

MALAWI

POLICIES FOR NATURAL RESOURCE

MANAGEMENT

An analysis of resource management issues
and themes for policy reform

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March 1998

Preamble: the policy spectrum

In describing the nexus of environmental problems which beset modern Malawi it is tempting to make predictions by extrapolating current trends. It is possible, for instance, to predict that halfway through the next century the last tree will have been cut, that within three hundred years Lake Malawi will have been filled with soil washed from cultivated lands, and long before either the last antelope will have been shot and the last fish caught. Predictions of environmental catastrophe ignore the enormous capacity of human society to adapt its behaviour to changing circumstances, and forget the long learning process which accompanied population growth in the developed world. Malawi is undergoing a period of rapid change, in which new and more positive relationships between rural populations and the natural resources on which they depend are beginning to emerge. It would be foolish to underestimate the difficulties which lie ahead, but unhelpful to deny the real progress which is being made. The program of policy and legal reform in the natural resources sectors in which the Government is now engaged will play an important, perhaps a deciding role in that process.

The people - the resource users - cannot bring about the necessary changes by themselves. A romantic school of thought which permeates some development planning holds that prior to the colonial era the peoples native to Malawi lived in easy harmony with their natural resources, and exercised systems of management which, if government and outsiders would only step back, would reassert themselves. This is far from the truth. While management systems did exist, they were to a large extent concerned with control over access to resources which were relatively lightly exploited, and were instruments to reinforce the social hierarchy rather than to manage resources in the modern sense. We are now concerned with managing natural systems at or close to the maximum of sustainable production, a task which requires a broad range of technical skills and implies a major role for government into the foreseeable future.

The Malawi Constitution of 1995 lays a strong foundation for policy and legal reform in environmental governance. Section 13 declares:

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“The State shall actively promote the welfare and development of the people of Malawi by progressively adopting and implementing policies and legislation aimed at achieving the following goals -

(e) To manage the environment responsibly in order to -

(i) prevent the degradation of the environment;

(ii) provide a healthy living and working environment for the people of Malawi;

(iii) accord full recognition to the rights of future generations by means of environmental protection and the sustainable development of natural resources; and conserve and enhance the biological diversity of Malawi.”

The National Environmental Policy (NEP), developed from the National Environmental Action Plan (NEAP) and approved by Cabinet in 1996, was the first clear statement by the Government of Malawi of the central principles of environmental and natural resource management policy, developing in more detail the provisions of the new Constitution. The policy elaborates the rights and responsibilities of individuals and communities in the management of the environment; states Government’s responsibilities in environmental planning, impact assessment, audit and monitoring, and outlines primary policy objectives and strategies in a number of key sectors. The development of the NEP as an umbrella or framework policy was well timed to precede policy reforms in most of the environment sectors, enabling sectoral reforms to proceed in a harmonised and co-ordinated fashion rather than as piecemeal developments.

The Environment Management Act (1996) is the instrument through which the NEP is implemented. It gives strength to the principles outlined in the NEP, to the extent that wherever sectoral legislation conflicts with the EMA the latter shall take precedence. It provides for the creation of regulations on all aspects of environmental management, so that gaps or inconsistencies in sectoral legislation may be easily rectified. It creates, for the first time, a firm legal framework for environmental impact assessment and environmental audit. Most importantly, it establishes a National Council for the Environment with considerable powers to mediate in situations of conflict, and it accords to the Environmental Affairs Department responsibility for the co-ordination of environmental monitoring, interventions and investments in the environment/natural resources sectors and environmental education and awareness-raising. Just as the NEP provides a structural framework for policy development across many sectors, so the EMA provides a legal framework for the development of new sectoral legislation.

Sectoral policies for natural resource management fall into three categories. Those which relate to the harvesting of **biologically renewable resources** - forests, wildlife and fish - share many common characteristics and are each concerned in part with maximising the sustainable productivity of the resource base and in part with conserving segments of the resource for other purposes, for instance catchment protection and the maintenance of ecosystem function and biodiversity. Over-exploitation of biological resources has hitherto been associated with their open-access nature under state control, and it is here that policy reform aims to take radical corrective action by progressively transferring resource tenure, and the responsibility for resource management, from the state to the primary resource user. Associated secondary reforms concern the way in which government sets out to achieve sustainable utilisation, and

are concerned with the development of public-private-NGO partnerships and the encouragement of private sector investment in natural resources.

Land use and management policies, more specifically those which relate to soil and water conservation, form a distinct second category which has changed little over the past three decades. Following a clear shift post-Independence from regulation to extension, and a more recent transfer of emphasis from conservation for its own sake to conservation as a means to improve productivity, there now appears little room for fundamental reform. Reform in the current context is therefore associated mainly with raising the profile of soil and water conservation in the agricultural agenda.

The third group of policies are not directed primarily at natural resource management but may in fact have more influence over the way in which resources are used than specific sectoral instruments. Foremost among these are **land tenure** policy, currently under review, and the **liberalisation of agricultural production and markets**. There are clear links between land tenure and the tenure of land-based resources, and also, although this has not been clearly demonstrated in Malawi, there may be a relationship between the security of land tenure and the degree of farmer investment in sustainable land management. The ongoing process of liberalisation in the agriculture sector has had a profound influence on cropping patterns and provides new opportunities - possibly even new incentives - for diversification, intensification and better land management, particularly in land-constrained areas.

Sectoral issues

Land

At eleven million, Malawi's population has doubled in the past two decades and continues to grow at a frightening pace - even the most optimistic projections forecast a population approaching twenty million by the year 2020. Eighty-five per cent of the population derive their livelihoods from rural occupations, mainly farming, and of these the great majority are smallholders who occupy land administered and allocated by traditional authorities in accordance with customary law. For these people population growth translates directly into increasing pressure on land and land-based natural resources. Land policy, especially policies relating to land tenure and land use planning, clearly have a major influence on natural resource management, and the land policy reform process currently under way will to a large extent shape the future of Malawi's natural resources.

The reform process comprises three parallel initiatives: technical and legal reviews conducted by the Ministry of Lands, Housing, Physical Planning and Surveys (MLHPS); political consultations and analysis carried out by a Presidential Commission of Inquiry on Land Policy Reform (LPRC) and supported by UNDP, Danida, FAO and the World Bank, and technical and socio-economic investigations financed by the DfID (UK Government: estate lands), the EU (customary lands) and USAID (public lands). The LPRC is expected to report to the President in May 1998, whereafter the finalization of the new policy will be guided by the MLHPS. The new land policy, however well-informed, should not be expected to solve all problems in the land sector. Just as in the past land tenure issues have been shaped largely by macro-economic and agricultural policies, the success with which a reformed land policy is able to address present and future land use problems will depend upon supporting changes in social and economic development strategy.

The problems of land pressure have been exacerbated by the progressive alienation of land from the customary sector into the more recent land tenure categories of private land (freehold and leasehold

estates) and public land (mainly protected areas: National Parks, Wildlife and Forest Reserves). Thus, while the rural population has been increasing, the amount of land available to them has been declining. In economic terms, competitive interactions are most intense between smallholders and the estate sector, since both demand land of high agricultural potential. But increasingly there is competition between both the smallholder and estate sectors and the protected areas, particularly where the latter adjoin areas of high rural population density.

Land policy issues which have a special bearing on the management of natural resources include the following:

- *What is to be the economic future of Malawi's rural population?* Until now there has been no policy - the rapidly growing rural population has simply expanded into the space available to it. Agriculture is extensive and productivity low, and the expansion of smallholder farming into marginal or unsuitable lands has already had large negative impacts in increased soil erosion, the reduction of surface water supplies and siltation in rivers and Lake Malawi. Clearly this cannot go on indefinitely. Making more space available to smallholders will not solve the problem, merely defer it, and any policy to redistribute land should be viewed only as a short-term expediency to buy time while more radical policies for economic development are put into effect.² A recent analysis of the prospects for economic growth performed by the World Bank (1997) concluded that in the longer term growth in both output and employment will have to be outside of agriculture, although in the short term the smallholder sector will be required to provide sufficient momentum to carry the economy beyond its historic agriculture-dependency: *"while the ultimate destination may be a vibrant non-agricultural economy, the path to the destination leads through more emphasis on smallholder agriculture in the short run."* It is important that we do not lose sight of the destination.

The growth of the landless class should not be resisted, but should rather be planned for and built into the nation's economic development through programmes of industrialisation, urbanisation and agricultural intensification. In the long term, given the projections for population growth and the finite nature of Malawi's land endowment, landlessness will inevitably be the lot of a growing proportion of the people. The recognition and acceptance of this fact is government's responsibility and a challenge for economic planners: the alternative, to ignore the problem or to keep it at arm's length by resisting urbanisation, will incur heavy social, political and environmental costs as rural poverty deepens and the resource base declines.

- *What is the appropriate balance between estate and smallholder agriculture?* The expansion of the estate sector (from 51,000 ha pre-Independence to 300,000 ha in 1979, 843,000 ha in 1989 and around 1.2 million ha in 1996), driven by successive peaks in world tobacco prices combined with an agricultural policy which denied smallholders access to burley tobacco production, displaced smallholders from areas of higher to areas of lower productive potential, and, more importantly, progressively reduced the area of land suitable for smallholder expansion. A more subtle indirect consequence of estate expansion has been the erosion of land tenure security in the customary sector. Many progressive smallholders now see land registration as the only way to secure the holdings they already farm, and the liberalisation of burley tobacco production appears to have had little impact on the growing demand for very small leasehold plots.

² An Inter-Agency Working Group on Protected Areas (comprising individuals drawn from Government, NGOs and donors) estimated that the redistribution of all under-utilised estate land plus all protected land which could sustain agriculture would accommodate rural population growth for between ten and fifteen years, after which, unless alternative remedies had been successfully initiated, land pressures would have returned to present levels and would thereafter increase rapidly.

Of the land occupied by tobacco estates (about 95% of the total estate area), Gossage (1997) found that in 1996 almost one third had never been cleared from virgin bush, and a small proportion (3%) were abandoned or dormant. A crisis in the estate sector resulting from new competition from smallholder burley producers is likely to result in further abandonment or in low levels of utilisation among the less efficient operators. It has been suggested that a means should be found to restore such “under-utilised” land to the customary sector. World-wide, redistribution from large land-holders to the land-poor has been much less successful than the transfer of state-owned land, because of the commercial and political resistance to change (Gaiha, 1993). But the circumstances in Malawi's leasehold estate sector are rather unusual, in that the land identified as “under-utilised” is not currently being farmed, merely held for possible future use; moreover, it is retained against a leasehold rent far below its informal market value³ or, in many instances, rent-free. An opportunity clearly exists therefore to precipitate the release of unproductive land merely by increasing (and collecting) the rent. Relinquished leasehold land would revert to state ownership, and although the Land Act does provide for the restoration of public land to the customary sector this currently requires the Minister's intervention, and a more streamlined mechanism would be required. We should be cautious, however, in assuming that unfarmed bush on estates serves no present purpose: according to Peters⁴ some estate forests in southern Malawi provide the only source of fuelwood for surrounding villages on customary land, as well as many non-wood resources.

- *What role should protected areas play in the national land budget, and would some of the land currently under protection be of more value to Malawi in agricultural use?* Protected areas now comprise almost 2 million ha, or 21% of Malawi's total land area. In regional terms this is not exceptional, but in Malawi the high density of population means that, *per capita*, the area under protection exceeds that in any other southern African state (Bell *et al*, 1997). The boundaries of many of Malawi's protected areas were laid down long before land pressure had become a serious issue, and there has been no systematic attempt to assess their roles or performance for more than fifty years⁵. In this context certain questions are no longer avoidable. What are the benefits of protection, and do they outweigh the benefits of other possible uses of land currently removed from agricultural production? Who are the beneficiaries of protection? Does continued protection in every case serve the best national interest? Conversely, what are the environmental and economic costs of poor land husbandry, and are there areas of customary land which should now be brought under protection?

In a memorandum to the LPRC, the Inter-Agency Working Group on Protected Areas suggested that a primary evaluation of protected areas be made on the basis of agricultural suitability and erosion hazard. Thus, only those lands currently protected which are suitable for agriculture and which could be farmed without an unacceptable risk of erosion would be subjected to a more detailed environmental and economic cost-benefit analysis for alternative land-use options. The evaluation would also identify land which is unprotected but which should not be cultivated, and the feasibility and desirability of conferring protection assessed. It is clear from the form of the analysis and the nature of the criteria recommended that if this approach were adopted certain characteristics of the present protected areas would be retained or encouraged, while others would be lost. Although the extent of change cannot be predicted with confidence, the direction of change is evident. Thus:

³ Evans (1997) found that smallholders in Mulanje and Mponela were renting plots of 0.2 to 0.8 ha @ MK625/ha and MK375/ha respectively. The current leasehold rent is MK50/ha.

⁴ Pauline Peters, 1997, personal communication.

⁵ In 1946 a Game and Forest Reserves Commission was established to examine and report on the suitability for retention of all existing protected areas.

- Mountainous areas, steep slopes and fragile catchments would receive continued protection, and this might be extended to include other vulnerable areas which are currently unprotected.
- Flatter, potentially arable areas would be recommended for removal from the system if their economic performance would be significantly improved under agriculture, unless adequate compensation for non-development were to be identified or unless they were shown to have unique unquantifiable values. The retention of protected areas on “unquantifiable” grounds alone would be unlikely to extend to large land areas.
- A premium would therefore be placed on productivity, in one form or another: either directly, through the sustainable supply of resources to boundary communities, or indirectly, via tourism.

A continuing constraint to the formulation of land policy is the lack of knowledge on some of the major variables. Of particular concern is the current confusion surrounding estimates of the amount of land allocated to, and cultivated by, smallholder farmers in the customary sector. On the basis of 1995 aerial photography, the first Customary Land Utilisation Study (GFA, 1997) estimated that 3.4 million ha of customary land was cultivated in 1994/95 - given prior knowledge of land suitability this indicated saturation of the customary sector and implied immense pressure on protected lands in the immediate future.⁶ A second study, using the same data, estimated the area cultivated to be only 1.8 million ha. (BDPA, 1998), implying that issues in customary land use should take precedence over the reassessment of public or protected lands. The official view is that the second study was correct and the former in error, but in reality there is now little confidence in either. A second concern is that it is not known how the present disposition of agriculture and protected areas relate to the national pattern of agricultural suitability and erosion hazard. A methodology for performing this analysis was developed during the course of the Public Lands Utilisation Study, but it has yet to be applied on a national basis. Although both of these issues relate more to the strategic end of the policy spectrum than to matters of fundamental principle, the failure to resolve them makes it impossible to set priorities within the emerging policy framework.

Soil and water

Soil erosion, and its direct consequences in the loss of soil fertility and the depletion of water resources, has been recognised as a serious problem in Malawi for many years. Most recently, the draft State of the Environment Report (MoFFEA, 1998) concludes that much unsuitable or marginal land is under cultivation, that physical soil conservation measures are poorly observed (with only 12% of ridges on contour) and that agroforestry practices are limited by the poor availability of planting material. The report restates the earlier findings of the National Environmental Action Plan (NEAP, 1994) and the World Bank’s generic study of the economic costs of environmental degradation (1992), both of which ranked soil degradation as the most serious environmental problem facing modern Malawi. It also frankly admits that quantitative data on the status of soil and water resources, and on temporal and spatial trends, are “very scarce”.

Concern about soil erosion is not new. According to Vaughan (1987), “*In colonial Malawi a commonplace of European thought since the 1890s was that African farming practices were dangerously destructive of the environment.*” Articles on soil erosion had appeared in the

⁶ It also implied that the MoAI’s estimates of either cropped areas or yields/unit area were in error by around 90%.

Nyasaland Times as early as 1924, and ten years later the Assistant Director of Agriculture⁷ wrote:

“Owing to denudation of woodland areas, the gradual destruction of forest and sudden floods, the country can be said now to be incapable of supporting one half of the population it did one hundred years ago. It will not be many years at the present rate before the limit of possible food production will be reached. ... It is computed that much of the highland areas of Nyasaland is now losing soil at the rate of a quarter-inch layer⁸ per annum.”

Physical remedies for soil erosion, and agricultural practices to minimise erosion risks, were well known even then. Early responses to the perceived problem commenced with extension, but without continuous supervision these efforts produced only short-lived results, and extension gave way to regulations which were enforced with heavy-handed vigour during the latter part of the colonial era. Even after Independence the 1965 Land Act made specific provision for *enforceable* standards of land husbandry to be applied on both customary land (through the “Rules of Good Husbandry”) and leasehold land (through specific covenants which form part of the standard lease agreement). In practice, neither were ever enforced, and extension was quickly restored as the norm.

Current policy regarding land use and management are stated in the 1995 Strategy and Action Plan of the (then) Ministry of Agriculture and Livestock Development, and in the same Ministry’s draft Land Use and Management Policy (LUMP), dated February 1996. The former document contains only tangential reference to the conservation of land resources. Under its list of twelve key actions for successful strategy implementation, the “promotion of land productivity and environmental protection” appears last, and although an environmental policy is outlined towards the end of the Action Plan it is nowhere embodied in the main sub-sectoral strategies which comprise the priority areas for action. Similarly, the Department of Agricultural Extension and Training’s Five Year Extension Strategy Plan (1993) listed soil conservation as the last of six extension policy aims. The draft LUMP stresses the importance of sustainable land use, promotes the periodic review of land use and agricultural policies with respect to likely environmental impacts and proposes the creation of a National Land Use Management Board.

Over the past three decades the only fundamental change in land use policy has been a very recent shift in the extension emphasis away from conservation for its own sake towards conservation as a means to improve productivity, spearheaded by advances in agroforestry. Beyond this, both past policy shifts and the current policy debate have been confined to the balance between persuasion and coercion and the prominence of soil and water conservation in the mainstream agricultural agenda. Current thinking may therefore be summed up as “more of the same”.

If almost a century of law enforcement and extension have failed to alter most farmers’ attitudes to soil and water conservation, it is time to question whether “more of the same” is an adequate response to carry into the new millennium. It is not suggested here that the continuing extension effort should be relaxed, but that additional attention should be focused on:

⁷ A.W. Hornby (1934), quoted in Berry and Petty (1992).

⁸ Equivalent to about 200 tonnes/ha.

- what makes those farmers who do practice soil and water conservation measure different to those who do not, or, put another way, what sets of ecological and economic conditions make good land management an attractive business proposition?
- to what extent has the liberalisation of the agriculture sector created new incentives for improved land management, and how can these best be exploited and extended?
- if, as the second CLUS study indicates, there remains a considerable amount of uncultivated but suitable land in the customary sector, why is it unused? Who is farming the marginal and unsuitable lands - are they the younger farmers whose family plots cannot be further sub-divided or are they better-off farmers for whom marginal lands offer the only opportunity for expansion? Can technical advice on land suitability be introduced into the land allocation process, and can fragile lands be conserved through a local-level regulatory system which falls short of statutory protection?⁹
- is soil research keeping pace with changes on agricultural land? It has recently been suggested that the reconstruction of planting ridges over many years on the same land may have produced a compaction layer below the level of hoeing.¹⁰ The compacted layer, if impermeable to both water and the roots of crops, would deny the crop access to water during dry spells but subject it to water-logging during periods of normal rainfall, while surface soils would remain highly vulnerable to erosion. The economic and environmental implications here are potentially enormous, but technical remedies can not be recommended before the completion of appropriate field research.

The behaviour of government closely matches that of smallholder farmers - it understands the need for soil and water conservation, but ranks it a low priority in comparison to production and marketing. Since this is unlikely to change, soil and water problems will not be solved quickly, but to some extent they may be more amenable to carefully targeted interventions which link better land management to higher farm incomes, that is, interventions which transform soil conservation from a duty into an economic activity.

Forests

Policy issues in the forest sector mostly derive from a single fundamental problem: the national demand for forest products (mainly biomass for energy purposes, but also poles for building, sawn timber and non-timber forest products) exceeds the current sustainable production by a factor of (about) two. The shortfall is met by the liquidation of growing stock: thus two factors - population growth and the depletion of the resource base - combine to exacerbate the imbalance at a rate which is exponential rather than linear. From this point the problem is usually split into two components: over-exploitation or resource mining in the customary forests, and the failure of private-sector plantation forestry to come to the rescue. These components are very closely related.

For many years deforestation in the customary sector has been a matter of forest clearance for agricultural purposes, ie a more or less permanent change in land use. The conversion of indigenous woodlands produces a one-off harvest of between fifty and one hundred times the sustainable fuelwood yield per unit area.¹¹ Although technically only a by-product of agricultural expansion, this supply has been sufficient to mask the imbalance between demand

⁹ This issue is due to be explored in a consultancy to commence in April 1998 with supported from UNEP and USAID/NATURE.

¹⁰ F. Shaxson, 1998, personal communication.

¹¹ For *miombo* woodland, the standing stock might be 50-100 m³/ha, while the mean annual increment (MAI) is usually between 0.5 and 2 m³/ha.

and sustainable production for many years, and only quite recently has fuelwood supply become problematic in southern Malawi where very little forested customary land remains. Partly because of the apparently limitless “by-product” supply and partly because of the perception of customary forests as an open-access resource, fuelwood and other forest products have been consistently under-valued and equally consistently over-exploited close to centres of demand. Because trees are both immobile and highly visible, the depletion of forest resources has attracted considerable public attention.

The Forestry Department was the first GoM institution to introduce a radically altered policy which clearly transfers resource tenure from the government to the people under well-defined conditions for sustainable management.¹² The policy was approved by Cabinet in January 1996, and was embodied in a new Forestry Act passed by Parliament in April 1977. Implementation of the new policy will be a major undertaking, implying as it does a major reorientation of the Forestry Department from a policing to an extension role. It must be anticipated that the uptake of community forestry will be a slow process, and it must be understood that until it is complete all customary forest which is not so managed (ie which is not covered by Village Forest Agreements) will remain under the control of the state. In the short term, therefore, policing will remain an important role for the Forestry Department.

Community management of customary forests is only part of the answer to the provision of a sustainable supply of forest products. Even if all of Malawi’s forests, both the indigenous woodlands and exotic plantations, were actively harvested on a sustainable basis, the production of fuelwood, poles and timber would still fall a long way short of current demand. In the medium and longer term the only way in which Malawi can hope to be self-sufficient in forest products is through a rapid expansion of the plantation sector,¹³ possibly to cover 0.5 to 1 million hectares.¹⁴ It has been claimed that the spontaneous development of private-sector plantation forestry has been prevented by former GoM pricing policies, under which output prices on state-owned plantations were subsidised in an attempt to compete with the (mostly illegal) trade in indigenous products. But in reality the primary constraint has always been the ready availability of “bush timber” which no-one owned or valued. This is the essential link between the new community ownership policy¹⁵ and the prospect for long-term self-sufficiency in forest products: *until the prices of indigenous wood products are raised to approach their economic values through the closure of access to the customary forests, private sector plantation forestry cannot begin to assume its vital role in the production system.*

Although implementation of the “community ownership” principle has barely begun, fuelwood scarcity in some parts of southern Malawi has already strengthened prices to the point at which trees have become a viable cash crop, and in a very small way the plantation industry can be said to have started.¹⁶ Of course it will be essential for government to avoid

¹² These conditions include the creation of Village Natural Resources Committees, the demarcation of Village Forest Areas and the development of forest management plans, and the conclusion of Village Forest Agreements.

¹³ Exotic plantations typically yield 10-25 m³/ha, ie productivity is an order of magnitude higher than that of the indigenous *miombo* woodland.

¹⁴ P.D. Hardcastle, former director of the Forestry Research Institute of Malawi, in a presentation to the E/NRM donor group, USAID Lilongwe, March 1998.

¹⁵ Although the term “community ownership” is used here, the new policy and legislation provides also for the ownership of customary forest resources by individuals.

¹⁶ Thus, even if community forestry were to fail, the exhaustion of the customary forests will automatically raise prices sufficiently to trigger investment into plantations: this was French’s rather gloomy prediction in 1984.

undermining this process by under-pricing the products of the industrial plantations, and the best way to ensure this would be to privatise them as soon as possible.

Wildlife

The wildlife sector in Malawi should be viewed from two standpoints: that of the conservation of biodiversity and that of the sustainable utilisation of a natural resource. Inside protected areas wildlife is considered primarily as a biodiversity resource, although sustainable utilisation may be one effective means of achieving conservation. Outside the protected areas the balance is reversed, and it is usual to consider customary wildlife areas (and game ranches) primarily in terms of their sustainable productive capacity. From either standpoint the wildlife sector is currently in very poor shape.

Within the protected areas (National Parks, Wildlife and Forest Reserves - 21% of Malawi's land area) the government simply does not have the resources to manage wildlife effectively. A number of wildlife practitioners have tried to calculate the costs of providing adequate protection to wildlife areas. While this may be a simplistic approach the fact remains that the entire DNPW recurrent budget is only a fraction of the lowest estimate for protecting the wildlife in Malawi's National Parks and Wildlife Reserves. The protection of wildlife in Forest Reserves is even less satisfactory. High and unsustainable levels of illegal hunting in Malawi's protected areas have led to a dramatic reduction in wildlife resources, confirming that current funding levels are insufficient to provide protection.

DNPW's draft wildlife policy emphasises initiatives to integrate boundary communities into the management of National Parks and Wildlife Reserves. It also seeks to reduce antagonism from such communities by promoting benefit-sharing and permitting controlled access to minor resources. Hunting, though, is an occupation of individuals rather than of communities, and the elimination of hunting in protected areas through community peer pressure may be difficult to achieve. Further, hunting may be conducted by individuals from outside the boundary communities.¹⁷ It is unrealistic, therefore, to expect the introduction of a co-management regime to reduce requirements for the active protection of wildlife in the immediate future.

In order to address this issue three policy options are available to the government:

- (1) *Increase the level of revenue funding* directed to wildlife protection. While government allocations to the wildlife sector are not expected to increase much in the short term, tourism revenues may well do, and the implementation of a revenue retention scheme and the establishment of wildlife trust funds may serve to reduce the current reliance on central government financing.
- (2) *Reduce the area protected* in order to concentrate financial and manpower resources on only the most important wildlife areas; ie de-gazette those areas which have the least conservation value. The leasing of selected protected lands for game ranching could provide a tactical compromise in which land use would remain wildlife-oriented but the responsibility for protection would pass from the state to the leaseholder.
- (3) *Offload as many of the protected area functions as possible*, focusing Government's role on research, management and the provision of a para-military wildlife protection service. This may be achieved through privatisation or through the development of strong partnerships between the Government, NGOs, CBVOs and the private sector in the fields

¹⁷ For instance, hunters in the Karonga hill country now make two-day treks into the outer slopes of the Nyika National Park because they have exhausted the wildlife resources in their home localities.

of infrastructure maintenance or incentive bonus or collaborative schemes for anti-poaching operations.

Outside the protected areas the existing situation is equally unsatisfactory. The provisions of the 1992 National Parks and Wildlife Act, which regulates hunting methods, specifies huntable species and imposes a licensing scheme, annual quotas and bag limits, give a misleading impression that a management system is in place, where in practice there is none. The 1992 Act serves only to regulate the activities of those sport hunters who chose to comply with its provisions. The vast majority of hunting is conducted by subsistence or small-scale commercial hunters whose activities are not controlled in any way. The result has been a rapid depletion of wildlife resources in the customary areas; much faster than the rate at which wildlife habitat has been lost.

Government is likely never to have the resources to manage wildlife in the customary areas, but the existing legislation provides no mechanism for the Director of National Parks and Wildlife to delegate his authority for wildlife management. Recent wildlife consultation meetings showed a number of avenues for the devolution of management authority to Traditional Authorities or CBOs, and the draft wildlife policy includes specific reference to the establishment of Multiple Use Wildlife Areas (MUWAs) by community groups. This promising theme of the draft policy is attended by two issues:

- (1) What will be the mechanism for handing over management authority and the associated utilisation rights? The 1997 Forestry Act's *Forest Management Agreement* could provide a model, but there is a strong risk of indefinite delay if the agreement is subject to the negotiation of a management plan and a formal assessment of wildlife resources. Is it feasible to develop a "fast-track" system for designating community-based wildlife management authorities on a provisional basis, subject to satisfactory monitoring reports and the subsequent development of a formal management plan? This would avoid administrative delays and recognise that *any management is better than no management*.
- (2) Although in Malawi the potential for generating revenue from sport hunting does not match that in neighbouring states, there nevertheless exist some opportunities for incorporating sport hunting in community-based wildlife management on customary land. If this activity forms part of a MUWA plan, who should administer hunting rights and control access? Should government retain this role under a revenue-sharing arrangement, or should government merely license the hunter, with the animals to be hunted being purchased from the community management authority?

Fisheries

Malawi's fishery resources support a substantial fishing industry which provides direct and indirect employment to more than 200,000 people and makes an important contribution to the nation's nutrition.¹⁸ Yet these resources are capable of sustaining a level of biological productivity substantially exceeding current harvesting levels. The reasons for this sector's disappointing performance are diverse and widely misunderstood. The popular perception of the fishery sector is that it is oversubscribed, and that the stagnation of annual yields at around 70,000 tonnes despite a sharp increase in the numbers of fishermen and fishing craft is, in itself, evidence of over-fishing and declining fish stocks. Yet direct assessments of the fish stocks of Lake Malawi (by means of research trawling or acoustic surveys) reveal an overall increase in biomass since the early 1970s.

¹⁸ Since the 1970s fish has been quoted as comprising 70% of Malawi's animal protein intake. Although this statistic is now outdated, fish remain a major constituent in the national diet.

These apparently conflicting views are reconciled by the observation that the level of technology applied to the fisheries has fallen visibly over the past two decades. During the early 1990s government withdrew from or scaled down its provision of services to the fishing industry (ice and fishing gear supply, boatbuilding, etc.) Although this was intended to encourage the development of private sector support enterprises the results have been mixed, and *an acute shortage of stable fishing craft is now contributing to overfishing on the inshore shallows of Lake Malawi, leaving resources further offshore generally under-exploited.*

Over-fishing of some species creates new opportunities for others to fill feeding niches, and a recent and intensive reassessment of demersal stocks (Banda and Tómasson, 1997, 1996; Tómasson and Banda 1996) indicates that in Lake Malawi, despite declining catches of some commercially valuable species, the overall fish biomass has probably increased over the past two decades. In summary, the authors concluded:

- in the southern parts of the lake the growth of the artisanal fisheries in those areas not fished by the trawl fleet has had no detectable impact on biomass, and exploitation cannot be considered heavy.
- in those areas where the trawling effort has been most intense (parts of the South East Arm) biomass has been reduced by about 15% from the virgin stock. Additional stocks have been quantified for the deep-water trawl fishery, conservatively estimated at 4-5,000t in the southern parts of the lake and 2,000t in Domira Bay.
- with the exception of areas very close inshore, demersal stocks in the central and northern parts of the lake appear to be in a near-virgin condition - ie the level of exploitation is negligible.

The status of the fishery resources has been discussed at some length because an over-reaction to fears of excessive fishing pressure in both the artisanal and “commercial” sectors and a confused strategy for the privatisation of support services led to inappropriate policy responses during the 1990s which have compounded the problems of fishery management, particularly on Lake Malawi. The failure of artisanal and small-scale commercial fisheries to advance in technology, range and efficiency in order to exploit known stocks of demersal fish represents a wasted opportunity to contribute to the nation’s economy and nutritional status. The reasons for this failure are not well understood and may be of socio-cultural origin: extended family responsibilities inhibiting capital accumulation in a rural context of pervasive poverty and increased dependency related to AIDS. Development of the industry is likely to be a better way of achieving sustainable resource management than simply controlling or restricting fishing effort, although a (commercial) injection of capital will not be enough by itself to achieve development because the necessary support services, having been “privatised” are no longer adequate. The resolution of government’s role in stimulating diversification and growth is an important medium-term policy issue.

Another issue requiring urgent resolution concerns the permissible level of investment into larger-scale commercial fishing to exploit known deep-water demersal and pelagic stocks. The risks of development are associated with our lack of knowledge of how currently unexploited species will respond to fishing pressure, indicating that a closely monitored expansion within carefully defined limits would be appropriate. To date only one privately-owned vessel with the capacity to fish pelagic and deep demersal stocks has been licensed, and this on the condition that certain older vessels under the same ownership were removed from service. There are clear scientific recommendations for controlled expansion, investors waiting for clearance to proceed, and, in between, the need for an explicit policy for risk management.

Although not directly related to the sustainability of production, there is also a biodiversity issue associated with overfishing. Heavy fishing pressure on complex multi-species fisheries alters the species composition of fish stocks (usually by selectively removing the larger species), and there is a real likelihood that species are being lost in inshore areas subjected to intensive fishing. A further threat to both sustainable production and biodiversity is the siltation of rivers and some previously rocky lakeshore areas as a result of soil erosion and increased runoff. A number of commercially valuable and endemic species are in decline as a result of the siltation of spawning grounds in the major rivers. Many smaller rivers which once supported commercial fisheries now flow only briefly during the rainy season, the usual consequence of which is the total loss of fish production.

Of all the natural resources sectors the fisheries sector is probably the most advanced in the establishment of working co-management initiatives. An experiment in fisheries co-management initiated in 1993 on Lake Malombe produced such encouraging (and widely publicised) results that several similar ventures have arisen spontaneously in other areas, on the initiative of fishing communities. The first was on Lake Chilwa in 1994, and this was followed in by new community-led ventures at Lake Chiuta in 1995, and at Chia Lagoon and in the Lower Shire valley during 1997. A traditional fishery management regime has been in existence at Mbenji Island (Lake Malawi) since the 1950s, and the current leader, Sub-Chief Msosa, still maintains a closed season and imposes strict regulations on the artisanal fishery (Scholz *et al*, 1997). It is the intention of the Fisheries Department to support and advise these groups in preparation for the negotiation of formal shared management agreements.¹⁹

Because of the mobile nature of fishery resources and fact that they are therefore shared between many communities, they are not amenable to small-scale management exercises in the way that, for instance, forests are. However diligently one village may control the activities of its fishermen, their rewards are entirely dependent on the actions of neighbouring villages or even distant communities who fish the same stock. For this reason, fisheries are usually managed by a central body - the state. It is no accident that co-management started in Lake Malombe. The fisheries of Lake Malombe are relatively distinct from those of adjoining waters, they were in a state of serious decline, and the area was sufficiently restricted to make a dialogue between all of its fishing communities feasible. Fishermen were so concerned by the loss of their livelihood that they were very willing to work with government officials to develop a solution which was both technically sound and economically workable. The strength of the experiment was that fishermen learned the basics of fishery science and they came to believe that their own actions could alter a bad situation for the better. Most of the other more recent co-management initiatives have had similar characteristics. The extension of participatory fisheries management to Lake Malawi,²⁰ where neither the incentives for co-management nor the obvious opportunity for stock management exist to the same degree, will present a more serious challenge.

Although the principles of fisheries co-management are now established in law, the practical details of implementation, which have yet to be defined in the subsidiary legislation, raise difficult issues concerning the powers of community management authorities over their own membership. Communities in Mangochi and Nkhatakota Districts have not only policed their own members but have also tried offenders and fined them. Inasmuch as this is indicative of the strength with which the management ethic has taken root it should be regarded a very positive development - the task now remaining is to rein in the communities' powers within

¹⁹ In the first of such agreements, regulations for the management of Lake Malombe, negotiated between the Fisheries Department and the Lake Malombe Fishermen's Association, were gazetted in July 1996.

²⁰ due to commence in 1998, with assistance from GTZ.

the bounds of the Constitution without undermining their new enthusiasm for NRM.

Cross-cutting issues

Poverty

People who are desperate, or who live in a state of deprivation, cannot be expected to manage natural resources in a responsible way or to look further than the immediate benefits of resource use. The downward spiral of poverty → unsustainable exploitation of natural resources → declining resource base → increased poverty is exemplified in many ways in Malawi. Where poverty is the main factor foreshortening the time-preferences of resource users environmental education alone will avail nothing. The man who cuts down his own mango tree for fuelwood has little need of advice. But the relationship between poverty and poor resource management translates into a fundamental imperative for policy reform: that is, as far as possible new policies for NRM should result in increased tangible, short-term benefits for rural populations. An important corollary of this is that advantage should be taken of every opportunity to turn part of the increased cash flow into the rural economy resulting from other policy reforms (specifically, the liberalisation of agricultural production and marketing) into reinvestment towards better resource management. A good example of this is the potential for agricultural intensification, including agroforestry and improved land husbandry, afforded by the recent boom in horticultural crops in land-constrained areas serving the expanding urban markets.

Political transition

The machinery which maintained Kamuzu Banda's authoritarian one-party state also played a substantial role in maintaining civil order and protecting some, at least, of the nation's natural resources²¹. The transition towards parliamentary democracy brought with it some undesirable consequences for natural resource management. Central Government's more vigorous efforts at law enforcement were strongly equated with the former regime, and, after the transition to democracy, were visibly relaxed (most obviously in the forest sector). Further, irresponsible political campaigning prior to both the 1994 Referendum and the 1995 election encouraged a wanton "help yourself" attitude to natural resources and discouraged the community responsibility or "self-help" ethic which had been promoted previously. In general, "democracy" came quickly to mean "licence".

At a series of awareness-raising workshops hosted by the former MoREA during 1996 an attempt was made to sensitise politicians²² to the most urgent environmental problems and some of their more direct impacts on the national economy. But although the workshops were considered successful, and their published recommendations raised many pertinent questions in Parliament, this has not translated into any discernible shift in Government priorities (as demonstrated in the recurrent budget) towards better natural resource management.

Illegal commercial operations

²¹ It may be argued that rigorous policing had a positive impact in controlling the commercial-scale exploitation of fuelwood and, to a lesser extent, wildlife resources. But no attempt was made to enforce legal provisions for the proper use of land and

²² The series of three workshops was opened by the Vice President, and attendance included 14 Cabinet Ministers and more than 100 Members of Parliament.

Not all of Malawi's problems in natural resource management stem from poverty or inappropriate policies. Commercial interests were quick to take advantage of the virtual abandonment of law enforcement to establish substantial illegal fuelwood operations, both on customary land and in Forest Reserves. These operations are reported to be urban-based (or at least financed from urban sources), are mechanised and, in some instances, armed. They are of a larger order of magnitude than those directed at wildlife, which are in most cases an expansion of "traditional" village level hunting businesses. However much power is devolved to communities to manage their own natural resources they will remain poorly equipped to deal with powerful outside interests, and government will need to retain sufficient law enforcement capacity to protect community NRM initiatives from the threat of theft.

Broad principles of policy reform

Resource tenure

A theme common to the new or developing policies for management of the biologically renewable resources (forests, wildlife and fish) is the progressive transfer of resource tenure from the state to the primary resource users, *ie* private landowners, communities, groups of communities or user associations. The underlying premise is that state control of natural resources encourages, *de facto*, an open access to the resource, whereas localised tenure systems imply restriction of access and therefore afford a realistic opportunity for responsible management. The devolution of tenure does not mean an abdication of state responsibility. The handover of utilisation rights will be matched by a handover of management responsibilities through a formalised system of management plans to be mutually agreed between the state and the resource users. In practical terms the partition of rights and responsibilities between state and user will lie somewhere on a continuum bounded at one extreme by total state control (as, for example, in the core zones of protected areas) and at the other extreme by total community control (as in functioning Village Forest Areas). Between the extremes lie various options for co-management, in which both rights and responsibilities are shared by the state and the users. In all cases Government will retain the overall responsibility for monitoring the effectiveness of resource management, and may withdraw tenure rights in cases where responsibilities are not being met.

The transfer process will be slow. Working with communities to sensitise them to the opportunities for NRM, develop or strengthen village-level institutions, design management plans and provide training and advice is painstaking, expensive work. Once a certain momentum has been achieved much of the sensitisation and some extension can probably be done by the communities themselves (Bell's "chain reaction" - Bell *et al*, 1997), but the size of the task should not be underestimated. In the meantime, those resources not managed by or in partnership with communities will remain the responsibility of government sectoral agencies.

Spreading the load: the partnership approach

Given government's limitations in manpower and financial resources, it is essential that the best possible use be made of the services and resources which can be provided by interested non-government agencies. Of these, the most important by far are those in the private sector, wherever circumstances favour the common interests of NRM and commercial enterprise. Current examples include:

- in the wildlife sector, tourist concession-holders in National Parks and Wildlife Reserves already make a substantial contribution towards protected area management through the provision of transport and other services to government personnel. Considerable potential

exists to strengthen such partnerships provided the terms for investment are sufficiently attractive. Both within and outside of protected areas, ecotourism could play a much stronger role in wildlife conservation than it does at present.

- the larger buyers of cash crops are beginning to develop extension networks which could be harnessed towards improvements in land management. Innovative private sector extension initiatives in agricultural production (including agroforestry technologies) and marketing have flourished in neighbouring Zambia with relatively low levels of donor support, although no attempt has yet been made to replicate this type of enterprise in Malawi (Evans, 1997).
- the estate agriculture sector has already been engaged in the multiplication of planting material for agroforestry initiatives, and with increasing pressure on the estates from smallholder competition the diversification into novel products will become more attractive. Of particular importance here could be the production of certified seed for trees and intercrops, and, ultimately, plantation forestry.

Partnerships between government and NGOs are now numerous in Malawi, and although the capacity of national NGOs remains weak there is no shortage of donor finance to assist their growth. It is mistaken to assume that NGOs - national or international - can begin to take over the national-scale extension roles of government: large NGOs would assume the very characteristics for which government is currently criticised. The strength of the NGO contribution lies in specialist skills and interests which can be harnessed to complement the broader interventions of government, as exemplified by the many NGO/donor/GoM partnerships in agroforestry, the work of TRAFFIC in the study of wildlife trade or the outreach role of the Wildlife Society of Malawi in the forestry and wildlife sectors.

New roles for Government

It is clear from the direction in which policies for NRM are moving that new roles for government are being defined by the reform process. Probably the most obvious are those associated with the shift from control to collaboration in the agencies responsible for the renewable biological resources. Here, the devolution of NRM will impose additional responsibilities on government until such time as the new management regimes become effective, after which both contraction and reorientation are indicated. Thus:

- Traditional resource management functions will remain important in the near term, but will be progressively reduced as co-management and community management initiatives come into effect. However, even in the longer term sufficient enforcement capacity must be retained to support communities in their own regulatory functions and, where necessary, to protect them from outside interests.
- An adaptable and responsive research capacity will be required in order to formulate recommendations for co-management and community management and solve site-specific problems in the field. Resource monitoring will remain a high priority.
- Increased extension capacity will be required over the medium term to help create and support devolved management structures.
- In the longer term the nature of the extension effort will be required to change towards the provision of specialist technical support. This could be achieved through the deployment of smaller, more mobile and more highly trained extension units which would eventually replace the large and unwieldy field services which, currently, government can neither support nor adequately supervise.

In general, government's interventions in the NRM sectors would be made more effective if its functions were reduced to those of guidance and appropriate regulation. In practical terms this implies paying much closer attention to policy issues, to refining and intensifying both research and monitoring, and to providing a sound regulatory framework and an enabling environment for the devolution of management functions, backed up by smaller but more professional technical support and law enforcement services. Thus, government agencies would be encouraged both to downsize and to become more professional, while the implementation of policy would rely increasingly on the resource users, the private sector and other development partners.

Implementation: context and conclusions

The setting in which the new NRM policies are to be implemented is, to say the least, difficult. Government's capacity to execute field programs in the natural resource sectors is constrained by inadequate revenue budgets and a narrow and declining senior management base which is preoccupied with a bewildering complexity of donor-driven initiatives. Law enforcement capacity is at an all-time low, and natural resources infringements assume a low priority in a national context of widespread and increasing violent crime. The judiciary is heavily overloaded and poorly briefed on the changing legal context for natural resource management. Indeed, natural resource management has enjoyed a post-democracy holiday, and if it is to be re-established in anything more than name then the devolution of management responsibility to user groups (through co-management or community management agreements) will require a corresponding transfer of authority. This implies a surrendering of power on the part of the government, something which is more easily agreed to in a conference room than put into practice, and some resistance must be expected as the development of subsidiary legislation makes clearer the partition of authority between the state and the new community-based management institutions.

As the reform process unfolds, it is also becoming apparent that much of the information necessary to refine the strategic responses to environmental problems is patchy or absent. We know very little about the distribution and characteristics of those farmers who contribute most to soil erosion, or why, after generations of extension, the adoption of better land use technologies remains low. Despite two studies on the utilisation of customary lands we do not even know how much land is actually farmed, the location of unallocated land or its suitability for settlement and cultivation. We do not know the extent to which the current fuelwood bonanza is driven by urban-financed commercial ventures or the extent to which it is simply an expression of rural poverty. Very little is known of the patterns of wildlife use on customary lands, or of the informal trade in wildlife products, or why the fishing industry has failed to develop beyond an intensive low-technology hammering of the near-shore resources, leaving alternative marketable stocks untouched. While a considerable (though insufficient) amount of data on the status of natural resources has been painstakingly collected over many years, there remains a conspicuous gap in our understanding of how decisions regarding resource use are made, an understanding which should be at the centre of our efforts to effect change.

In mapping out the course of future interventions in natural resource management it is essential to keep this rather daunting implementation context firmly in view. It is suggested that the following guiding principles should inform the design of NRM programs:

- making a good job of the sectoral policies, the legislation, and, especially, the subsidiary legislation or regulations, is of heightened priority given government's lack of natural resource management capacity and the improbability of significant improvements in the

near term. A sound, enabling legal framework which is well publicised would provide the opportunity for communities, user groups, NGOs and the private sector to

- multi-disciplinary implementation programs which require good co-ordination at the central (headquarters) level are unlikely to succeed. On the other hand, government staff in the field represent an enormous under-utilised asset which could be brought into more effective use through carefully designed interventions at District level or below.
- field implementation programs will require an intensive applied research and monitoring input if they are to get close to the mechanics of rural resource use and economy.

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