

Report prepared for Lesotho Highlands Development Authority



LESOTHO HIGHLANDS WATER PROJECT



Bokong wetland reclamation

REPORT 56

Report prepared by Panel of Environmental Experts

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EXECUTIVE SUMMARY

1. The Panel of Environmental Experts (PoE) for the Lesotho Highlands Water Project (LHWP) undertook a mission from 4 to 13 October 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 LHDA requested the assessment of progress made in disbursements of compensation to individuals and communities since the introduction of the flow centric system and the determination of the efficiency and effectiveness of the system and short comings thereof. In addition to advise LHDA on strategies to be adopted for communal compensation and to review the 2010/2011 distribution performance. Currently the compensation disbursements has greatly improved compared to previous years with records showing more than an average of 80% disbursement rates especially for grain distribution. It would appear that the Flow Centric system has made it easier to identify and follow-up recipients. However, as some components of the system have not yet been added only the grain distribution was adequately handled. The strategy being adopted for communal compensation had been slow in the release of funds and needs to be speeded up to respond to development of the affected communities. The system still has a number of technical glitches that would need to be ironed out before it is fully operational.

Lump sum investment and operational guidelines PoE was asked to assess the efficiency of lump sum payments options in improving livelihoods of recipient households and to assess the LHDA implementation efficiency in addressing lump sum applications following the newly established model for preparation of business plans for lump sum payments. There has been an increase in the number of households opting for lump sum payments since the adoption of the new strategy. Although many of the applicants have provided some business proposal on what they would use the money for, many of these have not used the money for the business purpose they had indicated in their application. The processes that were used to determine viability of the business were not rigorous enough and at the same time there are no mechanisms to ensure that the money paid would be used for purpose it was intended for. Interviews of households that opted for lump sum payments indicate that the money received was used for consumption and not business and has already been used. The households are now regretting for having had opted for lump sum payment. The adopted model for business plan preparation may be easier and lead to a faster processing and approval of business plans and subsequent release of funds but does not provide adequate safety net advisory services to the applicants.

Income Generation/Technical Assistance Unit PoE was asked to comment on factors that affect progress on the implementation of development projects in Mohale and Katse. Development projects in Mohale and Katse areas are beset by delays in disbursements of funds from LHDA due to a number of factors that include the lack of appropriate financial management skills among the LLEs, and poor feedback on submitted reports to LHDA. The TAU Unit members are aware of the problems but seem powerless to deal with the issues that are seen to be at a higher level of responsibility. The officers on the ground seem not to be appraised as to why payments are not made on time. Furthermore, the lack of properly identified community development needs have not been made and communities in these two areas have tended to choose water systems and roads building projects without proper financial planning and budgeting, and many of these projects have not been completed due to lack of adequate funds. The lack of fund releases from LHDA was found to be the inadequate financial reports on the use of these funds. It would also appear that LHDA has not made arrangements to look at implementation development of complementary projects but focuses on individual projects without synergy with other community development needs.

LHDA performance indicators LHDA is commended on developing and using these indicators. Without measuring performance it cannot be known where it is weak and where it needs to be improved. PoE has detailed a few instances where the indicators themselves warrant improvement. There are several poor performances that are not captured (IFR monitoring, loss of talented staff, Maloti Minnow conservation). A further weakness is incapacity to act on identified poor performance. In each case, leadership and staff must devise corrective action that includes a plan, persons responsible, timelines, and follow-up. The performance indicators need buy-in by leadership and managers, and the monthly/quarterly/annual report should take the form of the *risks & issues log* that project managers use.

ICM - LHDA Contract 1044 Present land-use in LHWP catchments is poorly sustainable. Impoverishment in the resource base is all too evident. The consequences are ultimately worsened livelihoods of the people in the catchments, increased reservoir sedimentation, lowered water quality and probably reduced volumes. The worsened circumstances are not consistent with the Treaty obligation to maintain livelihoods and environmental resources. ICM is a core function of LHWP. ICM must be incorporated under FOBs. LHDA ICM counterparts must be transferred with equipment to FOBs. Two to three ICM staff are warranted at each FOB. **ICM is a Treaty obligation and a strategic issue.**

Maloti Minnow conservation PoE was requested to review draft ToR for barrier construction. The document is deficient and requires revision. Situation regarding Maloti Minnow is highly unsatisfactory, with no progress since PoE visit in March, and the matter of **Maloti Minnow conservation has now become a strategic issue of crisis proportions**. PoE urges LHDA to escalate its attention to Maloti Minnow, as the organisation is now seriously in breach of its own 2002 Maloti Minnow Policy and Action Plan.

Instream flow requirements (IFR) A draft report on using the Decision Rules is commendable, but the treatment in the Report is insufficient. Only the data from formal IFR monitoring are considered. These data have no confidence attached, and strong inference cannot be drawn from them. The monitoring data on riparian bush conflict with other evidence, including photographs. 'On balance of evidence' is required, and flawed data ought to be explained as such, and set aside. **The IFR monitoring of riparian bushy vegetation and fish has become a strategic issue of crisis proportions**. PoE also reviewed revised/simplified IFR Policy and Procedures. The one-page Policy statement is commendable, but needs refining. The Policy and Procedures are too complicated and beyond the capacity of LHDA (and just about any organization) to implement. The way forward is to start with the IFR objective and then figure out the *minimum* that needs to be done to achieve the objective.

KFF pilot trout production PoE reviewed pilot study 5-year evaluation report and reviewed draft aquaculture regulations. KFF has been given a one year extension which is reasonable given delays in start-up. KFF has accumulated valuable experience and knowledge and should be required to address any shortcomings in its monitoring and reporting performance during the extension period. PoE feels that, should the draft aquaculture regulations prove to be unworkable, LHDA should develop its own regulations to regulate aquaculture in the reservoirs. Mohale reservoir is not available for aquaculture until the Maloti Minnow issue is resolved.

Public Health PoE was tasked to review and comment on the Public Health Policy designed specifically for communities in the project area, and advise on the scope of the policy in the light of the Treaty obligation and the LHWP affected communities. The Public Health Policy designed for LHWP communities appears to be adequate and ready for implementation. However, application of the policy at the field level will require a formal public health portfolio consisting of a public health nurse and an public health officer at the field level to lead LHDA participation in the collaborative efforts with government departments and health partners.

Biological resource monitoring Adopt the presently stated broad objective subject to replacing weak methods (that yield data from which strong inference cannot be drawn) with repeatable methods that yield data to which confidence limits can be attached. The principal database should be GIS based on remotely sensed data that identifies land types and degree of

transformation, that is informed by direct gradient analysis that quantifies the effect of land-use and other disturbance on land and vegetation transformation, and that is supplemented by ground-based survey of flora and fauna, particularly special interest species such as indicator species and threatened species.

Katse Botanical Garden PoE was requested to assess and comment on status and performance of KBG in addressing its mandate. PoE regards KBG as a showpiece for LHDA, and urges continued support for staff and a satisfactory institutional dispensation that will assure the future of the botanical garden as a national asset.

KLM WATSAN PoE was asked to review progress made towards starting construction of the remaining VIPs and water systems. Currently there are efforts being made to identify appropriate contractors and RFPs have been developed for advertising by the end of the month. So far 1,517 VIPs and 88 water systems are to be constructed. However, only M9million is available and additional funding will have to be sourced from somewhere. Sourcing from GOL is stymied by the fact that LHWC has not provided the audited financial reports on the last construction efforts. On the other hand LHWC would like to have an idea of how much the project will cost before it can commit itself. It is unclear from where the funding of the construction will be sourced. Currently the affected communities are very hostile to LHDA because of being left out of the VIP and water systems construction, and this has adversely affected other LHDA services to these communities. **KLM WATSAN is a strategic issue of crisis proportions.**

Several issues have been identified as strategic (ICM, Maloti Minnow, IFR monitoring, KLM WATSAN). Some are more urgent than others. In each case it is necessary to devise a plan that includes what is to be done and how, who is responsible for the execution, and by when. Leadership and management must follow up to ensure execution, and to address inevitable problems along the way.

PoE is unable to do justice to the Terms of Reference provided because the agenda is too big and the time available too little. It is recommended that missions be 10-days, at quarterly intervals, with smaller and more focused agendas. Further, mission dates should be fixed one year in advance.

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INTRODUCTION

The Panel of Environmental Experts (PoE) for the Lesotho Highlands Water Project (LHWP) undertook a mission from 4 to 13 October 2010. The mission was attended by 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
1	LHDA compensation	<ul style="list-style-type: none"> Assess the progress attained since implementation of the compensation workflow system and advise on its efficiency, effectiveness and how to deal with any hindrances thereon Advise LHDA on the pragmatic strategies to be adopted to revamp the current communal compensation approach Review and comment on the 2010 / 2011 compensation distribution performance
2	Lump sum investment and operational guidelines	<ul style="list-style-type: none"> Assess the efficiency of lump sum option in improving the livelihoods of the recipient households Assess the LHDA implementation efficiency in addressing lump sum applications following the adoption of the newly established model for preparation of business plans for lump sum.
3	Income generation/Technical Assistance Unit	<ul style="list-style-type: none"> Comment on the factors that affect progress on implementation of development projects in Mophale and Katse
4	LHDA performance indicators	<ul style="list-style-type: none"> Review the first performance reporting on progress using the performance indicators and advise the LHDA on how best to improve the reporting
5	ICM – LHDA Contract 1044	<ul style="list-style-type: none"> Review progress since March 2010 Assess the implication of the recommended exit strategy for the ICM counterparts and advise on the other possible options. Comment on ICM Final Report and the associated Monitoring and Evaluation System designed as per Task5 completion report. Review progress and assess the effectiveness of Sediment Control Measures being implemented in the 'Muela Catchment
6	Maloti Minnow Conservation	<ul style="list-style-type: none"> Review and enhance to ensure the completeness and the relevance of the draft Terms of Reference for the EIA for the construction of the barrier and advise where necessary.
7	IFR	<ul style="list-style-type: none"> Review and comment on the Draft Decision Rules Report, its implementation and propose on how it can be improved. Assess the extent to which C1270 Simplification of the IFR Policy report has addressed the SOS and provide professional judgment on possible challenges and risks to be expected during its application and advise on

Task #	Issue	Action
		appropriate interventions.
8	KFF pilot trout production	<ul style="list-style-type: none"> • Review and comment on the end of pilot study evaluation report and advise LHDA on the implication of granting extension and allowing expansion of the KFF project • Review and comment on the draft fish farming regulations and legal framework developed for aquaculture projects in LHWP reservoirs.
9	Public Health	<ul style="list-style-type: none"> • Review and comment on the public health policy designed specifically for the communities in Project area. Advise on the scope of the policy in light of the Treaty obligation and of 'the LHWP affected communities'
10	Biological Resource Monitoring	<ul style="list-style-type: none"> • Review and comment on the relevance and completeness of the Terms of Reference to assess the status of biological resources in the project area. The focus will be on specific key indicator species as recommended from baseline studies.
11	Katse Botanical Garden	<ul style="list-style-type: none"> • Assess and comment on the status and performance of KBG in addressing its mandate which include among others the establishment of community outreach gardens and monitoring of colonies of <i>Aloe polyphylla</i>.
12	KLM WATSAN	<ul style="list-style-type: none"> • Review the RFP and ensure all relevant issues are covered • Identify the factors underlying the lack of progress

Each of the items of ToR is dealt with in more detail in the matrix that follows. The treatment falls short of what the Panel considers warranted, because Panel missions are too infrequent, and too short, for the lengthy agendas to be dealt with. The options are to have longer missions at the present 6-monthly intervals, or the present 10-day missions at quarterly intervals. PoE recommends the latter option and proposes that mission dates should be set a year in advance.

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

CRITICAL PROJECTS

Projects	Present situation	Recommended action	Finish date
1. LHDA compensation			
Workflow system	<ul style="list-style-type: none"> System is partially functional and has been used for the distribution of grain and beans compensation where it was found useful. 	<ul style="list-style-type: none"> The system component/s interfacing with ACP and accounts should be completed. 	2011-01-31
	<ul style="list-style-type: none"> The system however was problematic when the distribution point lists were long as the entries tended to be timed out and the entered data could not be retrieved as it is not saved on time out. 	<ul style="list-style-type: none"> The time-out period should be extended or removed to allow completion of entries for each distribution point. 	2011-01-31
	<ul style="list-style-type: none"> The system is not designed to allow observational comments, or records of disputes where such comments/remarks would provide better explanatory comments and direct management action. 	<ul style="list-style-type: none"> There is a need to add a column for comments or remarks at any level of the system. 	2011-01-31
	<ul style="list-style-type: none"> Data entry screens and the distribution schedules are not similar which makes it tedious to enter data from the field. 	<ul style="list-style-type: none"> Data entry screen and the field schedule should be matched for easy data entry 	2011-01-31
	<ul style="list-style-type: none"> The systems does not provide an option for alternative data entry person if the authorised user is unavailable. Whereas there is need to limit the authority level to only a few people, the system should be made user friendly to the field workers by allowing them to solve minor operational problems at their level rather than wait for a manager at the top to notice the problem. Graduated levels of authority can be created to enable lower level operatives to make immediate restitutions to minor problems - any changes however should be flagged to the next level of authority <i>eg</i> FOB Manager. It makes management sense that a cleaner should be the one to request a new mop rather than the manager noticing that the cleaner needs to have a new mop. There should be a job enrichment process for the field operatives by giving them some level of authority and we should stop loading managers with mundane responsibilities. 	<ul style="list-style-type: none"> The system should have authorization level for inclusion of an additional or alternative data entry person in the absence of the authorized data entry person. 	2011-01-31
	<ul style="list-style-type: none"> The system does not provide for the supervision of the distribution by 	<ul style="list-style-type: none"> The FOB Managers need to be included 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	the FOB manager as it reports directly to HQ.	in the loop to monitor performance of the field officers.	
	<ul style="list-style-type: none"> The system does not save time for field officers as they have to enter the data from the distribution schedule when they get back to their offices where they have to scan the signed copies of the field schedule 	<ul style="list-style-type: none"> There will be a need to create a signature or thumb print data bank on recipients to increase security. 	2011-01-31
		<ul style="list-style-type: none"> At the same time there will be a need to provide laptops and wireless internet for field offices to use in the field. 	2011-01-31
Communal compensation	<ul style="list-style-type: none"> Communal compensation is way behind schedule due to poor financial management reporting and auditing as well as unexplained lack of feedback on submitted reports from LHDA. 	<ul style="list-style-type: none"> Financial management capacities of the LLE should be developed and systems put in place. 	2011-01-31
		<ul style="list-style-type: none"> LHDA should develop feedback mechanisms on status of financial reports from LLEs and where possible send a financial advisor to assist in correcting the problem. 	2011-01-31
	<ul style="list-style-type: none"> There are no project performance charts of LLE in FOB to track progress being made by each LLE. 	<ul style="list-style-type: none"> FOB Offices should plan to include monitoring of performance of LLE projects as part of their performance monitoring. 	2011-01-31
	<ul style="list-style-type: none"> FOB should make an assessment of the most pertinent communal development/ service needs and assist LLE to prioritize identified needs for intervention. 	<ul style="list-style-type: none"> FOB to hold strategic planning exercises with LLEs to help them plan better. 	2011-01-31
2010/2011 compensation distribution performance	<ul style="list-style-type: none"> Current being accelerated (for grain and pulses only) the ACP is still being done manually until the appropriate system component is added. 	<ul style="list-style-type: none"> The Flowcentric system should be completed as soon as possible and should be made user friendly and responsive to emerging issues in the field. 	2011-01-31
	<ul style="list-style-type: none"> The system does not allow for change of beneficiary. 	<ul style="list-style-type: none"> Provide for change of beneficiary options and explanations to expedite the 	2011-01-31

Projects	Present situation	Recommended action	Finish date
		processes of distribution	
2. Lump sum investment and operational guidelines			
Lump sum and improving livelihoods	<ul style="list-style-type: none"> Lump sum payments have not improved livelihoods as the money collected has been used for general consumption and has not been invested in any income generating businesses. 	<ul style="list-style-type: none"> Lump sum payments for small amounts of less than M20,000 should be discouraged as it is not adequate to support business ventures and is likely going to be used for general consumption. 	2011-01-31
	<ul style="list-style-type: none"> A significant number of those who opted for lump sum provided business proposals that were accepted as the basis for the payment but did not undertake the business but used the money for domestic consumption instead. 	<ul style="list-style-type: none"> Lump sum payment should be discouraged as it does not provide safety-net for the future of the household and could lead to destitution. 	2011-01-31
	<ul style="list-style-type: none"> LHDA may find it convenient to give lump sum payout but the failure of investment of the money by the household may have implication on LHDA ability to ensure that the livelihood of these families do not degenerate to a level where LHDA may be seen to have failed to keep the lives of the households at par or above that they were before the affection by LHWP as per treaty obligation. 	<ul style="list-style-type: none"> LHDA should immediately examine the impact of lump sum payments on its ability to keep its treaty obligation. 	2011-01-31
Newly established model for business plans	<ul style="list-style-type: none"> The new business model is less stringent than previous ones and has led to a greater number of households being given lump sum payments without any guarantees that they would undertake the businesses 	<ul style="list-style-type: none"> Review the current business model to ensure that only approval of lump sums would be based on <i>bona fide</i> business to avoid later destitution of households 	2011-01-31
	<ul style="list-style-type: none"> Many of the businesses proposed do not take into consideration key business considerations and risks – and current a significant number of business suggested are failing due to factors that were not factored in the plans – <i>eg</i> there is shortage of poultry for broilers and layers as the South African sources are not able to cope with the demand. 	<ul style="list-style-type: none"> TAU should conduct business development planning workshops after thorough market research. 	2011-02-28
3. Income generation/Technical Assistance Unit			
Development projects in Mohale and Katse	<ul style="list-style-type: none"> Technical Assistance Units needs to be more effective in providing assistance to community development programs. 	<ul style="list-style-type: none"> TAU should hold Strategic Planning exercises with the various communities to determine strategic priorities for 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> • Development projects are limited in scope and tend to address single development programs even where a composite approach to development would provide development synergy. • There seems to be a problem in that councils and local authorities are not being involved in the implementation of development programs but only LLEs. LLEs are seen as cooperatives and therefore may not be inclined to be involved in services projects but income generating projects. 	implementation.	
		<ul style="list-style-type: none"> • LHDA should redefine LLEs to ensure that they are part of the local governance structures to authorise development in their areas. 	2011-01-31
4. LHDA performance indicators			
First performance report	<ul style="list-style-type: none"> • PoE was provided with LHDA's List of Objectively Verifiable Indicators and Conditions of their Prevalence (dated November 2009) and a Summary of Performance on the LHDA Performance Indicators (dated 31 July 2010). • In the time available it was not possible to review all the detail of these documents. • In general, the initiative to measure performance is commendable. An old adage is 'if you can't measure it, it is not worth knowing'. In the management context, if one can measure how one is performing against the various targets then one is assisted in identifying where the shortfalls and this is a first step in knowing what to fix. 	<ul style="list-style-type: none"> • Continue using the performance indicators. 	On-going
	<ul style="list-style-type: none"> • PoE reviewed some of the Summary came up with the following specifics. (PoE's attention was drawn to the fact some of the unsatisfactory items Panel has flagged might arise because the <i>monthly</i> Performance Indicators does not track all KFAs, some of which are reviewed only quarterly or annually.) • KFA 5 Delays to compensation are attributed to implementation of flow-centric. How is this to be prevented in future? 	<ul style="list-style-type: none"> • Review, revise and refine the performance indicators, ensuring that they cover all relevant issues, and that the indicators truly measure performance (<i>eg</i> income generated, not a report on income generated). 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> • KFA 5 Some lump sum payments were withheld because proof was required from the applicants that they have not used their fields. What kind of proof? Shouldn't LHDA satisfy itself? The applicant can surely present false proof? In any case, how is the problem to be prevented in future? • KFA 6 PoE is not convinced of the wisdom of '60% surviving businesses'. A failed business is, in one sense, a disaster. But failing businesses must fail and disappear. Maybe the figure of 60% is carefully selected to be a mid-point between too many businesses failing and too few failing. It is said that in the US 80-90% ventures fail in their first year. What alternative metrics might be adopted? Local gross product? Total number of businesses operating? Total employees? • KFA 6 Artisanal fishing not monitored. Nor are the Katse and Mohale fish stocks. Performance on conserving the Maloti Minnow is not mentioned. This was flagged as a significant EAP issue. Failure here is a big reputational risk to LHWP. • KFA 6 'Report & income generated on tourists within LHWP' is not a <i>performance</i> indicator. The indicator might be the income generated. • KFA 6 '70% of business plans implemented'. No progress is due to delays in lump sum payments. How is this to be remedied? • KFA 6, KFA 7 Several instances where there is a target (<i>eg</i> 90% of <5yr olds immunized) but no measurement against target. There is no mention of how failing is to be remedied. Comment/variance insufficiently explicit. • KFA 8. The IFR targets are insufficient. The main issue is not how much water is released (this is only a means to the end), but what the river condition is (this is the end that the means must satisfy). The releases are being made, recorded and reported. River condition measurement (IFR monitoring) is defective. This performance is not but should be measured. The failed performance could cost LHWP 		

Projects	Present situation	Recommended action	Finish date
	<p>millions (pay 2nd tranche compensation) for want of adequate data.</p> <ul style="list-style-type: none"> • KFA 8 Reporting on KFF is inaccurate. Performance Indicators Report says no reports since Aug-Sep 2009. But PoE has seen reports. Performance Indicators Report says 5 year evaluation report has not been submitted. But PoE has seen this report, in early draft in March 2010, and a recent version in October 2010. Even so, if the reporting is lax what has LHDA done about it? KFF says it has submitted reports but gets no feedback, not even acknowledgement. This reflects badly on LHDA. Who has been appointed responsible for this in LHDA? If no one, then why not? Leadership must delegate and follow-up. • KFA 10 Performance Indicators Report does not capture one aspect of poor performance, and that is the loss of talented people. Quantitative staff turnover is not the same thing as attrition of talent. Over the years LHDA has lost very able, mostly young, people. This continues. These folk are indeed often difficult, but they are future leaders, and they need to be cultivated not chased away. The fault lies with the organization – both the leaders and the rank-&-file. There is not time and space here to treat this issue fully, and a few words must suffice. The bosses must organize work, and delegate work on the basis of who is best suited to doing what kind of work. Yes, there are some chores none of us like that have to be done. But build on individual's strengths. Also, individual staff need to know themselves (what kind of work they do well and under what circumstances) and understand their bosses – what services, products and information they need, and what their weaknesses are – and then support their bosses 'to make them happen' (in the sense that behind every successful person is a more wonderful spouse). The <i>Harvard Business Review</i> is possibly the best contemporary source on these matters (eg Drucker PF 1999 Managing Oneself <i>Harvard Business Review</i>; Schaffer RH 2010 Mistakes leaders keep making <i>Harvard Business Review</i> September 2010. What LHDA needs to do is track its performance on cultivating present and future 		

Projects	Present situation	Recommended action	Finish date
	<p>leadership, and improving staff performance not just on technical skills but also on effective organizational function. At least to partly address 'talent', personnel evaluations might include objective measures such as number of courses, workshops, diplomas, degrees, <i>etc</i> attended/obtained by the individual staff over the past 5 years.</p>		
	<ul style="list-style-type: none"> • The above review of some of the specifics reveals some generic issues. • The performance indicators are not sufficiently 'warts-&-all'. Glaring poor performance, even total failure, does not appear. LHDA could be accused of deliberately hiding the truth. One example is the poor performance of IFR monitoring (the implications are unavoidable 2nd tranche compensation payment simply because of neglect to collect adequate data – it could be an unnecessary Project cost of millions). A second example concerns the loss of able personnel (see above). A third case is the Maloti Minnow. Hiding the ugliest warts, deliberately or otherwise, weakens the performance indicators the main purpose of which is to identify the biggest failings so they can be fixed. • The performance indicators report is insufficient in stating concisely how failings are to be remedied, or prevented in future. It is not enough just to identify what is weak. How to fix it – the corrective action and its milestones, the staff responsible – must be decided, otherwise the shortcoming will remain. • The previous bullet point illustrates a poor performance that LHDA's performance indicators do not capture, and that is limited capacity to fix a problem. This is a generic disease afflicting many organizations. When senior managers challenge staff to reduce costs, hasten turnaround, increase sales, or make other needed improvements, the response is 'yes, but first we have to...' train our people, study the market, replace a retired key player, implement the new Work Centric System, disband the Lesotho Biodiversity Trust, and so on. These are excuses that substitute for leadership and staff working out and implementing a plan – the corrective action, who will do what by 	<ul style="list-style-type: none"> • Work on using the performance indicators to indicate where corrective action is needed, then develop corrective measures including action, people responsible, timelines and follow-up. 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<p>when, and a follow-up to ensure the shortcoming is fixed. The key is people acting on a plan.</p> <ul style="list-style-type: none"> • It is unclear that LHDA leadership and managers fully buy-in to performance indicators. Leadership should force the issue – managers commit themselves to it, or come up with an improvement or alternative. The monthly/quarterly/annual performance indicators report should represent the <i>risk & issues log</i> that project managers use – a concise document identifying the priorities, their status, who is responsible for what by when. The log a centre-piece for guiding management, and should be updated every month/quarter/year – keep what is still relevant, downgrade or delete what is of lesser priority or redundant or completed, upgrade urgent issues, insert new issues. 		
		<ul style="list-style-type: none"> • Leadership must get buy-in of all managers on performance indicators (otherwise come up with a better substitute), leadership must then enforce adoption of the performance report as a kind of <i>risks & issues log</i>. 	2011-01-31
5. ICM – LHDA Contract 1044			
Progress since March 2010	<p>PoE understands that the main achievements since March 2010 were as follows.</p> <ul style="list-style-type: none"> • Monthly Report no 58 completed and submitted. • Task 5 Completion Report: Development of Monitoring Program submitted. • Draft Final Report on LHDA Contract 1044 completed and submitted. • Conservation works undertaken in the 'Muela upper catchment. <p>There are some things that were not achieved, and these include the following.</p> <ul style="list-style-type: none"> • No follow-up of the success and otherwise of interventions such development of home gardens, limited tillage cropping and inter-cropping. In the ideal the land-users' perceptions of the interventions, 	<ul style="list-style-type: none"> • ICM must be accepted as a core function of LHWP with LHDA's ICM counterpart staff and equipment taken in under FOBs. 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<p>their acceptance or rejection of them, and the reasons, are as important as the physical outcomes (crop production, soil loss, sustainability).</p> <ul style="list-style-type: none"> • No handover of ICM to FOBs. 		
Exit strategy	<ul style="list-style-type: none"> • The exit strategy set out in the Draft Final Report is for ICM (including most importantly LHDA's ICM counterpart staff) to be handed over to/be taken over by FOBs. • PoE understands that the recommended exit strategy has not been adopted and that various other options have been considered, such as handover to government ministries and even NGOs. • The continued supply of water in quality and quantity over many decades, if not indefinitely into the future, is a core component of LHWP, and as essential to it as the built infrastructure of dams, tunnels and hydropower. • The present land-use in LHWP catchments is poorly sustainable. Even on commercial farms anywhere around the world it is easy for the farmed land to become impoverished because of insufficient conservation practice with the result of depleted soil organic carbon and nutrients, loss of topsoil, decline in productive capacity and degradation in land capability. Impoverishment in the resource base is all too evident in LHWP catchments. The consequences are ultimately worsened livelihoods of the people in the catchments, increased reservoir sedimentation, lowered water quality and probably reduced volumes (limited flood attenuation, spilling and evaporative losses, or downstream releases to limit spilling). The worsened circumstances are not consistent with the Treaty obligation to maintain livelihoods and environmental resources. • If ICM is handed over to government ministries we know what will happen – the resources (most importantly the human resources) will be dissipated into the greater Lesotho with limited if any benefit to LHWP. If handed over to NGOs, then there is limited or no control over ensuring the success of ICM. 	<ul style="list-style-type: none"> • Appoint 2-3 ICM staff under each FOB to implement ICM according to the hand-over strategy and way forward in the Draft Final Report. 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> Two to three ICM staff at each FOB are necessary. One staff is insufficient. With two or more 'the whole is more than the sum of the parts' – the staff synergize, they learn from one another, institutional memory is retained despite staff turnover. Because it relates to livelihoods & environment in LHWP catchments ICM is a Treaty obligation and is a strategic issue. 		
ICM final report and monitoring and evaluation	<ul style="list-style-type: none"> It is not possible for PoE to verify that all thing accomplishments mentioned in the concluding reports of Contract 1044 were indeed achieved. However, Contract 1044 reports are of a much higher intellectual and professional standard than is the case with most other LHDA contracts – the reports 'talk sense'. The ICM project has a compelling logic, and this applies most especially to the exit strategy and the way forward in the Draft Final Report. Inevitably some of the individual ICM project tasks have seemed to have progressed better than other tasks. While the tasks have been part of a whole, the key areas are the catchment management institutions and working with the land-users to improve conservation practice (conservation structures and farming methods). ICM has got to do with changing attitudes and mindsets, and this can be achieved only by working with the local social institutions and the individual land-users. In terms of monitoring and evaluation it is necessary to assess the outcomes of individual interventions (eg how limited tillage affects crop production, and how the field owner perceives the intervention) and the level of adoption among communities. Periodic measurement of sedimentation in 'Muela reservoir should be continued. Otherwise measuring erosion with hydrological stations (weirs), runoff plots, and the like, is expensive and the opportunity cost high (expend the available resources where benefit:cost is high). 	<ul style="list-style-type: none"> Compare effects of interventions (eg maize production with limited tillage vs standard crop cultivation, land-user's perceptions) and monitor changing community perceptions and practices. Avoid expensive monitoring (eg sedimentation and soil erosion at hydrological stations, runoff plots, etc) (remember lesson learn about monitoring! – PoE Report 55). 	2011-02-28
Sediment control at	<ul style="list-style-type: none"> PoE was conducted by 'Muela PR and LHDA ICM counterpart staff 	<ul style="list-style-type: none"> Hold a 5-day workshop with ICM staff, 	2011-02-28

Projects	Present situation	Recommended action	Finish date
'Muela	<p>over interventions in the Bela-Bela catchment.</p> <ul style="list-style-type: none"> • The interventions include diversion berms, water (runoff) storage berms, gabions and stone packs along the contour. These are described in a report which PoE looked over. The work was funded by 'Muela FOB, undertaken by local people, and supervised by LHDA's ICM counterpart staff. • The interventions are appropriate and executed to a high standard. LHDA, FOB 'Muela, ICM counterparts and the local people are complimented. • The site visit was an opportunity to discuss the broad ICM approach and the finer points. ICM counterparts have excellent understanding and are capable at implementation. This has been achieved at considerable cost, and it would be a mistake now to divest when there is opportunity to reap the benefits of investment in empowered human capacity. 	<p>FOB managers and environmental officers, and relevant PoE, mostly out-of-doors on site to develop direction for each FOB, and enhance capacity.</p>	
6. Maloti Minnow Conservation			
ToR for EIA on barrier	<ul style="list-style-type: none"> • The draft ToR for the EIA and EMP for the construction of artificial barriers to protect the Maloti Minnow was provided by LHDA for comment. • The document is poorly constructed and requires thorough revision. As it stands, the consultant is given a confusing brief about what the barrier is supposed to achieve. • According to the LHDA response to PoE Report No 54 dated 30.09.2010., NOT ONE of the five actions highlighted as urgent by the PoE and for completion by 01.05.2010. has been implemented. • The Maloti Minnow situation has been repeatedly identified over the years by the PoE as being of very high risk to the project, yet the apparent lack of urgency to expedite the situation remains a mystery. 	<ul style="list-style-type: none"> • Revise and expedite ToR for EIA for fish barrier on Senqunyane River 	2011-01-31
	<ul style="list-style-type: none"> • It has now been a full year since a report on the state of the Maloti Minnow and fish in the Mohale Reservoir has been produced. LHDA has now lost control of the situation and does not know what is 	<ul style="list-style-type: none"> • Complete closure of LBT and asset transfer to LHDA. 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<p>happening in the Mohale catchment. This is a major setback to the LHDA Maloti Minnow Policy and Action Plan that was adopted in 2002.</p> <ul style="list-style-type: none"> • In March 2010 the PoE was told that the dissolution of the LBT was 90% complete. By 30 September this has apparently still not been resolved. 		
	<ul style="list-style-type: none"> • The urgent establishment of a Task Team to assume responsibility for Maloti Minnow conservation was highlighted by the PoE. Yet by 30 September the Task Team has not yet been appointed and LHDA is “preparing to compile and finalize project brief for EIA for barrier.” • PoE made its recommendations very clear in Report No 54 of March 2010. None of the recommendations have been implemented and nothing has changed since then, except that the Maloti Minnow is another six months closer to extinction and LHDA has lost another year of opportunity to monitor fish in the Mohale reservoir and catchment. The PoE cannot do the work that is the responsibility of LHDA management. We can only observe with great disappointment that the Maloti Minnow situation is developing into the greatest blemish on the Lesotho Highlands Water Project. 	<ul style="list-style-type: none"> • Escalate Maloti Minnow activities from M & E Branch to a higher level in the organisation. Establish a dedicated Task Team. This can be internal or on contract, or a combination of both. 	2011-01-31
	<ul style="list-style-type: none"> • In March 2010 the PoE recommended that LHDA secure the services of the former LBT Conservation Officer who is an experienced fish biologist. As of 30 September the LHDA is “currently finalising the TORs to secure the services of the Fish Conservation Officer”. Six months have passed since the former Conservation Officer was retrenched by LBT. 	<ul style="list-style-type: none"> • Secure services of a qualified and experienced consultant on contract to conduct survey of minnow status and alien fish invasion of Mohale and catchment. 	2011-01-31
7. Instream flow requirements (IFR)			
Draft decision rules report	<ul style="list-style-type: none"> • A Report was prepared by the Aquatic Systems Section of Monitoring and Evaluation to use the Decision Rules to assess change in riparian woody vegetation and fish stocks in proximal reaches. • It is commendable that at last the Decision Rules are being brought into consideration. 	<ul style="list-style-type: none"> • Avoid relying solely on flawed evidence, adopt an approach of ‘on balance of evidence’, and set aside data on which no confidence can be attached and from which inference cannot 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> • The Report has defects. • The Report is inconsistent in the monitoring period covered. The title states '2002/03 to 2007/08'. Page 4 lines 6-7 say 'since 2005/06 to date'. The woody vegetation is considered from 2005 to 2006. The fish are considered from 1998 to 2008 for Phase 1A and 2005 to 2008 for Phase 2b. • The Report uses IFR monitoring data. • The Report concludes that the riparian woody vegetation has declined but the fish not. • The Report conclusion regarding riparian woody vegetation data clashes with other evidence. See Mentis MT & Ledger JA 2005 <i>The effects of reduced river flows on woody vegetation</i> Manuscript submitted to LHDA. More recent photographic evidence (see inserted photos below) also contradicts the supposed decline in riparian woody vegetation. • Since at least 2005 PoE has pointed out repeatedly that the IFR monitoring data must be of sufficient quality but that in fact they are not good enough (see Monitoring Workshop Jan 2005, PoE Report 41 Apr 2005, PoE Report 42 Sep 2005, PoE Report 43 May 2006, PoE Report 44 October 2006, PoE Report 46 May 2007, PoE Report 49 Sep 2008, PoE Report 51 Mar 2009, PoE Report 52 October 2009, PoE Report 55 May 2010). • The main defects of the monitoring data used in the Report are that though they are samples they are not based on probability theory, the samples are not independent, there is no measure of variability, no confidence can be attached, and strong inference cannot be drawn. • On the basis of the Report, LHDA will have to pay 2nd tranche compensation. PoE has repeatedly argued that the evidence to justify downstream compensation was poor, and that even 1st tranche compensation was not justifiable on the grounds that for a claim for losses to succeed it must be demonstrable 'on balance of evidence'. On 	therefore be drawn.	

Projects	Present situation	Recommended action	Finish date
	<p>‘balance of evidence’ (the photographic and other evidence submitted by PoE is open to refutation but so far no one has shown that such evidence is invalid) the 2nd tranche compensation payment is not justified (at least as far as the woody vegetation is concerned).</p> <ul style="list-style-type: none"> • Adopting the approach of the Report could lead to having to pay 2nd tranche compensation, and this could be a costly mistake and an unfortunate precedent, for which LHDA personnel are accountable. • The Report uses evidence selectively, and evidence that is flawed. At the very least the ‘balance of evidence’ should be considered, and probably the evidence on which confidence cannot be attached, and from which strong inference cannot be drawn, should be set aside. This is to say that the much of the formal IFR monitoring data has been collected in a costly and futile endeavour (as PoE has said so many times before), and it now represents an expensive liability for LHWP. • The IFR monitoring of riparian bushy vegetation and fish has become a strategic issue of crisis proportions. 		
		<ul style="list-style-type: none"> • Hold a 5-day workshop with IFR monitoring personnel and relevant PoE to develop appropriate monitoring protocols 	2011-03-31
			

Projects	Present situation	Recommended action	Finish date
<p>Simplification of IFR Policy</p>	<ul style="list-style-type: none"> • PoE was provided with a report Simplification of the IFR Policy and Procedures: Summary of socio-economic indicators and targets developed and incorporated into edition 3 of the IFR Policy and Procedures (Variation Order 5). • PoE is concerned about several aspects of the Report. • Though claiming to be a simplification, what the Report covers and proposes is complicated. • It is not clear how socio-economic factors are, or can be, related to river flows, and flow-related resources. Also, correlation – if it can be shown – is not necessarily cause-&-effect. • It is surely futile (in the present context) to measure socio-economic factors when their relation to the flow-related resources changes is undemonstrated and even non-existent. • In order for a proposed monitoring to be acceptable it must be tried out, for example, developed using Green’s 10 monitoring principles. • The data are of a multivariate nature – and very much of the apples & pears type – and it is unclear how these heterogeneous things would be analyzed, for what purpose, to enable what patterns to be detected or conclusions reached. 	<ul style="list-style-type: none"> • Get a handle on monitoring changes in flow-related resources before venturing into this difficult area. 	<p>2011-01-31</p>

Projects	Present situation	Recommended action	Finish date
One-page IFR Policy statement	<ul style="list-style-type: none"> • It is unclear how socio-economic indicators would be developed. • PoE was provided with a one-page Policy for Instream Flow Requirements. • LHDA is to be commended on this one-pager. It homes in on the key elements. • The document warrants further refinement. It is verbose and repetitive. Some examples follow. • Why must we have 'Purpose of the IFR Policy'? The heading includes 'Policy' and 'IFR'. Surely 'Purpose' is sufficient? • The first paragraph does not need to repeat 'Lesotho Highlands Development Authority since the LHDA logo is in the top right corner, and the title includes Lesotho highlands Water Project. Why include 'adaptive' to qualify 'management'? All management must adapt to the circumstances and experience, otherwise it is not 'management'. Equally 'predetermined' is unnecessary. Further, '...flow releases to maintain...' instead of '...flow releases for the maintenance of...' Why not 'river conditions' instead of 'conditions for the riverine ecosystems'? There is a muddle of purposes – maintain river conditions, mitigation, compensation. Can't the whole paragraph be written more compactly around the notion of 'avoiding, mitigating and compensating for lowered river condition', in one sentence? • There are too many purposes and objectives. The purpose (<i>the</i> objective) can be condensed as explained above. The present 'objectives of the IFR Policy' are means (or boundary conditions) to the end (the purpose). The word 'To' is repeated in each case, but is redundant and should be deleted. There is overlap and repetition in the content of the items, <i>eg</i> items 5 and 6. This section should follow 'Purpose' and precede the other sections on the page. • The four boxes (on river condition, bulk releases, adaptive management, and compensation are similarly complicated and verbose, and need review and revision. For example, is LHDA assured 	<ul style="list-style-type: none"> • Review and refine the one-page IFR Policy statement, to address PoE criticisms. 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<p>that it is feasible to use DRIFT? What other paradigms are there for river management (eg preserving sediment load: discharge relations)? What are their relative merits and demerits?</p>		
Revised IFR Policy and Procedures	<ul style="list-style-type: none"> • PoE was provided with drafts of revised IFR Policy and revised IFR Procedures (Third Edition). • In the time available to PoE it was not possible to work through the draft documents thoroughly, and comment is confined to high level issues. • The documents are hardly any improvement on previous versions. • The documents are insufficiently organized. They do not set out with the most important thing – what is it that is to be achieved? In the mindset of Peter Drucker, there are no facts without a point of view. In the present case the point of view is the IFR objective or purpose. Without that the Preamble and Definitions of Key Concepts are gibberish. How can one know what to (p)r(e)amble about without knowing what the purpose is? How can one possibly know what concepts are key without knowing what it is the intention to achieve? • The documents are not organized into a hierarchy of issues and detail. For example, though there is now compiled a one-page IFR Policy (see above), the Policy document does not include this <i>per se</i>. Though the one-page IFR Policy statement gets close, the Policy document is not strongly structured around the handful of key issues that follow on the purpose, each of which has a handful of key issues, that in turn each have a handful of subordinate issues, and so in a hierarchy (<i>cf</i> The One Page Project Manager). Instead the documents tend to have a mix of core issues and fine details on one page (eg page 2 of the Policy). • The Policy is equivalent to a corporate statement of appetite for risk. This is required of the Policy, except that the Policy is too risk-averse. While being risk-averse might be thought to be good (indicative of high ethical standards), if it is not feasible to manage the risks as stated in the Policy then the organization will be viewed to be not doing what 	<ul style="list-style-type: none"> • Simplify IFR Policy and Procedures to address the criticisms. Hold a 5-day workshop with relevant personnel (in-house and monitoring contractors) and relevant PoE to revamp IFR Policy and Procedures. 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<p>it says, of being incompetent and negligent, with reputational damage and loss of staff morale if not key staff. LHDA is not capable of meeting the commitments of the Policy, <i>eg</i> Table 4.1 on pages 6 and 7. LHDA cannot monitor fish and riparian bush to give reliable results. There is therefore no prospect of being able to use the complicated parameters of Table 4.1, such as vegetation. The Policy is pie-in-the-sky.</p> <ul style="list-style-type: none"> • The river condition classification system is inappropriate. It is built on the assumption of one-dimensional change from natural to modified. It is not considered that there may be different kinds (dimensions to) modification. A well-managed farm at Mooi River is not a necessarily a lesser ecosystem than a well-managed Kruger National Park. The two systems have different objectives. Both systems can have ecosystems in poor condition, or good condition, depending on how they are managed. In this context, IFR2, which is not a protected area like Kruger Park, should not be penalized unduly because it has an alien fish – trout – that in fact has high commercial value. • A reach is cored on the basis of a fixed site. It is not shown in the data how such a site represents the whole reach. If possible, the whole reach needs to be considered/sampled (<i>cf</i> Professor Basson's discharge:sediment modelling of whole river reaches). • A further point on the river condition classification system is that it should, but at the moment does not, include key nutrients such as phosphates and nitrates. While these nutrients might have been at low levels so far in LHWP, there is a risk that they may increase, especially in view of the growing settlements such as Ha Lajone, and the increasing tourism and probably more caged trout production. • A still further example of the poorly or non-executable is the adaptive management process in Figure 1.1 on page 3 of the Procedures. After setting the instream flow regime in the algorithm the question is posed 'Are the predicted impacts acceptable?' From previous work done by 		

Projects	Present situation	Recommended action	Finish date
	<p>consultants using DRIFT we know that more than 50% of the predictions are wrong. This is not unique to DRIFT. Any complex model in bioscience is liable to predict worse than flip-of-the-coin (Gigerenzer G 2007 <i>Gut Feelings: Short Cuts to Better Decision Making</i> Penguin, London). As already pointed out, the items in Table 4.1 of the Policy are poorly measurable, and the monitoring protocols are not up to producing reliable data (see below). On matters of style and logic, the algorithm is disjointed and does not have a Start.</p> <ul style="list-style-type: none"> • The monitoring protocols are unacceptable. Though sampling is used the monitoring design does not use probability theory. Variability is not being measured. To make valid comparisons <i>between</i> times one must have measures of variability <i>within</i> times. The data yielded cannot have confidence limits attached. It is not possible to make any informed comparison between times. No strong inferences can be drawn. Panel has pointed this out repeatedly. See PoE Report 52 October 2009 for a recent account. What PoE has criticised about biophysical monitoring applies equally to the newly proposed socio-economic monitoring. Time and money are being wasted in continuing with futile monitoring exercises, and because criticism and advice are ignored. • The IFR Policy and Procedures are far too complicated. The way forward is, having determined the objective, to work out the <i>minimum</i> that needs to be done to achieve the objective. The notions embodied by words such as <i>comprehensive</i> that crop up in the Policy and Procedures are wrong-headed. Policy and Procedures must be simple enough for them to be reviewed and revised at least annually. 		
8. KFF pilot trout production			
Pilot study evaluation report	<ul style="list-style-type: none"> • PoE paid a courtesy visit to KFF manager and received from him a copy of KFF's 'Five-year Evaluation Report for Pilot Aquaculture Fisheries in Lesotho' dated 5 October 2010. It is understood that this report has not yet been received by LHDA; a short summary has been 	<ul style="list-style-type: none"> • KFF is now the most experienced trout aquaculture operation in Lesotho and every effort should be made to build on what has achieved. Any outstanding 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<p>compiled as Appendix 1. The main conclusions follow.</p> <ul style="list-style-type: none"> • <i>Water conditions at Katse are generally good for trout aquaculture, but the following problems have been experienced:</i> Summer water temperatures can reach trout upper limits; Fluctuations in water level result from dam operations; Reservoir turnover can cause low oxygen levels; Net damage from underwater hazards; Strong currents; Storms. • <i>The cumulative outcome of all these factors:</i> Growth rates lower than anticipated; Food conversion lower than expected; Harvested fish at 1.2 kg are smaller than ideal export size (2-3 and 3-4 kg); Financial impact is 50% lower income than export market would have yielded. • <i>Aquaculture Impacts:</i> Water quality has been monitored: report uses as examples certificated results from Institute of Groundwater Studies, University of Free State for October 2009 and August 2010; No significant changes in chemistry and no differences between upstream and downstream readings; It is projected that 300 ton/ annum production level will not significantly affect water quality; Monthly biomass present is graphically depicted, ranging from 80 to 40 tons as fish are harvested; Phosphate levels above the cages showed spikes thought to be caused by runoff from the catchment – downstream averages lower, presumably because of dilution; Monitoring of nitrite, nitrate, ammonia and dissolved oxygen shows no negative impact from KFF operations; Phosphate sediment sampling has been done once in August 2010 and results are inconclusive. • <i>Financial Aspects:</i> The pilot project has so far accumulated a loss of M6.7 million; At an annual production of 300 tons, after adjustment for abnormal losses, a break-even income of M737,000 before tax is estimated; To achieve a reasonable rate of return on investment, higher annual production in the order of 600 or 900 tons is required, involving additional investments of M3.5 million (includes hatchery) and M2.2 million respectively; At the 600 ton/ pa level the investment and returns come with high risk; Once 900 tons/ pa is achieved, the risk is 	<p>issues that LHDA may have with KFF (incomplete reporting <i>etc</i>) should be resolved swiftly and amicably. Any deficiencies in the 5-year evaluation report should likewise be clearly communicated and KFF requested to comply.</p>	

Projects	Present situation	Recommended action	Finish date
	<p>reduced and sustainability more assured; KFF wishes to increase production to 900 tons/ pa and is ready to allocate 30% shareholding to local investors and expand to 1,200 tons/ yr.</p> <ul style="list-style-type: none"> From June 2006 to end 2009, KFF employees from the local community have been paid a total of M561,460 in salaries and wages. 		
		<ul style="list-style-type: none"> It is understood that KFF has been given an extension of one year for the pilot project. KFF has also stated its intention to apply for an increased output to 900 tons/ pa. PoE recommends that negotiations be initiated timeously to identify the formalities that would be involved in the consideration of such application. 	2011-01-31
		<ul style="list-style-type: none"> During the one year extension of the pilot project, water quality issues and sampling techniques should be critically evaluated. In particular the sediment sampling that has only been done once produced ambivalent results and should be repeated and refined during 2011. 	2011-01-31
Fish farming regulations	<ul style="list-style-type: none"> PoE perused the Consultant's report compiled in response to LHDA's Request for Quotation dated April 2010. The report has some useful information on carrying capacities in LHDA reservoirs. The Consultants conclude that trout production of 3,500 tons per annum could safely be accommodated in Katse and 395 tons/ pa in Mohale. However, the latter is not available for aquaculture because the Maloti Minnow issue has not been resolved. Given that production below 1,000 tons/ pa is risky for investors, a maximum of three trout operations are feasible in Katse for the immediate future. 	<ul style="list-style-type: none"> PoE recommends that should the draft 'Fish Farming Regulations and Institutional Framework for LHWP Reservoirs' prove to be overly complicated and unworkable, to the extent that fisheries development is being held up, then LHDA should formulate its own regulations to govern aquaculture practices in its own reservoirs. PoE in any case recommends 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> PoE feels that the regulatory system proposed by the Consultants is overcomplicated and inappropriate to current and anticipated aquaculture activities in Lesotho for the coming five years. PoE expresses its concern about the actions of the Consultants who visited the KFF operation at short notice without any management staff being present, and who subsequently produced a report that is highly prejudicial to KFF. The visit to KFF was (by their admission) not part of the Consultant's brief. The manager of KFF was subsequently asked a series of questions by one of the Consultants. He has never been shown their report or given an opportunity to respond to their negative comments. PoE is concerned about the way that LHDA communications to KFF are channelled through Katse FOB – there is an inherent risk of confusion and omission. This incident is not in keeping with professional practice and ethical behaviour. 	the latter option.	
		<ul style="list-style-type: none"> PoE recommends that the Consultant's report on KFF be embargoed and its circulation restricted because of the irregular manner in which information about the KFF operation was obtained. If LHDA does not agree with PoE, then it recommends that KFF be given sight of the report and be offered an opportunity to respond – a lawsuit against LHDA and its consultant should be anticipated. 	2011-01-31
9. Public health			
Public health policy	<ul style="list-style-type: none"> The current public health policy proposal for FOBs is comprehensive and appropriate, but will require a functionary at the FOB level to implement and apply in LHDA activities at the field level. 	<ul style="list-style-type: none"> LHDA should adopt the policy for implementation by the proposed dates without much changes 	2011-01-31
	<ul style="list-style-type: none"> The lack of appropriate public health structures in LHDA may lead to delays in the implementation and application of the policy in LHDA 	<ul style="list-style-type: none"> LHDA should establish public health units at each FOB level comprising of a 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	activities at the field level.	public health nurse and public health officer before the proposed implementation date.	
	<ul style="list-style-type: none"> The policy has not yet been disseminated to all those likely to use it. 	<ul style="list-style-type: none"> Conduct a policy dissemination workshop to publicize the policy among staff and community representatives 	2011-01-31
10. Biological resource monitoring			
ToR for monitoring resource status of Project Area	<p>PoE was provided with the Scope of Services. LHDA is seeking the services of a Professional Service provider to do the following.</p> <ul style="list-style-type: none"> Collect data from fixed vegetation transects in the sub-catchment. Determine seasonal changes in cover, species composition and extent of eroded surfaces. Assess the impacts of land-use, grazing and project related activities on the vegetation cover, composition and associated fauna. Determine the impacts of project developments and associated factors on flora and fauna. Identify mitigation measures for enhancement of vegetation cover, animal and optimal composition in the area. These will be provided as recommendations within each report. Provide long-term a database, information and complementary data on the key terrestrial fauna, vegetation cover, and aquatic fauna, taking into consideration occurrence, distribution and abundance of rare species. <p>The Scope is viewed to comprise at least the following tasks.</p> <ul style="list-style-type: none"> <i>Task1</i> Review existing data and information, and establish continuity with previous LHDA studies and other studies carried out regionally that have relevance to the monitoring of biological resources, particularly in the LHWP. <i>Task2</i> Undertake qualitative and quantitative biological resources surveys of the key indicator species of biota and habitats. 	<ul style="list-style-type: none"> Check the wording of the Treaty, and that of the EAP, as it relates to biological resources monitoring. The Treaty is binding and ensure that the Scope of Services complies. EAPs may expect to become dated, and what was committed to and done previously must be subject to review and revision. 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> • <u>Task3</u> Collect biological specimens and recommend storage methods and facilities. No threatened or endangered species to be collected. At the conclusion of the study, all specimens to be correctly identified, labelled and preserved and then presented to the recommended facility which shall be a National Biological Bank, such as NUL herbarium, as museum voucher specimens. • <u>Task4</u> Produce spatial and season vegetation and animal distribution maps of key indicator species using a Geographical Information System or equivalent. • <u>Task5</u> Assess the ecological inter-relationships between the main biological components, identify, compare and explain changes with baseline data, time and space. • <u>Task6</u> A biological resources inventory shall be established as a computer database comprising all archival and information gathered in the study. Data management issues such as data handling, archiving and interpretation shall be provided to LHDA to sustain the biological resources inventory. • <u>Task7</u> Reporting should be of the highest international standards in terms of format and quality. 		
	<ul style="list-style-type: none"> • It seems that the content of the Scope of Services is established on the Treaty obligation to monitor and maintain the environment, and on the EAP precedent of original baseline biological surveys that were conceived at the start of the LHWP Phase 1. The Treaty is of course binding, but the EAP should be subject to review and revision. The benefit:cost ratio of these baseline studies was low. Among the weaknesses were the following. <ul style="list-style-type: none"> ▪ Studies were at judgementally located sites. ▪ The representativeness of these sites at the time was questionable, one to two decades later it is still more dubious. ▪ The methods were poorly repeatable – methods complicated, fixed sites poorly relocatable. 	<p>Adopt the broad objective subject to the following.</p> <ul style="list-style-type: none"> • Replace transect-based vegetation survey with catchment-wide inventory using GIS and remotely sensed data, recognizing land types and degree of transformation. • Use direct gradient analysis – with remotely sensed data and ground-truthing – to describe land and vegetation response to land-use and disturbance. This will aid in the 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> • There was limited resort to GIS and remotely sensed data. • Resource inventory was patchy and incomplete. • The bird surveys were perhaps the most repeatable. • Some resource monitoring and management that is intended under the Treaty should be taken care of under existing or other proposed projects (<i>eg</i> water quality monitoring, IFR monitoring, Maloti Minnow conservation, reservoir fish stocks), and clearly duplication should be avoided. • The big contribution that a biological resources monitoring project can make is to develop a catchment-wide inventory of resources, especially land types and degree of transformation from the pristine state. 	<p>development and presentation of the catchment-wide inventory.</p> <ul style="list-style-type: none"> • Try to include the flora of special interest on the GIS – for example where the colonies of <i>Aloe polyphylla</i>, <i>Thamnocalamus tessellatus</i>, etc, occur, how big they are (extent, number of individuals, density), detail that might need to be collected by ground survey. • The approach for the special interest flora might be adopted for the fauna. Include threatened species. Review the wisdom of some of the selected indicator species. Swainson’s Francolin is a mistake, and it is Greywing Francolin, but in any case francolin sampling requires bird dogs, and rather pick one or other grass bird that can be observed by ordinary birders equipped only with binoculars. • Develop, refine and use methods that can be repeated in future follow-up surveys in preference to continuing with the half-cock methods used previously. The guide must be followed that baseline, follow-up and other data are collected so that strong inference can be drawn. This means the adoption of probability theory virtually throughout in the design of data collection, analysis and interpretation. 	

Projects	Present situation	Recommended action	Finish date
		<ul style="list-style-type: none"> • In the Inception Report the consultant must propose a revised, focused and motivated scope of work based on the above, and after having studied previous reports. The Inception Report should be workshopped with LHDA and PoE. 	
11. Katse Botanical Garden			
Status and performance	<ul style="list-style-type: none"> • PoE visited the KBG on 7 October accompanied by the Curator who is currently performing three jobs, including Garden Horticulturist and Outreach Horticulturist. • The KBG is a credit to the hard work and enthusiasm of the staff – it is an attractive destination for visitors to the project and should be promoted alongside the Katse Dam tours. • The Visitor Centre now in the final stages of construction is an impressive facility. When completed it will serve as the new entrance to the KBG and will offer visitors a spectacular ‘first sight’ of the dam and the gardens. It is a most impressive feature that will surely be appreciated by large numbers of future visitors. • PoE also had sight of the April 2009 – March 2010 Annual Implementation Report. The performance of the staff is outstanding. • Spiral Aloe propagation in the KBG is ongoing and highly successful. The young plants are provided to communities for growing out. Wild populations are being monitored, but there is still theft of young plants from the wild for illegal sale to passing tourists. • PoE was briefed on past developments regarding the involvement of MTEC and NUL in the KBG – Katse Botanical Garden has not been on the PoE Terms of Reference for several years. The PoE is not informed about the state of negotiations with other stakeholders, and to what extent LHDA has considered the PoE’s past recommendations on the matter. 	<ul style="list-style-type: none"> • PoE recommends that LHDA should remain an active stakeholder in the KBG, in partnership with other players deemed suitable. 	2011-01-31

Projects	Present situation	Recommended action	Finish date
	<ul style="list-style-type: none"> A suitable repository is required for the plants to be removed from the Polihali basin during Phase 2 implementation. 		
12. KLM WATSAN			
RFP	<ul style="list-style-type: none"> RFPs for KLM WATSAN have been prepared and still need approval before they are advertised. The RFPs have been divided into VIP and Water systems and both were found to be adequately instructive although they would both require strengthening of the performance clauses to ensure that contractors do not take unauthorized shortcuts and maintain national building standards. 	<ul style="list-style-type: none"> RFP adverts needs to be sent out as soon as possible to enable selection of suitable contractors. 	2011-01-31
		<ul style="list-style-type: none"> LHDA/LHWC needs to urgently find financial resources to complete the project and avoid risking hostility from the affected communities. 	2011-01-31
Factors affecting progress	<ul style="list-style-type: none"> Currently the communities that did not get the VIPs and water systems are very hostile to LHDA personnel, which has affected some aspects of other LHDA interventions as staff are afraid of being physically molested by the affected communities. 	<ul style="list-style-type: none"> Construction of VIPs and Water systems need to be restarted as soon as possible. 	2011-01-31
	<ul style="list-style-type: none"> Some water systems around Katse village are no longer functional as the feeder springs have dried up – it would appear that nearer sources of water were selected without consideration of their ability to yield water throughout the year. 	<ul style="list-style-type: none"> LHDA in the next phase of KLM WATSAN construction should assess these non performing systems and extend water catchment to springs that are productive throughout the year. 	2011-01-31
KLM WATSAN has become a strategic issue of crisis proportions.			
See Appendix 2			

Appendix 1 Trout production

SUMMARY

**FIVE YEAR EVALUATION REPORT
FOR PILOT AQUACULTURE FISHERIES IN LESOTHO**

No author, 39 pages, 5 October 2010. Summary compiled by JA Ledger 10.10.2010.

Sublease agreement between LHDA and KFF concluded 22 July 2005. ROD issued by NES in August 2005. First batch of fish fingerlings delivered in April 2006. First test batch harvested in February 2007. A total of 82.5 tons harvested in 2007 calendar year.

During 2008 KFF suffered setbacks from a disease outbreak, high water temperatures and storm damage to cages (15 tons of trout lost). Total harvest for 2008 calendar year was only 52.9 tons.

In 2009 a vaccine was developed to treat infected fish, stocks were built up, and 131.7 tons of trout were harvested in 2009.

During 2010 new suppliers of trout eggs have been contracted, and harvest rate has been built up to 24 tons per month. KFF predicts that 2010 total will approach 300 tons.

The report emphasises the importance of timing in the trout production cycle. Eggs or fry have to be ordered at least six months in advance, and once in the fish farm take 14 to 18 months to reach market weight. The loss of a batch of eggs/fry for whatever reason results in a decrease in production of 104 tons.

Despite the complicated logistics of trucking fish food onto site, and sending the trout as far as Cape Town for processing, KFF has successfully supplied the Three Streams Smokehouse with quality product that is now in Woolworths as the 'Royale Highlands Trout' brand (see www.royalhighlandstrout.com).

The production cycle at KFF:

- Importation of batches of trout ova from Europe or the USA 4-6 times a year;
- Ova develop in hatchery in Cape Town to fry (local hatchery only viable at production levels higher than 600 tons/ annum). Fry are transported by road to Katse;
- Fry are grown to fingerlings in small cages at Katse then placed in the large floating net cages for further rearing;
- Grow-out takes up to 18 months, depending on size of product required.

Water conditions at Katse are generally good, but the following problems have been experienced:

- Summer water temperatures can reach upper tolerance limits for trout;
- Fluctuations in water level result from dam operations;
- Reservoir turnover can cause low oxygen levels;
- Net damage from underwater hazards;
- Strong currents;
- Storms.

The cumulative outcome of all these factors:

- Growth rates lower than anticipated;
- Food conversion lower than expected;
- Harvested fish at 1.2 kg are smaller than ideal export size (2-3 and 3-4 kg);
- Financial impact is 50% lower income than export market would have yielded.

Aquaculture Impacts

- Water quality has been monitored: report uses as examples certificated results from Institute of Groundwater Studies, University of Free State for October 2009 and August 2010;
- Changes in water chemistry are insignificant and no differences between upstream and downstream readings are apparent;
- It is projected that 300 ton/ annum production level will not significantly affect water quality;
- Monthly biomass present is graphically depicted, ranging from 80 to 40 tons as fish are harvested;
- Phosphate levels above the cages showed spikes thought to be caused by runoff from the catchment – downstream averages lower, presumably because of dilution;
- Monitoring of nitrite, nitrate, ammonia and dissolved oxygen shows no negative impact from KFF operations;
- Bottom sediment sampling for phosphate has only been done once in August 2010 and the results are inconclusive. Suitable grab samplers are not easily available in the region. PoE recommends repeat sampling should be instituted in 2011 to secure more reliable results;
- KFF participates in a permanent biosecurity programme – in future all fish will be vaccinated before delivery to Katse, and a M1 million research programme has been initiated to develop immersion and oral vaccines against streptococcal bacteria.

Community Benefits

- Local Ha Lejone community has formed a Fisheries Committee;
- Community involvement in commercial production will only be viable after 600 tons/ annum is reached;

- From June 2006 to end 2009, KFF employees from the local community have been paid a total of M561,460 in salaries and wages;
- Ongoing training of staff and Fisheries Committee members has been implemented.

Future Plans

- Reliable supply of suitable trout ova has been secured;
- A hatchery is to be developed at a suitable site to secure reliable fingerling delivery to the fish farm;
- Securing sustaining supply of good quality feed at reasonable price;
- Securing markets for increased trout production from KFF.

Financial Aspects

- The pilot project has so far accumulated a loss of M6.7 million;
- At an annual production of 300 tons, after adjustment for abnormal losses, a break-even income of M737,000 before tax is estimated;
- To achieve a reasonable rate of return on investment, higher annual production in the order of 600 or 900 tons is required, involving additional investments of M3.5 million (includes hatchery) and M2.2 million respectively;
- At the 600 ton/ pa level the investment and returns come with high risk;
- Once 900 to 1,200 tons/ pa is achieved, the risk is reduced and sustainability more assured;
- KFF wishes to increase production to 900 tons/ pa and is ready to allocate 30% shareholding to local investors and expand to 1,200 tons/ pa.

PoE COMMENTS

- Given the delay in start-up, it is probably fair to say that the project is in reality in its fourth year in 2010. The additional year granted by LHDA is thus justified and supported by the Panel. KFF is reputedly the biggest trout farm in Africa!
- KFF has achieved significant milestones under rather difficult conditions, and has managed to overcome some potentially disastrous setbacks.
- As the pioneering aquaculture operator in the country, and one that has taken on the risks, KFF should be given the opportunity to expand its facilities and production to a degree that is mutually acceptable to KFF, LHDA and NES.
- Given the recommended carrying capacity of Katse at 3,500 tons/ pa (Munkejord *et al.* 2010) LHDA should identify only two more suitable aquaculture sites in Katse reservoir and call for competitive bids from interested parties.

Reference

Munkejord, S, S Moolla & J. Davis (2010). Fish Farming Regulations & Institutional Framework for LHWP Reservoirs. *Report to LHDA, 25.06.2010, ~120 pp.*

Appendix 2 Issues at 'Muela

General Observations on the public health environmental monitoring in KLM/Muela

During field visits a number of issues pertaining to public health regulations were observed and these included the burying of the dead in wetlands that drain directly into the dams thus posing a threat of water pollution. In addition, we found that local communities were using water points on the rivers draining directly into the dams for domestic laundry thus adding to contamination of water. The field offices did not seem to see this as a problem maybe because there are no specific requirements to monitor these particular public health issues in LHDA's performance indicators.

There is a need for FOBs to look into these matters and discuss with the communities on the way forward to protecting water quality.

Other Issues

New housing developments were found on land that was acquired and compensated for by LHDA, it was ascertained that no permission had been given for the use of these lands and the FOB has to yet to bring the matter up with the area chief. LHDA need to monitor its land assets as the encroachment on these lands may have undesirable effect on water quality and soil erosion as these are marginal lands.