

Department for International Development's
Renewable Natural Resources Research Strategy
Animal Health, Livestock Production and
Natural Resources Systems Programmes

LIVESTOCK AND WILDLIFE CO-EXISTENCE IN EAST AFRICA ?



SUMMARY OF WORKSHOP PROCEEDINGS

·E·R·G·O·

October 1998

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LIVESTOCK AND WILDLIFE CO-EXISTENCE IN EAST AFRICA ?

SUMMARY OF WORKSHOP PROCEEDINGS¹

PERORATION

In his concluding remarks, Professor Duncan Brown of Edinburgh University's Centre for Tropical Veterinary Medicine presented a retrospective overview of workshop proceedings, which endorsed the main findings and recommendations of the Review, as follows:

Environmental Setting

The best prospects for demonstrating the sustainable co-existence of livestock and wildlife in east Africa are: in zones adjoining protected areas with viable wildlife populations; in regions with relatively low rainfall and limited potential for arable farming; where human population density is relatively low, and where livestock owners predominate, or are a major component of local communities.

Disease Risks

1. Disease risks are not a major constraint to wildlife/livestock co-existence in the semi-arid rangelands. Although there are many diseases that can affect both wildlife and livestock, only a few are considered to pose a significant risk to livestock production.
2. The majority of game animals are not involved to any significant extent in the transmission of disease to livestock. Two exceptions are the African buffalo and the wildebeest, both of which can, under certain circumstances, transmit serious disease to livestock.
3. With increasing human populations and encroachment into areas bordering wildlife reserves, there is an increasing risk of disease spreading from domestic animals to wild animals. Strategies to protect valuable wildlife species from introduced disease need to be developed.

Socio-economic Considerations

1. Increased emphasis on poverty reduction and rural livelihoods within donor agencies and some governments, and greater interest in biodiversity conservation, justifies examination of apparently competing policies for rural development and wildlife management. Recent developments have escalated the potential for conflict as:
 - i. Demographic pressure is both pushing pastoralists to gain access to protected rangelands and causing cultivators to farm up to park boundaries, thereby accelerating the potential for damage to crops and property.
 - ii. Unauthorised hunting is reducing the attractions of some protected areas. Even where wildlife populations inside conservation areas are well protected, there is a growing recognition that reserves as isolated islands surrounded by wildlife deserts are not sustainable, and that hunting outside conservation areas needs to be carefully controlled.

¹ Compiled and edited by David Bourn, Environmental Research Group Oxford Limited, Zoology Department, South Parks Road, Oxford, OX1 3PS. Phone/Fax; 01865 883281/271257; E-mail: bourn_nord_ergo@compuserve.com

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2. Revenue and resource sharing may mitigate the costs of living alongside national parks, but is unlikely to compensate for loss of access to resources, or provide sufficient incentives for wildlife and habitat conservation outside national parks.
 3. Commercial ranching, tourism or safari hunting requires large areas of land and will therefore tend to benefit wealthier individuals rather than the resource-poor farmers.
 - i. While privatisation of wildlife and land may resolve some conflicting interests, there is no evidence that it will enhance rural livelihoods for most community members.
 - ii. Tourism and safari hunting are options for enhancing rural livelihoods on communal lands with the necessary potential, especially where basic conditions are in place.

Recommendations

1. For the most effective utilisation of limited resources, research studies should have clear and unambiguous collaborative links with ongoing programmes, or imminent “pipeline” field projects.
2. To maximise impact and uptake, research initiatives should be linked closely to bilateral or multilateral assistance programmes, and conform with national priorities and development strategies.
3. Given the arable potential of higher rainfall areas, the focus of attention should be directed at drier regions of DFID’s semi-arid zone with more variable rainfall, where mobile livestock and wildlife resources have a competitive advantage over static and drought susceptible crops.
4. Given the uneven distribution of wildlife resources and the widespread and increasing pressure on protected areas, attention should focus on adjoining zones.
5. Continued technical support is required in the assessment of wildlife and livestock resources, environmental monitoring, disease surveillance and the formulation of coherent community based natural resource management and disease control strategies.
6. There is a widespread need to develop skills and provide practical field experience for indigenous wildlife biologists/ecologists, veterinarians and social scientists in conservation biology, wildlife management, disease surveillance and community participation.

WORKSHOP PROGRAMME

The workshop was convened by the Animal Health, Livestock Production and Natural Resources Systems Programme components of the Department for International Development's Renewable Natural Resources Research Strategy, to consider the findings of a review of livestock and wildlife co-existence in east Africa by the Environmental Research Group Oxford Limited and the Overseas Development Institute. The meeting was held at the Department for International Development, 94 Victoria Street, London, on Friday 23 October 1998.

Morning Session

| | |
|-------------|---|
| 10.00-10.20 | Welcome and Introduction - Wyn Richards, NRIL |
| 10.20-10.40 | Environmental Setting and Indicative Trends - David Bourn, ERGO |
| 10.40-11.00 | Animal Diseases and Public Health Issues - Peter Stevenson, ERGO |
| 11.00-11.20 | Coffee/Tea |
| 11.20-11.40 | Pastoralist-Wildlife Interactions - Roger Blench, ODI |
| 11.40-12.00 | Community Based Natural Resource Management - Charlotte Boyd, ODI |
| 12.00-12.20 | Tanzania Project Status Report - Ken Campbell, NRI |
| 12.20-12.40 | Kenya Project Status Report - Viv Lewis, ITDG |
| 12.40-13.00 | Pastoral Perspective to Co-existence- Peter Toima, Inyuat-e-Maa, |
| 13.00-14.00 | Sandwich Lunch |

Afternoon Session

| | |
|-------------|---|
| 14.00-15.00 | Comments and Discussion on Presentations |
| 15.00-15.15 | Coffee/Tea |
| 15.15-16.00 | General Discussion on Researchable Constraints and Priorities |
| 16.00-16.30 | Summing-up and Farewell - Duncan Brown, CTVM |

Dr. Wyn Richards, Manager of the Livestock Production Programme, opened the workshop and explained the background to the study and the overlapping objectives of the three programmes:

Animal Health Programme - Semi-Arid Purpose 2: *Optimal disease management strategies for the sustainable co-existence of livestock and wildlife on semi-arid rangeland adopted.*

Livestock Production Programme - Semi-Arid Purpose 2: *Optimal strategies adopted for the sustainable management of livestock on semi-arid rangeland.*

Natural Resources Systems Programme - Semi-Arid Purpose 3: *Productivity increased and sustainability enhanced in tsetse-infested areas.*

The morning session of presentations was chaired by Professor Katherine Homewood of the Department of Anthropology at University College London. She raised three important questions to be considered during the workshop:

- With the increasing pressure on resources, especially land, how can we protect rural livelihoods? Research issues need to look into constraints to livestock and wildlife production.
- What are the indicators that we should use to measure our progress towards achieving sustainable rural livelihood strategies?
- What areas should we concentrate on? Geographical, or conceptual, e.g. institutional frameworks/ administrative/ creating enabling environments?

The afternoon session of comments and discussion was chaired by Chris Lewcock, Manager of the Semi-Arid System component of the Natural Resources Systems Programmes.

The workshop concluded with a retrospective overview from Professor Duncan Brown of Edinburgh University's Centre for Tropical Veterinary Medicine.

WORKSHOP PARTICIPANTS

Thirty-one people, representing a wide variety of organisations and experience, participated in the workshop, including four invited guests from east Africa.

| <i>Name</i> | | <i>Organisation</i> |
|---------------------------------|----------------------------|---|
| 1. Dr. Roger Blench | Research Fellow | Overseas Development Institute, London |
| 2. Dr. David Bourn | Director/Ecologist | Environmental Research Group Oxford |
| 3. Charlotte Boyd | Research Fellow | Overseas Development Institute, London |
| 4. Donal Brown | RNR Field Manager | DFID, Uganda |
| 5. Prof. Duncan Brown | Programme Manager | Animal Health Programme, Edinburgh |
| 6. Richard Dewdney | Policy Issues | DFID, London |
| 7. Liz Drake | Research Assistant | Overseas Development Institute, London |
| 8. Jim Harvey | RNR Adviser | DFID, London |
| 9. Prof. Katherine Homewood | Human Sciences | Dept. of Anthropology, University College London |
| 10. Ross Hughes | Study Co-ordinator | IIED, "Evaluating Eden" Project, London |
| 11. Mark Infield | Researcher | African Wildlife Foundation, Nairobi/Norwich |
| 12. Amar Inamdar | Researcher | Environment and Development Group, Oxford |
| 13. Helen de Jode | Karamoja Project Manger | Environment and Development Group, Oxford |
| 14. Dr. Richard Kock | Wildlife Veterinarian | Pan African Rinderpest Campaign, Nairobi |
| 15. Isabella Koziell | Biodiversity | DFID, London |
| 16. Prof. Nigel Leader-Williams | Biodiversity Management | Durrell Inst. Conserv. & Ecology, Kent University |
| 17. Chris Lewcock | Research Manager | NRSP Semi-Arid System, NRIL, Chatham |
| 18. Dr. Viv Lewis | Project Officer | Intermediate Technology Dev. Group, Rugby |
| 19. Dr. Titus Mlengeya | Wildlife Veterinarian | Tanzania National Parks, Arusha |
| 20. Dr. John Morton | Socio-econ. Anthropologist | Natural Resources Institute, Chatham |
| 21. Fred Pearce | Journalist | New Scientist, London |
| 22. Dr. Wyn Richards | Programme Manager | Livestock Production Programme, NRIL, Chatham |
| 23. Dilys Roe | Research Assistant | IIED, "Evaluating Eden" Project, London |
| 24. Dr. Peter Stevenson | Veterinarian | Environmental Research Group Oxford |
| 25. Peter Toima | Executive Director | Inyuat-e-Maa, Pastoral Development Org. Arusha |
| 26. Dr. John Wambua | Wildlife Veterinarian | Kenya Wildlife Service, Nairobi |
| 27. John Warburton | Env. Field Manager | DFID, London |
| 28. Patrick Wargute | PhD Student | University College London/DRSRS-Kenya |
| 29. Andrew Williams | PhD Student | University College London |
| 30. Dr. William Wint | Director/Ecologist | Environmental Research Group Oxford |
| 31. William Wolmer | Researcher | Institute of Development Studies, Univ. of Sussex |

SUMMARY OF REVIEW FINDINGS AND RECOMMENDATIONS²

Environmental and Population Trends

1. Human population growth, agricultural expansion, deforestation, hunting and the ramifications of economic development have had profound, cumulative impacts on the environment, natural habitats and wildlife populations all over the world. East Africa is no exception. The number of people in Kenya, Tanzania and Uganda has doubled over the past 20 years, and is likely to double again in the next 30-40 years.
2. Settlement and cultivation are concentrated in areas of higher rainfall and greater agricultural potential, around lake Victoria, in the highlands, and along the coast. Mean population density is highest in Uganda and lowest in Tanzania. Agricultural land scarcity, however, is greatest in Kenya because of generally lower rainfall. Nevertheless, the general trend in all these countries is for agricultural expansion and the transformation of natural habitats to farmland.
3. Extensive habitat loss and unauthorised hunting, exacerbated by a proliferation of high-powered automatic weaponry in recent years, has hastened the long-term decline and disappearance of wildlife from many areas. Population estimates for the Kenya rangelands indicate that the overall number of wildlife has fallen by a third over the past two decades. Wildlife has been eliminated from much of Uganda, including many protected areas. In Tanzania, wildlife has also declined, but because of the country's size and relatively low human density, substantial wildlife populations survive in the extensive wildlands that remain.
4. Livestock trends are less clear. Monitoring surveys indicate that cattle and small ruminant populations in the Kenya rangelands have fluctuated widely over time, but no significant long term trends are evident. Low level aerial survey observations suggest that livestock out-number wildlife by a factor of 10:1. Limited data from the Ngorongoro Conservation Area in Tanzania indicate that cattle numbers have decreased over the past 40 years, whilst there has been a substantial increase in small ruminants.
5. The best prospects for demonstrating the sustainable co-existence of livestock and wildlife are: in zones adjoining protected areas; in regions with relatively low rainfall and limited potential for arable farming; where human population density is relatively low, and where livestock owners predominate, or are a major component of local communities.

Disease Risks

1. Disease risks are not a major constraint to wildlife/livestock co-existence in the semi-arid rangelands.
2. Although there are many diseases that can affect both wildlife and livestock, only a few are considered to pose a significant risk to livestock production.
3. The majority of game animals are not involved to any significant extent in the transmission of disease to livestock. Two exceptions are the African buffalo and the wildebeest, both of which can, under certain circumstances, transmit serious disease to livestock.
4. With increasing human population, altering land use and changing farming systems, the relevance and importance of diseases involving wildlife and livestock are changing. Strategies to manage the diseases must, in some situations, be altered to take account of these changes.
5. With increasing human populations and encroachment into areas bordering wildlife reserves, there is an increasing risk of disease spreading from domestic animals to wild animals. Strategies to protect valuable wildlife species from introduced disease need to be developed.
6. There is a general scarcity of information on the occurrence and importance of the various diseases affecting livestock and wildlife in the semi-arid rangelands. Better disease surveillance is required, with improved systems of information management and dissemination.
7. In-country expertise on wildlife diseases is limited and resources for research are lacking.

² Review of the Current Status and Future Prospects for Sustainable Co-existence and Management of Livestock and Wildlife in Semi-Arid Rangelands of East Africa. Report to Animal Health, Livestock Production and Natural Resources Systems Programme Managers by: David Boum and Peter Stevenson, Environmental Research Group Oxford Limited (boum_nord_ergo@compuserve.com; peter.stevenson@animalhealth.u-net.com); Roger Blench, Charlotte Boyd and Liz Drake, Overseas Development Institute (r.blench@odi.org.uk; c.boyd@odi.org.uk; e.drake@odi.org.uk); Keith Sones, StockWatch Limited, Nairobi (k.sones@net2000ke.com); and Mathu Ndung'u, Kenya Trypanosomiasis Research Institute, Nairobi (ketri@ken.healthnet.org), July 1998.

Socio-economic Considerations

1. Increased emphasis on poverty reduction and rural livelihoods within donor agencies and some governments, and greater interest in biodiversity conservation, justifies examination of apparently competing policies for rural development and wildlife management. Recent developments have escalated the potential for conflict as:
 - i. Demographic pressure is both pushing pastoralists to gain access to protected rangelands and causing cultivators to farm up to park boundaries, thereby accelerating the potential for damage to crops and property.
 - ii. Unauthorised hunting is reducing the attractions of some protected areas. Even where wildlife populations inside conservation areas are well protected, there is a growing recognition that reserves as isolated islands surrounded by wildlife deserts are not sustainable, and that hunting outside conservation areas needs to be carefully controlled.
2. At the same time, new conservation philosophies concerning community participation in wildlife management are proving problematic to implement.
3. Review of alternative strategies for resolving these conflicts and enhancing sustainable rural livelihoods through integrated livestock and wildlife management concludes that:
 - i. Revenue and resource sharing may mitigate the costs of living alongside national parks, but is unlikely to compensate for loss of access to resources, or provide sufficient incentives for wildlife and habitat conservation outside national parks.
 - ii. Commercial ranching, tourism or safari hunting requires large areas of land and will therefore tend to benefit wealthier individuals rather than the resource-poor farmers, which are the focus of this paper. While privatisation of wildlife and land may resolve some conflicting interests, there is no evidence that it will enhance rural livelihoods for most community members.
 - iii. Tourism and safari hunting are options for enhancing rural livelihoods on communal lands with the necessary potential, especially where the following basic conditions are in place:
 - a. International/national legislation that promotes sustainable use of wildlife at the local level, e.g. safari hunting, commercial ranching for meat, hides and live sale; photographic safaris and other forms of non-consumptive tourism;
 - b. Land/resource tenure that enable pastoralists and village-based communities to benefit from wildlife, and protect them from incursions by commercial interests;
 - c. Approaches are built on existing natural resource management structures and livelihood strategies;
 - d. The potential for conflicting claims, especially in regions where there are hunter-gather populations, notably in Botswana, Namibia and Central Tanzania, is understood and incorporated into project design;
 - e. Emphasis is placed on habitat management rather than a single species, or group, focus;
 - f. Full participation of women and other minority groups is assured;
 - g. Strong support for institutional capacity-building;
 - h. Technical support and facilitation of community-based resource assessment, local area development planning and environmental monitoring;
 - i. Technical support and facilitation for the prioritisation and targeting of Community Based Natural resources Management activities, at community, local, national and regional levels.

Recommendations

1. Given the limited research budgets available and the overlapping objectives of the three research programmes, there is a clear need for co-ordinated action in the identification of research priorities, call for concept notes, choice of field sites and research activities.
2. For the most effective utilisation of limited resources, research studies should have clear and unambiguous collaborative links with ongoing programmes, or imminent "pipeline" field projects.
3. To maximise impact and uptake, research initiatives should be linked closely to bilateral or multilateral assistance programmes, and conform with national priorities and development strategies.
4. Given the arable potential of higher rainfall areas, the focus of attention should be directed at drier regions of DFID's semi-arid zone with more variable rainfall, where mobile livestock and wildlife resources have a competitive advantage over static and drought susceptible crops.
5. Given the uneven distribution of wildlife resources and the widespread and increasing pressure on protected areas, attention should focus on neighbouring zones.
6. Further studies are required to examine options for integrating wildlife and habitat management into the livelihoods of populations living in areas with low tourism and safari hunting potential, and enabling the conservation of a broad range of biodiversity rather than headline species.
7. Economic stakeholder analysis is required to evaluate the perceived costs and benefits of integrating wildlife into sustainable rural livelihood strategies from the perspectives of different primary stakeholders (e.g. pastoralists, agro-pastoralists, small-scale farmers) in different areas (different alternative land uses, different types of resource tenure and management structure, different levels of tourism potential) and at different times (wet/ dry season).
8. Research into the conservation of genetic resources should include indigenous livestock breeds and wider agricultural biodiversity.
9. Continued technical support is required in the assessment of wildlife and livestock resources, environmental monitoring, disease surveillance and the formulation of coherent community-based natural resource management and disease control strategies.
10. There is a widespread need to develop skills and provide practical field experience for indigenous wildlife biologists/ecologists, veterinarians and social scientists in conservation biology, wildlife management, disease surveillance and community-based natural resource management.
11. Sources of collateral funding for counterpart training and institutional strengthening should be identified and earmarked, to enhance the impact and sustainability of research outputs.
12. Wherever possible, emphasis should be given to establishing closer collaborative links with international and regional centres of excellence in animal health and wildlife management, especially in southern Africa.
13. The Objectively Verifiable Indicators for the three research programmes, as currently formulated in DFID's Renewable Natural Resources Research Strategy, are outdated and unrealistic for an inherently variable and dynamic semi-arid environment. Further studies are required to identify appropriate indices for monitoring the sustainability of proposed initiatives.
14. Consideration should be given to supporting research activities beyond the normal three-year period. Indeed, this is essential for long term monitoring.

CONFLICTING INTERESTS OF WILDLIFE AND LIVESTOCK CO-EXISTENCE: A SUSTAINABLE RURAL LIVELIHOODS APPROACH³

In the past, the consensus across conservationists and local populations has been that wildlife and livestock are incompatible forms of land use and should be kept separate. However, conflicts persist over the allocation of land to wildlife or livestock, and are growing more severe as demographic pressure on rangelands increases, at the same time as governments are under increasing international pressure to invest in biodiversity conservation.

Opportunities to address these conflicts are provided by more dynamic concepts in rangeland ecology and changes in conservation philosophies to incorporate benefits to local people. This presentation examines the options for integrating wildlife and livestock management from the perspective of local livelihoods, and argues that greater attention needs to be given the incentives for local stakeholders to participate in conservation initiatives.

In the presentation, sustainable rural livelihood strategies are defined as those that:

"comprise the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base" (Carney, 1998).

Livestock plays a complex, integrated role in the rural livelihoods of both pastoralists and agropastoralists, which cannot simply be substituted by revenue or resource-sharing, or other income-generating activities.

The analysis demonstrates that, under certain conditions, integrated livestock/ wildlife management can enhance sustainable rural livelihoods by making better use of the same resources (capabilities and assets) as a means to:

- † Enhancing food security;
- † Increasing cash income;
- † Regenerating productive assets and generating social capital;
- † Reducing vulnerability; and
- † Promoting sustainable use of natural resources.

Wildlife management as the preferred form of land use will only survive where it is the best economic alternative. This implies that, for community-based conservation to meet its objectives in the long-term, the benefits from wildlife conservation must outweigh the costs, including the opportunity costs of alternative land uses. This presentation has further demonstrated that, if benefits are intended to substitute for income from unsustainable wildlife use or habitat conversion, benefits must be in an equivalent form to the forgone income stream: social infrastructure does not compensate for lost income from hunting.

³ Charlotte Boyd, Overseas Development Institute, Portland House, Stag Place, London SW1E 5DP.
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PROJECT STATUS REPORT: SUSTAINABLE USE OF WILDLAND RESOURCES IN NORTH-WESTERN TANZANIA⁴

The study is based in the Serengeti ecosystem of north-western Tanzania. The project is conducted under the auspices of the Serengeti Wildlife Research Institute (SWRI) Arusha (mandate for wildlife-related research in Tanzania), and involves personnel from Tanzania National Parks (TANAPA), the TANAPA anti-poaching unit and Community Conservation Service (CCS) in Serengeti National Park. The project aims to develop an holistic view of the problems relating to social and economic development, environmental sustainability and the conservation of biodiversity in the area to the west of the protected areas of the Serengeti ecosystem.

The project aims to integrate village-level research information, with information recorded from arrested poachers, and demographic and socio-economic statistics relating to wildlife management in a GIS based database. The project will also incorporate available information on arrested hunters and village surveys conducted by TANAPA. By integrating and analysing the data obtained, and by incorporating the views of local people in the research, the overall aim is to identify linkages between rural livelihoods and game meat hunting constraints to the reduction of poverty, livestock development and sustainable wildlife conservation, and to develop draft strategies for appropriate development projects.

Factors influencing participation in game meat hunting

Preliminary analysis of information from arrested hunter records and a questionnaire survey of 300 people in 10 villages north-west of the Serengeti National Park (SNP) indicates:

- ✦ Agriculture is the main occupation (98%) and primary source of income (88%) for the great majority of inhabitants of the region. Nevertheless, same meat hunting is an important secondary source of income for many.
- ✦ Most arrested hunters live within 45 km of protected area boundaries.
- ✦ Preliminary estimates indicate that 60,000 people are involved in game meat hunting.
- ✦ The main reasons given for hunting were to obtain food (83%); to obtain meat to sell (79%) and raise money to pay taxes 55%.
- ✦ The primary sources of animal protein were through purchase of livestock meat (92%); game meat (82%); and fish (39%).
- ✦ People who own sheep and goats, or who have alternative sources of income, are less likely to hunt game meat. Cattle ownership was not associated with hunting.
- ✦ Half of all arrested hunters had no livestock; a further 16% had less than five animals.
- ✦ Preliminary conclusions are that:
 - ✦ game meat hunting currently provides an important source of income to a large number "resource poor" people from an extensive area to the west of SNP;
 - ✦ individuals with alternative sources of income are less likely to hunt; promotion of small stock ownership and productivity is likely to decreased reliance on game meat hunting;
 - ✦ promotion of cattle ownership is unlikely to have a direct effect on game meat hunting.

⁴ K.L.I. Campbell, V. Nelson and J. Morton, Natural Resources Institute, Chatham, ME4 4TB and M. Loibooki, Tanzania National Parks, P.O. Box 3134, Arusha, Tanzania

PROJECT STATUS REPORT: CASE STUDIES OF COMMON PROPERTY RESOURCE MANAGEMENT WHERE TOURISM, WILDLIFE AND PASTORALISM INTERACT IN KENYA⁵

Building on ten years working with pastoralist communities, ITDG will carry out action research with two communities in Kenya, Kathekani Location (Makuein District) and Eselenki (Kajiado District).

Land in Kathekani location is privately owned. The local people, the Akamba, practice agro-pastoralism as their main source of livelihood. However, the use of Kathekani for dispersal by wildlife from Tsavo West National Park has led to conflicts. Wildlife competes against livestock for the already inadequate grazing resources. This has led to hostility towards wildlife and the park management, in particular.

The second community, Eselenki is a Group Ranch, where land is communally owned. The local people, the Kisonko Maasai, traditional practice nomadic pastoralism. Although this is still the major form of land use, agro-pastoralism and wildlife based tourism are on the increase. Agricultural activities, through individualization of production resources, have intensified pressure on local resources threatening traditional pastoralism and resident and migratory wildlife populations in this district.

Taking a cue from the recently completed ERGO/ODI review, the focus of this research will be directed towards: "options for integrating wildlife and habitat management into the livelihoods of populations living in areas with low tourism and safari potential and enabling the conservation of a broad range of biodiversity rather than headline species."

A methodological approach which combines stakeholder analysis and environmental evaluation within a framework of sustainable rural livelihoods will be developed and applied in the two case study sites. This tool should enable different stakeholders' perspectives and values to be explicitly included in the analysis, creating an opportunity to explore and construct different options for interactions between pastoralism, wildlife and tourism.

This study is funded by the Natural Resources Systems Programme of the Department for International Development's Renewable Natural Resources Research Strategy. The first preparatory phase of the project began in April 1998 and is scheduled to be completed by September 1999.

⁵ Presented by Viv Lewis, Intermediate Technology Development Group, Schumacher Centre for Technology and Development, Bourton Hall, Bourton on Dunsmore, Rugby, Warwickshire, CV33 9QZ, UK; Tel: + 44 (0)1788 661100; Fax: + 44 (0)1788 661101; E-mail: vivl@itdg.org.uk

PASTORAL PERSPECTIVE TO LIVESTOCK AND WILDLIFE CO-EXISTENCE⁶

"Inyuat e Maa" is a community-based organisation in Tanzania, established in 1993. Its main purpose is to address land tenure issues and resolve land use conflicts in Maasailand. Land insecurity is a major concern for pastoralists today. Inyuat e Maa is also concerned with the improvement of social services, education, health care, livestock services and conservation of the environment, including plants and animals. Inyuat e Maa collaborates with the African Wildlife Foundation (AWF), an international non-governmental organisation, which promotes the co-existence of wildlife and pastoralists. The two organisations are inter-dependent.

The Maasai face serious threats to their existence. The failure of development initiatives is related to a weakening of our resource base and increasing marginalisation, which threatens our livelihoods. In the past the Maasai used land on a communal basis. Access to range resources, such as water and salt licks, was assumed by membership of territorial sections. The pattern of land use and pasture utilisation involved daily and seasonal movements of animals. The same land is also wet season habitat for wildlife. Livestock and wildlife can live in harmony with the pastoralists, provided each has access to resources necessary for their survival. Maasai pastoralists do not kill wildlife for food and do not deliberately destroy vegetation. In the past, access to range resources was assured, and communities had an active role in habitat management for sustainable forage production.

Recently, however, significant changes have taken place in Maasailand; e.g. the commercialisation of livestock and land resources; and reduction in the extent of rangeland. This has created a major problem for the Maasai. Land has been alienated to wildlife through: the creation of game sanctuaries; farming and ranching; resettlement schemes; establishment and expansion of villages and towns, acting as centres for "land-grabbing"; and joint ventures between Maasai individuals, or groups, and outside investors. The impact of this land alienation on the Maasai economy has resulted in major losses of dry season grazing and permanent water sources. Thus, the Maasai have been squeezed into ever smaller areas, which have to be used year round. Under such circumstances, it is hardly surprising that competition has increased and that conflicts have mounted. These conflicts manifest themselves in as competition between livestock versus wildlife, and livestock versus crops. Inyuat e Maa and the AWF supported Community Conservation Service Centre are working together to address this issue.

As pastoralists, we have a feeling, that the current conservation of wildlife in east Africa is based on a system of national parks that exclude people. The pastoralists complain that protected areas disrupt long-established pastoral production systems, which were based on the conservation of natural resources for sustainable consumptive use; e.g. grazing, firewood, construction materials and medicinal plants. In other words, for pastoralists, conservation of plants and wildlife is vital for their long-term sustainability; and their mode of production has developed to maximise scarce and widely scattered resources. Nevertheless, many pastoralists now see wildlife as a liability, rather than an asset. They draw attention to the fact that their livestock are attacked by predators, their subsistence farms are destroyed by ungulates, and that their cattle are exposed to deadly diseases, e.g. rinderpest and malignant catarrhal fever. They also complain that despite the fact that wildlife tourism and sport hunting are a major source of income for Tanzania, they do not receive any benefits.

To rectify the situation Inyuat e Maa works with AWF, using a participatory approach in pastoral development, to look at options for managing land, vegetation and plants, livestock and wildlife

⁶ Presented by Peter Toima, Executive Director, Inyuat-e-Maa (a community based organisation for the advancement of Maasai), P.O. Box 2720, Arusha, Tanzania.

resources. As this process evolves, and conditions change, many of the old, technical distinctions between different types of resources change. Indeed, in areas where wildlife management has been integrated with pastoralism, pastoral communities refer to wildlife as their “other cattle that give milk when it is very dry.” Conservation should not exclude livestock species and breeds, as they are integral component of biodiversity.

Wildlife and livestock share similar ecological niches. Access to water, fodder and other range resources is essential to their survival. Integrated planning is, therefore, of paramount importance. Like other forms of production, wildlife and livestock systems are subject to mounting pressure from expanding human populations and increasing levels of consumption. To cope with these pressures, it is essential to recognise what is good and valuable in traditional natural resource management systems and yet, at the same time, to help pastoral people adopt and adapt to changing socio-economic and environmental conditions. Wildlife and livestock require areas large enough for both wet and dry season grazing. Securing access and sustainable utilisation of extensive rangeland areas requires co-operation and joint management of natural resources.

In looking at production systems that combine livestock and wildlife, it is also important to be aware of the different values and uses associated with different resources by women and men. In most cases men may focus on the cash and status value of livestock, whilst women may recognise a broader set of needs related to daily family requirements and risk reduction.

Lands surrounding Tanzania’s national parks, the Serengeti, Lake Manyara, Tarangire and Kilimanjaro, are still held and grazed by the Maasai. These lands are also the seasonal dispersal areas of wildlife and provide corridors for movement between national parks. These dispersal areas and corridors are essential for the long-term viability of large wildlife populations. Maintaining the Maasai preference for livestock keeping rather than arable farming in these areas is vital for the conservation of biological diversity, as well as building tourism as part of a broader economic base.

Safari hunting occurs in many of these areas but is not adequately regulated, and the Department of Wildlife does not currently have resources to set quotas based on a scientific system. Virtually all the revenue from hunting is accrued by central government, and thus wildlife does not generally add to the local economic base.

Very significant potential exists to strengthen both the ecological and economic benefits of wildlife/livestock alliance in Maasailand, by promoting the establishment of community-based management regimes, based on sound, but simple, management plans for land and resource use. Inyuat e Maa and AWF are keen to promote such management regimes in these areas. A common strategy to achieve this is:

- ▼ to combine the political and economic forces of pastoralism and wildlife conservation to restrict the expansion of arable agriculture into pastoral lands;
- ▼ to minimise and mitigate the conflicts, which exist between pastoralism and wildlife management, such as predation and disease;
- ▼ to use wildlife revenues (from tourism and game hunting) to strengthen and support the pastoral economy, to reduce risk, and to provide some of the essential social services, which the Maasai community aspires to. This can create opportunity for ecological and cultural diversity.

These are a few of the major points, which deserve the attention for possible follow up and support to ensure the sustainable co-existence of livestock and wildlife in east Africa.

KEY POINTS, COMMENTS AND DISCUSSION⁷

David Bourn, ERGO: Environmental Setting and Indicative Trends

- ✦ Question: Is the sustainable co-existence of livestock and wildlife a realistic goal for the semi-arid rangelands of east Africa?
- ✦ Answer: The ERGO/ODI review has concluded that it is, but only in special circumstances, where *de facto* natural resource managers receive tangible net benefits.
- ✦ DFID's definition of semi-arid areas (annual rainfall of 400-1200 mm) is broad, and not universally accepted. Alternative FAO definition: plant growing period: 75-119 days.
- ✦ Prospects for livestock and wildlife co-existence are better at drier ends of the semi-arid zone.
- ✦ Human population growth and agricultural expansion are the driving forces of environmental change. Despite impact of AIDS, the human population of east Africa is projected to double over the next 30-40 years. Density is highest in Uganda, followed by Kenya and then Tanzania.
- ✦ Extent of cultivation has increased greatly over the past fifty years, especially in areas of higher rainfall. In the drier rangelands, expansion of arable agriculture has been less marked, and in some areas woody vegetation cover has increased.
- ✦ Wild herbivore populations in east Africa have been in decline for most of the twentieth century and have disappeared from many areas. Evidence from Kenya indicates a 30-40% decline in wildlife numbers and a 10% decline in livestock numbers from the mid 1970s to the mid 1990s. Low level aerial surveys indicate that livestock outnumber wildlife by 10:1.
- ✦ Evidence from the Ngorongoro Conservation area shows that over the last 40 years cattle numbers have declined, whilst number of small ruminants and people have increased.
- ✦ 50% of the wildlife in Kenya is concentrated on approximately 16% of the land: 25% inside protected areas and 25% within 20 km of their boundaries.

Peter Stevenson, ERGO: Animal Diseases and Public Health Issues

- ▼ Question: Is disease a major constraint to the co-existence of livestock/wildlife and humans?
- ▼ Conclusion: With available control methods, good management and adequate veterinary support (information gathering and management), disease risks need not be a major constraint to livestock wildlife co-existence in east Africa.
- ▼ Main problem is lack of veterinary services (due to decentralisation and retrenchment in the public sector) and the consequent resurgence of diseases e.g. Contagious Bovine Pleuro Pneumonia; Trypanosomosis; Foot and Mouth; and Rinderpest.
- ▼ Wildlife diseases not well understood, e.g. Rabies and Canine Distemper in the Serengeti/Mari; are domestic dogs a reservoir, or are epidemic outbreaks a consequence of population increase?
- ▼ Lack of information on occurrence, epidemiology and economic importance of diseases. Need for disease information and monitoring.
- ▼ Need a better understanding of the relative economic importance of diseases.
- ▼ Public health consideration should not be overlooked

⁷ Prepared by: Helen de Jode, Environment and Development Group, Oxford, and Liz Drake of the Overseas Development Institute, London.

Roger Blench, ODI: Pastoralist-Wildlife Interactions

- DFID is presently engaged in formulating a biodiversity policy.
- Wildlife policy cannot be divorced from tourism.
- Social and economic changes are resulting in the enclaving of wildlife.
- Unauthorised hunting and poaching is widespread and increasing.

If these issues can be resolved, integration of livestock and wildlife needs to consider:

- Revenue sharing – but doubtful if it can ever compensate.
- Equity issues – commercial ranching/tourism benefits only accrue to the wealthy.
- Clear distinction between eastern and southern Africa. South of eastern Africa there are “cattle keepers,” as distinct from occupationally specialised pastoralists. This changes the colour of the interactions between livestock and wildlife. Wildlife has been eliminated from most pastoral areas of west Africa. The presence of wildlife *and* pastoralists in east Africa is exceptional.
- Activities of hunter/gather populations conflict directly with national policies. Government strategies in Botswana, Namibia and north-central Tanzania to enforce agriculture have failed. There is no answer to this. In Botswana it is now an advocacy issue.
- These issues now also apply to central Asia, where wildlife still survives on the vast rangelands. People are re-establishing their movement patterns after de-collectivisation. The same sorts of conflicts will evolve there, and our thoughts, therefore, have wider application than east and southern Africa.

Research priorities should be to:

- Determine what to do when there is no possibility of making money from wildlife tourism. Strategies might be repopulation, or trying to interest people in other types of biodiversity.
- Look more carefully at stakeholder analysis. It is difficult to get consensus amongst pastoralists, tour operators and agriculturalists. We have limited success in doing this.
- Examine possibilities for co-conservation. Design projects that exploit the advantages of traditional breeds (e.g. Ankole) and wildlife management.

Questions and Comments:

- Is the southern African model likely to be followed east Africa?
Southern Africa did not have articulate pastoralist populations.
The major advance in southern Africa is making game meat competitive.
- Will east Africa therefore follow the west Africa example?
Perhaps, wildlife in Zimbabwe now only found in well guarded areas.
- Game meat producers do not meet DFID’s definitions of poverty.
- We should not maintain romantic ideals about pastoralists. Their ways are changing.
Pastoralism is not disappearing; even after climatic shocks, pastoralists return.
Pastoral mobility is a most effective means of exploiting seasonable variable environments.

Charlotte Boyd, ODI: Community Based Natural Resource Management

- † Conventional options for community based natural resource management: controlled access; alternative income generating strategies; and revenue sharing; ignore complexity of rural livelihoods, and assume that costs can be offset against benefits.
- † Food security issues are important. Compared with livestock, people do not have control of wildlife; other people determine access, although local hunting mitigates reduced access principles. The result is that people choose livestock.
- † With livestock, the household has control; wildlife is regulated externally. Policies options to retain income in the local community result in complex distribution issues, not altruism.
- † Livestock is also social capital. One important benefit of CAMPFIRE is that it has brought additional social benefit flows to the community, and created an increasingly articulate community.
- † Wildlife is less vulnerable to drought, but there is no control over income. Tourism can also be vulnerable, as recently in Kenya. Many areas have little, or no, tourist potential. In terms of sustainable natural resource use, pastoralism no longer seen as so negative. Being indigenous wildlife is inherently sustainable.
- † Important to recognise that options available depend on local circumstance.

Questions and Comments

- † Are social capital benefits greater for wildlife? A huge investment in community institutions is often required.
- † Can you buy a wife using a buffalo or kudu, instead of cattle? Things are changing - in parts of Zimbabwe, for instance, wildlife is seen as having equal or greater value than livestock for traditional ceremonies.
- † The analysis does not seem to take on the de facto situation of illegal use. In a situation of open access, attempts to improve this further (i.e. promoting state or communal access) leads to the poorest people dropping out the bottom. Solution therefore to leave open access alone.
- † People talk of poverty as if a community is homogenous. It isn't.
- † Current wildlife policies generally don't allow people to use wildlife - yet there is clearly a huge demand for "bush-meat."

Ken Campbell, NRI: Sustainable Use of Wildland Resources in NW Tanzania

- ✘ Demand for game meat certainly exists, but that is not the primary problem. The problem is the lack of alternative income sources. People who depend on hunting have few disposable assets, such as small stock. Game meat is a vital resource for poor people.
- ✘ Access to alternative income sources decreases the incidence of hunting for game meat.
- ✘ Promoting small stock production may decrease reliance on hunting.
- ✘ Promoting cattle production is unlikely to reduce hunting.

Questions and Comments:

- ✦ People hunt not just for game meat, but also to reinforce their cultural traditions. Even when poverty decreases, hunting will continue.
- ✦ What is the age and gender structure of those who hunt? Are older hunters teaching the younger members of communities? More than 50% of arrested hunters were males between 20-40 years old. However, there were substantial numbers of older men between 40-60.
- ✦ How do you know that people were telling you the truth about their cattle ownership and involvement in hunting? There was a consensus amongst community workers that information provided was correct. Nearer the border with Kenya, people were more reticent.
- ✦ Is bush meat important as a source of cash income, or a subsistence activity? When a community is cash poor a small hunt can significantly increase their cash flows. Only 26% of meat was defined as being used for barter – mainly to raise money in order to pay government levies.
- ✦ Are you saying that people need cash and that's why they hunt? How do you define hunters?
- ✦ 60,000 people are estimated to be involved in game meat hunting in the area. This includes the 8% whose primary income is from game meat hunting, who are defined as hunters; and the 32% who said that game meat hunting was a secondary source of income.

Peter Toima, Inyuat-e-Maa: Pastoral Perspective to Livestock and Wildlife Co-existence

- ▼ “Inyuat e Maa” is a community-based organisation in Tanzania, established in 1993.
- ▼ Main purpose is to address land tenure issues and resolve land use conflicts in Maasailand.
- ▼ Collaborates closely with the African Wildlife Foundation to promote the co-existence of wildlife and pastoralists.
- ▼ TANAPA also has a community conservation service, working outside National Parks.
- ▼ Tanzania's new wildlife policy encourages local communities to establish their own wildlife management areas.
- ▼ Considerable potential for community-based management regimes, based on sound management plans for sustainable land and resource use.
- ▼ Inyuat e Maa and AWF keen to promote such initiatives.

Comments and Discussion on Presentations

Blench: The information we have on livestock biodiversity is very out of date and unreliable.

Kock: Base line data on diseases is out of date and inaccurate. More data is needed on local animal health strategies, and more lab research is required on diseases such as Rinderpest. Surveillance and information flows are needed. Models need good data to be of any use!

Homewood: More information important for major campaigns against for Rinderpest, but for other diseases such as East Coast Fever and Foot and Mouth, local ways of managing diseases and people's coping strategies do not require such information. In the absence of veterinary services, for instance, pastoralists' have independently adopted the use of drugs to control Trypanosomosis.

Hunter: As veterinary services across Africa collapse, wildlife departments breathe a sigh of relief. Options to facilitate the co-existence of wildlife and livestock in east Africa may to a large extent depend on allaying concerns about the perceived adverse impacts of veterinary services.

Leader-Williams: What about the costs involved? What size of veterinary service to protect the health of livestock and wildlife? Ownership of wildlife puts costs onto owners and not the state.

Richards: What links are there between what people actually do, and policies? Is a network needed?

Wint: We are tending to assume that people want wildlife to exist, which is not necessarily the case.

Infield: We are failing to distinguish between development objectives, and wildlife conservation objectives. They do not necessarily go together. Poverty reduction comes about through increasing production, not conservation.

Homewood: Certain production systems are more compatible with the co-existence of wildlife and livestock than others, e.g. the Ngorongoro Conservation Area.

Hunter: Nothing is set in stone. Livestock has been heavily subsidised, we are only just beginning to realise the value of wildlife.

Floor: Livestock are harder work to look after than wildlife.

Inamdar: We are trying to take decisions for rural people. If people want to liquidate the assets on their land they should be allowed to do so.

Boyd: People's decisions are influenced by the policy environment, e. g. Zimbabwe.

General discussion on the use and meaning of the term "buffer zone": various opinions on what the term meant and whether regions adjacent to protected areas should be the focus of attention. Form of land tenure in adjacent zones important: communal, private or state.

Kock: There are obvious priority areas for attention; e.g. where substantial numbers of wildlife persist in close proximity to livestock, and where there are conflicting land uses.

Hunter: Are we trying to work in areas where wildlife and livestock co-exist, irrespective of tenure issues, or are we trying to promote the coexistence of the two in suitable areas?

Homewood: There are certain areas where we shouldn't be doing conservation, such as Mkomazi. There needs to be a re-evaluation of protected area status and justification.

Hunter: It does not make sense to promote livestock in more arid - low potential areas.

Boyd: We need to explore the potential for integrating wildlife into livelihoods in areas where consumptive tourism is not an option, and focus more on areas which have low tourism potential.

Leader-Williams: What do we mean by areas of "high" and "low" tourism potential? How does income generation vary according to different forms of wildlife use. In Tanzania, areas that are not high potential in terms of viewing wildlife, tend to get fewer, higher earning safari ventures operating and there are difficulties in ensuring that "benefits" feed back to local communities. Having said that the term buffer zone has its problems, does it make more sense for land to be defined according to its ownership?

Warburton: DFID should be the channel of communication between policy makers and NGOs. Research and its results are not being put across in ways that are easily accessible. Need to identify the many stakeholders and balance their interests.

Hunter: Who has rights to what, and what is up for negotiation? Need to put capacity building and management in the hands of the local communities concerned, but also need to recognise that "communities" are heterogeneous, and that there are various stakeholders.

Richards: Need for more face-to-face communication between people and stakeholders.

Boyd: Need to enhance local people's ability to stand up to outsiders. Wildlife departments can have an important role to play.

Kock: Is it DFID's role, or the role of anyone else living outside another country, to make decisions on how that country should run its affairs?

Inamdar: Aren't protected areas there for the times when the market fails?

General Discussion on Researchable Constraints and Priorities

Richards: We are looking for optimal strategies for the sustainable management of livestock in the semi-arid rangelands of east Africa.

- Diseases may not prevent the co-existence of livestock and wildlife, but they are nevertheless an important constraint on production.
- There seems to be more conflict between wildlife and livestock at the agro-pastoral end of the livestock management spectrum. Does conflict increase with the greater variety of land use options associated with higher rainfall?
- Is the pursuit of sustainable rural livelihoods compatible with livestock and wildlife co-existence?
- What are the impacts of land tenure on the livestock/wildlife interface?
- Charlotte Boyd's presentation livestock vs wildlife was informative. How should rural assets be assessed? On an economic valuation of resources, or the quality of life of local communities?
- What are the environmental implications of declining wildlife numbers – how does it affect the local ecology?

Lewcock: A problem oriented approach required. Difficult to define high and low tourism potential areas. May be easier to define according to tenure, and target areas where livestock and wildlife are in conflict, and people are being impoverished.

- What are the indicators for sustainable co-existence of livestock and wildlife? What about people? How are achievements to be measured? Poverty indicators? Biodiversity indicators?
- Need to ensure inter-programme co-ordination and inter-disciplinary co-operation.
- Closer links with on-going bi- and multi-lateral programmes and projects, as well as with the NGO and private sectors are also required.
- Should we be developing information and communication networks at the community level?

Floor: Sensible analysis requires reliable data and standardised collection (especially baseline data).

- Need more cross comparisons between countries and different types of resource tenure regimes.
- Importance of local ownership of research findings. Must fit in with national agenda and priorities; requires close collaboration and dissemination through local partners and communities.
- Programme Managers should clarify purposes and provide guidelines of what is required.
- Are the practicalities of wildlife use being addressed, or are DFID's purposes out of touch with the realities of wildlife and livestock in east Africa today? Are the purposes going to be updated?
- Dissemination of research findings to the full range of stakeholders is imperative; especially those local authorities and communities, who have to live and deal with the very real problems associated with livestock and wildlife co-existence.