

*Report prepared for Lesotho Highlands Development Authority*



# LESOTHO HIGHLANDS WATER PROJECT



ICM wetland issues at Mohale

## *REPORT 54*

**Report prepared by Panel of Environmental Experts**

**R Hitchcock, A Inambao, J Ledger & M Mentis**

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## EXECUTIVE SUMMARY

1. The Panel of Environmental Experts (PoE) for the Lesotho Highlands Water Project (LHWP) undertook a mission from 14 to 23 March 2010.
2. The purpose of the mission was to help develop and implement critical projects being undertaken by the Lesotho Highlands Development Authority (LHDA).
3. The critical projects addressed during the mission, and the way forward on each, were briefly as follows.

LHDA Compensation PoE was asked to review and critically comment on the LHDA 2009 compensation completion report. Compensation payments for Katse, Lejone, 'Muela, and Mohale were largely complete except for some lump sum payments that required business plans that had yet to be approved. Discussions with some of the LLEs in reach 7 indicated that many of them wished to engage in road construction, latrine building, and expansion of water systems. At present, however, none of the funds from the banks are available to the communities, in spite of the fact that there have been handing over ceremonies for 28 of the 32 Mohale downstream LLEs.

Workflow system PoE was asked to review and comment on the progress made towards implementation of the compensation workflow system (flow-centric). It was found that the system was about to go operational, with tests on it having been performed and improvements having been made over the past few months. The compensation management system and the complaints system are largely in place. It is anticipated that once the system goes into effect, presumably in the next two months, handling of compensation issues and management of records will be much easier and also that the work at the field and LHDA headquarters level will be more efficient and payments and complaints resolution done in more timely fashion. Outstanding issues include (1) the cleaning up of all outstanding payments, (2) dealing with the issue of interest to be paid on late compensation payments, and (3) the accumulation and scanning of documents, which will be a time-consuming process, much of it falling on the FOBs who may require additional resources in order to ensure that the system meets its objectives.

Income Generation/Technical Assistance Unit PoE was asked to review the intended use of communal compensation by the LLEs downstream of Mohale in relation to both the MOUs and the policy. The LLEs intend to use the funds for a number of different purposes: road-building, water system construction, latrines, hammer mills, and electrification. TAU officers are working closely with them on their planning and providing, along with the Department of Co-operatives, training in funds management and book keeping. Projects have yet to begin because the funds are not yet available. PoE was also asked to review progress on the implementation of the development projects/programs for the LLEs upstream of LHWP structures. Five of the communities with resettles and hosts were visited in the foothills, all of which were engaged in road building and one of which was upgrading its water system. The benefits of these projects include enhanced access to the communities, funds to resettles and hosts for labour in construction, and increased knowledge and skills about how to implement, manage, monitor and assess projects and their sustainability. As for the sustainability of these development projects/programmes based on best practices, the road-building projects have had beneficial impacts on the communities both collectively and on the individual members of the LLEs engaged in them. At the same time, there are a number of constraints on these projects, including the availability of sufficient funds to carry out the community-based construction activities and to complete the road work, including compacting of the roads, which in some cases requires access to equipment that is costly to rent. Some communities have opted to engage contractors to assist them in the road work, which is expensive and potentially leads to cost overruns. Both upstream and downstream communities could benefit from workshops, training, and materials on road-building (and other development projects, such as water system enhancement) which LHDA should

consider providing with the assistance of Lesotho government departments and non-government organizations.

Socio-economic and epidemiology study – LHDA Contract 1204 The study found that the LHWP had not negatively impacted on the socio economic and epidemiological wellbeing of the affected population. In actual fact the affected population was significantly better off than those not affected, but there negative effects including (a) increased dependency on LHDA compensation for income, (b) erroneously raised expectations of communities for compensation, and (c) the possibility that the opening up of the highlands to public transport contributed to increased HIV/AIDS in the LHWP areas more than the other highland areas. The implications for LHDA are that it should review its current EAP strategies from limited term interventions to partnership with GOL and private sector partners to map out long term socio economic development plans for the highlands, as the treaty requirements has no time limit placed on it. LHDA may want to consider talking to the government to provide some small percentage of earnings from the Water transfer to South Africa to the population living in the area as part of the compensation to the affected areas as is done in mining and national wild game parks in South Africa. This would provide some sustainable development resource base for area and reduce pressure on direct cost to the LHWP partners.

ICM - LHDA Contract 1044 The ICM contract ends in May 2010. There should occur full handover to FOBs – familiarization with ICM objective, institutions created, resource inventories, catchment management plans, pilot trials, and transfer of ICM-LHDA counterpart staff. ICM should be integrated seamlessly into FOB day-to-day activities and work with progressive minded/informal leader/early adopter types to create show-&-tell examples of how to improve sustainable land use and development.

Maloti Minnow conservation The Lesotho Biodiversity Trust (LBT) is in the final stages of being dissolved. All assets are to be handed over to LHDA. LBT staff have been given notice and paid to end March 2010. The position of the former LBT Conservation Officer is unclear. His services are required by M & E branch for IFR surveys in April and October. Maloti Minnow conservation and monitoring must be taken over by LHDA and appropriate resources made available to secure the minnow in wild habitat in the Senqunyane River. Proposals regarding captive breeding and stocking of Maloti Minnow in other highlands river systems are disingenuous and misleading. LHDA must implement its Policy on Maloti Minnow and build a fish barrier on the Senqunyane to establish a minnow sanctuary. A dedicated Task Team should be appointed to oversee the implementation of the Policy.

Instream flow requirements (IFR) – downstream communal compensation PoE was asked to review and comment on progress made in disbursing communal compensation to LLEs downstream of Mohale Dam. A total of 32 LLEs exist downstream of Mohale. Handing-over ceremonies for the funds for twenty eight of these communities were held in December 2009, and January-February 2010. Four LLEs are awaiting their handing over ceremonies. At this stage, none of the LLEs have begun projects because the funds are not yet available. This is partly due to the fact that the banks are questioning the names of some of the LLEs which in some cases are different from the originals, and also some of the accounts have gone dormant due to bank procedures (10 of 32). LHDA must act quickly to make sure that the LLEs have access to their funds, which will require discussions with the banks and resolution of any outstanding issues. It has been 7 years since the LLEs were originally told that they would get their funds, and as yet no projects have begun because the funds have yet to be made accessible. This is a serious issue for LHDA and for the communities, with consideration of the second tranche of payments in 2013, and Phase 2 beginning with its critical communal compensation issues.

IFR Policy & Procedures The Contract 1270 Consultant should complete revision of the IFR Policy & Procedures under the ToR of Contract 1270, and flag further aspects of revision (not included under the present ToR). With Phase 2 LHDA must use the opportunity to re-revise IFR, including monitoring procedures.

LHWP Zonation – LHDA Contract 1255 The purpose of which is to facilitate orderly development on and around the reservoirs that would advance the sustainable economy of

the Highlands. Good information is to hand on spatial zoning, the principles, the relevant legislation and the stakeholders. The main constraint is an implementation instrument – a coordinating body to administer and manage peri-reservoir development. LHDA should hire appropriate consultants to undertake preliminary consultation with the stakeholders, and then use workshops to constitute the coordinating body, develop the coordinating framework and facilitate its functioning so that it can operate independently.

Public Health The revision of the LHDA Public Health and HIV/AIDS Policies have been completed and accepted by management for implementation as institutional policies. The HIV/AIDS policy has been incorporated into the general Public Health Policy. Implementation of the public health policy should be main-streamed into the LHDA administrative and management instruments through active participation and involvement of all the Branch Managers and Divisional Managers.

Implementing, recommended to start immediately, will involve incorporating the Policy in the Staff Manual and various administrative instruments at every branch level. The Staff Manual will be used as a training tool to educate all staff on public health issues within the work environment of LHDA.

There are no public health structures in LHDA and implementation will have to be coordinated by the Human Resources Branch with M&E Branch developing indicators for monitoring the implementation progress and application of the policies on LHDA activities. It is recommended that appropriate structures to manage the public health aspect of LHWP be considered in Phase 2 of LHWP.

KLM WATSAN There is no progress to restart the project since it stopped last year. A decision has been made that construction be outsourced and instructions to tender this out have been issued.

Currently 4 822 VIPs have been constructed, 432 partly constructed and 1 115 are outstanding. Nine water systems are in various stages of completion and there are 77 systems yet to be constructed. It is estimated that a total of M45 million is required to complete the construction. Affected communities in Katse are disappointed with the failure of LHDA to complete the construction. LHDA will need to complete the remaining systems urgently to avoid further disgruntlement from the affected communities.

PoE recommends that urgent attention be paid to completion of all requirements to enable the GoL to include KLM WATSAN in the next national budget allocation. LHDA should be given the responsibility to complete the KLM WATSAN before the Phase Two is initiated.

Sanitation status around the dams has improved since the last mission, the public toilets that were overflowing with human waste and urine were cleaned up in a joint action of the municipality and the Katse Field Office.

KFF pilot trout production The 5-year pilot trout production project has expired. Annual production has been less than the approved 300 tons. There is no discernable impact on water quality, but waste deposition on the substrate was not monitored as required by the conditions of environmental approval of the project. LHDA must be wary of spin-doctoring that caged trout production is a licence to printing money – the paper exercise and reality are very different, as shown by the KFF experience. The Maloti Minnow problem cannot be resolved by breeding minnows in captivity (already done), and the constraint is wild habitat to sustain the minnow. No further caged trout production should be sanctioned until a fish barrier on the Senqunyane river is completed, monitoring of reservoir fish stocks in place, and regular monitoring of the Maloti Minnow status secured. An independent water quality expert should be commissioned by LHDA to investigate the likely impacts of caged trout production on water quality, including waste deposition on the reservoir substrate.

Rehabilitation of wetlands & marginal lands PoE was conducted to the Bokong wetland and to wetlands at Ha Tsiou (Mohale) where rehabilitation is being undertaken. Good progress is being made with physical interventions. Problems concern cultivation into wetland and

excessive grazing and trampling in wetland, and the real difficulty is to persuade local people to moderate their land use and make it more sustainable. Marginal lands (often previously cultivated on steep slopes and shallow soils, and now abandoned, bare or sparse and eroding) can be rehabilitated but it is expensive. Rehabilitation might be done by prioritizing the worst cases. Some previously cultivated land below FSL and compensated for is illicitly back under the plough. This is undesirable because of erosion and sedimentation and because it sets a precedent. If powers of persuasion with the people concerned and the relevant structures fail, then LHDA might have to adopt a legal approach. There is a risk that conservation works are motivated more by the popularity of paying labour to undertake engineering works when in fact the best results stem from changing mindsets and land use.

2010/11 Planning LHDA has developed a Strategic Plan for 2010-2015 using a Porter 5-forces analysis, a strengths-limitations-opportunities-threats (SLOT) analysis and identification of key focus areas (KFAs). The initiative is commendable. Improvements can and should be made (link KFAs to SLOT, separate internal factors from external factors in SLOT, amalgamate overlapping issues in SLOT, insert missing items [striking up alliances with key water consumers, attending to the threat of poor sustainability of land use in the LHWP catchments]). But no plan is perfect or everlasting, and further improvement to the Strategic Plan should be obtained by implementing it, identifying weaknesses, and updating and revising the plan annually.

Moving into Phase 2 PoE was asked to advise the LHDA on the best practices and strategies for implementation in order to move into Phase 2 without major complaints and discontent from Phase 1 beneficiaries. Resolution of all outstanding complaints regarding compensation and development issues for Phase 1 is essential. LHDA needs to make final decisions regarding the issue of payment of interest on compensation in line with the arguments of the Lesotho Ombudsman and the LHDA lawyers and make all outstanding payments at the rates agreed upon. Communal compensation owed to upstream and downstream communities should be paid in full. The outstanding lump sum payments due to individuals based on agreed-upon business plans should be made as soon as possible. Residual resettlement issues must be finalized at Nthakane and Korporale. The records of all Phase 1 project-affected people should be put in order and made available in the compensation workflow system, and the documents relating to the LHWP should all be finalized and made available in the Document Management System, including the full array of PoE reports (nos. 1-54). Discussions should be held with the Lesotho Ombudsman to ensure that all outstanding issues are resolved and that the Ombudsman's Office is fully satisfied with the information provided by LHDA and the FOBs on all outstanding compensation cases and policy matters. A wrap-up workshop or symposium should be held on the lessons learned from Phase 1. In preparation for Phase 2, decisions need to be made on the principles and objectives of the Phase 2 compensation system, and baseline studies need to be carried out so that it will be possible to monitor changes over time in the livelihoods and well-being of Phase 2 affected households and communities. The failure to protect the Maloti Minnow from extinction remains a blemish on the performance of Phase 1, and a commitment must be made to resolve the matter urgently.

Project Management Unit – PoE was asked to review and comment on the draft Scope of Services for the Project Management Unit for LHWP Phase 2. PoE made a separate submission to the Lesotho Highlands Water Commission not contained in this report.

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## INTRODUCTION

The Panel of Environmental Experts (PoE) for the Lesotho Highlands Water Project (LHWP) undertook a mission from 14 to 23 March 2010. The mission was attended by Professor Bob Hitchcock and Drs Amusaa Inambao, John Ledger and Mike Mentis.

The overall objective of the Mission was to provide the Lesotho Highlands Development Authority (LHDA) with an independent evaluation of its operations, identifying where things might be going wrong, how LHDA might improve its performance, and providing guidance on best practice. The specific terms of reference (ToRs) for the Mission were as follows.

Task #	Issue	Action Required
1	LHDA compensation	<ul style="list-style-type: none"> <li>Review and critically comment on the LHDA 2009 compensation completion report.</li> <li>Review and comment on the progress made towards implementation of the compensation workflow system (flow-centric).</li> </ul>
2	Income generation/Technical Assistance Unit	<ul style="list-style-type: none"> <li>Review the intended use of communal compensation by the LLEs downstream of Mohale in relation to both the MOUs and the Policy.</li> <li>Review progress on the implementation of the development projects/programs for the LLEs upstream of LHWP structures.</li> <li>Provide advice on the sustainability of these development projects/ programs based on best practices.</li> </ul>
3	Socio-economic & epidemiology study – LHDA Contract 1204	<ul style="list-style-type: none"> <li>Review the Main Study Report findings and determine the long term implications of these findings to the LHWP and make recommendations on the way forward.</li> </ul>
4	ICM – LHDA Contract 1044	<ul style="list-style-type: none"> <li>Review and critically comment on the LHDA Integrated Catchment Management (ICM) exit strategy.</li> </ul>
5	Maloti Minnow Conservation	<ul style="list-style-type: none"> <li>Review &amp; critically comment on the semi-annual progress report on the monitoring of Maloti Minnow within the LHWP catchments.</li> </ul>
6	Instream Flow Requirements (IFR)	<ul style="list-style-type: none"> <li>Review and comment on progress made in disbursing communal compensation to LLEs downstream of Mohale Dam.</li> <li>Review and critically comment on the progress made towards revision of both the IFR Policy and Procedures under the LHDA Contact 1270.</li> </ul>
7	LHWP Zonation – LHDA Contract 1255	<ul style="list-style-type: none"> <li>Actively participate on the workshop on the Zonation implementation plan with key external LHDA stakeholders and provide expert advice on implications and way forward.</li> </ul>
8	Public Health	<ul style="list-style-type: none"> <li>Review and critically comment on the revised Public Health Policy and recommend the way forward.</li> </ul>
9	KLM WATSAN	<ul style="list-style-type: none"> <li>Follow up on previous PoE mission.</li> </ul>

<b>Task #</b>	<b>Issue</b>	<b>Action Required</b>
10	KFF pilot trout production	<ul style="list-style-type: none"> <li>• Review the KFF progress reports submitted to this date &amp; advise on the way forward.</li> <li>• Review, critically comment and provide expert advice on the KFF evaluation report.</li> </ul>
11	Rehabilitation of wetlands & marginal lands	<ul style="list-style-type: none"> <li>• Assess progress of the rehabilitation of the Bokong wetland &amp; other wetlands in Mohale and provide expert advice on best practices.</li> <li>• Review and comment on progress attained on the rehabilitation of eroded marginal lands around both Katse and Mohale dams.</li> </ul>
12	2010/11 Planning	<ul style="list-style-type: none"> <li>• Review and critically comment on the LHDA 2010/11 social and environmental planning parameters.</li> <li>• Advise the LHDA on the best practices and strategies for implementation in order to move to Phase II without major complaints and discontent from Phase 1 beneficiaries.</li> </ul>
13	Project Management Unit Scope of Services	<ul style="list-style-type: none"> <li>• PoE was asked to review and comment directly to the Lesotho Highlands Water Commission (LHWC) on the draft Scope of Services for the Project Management Unit for LHWP Phase 2. PoE's comments are not contained in this report, and are submitted separately to LHWC.</li> </ul>

Each of the items of ToR is dealt with in more detail in the matrix that follows.

PoE thanks LHDA and the Lesotho Highlands Water Commission (LHWC) for help and hospitality.

## CRITICAL PROJECTS

Projects	Present situation	Recommended action	Finish date
<b>1. LHDA compensation</b>			
LHDA 2009 compensation completion report	<ul style="list-style-type: none"> <li>The LHDA 2009 compensation completion report was reviewed and analyzed critically. Compensation payments for Katse, Lejone, 'Muela, and Mohale were largely complete except for some lump payments that required business plans that had yet to be approved. FOB income generation officers have developed models for business plans that appear to be useful and workable, and LHDA needs to approve these plans so that individuals can receive the lump sum payments they are owed as soon as possible.</li> </ul>	<ul style="list-style-type: none"> <li>LHDA should expedite the approval of the business plans for the lump sum payments to individuals.</li> </ul>	2010-04-01
	<ul style="list-style-type: none"> <li>On the communal compensation for downstream LLEs in Mohale, handover ceremonies for the first tranche of payments were held for 28 of the 32 LLEs between December, 2009 and January-February, 2010. Discussions with some of the LLEs in reach 7 indicated that many of them wished to engage in road construction, latrine building, and expansion of water systems. At present, however, none of the funds from the banks are available to the LLEs, in part because some of the accounts are classified as dormant by the banks (10 of 32 total).</li> </ul>	<ul style="list-style-type: none"> <li>LHDA is urged to ensure that the banks allow the LLEs to draw on their funds and carry out their projects.</li> </ul>	2010-04-01
Compensation workflow system	<ul style="list-style-type: none"> <li>PoE was asked to review and comment on the progress made towards implementation of the compensation workflow system (flow-centric). It was found that the system was about to go operational, with tests on it having been performed and improvements having been made over the past few months. The compensation management system and the complaints system are largely in place. It is anticipated that once the system goes into effect, presumably in the next two months, handling of compensation issues and management of records will be much easier and also that the work at the field and LHDA headquarters level will be more efficient and payments and complaints resolution done in more timely fashion. Outstanding issues include (1) the cleaning up of all outstanding payments, (2) dealing with the issue of interest to be</li> </ul>	<ul style="list-style-type: none"> <li>Resolve any outstanding issues on the compensation workflow system and have it go live.</li> </ul>	2010-04-30

Projects	Present situation	Recommended action	Finish date
	paid on late compensation payments, and (3) the accumulation and scanning of documents, which will be a time-consuming process, much of it falling on the FOBs who may require additional resources in order to ensure that the system meets its objectives.		
		<ul style="list-style-type: none"> <li>Decisions need to be made by LHDA regarding the issue of payment of interest on late compensation in light of the arguments of the Ombudsman and the LHDA lawyers, and payments made to individuals in light of those decisions.</li> </ul>	2010-06-01
<b>2. Income generation / Technical Assistance Unit</b>			
Intended use of communal compensation by LLEs downstream of Mohale, in relation to MOU and the Compensation Policy	<ul style="list-style-type: none"> <li>PoE was asked to review the intended use of communal compensation by the LLEs downstream of Mohale in relation to both the MOUs and the policy. The LLEs' plans to use the funds are in line both with their MOUs and the LHDA Compensation policy as well as with the recommendations of the LHDA/LHWC workshop held in 2009 on compensation. LLE intentions are to use the funds for development projects, a number of which are already completed: road-building, water reticulation systems, latrines, hammer mills, and electrification. The various projects of the LLEs involve host as well as resettled community members. In some cases, the LLE committees have already expended more funds than are available from the communal compensation, an issue that will have to be addressed. TAU officers are working closely with the LLEs on their planning and are providing, along with the Department of Co-operatives, training in funds management and book keeping.</li> </ul>	<ul style="list-style-type: none"> <li>Make the funds available for the LLEs and begin the training of the LLEs in funds management, book keeping, and project implementation.</li> </ul>	2010-06-01
		<ul style="list-style-type: none"> <li>Complete the handing over ceremonies for the funds for the remaining 4 LLEs.</li> </ul>	2010-04-01
Implementation of development	<ul style="list-style-type: none"> <li>PoE was asked to review progress on the implementation of the development projects/programs for the LLEs upstream of LHWP</li> </ul>	<ul style="list-style-type: none"> <li>Provide additional advice to the communities/co-operatives/LLEs on</li> </ul>	2010-07-30

Projects	Present situation	Recommended action	Finish date
projects/program upstream of LHWP structures for LLEs	structures. Five of the communities with resettles and hosts were visited in the foothills, all of which were engaged in road building and one of which was upgrading its water system. The benefits of these projects include enhanced access to the communities, funds to resettles and hosts for labour in construction, and increased knowledge and skills about how to implement, manage, monitor and assess projects and their sustainability.	road building, record keeping, audits, project implementation, and monitoring.	
		<ul style="list-style-type: none"> <li>Investigations of the costs and benefits of the road-building and water projects should be conducted and lessons learned so they can be made available to other LLEs</li> </ul>	2010-06-30
Sustainability of development projects/programs	<ul style="list-style-type: none"> <li>PoE was asked to provide advice on the sustainability of these development projects/programs based on best practices. The road-building projects have had beneficial impacts on the communities both collectively and on the individual members of the LLEs engaged in them. At the same time, there are a number of constraints on these projects, including the availability of sufficient funds to carry out the community-based construction activities and to complete the road work, including compacting of the roads, which in some cases requires access to equipment that is costly to rent. Some communities have opted to engage contractors to assist them in the road work, which is expensive and potentially leads to cost overruns. Both upstream and downstream communities could benefit from workshops, training, and materials on road-building (and other development projects, such as water system enhancement) which LHDA could consider providing with the assistance of Lesotho government departments and non-government organizations.</li> </ul>	<ul style="list-style-type: none"> <li>LHDA needs to move toward providing the second tranche of communal compensation so that upstream LLEs can complete their development projects and pay arrears to community workers who have been involved in road building and water system construction.</li> </ul>	2010-06-01
		<ul style="list-style-type: none"> <li>Provide workshops, training and materials on road-building and other development projects to LLEs.</li> </ul>	2010-07-31

Projects	Present situation	Recommended action	Finish date
<b>3. Socio-economic &amp; epidemiology study – LHDA Contract 1204</b>			
<p>Long term implications to LHWP of findings of Main Report</p>	<p>The main findings of the study were that the LHWP had not negatively impacted on the socio economic and epidemiological status of the dam affected population of the Lesotho Highlands. Human development indices used in the study found that the dam affected households had significantly higher levels of socio economic development than similar households in non affected areas in the highlands. The indices included the following.</p> <ul style="list-style-type: none"> <li>• Higher income</li> <li>• Better housing</li> <li>• Higher school enrolment Increased access to roads and public transport</li> <li>• Increase access to health care services</li> <li>• Increased access to markets</li> <li>• Increase access to social development assistance</li> <li>• Increased access to business development opportunities</li> <li>• Increased access to educational facilities</li> <li>• Increased access to water and sanitation facilities</li> <li>• Better food security</li> </ul> <p>However, there were some unintended negative effects such as (a) increased dependency on LHDA compensation for income, (b) erroneously raised expectations of communities for compensation and the possibility that opening up of the highlands to rapid public transport contributed to increased HIV/AIDS prevalence in the LHWP areas more than the other highland areas.</p>	<ul style="list-style-type: none"> <li>• LHDA should finalise with the consultant to produce final reports on the study that clearly provide evidence based indicators of better socio economic status of the project affected households for dissemination to stakeholders. In addition the consultant should be made to honour the terms of reference that required them to develop the data capture and processing capacity of LHDA Monitoring and Evaluation team as well as establishing a functional data bank and processing facility within LHDA.</li> </ul>	2010-09-30
	<ul style="list-style-type: none"> <li>• The study findings have both short and long term implications that range from the way LHDA should manage future studies as well as what LHDA should do to ensure that the gains made are strengthened and that the identified limitations are addressed in current and future interventions.</li> </ul>	<ul style="list-style-type: none"> <li>• LHDA should hold a stakeholders workshop to present the findings and thereafter publish a documentary and make a video on the socio economic impact of the LHWP on the affected</li> </ul>	2010-12-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> <li>•</li> </ul>	<p>population as a public relations strategy.</p> <ul style="list-style-type: none"> <li>• LHDA should consider audio visual records of the baseline situations which would be updated at regular intervals to chart the progress made over the years. Such materials would give credence to the study findings especially among the lay stakeholders. LHDA should consider such an undertaking for Phase 2.</li> </ul>	2010-12-31
		<ul style="list-style-type: none"> <li>• Future socio economic and epidemiological studies need to be properly managed by appropriately experienced social epidemiological scientists to ensure that they conform to the basic minimum requirements for replicable data.</li> </ul>	
	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• In terms of the maintenance of the socio economic and epidemiological wellbeing of the affected population, LHDA should review current limited term EAPs and consider long term interventions where it would partner with national and local authorities to provide technological and investment support to community social development interventions in the highlands. Such plans should have clearly thought out exit strategies that are based on full appreciation of the</li> </ul>	2010-12-31

Projects	Present situation	Recommended action	Finish date
		limited technological and resource bases of the government and the establishment of a social responsibility principle for the areas to receive some percentage of the income for further development of the area.	
	•	• LHDA would need to partner the government (GOL) and the private sector for long term socio-economic development of the area.	2010-12-31
<b>4. ICM – LHDA Contract 1044</b>			
Exit strategy	<ul style="list-style-type: none"> <li>• The ICM Consultant has produced a report on ICM project handover/exit strategy in view of the contract ending in May 2010. Two options are proposed concerning the future of the ICM counterpart staff – (a) staff are retained and managed from Maseru, or (b) the ICM unit is disbanded and the ICM staff transfer to FOBs.</li> <li>• Option (b) is preferable on grounds of cost, conformance to the principle of FOBs assuming responsibility for all activities in their regions, and strengthening the FOBs.</li> <li>• Proper handover to FOBs is warranted – the objective of ICM, the institutions created, the resource inventory, the catchment management plans, the pilot trials, <i>etc.</i></li> <li>• There is no distinct upper limit to the number of staff with ICM expertise at an individual FOB, but the lower limit is 2 or 3 so as to retain institutional memory and to benefit from synergies of collaborative efforts (the whole is greater than the sum of parts). Ideally ICM staff must be knowledgeable on natural resource management, good communicators, be resourceful, be able to generate and lead initiatives in improving the sustainability of land use, and be able to influence other projects by driving from the backseat.</li> <li>• Future ICM activities must be integrated seamlessly into FOB day-to-</li> </ul>	<ul style="list-style-type: none"> <li>• Full handover of ICM, including LHDA counterparts, to FOBs.</li> </ul>	2010-05-31

Projects	Present situation	Recommended action	Finish date
	day functions. The objective is to improve the sustainability of land use and development. This is best done by working not necessarily with everyone but rather focussing on the progressive minded, informal leaders and early adopters in attempt to develop precedents that can be used as show-&-tell examples. Work with the institutions (ministries, local government, traditional leaders, community councils, <i>etc</i> ) as appropriate.		
		<ul style="list-style-type: none"> <li>Seamlessly integrate ICM into FOB functions and work with progressive minded/informal leader/early adopter types to create show-&amp;-tell examples of how to improve sustainable land use and development.</li> </ul>	On-going
<b>5. Maloti Minnow Conservation</b>			
Progress report on Maloti Minnow monitoring in LHWP catchments	<ul style="list-style-type: none"> <li>No new semi-annual report has been produced since PoE's last visit in September/October 2009.</li> </ul>	<ul style="list-style-type: none"> <li>The former LBT Conservation Officer did Maloti Minnow monitoring and survey work in January 2010. It is important that these results be written up and made available for continuity of the project.</li> </ul>	2010-05-01
	<ul style="list-style-type: none"> <li>Lesotho Biodiversity Trust (LBT) is in the final stages of being dissolved (90% complete). Staff contracts have been terminated and personnel paid to end March 2010. All assets have been listed and liabilities settled. A vehicle, comprehensive fish capture and sampling equipment and other items, plus about M9 million will be handed over to LHDA when all the formalities have been concluded. LHDA will also be formally requested to take over the Maloti Minnow program in accordance with the LHDA Policy on Maloti Minnow.</li> </ul>	<ul style="list-style-type: none"> <li>Winding up of LBT and handover of assets to LHDA to be expedited. LHDA to take over Maloti Minnow Conservation Program.</li> </ul>	2010-05-01
	<ul style="list-style-type: none"> <li>No decision has yet been made about LHDA taking over the Maloti Minnow Conservation Project from LBT. M &amp; E Branch requires the</li> </ul>	<ul style="list-style-type: none"> <li>LHDA to secure the services of the former LBT Conservation Officer in</li> </ul>	2010-05-01

Projects	Present situation	Recommended action	Finish date
	<p>services of a fish expert to perform IFR monitoring in April and October. The former LBT Conservation Officer is experienced and qualified to do this work and to continue the Maloti Minnow monitoring as well as monitoring of fish in Mohale and Katse reservoirs. It is critically important that this work not be allowed to lapse. LHDA could consider establishing a Task Team to implement the Maloti Minnow Policy and Action Plan</p>	<p>order to ensure continuity of Maloti Minnow Conservation Program.</p>	
		<ul style="list-style-type: none"> <li>Project authorities to appoint a Task Team to deal with Maloti Minnow issues.</li> </ul>	2010-05-01
	<ul style="list-style-type: none"> <li>Both KFF and other potential cage trout developers have indicated interest in operations in Mohale reservoir. No fisheries development can be allowed until the conservation of the Maloti Minnow is secured. The only acceptable outcome is the construction of a fish barrier on the Senqunyane River and the establishment of a minnow sanctuary upstream. Breeding of the minnow and stocking other streams has been proposed as an alternative to barrier construction. This is unacceptable for reasons that are elaborated on in Appendix 1.</li> </ul>	<ul style="list-style-type: none"> <li>Task Team to proceed with construction of fish barrier on Senqunyane River as a matter of extreme urgency. Prospective cage trout operators to be invited to contribute to this initiative as part of their competitive bids to operate in Mohale reservoir.</li> </ul>	2010-05-01
<b>6. Instream flow requirements (IFR)</b>			
Communal compensation downstream of Mohale	<ul style="list-style-type: none"> <li>PoE was asked to review and comment on progress made in disbursing communal compensation to LLEs downstream of Mohale Dam. A total of 32 LLEs exist downstream of Mohale. Handing-over ceremonies for the funds for twenty eight of these communities were held in December 2009, and January-February 2010. Four LLEs are awaiting their handing over ceremonies. At this stage, none of the LLEs have begun projects because the funds are not yet available. This is partly due to the fact that the banks are questioning the names of some of the LLEs which in some cases are different from the originals, and also some of the accounts have gone dormant due to bank procedures (10 of 32). It has been 7 years since the LLEs were originally told that they would get their funds, and as yet no projects</li> </ul>	<ul style="list-style-type: none"> <li>LHDA must act quickly to make sure that the LLEs have access to their funds, which will require discussions with the banks and resolution of any outstanding issues.</li> </ul>	2010-04-30

Projects	Present situation	Recommended action	Finish date
	<p>have begun because the funds have yet to be made accessible. This is a serious issue for LHDA and for the communities – consideration of the second tranche of payments is due in 2013, and Phase 2 is beginning, which will also have critical communal compensation issues.</p> <ul style="list-style-type: none"> <li>• It warrants mention that second tranche payments are not a given. They depend on the ‘decision criteria’. If monitoring show that downstream communities are likely to have suffered losses of wood and fish then second tranche payments are liable. To date there is not compelling evidence of loss of riparian wood production or total fish resource. LHDA should be careful not say, imply or infer that second tranche payments are likely.</li> </ul>		
		<ul style="list-style-type: none"> <li>• Preparations should be made for the possible payment of Tranche 2 of the compensation to downstream communities – determine possible resource losses and apply decision criteria to decide whether or payment is to be made.</li> </ul>	2010-10-01
Review of IFR Policy & Procedures under Contract 1270	<ul style="list-style-type: none"> <li>• PoE previously reviewed a draft IFR policy revision under Contract 1270 (PoE Report 52 Appendix 5). PoE recommended that the Consultant revise the policy revision taking account of PoE’s criticisms.</li> <li>• Reportedly the C1270 Consultant is now taking account of PoE’s recommendations, but there is a problem concerning PoE’s recommendations 1, 2 and 3. These recommendations concern the present IFR Policy (a) being back-to-front, (b) being verbose, confusing and complicated, and (c) having too many unordered objectives. The problem is that while the Consultant agrees with PoE’s recommendations, addressing them lies outside the Contract 1270 ToRs.</li> </ul>	<ul style="list-style-type: none"> <li>• Have the Contract 1270 Consultant complete the contract according to its ToRs, but include recommendation of further aspects of IFR Policy &amp; Procedures that warrant revision.</li> </ul>	2010-09-30

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> <li>• In discussion with the Consultant, LHDA and PoE, it was agreed that the Consultant should proceed with the IFR Policy and Procedures review within the present ToRs, pointing out in the Contract 1270 final report what further improvements to IFR Policy and Procedures warrant attention.</li> <li>• With LHWP Phase 2 it will in any case be appropriate to revisit IFR Policy and Procedures, and LHDA should use this opportunity taking account of the following. <ul style="list-style-type: none"> <li>▪ No policy, plan or set of procedures is ever going to be perfect or everlasting, and all become dated because of experience, knowledge development, improved techniques, changing norms and laws, and altered biophysical and social circumstances.</li> <li>▪ Complicated policies, plans and procedures are difficult to revise, so make them simple.</li> <li>▪ The IFR monitoring procedures warrant improvement to strengthen inference that can be drawn from monitoring data (<i>viz</i>, resort to 'pure' data, incorporating statistical design, <i>etc</i>)</li> </ul> </li> </ul>		
		<ul style="list-style-type: none"> <li>• Use Phase 2 as an opportunity to further revise IFR Policy &amp; Procedures (including monitoring), and avoid making them so complicated as to deter later periodic revision.</li> </ul>	2011-12-31
<b>7. LHWP Zonation – LHDA Contract 1255</b>			
Zonation workshop	<ul style="list-style-type: none"> <li>• Two consultant reports (2001 and 2010) are to hand. Good information is to hand on spatial zoning, the principles, the relevant legislation and the stakeholders in the reservoir zoning initiative, the purpose of which is to facilitate orderly development on and around the reservoirs that would advance the sustainable economy of the Highlands.</li> <li>• The main constraint on the ideal of reservoir zoning is an implementation instrument – a coordinating body to administer and manage peri-reservoir development. The coordinating body must</li> </ul>	<ul style="list-style-type: none"> <li>• LHDA must set up a process to establish the coordinating body and the coordinating framework.</li> </ul>	2010-06-30

Projects	Present situation	Recommended action	Finish date
	<p>include stakeholders (<i>eg</i> ministries, NES, LHDA, local government, community councils, traditional authorities, CALCs) who buy into the initiative, and there must be a coordinating framework by which the coordinating body operates and which sets the policies and procedures for peri-reservoir development, and enforces them.</p> <ul style="list-style-type: none"> <li>• PoE was asked specifically to advise on a process to set up the coordinating body, and get it functional.</li> <li>• See Appendix 2 for detail.</li> </ul>		
		<ul style="list-style-type: none"> <li>• LHDA must commission suitably qualified Consultant A to drive the process of setting up the coordinating body and coordinating framework, and use suitably qualified Consultant B to facilitate the workshops with the stakeholders. See Appendix 2 for detail.</li> </ul>	2010-12-31
		<ul style="list-style-type: none"> <li>• Have Consultant A available to ‘hand-hold’ the coordinating body through its first year or so.</li> </ul>	2011-12-31
<b>8. Public Health</b>			
Public Health Policy	<ul style="list-style-type: none"> <li>• The draft Public Health Policy has been prepared.</li> <li>• The draft has several structural weaknesses and was not justified by presentation of public health risks that the policy was intended to address.</li> <li>• Suggestions to strengthen the policy were made by the PoE as follows. <ul style="list-style-type: none"> <li>▪ Provide an analysis and prioritization of the public health risks to be addressed by the policy.</li> <li>▪ Making the policy holistic and non discriminatory.</li> <li>▪ Include prioritization of driving and use of LHDA vehicles.</li> <li>▪ Routine annual health examinations of staff.</li> <li>▪ The Policy should be implemented through the Human Resources</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• LHDA strengthen the Policy, using PoE’s suggestions</li> </ul>	2010-05-31

Projects	Present situation	Recommended action	Finish date
	<p>Branch as an integral part of LHDA management policies and procedures.</p> <ul style="list-style-type: none"> <li>• The implementation should be initiated by the educating staff and stakeholders on the public health policy guidelines.</li> <li>• Incorporate the Policy in the staff handbook.</li> </ul>		
		<ul style="list-style-type: none"> <li>• LHDA legal services should review the final revised policy document before publication and distribution to intended users.</li> </ul>	2010-05-31
	<ul style="list-style-type: none"> <li>• Implementation of the policy would be difficult without the necessary public health expertise within LHDA. The M&amp;E Branch currently charged with the responsibility for public health issues and interventions does not have the requisite expertise to manage / monitor the implementation of public health policy.</li> </ul>	<ul style="list-style-type: none"> <li>• The Human Resources Branch should constitute a committee comprising heads of branches and FOBs to plan for the implementation of the LHDA Public Health Policy as soon as possible.</li> </ul>	2010-04-30
		<ul style="list-style-type: none"> <li>• Motivate for restitution of a public health portfolio, justifying it on the basis that similar to environmental issues public health is a long term concern for LHWP given the requirements of the Treaty.</li> </ul>	2010-06-30
		<ul style="list-style-type: none"> <li>• Create a Public Health Unit to cater for epidemiological, water and sanitation, health and safety and epidemiological surveillance, and comprising <ul style="list-style-type: none"> <li>• Epidemiologist/researcher</li> <li>• Public Health Nurse</li> <li>• Medical Sociologist</li> <li>• Health Inspector</li> <li>• Health and Safety Officer</li> </ul> </li> </ul>	2010-12-31
<b>9. KLM WATSAN</b>			
Follow up on previous	<ul style="list-style-type: none"> <li>• No progress made towards the completion of the remaining 1115 VIPs</li> </ul>	<ul style="list-style-type: none"> <li>• The remaining facilities need to be</li> </ul>	2010-12-31

<b>Projects</b>	<b>Present situation</b>	<b>Recommended action</b>	<b>Finish date</b>
PoE mission	and 77 water systems.	completed before commencement of Phase 2.	
	<ul style="list-style-type: none"> <li>• There is no clear champion for continuation of the project</li> </ul>	<ul style="list-style-type: none"> <li>• LHDA should be charged with complete control and responsibility to manage the project.</li> </ul>	2010-04-15
	<ul style="list-style-type: none"> <li>• There is a budget shortfall of M45 million to complete the project</li> </ul>	<ul style="list-style-type: none"> <li>• Measures should be undertaken to identify sources to fund the remaining construction.</li> </ul>	2010-06-30
		<ul style="list-style-type: none"> <li>• Construction should resume using the balance of funds remaining while additional resources are being sought.</li> </ul>	2010-12-31
<b>10. KFF pilot trout production</b>			
KFF progress reports & way forward	<ul style="list-style-type: none"> <li>• KFF has submitted progress reports on its project. It is patently so that caged trout production is faced with many problems and there is a big difference between the paper exercise and actually achieving the planned or proposed production in reality.</li> <li>• There is a need to be wary of spin-doctoring that 10s to 100s, even 1000s, of tons of fresh trout can be produced annually, that this is even physically possible without logistical and disease problems that come to the fore not on paper or PowerPoint presentations but only when production projects are attempted. Hearsay that the Maloti Minnow issue can be resolved by such remedies as breeding the minnow in captivity are misconstrued – the constraint is minnow habitat that cannot be propagated in the laboratory. The minnow has already been bred in captivity, but that does not help if there is not wild habitat in which the fish can survive, protected from yellowfish and trout.</li> <li>• Despite what spin-doctoring says, caged trout production is not a licence to printing money.</li> </ul>	<ul style="list-style-type: none"> <li>• LHDA must take a wake-up call about the spin-doctoring to which it is being exposed.</li> </ul>	Now
		<ul style="list-style-type: none"> <li>• LHDA must require competitive bidding for concessions to engage in</li> </ul>	Now

Projects	Present situation	Recommended action	Finish date
		caged trout production, and LHDA must require bidders to volunteer how they are going to conserve the Maloti Minnow and contribute to other related environmental and social causes in LHWP catchments.	
		<ul style="list-style-type: none"> <li>No further trout production should be sanctioned without construction of a fish barrier on the Senqunyane river upstream of Mohale reservoir, and without LHDA monitoring of fish stocks in the Katse and Mohale reservoirs and monitoring of the Maloti Minnow.</li> </ul>	Now
KFF evaluation report	<ul style="list-style-type: none"> <li>KFF was sanctioned to undertake a 5-year pilot trout production project for the production of up to 300 tons of fish annually. The 5 years has now expired. The present annual production is less than the 300 tons sanctioned. So far there is no discernable unfavourable impact of water quality.</li> <li>The deposition of waste, including phosphate, in the sediments underlying the trout cages has not been monitored, though this was required in terms of NES approval of the project.</li> <li>It is not expected that low levels of caged trout production would impact significantly on ambient water quality. However, the cumulative deposition of waste, including phosphate, in substrate under the cages is another matter. It is plausible that the phosphate, immobilised under most circumstances, could under certain circumstances be 'unfixed' and go into solution causing algal blooms and other water quality problems.</li> <li>The sampling of the substrate under the trout cages is not a simple issue and requires expert technological and statistical design.</li> </ul>	<ul style="list-style-type: none"> <li>Commission an appropriately qualified independent water quality expert to investigate the impact on water quality and substrate waste accumulation of the KFF project to date as well as the production projects proposed by KFF and others.</li> </ul>	2010-06-30

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> <li>• Independent expert advice is required on the possible impacts of caged trout production, including the issue of waste deposition on the substrate.</li> <li>• What is now required is a detailed analysis of the pilot study before any further caged trout production enterprises are permitted in LHWP reservoirs. LHDA is the authority whose waters are to be used by these enterprises, and LHDA has the say as to what businesses may be conducted in its reservoirs.</li> </ul>		
		<ul style="list-style-type: none"> <li>• LHDA must answer the following key questions. <ul style="list-style-type: none"> <li>· Has KFF been profitable in the pilot phase - is this a valid business model with benefits for investors and the landlord? We need the information and if KFF says it is confidential strategic financial data then we must put NDAs in place to allow independent third party analysts to provide LHDA with the numbers.</li> <li>· If indeed profitable, is KFF expandable in Katse and replicable in Mohale?</li> <li>· How would replication in Mohale propose addressing the Maloti Minnow issue?</li> <li>· If indeed profitable for the investors, what are the quantifiable</li> </ul> </li> </ul>	2010-12-31

Projects	Present situation	Recommended action	Finish date
		<p>benefits to the local community in Ha Lejone?</p> <ul style="list-style-type: none"> <li>· What are the impacts of the KFF pilot project on water quality? (See above) Unless lessons learnt from the pilot project are analysed and documented, how can further caged trout business proposals be considered?</li> <li>· Bottom line - we need a detailed analysis of the KFF pilot study. This is a LHDA responsibility. No aquaculture projects to be sanctioned until the KFF analysis is completed.</li> </ul>	
<b>11. Rehabilitation of wetlands and marginal lands</b>			
Bokong and other wetlands	<ul style="list-style-type: none"> <li>• LHDA is progressing with rehabilitating the Bokong wetland. Adjoining bare areas need more stone-packing. Gabion drop weirs in the wetland should be reduced in height, especially at their projecting edges, and the scoured out pools downstream of each weir filled with stone to limit turbulence during flood flows, thereby favouring sedimentation and colonization by wetland plants. The unfortunate pipeline trench through the wetland is eroding – back-fill with wetland plants, soil and stone and build mini-berms to divert seepage onto the wetland downslope. Detail is given in Appendix 4.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue with rehabilitation of bare adjoining areas, scour in the wetland channel, and the pipeline trench.</li> </ul>	2010-12-31
	<ul style="list-style-type: none"> <li>• Wetlands at Ha Tsiou have suffered from an ill-designed culvert, cultivation into wetlands, roads through wetland, and livestock trampling. Some structures have been developed and are succeeding, more stone-packs and stone-pitching are being applied, and further</li> </ul>	<ul style="list-style-type: none"> <li>• Continue with rehabilitation – both physical structures and interventions to persuade withdrawal of cultivation in wetland, and limitation of livestock</li> </ul>	2010-12-31

Projects	Present situation	Recommended action	Finish date
	communication, education and persuasion is required regarding the livestock trampling and cultivation in wetlands. Detail is given in Appendix 4.	grazing in wetland.	
Rehabilitation of lands around Katse and Mohale	<ul style="list-style-type: none"> <li>• Marginal lands arise largely as a result of cultivated land that does not have 'arable' land capability because the land is too steep and the soil too shallow. Rehabilitation is possible but expensive. Techniques are detailed in Appendix 4.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the marginal lands, and prioritize rehabilitation, focussing on the most serious cases first, and moving onto fresh cases only when the highest priorities are resolved.</li> </ul>	On-going
	<ul style="list-style-type: none"> <li>• At Mohale some cultivated fields below FSL for which compensation was paid are being cultivated illicitly. In the interests of limiting erosion and reservoir sedimentation, and preserving water quality, this illicit cultivation should be stopped. However benign it might seem in some cases, it sets an undesirable precedent.</li> </ul>	<ul style="list-style-type: none"> <li>• LHDA must continue to try to have the illicit cultivation withdrawn, using persuasion with villagers, community councils, traditional leaders and local and central government. If this fails LHDA might consider using the law, if it can.</li> </ul>	2010-12-31
	<ul style="list-style-type: none"> <li>• There is a risk that rehabilitation or ICM projects are motivated more by the popularity of granting paid work to local villagers than for the real need for conservation works. Generally soil conservation succeeds not by big engineering works but by subtle changes in mindset and land use.</li> </ul>	<ul style="list-style-type: none"> <li>• Be wary to approve soil conservation works that are motivated more by paying local labour than the real need for the engineering. The best options are often changes in mindset and land use.</li> </ul>	On-going
<b>12. 2010/11 Planning</b>			
LHDA 2010/11 social and environmental planning parameters	<ul style="list-style-type: none"> <li>• LHDA has developed (a) LHDA Strategic Plan 2010/15: Planning Parameters, and (b) a supporting document called LHDA Strategic Plan Tables 2010/11-2014/15. PoE met with LHDA management, and discussed the strategic plan.</li> <li>• The strategic plan is prefaced by vision, mission and values followed by a Porter 5-forces analysis and strengths, limitations, opportunities &amp; threats (SLOT) analysis from which are developed key focus areas KFAs. LHDA's initiative is commendable.</li> </ul>	<ul style="list-style-type: none"> <li>• Revise the Strategic Plan and implement it.</li> </ul>	2010-05-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> <li>• In the time available it was not possible for PoE to review the Strategic Plan comprehensively, so effort was directed at identifying the generics of improving the plan, giving examples of shortcomings and how they might be addressed. The generics were as follows.</li> <li>• The Plan must have a clear logic from identification of an individual strength, limitation, opportunity or threat to one or more KFAs and then the measures or actions to address the strength, limitation, opportunity or threat.</li> <li>• In a SLOT analysis it is conventional to include <u>internal</u> positive characteristics as strengths, <u>internal</u> negative factors as limitations, <u>external</u> positive possibilities as opportunities, and <u>external</u> negative factors as threats. This classification has a logic. It is that the grouping of factors is to enable an organization to use its strengths to overcome its weaknesses, seize the opportunities and neutralize the threats. The individual items in the SWOT analysis should be reviewed and re-grouped to meet the conventional approach.</li> <li>• There are too many individual strengths, limitations, opportunities and threats. No one can do <u>everything</u>. No one can afford <u>everything</u>. Review the individual items. Reduce down to the half dozen or so under strengths, limitations, opportunities and threats that are the most <u>strategic</u> issues. There should not be more than about 24 individual issues. Amalgamate some of the entries. Delete some entries.</li> <li>• There are some issues which the present SLOT analysis overlooks. These need to be included and perhaps displace some of the existing issues. Under Opportunities should be included words to effect that LHDA supplies a basic resource (water) to the commercial-economic-financial-industrial hub of the SADC region (Gauteng) and there are opportunities to strike up alliances with big role-players such as the water consumers represented by water utilities (Rand Water) and local government, Eskom and Sasol all of whom might help in the procurement of expertise and technology to ensure and sustain the</li> </ul>		

Projects	Present situation	Recommended action	Finish date
	<p>basic resource supply. These partners must be alerted to a principal long term threat to LHWP, and that is the poor sustainability of the current land use and land management of LHWP catchments. This external negative factor should be included under Threats.</p> <ul style="list-style-type: none"> <li>• There are governance issues that warrant specific attention. For example, poor contract project management (already mentioned in SLOT), and the control and safe-keeping of assets (safety and security of LBT is mentioned), but the newly constructed Information/Visitor Centre at Katse lies idle apparently with the Katse Manager not authorized or instructed to use the centre, or even look after it (not mentioned in SLOT or KFAs). Millions of Maloti investment are secured against vandalism and the like by baling wire. Perhaps the centre is ear-marked for some organization other than LHDA to use, but that is surely a mistake for the founding principle of FOBs is that they take full and total responsibility for everything that happens at their Branch. If there are indeed alternatives to the FOB principle then they need to be in the strategic plan.</li> <li>• Detail is given in Appendix 5.</li> </ul>		
		<ul style="list-style-type: none"> <li>• Further improve the Strategic Plan from experience in the implementation, and revise the Plan in early 2011.</li> </ul>	2011-01-31
Moving to Phase 2	<ul style="list-style-type: none"> <li>• PoE was asked to advise LHDA on the best practices and strategies for implementation in order to move into Phase II without major complaints and discontent from Phase 1 beneficiaries. The following items are identified. <ul style="list-style-type: none"> <li>▪ Resolve all outstanding complaints regarding compensation and development issues for Phase 1.</li> <li>▪ Decide on the issue of payment of interest on compensation in line with the arguments of the Lesotho Ombudsman and the LHDA lawyers and make all outstanding payments at the rates agreed upon.</li> <li>▪ Pay in full communal compensation owed to upstream and</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Address all the identified issues.</li> </ul>	2010-12-31

Projects	Present situation	Recommended action	Finish date
	<p>downstream communities.</p> <ul style="list-style-type: none"> <li>▪ Pay outstanding lump sums due to individuals based on agreed-upon business plans. The key principle in dealing with these plans is flexibility.</li> <li>▪ Put in order the records of all Phase 1 project-affected people and enter into the compensation workflow system.</li> <li>▪ Finalize residual resettlement issues at Nthakane and Korporale (issue certificates for replacement land received).</li> <li>▪ Finalize documents relating to the LHWP and make available in the Document Management System, including PoE reports (nos. 1-54).</li> <li>▪ Determine the principles and objectives of the Phase 2 compensation system.</li> <li>▪ Undertake baseline studies so that it will be possible to monitor changes over time in the livelihoods and well-being of Phase 2 affected households and communities.</li> <li>▪ The responsibility for WATSAN in the LHWP area must be given to someone, preferably LHDA, and then the responsibilities fully met.</li> <li>▪ Construct the fish barrier on the Senqunyane River to safeguard the natural habitat of the Maloti Minnow.</li> <li>▪ Continue fish monitoring especially of issues concerning the conservation of the Maloti Minnow.</li> </ul>		
		<ul style="list-style-type: none"> <li>• Hold a wrap-up workshop or symposium on lessons learned from Phase 1.</li> </ul>	2010-09-30

## ***Appendix 1 Maloti Minnow Policy and Action Plan***

In its report No 52 (October 2009) the PoE provided an overview of the past five years of Maloti Minnow conservation (Appendix 2, pp 38-47) as well as a motivation for barrier construction in the Senqunyane River (Appendix 4, pp 48-54).

LHDA has a Maloti Minnow Policy and Action Plan that was published in 2002. Since that time the efforts to implement the policy and action plan by the establishment of the Lesotho Biodiversity Trust have failed. Much valuable time has been lost and the Maloti Minnow in the Mohale catchment is in danger of extinction. The Government of Lesotho has responsibilities as a signatory to the Convention on Biological Diversity (CBD) that Lesotho ratified in 1995. As an arm of government, LHDA carries this responsibility.

The CBD calls on parties to implement *in situ* conservation of species as a first priority. This means that every effort should be made to conserve species in the habitats where they occur naturally and have evolved over time. Only when this proves impossible should *ex situ* conservation measures be implemented, such as captive breeding and maintenance and introduction into habitats where they do not occur naturally. The LHDA Maloti Minnow Conservation Policy and Action Plan clearly identifies the intention to implement *in situ* conservation of the Maloti Minnow, supplemented by *ex situ* establishment of transplanted populations as a safeguard.

### **1. Policy Statement**

**The Lesotho Highlands Development Authority, as the implementing agent of the LHWP, will make such reasonable interventions as are necessary to conserve the relict population of the Maloti Minnow (*Pseudobarbus quathlambae*) in the Mohale catchment.**

### **2. Policy Objective**

2.1. The overall objective is to conserve a viable *in situ* population of the Maloti Minnow in the Mohale catchment, coupled with the establishment of several *ex situ* populations as an additional safeguard for the survival of the species.

2.2. The specific objectives shall be:

- Establishment of an *in situ* sanctuary in the Senqunyane river, and possibly another in the Bokong river, that shall be protected from invasive fish species, and gazetted as “protected natural environments” (Lesotho Environment Act 2001, section 73(1)).
- Establishment of an *ex situ* sanctuary in the Jordane river above the Pampiri waterfall.
- Establishment of *ex situ* populations in the Makhaleng, Quthing and Maletsunyane rivers.
- Monitoring of *in situ* and *ex situ* populations.
- Building local capacity for long-term conservation of the species.

### **4. Maloti Minnow Action Plan**

***4.1. Provide funding for ongoing work on the Maloti Minnow, including translocation, monitoring and conservation planning through LHDA Project 1041, and ensure continuity and overlap with new initiatives described below.***

**4.2. Establish the Lesotho Biodiversity Trust that shall as its first priority investigate the feasibility of an *in situ* sanctuary in the Senqunyane river, with the possibility of a second sanctuary in the Bokong river. These sanctuaries will require protection from invasive fish species, by whatever means are best applied.**

**4.3. Establish an *ex situ* sanctuary in the Jordane river above the Pampiri waterfall.**

**4.4. Establish *ex situ* populations in the Makhaleng, Quthing and Maletsunyane rivers.**

**4.5. Monitor *in situ* and *ex situ* populations.**

**4.6. Build local capacity for long-term conservation of the species.**

In Appendix 4 of PoE report No 52, the arguments for building a fish barrier in the Senqunyane River were clearly stated. It should not be necessary to repeat them again here.

Yet during its present mission the PoE has again heard LHDA talking about the notion of breeding Maloti Minnow and establishing populations outside the Mohale catchment. It would appear that some of the proponents of cage trout production have offered this as a solution to the Maloti Minnow ‘problem’.

The PoE has previously warned about the fallacy of thinking that such *ex situ* conservation activities would safeguard the Maloti Minnow for the future. Here are the reasons:

- There are very few rivers in Lesotho which have not already been invaded by trout.
- Other arms of the Government of Lesotho have encouraged the introduction of trout into all waters where they do not already occur, to promote rural economies and supplement incomes and diets.
- The rivers into which Maloti Minnow have been transplanted were not previously inhabited by minnows. They might accordingly be unsuitable habitat in the long term.
- The LHDA has no jurisdiction over the rivers into which Maloti Minnow have been transplanted, and therefore cannot control or prevent the introduction of trout into those rivers.
- The numbers of minnows transplanted into the sanctuary areas are small and genetic bottlenecks could therefore be expected in the future.
- Maloti Minnows have been successfully bred in captivity by Dr Rall as part of his studies on the fish – the technology to do so is proven.
- The problem is therefore not one of captive breeding of the Maloti Minnow.

### **The real challenge**

- The real challenge is to establish a viable *in situ* Maloti Minnow sanctuary in the upper reaches of the Senqunyane River, protected by a suitable fish barrier.
- LHDA has been advised repeatedly over the past eight years that this is the only acceptable solution, and yet the project authorities continue to resist this advice and evade the issue.
- LHDA has not implemented the Maloti Minnow Policy and Action Plan of which it is the custodian.
- This remains a major blemish on Phase 1 of the Lesotho Highlands Water Project.

- No aquaculture or other fisheries development can be allowed in the Mohale reservoir until LHDA implements its Maloti Minnow Policy and Action Plan.

Finally, it should be noted that the World Bank flagged the issue of the Maloti Minnow in 2007 (*Implementation Completion and Results Report (IBRD – 43390). World Bank, June 14, 2007, 79 pp.*)

“Despite these efforts the protection of the Maluti Minnow was not secured by the end of the World Bank loan period. A proposal to create a physical barrier to protect populations from the migration of trout into streams upstream of the dam, although planned, had not been implemented by the time of the closure of the World Bank Loan.” (Page 12).

“Failure to implement all of the measures which would have better protected the Maluti Minnow demonstrates a lack of commitment from the GoL and raises broader questions as to the long-term sustainability of many environmental measures.” (Page 15).

“- There are major shortcomings in red data species protection, resulting in the potential extinction of the Maluti Minnow.” (Page 57 – Key Lessons Identified by Stakeholders).

As the LHWP moves into Phase 2, the issue of the Maloti Minnow becomes ever more critical, and requires urgent resolution.

**Appendix 2    LHWP zonation – LHDA contract 1255**

1. PoE was asked to actively participate in a workshop on the zonation implementation plan with key external LHDA stakeholders and provide expert advice on the implications and way forward.
2. The workshop did not transpire, but nevertheless PoE met with LHDA to discuss the way forward.
3. The current state of the zonation project is as follows.
4. The aim of reservoir zoning is to facilitate orderly development on and around the reservoirs that would advance the sustainable economy of the Highlands.
  - There is a final report on ‘Development of a Katse and Mohale Zoning Plan’ prepared by Loxton Venn & Associates and completed in 2001, and a final report on ‘Review of Katse and Mohale Reservoir Zoning Plans’ prepared by Machobane & Associates and dated March 2010.
  - These reports provide a wealth of information on physical zoning, on principles, and on the relevant legislation in Lesotho.
  - The main constraint on the ideal of reservoir zoning is an implementation instrument – a coordinating body to administer and manage peri-reservoir development. The coordinating body must include stakeholders (*eg* ministries, NES, LHDA, local government, community councils, traditional authorities, CALCs) who buy into the initiative, and there must be a coordinating framework by which the coordinating body operates and which sets the policies and procedures for peri-reservoir development, and enforces them.
5. At its meeting with LHDA, PoE was asked specifically to advise on a process to set up the coordinating body, and get it functional. PoE recommends as follows.
6. LHDA must drive a process to establish the coordinating body and the coordinating framework.
7. This process would involve at least several steps along the following lines.
  - Preliminary consultation (face-to-face) with each of the stakeholders to explain the reservoir zoning initiative, the need for the coordinating body and the need for stakeholders’ participation. The objective of each individual consultation is to ensure attendance of the stakeholder in the next step, *ie* a workshop to set up the coordinating body.
  - Workshop 1. The purpose of this workshop would be to set up the coordinating body – its membership, recognition by the members of whom the fellow

- members are and who/what they represent, who will be the lead agencies, who will run the secretariat, *etc.*
- Workshop 2. The aim of this workshop is to set up the coordinating framework, including policies and procedures for managing peri-reservoir development. There is a big agenda here, including what activities are allowed where, what approval processes there are (*eg* EIA, business licence), whether the coordinating body will passively receive applications for development or invite tenders for identified projects (or both), *etc.*
  - Workshop 3. The coordinating body might test its coordinating framework by taking a few ‘straw dog’ development applications, and processing them.
  - A fifth step might be some ‘hand-holding’ where the coordinating body has an expert to steer it through the first few development applications.
8. LHDA should hire appropriate expertise to facilitate setting up the coordinating body. Two kinds of help are required.
- A business development consultant experienced in community development projects, concessions, entrepreneurship, privatization, *etc.* This consultant would refine the 4-5 step process above, lead the preliminary consultation, arrange and run (but not facilitate) the workshops and ‘hand-hold’ the coordinating body to get it to an independent and fully functional institution. This consultant would probably not operate full-time, but over the period of setting up the coordinating body this could require in total about 3 months work.
  - A workshop facilitator who acquaints himself/herself with the reservoir zoning initiative, and can steer the workshops to achieve their purposes. This consultant would possibly need a couple of weeks to prepare himself/ herself for the workshops, and to facilitate them.

**Appendix 3 Public health****Other Public Health programs and issues not on TOR****Introduction**

This annexure is the PoE comments and observations on other Public Health Programs that LHDA is and have been involved in but have not been part of the TOR from the M&E Branch as they were implemented by another branch, and POE only had access by going through the Field Offices Reports. This is an illustration of the LHDA's lack of a central coordinating mechanisms siloed and firewalled similar programs implemented by different branches. A number of activities carried out by the HENREEP have never been included in the PoEs' TOR.

**Background of Other Public Health Programs**

LHDA has several special programs that were implemented under special projects label, and the HIV and continued support to health services in KLM and Mohale are typical examples of such programs where activities carried by such programs are not reported by the M&E Branch because of lack of coordination in the LHDA.

**The Katse Youth Centre**

HIV prevention and impact management in LHWP areas continues to be part of a set of activities that FoB are carrying out as part of their continuing support to health care delivery in LHWP areas. During the field visits that were arranged by FoBs PoE discovered that LHDA has not completely phased out public health support programs at



the field level as social workers and environmental officers at the field offices were involved in supportive activities that were essential to the continued health care service delivery and community health education. FoBs were involved in the

provision of transport to outreach programs at health centres and clinics, and mobilisation of youths in creation of awareness against HIV transmission.

The HIV prevention program among the youths consists of the establishment of a youth groups where peer education on HIV and reproductive health in general was carried out in collaboration with UNICEF, the World Vision and Prince Harry Trust Fund. As part of

its contribution LHDA donated a set of buildings in Katse for the establishment of a Youth Centre which was to be supported until it matured to self sustainability. Due to poor coordination and lack of follow-up as a result of the dissolution of the public health unit and programs the establishment of the centre failed to takeoff and the buildings have since gone into serious disrepair. The Youth peer education program is still continuing with the involvement of the LHDA providing technical and logistical assistance to the MoHSW and other service providers in the area in the form of transport and financial assistance to conduct training in peer counselling which is essential to the reduction of HIV transmission among the youths.



Other support provided include community mobilization for health activities that include immunizations, community health education and community based health worker training and transport for outreach programs. The support given by LHDA has proven to be crucial to the maintenance of basic health care services in the LHWP areas as government and services would not cope due to lack of adequate transport and human resources.

#### **Mohale Health Support Program**

The Mohale FoB continues to provide technical and logistical support to healthcare facilities and programs in the area, which has been crucial to continued operations of health services at community level. The program provides support in the form of logistical support to outreach program campaigns, community health workers training and supervision and, in some incidences, provision of community health worker kits and supply of basic drugs.

The health workers interviewed indicated that without this support they would not have been able to carry out most the activities as the GoL resources are severely limited.

## **Discussion**

LHDA 's support to public health interventions at the field level has proven to be essential to the continued provision of basic health care to the communities in LHWP areas. Although LHDA has formally phased out direct health care provision with the formal handing over of its clinics to the government, the field offices for operational reasons have found it necessary to continue to provide supportive assistance to health facilities and programs in their area of operations given the lack of adequate capacity of the services and the need for such services among the affected population.

LHDA support to health care delivery in the LHWP areas will continue to be needed as long as GoL is unable to provide the basic health services due to lack of adequate resource base. The support has been found necessary at the field levels as without this support the status of public health in the LHWP areas will be compromised and might affect LHDA's fulfilment of the Highlands Treaty obligations.

## **Recommendations**

Given the findings from the field, PoE makes the following recommendations on LHDA continuation of support to public health care delivery at community level:

1. LHDA should consider formation of a public health unit at the central level to plan and coordinate public health care interventions as part of a strategy to maintain the health of communities given the inadequacy of government resources.
2. FoBs should have public health units that consist of public health nurse/midwife, environmental officer and disease surveillance officer to provide technical support to health teams in the LHWP areas.
3. LHDA should conduct a review of public health needs in LHWP areas and develop appropriate strategies for the formal provision of technical/logistical/and where necessary financial support to the maintenance of healthcare services in the area that should include:
  - a. Support to the strengthening of the Youth reproductive health program to contribute to greater awareness of HIV and AIDS among the young population in the highlands
  - b. Assist in the repair and refurbishment of the Youth Centre as part of LHDA's the social responsibility to the community in the LHWP areas
  - c. Establish a formal cooperative working relationship with MOHSW and Christian Health Association of Lesotho, the two main health care providers through a MoU.

#### **Appendix 4 Wetlands and marginal lands**

1. PoE was conducted around Mohale Dam on the feeder roads to be shown the marginal lands and wetlands, and to the Bokong wetland, to assess the issues and LHDA's handling of them.
2. PoE understands that by marginal land LHDA means land that was disturbed previously, not necessarily by LHWP, and is now bare or sparsely vegetated, often with shallow soil, and eroding. The demerits are low productive potential for cropping and even grazing, and continuing erosion and sedimentation in the reservoir. An example is shown in Exhibit 1 below.



**Exhibit 1 Marginal land at Mohale.** The photo is an example and the yellow arrow points to a site reportedly previously cultivated. Rehabilitation was attempted by sowing (it is understood) *Eragrostis curvula*. The land in the photo does not fall within the agricultural land capability class 'arable' because of the constraints of steep slope and shallow soil. At best the land in view has the land capability of 'grazing', and some of it is so steep and stony as to qualify only as 'wilderness'. Despite the land capability limitation portions of the land in view have been cultivated in the past (see striping more or less along the contour) and some if is still being cultivated (centre left in photo).

3. Marginal lands, such as shown in Exhibit 1, can be rehabilitated. The rehabilitation of the quarry at Mohale is an example where the construction contractor had stockpiled some topsoil to aid in the restoration. In the case of most of the marginal land situations around Mohale there would generally be no stockpiled topsoil to draw on, and any rehabilitation would require work with the residual soil material (probably hostile subsoil and weathered rock). Proceed as follows.
  - Ideally the soil material should be sampled and analyzed at a soils laboratory to indicate the existing fertility and how it must be improved to sustain grass.
  - Target soil fertility values are P at >15 mg/kg, K at >120 mg/kg, Mg at >120 mg/kg, Zn at >1.5 mg/kg and soil pH 4<8.
  - If Mg is low and soils acid then use dolomitic not calcitic lime. If lime is applied it should be done 2-3 months before grass establishment, and incorporated into the top 10 cm of soil by scarifying.
  - Even if P >15 mg/kg, and unless P >120mg/kg, a pop-up dressing of P 20 kg/ha should be applied at grass establishment.
  - The fertilizers P, K and Zn should be applied in spring (October) and incorporated into the soil by scarifying. Grass seeds often do not germinate and establish if the soil is not scarified. Best results are obtained by rolling the soil after seeding. Sow with *Eragrostis curvula* at 15 kg/ha.
  - Exclude livestock.
  - At seeding, or when the seeds germinate, topdress with N at 50 kg/ha.
  - Inspect after storms and repair rills and gullies and re-establish grass with fertilizer where it is scoured out or otherwise failed to establish.
  - When the grass comes into flower, slash it, remove the cut grass and topdress again with N at 50 kg/ha. Repeat this slashing and topdressing as many times as possible through the summer, but do not apply N between 28 February and 1 October.
  - Continue the slashing and topdressing through a second summer, still visiting after storms and repairing damage.
  - At the start of the third summer topdress with N at 50 kg/ha and then in mid-summer admit livestock.
4. Rehabilitating marginal lands is expensive. It is akin to conventional pasture establishment, but more costly because of the intensive aftercare. Planted pastures are a financial proposition only for intensive animal production (*eg* dairy, finishing off animals for slaughter). Of course in LHDA's case an overriding consideration in the peri-reservoir situation is arresting erosion and sedimentation.
5. If LHDA is to rehabilitate marginal lands then it should do so by prioritizing – identify the marginal lands, select the sites that are contributing the most to erosion and sedimentation, rehabilitate them, and only when success has been achieved move on to fresh sites.

6. PoE observed that in cases where steep land is under the plough in the Highlands, erosion off the cultivated land is being tackled by constructing berms to divert runoff (Exhibit 2). There are several problems with this, as follows.
- Runoff diversion is depriving the cropland of its normal soil water replenishment. This is liable to aggravate drought, reduce crop production, reduce protective plant cover over the soil, probably reduce soil organic carbon, make the soil more erodible, and maybe even increase soil loss.
  - Berms concentrate runoff, and they must discharge somewhere, and that is likely to transfer the erosion problem not solve it. The 3 rules of soil conservation are being flouted – rule 1 is avoid concentrating runoff, rule 2 is avoid concentrating runoff, and rule 3 is avoid concentrating runoff.
  - Concentrated or point delivery of the discharge from diversion berms into drainage lines is bound to destabilize the watercourses.
  - Often the berms have gradients along them steeper than 1 in 100. This will cause scour along the berm. Berm or contour bank gradients should be between 1 in 300 and 1 in 100.



**Exhibit 2** *Diversion berms.* Berms are being constructed to divert runoff around cultivated fields. This is far from an ideal solution and it is a challenge for ICM to develop and have generally adopted ‘greener’ solutions.

7. There are means other than diversion berms to limit soil loss on steep cultivated land. These include the following.
  - Limited tillage
  - Intercropping
  - Developing grassed waterways on drainage lines through cultivated fields (rather than simply ploughing through the drainage line – an unacceptable practice)
  - Using French drains or dams upslope of the cultivated fields to attenuate storm runoff
  - Where land that does not have arable land capability is under the plough, withdraw the land from cultivation
8. Many of the issues in points 6 and 7 above were addressed at a LHDA-PoE workshop on Runoff and Erosion held in September 2004. The workshop record is available in a PowerPoint presentation. It is a starter document for accumulating know-how on handling runoff and erosion in the Highlands.
9. Issues under points 6 to 8 above are a challenge to the ICM LHDA counterparts that are now transferring to the FOBs. It is sometimes said in medicine that the cure is worse than the disease. Resort to diversion berms as above is analogous. ICM needs to develop better ‘cures’ and get them adopted by the land users.
10. In Lesotho and indeed around the world, much heavy handed land use and attempted remedy suffer from lack of foresight. If you want to do something, ask yourself ‘And then what?’ Answer the question by simple environmental risk assessment. Assess several alternative options, and pick the option with overall the least bad consequences.
11. There is some formerly cultivated land below FSL for which compensation was paid and which is now being cultivated illicitly (Exhibit 3). The rationale of no cultivation near the dam is to limit sedimentation into the reservoir and protect water quality. LHDA should try to resolve the illicit cultivation by discussion and persuasion and using traditional, community, local government and ministry structures. If this does not work it may be necessary to resort to legal intervention.



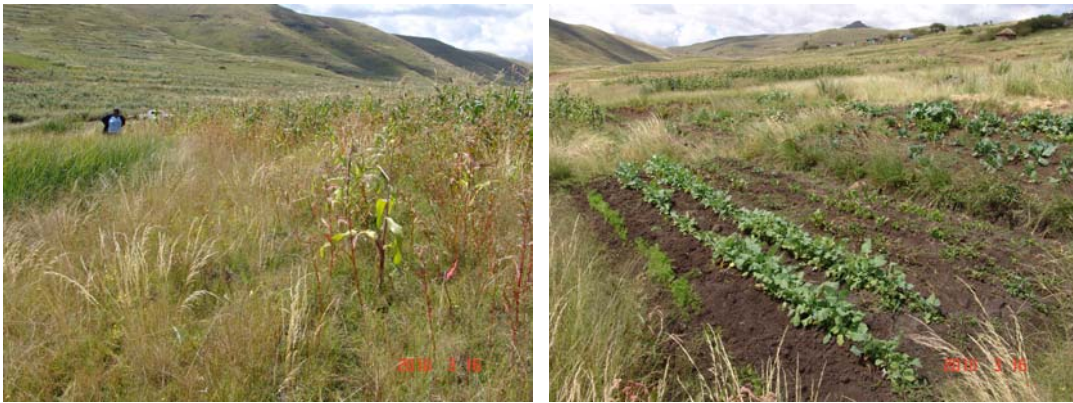
**Exhibit 3** *Cultivation below FSL.* The positions of white beacons are shown approximately by the red arrows.

12. The wetlands at Ha Tsiou were visited following a visit and site discussion in September 2009. Various interventions have been, or are being, addressed. In general, LHDA is to be commended on springing into action expeditiously. The kinds of problems are not necessarily fixable immediately, and whatever the interventions they need to be watched over time, and maybe modified and improved until stability is reached.
13. At the culvert under the tarred feeder road to the tunnel inlet a permeable weir has been constructed to raise the base to which erosion is working on the big wetland upstream (Exhibit 4). This is, in PoE's view, the right approach, but if and when sediment builds up above the weir then flood flows might divert around the structure, in which case the ends of the weir need to be extended to end flush with the banks, and the left and right sides of the weir raised so the weir is lowest at centre.



**Exhibit 4** *Weir at culvert on tarred feeder road to Mohale tunnel inlet.* The purpose is to raise the base to which erosion is working, and prevent headward erosion into the wetland upslope. Over time sediment might build up behind the weir, in which flood flows could divert and scour around the weir. In this case extend the ends of the weir into the banks, and raise the left and right ends so weir is lowest at centre. The pond at the base of the weir is a drinking trough for livestock.

14. The large wetland upstream of the culvert shown in Exhibit 4 is still being cultivated by the local villagers (Exhibit 5). As previously discussed with LHDA, wetlands have important environmental functions, so much so they are accorded a specific land capability class called ‘wetland’. The environmental functions include flood attenuation, water storage, water purification, supporting biodiversity and sequestering carbon. One ha of this type of wetland might be sequestering 1000 to 2000 tons of carbon. There is also a ‘short-cut’ road through the wetland. As with cultivation below FSL, LHDA must continue to try to use its influence with villagers, traditional leaders, and community, local government and ministry structures, to have cultivation in the wetland withdrawn, and the ‘short-cut’ closed. There are other nearby cases where cultivation is encroaching into wetland.



**Exhibit 5** *Cultivation in wetland at Ha Tsiou.* At left is maize in the wetland. Note at the lower edge the soil is too wet for maize to grow. At right is a newly opened vegetable garden in the wetland. Wetlands provide life support environmental services that would be prohibitively expensive to create and maintain, and they are therefore irreplaceable.

15. One wetland at Ha Tsiou that PoE visited in September 2009 was trampled by livestock, and the wetland soil puddled (Exhibit 6). In the jargon of soil scientists, puddling soil means destroying the soil structure, even making it into a ‘loose porridge’, by trampling it when it is supersaturated. Fortunately through the summer the livestock are moved up into the mountain rangelands so even worse damage is being avoided. But even in winter, trampling and then puddling of the soil are liable to lead to erosion, gullies and ultimately the loss of wetland function. It is not so that wetlands cannot be grazed at all, but they can withstand only very light use. PoE understands the difficulties in making headway here, but herein lies the reality that present land use in the Highlands is heavy-handed and poorly sustainable.



**Exhibit 6** *Wetland at Ha Tsiou at risk.* At left is the late winter scene with livestock trampling, and puddling of wetland soil. Fortunately livestock are moved to the mountain rangelands in summer (right photo), but continuation with the heavy grazing and trampling even only in winter will lead to erosion, gullies and ultimately destruction of the wetland function. Note the cultivation encroaching into the wetland.

16. Mohale is also working at runoff erosion problems where roads cross wetlands. Stone-pitching and stone-pack weirs are being constructed. This is a useful approach. A big problem with roads is that they concentrate and discharge runoff, usually at a point without energy dissipation of the discharge, so that scouring and gullies result. Use frequent berms or stone-pitched ditches across roads to discharge runoff away from the road. Where possible, tilt roads to the downslope side so that they discharge runoff continuously. Roads running straight up and down slopes, or down a concave slope, are difficult to drain, and the result is often a road that is deflated below the level of the adjoining landscape so that road drainage becomes even more difficult. In these cases the most feasible solution might be to realign the road so that it runs diagonally across slopes, and can be drained. Stone-packs in mini-weirs across the flow of runoff often work better than stone-pitching. Many small stone-packs are preferable to a few big ones. The stone-packs should be lower at centre and higher at the sides so flood flows are concentrated at the centre and do not erode around the structure. The stone-packs should individually be aligned along the contour, and set on the gradeline (*ie* the top of one structure level with the bottom of the next structure upslope).
17. PoE was also conducted over the Bokong wetland where LHDA is undertaking further rehabilitation work. The effort and the progress are commendable.
18. The gabion weir constructed just upstream of the culvert is achieving its purpose (Exhibit 7). It continues to set a base for erosion upstream. Sediment is accumulating above the weir.



**Exhibit 7** *Drop weir constructed above culvert at the Bokong wetland.* Flow through the wetland was cannalized as a result of lowering the base to which erosion was working when the road builders dug down to find the culvert on hard rock. The weir now functions to raise the erosion base to its former level, trapping sediments upstream. In due course these sediments will stabilize and be colonized by wetland plants.

19. On the left bank above the culvert is a bare area on which stone-packs have been placed (Exhibit 8). Again, this is the right approach, but it can be improved by increasing the number of stone-packs (many frequent structures work better than a few big structures), re-aligning the existing stone-packs so that they are along the contour, and setting the stone-packs along the gradeline (the top of one structure level with the bottom of the next structure upslope). Once sediment has accumulated above the stone-packs then this can be established to plants sourced from nearby – spread the sourcing so as not to impact the local vegetation cover.



**Exhibit 8** *Rehabilitation of bare areas at Bokong wetland.* Stone-packing is being used to stabilize bare and eroding patches adjoining the wetland. This is a useful approach. The stone-packs should be more frequent (set along the gradeline) and aligned along the contour of the micro-relief. Establish to grass by transplanting locally sourced plants into the sediments built up above the stone-packs.

20. LHDA is tackling the eroding channel in the Bokong wetland upstream of the culvert (Exhibit 9). The drop weirs installed here many years ago were flawed. The sides projected above the wetland and during flood flows concentrated flow around the structures causing scouring and eventual by-pass of the drop weirs. LHDA has now packed stone and blocked the scoured out by-passes – the right thing to do. The structures are also very big and widely spaced (remember: many small structures work better than a few big structures). The large size of the drop weirs causes turbulence during flood flows, scouring big holes downstream of each structure and limiting stabilization of the sediments and their colonization by wetland plants. PoE suggests that where gabions project above the level of the wetland the gabion baskets be opened and stone removed to lower to flush with the wetland. Also, immediately downstream of the weirs should be filled in with stone to reduce turbulence and scour during flood flows.

21. The operators of the Bokong visitor centre laid a pipe through the Bokong wetland (Exhibit 10). This is unfortunate since the wetland is fragile, and LHDA is saddled with difficult rehabilitation. The backfilled pipeline trench was subject to runoff from the road embankment above that scoured out replaced soil and vegetation. There is also permanent seepage along the trench so that it is soft and liable to erosion whenever there is storm runoff. Using remaining wetland plants in the trench, stone and any available wetland soil back-fill the eroded trench, and build frequent mini-berms to divert flow onto the downslope wetland. If/when the back-filled trench is stabilized the mini-berms can be flattened.



**Exhibit 9** *Remedy of gabion structures in Bokong wetland.* Years ago large, widely spaced gabion drop weirs were constructed in the wetland. Because of poor design water scoured around the structures. LHDA has now blocked the by-passes. The large size of the structures causes turbulence during flood flows, and this is preventing sedimentation and wetland plant colonization. See big pool downstream of gabion in left photo, and encroaching wetland vegetation on sediments above the weir. The right photo is looking downstream from the same weir – see big pool and then sedimentation with plant colonization further downstream.



**Exhibit 10** *Eroded pipeline trench through Bokong wetland.* Scour of the back-filled trench resulted from storm runoff from the road embankment, exacerbated by the continual seepage along the unconsolidated back-fill. Fill the trench with plant, soil and stone as best possible and construct many mini-berms across the trench to divert seepage onto the downslope wetland. Have the responsible party come and remove his industrial litter (the pipe). If this does not work within a year or so then the trench will have to be opened, and trench-breakers inserted (*ie* impervious walls at intervals to stop downslope flow inside the trench).

### *Appendix 5 Planning parameters*

PoE was asked to review and critically comment on the LHDA 2010/11 social and environmental planning parameters.

1. PoE was provided (a) a document entitled LHDA Strategic Plan 2010/15: Planning Parameters, and (b) a supporting document entitled LHDA Strategic Plan Tables 2010/11-2014/15. PoE met with LHDA management, and discussed the strategic plan.
2. PoE commends LHDA for the initiative. The Plan starts with the givens (vision-mission-values, governance, etc), proceeds through an external environmental scan (Porter 5-forces model) and SLOT analysis (strengths, limitations, opportunities and threats), to key focus areas (KFAs), and the actions required to meet the KFAs.
3. In the time available it was not possible for PoE to undertake an exhaustive review of the strategic plan, but a number of shortcomings were identified. The shortcomings, or rather aspects that can be improved, are presented below.
4. The Plan must have a clear logic from identification of an individual strength, limitation, opportunity or threat to one or more KFAs and then the measures or actions to address the strength, limitation, opportunity or threat. For example, under limitations is stated ‘Insufficient project management expertise especially management of LHDA contracts, lack of timely and proper follow-ups to resolve issues before they get out of hand.’ Under which KFA or KFAs is the corresponding action described? PoE could not find the KFA or KFAs that prescribe the appropriate detail (such as LHDA must appoint a champion/ project leader for each contracted project, such project leaders will have formal training in project management, all instruction to contractors will go through the project leader, the project leader will take responsibility for execution of the project within budget and on schedule, *etc.*)
5. In a SLOT analysis it is conventional to include internal positive characteristics as strengths, internal negative factors as limitations, external positive possibilities as opportunities, and external negative factors as threats. This classification has a logic. It is that the grouping of factors is to enable an organization to use its strengths to overcome its weaknesses, seize the opportunities and neutralize the threats. The individual items in the SLOT analysis should be reviewed and re-grouped to meet the conventional approach. An example of a misplaced issue is bullet 2 under Strengths – the support/ talents of the project Authorities, LHDA Board, World Bank and engineering and environmental panels lie external to LHDA, and this item should be moved to opportunities. Another example is the last bullet under Threats – ‘Defective infrastructure such as the ‘Muela seepage and Mohale crack.’ Defective infrastructure is internal and comes under Limitations not Threats. Further, if the specific defective infrastructure is identified in the SLOT analysis then the specific item must appear under the KFAs, and the specific remedial measures stated. The reader of the

strategic plan cannot find specific reference to the Mohale crack after the SLOT analysis.

6. There are too many individual strengths, limitations, opportunities and threats. No one can do everything. No one can afford everything. Review the individual items. Reduce down to the half dozen or so under strengths, limitations, opportunities and threats that are the most strategic issues. There should not be more than about 24 individual issues. Amalgamate some of the entries. Delete some entries. Examples of issues that may be amalgamated are those under Strengths that relate to human resource capacity, *eg* bullets 1, 3 and 11. Similarly bullets 2 and 6 might be amalgamated and shifted to Opportunities because the positive factor is outside LHDA. Further, many of the issues under Limitations relate to weak monitoring, surveillance and performance evaluation (bullets 1, 2, 3, 4, 5 and 9). These issues might be amalgamated under one general bullet (maybe with important examples in brackets). The important principle underpinning monitoring and evaluation is that error elimination is being used to improve management – you watch what you are doing and correct or improve where goal achievement is not attained. Performance evaluation actually appears under both Strengths and Limitations. Can the same issue be both a strength and a weakness? Maybe, but in the present case it is probably a weakness and should appear only under Limitations. If the strategic plan is properly done then performance evaluation (and monitoring) need be mentioned only once because the issue should then be followed through (as a strength or weakness) under the KFAs and the appropriate management action set out there.
7. There are some issues which the present SLOT analysis overlooks. These need to be included and perhaps displace some of the existing issues. Under Opportunities should be included words to effect that LHDA supplies a basic resource (water) to the commercial-economic-financial-industrial hub of the SADC region (Gauteng) and there are opportunities to strike up alliances with big role-players such as the water consumers represented by water utilities (Rand Water) and local government, Eskom and Sasol, all of whom might help in the procurement of expertise and technology to ensure and sustain the basic resource supply. These partners must be alerted to a principal long term threat to LHWP, and that is the poor sustainability of the current land use and land management of LHWP catchments. Include this negative factor under Threats. This is a tough nut to crack, but the heavy-handed land use must be softened (*eg* ICM interventions, partners can second or sponsor expertise and technology to improve sustainability of land use), by reducing the dependence of the Highland people on the basic resources (*eg* by forging ahead with peri-reservoir economic development through the initiative of reservoir zonation), and perhaps by developing novel instruments whereby current land users forego some land use rights in exchange for a shareholding in the water project that pays them dividends. Governance was also mentioned by PoE as a Limitation or Threat. It is a Threat in the case of no CEO for years – LHDA does not have the mandate to appoint its own CEO so inclusion of the issue in the SLOT analysis does not help LHDA's strategic plan. However, lower down within LHDA's mandate there are issues such as poor contract project management (already mentioned in SLOT), and the control and safe-

keeping of assets (safety and security of LBT is mentioned), but the newly constructed Information/Visitor Centre at Katse lies idle apparently with the Katse Manager not authorized or instructed to use the centre, or even look after it. Millions of Maloti investment are secured against vandalism and the like by baling wire. Perhaps the centre is ear-marked for some organization other than LHDA to use, but that is surely a mistake for the founding principle of FOBs is that they take full and total responsibility for everything that happens at their Branch. If there are indeed alternatives to the FOB principle then they need to be in the strategic plan.

8. No plan is perfect, and no blueprint is everlasting. LHDA should not expect its Strategic Plan to be perfect before implementing it, and beyond a certain stage of plan preparation more is learnt from the experience of implementing the plan than by fiddling with the 'stationary' plan. By analogy, you cannot learn to drive a motor car without driving one.