Monitoring Important Bird Areas in Kenya

A draft Site Action Plan for

Mukurwe-ini Valleys, Kenya

September 2005

Editors

Martin Mwema, Simon Musila, Enock Kanyanya, John Musina, Ronald Mulwa, Kariuki Ndang'ang'a, Joel Siele, and Jacob Machekele

NatureKenya

Table of Contents

List of Tables

List of Acronyms

AIDS	Acquired Immune Deficiency Syndrome
CBO	Community Based Organization.
DO	District Officer
FOO	Fundamentals of Ornithology Course
GOK	Government of Kenya
GPS	Global Positioning System
HB	Hinde's Babbler
HIV	Human Immuno-deficiency Virus
IBA	Important Bird Area
ICIPE	International Centre for Insect Physiology and Ecology
ICRAF	International Centre for Research on Agro-Forestry
KWS	Kenya Wildlife Service
LATF	Local Authority Transfer Funds
MEVO	Mukurwe-ini Environment Volunteers
MOA	Ministry of Agriculture
MOPW	Ministry of Public Works
NEMA	National Environment Management Authority
NGO	Non- Governmental Organization
NK	Nature Kenya
NMK	National Museums of Kenya
PA	Protected Area
SAP	Site Action Plan
SSG	Site Support Group
TOT	Training of Trainers Workshops
WCK	Wildlife Clubs of Kenya

Executive Summary

This Site Action Plan (SAP) identifies strategies to ensure the long-term survival of the Hinde's Babbler, *Turdoides hindei*, an endemic and globally threatened species in Mukurwe-ini Valleys. This site is an Important Bird Area (IBA) that is not formally protected within Kenya's Protected Area network. The land is privately owned by individuals most of whom are small- scale farmers. As a result, the area has experienced a high rate of bush thicket loss, as more land is cultivated. The Hinde's Babbler relies on these thickets for feeding, breeding and cover and its loss has had an impact on its population. Although scrub clearance is considered the most serious threat to the species' survival, hunting and human disturbance may also have an appreciable impact. Other potential threats include: pesticide use, predation and brood parasitism. Other threats highlighted are indirect such as inadequate awareness, lack of conservation funds, poverty, an inadequate government policy and impact of HIV/AIDS. These affect the conservation of the site in one way or the other but do not impact directly on the species and its habitat.

In response to these threats, Nature Kenya in collaboration with the Ornithology Department, National Museums of Kenya, organised a Site Action Plan workshop to come up with strategies to conserve the bird and its habitat. This was organized under the Important Bird Areas monitoring programme and it involved various stakeholders from the site. Broadly, the proposed conservation actions were: the creation of a reserve or a network of reserves through land purchase, encouraging farmers to maintain bush thickets in their farms through land agreements, scientific research and monitoring of the species and its habitat, education and awareness creation and community involvement. By increasing the size and quality of the habitat, it is hoped that the population of the birds will start to increase. Through regular monitoring of the species and its habitat, we shall be able to gauge the effectiveness of the measures outlined above.

Introduction

Mukurwe-ini Valleys are the stronghold of the Hinde's Babbler population, hosting about half of the population (Shaw and Musina, 2003). The Hinde's Babbler is one of Kenya's six endemic bird species and it is listed as globally threatened (BirdLife International, 2000). The Mukurwe-ini Valleys are a collection of people's farms, which are intensively cultivated. The Hinde's Babbler survives in the remaining patches of bush thicket, mainly along river valleys. As the human population increases and demand for land rises, even these thickets are now being cleared for farming. If the trend continues, we risk losing a significant part of the babbler population in the near future.

In an effort to counter the threats, several activities have been carried out, prominent among them being monitoring of the Hinde's Babbler population and its habitat which has been going on since 2004 under the Important Bird Areas (IBA) monitoring programme. The programme is funded by the Darwin Initiative through the Royal Society for the Protection of Birds (RSPB) and is implemented by Nature Kenya in collaboration with the Ornithology Department, National Museums of Kenya and various other agencies. The Mukurwe-ini Environment Volunteers (MEVO), a local conservation organisation, carries out the monitoring. They have also been involved in creating awareness on the threats facing the bird and the need to ensure that it is conserved.

It was however realised that for effective conservation of the site, concerted effort by several stakeholders was required. A Site Action Plan workshop was therefore held on 5th August 2004 to brainstorm on how best to ensure the long-term survival of the Hinde's Babbler and to assign roles to the different stakeholders. The workshop was attended by 26 participants from Nature Kenya, National Museums of Kenya, BirdLife International, National Environment Management Authority (NEMA), Department of Social Services, Mukurwe-ini Volunteers Organization (MEVO), Agriculture Extension Office, Wajee Camp and local Farmers. The workshop was officially opened by the Mukurwe-ini District Officer.

This document is the result of that workshop and it details the conservation actions that were agreed upon.

The goal of the Site Action Plan is to have an increase the population of Hinde's Babbler to a level that it is no longer considered as threatened. It aims to do this by increasing the size and quality of the Hinde's Babbler habitat in Mukurwe-ini in addition to protecting the remaining habitat patches. An indicator of success will be an increase in the population of the Hinde's Babbler. The SAP will be implemented over a period of five years, from 2005-2010.

Broad Objectives of the SAP

1. To improve or restore suitable habitat for Hinde's Babbler.
2. To explore possibilities of establishing Hinde's Babbler sanctuaries.
3. To enhance research and monitoring on the Hinde's Babbler and its habitat.
4. To enhance awareness creation on the Hinde's Babbler and its habitat.
5. To enhance full community involvement in conservation.
6. To source for funds for conservation action.

Site Background Information

Location

The Mukurwe-ini Valleys IBA is located in Central Province, Nyeri District (0^o 42'S, 36^o 34' E), and it covers an area of at least 20,000 ha. The area includes the catchments of the Thiha and Sagana Rivers on either side of the Thangathi- Kanunga road near Mukurwe-ini town. It lies at an altitude of 1,500-1,600m. (Bennun and Njoroge, 1999)

Land Tenure/Ownership

The IBA is located in unprotected private land though a 10 ha private bird sanctuary, the Wajee camp is also found here. (Bennun and Njoroge, 1999)

Unique Biodiversity

The Valleys are home to the Hinde's Babbler, an endemic Kenyan bird which is also a globally threatened and range restricted species. The presence of the threatened bird species qualifies the site as one of Kenya's 60 Important Bird Areas (IBA's) under the category A1 (having a Globally-threatened species) and category A2 (having a restricted-range species).

The Hinde's Babbler was first recorded in Mukurwe-ini in 1993 and it is the stronghold of the Hinde's Babbler in Kenya, accounting for about 50% of the population. (Shaw and Musina, 2003). There has not been a survey to determine which other unique biodiversity exists in Mukurwe-ini but several species of chameleons as well as the Side-striped Jackal have been sighted by the locals. Indigenous bushes such as *Mubega, Mutare , Mugio, Mukware, Ithansi* still exist along the river valleys and they could be of some medicinal value.

Present Land use

This area is of high agricultural potential and is intensely cultivated. Coffee is grown mostly on the hillsides while Maize, vegetables, bananas and arrowroots are grown particularly on the valley floors. (Shaw et al, 2001).

Thickets of the exotic *Lantana Camara* occur at the edges of cultivation, in fallow farmland and in inaccessible river valleys. Scattered indigenous trees such as *Newtonia buchananii* and *Ficus thoningii* are found. (Bennun and Njoroge, 1999)

Climate

Mean annual rainfall is about 1,402 mm with the bulk of the rain falling in April, May, October and November. (Shaw et al, 2001).

Population

In 1989, the mean population density was 494 people/Km^2, which was projected to reach 621 people/Km^2 by 1999 (Shaw et al, 2001).

Conservation issues

There has been a general decline in the state of the habitat due to clearance of the little remaining bush thickets for cultivation. Although the babbler often feeds on the coffee and maize plantations, it requires these thickets for cover and nesting (BirdLife International, 2000). The pressure on Hinde's Babbler habitat is on the increase due clearance of these thickets and the little remaining natural vegetation. This has led to a general decline in the state of the habitat. (Bennun and Njoroge, 1999)

On-going conservation work

A conservation group, the Mukurwe-ini Environment Volunteers (MEVO), with assistance from Nature Kenya and the National Museums of Kenya, has been conducting a bi-annual survey of the Hinde's Babbler since 2004. They are also engaged in creating awareness on the Hinde's Babbler through plays and Volleyball tournaments.

Indigenous Knowledge

The locals have knowledge of making herbal pesticides from locally abundant plants like Mexican Marigold and Black Jack. The locals call the Hinde's Babbler *Githege-thege*.

Species Description

Taxonomy

Hinde’s Babbler, Turdoides hindei, was first described in 1900, and is one of 29 species in the genus Turdoides (Monroe & Sibley 1993). Plumage variability is high, at one time prompting speculation that the form may be a hybrid of two sympatric Turdoides species (Hall & Moreau 1970). No sub-species are currently recognised.

Distribution

Largely restricted to the intensively cultivated foothills of Mt Kenya and the Aberdares, and to riverine scrub in parts of Meru and Machakos Districts with seemingly isolated populations in Kitui and Nziu (BirdLife International, 2000).

Population size

The population is estimated to range between 2,500 and 10,000 (BirdLife International, 2000). Surveys carried out in 1994-2001 and put estimates from seven sites at about 1,500-5,600 birds (Shaw *et al.* 2003). While only 8% of its known population occurs within legally protected areas (Mwea National Reserve and Meru National Park.), about 70% occurs within highly productive farmland, where there is limited scope for protection through site designation (Shaw & Musina 2003). In the survey, 97% of birds were found in, or adjacent to, five Important Bird Areas (IBAs) i.e. Mukurwe-ini Valleys, Kianyanga Valleys, Machakos Valleys, Mwea National Reserve and Meru National Park. About half (50%) of the population was found at Mukurwe-ini and a further 24% at Kianyaga. The more peripheral, possibly isolated populations at Kitui, Machakos and Meru each held 2-9% of the known population. (See Table 1)

Table 1. Composite population estimates for Hinde's Babbler at six sites surveyed during 1994-2001, based on Njoroge & Bennun (1996) and Shaw *et al.* (2003).

	Kitui	**Machakos valleys**	**Mwea NR**	**Mukurweini valleys**	**Kianyaga valleys**	**Meru**[1]	**Totals**
IBA Reference	-	KE029	KE032	KE006	KE002	KE031	-
Location	38°02'E, 1°25'S	37°15'E, 1°30'S	37°37'E, 0°50'S	37°03'E, 0°33'S	37°21'E, 0°30'S	38°04'E, 0°12'N	-
Birds counted	16	59	35	329	156	70	665
Extrapolated population estimate	52	87	116	717	310	208	1,490

[1] Only 21 Hinde's Babblers were found inside Meru NP *Source: Musina and Shaw, 2002*

Ecology

- *Breeding:* Clutches of 2-3 eggs are laid in nests built at 1-3 m above the ground, usually in thickets (Njoroge & Mutinda 1996). At least two broods may be raised each year. Breeding broadly coincides with the main periods of rainfall, peaking in March, May and September-October (Shaw & Musina 2003). In common with several other *Turdoides* species, Hinde's Babbler clutches are occasionally parasitised by the Jacobin Cuckoo *Oxylophus jacobinus*.

- *Food:* Hinde's Babblers tend to feed on or close to the ground, and are probably omnivorous.

- *Behaviour:* Hinde's Babbler is a group-territorial, cooperative breeder. In June-July, following the end of the long rains, groups typically consist 3-4 adults (range 1-8), often accompanied by 1-2 fledglings or immatures (Shaw & Musina 2003).

Conservation Status

The Hinde's Babbler is a Kenyan endemic that is currently listed as nationally ‘endangered’ and as globally ‘vulnerable’, on account of its small population and declining range size (BirdLife International 2000). It is also one of nine restricted-range species of Kenyan Mountains Endemic Bird Area (Stattersfield *et al.* 1998). The species’ decline has been attributed largely to the clearance of scrub, on which it depends for breeding, feeding and cover (Njoroge *et al.* 1998). This may be compounded by human disturbance and hunting. (Musina and Shaw, 2002).

Justification for conservation of the site

Ecological Values

It is the stronghold of the Hinde's Babbler in Kenya, a bird species that is found only in Kenya i.e. a Kenyan endemic and is vulnerable to extinction due to threats facing it.

There has not been a survey to determine which other unique biodiversity exists in the area.

Aesthetic, cultural and religious values

The area has the Mau-Mau caves. These are caves that were used by the Mau -Mau fighters during the struggle for independence and they are of strong historical and cultural significance to Kenya. These caves together with the Ruarai Waterfalls, Kikuyu traditional homesteads and traditional dances at Wajee Camp and beautiful sceneries which include good views of Mt. Kenya are of recreational value and can be exploited for eco-tourism. The area also has special clay that can be used for making pots and other artefacts that can be sold to tourists. Indigenous bushes that still exist along the river valleys could have some value in traditional medicine.

Economic Values

The area has potential for eco-friendly economic activities which include eco-tourism, dairy goat farming and bee-keeping. If farmers are encouraged to leave some bush thicket in their land to practice these activities, it would help increase the Hinde's Babble population.

Scientific Value

There is still a lot of information about the Hinde's Babbler that is not known such as its exact range and population status as well as factors that enhance or reduce breeding success of the species. Little has been done in trying to find out which other unique biodiversity exists in the area.

Threats to the Site

Direct Threats

Habitat Loss

Impact: Critical. Increase in agriculture and settlements have led to clearance of natural vegetation in many areas to make way for the cultivation of food crops and coffee. In addition, farmers are reluctant to have bushes in their farms since they harbour the Speckled Mousebird, *Colius striatus*, which can sometimes become a crop pest.

The Hinde's Babbler relies on these bushes for shelter and breeding. Extensive scrub clearance has thus coincided with a contraction in the species' known range.

Destruction of thickets has also had the effect of isolating the population of Hinde's Babbler from that of Kianyanga. Isolation may lead to inbreeding which brings about low genetic diversity and may have an effect on breeding success and survival. The Hinde's Babbler's small population size may also compound this. Soil erosion may also reduce regeneration of bush thicket where soil has been washed away.

Human Disturbance

Impact: Medium to Low. Human disturbance has increased due to subdivision of land. As the population increases, farms that were once large have been divided into small parcels that are fully utilized in order to maximise production. Since many thicket fragments are small and are surrounded by farmland, human disturbance may reduce feeding efficiency and breeding success in some areas.

Hunting

Impact: Low. Hunting has been identified as a problem but it is not as extensive as in Kianyanga where they are traditionally hunted for food. (Njoroge & Bennun 2000).

Brood parasitism

Impact: Unknown. The Jacobin (or Black-and-White) Cuckoo *Oxylophus jacobinus* is a brood parasite of Hinde's Babbler (Fry *et al.* 2000). Studies in other *Turdoides* species indicate that brood parasitism may result in a c. 50% drop in productivity (Gaston 1976). The threat posed by brood parasitism in Mukurwe-ini is unknown, but is unlikely to be significant are there has been no evidence of brood parasitism in nine recorded nesting attempts observed or among 12 groups accompanied by fledglings (Shaw and Musina, 2003).

Agro-chemical Pollution (Pesticide and Fertilizer use)

Impact: Unknown. Chemical sprays used on crops in which Hinde's Babblers feed may lead to reduced fertility and/or survival, particularly in the more intensively farmed areas. Possible effects of agricultural sprays on survival and productivity have, however, not been investigated. Indeed, breeding success was

actually lower in Mwea NR and Meru NP which are protected areas and no farming takes place (hence pesticide effects should also be lower than in Mukurwe-ini) (Musina and Shaw, 2002).

Predation

Impact: Unknown: Although there is no information on predation levels at Mukurwe-ini, habitat fragmentation may leave the species more vulnerable to predation as a result of reduced cover leading to increased egg, chick and fledgling mortality. In addition, as farms reduce in size and human settlements increase, the babblers may increasingly become susceptible to predation by domestic cats and dogs.

Indirect Threats

These are threats or obstacles, which although do not affect the species directly, they are underlying causes of direct threats or hamper effective conservation of the site.

Inadequate Government policy

Impact: High. There has not been clear effort by the government to come up with strategies to enhance conservation in areas like Mukurwe-ini that are in private ownership yet host threatened biodiversity. Remaining pockets of vegetation where there is no clear ownership such as the river valleys are increasingly being encroached on for agriculture. There are no incentives to encourage farmers to protect the bushy areas in their farms. The Wildlife Management and Conservation Act (CAP 376) does not make provisions for community reserves within the protected area system. This would enable them to benefit from funding and expertise from the government while at the same time remaining independent from government ownership.

Inadequate awareness

Impact: High. The level of awareness by the local community on the global importance of the Hinde's Babbler, its threat status as well as its endemic status is low. So is the level of understanding on the importance of Mukurwe-ini for the conservation of the species.

Poverty

Impact: High. Low income and unemployment has led to increased poverty, which has increased dependence on natural resources by the local community. Also, these people tend to be mostly small-scale holders who aim at utilizing every inch of their land in order to feed their families. Convincing them to leave areas fallow for the sake of the Hinde's Babbler may be difficult unless viable alternatives are given.

Although the area has potential for income generation activities which are compatible with conservation, these have not been fully exploited. Even with a high level of awareness, any conservation intervention that does not address the issue of poverty is likely to be unsuccessful.

Lack of Funds in conservation

Impact: High. Limited funds for conservation have limited the ability of the local conservation group, MEVO, to spread its activities to all areas of Mukurwe-ini. The group does not have an office from where to coordinate its activities and requires more equipment such as binoculars and guidebooks for its increasing members as well as computers for its monitoring work. Organising awareness campaigns such as puppet shows, drama and video shows also require funds.

HIV Aids Pandemic

Impact: Low: Increase in death due to AIDS has worsened the poverty situation especially where households lose the breadwinners. Those who are left rely increasingly on natural resources in order to survive.

Conservation Objectives

Species and Habitat Conservation

A recent study showed that Abundance of Hinde's Babblers was significantly higher where mean thicket cover exceeded 3% and breeding success was significantly higher where mean thicket cover exceeded 9%. Also, areas with at least 10% thicket cover accounted for 19% of the total area surveyed, but held 30% of all adults and 50% of all offspring (Shaw & Musina, 2003). These findings suggest that even a modest increase in thicket cover may significantly raise the density and productivity of Hinde's Babblers at Mukurwe-ini. Some strategies to increase thicket cover are detailed below.

Reserves

There is an urgent need to create a reserve or a network of reserves in Mukurwe-ini to protect the Hinde's Babbler. The community should run these reserves and benefits accruing from them should go back to the community. Land for reserves can be acquired by raising funds nationally and internationally to buy farms from farmers and regenerating habitat that is suitable for the Hinde's Babbler. The government could also be approached to help set up these reserves. The advantage is that such reserves will be able to benefit from expertise from the Kenya Wildlife Service and also be entitled to financial support from the government. However, this will require an amendment to the Wildlife Act to allow for community-run reserves. In creating these reserves, focus should be on a willing buyer - willing seller principle. There should be no forced evictions since they will erode the gains made in generating support for the conservation of the site.

Land Agreements

Farmers can be approached and encouraged to leave a certain portion of their land in bush. The farmers can be provided with incentives that will be commensurate with the amount of bushland they have (or the percentage of bushland in relation to the whole farm). Some of the incentives can include certificates, access

to soft loans for eco-friendly projects, facilitation in marketing for tourists, compensation for lost income, free or subsidized beehives.- Funding from foreign donors and govt.;

Protection of Thickets around watercourses

The remaining bush thickets are mainly found around the watercourses. It is therefore important to protect these thickets from further destruction.

Corridors

A survey in 2001 established that the closest groups of Hinde's Babblers at Mukurwe-ini and Kianyanga valleys were just 19 km apart. (Shaw and Musina, 2002). There is need to investigate whether suitable habitat and babbler groups persist along the waterways linking the two IBAs which should be followed by efforts to establish a corridor linking these two IBAs by regenerating bush thickets, especially along watercourses. A corridor will have an effect of linking the two sub-populations promoting dispersal and gene flow. This is important because the two IBAs account for an estimated 75% of the Hinde's Babbler population in Kenya.

Research and Monitoring

Community Monitoring

Currently, there is a community-monitoring programme for the Hinde's Babbler and its habitat that is conducted by the Mukurwe-ini Volunteers Organization (MEVO), facilitated by Nature Kenya in collaboration with the National Museums of Kenya under the Darwin Initiative funded, IBA Monitoring Programme. A database also exists that contains information from the detailed monitoring carried out since 2004.

To improve on the monitoring, there is need for:

- Regular field supervision of the monitoring exercise to ensure quality data is collected. Based on recommendations of the field supervisors, refresher courses can be organized.
- Training of the monitoring group in database management, analysis and reporting. This will enhance the sustainability of the monitoring exercise and help to further institutionalise the exercise. This will however require investment in equipment such as computers, communication facilities and office space.
- The current members involved in monitoring should continue to train new members in the monitoring methods.

Scientific Research

Several surveys of the area have been carried out (1993,1994, 2000 and 2001). There is however need for more research on the Hinde's Babbler and its habitat. Some of the areas that would be of interest include:

- Additional surveys to clarify the 'boundaries' of the site especially in areas south of the Mugono and Rutune Rivers, in the SE corner of the site. There are extensive areas around e.g., Gathukeini, Mugeka, Kigongo and Kigetuini, which may also support large numbers of babbler. (Shaw and Musina, 2002)
- Assessing corridor feasibility. There is need to determine whether suitable habitat and babbler groups persist along waterways linking Mukurwe-ini with Kianyaga IBA as well as an assessment of the costs and feasibility of regenerating sufficient thicket cover along 1-2 connecting watercourses. In 2001, the closest groups at these two sites were just 19 km apart (Shaw and Musina, 2002).
- An assessment of breeding success and mortality (egg chick and fledgling) with a view of finding out factors crucial for breeding success. This should involve finding out the minimum fragment size for breeding, effect of brood parasitism, competition, and pesticide use.
- A sociological survey to gauge levels of awareness of the species and its habitat requirements as well as willingness to retain or set aside land for thicket development.
- Investigation on the scale and effect of persecution/hunting.

Education and Public awareness

Education and Public awareness is meant to accomplish the following objectives:

a) Generate pride in the local community, a sense that they have something unique that they need to protect.
b) To inform people on the threats facing the habitat and the bird and what they can do to conserve the bird.
c) To inform the local community on the potential benefits of conserving the bird and its habitat.
d) To generate public support for the conservation of the bird.
e) Can help in generating funds for conservation.

The avenues that have been proposed to promote education and public awareness are:

- School outreach programmes.
- Chief's barazzas, government meetings.
- One to one meetings with government officials, church leaders, school heads.
- Video shows, puppet shows and plays.
- Brochures, posters and information packs.

- Participation in agricultural shows where eco-friendly agriculture can be demonstrated.

- Radio programmes, Television programmes, articles in magazines and newspapers.

- Training in eco-friendly agriculture for the local farmers, visitor handling techniques for those to venture in eco-tourism.

Community Involvement

Since Mukurwe-ini is made up of a collection of private farms, community involvement is crucial for success. Ultimately, what will spur active participation of the local community is when they are able to see the benefits associated with the conservation of the bird and the habitat. Some of the strategies to promote community involvement are:

- Providing eco-friendly alternatives to intensive cultivation. Bee keeping, eco-tourism and dairy goat farming are some of the alternatives that can be considered. For the alternatives to be widely accepted, they have to be able to provide more income than agriculture or at least enable the farmers to maintain their current income.

- Training. Farmers need to be trained in the eco-friendly activities mentioned above so that they will be able to maximise their yield. There is also need to build the capacity of the local community in steering the monitoring, fundraising, education and publicity.

- The people need to be assisted financially for them to switch to these new activities. The assistance may be in the form of soft interest free loans, subsidized beehives.

- Providing incentives. Some of the incentives that can be considered include giving certificates and recommendation letters to participating farmers, sponsoring for some short courses e.g. in eco-tourism, creating linkages nationally and internationally.

Fundraising and Marketing

Funds are crucial to the success of the activities detailed in the Site Action Plan. Effort should be put on raising the required funds and marketing the site. The areas discussed below should be explored.

- Creation of a ‘Mukurwe-ini trust fund’, annual interest from which is used to compensate for farmland set-aside for thicket regeneration. The funds can also be used to give soft loans to the local community to start eco-friendly income generating ventures. The funds will also support the monitoring and awareness creation activities.

- Working with ornithological tour companies, identify opportunities for generating tourist revenue for local communities in Hinde’s Babbler areas. Tour companies can also be used to market the area.

- Produce broadcast-quality video material or documentaries of the Hinde’s Babbler. These can be sold to generate income and at the same time can be used for marketing the site and creating awareness on the need to conserve the species. Brochures, Information packs, posters should also be produced to promote the site.

- Create a website or web page to market the touristic aspects of the site as well as create awareness on the Hinde's Babbler. These tools have the advantage of being able to reach an international audience.

Stakeholder Roles and Analysis

Table 2: Table showing the roles of various stakeholders in the Site Action Plan and their Strengths, weaknesses and opportunities.

Stakeholder	Roles in SAP	Strengths	Weaknesses	Opportunities
NGOs, CBOs				
Nature Kenya(NK)	• Facilitate and initiate conservation projects. • Lobby with government for establishment/facilitation of Community Reserves. • Assist in fundraising for a Sanctuary, education centre, for equipments. • Creating awareness. • Training and capacity building of the local community. • Facilitate provision of incentives to farmers for maintaining bush thickets in their farms.	• They have technical know-how. • Have access to donor funding. • Dedicated staff.	• They are centralised.	• Use good relations with donors to raise funds. • Good at Capacity building and creating awareness. • Able to reach policy makers.
WCK	• Creating Awareness in schools about Hinde's Babbler and its habitat. • Soliciting for Funds. • Publication of articles on the Hinde's Babbler in its magazine.	• Trained Personnel. • Offices countrywide. • Literature.	• Concentrate their activities in schools only. • Transport problems.	• Establishment of Micro-Nature Reserves in schools. • Can use Student's manpower in conservation.
Other NGOs- Green Belt, Honey Care, Dairy Goats Association	• Facilitating provision of alternative fuel sources. • Promote eco-friendly ventures such as bee-keeping and dairy goat farming. • Creating awareness on environmental conservation.	• They have technical know-how. • Have access to donor funding.	• They are centralised.	• Less bureaucratic. • Good at Capacity building and creating awareness.
MEVO	• Community Mobilization for maintenance of thickets along river valleys and control of soil erosion. • Awareness creation on Hinde's Babbler and its habitat. • Monitoring of the Hinde's Babbler and its habitat. • Building capacity and training of local community and other CBOs. • Fundraising for a	• Dedicated Members. • Trained members e.g. FOO, TOT, IBA monitoring. • Have Equipments- Binoculars, Guidebooks, GPS. • Are based at the site.	• No Office. • Inadequate Funds. • Transport Problems. • Lack of computer for documentation.	• Training of community in conservation. • Local knowledge of the area. • Previous experience on working with the Hinde's Babbler.

Stakeholder	Roles in SAP	Strengths	Weaknesses	Opportunities
	sanctuary, an office, education centre and equipment. • Lobbying for return of grabbed riverine land.			
Other CBO's	• Create awareness on Hinde's Babbler conservation, Soil erosion and HIV Aids.	• Based at the site.	• Fatigue (lack of motivation) • Lack of funds. • High turn over of members.	• Can use their experience in working in other fields e.g. HIV
Local Community				
Farmers	• To maintain/enhance growth of bush thickets in their farms. • Engage in eco-friendly agricultural activities such as bee-keeping, dairy goat farming. • Use of eco-friendly pesticides and fertilizers-manure, herbal pesticides. • Implementing soil conservation measures in their farms.	• They own the land.	• Inadequate awareness. • Use of agro-chemicals. • Clearing of *Lantana camara.*	• Capacity building. • Awareness.
Churches, Schools	• Planting of suitable bushes as hedgerows/fences. • Assist in rehabilitation of degraded riverine thicket.	• Have many members.	• Conservation is not their priority.	• Are easily mobilised.
Government Agencies				
National Museums of Kenya(NMK)	• Carrying out research on the Hinde's Babbler especially its habitat requirements, effects of brood parasitism, competition, and pesticide use on breeding success. • Training and capacity building of the local community. • Identifying potential sanctuary and corridor areas.	• They have the necessary knowledge. • Are equipped. • Have experienced staff.	• Are not always available.	• Have a history of working at the site.
NEMA	• Supervision / Coordination of environmental activities. • Creating awareness on environmental conservation. • Enforcing environmental policies.	• Powerful Act.	• Inadequate Resources.	• Can use their capacity to enforce environmental acts to ensure healthy environment for the babbler.
Research Institutions-	• Developing eco-friendly agro-chemicals	• Have the technical capacity.	• Are not always	• Can use their experience in

Stakeholder	Roles in SAP	Strengths	Weaknesses	Opportunities
KEFRI, Agro-chemical industry.	such as herbal-based pesticides. • Providing alternative sources for fuel.		available.	developing herbal pesticides and organic fertilizers.
Ministry of Agriculture	• Extension on proper farming methods. • Assist in combating soil erosion. • Promote use of eco-friendly agro-chemicals. • Train farmers on proper agricultural methods.	• Technical Knowledge. • Grassroot representation.	• Promote intensive farming and use of agro-chemicals. • Bird conservation is not part of the programme. • Staff not conversant with Hinde's Babbler conservation.	• Active and willing. • NK can provide capacity building for the staff. • Can use their wide reach through the extension programme.
Ministry of Fisheries and Livestock	• Extension on animal husbandry.	• Technical Knowledge. • Grassroot representation.	• Promote intensive farming.	• Animal ecology knowledge can be utilized.
Ministry of Education	• Creating awareness and capacity building.	• Technical Knowledge. • Grassroot representation.	• No detailed/specific bird conservation information.	• Conservation can be incorporated into the curriculum.
Ministry of Environment and Natural Resources.	• Promotes conservation of Natural resources. • Assist on establishment of a Community Reserve for the Hinde's Babbler.	• Relevant knowledge on conservation. • Are among the policy makers.	• Concentrate on habitats/sites of National and International recognition.	• Can use them to lobby for babbler friendly policies and laws.
Ministry of Gender, Sports, Culture and Social services.	• Promotion of CBO's.	• Promotes community Participation.	• No follow up of group activities.	• Knowledge of existing groups and objectives.
Ministry of Local Governments.	• Trustees of Hinde's Babbler habitats.	• Resources to maintain conservation areas.	• Failed to stop grabbing of conservation areas.	• Provision of land for conservation purposes.
Ministry of Lands	• Regulate Land Transactions including subdivision of land.	• Have the Machinery/ Personnel.	• Government Bureaucracy.	• Reserve areas for Hinde's Babbler conservation.
Ministry of Health.	• Providing Healthcare. • Educating the community on health matters esp. HIV/ AIDS.	• Trained Personnel. • Facilities e.g. vehicles. • Infrastructure.	• Inadequate supply of drugs. • High population. • Few health care centres. • HIV/AIDS	• Located in a densely populated area. People can learn from the specialists on HIV.
Provincial Administration.	• Mobilizing the community in development. • Enforcing law and order. • Communicating government policies.	• Well-distributed Officials. • Well coordinated. • Backed by the Law.	• Ignorant of the community Priorities. • Inadequate communication facilities. • Few Staff.	• Enforce environmental laws. • Educate community on rights, law. • Can interact with the bigger part of the

Stakeholder	Roles in SAP	Strengths	Weaknesses	Opportunities
		• Chair environment committees.		community.
Private Sector				
Wajee Camp	• Hosting Tourists • Conservation of Environment. • Marketing of Mukurwe-ini IBA.	• Trained Personnel. • Facilities. • Bird Sanctuary. • Located within the IBA. • Good communication. • Popular.	• Privately Owned. • Concentrated within a small area.	• Can be used to market the area. • Teach local communities in income generation through tourism.
Business community /Private Sector.	• Play a role in the tourism sector which helps conserve the HB e.g. Wajee camp. • Can buy some of the conservation related products.	• Funds Availability. • Aggressive in Market Research.	• Conservation is not a priority.	• Can finance conservation CBO's. • Market for conservation related products e.g. honey. 1. Invest in conservation as a business opportunity

Activity Plan and Budget

Table 3: Table showing the objectives, workplan, timing and budget of the SAP

Objectives	Activity	Priority	Responsibility	Indicators	Cost	Status	Timing
To improve or Restore suitable habitat for Hinde's Babbler	• Enhancing growth of natural thicket in farms.	****	Farmers, Ministry of Agriculture, NGO's.	• No. farmers who allocate part of their land for bush	S	√√	2005-2008
	• Planting of bushes e.g. *Lantana camara* as hedgerows.	***	Farmers, churches, Schools.	• No. of farmers, schools, churches that use suitable bushes as hedgerows	S	√	2005-2010
	• Increase/Maintaining of thickets along the river valleys.	***	Farmers, MEVO, County Council, NEMA, Provincial Administration.	• Increase or stability in bush acreage along river valleys.	S	√	2005-2010
	• Alternative use of fuel to discourage cutting of bushes for firewood e.g. bio-gas, Planting of *Grevillea robusta.*	****	Greenbelt movement, ICRAF, Ministry of Agriculture.	• No. of farmers with Woodlots in their farms.	S	√√√	2005-2010
	• Encouraging Dairy goat farming and Bee keeping in bushed areas.	****	Farmers, Ministry of Livestock, NGO's,(Kenya Dairy Goats Association) Honeycare	• No. of farmers with dairy goats or bee-hives	S	√√√	2005-2008

To Explore possibilities of establishing Hinde's Babbler sanctuaries.	• Identify the HB habitats where the birds occur in large numbers especially on public land.	****	Farmers, MEVO, NMK, NK, NEMA.	• Potential areas identified and documented.	S	√√	2005-2010
	• Creating awareness on the need for a HB sanctuary.	****	Farmers, MEVO, WCK, NMK, NK, NEMA, GOK.	• No. of meetings, barazzas held. • No. of people approached.	S	√√√	2005-2010
	• Fundraising and Buying of land for setting up a sanctuary.	****	NK, MEVO	• A fund set up for the exercise. • Buying of land.	S	X	2005-2010
	• Lobbying with the government to establish or amend policies to establish/allow community reserves in the PA system.	****	NK, MEVO, Other NGOs	• No. of govt. official, politicians approached with the idea. • No. of collaborations forged for lobbying.	S	X	2005-2010
To restore and reserve grabbed areas for Hinde's Babbler conservation	• Lobbying for repossession of grabbed land.	***	MEVO	• No. of officials approached and frequency.	S	√√	2006
	• Identification of land suitable for HB conservation which has been grabbed.	***	MEVO	• Grabbed land identified and documented.	S	√√	2006
	• Negotiation with the local authority to acquire the grabbed land.	***	MEVO, Local council	• No. of officials approached and frequency.	S	√√	2006
	• Reposses the grabbed land.	***	Local council.	• Land repossessed	S	√√	2007
	• Establish an eco-tourism centre on the land.	**	MEVO, NK	• Eco-tourism centre built.	SS	√	2007-2008
To enhance Research and Monitoring on the Hinde's Babbler and its habitat.	• New surveys to establish current boundaries of the IBA.	****	NMK	• Surveys conducted.	SS	√√	2005-2010
	• Research on Ecology and breeding success of Hinde's Babbler.	****	NMK	• Research conducted.	SS	√	2005-2010
	• Sociological research on people's attitudes, awareness on the Hinde's Babbler.	****	NMK	• Research conducted	SS	X	2005-2010
	• Refresher trainings on monitoring for the local SSG.	****	MEVO, NK, NMK	• Refresher trainings conducted.	S	√√	2005-2010
	• Provision of	****	MEVO, NK	• Adequate	SS	√√	2005-2010

	adequate research equipment and materials.			equipment and materials provided.			
	• Identification of potential sanctuary and corridor areas within the IBA.	****	MEVO, NK, NMK	• Priority conservation areas and corridor linkages identified.	S	X	2005-2010
To significantly reduce Agro-chemical Pollution and Soil erosion.	• Growing selective herbs that can be substituted for agro-chemicals e.g. Nettles, Mexican Marigold, Black Jack.	****	Farmers, Agricultural Extension Officers, ICIPE.	• Use and testing of such methods of pest control.	S	√	2005-2008
	• Identification and Use of low impact chemicals i.e. Birds friendly.	**	Farmers, Agricultural Extension Officers.	• No. of farmers using such chemical. • Such chemicals identified.	S	√√	2005-2010
	• Soil erosion control measures-Planting trees in contours e.g. *Prunus africanus.*, building gabions.	***	Farmers, Forest Department. Agricultural Officers, Public Works Ministry, county council	• No. of trees planted. • No. of gabions built.	S	√√	2005-2010
	• Use of farmyard/ compost manure instead of fertilizer.	****	Farmers, Agricultural Extension Officers.	• No. of farmers adopting use of farmyard manure instead of fertilizers.	S	√√√√	2005-2010
To enhance awareness creation on the Hinde's Babbler and its habitat.	• Stage Performances, Barazzas, Seminars, Workshops, Face-to-face meetings, School outreach programmes, videoshows, Radio programmes, Posters, Brochures.	****	MEVO, NK, WCK, Local community,KWS, Scouts /Girl guides, Administrators	• Number of activities held.	S	√√	2005-2010
To enhance full Community Involvement.	• MEVO to spread throughout Mukurweini.	****	MEVO	• No. of sub-locations covered by MEVO's activities.	SSS	√	2005-2007
	• MEVO to work closely with other CBO's, Politicians.	****	MEVO	• No. of CBOs MEVO is collaborating with.	SS	√√√	2005-2007
To reduce pressure on land use.	• Encourage Beekeeping, Zero Grazing and Agroforestry.	****	Farmers, MEVO, GOK-lands, Caritas.	• No. of farmers that take up the activities.	SSS	√√	2006-2010
	• Provide avenues for alternative income generation.		"	• No. of income generation projects	"	X	"

				provided.			
	• Stop further subdivision of land.		"	• Percentage reduction in land subdivision.	"		"
To enhance Skills of the local community in monitoring and conservation.	• Training workshops on monitoring, eco-tourism, bird identification, fundraising.	****	Nature Kenya, MEVO, NMK.	• No. of training events that take place.	S	√√	2005-2010
To source for funds for conservation action.	• Proposal development.	****	MEVO, CBOs, NK, NMK.	• No. of proposals written and submitted.	S	√	2005-2010
	• Making and selling conservation related artifacts.	**	CBO's, MEVO	• No. of people or groups that take up the activity.	S	X	"
	• LATF	*	CBO's, MEVO	• Application for the LATF funds.	S	X	"
	• Create Mukureweini trust fund.	*	NK, MEVO.	• Trust fund created.	S	X	2005-2008
	• Eco-tourism.	***	CBOs, MEVO	• No. of eco-tourism projects started.	S	√	2005-2010
To Establish efficient communication Systems.	• Repair Roads-diverting road run-off.	*	Local Authority	• No. of roads repaired.	S	X	2006-2007
	• Campaign for road water harvesting.	***	MOA	• No. of road water harvesting projects.	SS	X	2006-2007
	• Murraming rural access roads.	*	MOPW	• No. of roads murramed	SSS	√√√	2006-2009
	• Solicit funds e.g. from CDF.	***	CBO's, NGO's, MOPW	• Application for funds made.	S	X	2005-2006
	• Establishment of an office.	****	MEVO, NK	• An office established.	S	√√	2006
	• Solicit funds for Internet and telephone access.	****	CBO's (MEVO), NGO (NK)	• Application for funds made.	S	√√	2006
To acquire proper tools, equipments and materials for monitoring and education.	• Solicit for funds.	***	MEVO, NK	• Application for funds made.	S	√√	2006
	• Purchase/acquire equipments tools and materials. • Binoculars, GPS, Camera, TV, Generator, Computer, Power cables	**	MEVO, NK	• Equipments purchased.	SS	√√	2006-2007
To provide wealth creation opportunities.	• Apiculture.	**	Local community, CBO's, NGO's, GOK.	• No. of people taking up the activities.	SSS	√√	2006-2010
	• Eco-tourism.	**	"	"	"	√	"

	• Dairy Farming.	***	"	"	"	√√√	"
	• Merry-go-round/Revolving funds.	***	"	• Revolving funds established.	"	√√√	"
	• Micro-enterprises.	****	"	• Enterprise established.	"	√√	"
	• Self-employment.	**	"	• No. of people self-employed.	"	√√	"
To help fight HIV/AIDS	• Creating Awareness in collaboration with other NGOs, CBOs-teaching; drama, video shows, press,	****	Local Community, GOK, CBO's, NGO's, Schools.	• No. of activities held.	SSS	√√√	2006-2010

KEY TO CODES

i. Ranking Codes for Activity: √√√√-Advanced √√√-High √√-Medium √-Low X-Not Yet

ii. Ranking Codes for Cost: S: 0-0.5m SS: 0.5-2.5m SSS: >2.5m

iii. Ranking Codes for Priority: ****-Critical ***-High **-Medium *-Low

Monitoring and Implementation Plan

SAP process

The Site Action Plan was developed after a stakeholder's workshop in which the participants identified the threats and their solutions. They also developed a work-plan detailing the activities, cost and timeframe. They also made a commitment to the implementation of the plan.

Funding for the Site Action Planning was funded by the Darwin Initiative, through the Royal Society for the Protection of Birds (RSPB) under the Important Bird Areas monitoring programme, coordinated by Nature Kenya. The technical expertise is provided by the Ornithology Department, National Museums of Kenya.

Coordination and Logistics

A steering group was formed to oversee the implementation of the plan. The steering group is composed of representatives form Nature Kenya, the National Museums of Kenya, Mukurwe-ini Volunteers Organization and Farmers. In Mukurwe-ini most of the coordination will be done by MEVO.

At the moment, the activities of the steering group will be based in Nature Kenya but once MEVO acquire permanent office space, the activities will move to Mukurwe-ini for easier coordination.

Review and Feedback

There will be a mid-term and an end term review of the plan and a report will be made and circulated to all stakeholders. The review will aim at providing an external perspective on the progress of the SAP and make recommendations based on its achievements, setbacks encountered and lessons learnt. Progress will be based on indicators set as well as the tangible outputs of the SAP.

In addition, annual meetings of the steering group will take place to look at the successes and failures of the plan and decide on which areas to improve on, which have been accomplished or which need new activities. Minutes of the meetings will be available for circulation to representatives of the various collaborating agencies.

Ultimately, what will indicate the success of the SAP is the increase in the population of the Hinde's Babbler. Regular monitoring of the Hinde's Babbler population will determine whether the efforts are bearing fruit.

Opportunities and Risks in Implementation of the SAP

Opportunities

- Hinde's Babbler is globally threatened and will therefore attract support for Mukurwe-ini, which is its stronghold.
- The SAP was done in a consultative manner through a workshop that included various stakeholders who made commitments to what was agreed.
- An active SSG which has been involved in monitoring of Hinde's babbler and its habitat since 2004.

- Willing farmers and support from the local authorities including the DO.
- A well-connected and experienced implementing NGO (Nature Kenya) who have had experience working in the area.

Risks

- The SSG has no office hence the coordination of activities will be difficult especially on phasing out implementing NGO.
- Non-cooperation of stakeholders assigned roles but were not in the SAP workshop.
- Some activities will require changing of the Wildlife Act e.g. recognition of Community Reserves under the PA system. However private reserves can be still be established but may not receive much support in terms of funding from the government.
- A lot of the activities rely on availability of funds and may not go on in case of lack of funds.

Phase out Plan

The aim of the process is to hand over the implementation process of the SAP to the Stakeholders of Mukurwe-ini, with Nature Kenya and NMK playing an advisory role. To do this, there is need to build the capacity of MEVO to undertake the coordination role. MEVO has been a partner of Nature Kenya (as a site support group) and they have been involved in Monitoring of the Hinde's Babbler since 2004 as well as in creating awareness in Mukurwe-ini.

To ensure sustainability, there is need to raise funds for the various activities such as reviews, meetings and reports. This will especially be crucial once full control of the SAP rests with the stakeholders of Mukurwe-ini. There will also be a need to expand the steering group to include more of the Stakeholders from the site. The capacity of the steering group needs to be built in re-viewing itself, fundraising, conducting and organising stakeholders workshops as well as making annual reports.

References

Bennun, L. and Njoroge, P. (1999). *Important Bird Areas in Kenya.* Nairobi: East African Natural History Society.

BirdLife International (2000). *Threatened Birds of the World.* Barcelona and Cambridge, UK: Lynx Edicions and BirdLife International.

Fry, C.H., Keith, S. & Urban, E.K. (eds.) (2000). *The Birds of Africa Vol. VI.* London: Academic Press.

Gaston, A.J. (1976). Brood parasitism by the Pied Crested Cuckoo *Clamator jacobinus*. *Journal of Animal Ecology*.

Hall, B.P. & Moreau, R.E. (1970). *An atlas of speciation in African passerine birds*. London: British Museum (Natural History).

Monroe, B.L. Jr. & Sibley, C.G. (1993). *A World Checklist of Birds*. New Haven: Yale University Press.

Njoroge, P. and Bennun L. (2000). Status and conservation of Hinde's Babbler *Turdoides hindei*, a threatened species in an agricultural landscape. *Ostrich* 71(1&2): 69-72.

Njoroge, P. and Mutinda, D. (1996). Notes on nesting of Hinde's Babbler *Turdoides hindei* and Northern Pied Babbler *T. hypoleucus* in Central Kenya. *Ostrich* 67: 170-172.

Njoroge, P., Bennun, L.A. and Lens, L. (1998). Habitat use by the globally endangered Hinde's Babbler *Turdoides hindei* and its sympatric relative, the Northern Pied Babbler *T. hypoleucus*. *Bird Conservation International* 8: 59-65.

Shaw, P & Musina, J. (2002) *Hinde's Babbler,* Turdoides hindei. *A draft Species Action Plan*. National Museums of Kenya and Nature Kenya: Nairobi.

Shaw, P. & Musina, J. (2003). Correlates of abundance and breeding success in the globally threatened Hinde's Babbler *Turdoides hindei* and its congener, Northern Pied Babbler *T. hypoleucus. Biological Conservation* 114: 281-288.

Shaw, P., Musina, J. & Gichuki, P. (2001). *Surveys of Hinde's Babbler* Turdoides hindei *and Northern Pied Babbler* T. hypoleucus *in four Important Bird Areas.* Research Reports of the Centre for Biodiversity, National Museums of Kenya: Ornithology 40.

Shaw, P., Musina, J. & Gichuki, P. (2003). Estimating change in the geographical range and population size of Hinde's Babbler *Turdoides hindei*. *Bird Conservation International* 13:1-12.

Stattersfield, A.J., Crosby, M.J., Long, A.J. and Wege, D.C. (1998). *Endemic Bird Areas of the World. Priorities for Biodiversity Conservation.* Cambridge, UK: BirdLife International. (BirdLife Conservation Series No. 7.)

Appendices

Appendix 1: Map

Appendix 2: SAP Workshop Process

1. Introductions And Expectations

Facilitator: Anthony Kiragu

Aim: Was done so that the participants could get to know each other and help them to feel at home. It also aimed at getting what the participants expected to gain from the workshop in order to assess whether their expectations were met.

2. Workshop Overview and Objectives

Presenter: Enock Kanyanya

Aim: To guide the participants on what the workshop wanted to achieve.

Method: The presenter took the participants through the objectives which were outlined in a flipchart.

3. Presentation of Background Material

Presenter: Ronald Mulwa

Aim: To bring the participants to the same level of knowledge on issues facing the Hinde's Babbler and the Mukurwe-ini Valleys.

Method: The presenter went through the issues facing the site as a rapporteur took down the points on a flip chart.

4. Plenary Discussion On Background Material

Facilitator*:* Kariuki Ndang'ang'a

Aim: To get more on the background information from the participants in order to incorporate any up to date information that may affect decisions about the plan either negatively or positively.

Method: The facilitator led the discussion about the site while a rapporteur took down the points on flipchart. The discussions focused on the following points:

- *Gaps in knowledge*: The participants were asked to provide any further information on the site and species found within it that was not mentioned by the presenter.
- *On-going and potential projects:* Participants were asked to provide information on any ongoing projects in the site that could be beneficial to conservation of the site and to the local community.

- *Factors influencing success of Action plan implementation:* Participants were asked to identify potential risks that could negatively affect the work plan or opportunities on which the plan could ride on in order to implement the conservation actions.

5. Threat Analysis

Presenter: Kariuki Ndang'ang'a.

Aim: To identify conservation threats/problems facing the site.

*Method:*Participants were asked to write separate points on separate cards which were pinned on the wall as they were read out. The threats were then arranged based on similarity and eventually into a 'tree' of cause-effect', such that the key threats come on top and the causative threats come below. On the plenary, participants helped in grouping and prioritising each threat. The ranking code for threats was as follows: ****Critical; ***High; **Medium; and *Low;

6. Stakeholders Identification And Analysis

Facilitator: Kariuki Ndang'ang'a

Aim: To identify all the stakeholders who should be involved in the conservation of the site and assigning them roles. This includes stakeholders who are at the workshop but also those not present but can play a role.

Method*:*

The participants were first asked to name the stakeholders that they felt should be included in the implementation of the plan while a rappoteur took down the plan on a flip chart. The participants were then divided into four groups and each group were assigned some stakeholders to work on. For each stakeholder, participants were required to:

1. Determine the role they can play in implementation of the plan.
2. Assess their strengths, weaknesses and opportunities.

The participants put results of their work in form of a table on a flipchart, which they then presented to the rest during the plenary.

7. Identification of Solutions to Threats

Facilitator: Kariuki Ndang'ang'a

Aim: To develop solutions to threats that were identified during the threat analysis session.

Method:

Participants were divided into four groups and each group was assigned some threats to work on. For each threat, the participants were required to:

2. Develop objectives that aim at providing solutions to the threats.
3. Develop activities that need to be carried out in order to achieve these objectives.
4. Prioritise the activities by ranking them from: * Low, **Medium, ***High and ****Critical.

5. Identify the Stakeholders who will be responsible for carrying out each activity.
6. Estimate the cost needed to carryout each activity. Cost was ranked as: S=0-0.5 million shillings, SS = 0.5-2.5 m, SSS = > 2.5 m.
7. Determine the amount of time required to complete the activity, within the 5 year plan.

The participants put results of their work in form of a table on a flipchart, which they then presented to the rest during the plenary.