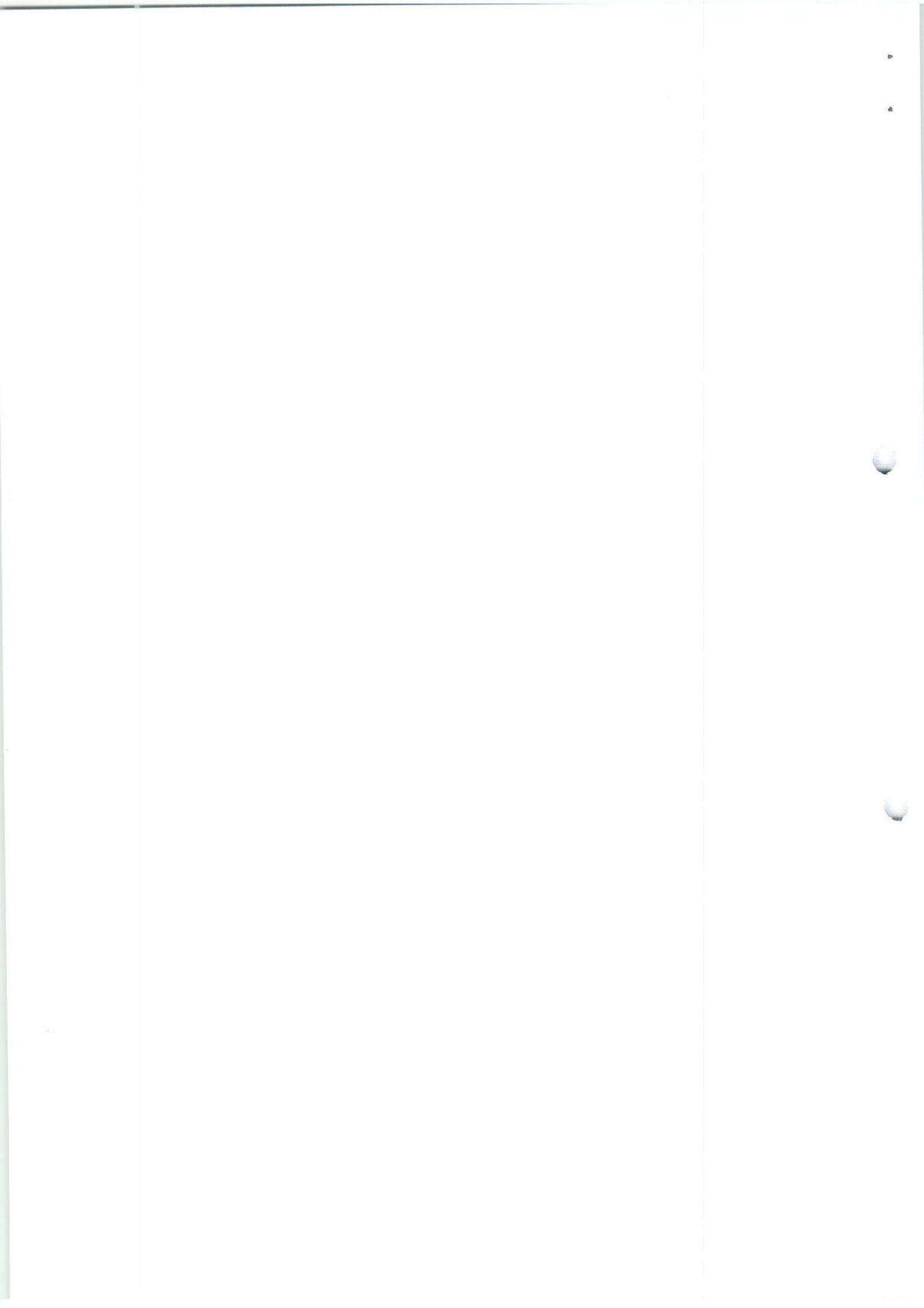
Management strategy

This zone will be managed for its potential as a dispersal area for the wildlife in Mwea area. The stakeholders who own the land will be encouraged to practice land use activities that are compatible with wildlife and wetlands conservation. Sound and sustainable fishing practices will also be promoted in the aquatic buffer areas.

4.5 Transition zone

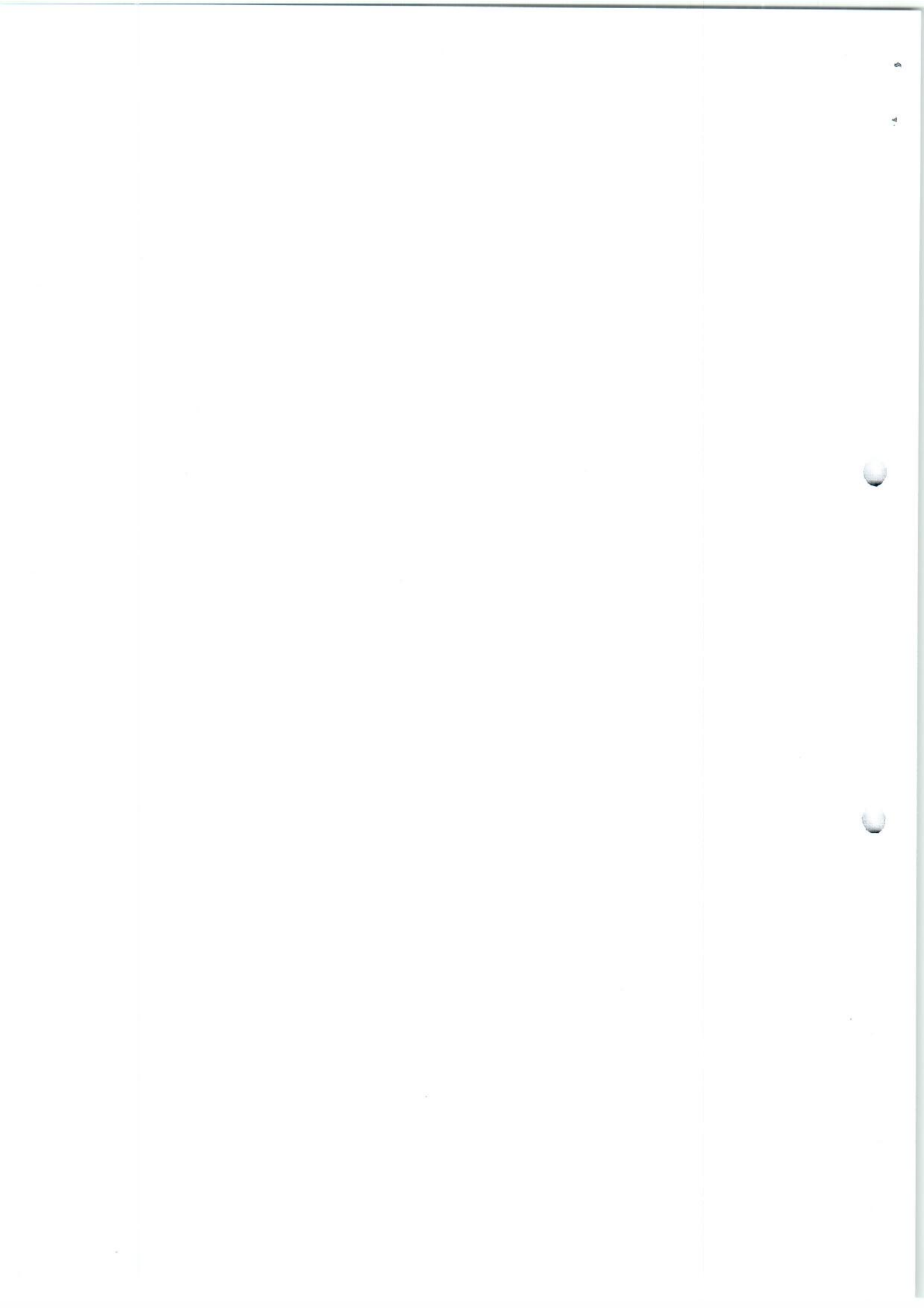
Purpose:

The purpose of this zone is to solicit support of biodiversity conservation through incentives and goodwill projects. This is the agricultural land close to the reserve and further away from the reserve. In terms of biodiversity conservation, the area is of low biodiversity importance, but the residents to the periphery of the reserve pose a significant threat to the reserves resource base.



Management Strategy

Human/wildlife interface is characterised by conflict and the aim will be to minimise the conflicts through poverty alleviation projects that are linked to biodiversity conservation. The local community will also be actively involved in problem animal management activities.

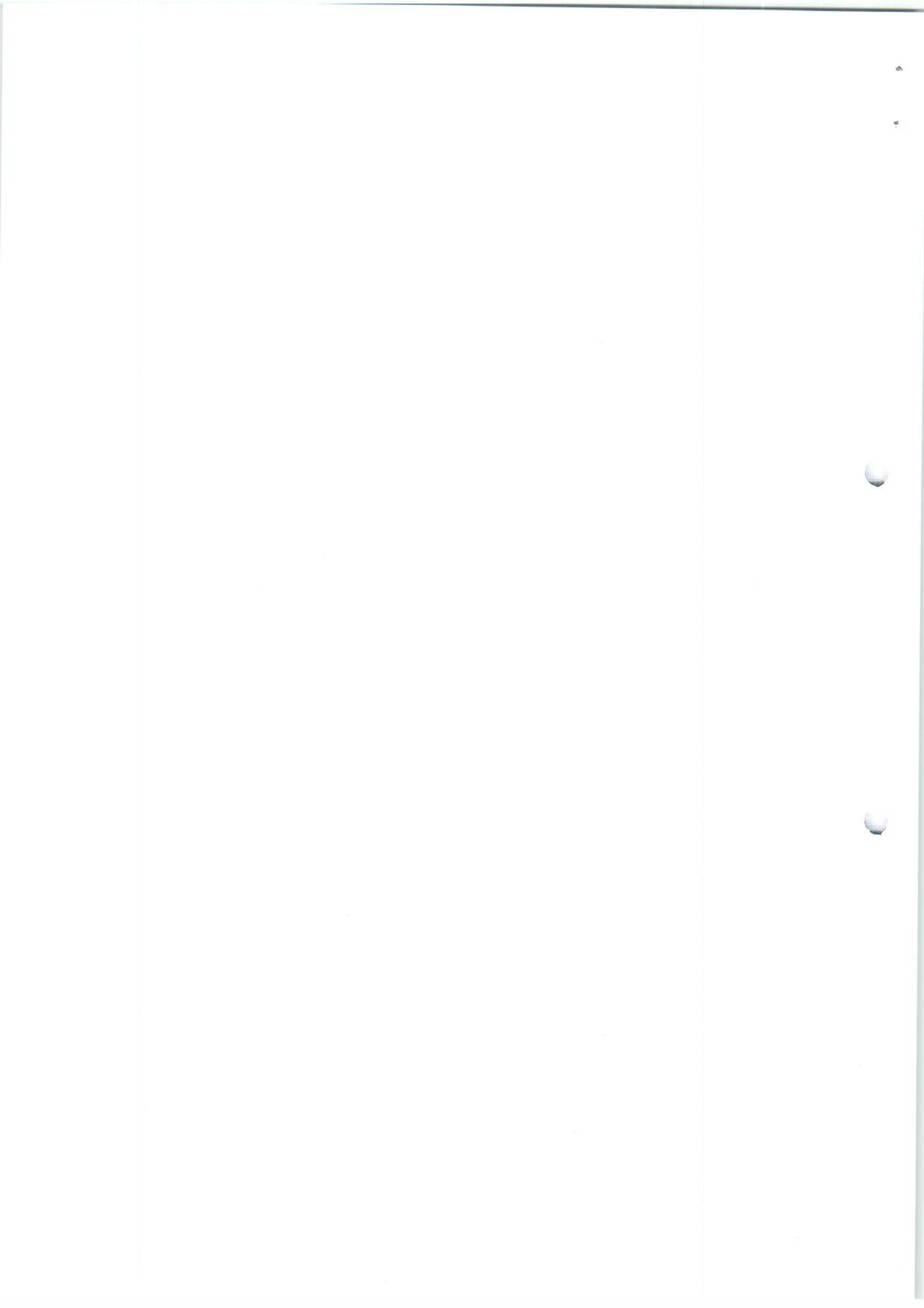


PART THREE: DEVELOPMENT PROJECTS AND MANAGEMENT PROGRAMMES

5.0 Management and Staffing

The current staff establishment in Mwea Reserve comprising one Area Tourism officer, One Corporal ranger, three KWS rangers and two County Council rangers is considered inadequate for purposes of implementing this management plan. Reserve staffing levels will largely be determined by the amount of financing available for reserve operations.

The financing is expected to come from several sources, including reserve revenue, Mbeere County Council, KWS and donor funding. The following staff establishment recommended indicates the minimum level of employees necessary to continue reserve operations at the present level. Staff numbers would necessarily increase in proportion to increased reserve visitation upon the improvement of infrastructure and subsequent publicity and promotion.



6.0 Tourism Management Programmes

The tourism management programme is aimed at enhancing visitor experience and satisfaction through improving the aesthetic appeal of existing visitor facilities and by diversifying visitor activities. The reserve will also be marketed aggressively both locally and abroad. The benefits associated with tourism include:

- Increased revenue for reserve management and community development
- Creation of jobs and income opportunities for local people and
- Environmental awareness and education for the local people and visitors leading to support for conservation efforts

Despite its rich and varied biodiversity, closeness to Nairobi, closeness to a busy tourist circuit, varied tourist activities and interest sites, the Reserve visitation has remained extremely low due to the following:

- Poor access roads
- Poorly maintained viewing circuit roads and bridges
- Lack of publicity

6.1 Visitor facilities and services

6.1.1 Campsites

There is currently one camp site in the reserve and several more are proposed. The Central Road Campsite facilities include a pit latrine and a bathroom that require rehabilitation and painting to enhance their aesthetic appeal. Piped water need to be provided by extending the water pipe line from the headquarters to the campsite. Metallic litter disposal bins in which litter can be burnt should be provided. The bins should have a cover to prevent scavenging animals from dispersing litter. "No litter dumping" signage should be placed at vantage locations within the camping site.

Metallic bins have
in the past been
also usually smashed
by elephants
This can do.

A special campsite along the central circuit road is proposed. The actual location will be determined by the reserve management. Four other campsites will be established during the plan period. The development of these campsites will however depend on the reserve visitor trends upon satisfactory implementation of infrastructure development recommended in this plan.

This established
in early 1959.
no facilities
required

6.1.2 Picnic Sites

There are currently two picnic sites and one more is proposed.

The Hippo Point Picnic Site This site lies on the shores of Kamburu Dam and from here one can safely watch hippos, crocodiles and a variety of other animals coming to water. The site has a high variety of birds and thus can be very popular with bird watchers. Currently, there is an incomplete and dilapidated round hut and the area that had been cleared for picnics have been overgrown with bushes. The site requires bush clearing and picnic benches and tables. The long drop pit latrine requires rehabilitation and painting. Further, a metallic litter disposal bin with cover should be put in place.

Bins are prone to theft. elephants also smash them. Pits are preferable

The round hut should be rehabilitated to display reserve and adjacent area interpretative materials including map of the area, reserve rules and regulations, the history of the area, a checklist of bird and animals species in the reserve. The map should be provided to all visitors as a matter of routine.

To be written/drawn on the inside of the hut.

The Central Road Picnic Site is situated about 200 metres from the central road campsite. It has a long-drop latrine but no water.

Latrine requires rehabilitation. Provision of water at this site not recommended

The proposed Tana picnic site. This is located on the bank of Tana river at the southwest edge of the reserve. The site has huge acacia trees that offer good canopy ideal for picnics and has a good river frontage. A pit latrine and metallic litter disposal bins should be provided.

6.1.3 Tented Camp

A tented campsite or lodge on the eastern bank of Hippo pools creek has been proposed by several people. The site should however be evaluated to determine suitability and economic viability before this proposal is adopted.

Hides

The varied bird life is one of the main attractions of the Reserve. This should be exploited by constructing simple hides in suitable places, for bird watching. The Area Tourism Officer will determine these sites.

eg. at Bird viewing point

6.2 Visitor Activities

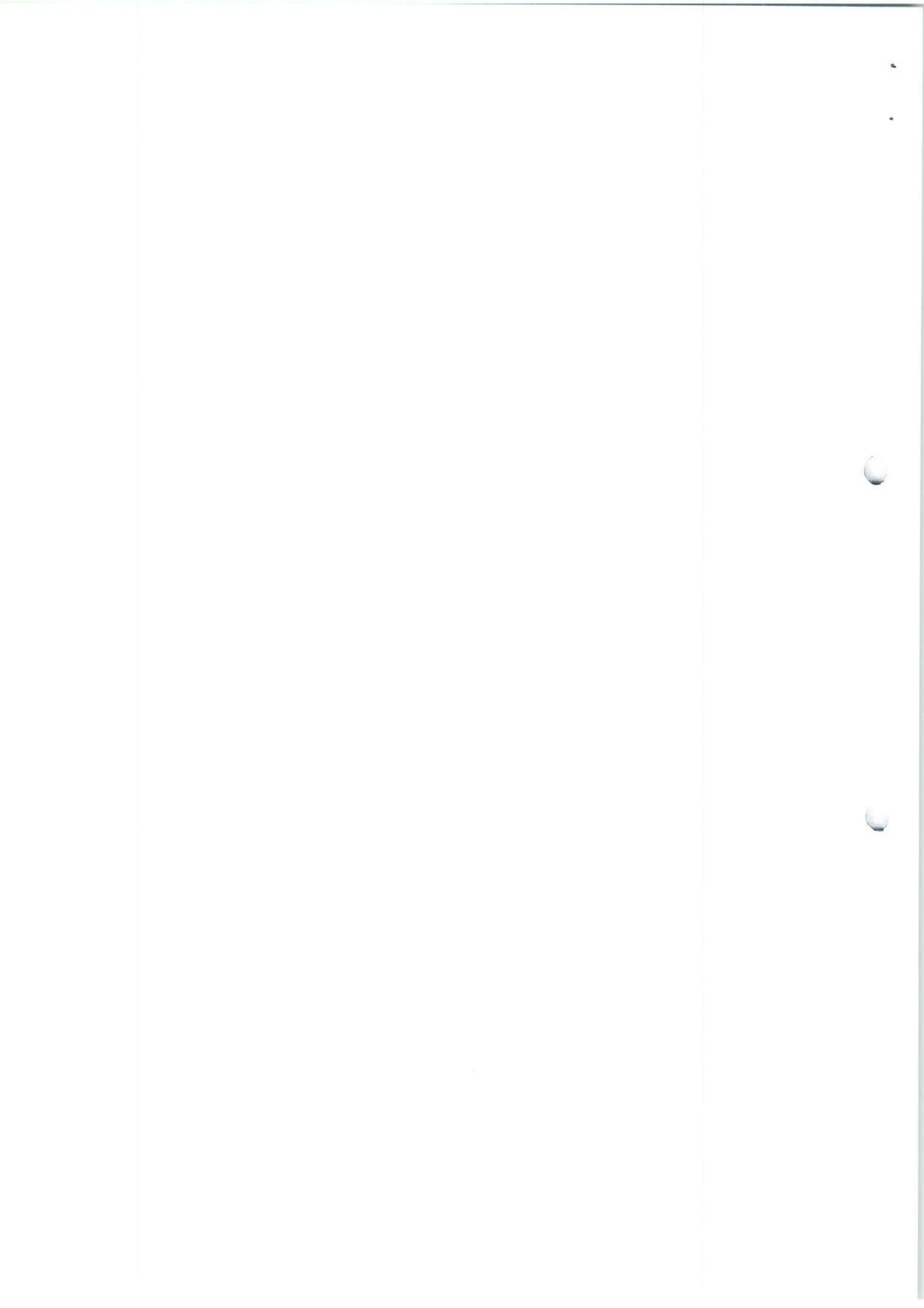
6.2.1 Bird watching

The reserve and the adjacent dams have very high bird species diversity. The species diversity of Mwea dams was only exceeded by five other sites in Kenya out of a total of 22 sites where counts were done in 1996 and 1997. Consequently, Mwea can serve as a popular sites for bird watching in Kenya. Special publicity for ornithological safaris and research should be undertaken. A checklist of the bird found in Mwea is under preparation by KWS.

Area has an updated list of approx. 200 spp

6.2.2 Bird Shooting

Bird shooting has been going on for many years in the Mwea Tebere Irrigation Scheme and is increasingly popular. As at the moment, there are no benefits accruing to the



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Mwea Tebere community. There is therefore need to establish a mechanism through which the farmers of Mwea Tebere Irrigation Scheme can benefit from revenues derived from the bird shooting activities. Bird shooting should however be restricted to areas so designated upon completion of the zonation map.

6.2.3 Boat Safaris

The presence of the large water bodies in the area represents a good opportunity to introduce boating safaris especially in Masinga and Kamburu Dams. Currently, Masinga Resort Management has been organising boat safaris to Gichuki Island in Masinga dam. Boating provides better viewing opportunities for both birds and animals, especially in Kamburu dam where there are good resting and roosting sites provided by the riverine forest.

6.2.4 Walking Safaris

This activity could be developed for tourists who want to walk in the tourism zone. A ranger guide would, however, be required to offer security from wildlife. The trekker would be required to sign an agreement with the reserve management absolving the management from any liabilities emanating from this activity.

6.2.5 Education based tourism

This kind of tourism is prevalent around the hydro power generating plants along Tana River and is popular with school pupils and students. There is however, need to incorporate a visit to the reserve by these school and college parties.

6.2.6 Game viewing

Among the large herbivores to be seen here include the elephants, buffaloes Lesser Kudu and warthog among others. Visibility is poor due to dense bushes and low animal numbers (due to "pot poaching"). To improve animal viewing, the thickets and bushes require clearing and the road network improved, while security patrols can minimize substantially the level of poaching. Two saltlicks for attracting animals should be constructed at suitable places within the reserve. However, the impacts of these management actions should be assessed first. Signage in the reserve is lacking and needs to be done.

6.2.7 Sport fishing

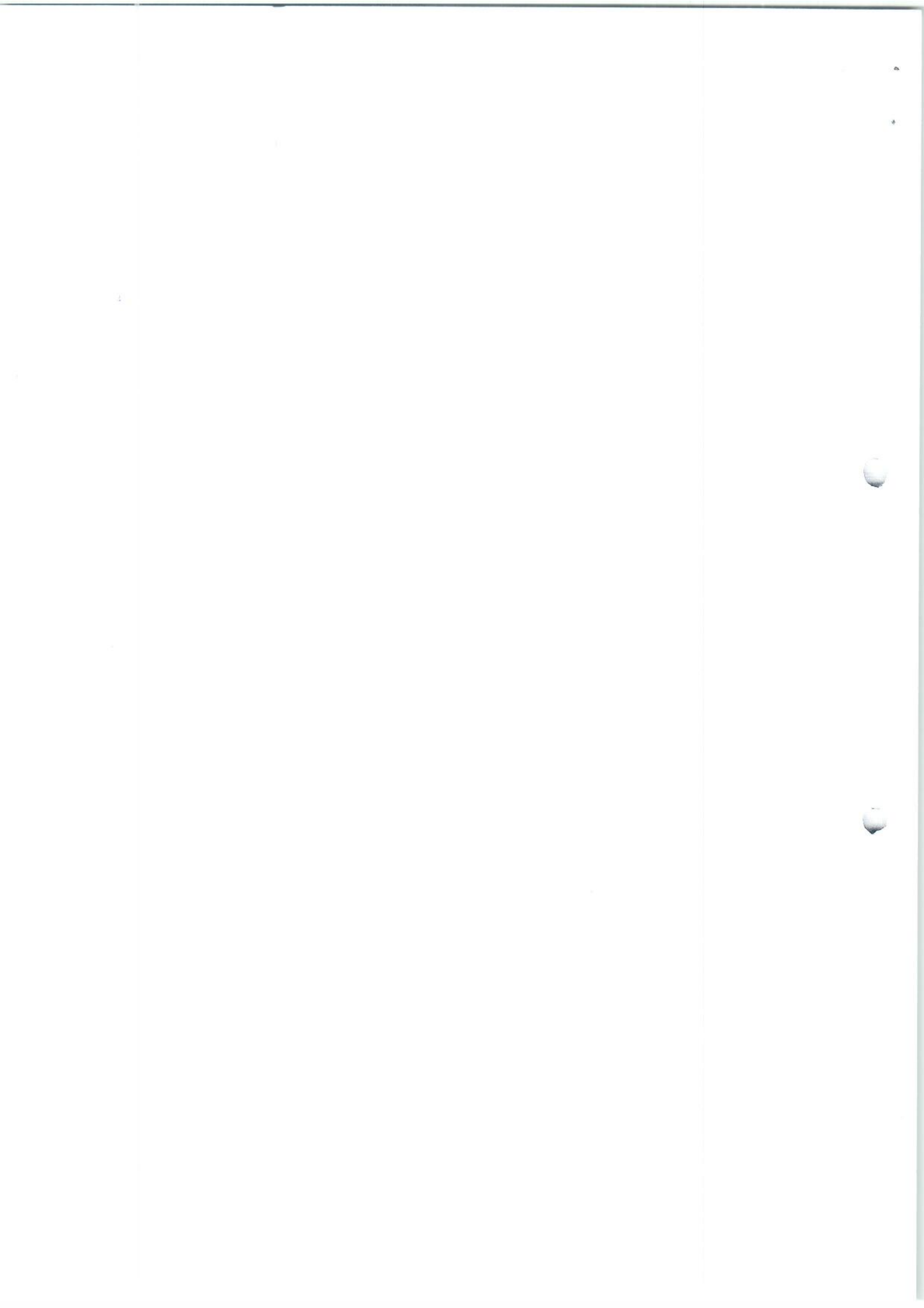
This activity is currently absent but tremendous potential exists in these water bodies. Introduction of this activity should therefore be considered.

6.2.8 Information and interpretation

Information and interpretation programmes can contribute significantly to the success of the reserve in attracting visitors as well gaining support for management programmes within the reserve.

Information and interpretation programmes with the following components will be established:

Accurate and up to date map of the reserve be made available at the gates at a cost.



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On prepared in
1998. April
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- An attractive colour illustrated brochure be made available at the gates at a cost.
- Interpretative information materials to be made available at the shop located at the gate.

6.2.9 *Marketing and Promotion*

In addition to enhancing the tourist appeal of the reserve and diversifying the range of tourism activities in the area, these attributes must be made known to the potential visitors, both locally and internationally by putting in place an aggressive marketing and promotion plan for the area. The following methods should be considered in developing the marketing strategy.

- Print and electronic media, including the internet
- Use of brochures
- Use of magazines
- Use of tour operators, travel agents, and Friends of Mwea.
- Use of lectures, ASK Shows, guide maps, public barazas and education tours

A poster (notice)
display printing and
distribution to
social centers

Summary of tourism management actions

Central Road Campsite

- Rehabilitate pit latrine and bathrooms
- Paint the pit latrine and bathroom at the Central Road campsite.
- Supply water to the campsite
- Provide litter disposal bins

Construct Special Campsite along Central Road

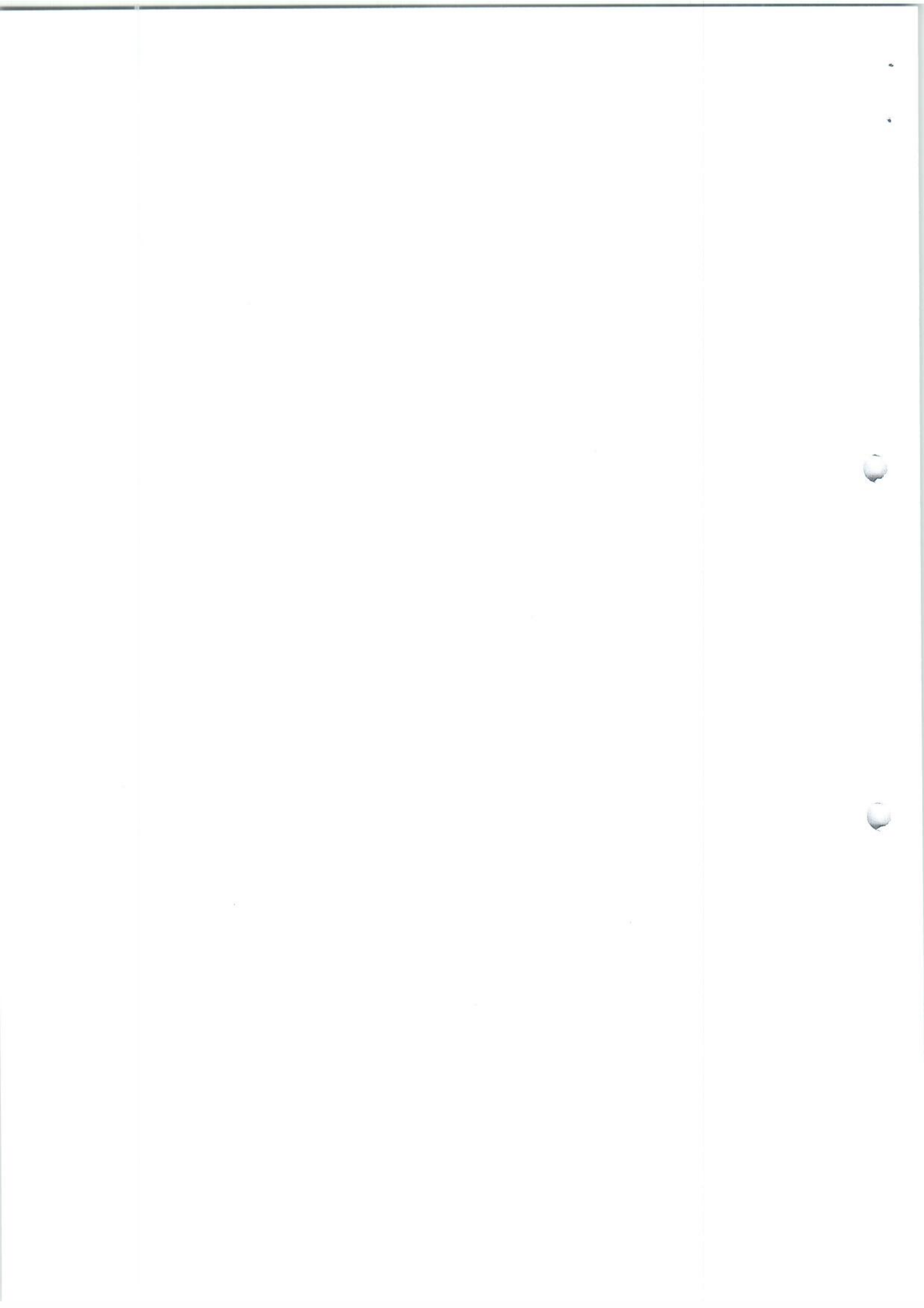
- Construct a pit latrine and a bathroom
- Construct access track to the campsite
- Establish six other campsites

Hippo point picnic site

- Bush clearing
- Provide picnic benches, tables and a pit latrine
- Rehabilitate the hut
- Provide reserve interpretative display panels in the hut

Tented Camp or Lodge

- Identify suitable area for a tented camp or lodge
- Carry out a feasibility study
- Market the site for development by an entrepreneur



des

Construct simple hides

Animal look out points

Construct animal look out points in suitable areas - viewing point, preferably elevated areas on open grassland eg 10-12 for elephants

Walking Trails

Construct one walking trail

Game viewing

Clear bush to improve animal visibility

Establish two saltlicks to attract wildlife

Carry out an EIA for the proposed saltlicks

Information and Interpretation

Prepare an updated tourist map for the Mwea area

Prepare a brochure

Prepare leaflets on the reserve rules and regulation

Marketing and Promotion

Advertise in the print and electronic media

Involve the Kenya Association of Tour Operators, East African Wildlife Society,

Kenya Museum Society, East African Natural History Society and the Wildlife

Clubs of Kenya in advertising and publicity

Promotion through ASK shows, public Barazas and education tours

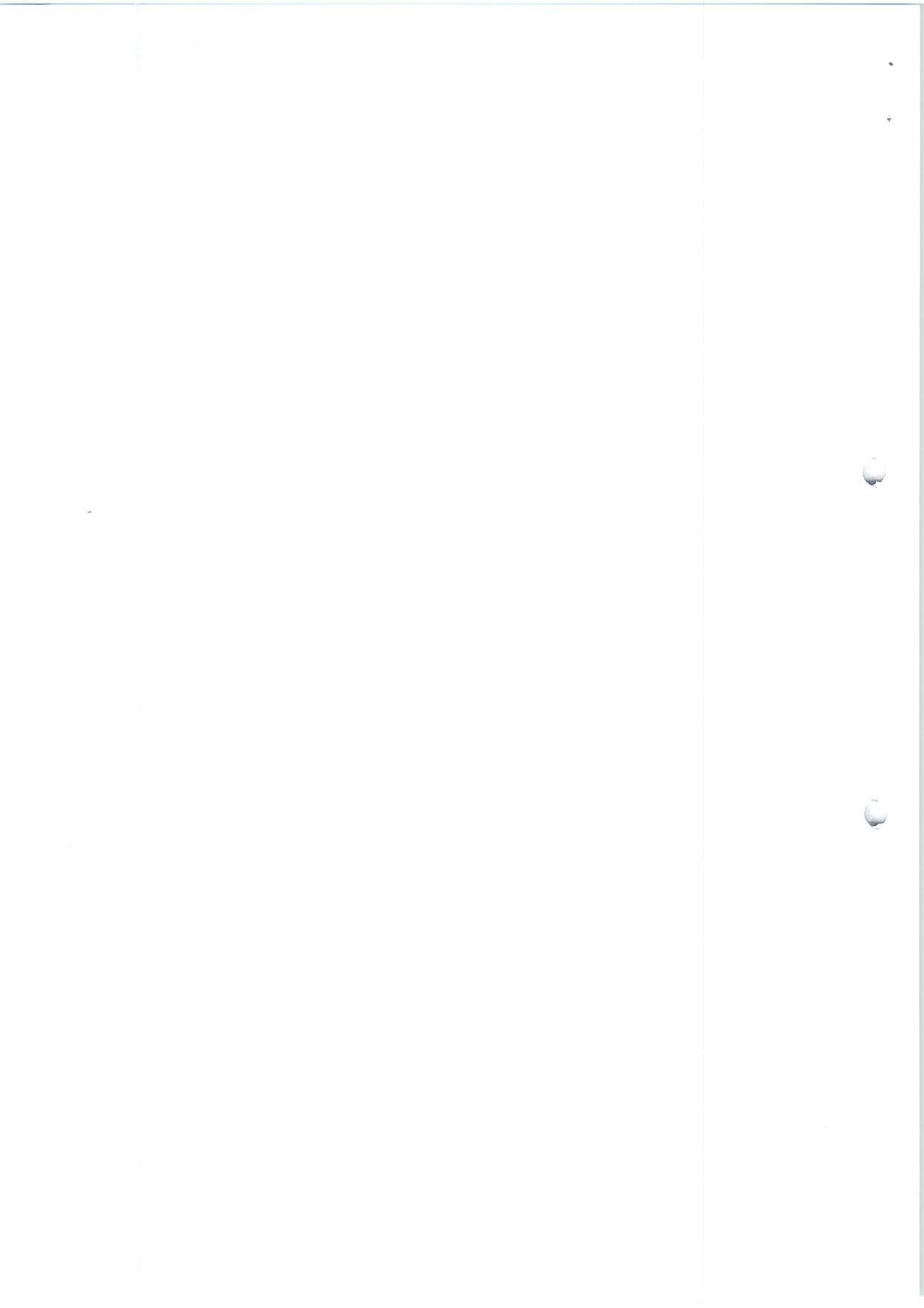
Install signage

10 Partnership Programme

Local participation is an essential element in linking biodiversity conservation with development. However, the success of community based biodiversity conservation programmes are hinged on the overall economic returns of the biodiversity asset and its comparative advantage in relation to alternative land uses.

The Mwea ecosystem is home to the endangered African elephant and an important wetland area that has diverse bird species. These could be used to attract financial support for their conservation efforts and to ease tension in the wildlife/human interface.

Partnership programmes within the Mwea area represent a range of ecological, social and cultural settings but all have the goal of ensuring that the local community would be interested and be able to actively participate in conserving biodiversity resources in the



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Community conservation and partnership activities in Mwea mainly involve; human wildlife conflict; community based wildlife enterprises; the activities of Mwea National Reserve Trust Fund. It also has incentive projects in the transition zone; and skilled services from the British army to construct and rehabilitate reserve infrastructure, and build social facilities for the local community in the transition zone.

7.1 Problem Animal Management

Human/wildlife conflict in the Mwea area is characterized by crop raiding; loss of human life and injuries; and transmission of bovine diseases from wildlife to livestock including the transmission of Trypanosomiasis from wildlife to people and their livestock by tse tse. To resolve these conflicts, the following activities will be undertaken:

1 Fencing

1-Km electric fence has been constructed on the western and northern sides of the reserve where crop raiding by elephants is prevalent. The electric fence is fitted with a high voltage energizer recharged from solar cells. This fence is not fully game proof since small animals such as warthogs, bushpigs, monkeys and baboons can easily pass through. The fence however, can effectively control very large herbivores such as elephants and buffaloes. Effectiveness of the fence will be monitored immediately after the fence is launched.

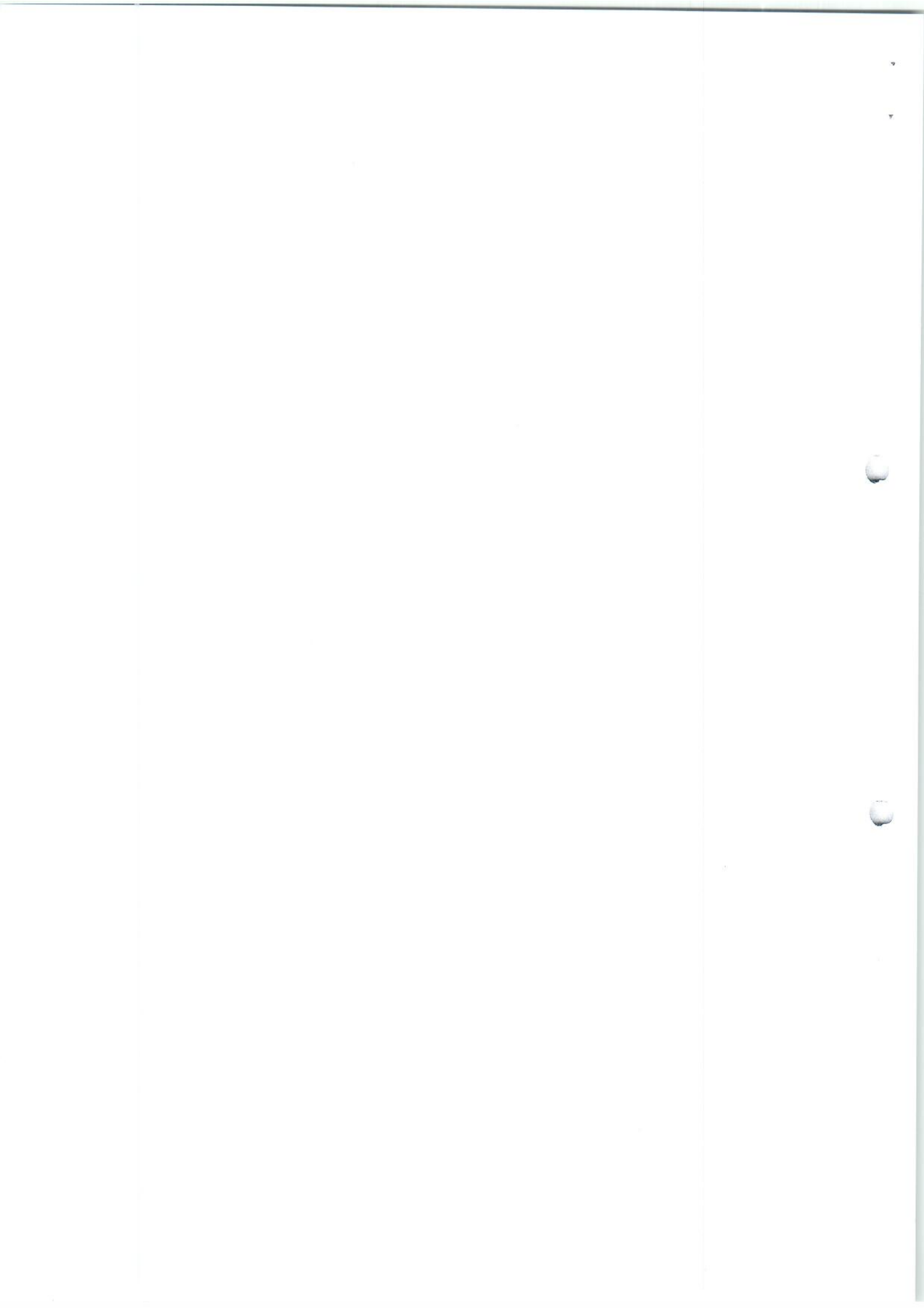
The electric fence will require little maintenance but frequent inspection will be essential. Fence maintenance will involve routine clearing of undergrowth along the fence line to prevent grounding of the bottom wires. Repairs to sections damaged by elephants or sections damaged through vandalism will be undertaken by the local community assisted by KWS.

It is crucial that the local people be actively involved in the overall fence maintenance. Local farmers benefiting from the fence have formed a fence maintenance committee to ensure that the fence is functional at all times. A fence maintenance team has already been trained by KWS and recurrent fence maintenance funds are expected to be generated from the beekeeping project which has been supported by KWS. KWS and the County Council should also set aside a fence maintenance budget.

7.1.2 Problem Animal Control (PAC)

The main problem animals in the area include crocodiles, elephants, buffaloes, bush pigs, baboons and warthogs. Problem animal control work will supplement the electric fence. PAC activities will involve control shooting, scaring, trapping and translocation of problem animals.

PAC activities involving shooting, trapping and translocation will be carried out by KWS's Area Warden. Depending on the animals involved, farmers will be encouraged to scare problem animals from their crop fields using various traditional methods such as scare crows, burning sprinters, lighting fires and creating noise.



2 Participatory Planning

Integrated planning demands the involvement of the stakeholders in the identification, design and development of projects. This enhances the sense of ownership and elicits support by communities for the projects. This management plan has been developed using this method. In 1996, a planning workshop was held for all stakeholders at Masinga Lodge and this was followed by a Participatory Rural Appraisal for Makima location. Data and information from these two activities has been utilized in the preparation of this plan. Further development of projects specified in this plan will use the same participatory approaches. This can only be sustained through continuous consultation and dialogue among the partners in planning meetings.

For the purpose of implementing this management plan, the Mwea National Reserve Advisory Committee will be constituted comprising of the following institutions:

- Kenya Wildlife Service
- Mbeere County Council
- Mbeere District Commissioner
- Mwea National Reserve Trust
- Tana and Athi River Development Authority
- The Forest Department
- The Fisheries Department
- Local Community
- Ministry of Agriculture & Livestock Development

The Advisory Committee can from time to time co-opt other members for expert contributions in decision making.

7.3 The Mwea National Reserve Trust

The Mwea National Reserve Trust was established in August 1990 to assist the development of the Mwea National Reserve by raising funds for this purpose, and has worked closely with Mbeere County Council and the Kenya Wildlife Service. The Trust has raised money from various donors, which has been used to buy a boat, outboard motor engine and trailer for the use by the Warden in patrolling the waterfront. The Trust has also bought fuel saving clay jikos for distribution to the local community to help save firewood and has contributed in the construction of a drift on the road linking Masinga Resort and the reserve gate in addition to several and other small projects.

This plan recognizes that the Trust can play an important role in the conservation and development of the reserve and adjacent areas. Consequently, the Trust should be supported to enable it contribute more effectively. Possible ways in which the Trust can assist include:

- Serving in the reserve advisory committee
- Contribute to the development of special campsites
- Development of a publicity brochure



- Raise money for specific small projects in the reserve and adjacent areas
- Assist in identification of donors and reserve publicity

The independence and tax position of the Trust will be maintained. KWS and Mbeere County Council should ensure that they create an environment that enables the Trust to operate effectively. The Trust should strive to establish a revolving fund for small-scale enterprises.

7.4 Partnership Enterprise Projects

7.4.1 Community Based Bee Keeping

A section of the local community is engaged in bee keeping within the Mwea area. In 1996 there was a total of 772 traditional beehives in Makima Location. Through the KWS Partnership Programme the local community is being sensitized to increasingly adopt beekeeping as an income generating activity. The beekeeping project will promote the use of Kenya Top Bar Hive (KTBH) along with improved bee management and processing of honey and beeswax among the local beekeepers. A local self-help group whose one of its objectives is promotion of beekeeping has been registered with the Ministry of Culture and Social Services. KWS has assisted this self help group with 150 hives which are being placed outside the reserve. Kakuzi Company will be the main buyer of the bee products.

The project is targeting groups with self-initiative and interest in beekeeping. The beekeeping promotion and training will target on the identified interested candidates. Networking amongst beekeepers and other stakeholders in the beekeeping industry such as Honeycare International will be promoted so as to link up the Mwea beekeepers with appropriate services and technology. The degree of association amongst beekeepers will however, be limited to marketing honey and beeswax, training and demonstrations. The hive ownership and operation will remain under group responsibility.

7.4.2 Fishing

Fishing activities being undertaken need to be improved upon through education and awareness to fishing communities in the area. The fishermen in the dams should be educated with the aim of impressing on them the importance of using recommended fishing gears and methods that will enhance the sustainable exploitation of the resource.

Appropriate management practices such as delineating some areas for fish breeding for example and declaring closed seasons to allow for breeding should be adopted. These fish management programmes should be designed using participatory approaches to allow contribution and input from local knowledge of the fishermen. Fishermen community capacity to regulate fishing, landing, improve fish processing and storage, transport and marketing of fish should be strengthened.



Other measures include:

Closed seasons: During the rainy months of March, April, May, November and December the dams should be closed from fishing activities. This will give the fish time to spawn as the peak spawning seasons coincides with the rainy season.

Fish landing facility: To reduce post harvest losses a fish landing facility will be constructed at an appropriate location. This will ensure that the captured fish is handled in good sanitary conditions that will minimize spoilage of the fish before it is offered in the market. The road to the landing centre should be improved to ensure that the fish is transported to the market immediately after landing. Cold storage facilities should be provided to discourage the current use of wood for smoking for fish preservation.

Regulations in fishing: The number of fishermen and number and quality of fishing gear and vessels should be controlled to avoid over exploitation. The fishermen could be provided with loans or other assistance to purchase quality fishing gears and vessels. An important consideration is the formation of a fishing savings and credit co-operative society.

Aqua culture: To allow year round fish harvesting and enhance fish production in the dams, cage culture (rearing of fish in cage) should be developed and practised in selected sites along the dams.

Restocking of dams: Restocking of the dams and rivers should be carried out periodically to replenish fish stocks. This should be limited to species like tilapia, which are fast growers, popular with customers and whose fingerlings are readily available from the Fisheries Department and private fish farmers.

Introduction of new species: The aim is to diversify the fish species so as to maximize utilization the various ecological niches in the dams. However, before this is done adequate scientific information about the new species must be acquired and analyzed before the introduction of species. It is recommended that clay fish and prawns be given consideration in view of their high demand and value and their benthic feeding behaviour.

Boundary marking: To prevent fishermen straying into the conservation zone, clearly visible boundary markers such as buoys will be placed along the Reserve boundary.

Most of the fishermen and their families are currently living in "Kisumu Ndogo" as squatters on TARDA land. The village has about 150 households and the population is increasing. This situation can bring serious tenure problems and the issue should be addressed now. Brewing of illicit brews in the island in Kamburu dam near "Kisumu Ndogo" is not only illegal, but has many undesirable social impacts on the people living in the area. This also needs to be looked at.



7.4.3 Crocodile farming

There is a crocodile population of over 250 in the five dams of Mwea with most of the dams exhibiting very high densities. There is therefore high potential for harvesting live crocodiles and egg for the establishment of crocodile utilization programmes. Between 1992 and 1994, TARDA crocodile farming project collected about 3630 crocodile eggs on the lower reaches of Tana. Of these, about 968 crocodiles of various ages and sizes are currently being held in sub-standard ponds near Kiambere dam.

The initial plan was to transfer the young crocodiles to a farm which was under construction at "Borrow Pit", next to the wall of Kiambere Dam. The construction of the farm was never completed and the project is by all indications abandoned, or rather moribund. The crocodiles are now living in improvised congested ponds and are grossly malnourished. Several attempts have been made to dispose these crocodiles but with no success. It is recommended that KWS in consultation with TARDA, should make arrangements to deal with this problem as soon as possible.

A study to explore the feasibility of crocodile farming by the local community, TARDA or private entrepreneurs should be commissioned. One entrepreneur, (Kathenga farm), has registered its interest in crocodile farming at a five acre plot near Gitaru dam. KWS should establish whether the directors of the proposed project have the expertise and capability to undertake such a project satisfactorily.

7.4.4 Social projects

KWS has in the past extended financial assistance to some community projects in the area such as, construction of two classrooms at Namuri Primary School, Ndundani Drift and Runguri Bridge. These projects have played a key role in enhancing local community support for conservation efforts. In recognition of the positive impacts of these projects, KWS and the British Army have agreed to construct one classroom for the community at Namuri. The British Army will offer construction services while KWS will provide the required materials.

Summary of Partnership Management Actions

Problem Animal Management

Fencing

- Complete construction of electric fence
- Constitute fence maintenance committee
- Train fence attendants
- Provide stipend for fence attendants
- Establish a fence maintenance fund



Problem Animal Control

- Control shooting
- Trapping and translocation
- Use traditional animal scaring methods

Participatory Planning

- Construct one classroom
- Seminar/workshop on importance of Biodiversity conservation

Institutional Linkages and Collaboration

Establishment of a joint reserve advisory committee

Mwea National Reserve Trust

Revise the TORs for the Trust to strengthen its mandate

Partnership Enterprise projects

Bee keeping

- Provision of beehives
- Continuous training of beekeepers
- Networking activities

Fishing

- Education and awareness seminar
- Establish closed fishing seasons
- Construct fish landing facility
- Supply fish cold storage facility
- Marking the reserve boundary

Crocodile Farming

- Determine the fate of the 968 crocodiles at the moribund Kiambere crocodile project
- Conduct feasibility study on viability of crocodile farming
- Conduct a human/crocodile conflict study
- Develop a crocodile/human conflict management strategy

8.0 Biodiversity Management Programmes

8.1 Tsetse control and management

Prevalence of tsetse in the reserve and adjacent areas has been an issue of concern for a long time. Tsetse bites cause discomfort and transmit trypanosomiasis to both humans and livestock. Wild animals are known to be good reserves for the trypanosome while thick bushes act as good shelter for the vector (tsetse). The extent of infection and distribution of trypanosomiasis (epidemiology) to people and livestock has not yet been documented. This requires further investigation.



were Kongoni in the reserve. If this information is verified, Kongonis and other animals known to have been resident in the reserve should be re-introduced.

The regional biodiversity office in collaboration with the veterinary unit will develop a programme for the translocation of the giraffes and the ostriches.

8.4 Biodiversity Inventories and Ecological Monitoring

Important baseline data on the existing plants and animals of the area is lacking. This includes data on mammals, reptiles, birds, amphibians, and plant species diversity and structure among others. The regional biodiversity office in collaboration with the National Museums of Kenya (NMK) and is now developing a database for the Mwea.

With support from the KWS/Netherlands Wetlands Conservation Programme, data on crocodile population in the five dams has been collected and analysed (1997), and three bird counts have been undertaken (1997, 1998) and a comprehensive wetland inventory is also being undertaken. A wetland biodiversity monitoring system will be established.

Five vegetation sampling and monitoring transects in the five different vegetation types of Mwea have been established (1998), with funding from the Elephant programme. These transects will be sampled once every two years in order to keep track on the vegetation trends upon the "confinement" of elephants by the electric fence.

The regional biodiversity office is jointly undertaking a botanical inventory of Mwea National Reserve in collaboration with the biodiversity department of the NMK.

8.5 Crocodile Management

Crocodiles are found in all the five dams of Tana river and its tributaries. During the 1997 crocodile census, it was established that the densities are very high. Crocodiles are responsible for frequent human deaths and injuries. For instance, within a period of 18 months in 1997/98, 18 people were killed and 2 injured in Mwea (Data from Ol Donyo Sabuk Station not included). Although data on livestock losses by crocodiles is unavailable, the losses could also be substantial. These crocodile derived conflicts have become an important socio-economic and political issue in Mbeere and Machakos Districts. The cause of this problem should be investigated to provide information for the immediate preparation and implementation of a crocodile management plan.

The 968 crocodiles at the Kiambere "crocodile farm" should be exterminated, as the project is moribund and TARDA are unable to sustain the project or dispose the crocodiles.

8.6 Elephant Management

The current elephant population in the reserve is about 35 giving a density of about 0.8 elephants per sq. km. This density is considered high for this kind of rangeland. This can bring about serious habitat degradation especially now that the reserve has been entirely fenced on the western and northern boundary.

Tana river/Kamburu dam marks the reserve boundary to the south, while the eastern boundary is marked by Thiba river. With the fence, movements of elephants to the area



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commonly referred as the "Scheme" to the west is virtually cut-off and therefore denying the elephants an important dispersal area. Information on the movement of elephants across the Tana river/Kamburu dam to Machakos District is scanty and unreliable.

Dispersal of elephants across Thiba river into the uncultivated TARDA land east of the reserve is still possible through the Nairobi University Field Station land at Kamburu. A barbed wire fence which would be destroyed by the elephants including other infrastructure in the farm encloses the field station. Movements of elephants beyond the wall of Kamburu dam towards Gitaru and Kiambere is still possible but since the human population density is increasing with subsequent increase in cultivation, this movement can only bring about an increase in human/elephant conflict.

What is therefore required is a detailed study of elephant's dispersal and extent of the conflict in the entire area so as to provide information for the preparation of an elephant management plan. Further to this, an ecosystem viability analysis should be done for the reserve.

The vegetation monitoring and sampling transects established in June, 1998 will serve in providing the baseline data for monitoring elephant/habitat interactions within the reserve.

8.7 Siltation in the dams

Siltation and chemical pollution are the two major threats to the continued existence of the dams. Poor farming practices in the catchment areas upstream have caused serious soil erosion. The eroded soil is eventually deposited in the dams and which reduces the life span of the reservoirs. This problem is particularly evident in Masinga dam. It is recommended that soil conservation measures, restoration of degraded areas and afforestation programmes be given attention through collaboration with TARDA, KWS, Ministries of Agriculture, Environment & Natural Resources, Water the local community and PLAN International. TARDA is expected to coordinate these activities.

Summary of Management Actions

Tsetse control and management

- Initiate study of the incidence and distribution of trypanosomiasis in Mwea
- Design a tsetse management programme
- Set tsetse traps in the reserve

Habitat Management

- Develop a fire management plan
- Zone fire management blocks
- Construct firebreaks
- Procure fire fighting equipment
- Train staff on fire fighting techniques



Re-introduction of species

- Translocate giraffes, zebras, kongoni and ostriches to the reserve

Biodiversity Inventories and Ecological Monitoring

- Undertake biodiversity inventory
- Undertake a bird census
- Undertake an elephant census
- Undertake a crocodile census

Crocodile management

- Carry out a social and ecological study on crocodile
- Prepare a crocodile management plan

Elephant management

- A detailed study on the nature and extent of elephant/human conflict
- Prepare an elephant management plan

Siltation in the dams

- Support afforestation activities
- Support soil conservation efforts

9.0 Infrastructure Development

Mwea reserve has a well-designed network of roads that can allow access to most parts of tourist interest. However, these roads have been neglected over the years and therefore rendering most of them impassable due to bush encroachment and the collapse of the bridges and drifts. The road and bridge network is as shown in fig 2.

9.1. Road and bridge network:

The road system within the reserve comprises of three main circuits; the Tana circuit, Central circuit and the Thiba circuit. In total, the reserve has 60 kilometres of main roads and 35 kilometres of arterial roads. All these roads are in very poor condition. There are six crossings at various locations, which require the construction of bridges and drifts. In addition, approximately 250 metres of 600mm diameter culverts are required in order to improve the surface drainage of the roads.

In order to improve access in the reserve, the following minimum works require to be executed at the costs indicated.

Grading, shaping, cutting drains and spot gravelling of the 95 km will cost Ksh.23,750,000.

Installation of 250metres of 610mm diameter culverts will cost Ksh. 675,000.00

Construction of 3 bridges and 3 drifts will cost Ksh. 2,400,000.00.



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Total cost of these works at 1998 labour, materials and equipment rates will be Ksh.26,825,000.00.

Implementation

The road works require a minimum of 15 months to implement. Bridge and culvert works can be done concurrently with road works as is usually done with works of this magnitude.

Negotiations are going on between KWS and the British Army to carry out some of the above works namely, construction of 3 bridges and grading some 57 kilometres of roads. KWS will provide Ksh. 1 million for the roads and Ksh. 1.5 million while the British Army will provide labour and equipment for the works. If this programme is implemented, the above requirement of Ksh 26,825,000.00 should be reduced accordingly.



Annual maintenance

Routine maintenance of the above road and bridge network will be required at an approximate cost of Ksh 900,000.00 annually.

9.2 Office and Residential Accommodation

The existing office block comprising of two offices, a radio room and a store is currently being renovated and extended with an additional four more offices, a shop and flush toilets through funding from the World Bank. One officer's residential house and five ranger houses are being constructed and the existing six ranger houses are being renovated.

es

The only gate to the reserve is being renovated and is expected to be completed before the end of the year. An additional gate is planned for on the western boundary, but this will depend on the reserve visitation upon implementation of this plan.

Fence

A 14.5 kilometre electric fence along the western and northern boundary of the reserve was completed in August 1998. Fence maintenance costs will be the responsibility of fence adjacent community.

9.3 Vehicles, Plant and Machinery

Under the European Union funding, the reserve is due to receive one land rover, a 3.5-ton truck and a tractor with trailer. The reserve has now two boats with two outboard engines with a capacity of eight people each.

Utilities

Telephone, Radio

The reserve is not currently on telephone. However, the reserve is linked by VHF radio to the rest of the country.

9.5 Summary of Management Actions

- Grade, shape, cut drains and gravel 95 kilometres of roads
- Install 250 metres of 610mm diameter culverts
- Construct three bridges
- Construct three drifts
- Maintain roads (routine).



PART FOUR: ACTIVITY SCHEDULES

The activity schedules outline in summary the actions required in the immediate future and beyond to achieve the overall goals for the area and the resource management objectives detailed in part three. In a sense, the schedules constitute 'the plan'.

The schedules are intended to guide the reserve management and the Advisory committee in planning implementing the plan. A major constraint in the implementation of the plan will be funds and personnel.



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SCHEDULE 1: TOURISM MANAGEMENT PROGRAMME

ACTIVITY	1999/2000 0	2000/2001 1	2001/2002 2	2002/2003 3	2003/2004 4	RESPONSIBILITY
Central Road Campsite Rehabilitate the pit latrine and bathroom						KWS/Mwea NR Trust
Supply water to the campsite						KWS
Provide litter disposal bins						KWS
Construct Central Road Special Campsite Construct a pit latrine and a bathroom						KWS
Establish 6 special campsites						KWS
Hippo Point Picnic site Bush clearing						KWS
Provide picnic benches, tables and a pit latrine						KWS
Rehabilitate the hut						KWS
Provide reserve interpretive display panels in the hut						KWS
Tented Camp/Banda/lodge Identify suitable areas						KWS/Mbeere CC
Carry out feasibility study						Consultant
Market the site(s) for development by an entrepreneur						KWS, Mwea NR Trust
Hides Construct simple bird hides						KWS/Mwea NR Trust
Construct animal look out points in suitable areas						KWS/Mwea NR Trust
Walking trail Construct one walking trail						KWS/Mwea NR Trust
Game viewing Clear bush to improve animal visibility						KWS
Establish two saltlicks to attract wildlife						KWS
Carry out monitoring at the salt licks						KWS
Access to Kamburu dam Construct jetty within the reserve						KWS/Mbeere CC
Information and Interpretation Prepare an updated tourist map for the Mwea area						KWS/Mwea NR Trust
Prepare brochures on the Reserve						KWS/Mwea NR Trust
Marketing and Promotion Advertise in the print and electronic media						KWS/Mwea NR Trust
Promotion through ASK shows, public barazas and education tours						KWS
Install signage						KWS



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SCHEDULE 2: PARTNERSHIP MANAGEMENT PROGRAMME

Fencing Complete construction of electric fence	Completed						KWS
Constitute fence maintenance committee	Committee in place						KWS/local community
Establish a fence maintenance fund							KWS/COBRA/ Mbeere CC
Problem animal Control Control shooting							KWS
Trapping and translocation							KWS
Train community wildlife scouts							KWS
Form wildlife committees in Makima and Mavuria							Local community
Use Traditional animal scaring methods							Local community
Community mobilisation and education Seminars/workshops and study tours							KWS/Fisheries Dept
Institutional Linkages and Collaboration Establishment of a joint management committee							KWS/Mbeere CC
Support Makima water project and dispensary							KWS
Undertake feasibility study ostrich and crocodile farming							Consultant
Establish Mbeere Cultural Centre							Mbeere CC/Local community
Fishing Education and awareness seminar							Fisheries Dept/KWS
Establish closed fishing seasons							Fisheries Dept/KWS
Restock dams							Fisheries Dept.
Construct fish landing facility							Fisheries Dept.
Supply fish cold storage facility							Fisheries Dept
Marking the reserve boundary							KWS



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SCHEDULE 3: BIODIVERSITY MANAGEMENT PROGRAMME

Tsetse Control and Management Design a tsetse management programme										KWS/KETRI/DVO
Set tsetse traps in the reserve										
Undertake ecosystem viability analysis study										KWS/KETRI/DVO
Habitat Management Develop a fire management plan										KWS
Construct firebreaks										
Fire fighting equipment										
Train fire fighting personnel										KWS
Re-introduction of species										KWS
Translocate giraffes and stiches to the reserve										KWS
Biodiversity inventories and ecological monitoring Undertake biodiversity inventory										KWS/NMK
Undertake a bird census										
Undertake an elephant census										KWS/NMK
Undertake a crocodile census										KWS
Crocodile management Carry out a social and ecological study on crocodile										KWS
Siltation in the dams Support afforestation activities										KWS/Consultant
Support soil conservation efforts										TARDA/Forest/ Agriculture
										TARDA/Forest/ Agriculture





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SCHEDULE 5: TOURISM MANAGEMENT PROGRAMME

ACTIVITY	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004	TOTAL
Central Road Campsite						
Rehabilitate the pit latrine and bathroom	25,000					25,000
Supply water to the campsite	35,000					35,000
Provide litter disposal bins	20,000					20,000
Establish Central Road Special Campsite						
Construct a pit latrine and a bathroom	100,000					100,000
Establish 6 special campsites		150,000	165,000	181,500	200,000	696,500
Hippo Point Picnic site						
Bush clearing	30,000					30,000
Provide picnic benches, tables and a pit latrine	100,000					100,000
Rehabilitate the hut	100,000					100,000
Provide reserve interpretive display panels in the hut		30,000				30,000
Tented Camp/Banda/lodge						
Identify suitable areas		100,000				100,000
Carry out a feasibility study		100,000				100,000
Hides						
Construct 2 simple bird hides	200,000					200,000
Walking trail						
Construct one walking trail	100,000					100,000
Game viewing						
Clear bush to improve animal visibility	450,000					450,000
Feasibility study on possible construction of two salt licks to attract wildlife	200,000	10,000	10,000	10,000	10,000	240,000
Access to Kamburu dam						
Construct jetty within the reserve	400,000					400,000
Information and Interpretation						
Prepare an updated tourist map for the Mwea area	250,000					250,000
Marketing and Promotion						
Advertise in the print and electron media		300,000	350,000	300,000	350,000	1,100,000
Promotion through ASK shows, public barazas and education tours		100,000	150,000	200,000	250,000	700,000
Install signage	200,000					200,000

4 896 000



Mwea NR Integrated Management Plan

SCHEDULE 7: BIODIVERSITY MANAGEMENT PROGRAMME

Tsetse Control and Management						
✓ Design a tsetse management Programme	150,000					150,000
✓ Undertake trypanosomiasis epidemiology study	300,000					300,000
✓ Set tsetse traps in the reserve		120,000	80,000	60,000	40,000	300,000
Undertake ecosystem viability analysis	600,00					600,000
Habitat Management						
✓ Develop a fire management plan	120,000					120,000
Construct firebreaks	300,000					300,000
Fire fighting equipment	150,000					150,000
Train fire fighting personnel	100,000					100,000
Re-introduction of species						
✓ Translocate giraffes and ostriches to the reserve	350,000					350,000
Biodiversity inventories and ecological monitoring						
Undertake elephant habitat interaction studies		145,000		145,000		290,000
Undertake an elephant census	200,000					200,000
✓ Undertake a crocodile census		150,000		198,375		348,375
Crocodile management						
Carry out a social and ecological study on crocodile	300,000					300,000
Siltation in the dams						
Support afforestation activities	100,000	100,000	100,000	100,000	100,000	500,000
Support soil conservation efforts	100,000	100,000	100,000	100,000	100,000	500,000

SCHEDULE 8: INFRASTRUCTURE DEVELOPMENT

Grade, shape, cut drains, and gravel 95Kms	23750000					23,750,000
Install 250 m of 610 mm diameter culverts	675,000					675,000
Construct 3 bridges	1,200,000					1,200,000
Construct 3 drifts	1,200,000					1,200,000
Routine maintenance of roads	300,000	345,000	396,750	456,263	524,702	2,031,715



Mwea NR Integrated Management Plan

NOTE

The British Army is willing to provide labour and equipment for the grading, shaping, cutting drains and gravelling 57 Kms of the roads and three bridges at a cost of 3 million. Consequently, the cost of roads and bridge works would be reduced significantly.

STAFF COST (Ksh '000)

	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
Warden	463,4776	463,4776	463,4776	463,4776	463,4776
Sgt	188,736	188,736	188,736	188,736	188,736
Cpl	141,360	141,360	141,360	141,360	141,360
Rangers	809,184	809,184	809,184	809,184	809,184
Drivers	227,736	227,736	227,736	227,736	227,736
Accts. Clerk	126,780	126,780	126,780	126,780	126,780
Copy Typist	121,164	121,164	121,164	121,164	121,164
Coxwain	101,148	101,148	101,148	101,148	101,148
Total	2,179,585	2,179,585	2,179,585	2,179,585	2,179,585

NOTE

The above costs are based on staff salaries as per December 1998.



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Appendix I

MWEA NATIONAL RESERVE ADVISORY COMMITTEE

TERMS OF REFERENCE

FUNCTION

The function of the Advisory Committee is to coordinate the work of all concerned in the development of the Mwea National Reserve and the immediately surrounding area in accordance with the current Management Plan and the Memorandum of Understanding Mbeere County Council/Kenya Wildlife Service and to make recommendations for the management and development of the Reserve generally.

REPORTING

The Advisory Committee will report to the Mbeere County Council as owner and to Kenya Wildlife Service as Management of the Reserve.

MEMBERSHIP

This Committee consists of representatives of:

Kenya Wildlife Service (Mwea Area Warden)
Mbeere County Council (The Clerk and one Councillor)

District Commissioner

Tana and Athi River Development Authority

Forestry Department

Fisheries Department

Mwea National Reserve Trust

Local Community (two representatives)

With power to co-opt other members.

GRASSROOTS COMMITTEE

This Grassroots Committee for the Reserve, which deals with immediate local issues and which consists of the Warden of the Reserve, the Chief, a representative of Mbeere County Council and an independent local leader, will report to the Advisory Committee.



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District Commissioner

Tana and Athi River Development Authority

Forestry Department

Fisheries Department

Mwea National Reserve Trust

Local Community (two representatives) - Chief
- Clerk

With power to co-opt other members. - Lady (retiree) - 5000/-
Lady (retiree) - 5000/-

GRASSROOTS COMMITTEE

This Grassroots Committee for the Reserve, which deals with immediate local issues and which consists of the Warden of the Reserve, the Chief, a representative of Mbeere County Council and an independent local leader, will report to the Advisory Committee.



E. OFFICERS

1. The Chairman shall be the representative of Kenya Wildlife Service or in his absence at any meeting a member of the Committee elected by the meeting.
2. The Secretary of the Committee shall be provided for each meeting by Kenya Wildlife Service.

F. PROCEDURE

Meetings of the Committee shall be:

- a) held not less often than every three months;
- b) held at the offices of Mwea National Reserve in Embu or such other place as the Committee shall decide;
- c) notice and agenda for each meeting shall be issued by the Secretary not less than 21 days before each meeting
- d) the agenda for each meeting shall include:
 - (i) Minutes of the last meeting,
 - (ii) Matters arising,
 - (iii) Consideration of the Warden's Report,
 - (iv) Consideration of Report of the Grassroots Committee,
 - (v) Any Other Business,
 - (vi) Fixing date and time.
- e) The Secretary shall keep Minutes of each meeting and shall circulate a copy to Kenya Wildlife Service, the Clerk of Mbeere County Council and each member not more than 14 days after each meeting for approval at the next meeting;
- f) The quorum for all meetings shall be 3 and must include the representative of Kenya Wildlife Service.

G. WARDEN'S REPORT

The Reserve Warden shall prepare and circulate to all members a report on compliance with the management, development and matters of interest in the Reserve in advance of each meeting.



Appendix II
LIST OF PARTICIPANTS
MANAGEMENT PLANNING PROPOSALS FOR
MWEA NATIONAL RESERVE (1996)

	NAME	ORGANISATION	ADDRE
1	W K OTTICHILO	DEPUTY DIRECTOR, BIODIVERSITY	40241 N
2	J F KAMAU	ASST. DIRECTOR, PLANNING	40241 N
3	AGNES MASIKS	ASST. DIRECTOR, COMMUNITY WILDLIFE SERVICE	40241 N
4	CHARLEY K'ODERA	PHYSICAL PLANNER	40241 N
5	MUTERU W. NJAU-INI	DISTRICT WARDEN	264 EM
6	BANAN J CHEBURES	SENIOR ECOLOGIST	40241 N
7	BERNARD KAARIA IRIGIA	EIA OFFICER	40241 N
8	ANDERSON KOYO	WETLANDS COORDINATOR	40241 N
9	ISAAC THIGA	WARDEN, MWEA	264 EM
10	JOHN SILVESTER	TRUSTEE, MWEA N.R TRUST	30333 N
11	J. K. NDAMBIRI	FORESTER	39282 N
12	MIKE KITTIVO	PLANNER	47309 N
13	DAVID N MUGO	RESEARCHER	40241 N
14	G. N. NJUE	COMMUNITY LEADER	MAKI
15	J. M. KARIUKI	RESOURCE PLANNER	40241 N
16	A. M. MUSAKAWA	CHAIRMAN MBEERE COUNTY COUNCIL	220 SIA
17	ALEXANDER KIVIVU	CLERK MBEERE COUNTY COUNCIL	220 SIA
18	GITHUKU GACHERU	JOURNALIST	1812 E
19	SILAS NTHIGA	JOURNALIST	598 EM
20	STANLEY MUKIRA NYAGA	COUNCILOR KIANGOMBE LOCATION	
21	I NKANYA	DISTRICT ADMINISTRATION OFFICER	80 SIA
22	A W NGIGI	PROGRAMME MANAGER, PLAN	1000 E
23	G O OKINDA	DISTRICT DEV. OFFICER MBEERE	197 SIA
24	CLLR JUDITH R KAMUNDA	NOMINATED MBEERE C.C	
25	A KOBIA	DISTRICT OFFICER 1 MBEERE	
26	ENG, A O MOIRE	CHIEF ENGINEER -BULDS	40241 N
27	NIGEL CARPENTER	DEPUTY DIRECTOR TOURISM	40241 N



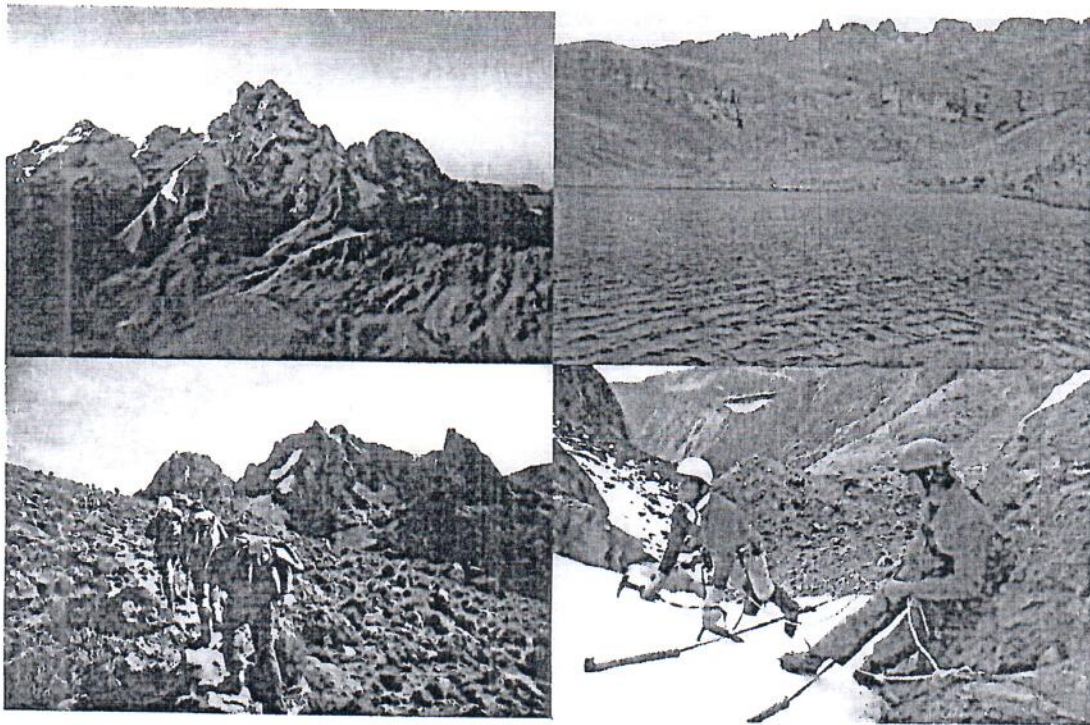
42	RICHARD M. MUI	ASS. CHIEF MWEA	
43	S. N. CAIRA	CHIEF MAURIA	1380 E
44	SIMON GITAU	KWS	2 KIRIT
45	STEPHEN MANEGENE	KWS	40241 N
46	TOM A. AMULAVU	KWS	40241 N
47	WAFULA NABUTOLA	KWS	264 EM
			40241 N





Waganyi
0722732720

FEASIBILITY [REDACTED] ON CLIMBING MT.KENYA FROM AN ALTERNATIVE ROUTE -EMBU



CLIENT: EMBU COUNTY COUNCIL

CONSULTANTING FIRM: African Pro-poor Tourism Development Centre (APTDC)

SUPPORTED BY: - TOURISM TRUST FUND (TTF)

NOVEMBER, 2009

List of abbreviations

ECC **EMBU County Council**

EIA **Environmental Impact Assessment**

APTDC **African Pro-poor Tourism Development Centre**

TTF **Tourism Trust Fund**

TOR **Terms of Reference**

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Executive Summary

This feasibility study was undertaken by Embu County Council (MCC) through the support of Tourism Trust Fund (TTF). The over all aim of the study was to ascertain the viability of an alternative Mt.Kenya climbing route from the Embu side (windward side) and recommend how this opportunity can be exploited to facilitate biodiversity conservation and enhance livelihoods of locals through sustainable tourism.

The study undertook an assessment to determine and judge the viability of initiating the new climbing route. All aspects of the project were examined with a view of establishing whether ECC should proceed with this Endeavour or not. A SWOT analysis was undertaken to determine the internal & external factors likely to affect the business. In excess of this the study proposed architectural designs of proposed structures, mapped the climbing route up to point Lenana and undertook an Environmental Impact assessment (EIA) to establish the associated environmental impacts and they should be mitigated.

The feasibility study ascertain beyond any reasonable doubts that the project is viable; economically, social-economically and economically. The new route will facilitate diversification of the tourism product in the country through the incorporation of a new climbing route. This will be an addition to the existing routes; Naromoru, Chogoria, Berguret, Timau, Kamweti and Sirimon route. The heralding of the new route will fast track sustainable utilization of Mt. Kenya by promoting even distribution of the tourists load, this will reduce the over concentration of tourists on one side of the mountain (leeward side). It is also hoped that the inception of the new route will stimulate even distribution of revenue accrued from mountain climbing among communities on both sides of the mountain.

CHAPTER ONE

1.0 BACKGROUND

2.1. Introduction

Tourism is the world's fastest growing industry, and it is central to the Kenya Governments' economic development strategy engraved in Vision 2030, with particular attention being paid to its potential as a stimulant for sustainable economic development in remote, rural areas and in the curbing of the growth of slums in the urban areas. In year (2007) it earned approximately US\$ 800 M. The sector is growing at an average rate of 14.6 % per annum and it employs approximately 500,000 individuals¹ both directly and indirectly. The industry contributes 10% to the Gross Domestic Product (GDP) of the country and plays a key role in improving the balance of trade by bringing in foreign exchange. The visitors' arrivals in the country have been increasing exponentially for the past years to hit a record mark of 2 million tourists in the year 2007².

In recognition of its importance the Government has outlined the tourism industry growth in the vision 2030. Tourism will be a leading sector in achieving the goals of the Vision. Kenya aims to be among the 10 long haul tourist destination in the world offering a high-end, diverse, and distinctive visitor experience that few of her Competitors can offer. There are three specific goals for 2012, including:

- ❖ To quadruple tourism's GDP contribution to over Ksh 80 billion;
- ❖ To raise international visitors from 1.8 million in 2006 to 3 million in 2012,
- ❖ While raising average expenditure per visitor from the present Kshs. 40,000 to at least Ksh 70,000;
- ❖ To increase hotel beds from 40,000 to about 65,000, combined with an emphasis on a high quality service.

1.2 TOURISM TRUST FUND (TTF)

The Tourism Trust Fund (TTF) was established as a joint initiative of the European Union (EU) and the Government of Kenya (GoK) following the signing of a Memorandum of Understanding (MoU) in November 2001. The Kenya Gazette Supplement of 9 March 2001 established the Tourism Trust Fund, and on 21 December 2001 Financing Agreement No 6370KE, providing funds for the programmes, was signed. An agreed Logical Framework Matrix sets out the specific objectives and purpose of the programme, the activities to be undertaken under the programme and the targeted results.

TTF's mission is to contribute to poverty reduction and private sector growth in Kenya whilst ensuring a sustainable use of natural resources and optimization of tourism satisfaction. The aim of product diversification is to enhance Kenya's current traditional beach and wildlife safaris with new products such as cultural tourism agri-tourism landscaped based tourism coastal experiences etc.

1.3 Embu Town

Embu is a large town in Kenya, located approximately 120 kilometers (75 miles) northeast of Nairobi towards Mount Kenya. Embu serves as the provincial headquarters of Eastern Province in Kenya and is also the district headquarters of Embu District. Located on the southeastern slopes of Mount Kenya, the town of Embu has a population of approximately 41,092. The town is known for its jacaranda trees, that literally turn the municipality lavender when they flower. The town rises from the Kavingaci River, up to the Kangaru Schools, a radius of about 10 kilometres. There are numerous recognised institutions within Embu, including the Kangaru Schools, Embu high school and college, East College and Nguviu boys School.

The town has an elevation of 1350 metres (4429 feet). It was founded in 1906 by the British settlers. It hosts major public provincial offices including Embu provincial general hospital, the eastern Provincial commissioner office, Embu District commissioner (DC) and officer (DO) offices. There is also a magistrate court of appeal. It is home to the key churches in the district including the Magnificent Muthatari Catholic Church cathedral and the ACK church cathedral.

¹ Ministry of Tourism (2007)

² Kenya Tourist Board

1.5 MT. KENYA TOURIST DESTINATION

1.5.1 Mount Kenya's Natural History

Mount Kenya is the highest mountain in Kenya and second highest in Africa, standing at 5,199m (17,058 feet). Mount Kenya is almost circular with a diameter of approximately 60km at the 2000m contour, where the steep front hills rise out of the gentler slopes of the centered highlands. At the centre of the mountain, the main peaks rise sharply from around 4,500m to the three main summits of Batian 5,199m, Nelion 5,188m and point Lenana 4,985m. Other major summits include Point Piggott 4,957m, Point Dutton 4,885 and Point John 4,883m. Of the three main peaks (Batian, Lenana and Nelion), only point Lenana can be reached by hikers and the other two being only for technical climbers.

The mountain stands somewhat unjustly in the shadow of the highest mountain in Africa – Mt. Kilimanjaro, which lies some 320km away in the south and is visible on a clear day. Kilimanjaro attracts more climbers traffic due to the possibility of summiting via several hiking (non-technical trekking routes) and due to the sometimes dubious honour of being one of the Seven Summits. On the other hand Mount Kenya offers a wealth of excellent and diverse climbing possibilities on rock, snow and ice. The rock on Mount Kenya can be of variable quality but is at its best high on the mountain where the syenite rock is similar to granite - rough, hard and well endowed with features.

In addition to its superb climbing potentials, the tarns and alpine meadows; exotic, equatorial, high-altitude vegetation; sunbirds, large mammals, hyrax and soaring eagles make the walk around the peaks one of the most beautiful expeditions in the East African mountains. After the cultivated farmlands on the lower slopes the trails pass through the rain forest, rich in trees of many species but noticeably camphors, then onto a bamboo zone growing to heights of more than 12m or more up through open moor land before reaching the moonscape of higher slopes. The forests are rich in wildlife including elephant, buffalo and monkeys with even the moor lands offering a long list of mammals including the rock hyrax, the nearest living relative of the elephant.

Mt. Kenya is an ancient volcanic mountain much older than Mt. Kilimanjaro. It's believed to have once reached well above 6000m. What is left today is volcanic plug which erosion has fashioned into the complex jagged outline of the central peaks.

1.5.2 Getting to Mount Kenya

Mount Kenya is approximately 200km North of Nairobi, the capital of Kenya, and is comfortably accessible by road using a variety of transport options - buses, mini buses, taxi cab or a car hire will get you close to the mountain on the tarred roads to the nearest town: Naromoru town for Naro Moru route, Nanyuki town for Sirimon route and, burguret route, Chogoria town for Chogoria route, Tiamu for Timau route and Kutus for Kamvoti route. The last stretch from the nearest town to the various trailheads (typically +/- 25km) will be on dirt roads and these can be in poor condition (especially in wet weather) and require a 4WD, or an approach on foot.

Despite the fact that, Mount Kenya can be climbed all year round, the highest rainfall occurs between late March and the middle of May, and slightly less between late October and mid December. Maximum rainfall occurs in the forest belt and on the south-east side of the mountain where it reaches 2500mm. per year at 3000m. Rain and, higher up, snow can however be encountered at any time of year - even in the driest periods (January and February). Normally the drier seasons are associated with clear, dry weather which can last for many days on end. The best weather is generally in the mornings, and convectional rainfall, if any, tends to come in the mid-afternoon.

Temperatures vary considerably with height and with time of day. At 3000m frosts can be encountered at night while day temperatures range from 5 to 15°C. Night time temperatures on the summit are well below freezing. The south-facing side of Mount Kenya receives more sunshine in the December to March period. During this time rock climbs are "in-condition" and snow and ice climbs gradually deteriorate. In the June to October period the north-facing rock climbs and south-facing ice climbs are best.

It's safest to climb Mt. Kenya during the dry seasons: January - February and August to September off the most reliably fine weather. The main routes are likely to be more crowded at this time of the year. If you favor complete solitude over the sunny skies, try going slightly off the peak season. It's best to avoid the two rainy seasons from mid March until June and from late October to the end of December.

1.5.3 Mount Kenya Vegetation

Mount Kenya is home to some fascinating high-altitude alpine vegetation including giant groundsel and lobelias. In the lower-altitude forest zone trekkers may come across some rather large and uncompromising African wildlife such as elephants and buffalo - fortunately these are mostly active only at night. Lions, leopard, rock hyrax, various antelope species and a wide range of other creatures large and small occur in the park.

Mount Kenya Forest Vegetation And Coverage In Percentage:

Bamboo - 10%

Bamboo and Forest Mix - 23%

Forest - 32%

Bushy Forest - 11%

Grassland - 8.5%

Plantation - 9%

Other - 6.5%

1.5.4 Mount Kenya climbing Routes

There are three main climbing routes, which penetrate the forest and the moorland. The routes are Naromoru route, Sirimon route and Chogoria route and each of which has something different to offer. Below is a description of each route.

a) Naromoru route

The fastest route to point Lenana but not as scenic. It is often overcrowded with many climbers since it's the most popular route compared other routes.

b) Chogoria route

The most scenic and interesting of the three main routes on the mountain. The route passes the enchanting Hall Tarns and looks down sheer cliffs into the spectacular Gorges Valley and onto the beautiful Lake Michaelson.

c) Sirimon route

The least used of the three main routes, but features the most gradual ascent profile and best acclimatization options and above all the most interesting since its on the drier side on the mountain. The route passes through impressive Yellowwood forests in the lower reaches and features abundant wildlife and beautiful alpine scenery higher up.

d) Other routes

There are other four routes up Point Lenana but are least known and used. These are: Burguret Route, Timau Route, and Kamweti Route and the new Embu Route.

CHAPTER THREE

3.0 METHODOLOGY

This feasibility study was commissioned by Embu County Council and other key stakeholders through the support of Tourism Trust Fund (TTF). Designing and commissioning of Embu climbing route is aimed at enhancing conservation of Mt. Kenya Ecosystem through even distribution of the tourist load which is now concentrated to a few climbing routes. In addition to this, the route will also facilitate even distribution of tourism revenue amongst communities neighboring the mountain. (See Terms of Reference (TOR), appendix 1)

3.1 Project Description

3.1.1 Overall Objective

To undertake a feasibility study on the establishment of a new Climbing route in Mt. Kenya – Embu climbing route

3.1.1 Specific objectives

1. To undertake a viability analysis of the proposed route,
2. To develop an itinerary of the route,
3. To make recommendations on best model of developing and managing the project.

3.2 Strategic activities

In order to achieve the project objectives as outlined in the TOR, the project undertook a number of strategic activities. The activities included and were not limited to; reconnaissance visits, desk review, stakeholders meeting, route mapping, identification of tourism facilities required, assessment of the project viability and conducting of an EIA.

3.2.1 Reconnaissance Visits

Through the support of the project proponent and other key stakeholders two reconnaissance visits were undertaken to enable the consultants familiarize and understand the context in which the route will be developed. During the visits critical information was collected i.e. key stakeholders linked with the project, other routes used by climbers, number of visitors expected to use the route, park gate likely to be used, number of climbers to Mt. Kenya etc.

3.2.2 Desk Review (Secondary Research)

A desk review was undertaken to collect and collate existing information on tourism activities in Mt. Kenya Region. Data sources that were used to collect the secondary data include; Kenya Wildlife Service (KWS) statistics, Kenya Forest Service (KFS) documents and reports of tourism studies undertaken in the destination. The desk review will identify information gaps that will be filled through the primary research.

3.2.3 Mapping of the climbing route

The mapping of the route was undertaken by a team of three professional mountain climbers, two porters and a cook from Summit Ventures Expeditions between 20th and 23rd November 2009. The team was assisted by local guides who have a wealth of experience on the mountain. Kenya Forest Service rangers provided security and assisted in the mapping of the route.

The climbing route was mapped using ribbons which were fixed on trees and through permanent marks on prominent trees. GPS coordinates of prominent locations on the route were taken to facilitate easy climbing by future groups. The mapping identified extra activities that tourists can engage in, proposed the site where the mountain cabins will be elected and possible camping areas. In furtherance to this the mapping determined accommodation facilities in Embu, overnight stay points and descending route. The scenic points of the route as well as the hazards of the route were ascertained.

3.2.3 Development of Architectural design & Costing of proposed structures

At this stage essential tourism facilities that are essential for the success of route were identified and their architectural design and bill of quantities developed. The facilities range from mountain cabins, campsites and education centre.

3.2.4 Conducting project Feasibility

3.2.4.1 Economic feasibility

Economic analysis was undertaken to evaluate the effectiveness of the project and highlight the costs and benefits associated with the project. At this stage projections of expected revenue were made and a business case developed.

3.2.4.2 Legal feasibility

This will be undertaken to determine whether the proposed project conflicts with legal requirements.

3.2.4.3 Operational feasibility

Operational feasibility was aimed at ascertaining if the proposed route is practical and tourists can use it without any problem.

3.2.4.4 Market Feasibility

Market feasibility ascertained if there is demand of the proposed climbing route. Projections of tourist's arrivals were made and extrapolated throughout the year. Suggestions were made on marketing channels that can be used to reach the target market.

3.2.4.5 Cultural feasibility

In this stage, the project's alternatives were evaluated for their impact on the local and general culture.

3.2.5 Environmental Impact Assessment (EIA)

EIA was aimed at assessing the possible impact—positive or negative—that the proposed project may have on the environment, together consisting of the natural, social and economic aspects. This entailed identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.

The purpose of the assessment is to ensure that decision makers consider the ensuing environmental impacts to decide whether to proceed with the project. After the EIA, the precautionary principles will be applied to prevent, limit, or require strict liability or insurance coverage to a project, based on its likely harms.

The EIA report was submitted to National Environment Management Agency (NEMA) for approval. Key stakeholders were also given a chance during the stakeholders meeting to air their views on the proposed project.

CHAPTER FOUR

4.0 Proposed Climbing route

This route begins from Embu town at Irangi forest station to the East of mt Kenya, about 200km from Nairobi. Once it becomes operational Irangi route will be the most beautiful as compared to the other routes namely Sirimon, Chogoria and Naro Moru. It is gentle, more scenic and very rich in flora and fauna. The route is well served with a 5km track from Irangi forest station to the Murrum excavation site from there exists a path that was once used by loggers and it stretches for 4km within the forest zone. Forest zone lies between 2100 – 3600 metres which indicate that it is more expansive than any forest in the other common routes, however the moorland area is generally small.

The route is covered by two levels of bamboo; on the lower zone is thick dense bamboo which stretches for about 6km while the upper zone which covers about 4km is dominated by giant bamboo.

Hygeia – Hypercom zone: Also known as the Rosewood Zone which is a high altitude rain forest between approximately 3800- 4000 meters.

In this zone the route meanders along the trout fish dominated river called Rupingazi, and this provides a great opportunity for sport fishing

The heath zone also known as Ericaceous zone with giant heaths or bushes and tussock grass but the beauty of the zone is the great U shaped called Hogley valley. In this is dominated by three linear lakes namely Carr's lake which is the source of Rupingazi river, Enchanted lake which is a feeder to Carr's lake and Thompson lake at the far end

The alpine zone goes up to 4350 metres is the home of many unique high altitude plants such as protea, helichrysums, ostrich plum lobelia the giant lobelia, senecios, groundsel and the very the expansive fields of tussock grass which is the main cover of the Alpine Zone.

The tival zone stretches above 4350 metres to the top of the mountain this the Zone of rock and ice, vegetation is only present in the most sheltered situations and for the most part, the slopes are of bare gravel and scree from which the glaciers have only recently retreated. The most outstanding peaks along the route are Tilman, peak, Giggs Coryndon, Mcmillan, Delamere and Lenana

This zone hosts a rich fauna. Among the larger animals to be found are the cape buffaloes, bushbucks and the elephants... Smaller animals include the attractive Sykes monkeys, the black and white Columbus Monkey, the black-faced vervet, the black tipped or slender mongoose and few diurnal mongooses can be seen during the day. Birds are also plentiful. Among the larger birds of prey, the following can be seen: the white-backed vultures, the crowned hawk, eagle, the crested eagle, the mountain buzzard and augur buzzard with its beautiful red tail. Some of the great birds of prey include: the great sparrow hawk and the African goshawk. The sunbird can be seen hovering around the flowers.

4.1 Accessibility

The foot of the mountain is accessed from Embu town via a 24 Km tarmaced road through Kianjokoma town. From there is 6 km stretch of rough road via Irangi forest station to Murrum excavation site. Then tunnel through 7km of forest and 4km of the bamboo zone .

4.2 Route Itinerary

Day 1: Thambana Cabins

Embu town lies at 2007 ms drive via Kianjokoma town to Irangi forest station headquarter 24 kms. The road is tarmac up to Kianjokoma town then or rough road. 5km to the station. From the Irangi forest station to the road head is 5 kms up to the Murray extraction area.

Hike from road head on a tree canopy area until the end where elephants mud bath. Hike 6kms on open area and descend to the Thambana river campsite 2502 M. (6000 feet) Embu north map sheet 121/4 N.026° 68E. Dinner and overnight.

Day II : Rupingazi Camp site

Hike NW 310°^{through} the thicket dense bamboo for about 12 kms up to Rupingazi clearing 3096ms 37m 0319638utm 9975456 of the path formerly used by loggers 5 kms. After 6kms of gallery forest Hike through the thicket bamboo about 2km north East of Thambana River.

End up to an open area. This is the most suitable to build the Eco lodge. There is spectacular view of the Mt Kenya peaks on the North West and south swamp/marsh are of Thambana river dinner and overnight next to Rupingazi River.

Day III: Carr Lake campsite

After breakfast Hike through the Hagenia and hypericum zone about 4kms the path follows the Rupingazi river on the left side walk onto the Hogley valley through the giant heather now on the right hand side of the river, Hike along the river Rupingazi about 7kms ending up at Carr's lake campsite 3928m² Dinner and overnight.

Day IV: Austrian Hut

From Carr's lake ascend to Thomson's tarn and join the Chogoria route at airplane crash site for about 6 hours to Austrian hut 4790 Ms. Dinner and overnight at Austrian hut.

Day V:

4.3 Other proposed activities

4.3.1 Angling (Sport fishing)

Full day trout fishing expeditions can be organized This is some of the finest trout fishing in East Africa, where Rainbow Trout (introduced to Kenya in the 1920's from Scotland) of 2+ lbs are "average" and monsters of 6-8 lbs are frequently encountered. After a full day fishing one can retreat to a hot tub to thaw away the cold, or sit by a log fire enjoy good food, wine and the unique afro-alpine environment.

The main attraction of Lake Rutundu is the fact that is privately stocked with rainbow and brown trout. The staff at the Cabins are also trained gillies and using barbless hooks and a rowing boat, many hours can be spent trying your luck in perfect tranquil conditions.

No previous fishing experience is necessary and in fact many visitors come purely to enjoy the unique mountain scenery.

Extraordinary walks and additional fishing on the stunning Lake Alice at 12,200 feet make this trip a worthwhile and memorable experience

4.3.2 Nature walks

4.3.3 Mau Mau Caves

4.3.4 Wildlife Viewing

4.3.5 Bird Watching

4.3 CHALLENGES

1. Lack of adequate water on the lowland
2. Cutting through the thicket bamboo
3. Dangerous animals and subsistence fish/animal poacher
4. Snares/dip holes along the route
5. Long distance covered in a day
6. Difficult on mist and foggy weather to locate position and path.

4.4 RECOMMENDATIONS

1. Hikers to carry sufficient water to last for two days.
2. We mark the route with ribbons and marking on the vegetations tree markings
3. Hikers be alert never step on branches on the ground.
4. Map/compass /GPS are carried along this route.

CHAPTER FIVE

5.0 Proposed structures

5.1 Information Centre

5.2 Access Route

5.3 Thabana Cabins

The proposed site is 17km from Irangi forest station. It is located at 2502m ASL and in the Embu North map sheet 121/4 N.026 degrees 68 degree East. This in an open areas of thick bamboo zone and next to Thambana River.

The proposed site can be accessed from Embu town via a 24 Km tam arced road to Kianjokoma town. From there is 10km of rough road via Irangi forest station to Murrum excavation site. Then tunnel through 7km of forest and 4km of the bamboo zone.

To enhance security of guests visiting the facility an electric fence powered by solar energy will be elected using poles made of recyclable materials. The fence will be supplemented by a molt/trench that will run round the facility.

Four self contained cabins will be constructed using locally available materials (stones and timber). Each cabin will have two self-contained rooms which can accommodate 2-3 persons each. In total approximately 24 persons, extra people can be accommodated on camping basis at the designated camping area. Staff quarters that can accommodate six members of staff will also be provided. In addition to the cabins a kitchen, small library and meeting room will be developed. (see architectural plans attached). The construction of the cabins will include the following activities;

a) Site clearing

The proposed site is located in an open space in the bamboo forest hence only minimal clearing will be undertaken. The cabins will be blended with the existing vegetation and vegetation clearing will be minimized as much as possible.

b) Excavations

During the laying of the foundation excavation will be undertaken to remove a bit of top soil to guarantee a strong foundation of the proposed structures. Excavation will also be undertaken to pave way for the construction of an underground septic tank.

c) Flooring

The floor will be raised above the ground to avoid flooding of rooms during the rainy seasons. The floor will be cemented.

d) Walling & Roofing

The walls of the cabins will be made of timber while the roof will be made of timber tiles (TNG).

The log cabins will be built from locally sourced logs. The logs will be hewn on the inside to facilitate siding using block boards. The logs will be laid horizontally and spiked on the support poles to make the cabin structurally sound.

The site identified will provided the cabin with sunlight and drainage to make the travelers enjoy their stay in the facility a comfortable one. The best logs will be "cherry picked", these will be old grown trees with few limbs (knots) and straight with little taper. Logs of this type don't need to be hewn to fit well together and careful notching will minimize the size of the chink (space between the logs) and reduce the amount of chinking (sticks or rocks) or daubing (mud) needed to fill the chink. Generally, the length of one log will be the length of one wall.

The cabins will be set on a raised concrete platform to keep them out of any damp soil and to keep off surface run off. The cabins will be constructed with a rafter roof structure, consisting of horizontal logs that are notched into the gable wall logs which are progressively shortened to form the characteristic triangular gable end. The steepness of the roof is determined by the reduction in the size of each gable wall log and the number of gable wall logs. The roof will have full cut 2 x 4" rafters covered with skip sheeting and cedar shingles.

Chinking refers to the mortar/infill material between the logs in the construction of log cabins and other log-walled structures. Dry grass collected from the forest will be used as the chinking material.

Uniqueness of the site

- The proposed site overlook a elephant mud bath site and salt leak
- It has a breath taking spectacular view of the mt Kenya Lenana peak, and Embu town
- It overlooks volcanic necks cone and explosion craters notably and the great Ithanguni ,Mugi , and the Giant Billiard table
- The site is very rich in biodiversity
- The proposed site lies in Mt. Kenya East Eco-system between two great rivers namely River Thambana and River Thuci hence accesibility to clean water

- Therefore the proposed site is also suitable for
- 1. Campsites, picnic sites,
- 2. Mau Mau caves
- 3. Bird watching areas
- 4. Animal breeding sites
- 5. Salt licks and Nature trails/walks
- 6. Sport fishing trout

Common wildlife in the forest includes elephants, buffaloes, leopard, small-striped hyena, spotted hyena, and genet cats, waterbucks and black frontier duck.

CONCLUSION & RECOMMENDATIONS

1 BACKGROUND

The Tourism Trust Fund (TTF) was established in December 2001. The TTF overall objective is to contribute towards poverty reduction and private sector growth in Kenya, whilst ensuring a sustainable use of natural resources and optimization of tourist satisfaction. Towards this end, the Tourist Diversification and Sustainable Development Program (TDSDP) aims at establishing a diversified, socially balanced and environmentally sustainable tourism product base in order to:

- Foster local development;
- Provide incentives for continued environmental conservation; and
- Maximize opportunities provided by the development of new market assets.

1.1 sustainable technologies and new product development

Under the TDSDP component, the sustainable technologies and new product development facility will produce results in the following areas:

- Provide incentives, on a cost sharing grant basis for the adoption of ecologically sustainable technologies. Develop and support national certification scheme and strengthen and support enforcement of environmental impact analysis for tourism related investment.
- Provide financial and technical support towards sustainable technologies and new product development processes (planning, design, research, costing, etc.)
- Provide new product developers with access to information on relevant financial and other support facilities available in Kenya and internationally (EIB, EBAS, Biodiversity Conservation Program, etc.)

- Develop guidelines/ manuals for new product development/ packaging for intermediaries, community enterprises and SME.

In order to achieve these results particular focus is given by Tourism Trust Fund to proposal which demonstrates the following:

- Diversification from traditional beach and safari products.
- Sustainability beyond TTF's financing program.
- Impact on poverty alleviation
- Best practices in environment and conservation principles
- Co-financing abilities

2. Feasibility study for climbing Mt. Kenya form an alternative route (Embu)

The county council of Embu is desirous of tapping revenue from the tourism sector by establishing an alternative route in climbing Mt. Kenya from Embu side. For the project to be successful, there are various areas of concern to be taken care of in the investment.

These are:

- Construction of all weather road from Embu to Irnangi forest
- Restaurants, camping sites and climbing facilities in the forest.
- Environmental impact assessment report.
- Expected income and expenses.
- Total cost involved
- Any other relevant material.

The above activities are costly and the council is not able to undertake the exercise due to financial constraints. It is for this reason that the Embu county council is carving out a feasibility study to enable them source for partners to implement the project.

Location:-

- The project is situated in Embu district via Embu Kianjokoma- Irnagi road to Mt. Kenya approximately 12000ft above sea level.
- The Embu- Eianjokoma road requires to be improved to all weather road.

3 scope of work

In view of the above background your firm is thereby requested to bid for the assignment to undertake the following activities:

3.1 feasibility study report addressing the following areas:-

- Provision of camping sites, three in number to accommodate 20 tents each.
- Provision of game circuited routes- from the hotel

- From the hotel provision of game circuited routes
- Construction of dormitory with a capacity of 80 beds
- Construction of three modern toilets and an incinerator
- Construction of a library, equipped with mountaineering literature and equipment
- Environmental impact assessment report
- Recommendation of either the council to run the project or lease it out
- Approximate investment returns
- Focused cash flows
- Create value to the council and the community
- Detailed risk management and realistic costing
- Demand legal and consideration