



Assessment, Evaluation, Review and Updating of the Current Air Quality Management Plan for eThekweni Metropolitan Municipality

Comments received on the draft baseline assessment



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1. Introduction

An AQMP is a strategic document that will assist the eThekweni Municipality to achieve air quality management goals in a structured, coordinated and measured manner. The Pollution Control and Risk Management (PCRM) section of eThekweni Municipality's Health Unit developed and implemented an Air Quality Management Plan (AQMP) in 2007. eThekweni Health Unit's is embarking on a project to assess, evaluate, review, and update the AQMP in accordance with the requirements of the National Environmental Management: Air Quality Act (NEM:AQA) (Act No. 39 of 2004). uMoya-NILU Consulting (Pty) Ltd was appointed to assist eThekweni Municipality and to lead the revision of the AQMP. The AQMP review is an 18 month project and is planned to conclude in November 2015. Active involvement of all stakeholders aims to ensure that all issues are identified and that interventions are appropriate and the implementation is successful. In the development and implementation of an AQMP, the range of stakeholders includes, National and Provincial Government, industry, agriculture, planning and development, communities, NGOs, and academic institutions and residents, amongst others. Public meetings were held in eThekweni Municipality's South, West and North sub-districts to present and discuss the draft status quo assessment. Air quality management gaps, issues and concerns were discussed and all stakeholders were notified of the opportunity to comment on the report from the 27.06.2015-14.07.2015. These comments and responses from the project team are documented in this report.

Stakeholder	Comment	Response
Kim Irving	<p>I would like to put down a few points that myself and quite a few of the people living in the Umkomaas / Widenham area would love to receive some answers on as well as a few contentious issues.</p> <p>During the cooler months of the year, there is a weather pattern that occurs and seems to bring all the emissions made by Sappi Saiccor over the town of Umkomaas and Widenham. During the warmer months, the emissions affect the people of Craigieburn, Rosenheath and Umgababa more. Although, from all the people from all the points of the compass around the factory, anyone can get hit depending on the weather pattern at any time.</p> <p>Sappi Saiccor have some monitoring stations ranged around the area. Are they been correctly monitored and how effective is it? What action is been taken when emissions over the prescribed limit occur?</p> <p>I ask this question as during some periods, especially during the night when you try to sleep, the pollutants are so powerful that I find it impossible to breathe easily and as such cannot sleep. there are numerous people who have fought tooth and nail with Sappi with the same problems and in the end either pass on or else have no option but move out of the area where they suddenly miraculously are able to breath easier and sleep.</p>	<p>Sappi submits monitoring data on a routine basis to the municipality, to satisfy the conditions of their Atmospheric Emission Licence. Who in turn act accordingly in terms of the NEM: AQA.</p> <p>The impact of Sappi emissions on ambient air quality has been identified in the baseline.</p>



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	I have tried to seal off my house and close all the windows and have sealed up the air vents, but to no avail. I live five kilometres from the factory in Widenham. When I complained enough, the man running Sappi, Mr Peter Morris asked me to attend a meeting with him which I did. After complaining about the emissions, his comment to me was that Sappi Saiccor had a permit to emit a certain amount of gas. My question is, does the gas that he says he is allowed to emit, meet with his permit requirements, and who is independently monitoring this. Does his permit allow him to emit the quantity that makes breathing a major effort, this has had a major effect on my health and has contributed to my heart problems that I am suffering from.	It is the mandate of the eThekweni Municipality to monitor compliance of listed activities with the minimum emission standards, to which Sappi is also held accountable.
	I heard a rumour last year that eThekweni was going to put in an independent monitoring station in, why have you not done so.	Point noted for consideration in the revision of the monitoring network.
	When the gas emissions become intolerable, Sappi Saiccor has a call line that you may call and complain to. My question is, do they forward that information to eThekweni and are all those complaints recorded in your current survey, or are only the complaints received by eThekweni noted?	Only the complaints received by eThekweni are noted in the baseline assessment.
	Where can the people of the area obtain a call line to eThekweni to file their complaints, and what action will be taken to rectify it.	Complaints are logged with the municipality and followed up.
Rolf Collins	Air pollution is not my field of expertise; however I need to learn more about it. I am an ocean/marine educator, conservationist and information specialist currently involved as part of a team rolling out an environmental crime reporting application for all environments. Anyone who has the interest and a smart phone can download our free cell phone APP and reporting information procedure. All information goes to a central database where it is collated, analysed and disseminated to appropriate authorities. Naturally air pollution information as reported visually or sensed will be part of the reporting. I will be attending the AQMP workshop on the 22 July.	Point noted.
	The AQMP baseline document is well written.	Noted.
	It is a very large document to read through however. Is there a way to shorten it so more people would read it?	The executive summary contains all the key findings of the assessment.
	There are year by year bar charts in the stakeholder's document but not in the AQMP review document that I could see.	Please refer to the section on ambient air quality in the baseline assessment.
	I don't see trends where you can visualise improvement or not year by year even quarterly and that also includes the legislated limits that apply to air quality.	Data presented shows trends from 2005 and legislated limits.
	There doesn't appear to be a link between tons per year and parts per million of atmospheric gasses including some indication of the potential effects on our changing climate and ocean pollution.	Tons per a year refers to an emission rate and parts per million refers to ambient concentrations.
	I understand that there is also a high incident of blood cancer in areas like Wentworth. I heard this from environmental activist Desmond Desai I think it was. I stand to correction.	Refer to the 2006 health study.



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	Joint audits using independent consultants such as at UMoya including independent pollutant measurements would be a good thing? As you stated, the implementation of a quality management system ISO 9001 is a good recommendation to eThekwini Municipality.	Noted.
William Zenzile	I know nothing about what you are asking me to comment about. But everyday we see a an army of angry and boiling thick dark smokes going up to the very heavens from all the companies and factories espeacially Hullett in the clairwood area and nearby community. I know you have all the answers to this and the type of study or scientific tools you will use to convince us everything is okay we are safe and so on and on on . We the masses and the down trodden are affected and as the sacrificial lamb of the system we have accepted that.	Point noted, please refer to the project website for more information.
Cassim Cader: Total LMP, Islandview	Structure <ul style="list-style-type: none"> •Current organogram was developed prior to regulation of mandated functions of the NEM: AQA. Does not cater for: <ul style="list-style-type: none"> –AEL function –Compliance and enforcement <p>This is a project on its own & will involve legal bodies. Must be supported by the DEA & Govt.</p>	Agree, for consideration in the drafting of the AQMP.
	Skills <ul style="list-style-type: none"> •Incumbent capability in ambient monitoring and data management •Loss of trained personnel (Local depts. To address) •Replacement with appropriate skilled capacity is difficult (Local depts. to address) •Technical training opportunities are limited in South Africa (Must be supported by DEA at National level, with partnerships from the Industrial & Business sectors) 	Agree, for consideration in the drafting of the AQMP.
	Incentives <ul style="list-style-type: none"> •Significant investment made in AQM in 2014 What about future investment plans & sustainability? •AQM a growing field with career opportunities This must be explored to the maximum to obtain the best resources. •AQM is challenging and rewarding career •AQM needs partnerships, but these are limited Task team to strategize on how to improve on partnerships with support from DEA, Authorities & stakeholders. •Opportunities for external funding have not been explored Task team to explore possibilities & propose how funding can be obtained by involving all stakeholders. 	Agree, for consideration in the drafting of the AQMP.



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Groundwork	<p>We would be grateful if you could clarify exactly how comments from various parties on this AQMP will be dealt with. We would be concerned if these comments were given to the authors of the various chapters to determine, at their discretion, what to do with them – we would regard this as a wholly inadequate process and would suggest instead that all comments from stakeholders be treated as a discrete consideration that is considered and explained in the context of the whole AQMP.</p> <p>These comments have implications for the “way forward” for the AQMP as a whole and thus they should not be treated as if they have been made and can be contained within the various chapters under specific headers. The comments need to be reviewed on the basis of an integrated and holistic thinking approach. Therefore it is our view that at the very least some sort of integrated feedback or response document needs to be prepared which sets out the essence of the comments and more importantly the proposed solutions for addressing the issues raised in the comments. This document should be subject to review by all the stakeholders who have made comments.</p>	<p>All comments are treated with due diligence and where necessary the baseline report is revised to address the comments.</p> <p>A comments and responses report will be made available to all stakeholders. A public participation report will also be compiled to document stakeholder engagement throughout the AQMP process.</p>
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 <p>Bruce Dale (eThekweni Air Quality Officer) Email: Bruce.Dale@edumtan.gov.za Tel: 031 311 3654</p>	<p>Legislative framework The pre-amble of the National Environmental Management: Air Quality Act 39 of 2004 recognises that:</p> <ul style="list-style-type: none"> - The quality of ambient air in many areas of the Republic is not conducive to a healthy environment for the people living in those areas let alone promoting their social and economic advancement; - The burden of health impacts associated with polluted ambient air falls most heavily on the poor; - That air pollution carries a high social, economic and environmental cost that is seldom borne by the polluter; <p>The recognition and reference of health as above was a contested issue with the original National Environmental Management: Air Quality Bill not having this language present. Furthermore, section 18 of the Act, which enables the Minister or relevant political authority to declare priority areas was included due to community mobilisation on the air pollution issues in the main areas where industrial development impacts upon communities – pollution ‘hotspots’ – in south Durban, the Vaal Triangle, the Highveld, Richards Bay and Cape Town area.</p> <p>Furthermore, the South African Constitution guarantees people’s right ‘to an environment that is not harmful to their health or well-being’. It is groundWork’s informed opinion that unlike most other social and economic rights, its realisation is not conditional on the availability of state resources, nor is it subject to delay (‘progressive realisation’). The state is therefore bound to respect, protect, promote and fulfil the right immediately. This clause of the right also has ‘horizontal application’.</p> <p>Critically, an environmental justice interpretation – as required per section 2 (4) c of the National Environmental Management Act 107 of 1998 – informs that the right must hold that ‘not harmful’ means exactly that. It cannot mean ‘harmful within acceptable limits’ and leave it to government to decide what is acceptable. Where ‘a certain minimum standard’ is used, it can only be as a tool enabling the state to ‘respect and protect’ the right. Further, government would have to be able to justify the standard by showing that it is compatible with the ordinary meaning of ‘not harmful’.</p> <p>Section 24 of our Bill of Rights also indicates that through legislative and other measures, the state must: “secure ecologically sustainable development and use of natural resources while [emphasis added] promoting justifiable economic and social development.” We believe that ‘while’ means that ecological sustainability must be taken as the ground on which all state policies and programmes concerned with economic and social development are based – starting with macro-economic policy. These policies cannot therefore be ‘justifiable’ without specific reference to ecological sustainability. This means, government must defend its economic and social policies on environmental grounds. Development and environment in this case are not two issues but rather development is environment.</p> <p>Furthermore the development of the AQMP must be guided by overarching principles detailed in key regulatory and policy documents, including the constitution and the principles outlined in the National Environmental Management Act (Act 107 of 1998). Key principles that relate specifically to civil society include:</p> <ul style="list-style-type: none"> (c) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons. (d) Equitable access to environmental resources and services to meet basic human needs must be pursued and specific measures taken to ensure access thereto by persons disadvantaged by unfair discrimination. (f) The participation of all interested and affected environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured. (g) Decisions must take into account the interests, needs and values of all interested and affected parties, and this 	<p>Point noted, these principles will be considered in the development of the AQMP.</p>  <p>Das Mark Zimckel (Project Leader) Email: zmark@umoya-nilu.co.za Tel: 031 262 3265</p> <p>Sarisha Perumal (Project Secretary) Email: sarisha@umoya-nilu.co.za Tel: 031 262 3265</p>
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	<p>Generally the purpose of an AQMP is the need to plan interventions to guarantee good air quality and health in the eThekweni Metro. Thus it needs to look beyond purely a legislative approach and also consider a strategic and planning approach – such as how this integrates into the Integrated Development Planning processes of areas – underpinned by multi-stakeholder participation.</p> <p>The AQMP must provide clear explanations for the basis for choosing certain strategies other than a general idea that air quality in the area must be brought into compliance with ambient standards.</p> <p>What about allowances for further industrial expansion? Industrial expansion must be dealt with in a meaningful way and a meaningful analysis of these proposed projects must be described in the context of the AQMP.</p>	<p>Point noted, development within the 5 year timeframe of the AQMP will be considered.</p>
	<p>Furthermore the eThekweni baseline assessment describes current air quality in the context of meeting the requirements of the ambient air quality standards which are treated as discrete and separate standards for each pollutant, when in reality polluted areas usually consist of a large number of different pollutants, which have cumulative effects and in addition may have synergistic effects on air quality. This document fails to recognise this reality and this approach to meet compliance with discrete ambient air quality standards will not result in compliance with the overall requirement of the AQA 2004 which is to give meaning to the principles of NEMA to protect public and environmental health and ultimately Section 24 of the Constitution.</p>	<p>Point noted. The baseline assessment will be revised to address this point. However, ambient air quality standards are the currently accepted measures of air quality in South Africa as there is no agreed air quality index.</p>
	<p>Emissions summary table (p iv)</p> <p>There are no emissions baseline calculated for PM2.5, VOC's and PAH's. This is a serious oversight as PM2.5 is a much more serious pollutant with greater health impacts than PM10.</p>	<p>The emission inventory is based on available data. Future upgrades of the emission inventory will be dealt with in the AQMP and should address other pollutants.</p>
	<p>The AQMP development process</p> <p>Has the plan been reviewed since 2007?</p> <p>What are the key gaps?</p> <p>The plan states that "we will develop vision and a goal". Who develops this? Is this uMoya-Nilu or is this the affected public – through a stakeholder committee or some other structure? Please define exactly who the stakeholders are.</p>	<p>Yes, the 2007 plan has been reviewed as part of this process. A vision, mission and goals will be developed with stakeholders on the 22.07.2015.</p>
	<p>The Status Quo Assessment Report</p> <p>Is this is the first time that we have an emission inventory of all sources?</p>	<p>Yes.</p>
	<p>Is this based on a run of a dispersion model?</p> <p>Please explain the capacity assessment further. Have the eThekweni Municipality's Health Unit recovered from the restructuring that occurred in the Unit from the late 2000's? What is the current capacity compared to the capacity under Siva Chetty?</p>	<p>Dispersion modelling was done.</p> <p>The baseline assessment identified gaps and issues relating to all aspects of capacity using the mandated functions as a basis for comparison.</p>



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	What is the budget that has been set aside by the eThekweni Municipality for undertaking this work?	
	Topography of eThekweni Please refrain from referring the "south Industrial basin" as this is insulting to people who live in this location and have done so for over 100 years. It is the South Durban Basin at worst!	Point noted, document has been amended.
	eThekweni's climate Please do not downplay the stability over the winter period in the South Durban basin. Annual averages should be split into winter and summer periods to reflect the stable and elevated environmental concentrations of atmospheric pollutants.	Point noted, seasonal trends have now been included.
	Durban health study (2004-2006) This study's findings should be used to set a benchmark for health indicators with a strong focus on respiratory illness. E.g. The figure of 52% of asthma prevalence – how does this percentage relate to south Durban in comparison to North Durban – why is this not placed in the context of north Durban? Progress in implementing environmental interventions should also be contextualised in terms of health indicators. One of the key findings from the health study was that in Durban vulnerable populations exhibit health outcomes at lower levels of pollution – possibly as a consequence of sensitisation. Furthermore South African ambient air quality standards are not in line with globally recommended standards such as the WHO 2005 Air Quality Guidelines – ambient concentrations should thus be compared to a variety of global benchmarks to achieve a more balanced context.	



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The South Durban Health study made the following recommendation with respect to health below. If these are not incorporated in the revised AQMP then detailed explanations must be given in this respect:

"Health-Related Recommendations

The results of the epidemiological study provide support for several health based recommendations.

The findings of substantial, consistent associations between ambient concentrations of the four pollutants assessed, NO₂, NO, PM₁₀, and SO₂, and adverse effects on lung function in children, particularly among those with persistent asthma and those with apparent genetic predisposition, support the importance and urgency of reducing ambient environmental pollution. Increased monitoring and strategies for continuous reduction in exposures, as discussed in the above exposure-related recommendations, appear essential. Prompt and ongoing review of legal standards and enforcement strategies in the light of this new epidemiological data also should be undertaken.

The findings that relatively modest increases in concentrations of ambient air pollutants adversely affect pulmonary function of sensitive subpopulations implies that early warning systems of sudden large scale exposure of pollutants such as SO₂ need to be reviewed for effectiveness and improved as indicated. Such early warning systems should be linked directly to the schools in close proximity to the sources of pollution. The Departments of Education and Health should introduce protocols for responding to such incidents, with clear action plans for those children with known asthma.

Asthma prevalence or prevalence of markers of asthma such as airway hyperreactivity in the south, and to a slightly lesser extent, in the north, are at the high end of the range seen internationally. Asthma is by far the most commonly reported chronic disease among children in the study. These data argue for the need to further promote asthma awareness and asthma education among the communities in Durban. These public health initiatives will assist in reducing associated morbidity. Medical management awareness programmes emphasising the use of preventer medication such as steroid inhalers, regular public health sector or school based monitoring of children, particularly through the use of objective instruments such as peak flow meters and symptoms diaries, will be highly beneficial. Education programmes emphasising the need for household environmental management, such as indoor dust control, cleanliness of pets, pest and bioaerosol control, prevention of smoking indoors and actively discouraging adults from smoking, particularly around children or in the vicinity of their rest, recreational or study areas will, in conjunction with ambient pollution control, result in an improved quality of life of asthmatics, particularly those with persistent asthma. School based educational programmes will help to remove the stigma associated with asthma among schoolchildren, and will contribute to better school-day management of the condition.

Our findings do provide evidence of genetic predispositions toward experiencing greater adverse respiratory effects associated with ambient air pollutants. While such data is of great interest, and may provide for more customized individual approaches to asthma management in the future as associated medical advancements occur, we do not advocate that routine genetic screening be included as part of the recommended asthma awareness and education campaign. There are a number of reasons for not

advocating this as a component including: a) genetic polymorphisms exist at substantial frequencies in all populations so a strategy of genetic screening to identify individuals with those polymorphisms and provide interventions with those individuals is unlikely to be feasible; b) the specific genetic polymorphisms still appear to be associated with some risk for adverse pollution related effects so more general strategies are needed; c) given the current state of medical knowledge, the presence and medical management of asthma can be quite adequately monitored through a combination of symptom report and measures of lung function without the addition of genetic studies; d) relatedly, the clinical implications for an individual with

Point noted for consideration and inclusion in the AQMP.



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	<p>Socio-economic status</p> <p>The statistic that 90% of households in eThekweni are electrified is useful, however it does not give us an accurate indication of populations vulnerable to indoor air pollution. A better indicator is to understand how many household are still using alternative fuels (coal, wood, etc.) because electricity cannot be afforded for cooking or spatial heating.</p>	<p>Point noted and the baseline has been amended to recognise this limitation.</p>
	<p>Emissions vs Ambient Concentrations</p> <p>Ambient concentrations can I some cases also be attributed to industry! The statement that ambient concentrations are a measure of pollution only after it is mixed is incorrect. Down drafting is known to occur from industry leading to spikes in ambient air pollution! It is not always mixed to the extent that there is an equitable portion of pollution from all sources – in some cases such as the Engen refinery it is possibly to attribute ambient concentrations to single entities emissions.</p>	<p>Point noted, text amended where required.</p>
	<p>Emissions that the AQMP currently focuses on...and should also focus on.</p> <p>The findings of the South Durban Health study made the following recommendations with respect to the conventional pollutants:</p> <p><i>"Monitoring of PM₁₀, PM_{2.5}, NO₂, CO, O₃, SO₂ and Pb Monitoring for these pollutants should continue for the very important purposes of tracking concentrations (including the result of further development and increased traffic), documenting the effectiveness of emission controls with respect to compliance with standards, guidelines and targets, and trending the overall performance of air pollutant management in eThekweni Municipality.</i></p> <p><i>Permanent PM_{2.5} monitoring sites should be established (traffic-oriented, industry-oriented, population-oriented, and background sites are suggested) and either continuous measurements (e.g., using TEOM) or preferably filter-based measurements (e.g., every 3rd or 6th day) should be collected for a period of 1 year or longer using clean techniques for metal analyses. The very high correlation among the PM₁₀ measurements suggests relatively little loss of information if one or two TEOMs are converted to PM_{2.5}, however, it remains desirable to obtain filter measurements for the purpose of apportionment studies (suggested next).</i></p> <p><i>PM_{2.5} arises from primarily combustion sources, while the coarse fraction of PM₁₀ (PM_{2.5-10}) arises from mechanical processes and entrainment, thus, these are fundamentally different pollutants. Our monitoring of PM_{2.5} at three sites suggests that relationships between PM_{2.5} and PM₁₀ are site-specific, and can only be characterised by additional monitoring data.</i></p> <p><i>Analysis of the sources and meteorological conditions associated with high concentrations of PM_{2.5} and PM₁₀ should be undertaken. This would aid forecasting (possibly to be used in a public alerting system), dispersion modeling, and source apportionment (see below) activities.</i></p>	<p>Point noted, for consideration in the development of the AQMP.</p>



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	<p>The high PM₁₀ levels across the region suggest emissions from both local and regional sources, including traffic (including diesel exhaust), industry, veld and biomass burning, entrained dust, as well as other sources. Source apportionment studies using both source and receptor modeling would be helpful to identify sources of pollutants.</p> <p>PM_{2.5} filters should be archived for later elemental analysis in order to perform a receptor model-based source apportionment.</p> <p>The apportionment of diesel exhaust, which is considered a carcinogen, would aid future risk assessments. (In this report, diesel exhaust was not explicitly evaluated; rather, diesel exhaust components formed a portion of other pollutants including PAH, PM₁₀ and PM_{2.5}.)</p>	<p>Point noted. The emission inventory has been revised to understand the contribution of diesel exhausts. Points raised here will be considered in the AQMP development.</p>
	<p>While O₃ levels in Durban at present generally attain targets or standards, possibly because the formation of O₃ is NO_x limited, this seems likely to change in the future with increased traffic (emitting more NO_x) and decreased levels of reactive VOCs (due to more effective controls). It seems worthwhile to provide enhanced mapping of O₃ levels across eThekweni by either expanding the number of fixed O₃ monitoring sites or by creatively using the high quality portable O₃ monitors that are now available.</p>	<p>Point noted, for consideration in the development of the AQMP.</p>



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	<p>Emission controls on sources of conventional pollutants can successfully reduce ambient levels, as demonstrated by recent SO₂ emission reductions at Mondi and phase-out of lead in petrol.</p> <p>Further emission reductions from both new and old sources are necessary to attain ambient air quality guidelines and standards, especially to accommodate further development and traffic that is anticipated in DSIB and the region. While the SO₂ trend (the best documented by far) is encouraging, attaining guidelines and targets for PM_{2.5}, PM₁₀, NO₂ and O₃ may prove much more difficult.</p> <p>A strategy and timeframe for attaining compliance with standards, guidelines and targets should be developed for each pollutant.</p> <p>With respect to the toxic pollutants, this report has highlighted that a number of pollutants, called contaminants of potential concern (COPCs), warrant concern due to their concentrations and potency that together cause potentially significant cancer and non-cancer health risks. The COPCs were summarised in the previous section. Here we make several recommendations to better understand their exposures, risks and sources.</p> <ul style="list-style-type: none"> • As suggested above, there is a continued need for ambient air quality monitoring of toxics. In particular, we suggest: • An enhanced VOC monitoring network could be cost-effective. The passive BTEX monitors currently utilised provide useful information, which was corroborated by the active sampling performed in this study. However, it appears desirable to collect a wider set of compounds (ideally from 1,3-butadiene to naphthalene) which can be obtained using active sampling on adsorbents or whole air (canister) sampling. A relatively small number of sites (1 traffic, 2 industrial, 2 residential, 1 background) and periodic monitoring schedule (every 6th day) may be sufficient. • VOC sampling results suggest a need to investigate emission sources of BTEX (at multiple DSIB sites), chlorinated solvents (at Nizam and Settlers), and styrene (Warwick). • Given the diversity of industry in the DSIB, a wider set of metals should be collected and analysed. Sampling could utilise PM_{2.5} filters, as suggested above, PM₁₀ filters, as well as older style total suspended particulate (TSP) samplers. TSP would provide the easiest sampling approach and, since essentially all particle sizes are captured, measures total airborne concentrations (including large particles that may be locally entrained). Filters should be archived for subsequent elemental analysis in order to perform a receptor model-based source apportionment. • The chromium VI/total chromium ratio should be verified. This is important as this ratio is not well characterised, may be site-specific, and in large part drives the chromium cancer risk. • An air monitor for sampling metals is suggested in the Jacobs area, a potential hotspot. • The elevated levels of PCDDs and PCDFs indicate local emission sources that should be identified and controlled. Many sources can emit PCDDs and PCDFs, and both inventory and apportionment efforts are suggested to identify sources. Sources of PCBs should also be investigated. 	<p>Point noted, for consideration in the development of the AQMP.</p>
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	<p>There is a need to verify the cancer risk estimates attributable to SVOCs like PCDD and PCDF. In particular, the direct inhalation exposures and resultant risks (calculated in this report) are expected to constitute only a minor portion (< 5%) of the daily intake of these compounds. Most of the exposure to PCDD and PCDF occurs via food consumption. Thus, contaminant levels in foods should be characterised. It may be worthwhile joining the WHO human milk study which would allow the comparison of PCDD and PCDFs levels in Durban to those found in other countries.</p>	<p>Point noted, for consideration in the development of the AQMP.</p>
	<p>Enhanced emission controls are needed for toxics. While PCDD and PCDF sources are less certain, emission sources of benzene and H₂S are reasonably well understood.</p> <ul style="list-style-type: none"> • For benzene and other VOCs, controls should address industrial sources as well as vehicular sources. A large range of strategies should be considered, e.g., low benzene content in petrol (recently proposed to decrease to 0.65% in the US by US EPA, April 2006); evaporative controls on tanks and refueling stations; automotive controls such as periodic vehicle inspections, and emission limits for point and fugitive sources at refineries. • An aggressive schedule to reduce TRS and H₂S emissions in the DSIB should be implemented. Cost-effective controls are available for emissions from sewage treatment, e.g., fungal bioreactors, and refinery emissions can also be controlled. • A toxics emission inventory should be generated for PCDDs, PCDFs, metals, and other pollutants. While quantification will be uncertain, the inventory will help to identify those sources that require better emission controls. It should also be recognised that emission controls often provide multiple benefits, e.g., reducing PM emissions also reduces metal emissions. 	<p>Point noted, for consideration in the development of the AQMP.</p>
	<p>Finally, this report also included an assessment of residential and school environments. A formal risk assessment was not performed for the indoor environment, in part because house-to-house variation is very large, making it difficult to generalise findings. Nonetheless, the following recommendations are based on our findings:</p>	<p>Point noted, the link between indoor and ambient air quality will be considered in the development of the AQMP.</p>



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	<ul style="list-style-type: none"> Indoor combustion sources, particularly paraffin stoves, are shown to create excessive levels of CO, PM and VOCs, and the potential for serious adverse health effects. Nearly 20% of survey respondents in the walkthrough survey reported using this fuel. The use of paraffin (and similar fuels) in unvented indoor applications should be discouraged and ideally phased out. Means to increase awareness and to improve the housing conditions would help to reduce exposures to indoor pollutants, including PM and bioaerosols. Indoor air quality was adversely affected by a number of building-related factors, e.g., tobacco smoking, water leaks/damage, signs of mold/mildew, and the presence of dirt floors and carpets In most buildings, the humidity is sufficient high to facilitate the growth of microbiological contaminants. We suggest an analysis of strategies that would limit bioaerosol concentrations and the potential for infestation, e.g., moisture and water management, removal to the extent practicable of potential microbiological substrates and reservoirs (e.g., fleecy surfaces), and air filtration”. 	
	<p>Listed Activities One of the elements of the AQMP must be that all permits and licenses are made available to the public in the AQMP. Currently the eThekweni municipality is refusing permission for the public to have access! Furthermore public participation by interested and affected stakeholders should be a prerequisite of atmospheric licenses</p>	Point noted.
	<p>Emissions in tons per year</p> <ul style="list-style-type: none"> Please clarify which industrial sector is burning waste? Are these crematoria? If this is crematoria please provide an estimate of mercury emissions from dental amalgam. What about the other pollutants within the health reports such as PM2.5? In the public meeting it was stated that no waste incinerators operate in eThekweni – please confirm this. 	



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	<p>Controlled Emitters The AQMP must disclose the controlled emitters according to the types of fuels and quantity of they burn. Please indicate them per source of fuel and what the fuel is. The AQMP cannot be based on the hope that emissions reductions will occur when this is based on poorly estimated emissions from industry. This is tantamount to inviting non-compliance from industry. As a matter of priority a complete emissions inventory must be aggressively pursued so that well informed targets can be set within realistic and achievable timeframes. The AQMP must define a targeted and industry specific strategy for emissions inventory and better informed reductions strategies.</p>	<p>Point noted. Limitations of the emission inventory are recognised in the document and a comprehensive emission inventory should be pursued through the AQMP. Emission reduction strategies will also be developed in the AQMP.</p>
	<p>Motor Vehicle Emissions Motor Vehicle Emissions constitute a major source of pollution in the eThekweni metro. It follows that policy interventions aimed at this source category can have major impacts on ambient air quality. Types of vehicles contributing pollution are currently not source separated in the document and the attributable fraction of pollution from each source category is not estimated. E.g. Trucks will contribute a significant amount of carbon black to ambient air and it is worth estimating how much carbon black is contributed from this sector because carbon black is well documented as a significant public health pollutant. Similarly emissions should be estimated at street level especially in communities where trucking is prevalent and is having known impacts on communities e.g. Wentworth, Clairewood, Merebank, Merewent, Bluff, Umbilo etc. We therefore submit that vehicular emissions be source separated and estimates be reflected for each source category.</p>	<p>Point noted, emissions have been apportioned to vehicle type.</p>
	<p>Residential Fuel Burning Over 80000 and 30000 households burn paraffin for cooking and spatial heating respectively. The AQMP must provide an estimate of the health impact of this activity to guide the eThekweni municipality in respect of suitable interventions to alleviate this health impact.</p>	<p>Point noted, for consideration in the development of the AQMP.</p>



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	<p>Ambient Air Quality Monitoring Data and its availability</p> <ul style="list-style-type: none"> In principle the AQMP should include as many data sources as possible, including those data that are generated by industry. Air quality data must not be allowed to be held privately by industry and protected by bureaucracy. All data must be made available by the eThekwini AQ officer on the eThekwini website and reported to SAWS as per the national norm. Furthermore data should be reported and analysed according to health principles. Annual aggregated data can mask spikes that occur over winter and still climatological periods e.g. in winter. Data should therefore be presented in the AQMP over summer and winter periods 	<p>Data from other facilities has been included in the revised baseline document.</p> <p>Seasonal variation of pollutants has been included in the revised baseline.</p>
	<p>Furthermore we reiterate the outcomes and findings of the Durban health study – in the south Durban basin – adverse outcomes occur at lower levels of pollution.</p> <ul style="list-style-type: none"> The ambient standards we have chosen – is effectively a compromise using the WHO guidelines – it does not go onto to say that the standards are protective of sensitive populations where we have constructs of high pollution and disease. The way people experience air pollution is different. In the south Durban basin we have to understand what the health impact is at the current levels of pollution – we should not apply a straightjacket approach that just seeks conformation with our National standards even though this is what is required by eThekwini to be compliant with the AQA. The AQMP must have elements that give us an update of health data alongside pollution data – then we have a better picture of what might be going on there. We should constantly be benchmarking health and pollution to determine if we are really making a difference in people’s lives. 	<p>Point noted, for consideration in the development of the AQMP.</p>
	<p>Data gaps and data unavailability The AQMP must be clear about where the data gaps are and what the municipality is doing to address these gaps.</p>	<p>The baseline assessment has been revised to include this information.</p>
	<p>Benzene concentrations Benzene concentrations are generally high in eThekwini. The current ambient standard of 5ug/m3 is a construct of a compromise. Globally this standard is accepted as 1ug/m3 because benzene is classified as a carcinogen. It is a non-threshold toxicant - a substance for which there is considered to be some probability of harm for critical effects at any level of exposure. We therefore submit that a strong element of the AQMP is dedicated to a benzene management plan to reduce ambient benzene concentrations – similar plans can be found for other jurisdictions with elevated ambient benzene concentrations .</p>	<p>Point noted, for consideration in the development of the AQMP.</p>



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	Similarly the emissions limits set out for listed activities in S21 of the AQA should be reviewed and revised for the priority sectors that are responsible for the majority of benzene emissions. S21 allows for a downward revision of priority emissions!	Revision of the NEM:AQA falls outside of the scope of the AQMP.
	Furthermore the lack of carbon black monitors in eThekweni is a serious oversight as carbon black is a very good indicator and measure of serious public health pollutants.	Point noted for consideration in the development of the AQMP.
	Non-compliance Furthermore what is the strategy for non-compliance or failures in the AQMP reduction strategies? One approach would be that the best practical environmental option or best available technology should underpin the basis for the strategy, yet these approaches are not mentioned even once in the entire document. Who is ultimately responsible if the strategies are not met or complied with? Will this be Local Authorities, or District Authorities or the Province who have expressed capacity and readiness constraints . It should be clear exactly what responsibilities all the various government departments have in terms of air quality management.	Point noted for consideration in the development of the AQMP and it's implementation plan.
	Air quality complaints The AQMP must set out a clear procedure about how to report a complaint. Many community people report frustration at not being able to report a complaint because of confusing or faulty systems. Furthermore the complaints reported must be integrated into a single complaints register and reviewed on a cyclical basis to determine if the complaint has been resolved with proper follow up and report backs to the complainant! This should be an easy exercise!	Point noted for consideration in the development of the AQMP.
	Air Quality Management Capacity, Systems and Structure This element of the AQMP is essential to chart progress and measure impact. A clear indication of the budget, staffing and structure of the air quality directorate must be included in the AQMP. Annual financial reporting will similarly give indications of progress and implementation. Furthermore the AQMP must include other elements and indicators to measure progress and implementation. These must include benchmarks of health, benchmarks of ambient air quality and benchmarks of emissions from priority sectors such as transport, oil refineries, controlled emitters, small and medium sized boilers etc. Without an approach for measurable indicators the AQMP will not be a useful document and the plan will not have the buy-in from all stakeholders.	Point noted for consideration in the development of the AQMP and its implementation plan.



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	<p>Similarly authorities simply must have ownership of real time data coupled with a system to notify them of any industrial source exceedances (pre-determined) so that the monitoring system can be used as a real time investigation tool to investigate exceedances of ambient Air quality standards can then further/couple their investigations with specific emissions data within the quadrants within which the ambient exceedances were picked up. Simply put local authorities must have the tools and the capacity to be alerted to exceedances and to be able to investigate them meaningfully.</p>	<p>Point noted for consideration in the development of the AQMP and it's implementation plan.</p>
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