Donavan Henning

From: Donavan Henning
Sent: 05 November 2009 06:25
To: mark@mmabolela.co.za
Cc: Salomon Pienaar
Subject: RE: MCWAP: Public Meetings and Review of Scoping Reports

Dear Mark

The delivery capacity of the proposed infrastructure, which is included in the draft Scoping Report, is based on findings from various technical studies (including *inter alia* a Reconciliation Study, Pre-feasibility Study and Feasibility Study) pertaining to the water available in the Crocodile and Mokolo River systems and the water requirements of the intended end users. Following your perusal of the draft Scoping Report, you are welcome to forward any comments to us.

Kindly advise on where we can post the CD containing the draft documents.

Regards
Donavan Henning

Nemai Consulting
Tel : (011) 781 1730
Fax : (011) 781 1731
Mobile: 082 891 0604
Email : donavanh@nemai.co.za
Address: 147 Bram Fischer Drive Ferndale, 2194
Postal Address: PO Box 1673, Sunninghill, 2157

From: mark berry [mailto:mark@mmabolela.co.za]
Sent: 30 October 2009 10:16
To: Salomon Pienaar
Subject: Re: MCWAP: Public Meetings and Review of Scoping Reports

Dear Mr Pienaar

We live remotely and have a very slow internet connection and it is just impractical to download large files. Hence my request for CD.

I am intrigued by the fact that pumps and pipelines can be designed and spec-ed if you don't know how much water is available or will be moved. Surely this is putting the cart before the horse? In which case the EIR & EIA will be flawed.

Regards

Mark

----- Original Message -----
From: Salomon Pienaar
To: mark berry
Cc: Donavan Henning
Sent: Friday, October 30, 2009 9:32 AM
Subject: RE: MCWAP: Public Meetings and Review of Scoping Reports

Dear Mr Berry

The requested Scoping Reports for Phase 1(from Mokolo Dam) and Phase 2 (from the Crocodile River) should be available on the DWA web page (see address on notice sent in my previous email) for Public Review, by Monday, 02 November 09. You will then be able to download them.

To answer your question regarding the water balance data: the Scoping Reports includes information on this, but detail information will be included in the EIR, which will only be available during the EIA Phase.

Please let me know if you would need any further assistance.

Kind Regards

Salomon Pienaar

Nemai Consulting
Tel : (011) 781 1730
Fax : (011) 781 1731
Mobile: 073 183 1722
Email : salomonp@nemai.co.za
Address: 147 Bram Fisher Drive Ferndale, 2194
Postal Address: PO Box 1673, Sunninghill, 2157

From: mark berry [mailto:mark@mmabolela.co.za]
Sent: 30 October 2009 09:02
To: Salomon Pienaar
Subject: MCWAP: Public Meetings and Review of Scoping Reports

Dear Mr Pienaar

Please would you send me the scoping reports on CD for the MCWAP. Also any information regarding the water balances for the above projects.

My address is Mark Berry, PO Box 29 Swartwater 0622. I farm on the Limpopo and will be detrimentally affected by water abstraction and diversion in the Crocodile and Mokolo Rivers.

Regards

Mark Berry

COMMENT ON THE PROPOSED MOKOLO AND CROCODILE RIVER (WEST) WATER AUGMENTATION PROJECT (MCWAP)

MPS BERRY
PO BOX 29
SWARTWATER 0622
TEL 0828724397 22 November 2009

1. PROCESS FLAWED

There is a concern as to how the EIA process, review and decision can be objective and independent so as to seek the preferred environmental option when the major client (Eskom) is a parastatal (the shareholder being the Government); the contractor (DWAF) is also government department; and, the review and decision will be made by another government department (DEA). The EIA should be reviewed by a body or specialists that are independent of government.

2. MOKOLO DAM YIELD AND WATER BALANCE

In the Basic assessment report Figure 4: Projected Annual Water Requirement shows that the augmented supply from the Mokolo Dam will be increased to 53.4 M m^3/a. Yet DWAF in its own report (DWAF Report No. P WMA 01/000/00/0304) states that the yield of the Mokolo Dam is 23 M m^3/a. and is already over allocated (5.6 M m^3/a) (see below). **How is it possible that the yield can be increased by 230%, even before the Ecological Reserve (as required by law) has been implemented?**

DWAF Report No. P WMA 01/000/00/0304

Table 4.7: Water Balance of the Mokolo Dam based on water allocation
Allocation to Allocated amount
(million m_3/a)
Matimba power station 7.3
Grootgeluk coal mine 9.9
Lephalale 1.0
Irrigation (downstream of dam) 10.4* (*Note that this allocation is at a low assurance)
Total 28.6
Historical firm yield 23
Balance (5.6)

Based on the above, the Mokolo Dam is over-allocated.
Based on estimated current water use, there appears to be a small surplus in the Mokolo Dam. However, this makes no allowance for the Reserve. Implementation of the Reserve will almost certainly result in a deficit situation at the Mokolo Dam. The suggested strategy is not to implement the Reserve for now and to monitor actual water use carefully. Implementation of the Reserve will require a re-allocation from this dam.

The Minister of DWAF indicated in 2007 that her Department had commissioned number of studies in the Mokolo River Catchment to determine the ecological water requirements of the river and to confirm the yield of the Mokolo Dam.
Were these studies undertaken and what were the findings?

What is required is the <u>current</u> and <u>future</u> Water Balance for the Mokolo Dam.
By water balance I mean supply vs consumption (not a series of demand curves as shown by Mr Vogel in his presentation). The water balance should include, *inter alia,* the following: MAR of the catchment, inflow into the Mokolo Dam and firm yield; evaporation; seepage; consumption by Lephalale municipality; Exaro (Grootgeluk) ; Eskom (Medupi & Matimba); Irrigation; Ecological Reserve.

For example: the Lephalale allocation of 1 M m^3/a was based on a population of 23 000 in 2005, whereas the population has increased considerably in the last two years.

In the event that below normal rainfall was recorded and the inflow into the dam was reduced, and consequently the yield, how would the allocation of water be prioritized?

The long- demand (2030 and beyond) is estimated to be 200-230 M m^3/a of which the Crocodile will supply 169 M m^3/a. **Where will be additional water come from and does this mean that the Mokolo Dam will have to supply 30-60 M m^3/a even beyond 2014?**

3. ECOLOGICAL RESERVE

From the outset of the Medupi Project (see attached ROD appeal), I have raised the issue of implementation of the ecological reserve for the Mokolo River. And whilst at every instance, we are told this has been *"allocated",* it has not been implemented. (It should be noted that the above normal rainfall of the past year has meant that the Mokolo Dam has overflowed). **In the event that the Mokolo dam does not overflow, as will be the case with increased abstraction under the MCWAP, how will the ecological (last estimated at 17 M m^3/a) be provided for?** This should be in addition to the agricultural abstraction, that is the ecological flow should reach the Limpopo, and indeed beyond as the Mokolo is an important tributary for the survival of the Limpopo riparian and aquatic system.

In order to meet the water requirements of Medupi, it is proposed to stop all downstream releases from the Mokolo Dam until 2014 when the transfer pipeline from the Crocodile river is operational. It is not possible to stop all flows in the Mokolo river for 4 years without seriously, and probably irreversibly, damaging the Mokolo riparian and aquatic systems**. The impact of zero flow in the Mokolo River should be carefully investigated and the potential short-term and long term consequences detailed.**

The current scope of works for the MCWAP tends to focus on the impacts of construction, that is disturbances caused by the pipeline. Insufficient attention is given to

the environmental (ecological and social) impacts of reduced flow in the Mokolo River. It should be noted that unless a credible, pre-impact benchmark has been established (normally over several years), it will not be possible to accurately assess the consequences of change.

The provision of the ecological reserve is a requirement in terms of the Water Act (National Water Act 1998) and the Biodiversity Act. **Who will prosecute DWAF in the event that the Ecological Reserve is not implemented?**

In the event that the ecological reserve of the Mokolo River is not implemented, and/or downstream releases curtailed or stopped, how will this be reconciled against the Convention of Biological Diversity; the Ramsar Wetlands Convention (which includes rivers) ; and, the Convention on Combating Desertification, to all of which the Republic of South Africa is a signatory?

4. CROCODILE RIVER

The future water needs of Lephalale, Eskom, Exaro and future projects is to be met by the transfer of surplus effluent water from Tswane and Johannesburg via the Crocodile River. However, there are indications that much of the effluent water (up to 80%) will have to be recycled to meet the growing demand for water in Gauteng.
Is there really a surplus of 45 M m^3/a of effluent water and, if so, for how long?
What will be the impact of low quality water releases into the crocodile river?
Will this water be treated prior to release?

A water balance (current and future) for the Crocodile River is required.

4. IMPACT ON LIMPOPO RIVER

The Limpopo is no longer a permanent river and only flows after heavy rainfall in the catchments of the tributaries.
How will the MCWAP, and resultant changes of flows in the Crocodile and Mokolo Rivers affect ephemeral flow in the Limpopo River?

GRANTING OF CONDITIONAL AUTHORIZATION FOR PROJECT REFERENCE 12/12/20/695: CONSTRUCTION OF THE PROPOSED ESKOM HOLDINGS LIMITED: GENERATION DIVISION 4800 MW COAL-FIRED POWER STATION AND ASSOCIATED INFRASTRUCTURE NEAR LEPHALALE AREA, LIMPOPO PROVINCE

No.	Name of Appellant/s	Issues Raised	Response of the Consultant	Reply of the Appellant Mark Berry	Comments of DEAT
1.	Mmabolela Estates (Dr. Mark Berry)	I am an interested and affected party in that I reside on a private nature reserve on the Limpopo River downstream of the project. I wish to appeal against the above decision on the grounds that the supply of water for the power station has not been adequately investigated and assured; and that DWAF have not complied with their own legislation (National Water Act 1998) to provide for the Ecological Reserve of the Limpopo River Downstream of the project.	Eskom, as the proponent of the project and applicant for the Environmental Impact Assessment, reviewed the concerns raised by Dr Berry, in the context of studies that have previously been undertaken by DWAF, and to which reference is made in the Environmental Impact Report [pages 88 to 91], as well as in the context of studies that are currently being undertaken by DWAF. The outcome of this review is that Eskom is of the opinion that: • the supply of water to the proposed power station has been sufficiently assured; • provision for the Ecological Reserve of the Limpopo River downstream of the project has been made; • the options under investigation to augment the water supply in the future will not negatively impact on downstream users and the Ecological Reserve; and • the cumulative impact of knock-on projects and increased domestic demand in Lephalale has been taken into account. Eskom's view is thus that Dr Berry's appeal does not have substance and hence should not be upheld. The motivation for Eskom's opinion is provided below.	At the request of Eskom I met with them in late November 2006. (Regrettably, although invited DWAF did not attend the meeting.) The issues raised were discussed and Eskom detailed the various options under investigation. Eskom also arranged for me to make a brief appearance at Lephalale Water Forum meeting in early December where I again presented my concerns and was given an overview by DWAF representatives of the water augmentation options. Following these meetings my view is: • the supply of water to the proposed power station remains tenuous. • the Ecological Reserve has been provided for but never implemented. • while the transfer option might impact positively on the Ecological Reserve, raising the Mkolo dam is likely to negatively impact on the reserve • The cumulative impacts are now being assessed. My view is that the appeal does indeed have substance for the reasons detailed below.	

			The Department of Water Affairs and Forestry has pro-actively initiated a series of studies to fulfil the requirements of the National Water Act (Act 36 of 1998) in preparation for comprehensive water use authorisation in the area. These include: • a verification and validation study; • a water conservation and water demand management study; • a hydrological study which would detail the hydrology to quaternary catchment level; and • pre-feasibility studies related to augmentation of water resources of the area.	My reason for saying that the supply remains tenuous is that the studies listed are either still in progress or at a level of detail that the proposed supply of water is unproven, and therefore, not assured. One must ask the question: would Eskom proceed with the development of a R25 billion power station on the basis of a desktop pre-feasibility study?	
		I quote from the EIA Section 6.5 Surface Water Hydrology (my underlining): "According to the Internal Strategic Planning Perspective (Report WMA 01/000/00/0304 available at www.dwaf.gov.za) presently, water availability and water use in the catchment are in balance. However, within the provisions of the National Water Act (Act 36 of 1998) as stipulated in the National Resource Strategy, there is a need to meet the water requirements of the Reserve (Basic Human needs and Ecological requirements) in terms of both water quantity and quality. When this requirement is determined and imposed on the current water supply system, presently there would be insufficient	In November 2004 DWAF published the **Internal Strategic Perspective of the Limpopo Water Management Area** (Report WMA 01/000/00/0304) ("the Report") referred to by Dr Berry in his appeal. The Report is on the DWAF website at www.dwaf.gov.za/Documents/Other/WMA/1/optimised/LimpopoOptimisedISPNov04.htm **3.1 Assurance of Water Supply to the Proposed Station** The proposed project would be located in the Mokolo Key (catchment) Area in the Limpopo Water Management Area. ***Current Situation*** According to the Report (section 4.6.4, page 34), the Mokolo Key Area is in balance. The Report also indicates that the "… Mokolo Dam itself, while slightly over allocated, is also	***Current Situation*** The figures in Tables 4.7 and 4.8 are based on data published in 2003 and, consequently, their current validity must be questioned given the increased	

		water to maintain the required balance…. The supply of additional water from the already stressed catchment is likely to have an impact on the downstream water users." The EIA goes on to say: "Although the water system is in balance, DWAF indicated that the current system was already stressed due to the fact that there are no additional volumes of water from the Mokolo Dam that could be allocated for use". (6.5.1. Current surface water supply) and this is before the ecological reserve has been provided.	approximately in balance because the Grootgeluk Mine does not appear to be using its full allocation of 9.9 million m^3/a and the allocation to irrigators is at only 70% assurance." This is reflected in Tables 4.7 and 4.8 *(reproduced in the letter to the minister regarding Mr Berry's appeal dated 12 December 2006)* from the Report. Table 4.7 based on allocations, shows a deficit of 5.6 million m^3/a, while Table 4.8 based on actual usage and adjusting for the level of assurance of supply shows a surplus of 3.7 million m^3/a. ***Future Situation*** Eskom's initial water usage at the proposed new power station (3 units) is expected to be in the order of about 6 million m^3/a of which 3 million m^3/a would be taken up out of its current allocation of 7.3 million m^3/a (of which Matimba Power Station currently only uses 3.5 million m^3/a). The remaining requirements would be met through the existing surplus as well as through the implementation of an inter-basin transfer scheme (refer section 3.3 below). If the proposed power station is extended to the full 6 units (as studied in the EIA), the water requirements of the station would be approximately 12 million m^3/a. The total water requirements for the 6 units can be met from the surplus from the allocation to Matimba Power Station and from the implementation of the inter-basin transfer scheme. The water requirements of the full 6 unit proposed power station have been discussed with DWAF, who is fully committed to meeting the water requirements for the proposed station and who has indicated that the water	development in Lephahale the past 4 years. This is confirmed by DWAF letter to Eskom dated 02/06/06 (ref14/2/A400) where in the attached schedule of Raw Water Supply to Lephalale the Actual use in 2005 was 25.5 million m^3/a and not the 19.3 million m^3/a used in the revised usage Table 4.8. If this is so then there was already a 2.5 million m^3/a deficit in 2005. ***Future Situation*** There could be an adjustment in the various allocations and the initial water usage (3.5 + 6) could theoretically be met from the current allocation (7.3) plus the perceived surplus (3.7). However, if there is any surplus (3.7), surely this should be allocated towards the yet unimplemented Ecological Reserve of 17 million m^3/a before an additional user is supplied? It should be noted that the Kumba spreadsheet attached to the DWAF letter dated 2 June 2006, ref. 14/2/A400 states that in 2015 the required water supply for Matimba A is 6 million m^3/a and Matimba B 14.5 million m^3/a – 20.5 million m^3/a which is considerably more than the 15.5 million m^3/a stated by Eskom.	

			requirements of 12 million m^3/a could most likely be supplied through the inter-basin transfer scheme. In this regard, attached are two official letters from the DWAF Director-General, the first dated 30 May 2006, ref. 14/2/A400/3/2, the second dated 2 June 2006, ref. 14/2/A400. Eskom is thus of the opinion that the supply of water to the proposed power station has been investigated and sufficiently assured.	The letter dated 30 May 2006, ref. 14/2/A400/3/2 notes the following *"It should be stressed that this was a reconnaissance level desktop study. Further work is required to improve the confidence level of information and before decisions on implementation could be made".* My interpretation of this statement is that the supply of water to the proposed power station has not been adequately investigated and, therefore, is not assured.	
		According to the report (WMA 01/000/00/0304) the water balance of the Mokolo Dam is already 5.6 million m^3/a negative (Table 4.7). Were the ecological reserve of 17 million m^3/a (Table 4.4) provided, the shortfall would increase to 22.6 million m^3/a. Eskom has made a provisional water use license application to DWAF for the abstraction of 6 million m^3/a for the first phase and the possible increase to 12 million m^3/a for a six unit 4 800 MW dry cooled power station (6.5.1. Current surface water supply). I believe it is incumbent on DWAF to provide for the Ecological Reserve of the Mokolo River downstream of the dam (as required by legislation) before providing additional water to Eskom from this source	**3.2 Provision for the Ecological Reserve** The Limpopo Water Management Area consists of a number of catchments which are mostly independent of each other. As a result, separate and mostly independent strategies are required to manage each catchment. The main catchments are the Matlabas, Mokolo, Lephalala, Mogalakwena, Sand, Nzhelele and Nwanedi Key Areas. The required Ecological Reserve is determined for each of these Key Areas. In particular, with respect to the Mokolo Key Area, in which the proposed project would be located, Table 4.4 *(reproduced in the letter to the minister regarding Mr Berry's appeal dated 12 December 2006)* from the Report indicates that a provision for 17 million m^3/a is made for the Ecological Reserve. This magnitude of the Ecological Reserve has been calculated using the "rapid method of assessment" which is generally a more conservative approach than either the "intermediate" or "comprehensive" methods. A comparison between Table 4.4 and Table	With the exception of the Lephalala Key Area, which is in balance and the Mogalakwena Key Area which has a surplus of 1 million m^3/a, in all other areas the water requirement exceeds the available water by 123 million m^3/a and in no instance has the Ecological Reserve been implemented (Table 1 Report WMA 01/000/00/0304) Whatever method was used to calculate the reserve, 17 million m^3/a is but a fraction of what historically flowed down the Mogol river before the Mokolo Dam was built. The riparian and aquatic systems of the river have already been negatively impacted due to impoundment, and the suggestion that recalculating the Ecological Reserve to arrive at a lower figure than the 17 million m^3/a will further compromise an already stressed system. The Ecological Reserve should be increased	

			4.5 from the Report *(reproduced in the letter to the minister regarding Mr Berry's appeal dated 12 December 2006)* shows, based on the assessment of the whole Mokolo Key Area and the allocations, that the Key Area is in balance ***after*** the allowance has been made for the Ecological Reserve. DWAF is now embarking on an intermediate assessment of the Ecological Reserve in anticipation of the need to issue water use authorisations in the Key Area. The Internal Strategic Perspective of the Limpopo Water Management Area notably recommends the following on the Reserve: • Implement the Ecological Reserve after careful monitoring of the actual water use. • Re-allocate from the Mokolo Dam to implement the Ecological Reserve. Eskom is thus of the opinion that provision for the Ecological Reserve of the Limpopo River downstream of the project has been made, from all the relevant Key Areas, not only the Mokolo Key Area.	not decreased. The Ecological Reserve has indeed been allowed for. However, the allowance is meaningless until such time as it is implemented. By the same token, how would Eskom function if the 7 million m^3/a of water allocated to Power Generation (Table 5.5) was not delivered to Matimba A? Until such time as DWAF implements the Ecological Reserve it remains in contravention of its own legislation (National Water Act 1998) Provision of the Ecological Reserve has been made but not implemented.	
		Several other options for the supply of water are being investigated: 1. Raising of the Mokolo Dam Wall: The EIA report (Section 6.5.3) concluded that…"The Mokolo River is a tributary of the Limpopo River, Which is an international shared watercourse. In order to raise the dam wall, approval from the Limpopo co-basin states such	**3.3 Options under investigation for the Augmentation of Water Supply** The Report (section 4.6.6, page 36) identifies possible future water developments that could assist in making more water available in the Mokolo Key Area: • Raising of the Mokolo Dam (the dam was designed to be raised). • Transfers of surplus return flows from the		

		as Botswana, Zimbabwe and Mozambique is required. These international basin sharing agreements tend to be long and time consuming." Furthermore raising of the dam wall will increase the dam capacity to some 300 million m^3/a which is greater that the natural MAR (Mean annual runoff) of 240 million m^3/a even before making allowances for dams and abstractions upstream (report WMA 01/000/00/0304 Section 4.6.2). Consequently, increasing the capacity of the dam will further negatively impact on the downstream users and the ecological reserve. 2. Augmentation from Crocodile West/Marico Catchment: According to the 2003 draft report: Limpopo Basin profiles; Strategic research for enhancing agricultural water productivity, natural MAR in the Crocodile and MArico rivers has already been reduced by 54% and 63% respectively and the Limpopo River system is already over utilized and stressed. Consequently, the proposed transfer of 45 million m^3/a from the Crocodile/Marico Catchment will further impact negatively on natural flow in the already stressed Limpopo system.	Crocodile/Marico WMA to Mokolo catchment. This transfer is mentioned in the National Water Resource Strategy as a possibility and 45 million m^3/a has been provisionally reserved for this. • Water trading with the irrigation sector. • Groundwater through the development of large borehole networks in undeveloped areas within this Key Area or neighbouring Key Area. Due to the anticipated need in the area, an augmentation scheme which either raises the Mokolo Dam wall or transfers water already reserved in the Crocodile West/Marico Water Management Area to the Mokolo Key Area is being considered. <u>Raising of the dam wall</u> In the event of the dam wall being raised by 15 m, the capacity will increase to 303 million cubic metres. This action, as stated in the appeal, would be in excess of the natural Mean Annual Run-off (MAR) of the river at this point, of 240 million m^3/a. It is generally accepted that development of the water resource will increase the yield, thus making more water available for all uses. The regulation of the water resources, the review of water allocations (including that for downstream users and the Ecological Reserve) and the issuing of appropriate licences will ensure that the resource is optimally utilized. The assertion that having a dam capacity that exceeds the MAR will negatively impact downstream users and the Ecological Reserve is therefore not necessarily valid. Nevertheless, as indicated	<u>Raising of the dam wall</u> While the capacity will be doubled (146 million m^3/a to 303 million m^3/a) the increase in yield has not been stated. This does not necessarily follow as evidenced by the fact that the yield of the Mokolo dam has decreased from 39 million m^3/a to 23 million m^3/a as a consequence of upstream dams (=development). (WMA 01/000/00/0304 Section 4.6.2). In reality the critical need for the Ecological Reserve is in dry years (in wet years the dam spills in any event) and this is the very time when MAR is reduced and least likely to be released. Under such circumstances, doubling the capacity of the dam will	

			in the Report, other options should also be considered, one of which is the potential inter-basin transfer. Augmentation from the Crocodile West Dr Berry in his letter of appeal raises a concern on the water availability from the Crocodile West and Marico Water Management Areas based on the *draft* report, **Limpopo Basin Profile: Strategic Research for Enhancing Agricultural Water Productivity (2003).** In this report, it is argued that the Crocodile and Marico rivers' MAR has decreased by 54% and 63% respectively and that there would thus be a resultant impact on the ability to deliver water for the Reserve should a transfer of approximately 45 million m^3/a of water be considered from this water management area. However, from the **Internal Strategic Perspective for the Crocodile West** (Report WMA 03/000/00/0303 dated Feb 2004) (available from the DWAF website at www.dwaf.gov.za/Documents/Other/WMA/Crocodile_ISP.pdf), Tables 1 and 2 *(reproduced in the letter to the minister regarding Mr Berry's appeal dated 12 December 2006)* the surplus from the area increases from approximately 63 million m^3/a to 147 million m^3/a between the years 2000 and 2025. The attached official letter from the DWAF Director-General, dated 30 May 2006, ref. 14/2/A400/3/2, describes the main findings of a reconnaissance study performed in September 2005 for the inter-basin transfer between the Crocodile/Marico water management area and the Mokolo Key Area.	unquestionably negatively impact on the Ecological Reserve (which will be last on the list of allocation) and downstream users. Augmentation from the Crocodile West Let us assume that the inter-basin transfer project is executed and 45 million m^3/a are transferred. This will be effluent water (DWAF Director-General, letter 30 May 2006, ref. 14/2/A400/3/2) the quality of which, unless treated, will be unsuitable for any use other than power generation and mining. The predicted raw water demand in 2015 will be 35 million m^3/a (Potable 7.45, Marapong 1.0, Irrigation 10.0 & Ecological Reserve 17) [see spreadsheet from Kumba Resources] In fact, the 2005 consumption of potable water without the Ecological Reserve was 20.2 million m^3/a which is almost the current yield of the Mokolo Dam. What this means is that if the Ecological Reserve is to be implemented then Escom and Exarro will be entirely dependent of inter-basin transferred water. Until such time as the inter-basin transfer scheme has been implemented and/or the Mokolo dam capacity increased, the Ecological Reserve cannot be implemented and the environment will continue to suffer and DWAF will be unable to comply with the legislative requirement.	

			The study indicated that up to 45 million m^3/a of water is available to be transferred at the Klipvoor Dam on the Moretele River, a tributary of the Crocodile River. The study also noted that "There is a multitude of potential users that would benefit from augmentation of water supply to the Lephalale area". Based on the February 2004 Internal Strategic Perspective for the Crocodile West Report, and the May 2006 letter from DWAF, Eskom is of the opinion that the options under investigation to augment the water supply in the future will not negatively impact on downstream users and the Ecological Reserve.	This only would be so for users of poor quality effluent water. Provided the Mokolo dam is not raised and the Ecological Reserve is implemented.	
		In conclusion, the decision to proceed with the construction of a coal-fired power station at Lephalale has not adequately considered the availability and supply of water critical to the project. Furthermore, the cumulative impact of knock-on projects such as the opening of additional coal mine by Kumba to provide coal to the power station, and increased domestic demand in Lephalale (estimated total 63 million m^3/a – Business Report 27 August 2006) has not been assessed. This increased demand will seriously and negatively affect the ecological integrity of the already stressed riparian ecosystem of the Limpopo Rive, which DWAF is obliged to provide for.	Dr Berry in his letter of appeal raises a concern that the cumulative "knock-on" impact of an additional coal mine to provide coal to the proposed power station, and increased domestic demand in Lephalale has not been assessed. Coal for the proposed power station will be sourced from the ***existing*** Grootegeluk Mine of Exxaro (previously Kumba Resources). It is projected that the mine, despite further development, will only increase its water use, beyond its current use of 4 million m^3/a, to 5.8 million m^3/a in 2015, some time after the anticipated water augmentation scheme is in place. The mine's water demand is projected to increase to a maximum of 7.3 million m^3/a in 2030 [see attached spreadsheet from Kumba Resources]. The attached official letter from the DWAF Director-General, dated 30 May 2006, ref.	The cumulative impacts of water demand have now been considered and given, but were not detailed in the EIA report	

			14/2/A400/3/2, describes the main findings of a reconnaissance study performed in September 2005 for the inter-basin transfer between the Crocodile/Marico Water Management Area and the Mokolo Key Area "…. in support of possible new developments in this area". It is clear that the DWAF studies that are currently underway include an assessment of the future water requirements in this area. In addition, studies have been initiated between Exxaro (Grootegeluk Mine), Eskom (Matimba power station and the proposed power station) and the Lephalale Municipality to investigate conjunctive water uses to reduce consumption and increase beneficial use [Minutes of Water Forum Meeting dated 6 October 2006]. The Municipality has also initiated a Strategic Environmental Assessment to further assess the impact of anticipated developments in the area and how best to ensure sustainable development. Eskom is thus of the opinion that the cumulative impact of knock-on projects and increased domestic demand in Lephalale has been taken into account. From the aforegoing, it is abundantly clear that the Department of Water Affairs and Forestry has indeed discharged its duties in respect of the Limpopo Water Management Area and the associated Key Areas, and specifically the Mokolo Key Area. Similarly, Eskom has followed due process and is taking every precaution to minimise the use of water in its proposed new power station.	The efforts to investigate conjunctive water use and reduce consumption are to be applauded. This is acknowledged. DWAF will not have discharged its duties or complied with the National Water Act 1998 until such time as the Ecological Reserve has been implemented in the Matlabas, Mokolo and Lephalala Key Areas (Limpopo WMA)	

			Dr Berry's concern that "the supply of water for the power station has not been adequately investigated and assured, and that DWAF has not complied with its own legislation (National Water Act 1998) to provide for the Ecological Reserve of the Limpopo River downstream of the project" is therefore unfounded, and his appeal should accordingly be rejected. It is further recommended that DEAT should become involved with the various Water Forums in the Lephalale area, amongst others the Water Forum, managed by the Lephalale Local Municipality and DWAF and the Catchment Management Steering Committee. In addition to this, we recommend that DWAF be consulted with regard to these and other water-related forums and issues in the Lephalale area.	These concerns do indeed have substance and remain valid for the reasons detailed above. The involvement of DEAT is fully supported as the environment remains unrepresented. There is also an urgent need for DWAF to provide updated data without which, evaluating such reports is difficult, if not impossible. The Lephalale Water Forum remains closed to individuals and there is a lack of transparency as to future developments and water demand (e.g Sasol). As and when the Ecological Reserve is implemented DWAF will have to carefully control and police abstraction, if the water is to flow down the river and not be abstracted for irrigation.	