

Tanzania Wildlife Research Institute
(TAWIRI)



NEW WILDLIFE RESEARCH AGENDA IN TANZANIA
PROCEEDINGS OF THE WORKSHOP HELD IN
ARUSHA, TANZANIA, OCTOBER 13-14, 1999

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PREFACE

The Serengeti ecosystem in Northern Tanzania is an area of special interest due to having large numbers of diverse wildlife. It supports the largest herds of migratory ungulates partaking large-scale annual movements that are of unparalleled aesthetic and scientific value. The Serengeti has the highest concentration of large predators in the world; these include the big cats such as the lion (*Panthera leo*) leopard (*Panthera pardus*) and cheetah (*Acynonyx jubatus*). The Ecosystem harbours many other animal taxa including those of arthropods, herpetiles and birds.

The numerous and diverse wild animals are in turn supported by highly diversified habitats/plant communities and landscapes, each of which offers optimum conditions for one or more specific groups of the fauna. Owing to its uniqueness, the Serengeti was the first area to be accorded a world heritage status. Also, the recognition of Tanzania as one of the four megadiversity nations of the world owes much to the Serengeti ecosystem.

As such, the Serengeti has been a focus of research for nearly 50 years resulting into two landmark books in 1979 and 1995 respectively: *Serengeti: Dynamics of an Ecosystem* and *Serengeti II: Dynamics, Management and Conservation of an Ecosystem*. The worlds “Management” and “Conservation” reveal the new problems facing the ecosystem.

Despite the high conservation status and the long history of scientific studies in the Serengeti, the flora and fauna and related ecological functions and processes are not adequately understood. Furthermore, there has been noticeable human-induced impacts of various types and magnitudes threatening the ecosystem. For example, human activities are affecting plant and animal populations directly through poaching and collection of plant resources or indirectly by changing the habitats and landscape structure and dynamics.

Recognising the need to better understand the total biodiversity and the urgent need to address the problems facing the entire Serengeti ecosystem and other ecosystems in Tanzania, TAWIRI, in collaboration with the Institute of Terrestrial Ecology (ITE) of U.K., through the Darwin Initiative project, embarked on a process to draw up a **New Wildlife Research Agenda**. The present workshop was the final step in setting up a national research agenda. The first stage dealt with collating ideas and opinions on issues that require research attention in the Serengeti ecosystem, for which a draft document was prepared and circulated to stakeholders. The workshop had the following objectives:

- To deliberate on priority issues comprising a **New Wildlife Research Agenda in Tanzania**.
- To discuss the role of TAWIRI and other stakeholders in the implementation of the **Research Agenda**.
- To discuss and recommend on strategies and follow-up tasks to implement **the Research Agenda**.

This is the first time the Institute embarks, with the participation of key stakeholders, on setting up priorities for research in wildlife protected areas. Thus, this work is expected to be a guide to wildlife research in all protected areas in Tanzania.

This volume reports all issues presented and discussed in line with the workshop objectives. Readers can find in the following pages the opening remarks that highlighted the role and current status of wildlife research in the development of the wildlife sector in Tanzania. This section is followed by a record of **priority themes** and **areas** constituting **a Wildlife Research Agenda** as well as recommendations made at the workshop by working groups of participants from inside and outside Tanzania. The recommendations were on issues that would provide an enabling environment for TAWIRI to implement the research agenda namely:

- The relationship between the Institute and scientists;
- Role of other stakeholders in research capacity building; and
- Funding and fund-raising.

Also, there were presentations of papers that were made at the workshop by Tanzania researchers and conservationists. The papers, which are given in a separate volume, were meant to provide an overview of and update on the current status of the Serengeti Ecosystem and other wildlife protected ecosystems in Tanzania, hence broadening the thinking of workshop participants before deliberating on the **New Research Agenda**.

The holding of a workshop and the task of compiling the information for discussion can only be achieved with teamwork of a high order. The TAWIRI Management would very much like to thank the Permanent Secretary in the Ministry of Natural Resources and Tourism for his stimulating opening remarks and the Chairman of the TAWIRI Board for his support during workshop preparation. The resource people from the University of Dar es Salaam, Sokoine University of Agriculture, Wildlife Division, Ngorongoro Conservation Area Authority and TAWIRI itself invited to present papers at the workshop provided us with useful thoughts on future directions. Above all, the workshop participants devoted tremendous efforts during discussions. The staff of the Impala Hotel in Arusha made us comfortable and welcome, while the staff of TAWIRI helped greatly with logistics and photocopying.

Last but not least, we must thank the Institute of Terrestrial Ecology (UK) for facilitating the Darwin Initiative project, and the Wildlife Division through the Tanzania Wildlife Protection Fund for sponsoring the workshop. We believe this workshop provided another important step towards TAWIRI fulfilling its mandatory obligation.

What we have now is a document enriched with materials that resulted from a participatory workshop. We do hope that the participatory process of prioritizing areas for research was the best ever. In fact, the process of drawing up a **Wildlife Research Agenda** was to fulfil one key element of the Institute's Strategic Plan of 1994.

Liana A.M. Hassan
Ag. Director General, TAWIRI

Charles O.F. Mlingwa
Darwin Fellow, TAWIRI

PART I: OPENING SESSION

WELCOMING ADDRESS BY PROFESSOR IDRIS S. KIKULA, CHAIRMAN OF THE TAWIRI BOARD, AT THE OFFICIAL OPENING OF THE WORKSHOP ON A NEW WILDLIFE RESEARCH AGENDA IN TANZANIA, HELD AT IMPALA HOTEL, ARUSHA ON OCTOBER 13-14, 1999

*Guest of honour, the Permanent Secretary to the Ministry of Natural Resources and Tourism, Mr. Philemon Luhanjo,
Members of the TAWIRI Board,
Research Scientists,
Representatives of Stakeholders,
Invited Guests,
Ladies and Gentlemen.*

First and foremost I would like to thank Hon. Philemon Luhanjo, the Permanent Secretary to the Ministry of Natural Resources and Tourism for agreeing to officiate the opening of this workshop. I would also like to record my appreciation to the Permanent Secretary and the Ministry as a whole for her support to TAWIRI. The Ministry is giving considerable support including the funding of TAWIRI. We would like to thank you and the Ministry for all the support.

Ladies and Gentlemen

The Ministry facilitated the changing of the Institute's name from Serengeti Wildlife Research Institute (SWRI) to Tanzania Wildlife Research Institute (TAWIRI), in order to reflect its mandate and role of carrying out and coordinating wildlife research for the whole of Tanzania. Those of you who attended the strategic planning workshop in 1994 will recall that the issue of the institute's name featured prominently in our deliberations. I would like to record that without the tireless efforts of the Ministry, the name TAWIRI would have remained just a dream. Permanent Secretary, we want to assure you that we cherish all these efforts that the Ministry is taking to promote the Institute. I would like to assure you that we are trying everything possible to honour the Ministry's support.

Let me now give a brief background to wildlife research in Tanzania and the performance of the Institute. Tanzania's wildlife protected area network covers 28% of the total land area. The breakdown is as follows: National Parks (4%), Ngorongoro Conservation Area (1%), Game Reserves (15%) and Game Controlled Areas (8%). This is a considerable investment unparalleled in most parts of the world. No body will disagree with me if I say that it is extremely important that such a large investment should be converted into revenue. Currently, it is estimated that wildlife related activities contribute about 2% of the country's Gross Domestic Product (GDP) and it is projected to contribute up to 5% of the GDP by the year 2005. With concerted efforts these figures are bound to be higher. This is because we all know that wildlife is the number one tourist attraction in Tanzania. More than 75% of nearly half a million foreign tourists (earning the country about US \$ 500,000 million a year) come to appreciate the diverse and abundant wildlife we have. The revenue from tourist hunting is currently US \$ 9.13 million, of which 25% goes to

respective districts surrounding the wildlife areas. The international bird trade is estimated to include capture and export of about 70,000 live birds annually, making Tanzania the second largest exporter (after Senegal) in Africa. The bird trade earns revenue to the Government as well as being a source of income to bird dealers and their associates.

Despite these forms of wildlife utilization and their contribution to the economy, we are still limited in our understanding of the total wildlife biodiversity and how best to conserve it in all protected areas and outside protected areas in the country. Also, we know little of the impact of tourism on the ecosystems. We know little of the impact of or the sustainability of the bird trade. Moreover, we know little of the extent and magnitude of human-wildlife conflicts in areas surrounding the protected areas. In order to resolve all these problems, therefore, research is indispensable in the development of the wildlife sector in our country. For this reason our Government has foresight and established in 1980 the Serengeti Wildlife Research Institute now TAWIRI, whose overall objective is to provide scientific information and advise on the conservation, management and utilization of wildlife resources in the country.

Because of poor funding, the Institute has for a long time not been able to adequately carry out and co-ordinate wildlife research in the country. This unfortunate outcome made stakeholders develop negative attitude towards our very national research institute.

In order to redress the weakness and build confidence of the stakeholders, the Institute developed in 1994 a Strategic Plan through identifying and analyzing the problems inhibiting the fulfillment of its mission and establishing strategies to guide its activities. Following the Strategic Plan, a research workshop involving stakeholders and donors was organized by the Institute in 1997. This workshop aimed at securing a common understanding and support of stakeholders as well as setting up mechanisms for developing research programmes and their implementation.

Since then a number of achievements have been made. The Institute has, through a Wildlife Veterinary project with funding and initial technical support from the Messerli Foundation of Switzerland, improved the veterinary laboratory at the Serengeti Wildlife Research Centre (SWRC) into a state of the art modern laboratory. The laboratory has also provided a training facility for Tanzanian students e.g. from Sokoine University of Agriculture. In collaboration with the Messerli Foundation, the Institute has also put in place an education project whose aim is to translate scientific information generated from research into readily available and understandable forms to stakeholders and the general public. Through the support of your Ministry, Mr. Permanent Secretary, the Institute has embarked on a project entitled "Biodiversity and the Wildlife-Human Interface in the Serengeti Region". This project, which is funded by the Norwegian Government through her agency, NORAD, is being carried out in collaboration with the University of Dar es Salaam and the Norwegian Institute for Nature Research (NINA).

Above all, with the generous support of the British Government, the Institute has conceived a Darwin Initiative project, a collaborative work with the Institute of

Terrestrial Ecology (ITE) of U.K., in order to enhance research functions of the Serengeti Wildlife Research Centre including drawing up a new Research Agenda for the Serengeti ecosystem. The Darwin Initiative project has brought us here today.

I can proudly say here that during the last few years the Institute is almost back on its rails. Efforts have started bearing fruits. Stakeholders and donors have started building confidence in us. Our accounts are almost up to date having started almost from scratch. However our biggest set back is the pathetic staffing situation. I believe that without a strong team of researchers in TAWIRI, it will be difficult to effectively meet our mission.

I would like to assure you, Mr. Permanent Secretary, that the poor staffing situation is receiving due attention by the TAWIRI Board. The strategy that you have personally initiated in addressing this problem is greatly appreciated by all of us.

Last but not least, I would like on behalf of the TAWIRI Board and myself, and the Management Team to thank your Ministry for the support we have received in organizing this workshop. We are particularly indebted to the Tanzania Wildlife Protection Fund for availing funds for this workshop.

I have now the honour to welcome you, the Permanent Secretary, to officially open this workshop.

**SPEECH BY MR. PHILEMON LUHANJO, PERMANENT SECRETARY IN THE
MINISTRY OF NATURAL RESOURCES AND TOURISM AT THE OFFICIAL
OPENING OF THE WORKSHOP TO DELIBERATE A NEW WILDLIFE
RESEARCH AGENDA IN TANZANIA, HELD AT IMPALA HOTEL, ARUSHA
ON OCTOBER 13-14, 1999.**

*Chairman,
Members of the TAWIRI Board,
Research Scientists,
Stakeholders from the Wildlife Sector,
Participants,
Invited Guests,
Ladies and Gentlemen,*

It gives me enormous pleasure and a privileged position to officiate at the start of your workshop to discuss and set on course a new Research Agenda for the Serengeti Ecosystem. May I welcome you all to Arusha, Tanzania's conference town, headquarters of the Secretariat for the East Africa Co-operation and the launching pad of game viewing safaris to our world – famous northern tourist circuit encompassing Serengeti, Ngorongoro, Tarangire, Lake Manyara and Mount Kilimanjaro. I hope too that you will take advantage of your stay here to take a day out and sample at least one of them.

Mr. Chairman and Friends

The holding of the workshop at this time constitutes a milestone in our country's efforts to conserve the wildlife for which Tanzania is richly endowed. Developed world governments, multinational companies and forward looking enterprises, place a huge value on the role of research and development in their overall planning process. I understand that some companies invest as much as thirty percent (30%) of their turnover to support research and development. Tanzania as one among the developing world recognized early the value of research and planted a variety of research stations all over the country. But as world inflation impacted on us following the oil crisis of early the 1970s, world commodity prices fell and as our import bill for machinery, medicines and other imports continued to escalate, research was out-competed by other priorities in resource allocation. The Serengeti Wildlife Research Institute (now, happily, TAWIRI) establishment in 1980, during which time the existing conditions could not warrant provision of adequate finances, manpower and equipment necessary for effective take off, contributed to a lack of confidence on the part of stakeholders in the sector and instead of playing a leading role, she remained the weak link in the chain. However, TAWIRI has survived since here establishment in 1980 and it is good to note the success of the current Board for several initiatives it has seriously embarked on. Among these initiatives were a strategic planning workshop of December 1994, wildlife research stakeholders' workshop in October 1997, and now this workshop to deliberate a new research agenda for one of the most famous wildlife areas in the world.

I am given to understand your list of participants has cast a wide net to include our two universities, the University of Dar es Salaam and Sokoine University of Agriculture in

Morogoro, the National Environmental Management Council and, quite obviously, the Commission for Science & Technology (COSTECH) which not only authorizes research in every field of science but co-ordinates us all. So let me pay tribute to you Mr. Chairman and Members of the TAWIRI Board as well as your Management for the vision you have demonstrated in your guidance of the affairs of the Institute. I would like to praise all participants for finding time to attend this important workshop which will contribute to an enabling future for TAWIRI.

Mr. Chairman, Workshop Participants, Ladies and Gentlemen

I began by saying briefly how the Institute faultily started; I would fail in my duty, if I did not tell you our Governments' vision of the future role the Institute must play in putting into practice management ideas resolving conflicts between man and Protected Areas, and planning for sustainable financing. I already stated earlier that due to economic constraints, TAWIRI could not get all the necessary financial support from the government which is still committed to provide support to her organs.

While my Ministry will continue to financially support the Institute, therefore, new financing mechanisms must be sought and obtained in order that the good work mandated to her does not suffer. It is my view that stakeholder contributions, joint research initiatives with local and expatriate research institutions and universities, consultancies and donor support through write-ups of bankable research proposals, are credible alternative financing arrangements. I want to urge you Mr. Chairman, to embark upon these without delay and to encourage management to pursue vigorously such avenues as will guarantee TAWIRI adequate and sustainable resources with which to implement her objectives. I would like to note with appreciation the co-operation between TAWIRI and the Institute of Terrestrial Ecology (ITE) of Her Majesty's Government in the United Kingdom which facilitated the Darwin Initiative project and led to this workshop.

I would like to conclude by urging you to come out clearly in your deliberations with a vision for the third millennium that places man at the center without compromising the biodiversity.

I wish you fruitful deliberations and now I declare this workshop open.

Thank you.

PART II: A NEW WILDLIFE RESEARCH AGENDA IN TANZANIA

A: RESEARCH PRIORITIES

Introduction

The need to set up a **Wildlife Research Agenda** within the mission of TAWIRI is clearly stated in the Strategic Plan of 1994 (SWRI 1995) and reiterated in the Institute's report of a stakeholders' workshop held in October 1997 (SWRI 1997). Following the inception in 1998 of the Darwin Initiative project by TAWIRI, initial work involved collating ideas and opinions of stakeholders as well as literature survey of past wildlife studies particularly in the Serengeti. A preliminary report of this initial was then produced by the Institute (Mlingwa 1998).

The current workshop was intended to bring together key stakeholders of the Serengeti ecosystem and similar protected ecosystems to identify research needs and deliberate on priorities. The rationale behind this exercise was based on the following facts:

- To realize its mission, TAWIRI must carry out and promote the carrying out of relevant research that will ensure biodiversity conservation and enhance sustainable development;
- It is more than 20 years ago since early research priorities at least for Serengeti Ecosystem were set up by the then Serengeti Research Institute (SRI 1972/73); emerging scientific knowledge, technologies and conservation challenges necessitate development of a **New Wildlife Research Agenda in Tanzania**; and
- Limited financial and human resources, will need to be more carefully and rationally targeted for more effective and relevant results.

METHODOLOGY

Participants grouped themselves into smaller working groups and brainstormed on major conservation issues and challenges. The issues were afterwards clustered according to relatedness to form major themes. The overall title embracing all the issues identified under each cluster comprised one major **theme** or **topic**. Therefore the major theme constituted a research programme while the issues within it comprised research projects. The research themes and issues were discussed, consolidated and prioritised in a plenary session. The following criteria were used to guide the prioritization of research themes:

- Urgency of information on that particular area.
- Current information available.
- Impact to conservation of results obtained in that particular area.
- Survival of the ecosystem i.e. to what extent results will enhance maintaining integrity of existing ecosystem boundaries.
- Relevance of the issue to clients (management authorities) i.e. to what extent the information obtained will be of direct relevance to management.

Then following criteria were used to priorities research areas/issues within each theme (see Table 1):

- Priority and urgency to the stakeholders;

- Relevance to human development;
- Mitigation of threats to the protected ecosystems;
- Contribution to ecological sustainability;
- Global importance;
- Feedback to policy formulation.

RESULTS

Research Themes

Five research themes were identified and ranked according to the order of importance, from topmost to least priority, as follows (see also Table 1):

- Human-Wildlife Interactions
- Ecological Interactions
- Biodiversity Inventory
- Database
- Ecosystem History.

Theme objectives

To assist in focusing the research programmes, a statement of objective was developed for each theme. The following are the objective statements and brief explanations for each theme.

Human-Wildlife Interactions (Human Processes)

Objective: To engage in research that will enable effective participation of local communities in conservation with a view of promoting sustainable human livelihoods and maintenance of natural ecological function and processes.

It was agreed that the Serengeti ecosystem and other protected ecosystems in Tanzania are under threat from human processes such as poaching, encroachment and introduction of alien plant species inside PAs and in the boarder areas. Therefore research is urgently required on land use dynamics, socio-economic aspects that will contribute to poverty alleviation by promoting improved and sustainable human livelihood. Important aspects to look at are such as consumptive and non-consumptive utilization of wildlife resources in border areas, improved agriculture and animal husbandry. Other human-related issues include tourist impact and impact of policies and International Conventions.

Ecological Interactions

Objective: To gain better understanding of the ecology and ecological processes for more effective conservation of biodiversity.

It was agreed that our understanding of the functioning of protected ecosystems depends on better knowledge of the various ecological interactions found in the area. Research areas comprising this theme include wildlife diseases, ecological corridors, population trends, wetland ecology, and vegetation and fire ecology. Others include animals behaviour, herbivore-plant interactions as well as competition, mutualism and facilitation.

Biodiversity Inventory

Objective: *To gain better understanding of the status, trend and the value of biodiversity resources.*

Despite the long history of research studies in the Serengeti, there is a gap of knowledge of the flora and fauna including invertebrates, fish, amphibians, reptiles, birds and small mammals, for which research is required. Biodiversity surveys are also needed in less known areas (such as the western and northwestern parts) and sites such as *Kopjes*. Also, the ecological role and/or socio-economic values of species and habitats warrant investigation. Also, compared to the Serengeti, most of the other Protected Areas in Tanzania have received relatively less attention from wildlife research.

Database

Objective: *To continually provide updated information to researchers and resource managers.*

Abundant literature and research data exist, albeit scattered, for the Serengeti. It was therefore agreed that a central database was urgently needed. It was also suggested that, through a task force, TAWIRI prepares an inventory for all research activities which have been carried out in the Serengeti Ecosystem as a focal and starting point. The inventory should provide details on the past records, specimens, reports and publications from all researches.

Ecosystem History

Objective: *To gain better understanding of the history of the Serengeti Ecosystem with the view of making predictions and averting disasters.*

The evolutionary history of the Serengeti Ecosystem needs to be followed up using past and present climatic/meteorological data that will enable to predict any naturally occurring phenomenon such as severe drought.

Table 1: Research Priorities

Topic/Theme	Criteria	Areas
1. Human-Wildlife Interactions	Stakeholders priorities <ul style="list-style-type: none"> • Threats to Ecosystem • Ecological sustainability • Human development • Feedback to policy formulation 	1. Land use <ul style="list-style-type: none"> • Development of improved crop farming & animal husbandry • Possibilities of mining if any in protected areas 2. Socio-economic studies <ul style="list-style-type: none"> • Poaching motives • Costs/benefits of conservation efforts • Social-conflicts 3. Consumptive & non-consumptive utilization of wildlife resources (flora & fauna) <ul style="list-style-type: none"> • Tourist impacts • Impact of research on tourism 4. Impact of policies and International Conventions

Topic/Theme	Criteria	Areas
2. Ecological Interactions	<ul style="list-style-type: none"> • Feasibility • Urgency • Relevance of the issue to clients /stakeholder. • Current information available. • Influence conservation of bio-diversity and ecosystem. • Global importance. • Sensitivity to human influence. 	1. Wildlife diseases and host-parasite interactions. 2. Corridors. 3. Population trends. 4. Hydrological/Wetland 5. Vegetation and fire ecology. 6. Predator dynamics and predatory-prey interaction. 7. Animal behaviour 8. Herbivore dynamics and plant herbivore interaction. 9. Competition, mutualism, facilitation.

Topic/Theme	Criteria	Areas
3. Biodiversity Inventory	<ul style="list-style-type: none"> • Urgency • Relevance to stakeholders • Impact on conservation of bio-diversity • Contribution to national economy • Existing information 	1. Bio-diversity inventory 2. Endangered habitats and rare animal species. 3. Exotic and endemic species. 4. Economic value of fauna, flora and ecosystem processes. 5. Avifauna

Topic/Theme	Criteria	Areas
4. Database	<ul style="list-style-type: none"> • Relevance and importance. • Urgency • Ability to update 	<ol style="list-style-type: none"> 1. Grey literature/Research data 2. Specimen banks.
5. Ecosystem History	<ul style="list-style-type: none"> • Availability and accessibility 	<ol style="list-style-type: none"> 1. Climate change and meteorological history 2. Evolutionary history of ecosystem

Research Areas

The specific research areas recommended for each theme/topic are indicated in Table 1; these are arranged in the order of importance from the topmost to the least one.

Further Readings

Mlingwa, C. 1998. A new research agenda for the Serengeti ecosystem. Priority research for the maintenance of biodiversity. Serengeti Wildlife Research Institute (SWRI), October 1998.

SRI, 1972/73. *Serengeti Research Institute. Annual Report, 1972-3.* Tanzania National Park: Arusha.

SWRI, 1995. Report of the strategic planning workshop for Serengeti Wildlife Research Institute (SWRI), December 7-8, 1994. Seronera, Arusha.

SWRI, 1997. Report of the research workshop for the Serengeti Wildlife Research Institute (SWRI), October 1997, Seronera, Arusha.

B: RECOMMENDATIONS ON IMPLEMENTATION OF THE AGENDA

In recognition of the urgent need to implement the **Wildlife Research Agenda in Tanzania** for which TAWIRI has to take a leading role, other related issues considered important in creating an enabling environment were brought to the attention of workshop participants for discussion. Discussions were made in working groups; each group dealt with three issues presented as follows:

- Relationship between TAWIRI and Scientists;
- Role of Stakeholders in Capacity Building;
- Funding and Fund-raising.

Summaries of recommendations are given below; these are followed by specific recommendations as presented by each working group.

Relationship between TAWIRI and Scientists

All groups described the relationship between TAWIRI and scientists as relatively poor. The three working groups were of the opinion that, there has been inadequate interaction, poor communication and ineffective co-ordination. In order to improve the relationship, the following measures were recommended:

- Establish a mechanism for effective communication and sharing of information among partners. TAWIRI organizing scientific workshops, establish a newsletter, etc;
- Introduce effective co-ordination mechanism;
- Prepare and disseminate research guidelines;
- Prepare Memoranda of Understanding (*MoUs*) between TAWIRI and Research and Academic Institutions;
- Prepare policy data book;
- Streamline/improve administrative processes between collaborating agencies;
- Provide necessary support to researchers.

Role of Stakeholders in Capacity Building

It was agreed that stakeholders other than TAWIRI include the Tanzania Commission for Science and Technology (COSTECH), Wildlife Division (WD), Tanzania National Parks (TANAPA), Ngorongoro Conservation Area Authority (NCAA), Universities, Researchers, NGOs, the Private Sector, and Donors.

As far as capacity building was concerned, the role of TAWIRI was identified as central in facilitation and co-ordination processes within the wildlife sector and that, this needs to be genuinely accepted by the other stakeholders. However, workshop participants argued that joint efforts and proper co-ordination are indispensable. It was therefore recommended that other partners play the following roles:

- Financial support;
- Provision of expertise, equipment/facilities;
- Conduct training;

- Submit research proposals that include training component.

Funding and fund-Raising

Participants pointed out the potentials existing as far as funding of research activities is concerned. They identified sources of funding such as TAWIRI itself, the Government, donors, private sector and other national wildlife management authorities including NCAA, WD and TANAPA. Envisaged strategies for fund-raising include the following:

- TAWIRI to establish a Research Fund;
- National stakeholders setting aside funds and avail to TAWIRI for research activities;
- Charge for services in form of consultancy to stakeholders;
- Write proposals to TWPF for funding;
- Introduce charity walk/dinner for fund-raising;
- Enhance collaboration with donors;
- Write joint proposals with foreign researchers/academic institutions.

C: WORKING GROUP DELIBERATIONS

Question 1: What and How is the Relationship Between Scientists and TAWIRI?

Group 1

The current relationship is not clear

What should be done:

- Establish clear and transparent relationships.
- Administration view scientist as resources.
- Provide basic support facilities.
- Increase collaboration among scientists and between TAWIRI and scientists.
- Provide mechanism to disseminate research findings.
- Have Memoranda of Understanding (*MoUs*) between Research/Academic Institutions and TAWIRI.
- Improve staffing-make more scientists available.
- Scientists should contribute to TAWIRI.

Group 2

**The current relationship between TAWIRI/Foreign researchers/University/
TANAPA is poor**

What needs to be done?

- Organise workshops/meeting (facilitate communication).
- Joint multidisciplinary research projects.
- Enhance undergraduate and graduate training programmes.
- Link with TANAPA/NCAA/Wildlife Division/Universities/Mweka College.
- Storage of Data (Published Reports).
- Journal should be put in place.
- Register of researchers with description of research..

Group 3

The current relationship between scientists and TAWIRI is minimal

- Need more information sharing.
- A mechanism has to be developed.
- Effective co-ordination by TAWIRI.

How can it be improved?

- Dissemination of information by workshops, annual reports, Websites (there should be a two-ways relationship).
- Infrastructure support to researchers.
- TAWIRI to maintain collections (e.g. herbarium and library).
- Streamline/ improve administrative processes between collaborating Institutions.

Group 4

Improve the relationship between scientists and TAWIRI

How?

- Prepare **Research guidelines**.
- Institute a task force to look at the past records, specimens, reports and publications from all researchers who conducted studies within the Serengeti Ecosystem.
- Prepare policy data book.
- Prepare “**MoUs**” with interested research and academic institutions.
- Prepare declaration contract formalities with interested researchers.
- Establish specimens central data bank.

Question 2: What are the Roles of the Partners in Capacity Building?

Group 1

- Technology transfer.
- Training.
- Counterparting.
- Funding.
- Collaborate.
- Supervision.

Group 2

TAWIRI should support capacity building of research in Tanzania by being a facilitator and disseminator of research results.

Why?

- Immediate need.
- Low cost.

Role of partners in capacity building

- Provide training.
- Provide facilities.
- Provide expertise.
- Ask questions.
- Bank of knowledge i.e. contacts.
- Financial support.

Group 3

Partners

- Researchers.
- Other institutions e.g. Tanzania Commission for Science and Technology (COSTECH).

- Ngorongoro Conservation Area Authority (NCAA), Tanzania National Parks (TANAPA), Wildlife Division (WD).
- Universities, NGOs and Donors.
- Private sector.

Role of Partners

- Financial support.
- Training local scientists/technicians (Project proposals should include training).
- Provision of technical equipment.
- Providing information on own capacity, (a two-ways process!).

Group 4

- TAWIRI should provide research findings that suit stakeholder needs.
- Stakeholders should support research through funding, personnel, equipment, etc.
- Stakeholders should supply existing data to central data bank i.e. TAWIRI.
- Major stakeholders should avail **PAs** under their jurisdiction to be used for research.
- Individual **PAs** should identify priority research topics and submit the same to TAWIRI for co-ordination purpose.

Question 3: Funding and Fund-raising?

Group 1

Sources of Funds

- Overheads.
- Government subvention.
- Charge for services to stakeholders.
- Establish research funds in TAWIRI.
- Foreign researchers.
- Stakeholders should set aside funds for research.
- Proposal to TWPF for funding.
- Write joint research proposals.
- Introduce charity walk/dinner for fund-raising.
- Collaborating donor agencies (external).
- Publish newsletter.
- Organise information about funding sources.

Group 2

TAWIRI needs funds to develop its role as facilitator and disseminator.

- Administration.
- Staff scientists (facilitators)

Sources of Funds

- Companies i.e. private sector.
- Selling wildlife/Wildlife users/Wildlife benefits from TANAPA/NCAA/WD.

- Seed/Development aid.
- Consultancy.
- Bench fees for research projects.
- Direct TAWIRI research projects.
- Charity dinners/talks/etc.
- Trust funds endowment for Research.

Group 3

Who are the beneficiaries of TAWIRI services?

Management authorities: Ngorongoro Conservation Area Authority (NCAA), Tanzania National Parks (TANAPA), Wildlife Division (WD).

Sources of Funds

- International Bio-diversity programs (Rio Convention Governments, National Science Foundation, NGOs).
- Tanzania Government: Wildlife Authorities (NCAA/TANAPA/WD).
- Research projects.
- Individual donations from private sector.
- Sell services/consultancies.

Group 4

Sources of Funds

- Basic funding should come from the State to take care of core staff.
- Consultancies (Stakeholders, NGO's, Private sector).
- Trust fund/Endowment fund (stakeholders, etc0.
- Donors.

PART III: CONCLUSION

Vision of the Ministry: Where does TAWIRI stand?

The objective of convening this workshop was to chart out the short, medium and long term focus of research not only for the Serengeti Ecosystem, but also for other protected ecosystems in Tanzania. The research themes that were identified are broader and encompassing the research themes of TAWIRI.

However, wildlife research in Tanzania is not being done in a vacuum. There are two major recipients and beneficiaries of research results namely Tanzania and the world. Tanzania is the local custodian of biodiversity found in the country, and the world is the overall beneficiary. Research results **must** enhance the conservation of biodiversity in Tanzania in order for herself and the world to benefit sustainably. At a local level, Tanzania is the manager of the biodiversity resources found in the country. To maintain biodiversity in Tanzania research must be geared to providing solutions for sustainable utilization. In this regard research efforts must be harmonized towards the national goal.

By analyzing the results obtained during this workshop, it is satisfying to note that they are in tandem with the visions of the Ministry of Natural Resources and Tourism (MNRT) and the nation. The vision of the Ministry is to ensure sustainable utilization of natural resources and this vision feeds into the national vision 2025 which include, among other things, better managed environment in securing better/higher quality of life of all Tanzanians.

Obviously, all the various players in national development including the various ministries feed into the national vision. With regard to the MNRT, the policy and implementation structure is shown in Figure 1. The work of this workshop was, therefore, to re-define the way forward for TAWIRI to exercise its mandatory obligation. Accordingly, TAWIRI's research management structure will have to be aligned to ensure efficient and effective coordination and delivery of results.

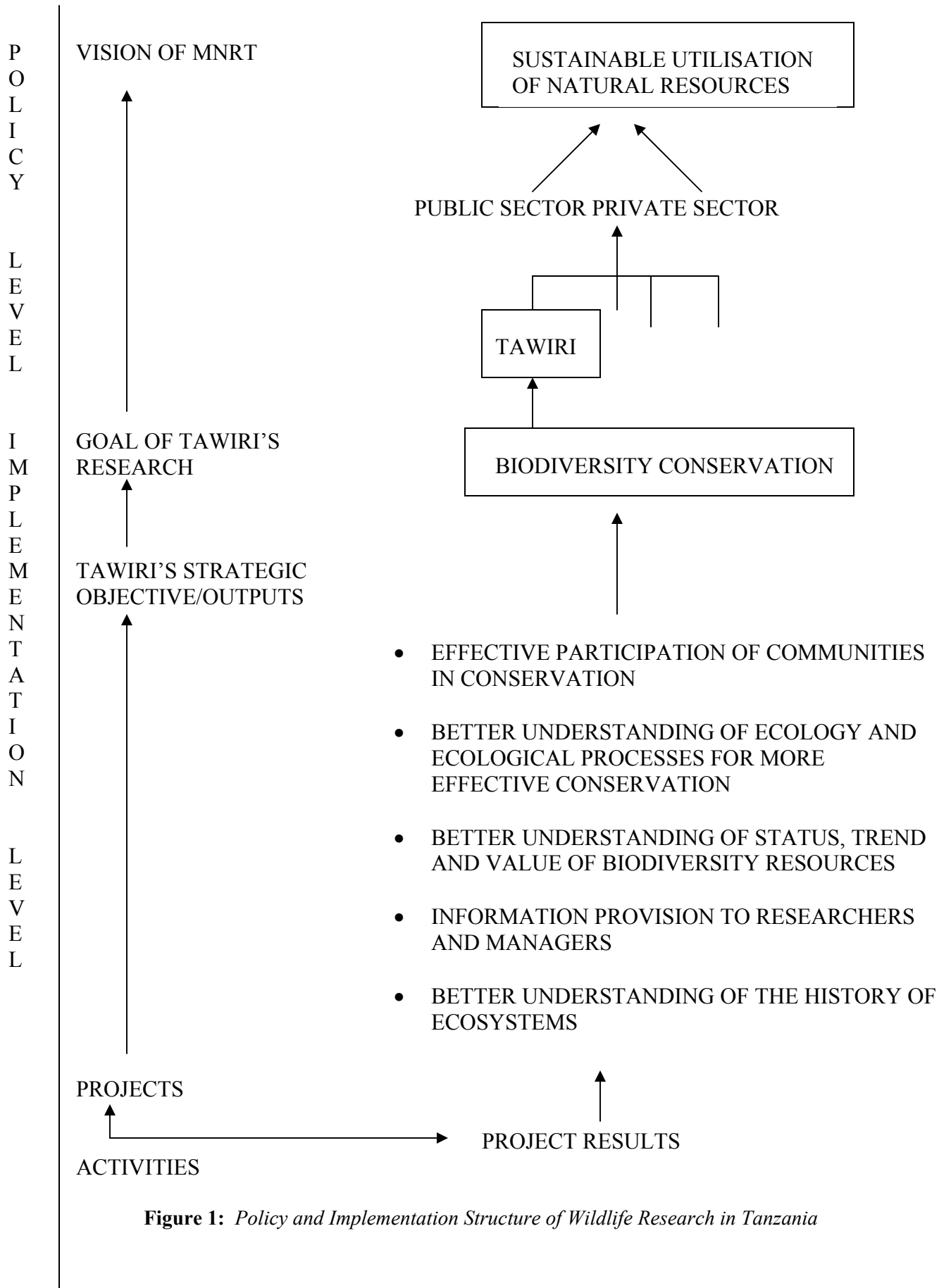


Figure 1: Policy and Implementation Structure of Wildlife Research in Tanzania

**CLOSING ADDRESS BY PROFESSOR IDRIS S. KIKULA, CHAIRMAN OF
THE TAWIRI BOARD, AT THE OFFICIAL CLOSING OF THE WORKSHOP
ON A NEW RESEARCH AGENDA FOR THE SERENGETI ECOSYSTEM,
HELD AT IMPALA HOTEL, ARUSHA ON OCTOBER 13-14, 1999**

*Colleagues,
Ladies and Gentlemen.*

I have been asked to say a few words to mark the closing of this workshop on A New Research Agenda for the Serengeti Ecosystem. You will agree with me that the agenda is actually of national character. So, on behalf of the Tanzania Wildlife Research Institute and on my own behalf, I would like to thank you for the tremendous work you have done during the last two days. It is my particular pleasant duty to applaud the Organising Committee and all of you for the job well done.

Colleagues, permit me to make a quick examination of the background of this workshop. Since last year the Institute embarked on a process of drawing up a new research agenda for the Serengeti Ecosystem. A draft document was produced and circulated to stakeholders who commented on the contents of the agenda. Majority of the respondents recommended the holding of this workshop in order to deliberate on pertinent issues that will lead to a more refined and focused research agenda.

During the two days of the workshop there was presentation of papers, which teased out various issues related to wildlife research in the Serengeti. Additional issues were raised by participants in the course of discussion the papers. The various ideas have been categorized into five themes which were ranked according to priority namely Human Processes, Ecological Interactions, Biodiversity, Database and Ecosystem History. You have accepted that some of the themes are crosscutting. Further, many issues have been raised within each theme for which prioritization has also been made. How do we take forward this process that we have started?

Colleagues, our way forward now is to hold smaller workshops to develop detailed research programmes and projects for each theme.

- A write up of our output will be made as quickly as possible and examined before you all get draft copies.
- A final report will then be published by TAWIRI and you will all get copies.
- We will organize three small working groups to work on the three themes: Human Processes, Ecological Interactions and Biodiversity. The other themes may be integrated.

The small groups will come up with details of all the issues we have raised. In so doing we will be coming up with projects that will form the TAWIRI Programme. Hopefully the programmes will have all the essential qualities of a programme i.e. horizontal integration, vertical integration, common vision, and contribution to policies.

You will note that all the good work that you are already doing will be accommodated within the TAWIRI Programme. You will be asked to give us written statements of what you are already doing so that these are compiled into a programme. Hopefully this will be an annual exercise. This way, we will be very clear of what is taking place every year. I am sure if this can be done, it will be useful to the Stakeholders (including Scientists) and TAWIRI.

Let me assure you, all this is being done in good faith. We want you to be part of TAWIRI so that we can work towards our overall mission, which is conservation. We will work on all your recommendations.

Once again, let me place on record my appreciation to all of you for your commitment throughout this workshop. I am extremely happy with the results.

Finally I would like to thank our host, the entire management of Impala Hotel for making our stay here enjoyable. We really felt home away from home. With these few remarks I would like now to declare this workshop closed.

I wish you a happy homeward journey.

Thank you.

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