AIR QUALITY MANAGEMENT PLAN (AQMP) FOR THE NORTHERN CAPE

PROJECT PROCESS PLAN

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1. INTRODUCTION

The Northern Cape is one of South Africa's nine provinces. It is the largest province, but also the most sparsely populated. The capital is Kimberley. The five district municipalities are Francis Baard, John Taolo, Namakwa, Pixley ks Seme and ZF Mgcawu (Figure 1-1).

Figure 1-1: Location map showing municipalities in the Northern Cap

In accordance with Section 15(2) of the National Environmental Management: Air Quality Act (NEM: AQA) (Act No. 39 on 2004), the Northern Cape Department of Environment and Nature Conservation is required to develop and Air Quality Management Plan (AQMP). With the assistance of co-funding from Kumba Iron Ore, the Department of Environment and Nature Conservation are able to develop their first AQMP in 2017.

The overall objective of the project for the Northern Cape is to establish the current status of air quality and to develop an AQMP with objectives that will ensure maintenance of or improvement in air quality, so as to fulfill Government's constitutional mandate to ensure an environment that is not harmful to the health and well-being of all South Africans. The project has nine sub-objectives:

OBJECTIVE 1: Planning
OBJECTIVE 2: Establish stakeholder groups and baseline assessment report
OBJECTIVE 3: Air quality baseline report

OBJECTIVE 4: Gap and problem analysis
OBJECTIVE 5: Air quality management goals
OBJECTIVE 6: Development of an implementation plan
OBJECTIVE 7: Draft Air Quality Management Plan
OBJECTIVE 8: Final Air Quality Management Plan
OBJECTIVE 9: Public Participation

2. PLANNING

Planning is fundamental to the successful roll-out of the project. It involves three main tasks, i.e.:

i) An inception meeting with the Air Quality Officer for the Northern Cape (NC-AQO) to agree on the scope and project timing, and to establish the role that the Department will to play in the AQMP development;
ii) The development of a Project Process Plan that details the proposed approach and provides a schedule of key milestone; and
iii) The formal request for information relevant to the AQMP development from the NC-AQMP and other stakeholders.

The output of the planning phase is a concise Project Process Plan.

3. ESTABLISH STAKEHOLDER GROUPS

An inclusive and participative stakeholder engagement process is fundamentally important to obtaining buy-in into the AQMP development process, and to its successful implementation. The process that uMoya-NILU will undertake to establish a database of stakeholders for the AQMP is to:

i. Publish a notice in one regional and two local newspapers advertising the Department's intention to develop an AQMP, inviting interested and affected parties to register on the Stakeholder Database;
ii. Develop a Background Information Document (BID) for the project;
iii. Establish a project web page as a platform for registration on the stakeholder database, communication with stakeholders, to distribute documents and to record and maintain information.
iv. Work with the NC-AQO to identify stakeholders that that have fundamental input and involvement in the development and implementation of interventions to meet the goals of the AQMP.

Existing databases at the Department will be used to initially populate the AQMP stakeholder database. The AQMP stakeholder database will be continually updated based on responses to the newspaper notices and from other sources. The Excel database will be maintained throughout the project and will be made available to the Department on completion of the project.

4. AIR QUALITY BASELINE REPORT

A comprehensive understanding of the current air quality status quo is necessary for the subsequent phase of the project. The baseline assessment report will include different sections pertaining to air quality, namely:

i. Physical characterisation

The physical characterisation of the Northern Cape will include a description of the climate, topography, land use, transportation modes and routes, demographics, the socio-economic status of communities and their relative levels of vulnerability. Information will be drawn from the provincial Spatial Development Framework, the South African Weather Service (SAWS), Statistics South Africa and the provincial GIS department, amongst others. Graphs, maps and overlays will be used to describe and illustrate the physical variables that characterise the Northern Cape.
In achieving this objective, it will be necessary for the NC-AQO to facilitate the access of information from associated departments.

ii. Ambient air quality

The current state of ambient air quality in the Northern Cape will be described using available monitoring data, including provincial monitoring and monitoring by mines and industry. All available data will be included in the assessment so that temporal trends can be identified as well as the spatial variation in ambient concentrations of pollutants. Compliance with the NAAQS will be assessed and areas of exceedance or potential exceedance will be highlighted.
Dispersion modelling will be used in selected areas. A modelling plan of study will be developed in accordance with the requirements of the Regulations Regarding Air Dispersion Modelling (DEA; 2014). The plan will describe the modelling approach and demonstrate its applicability. It will be discussed with the NC-AQO. Following approval of the Model Plan of Study, the dispersion model will be set-up and parameterised. The dispersion model will be used to augment monitored ambient concentrations of criteria pollutants, to assess the cumulative effects, and to inform future requirements for ambient monitoring networks.
Air quality study reports for EIAs and other purposes and research reports will be reviewed and used where necessary to enhance this section of the baseline assessment report.
In achieving this objective, it will be necessary for the Department to facilitate the access to ambient monitoring data from the respective data holders.

iii. Emission inventory

uMoya-NILU will work closely with the Department in the development of the provincial emission inventory and will make available all documentation and calculations used in the development of the inventory. The emission inventory will also be documented as a chapter in the baseline assessment and will include

sections on the emission inventory design, methodology and calculated emissions. The proposed methodology for the different source categories is:

a) Industrial operations (point and fugitive emissions)

Existing municipal emission inventories and the 2015 submissions to the National Atmospheric Emission Inventory System (NAEIS) will be used. It will be necessary for the Department to provide appropriate access rights on the NAEIS. The Listed Activity emissions data will be presented for all reported air pollutants in table form for categories and sub-categories. For Controlled Emitters the NAEIS will be used. It will be necessary for GDARD to provide a letter to support the request for data.

b) Mining and quarry activities

Emissions data on operational mines will be obtained from the 2015 NAEIS submissions and working with the NC-AQO, the DMR and working through the NC-AQO and the mines. Reporting gaps will also be identified. The mining emissions will be presented for all reported air pollutants in table form for categories and sub-categories for different resolutions.

c) Domestic fuel burning

Emissions resulting from domestic fuel burning will be estimated at a resolution of municipal wards. Each ward will be treated as an area source. StatsSA Census data on fuel type and fuel consumption will be used with relevant emission factors. Annual average emissions will be calculated, i.e. there will be no daily or seasonal variation in the estimates.

d) Vehicle emissions

Vehicle emission data contained in the DEA motor vehicle emission reduction strategy will be used. These data are based on fuel sales, fuel type and vehicle class.

e) Windblown dust

The arid nature of the Northern Cape implies that windblown dust may be a relatively large source of particulates. Research work on the subject will be reviewed in order to assess the magnitude of this source.

f) Biomass burning

Biomass burning refers to both controlled fires (man-made for land management) and uncontrolled fires. Emissions from biomass burning (fires) will be estimated using burnt area data from the Advanced Fire Information System (AFIS), vegetation data and emission factors. Annual average emissions will be presented, i.e. there will be no daily or seasonal variation in the estimates. It will be necessary for the Department to facilitate the acquisition of AFIS data.

g) Waste treatment and disposal

Waste management refers to registered and managed landfill sites and wastewater treatment works (WWTW). Available data reports on emissions from these facilities will be used to assess the magnitude of this source category.

iv. Capacity assessment

An important aspect on the baseline assessment is to develop an understanding of the state of the current capacity to meet the mandate. In this context capacity refers to the systems, structures, skills and resources available and necessary to fulfil the function. The current capacity and capacity required in the Northern Cape will be assessed in an interview with the NC-AQO. Capacity gaps will be assessed based on the definition of the roles and responsibilities of province and municipalities in the National Framework for Air Quality Management.

5. GAP AND PROBLEM ANALYSIS

Following the finalisation of the Baseline Assessment Report, uMoya-NILU will work with the NC-AQO and relevant stakeholders and undertake a gap and problem analysis of the status of air quality management in the Northern Cape.

The gap analysis will be used to categorise the air quality management gaps and issues. For the problem analysis, a Logical Framework Assessment (LFA) workshop will be conducted with the NC-AQO and key stakeholders to:

i. Develop 'Problem Trees' for the gaps, issues and challenges identified in the gap analysis;
ii. Transform the Problem Trees into 'Objective Trees' by defining goals for each of objectives; and
iii. Describing possible interventions that could achieve each of the objectives.

A problem assessment report will be provided as the output defining the gaps, problem trees, objective trees and possible interventions.

6. AIR QUALITY MANAGEMENT GOALS

Based on findings of the air quality baseline report, the results of the gap analysis and the problem analysis, uMoya-NILU will work with the NC-AQO and key stakeholders to develop a vision, mission and goals for the AQMP.

7. DEVELOPMENT OF AN IMPLEMENTATION PLAN

uMoya-NILU will work with the NC-AQO and key stakeholders to develop interventions necessary to meet the goals of the AQMP. uMoya-NILU will then describe each intervention and will include:

i. The intervention objective with details of timing and expected impact/improvement on quality impacts, e.g. the emission reduction potential;
ii. The intervention outputs, activities, and input requirements including financial, human and technological resources;
iii. The assumptions and risks associated with the implementation of the intervention;
iv. The intervention implementation plan that clearly describes timing and responsibilities; and

The output of this objective will be an intervention plan detailing objectives, activities required, responsibilities, timeframes and indicators to assess implementation progress.

8. DRAFT AIR QUALITY MANAGEMENT PLAN

The draft revised AQMP will draw on the outputs of the preceding objectives. It will include the following:

i. A summary of the baseline assessment, highlighting key aspects;
ii. The strategy analysis including gaps, problems and air quality management challenges;
iii. A description of the interventions;
iv. The coordination, cooperation, participation and implementation arrangements (including organisational structures, monitoring and reporting, etc.);
v. The identification of any regulations necessary for implementing and enforcing the AQMP and achieving its objectives; and
vi. An implementation plan.

The draft plan will be presented to the NC-AQO and stakeholders for comment before it is finalised and made available for public comments.

uMoya-NILU will compile an executive summary of the revised draft AQMP and a Power Point presentation that summarises the key elements and interventions contained in the draft plan to facilitate approval by senior provincial management.

9. FINAL AIR QUALITY MANAGEMENT PLAN

uMoya-NILU will compile a database of all comments received during the public comments process of the draft revised AQMP. They will propose amendments to the draft AQMP based on public comments received and will work with the NC-AQO in finalising the AQMP**.**

10. PUBLIC PARTICIPATION

An inclusive and participative stakeholder engagement process is fundamentally important to the success of the project and to obtain acceptance into the AQMP development process, and ultimately to successful implementation. The stakeholder engagement process that uMoya-NILU will facilitate follows on from establishing the stakeholder groups in Objective 2 and is described here:

i. Two public meetings will be held during the course of the project;
ii. The first meeting in Kimberley and will coincide with the completion of the draft of the air quality baseline report;
iii. The second meeting will coincide with the completion of the draft AQMP;
iv. For the meetings:
    a. uMoya-NILU will publish invitations, circulate the agenda, note and minute-taking, and meeting facilitation.
    b. The Department will be responsible for the hiring of venues, equipment and catering;
    c. uMoya-NILU will record minutes and distribute these after the meetings in the most appropriate manner;
v. All comments received will be recorded in a comments/response data base for consideration in revising the respective reports.

11. PROJECT MANAGEMENT

The project manager, Dr Mark Zunckel, will form a direct link between the project team and the Department's Project Manager. Dr Zunckel will be supported by Ms Sarisha Perumal. uMoya-NILU's approach to project management will include the following:

i. Attendance on an inception meeting;
ii. Attendance of meetings with the NC-AQO when necessary;
iii. Responsibility for minutes of all meetings; and
iv. Preparation of monthly Progress Reports and invoicing.

12. SCHEDULE OF ACTIVITIES

The project will start on 30 March 2017 with an inception meeting in Postmansburg and the final revised AQMP will be submitted by 15th March 2018. A schedule of tasks during is shown in the Gantt Chart in Figure 12-1.

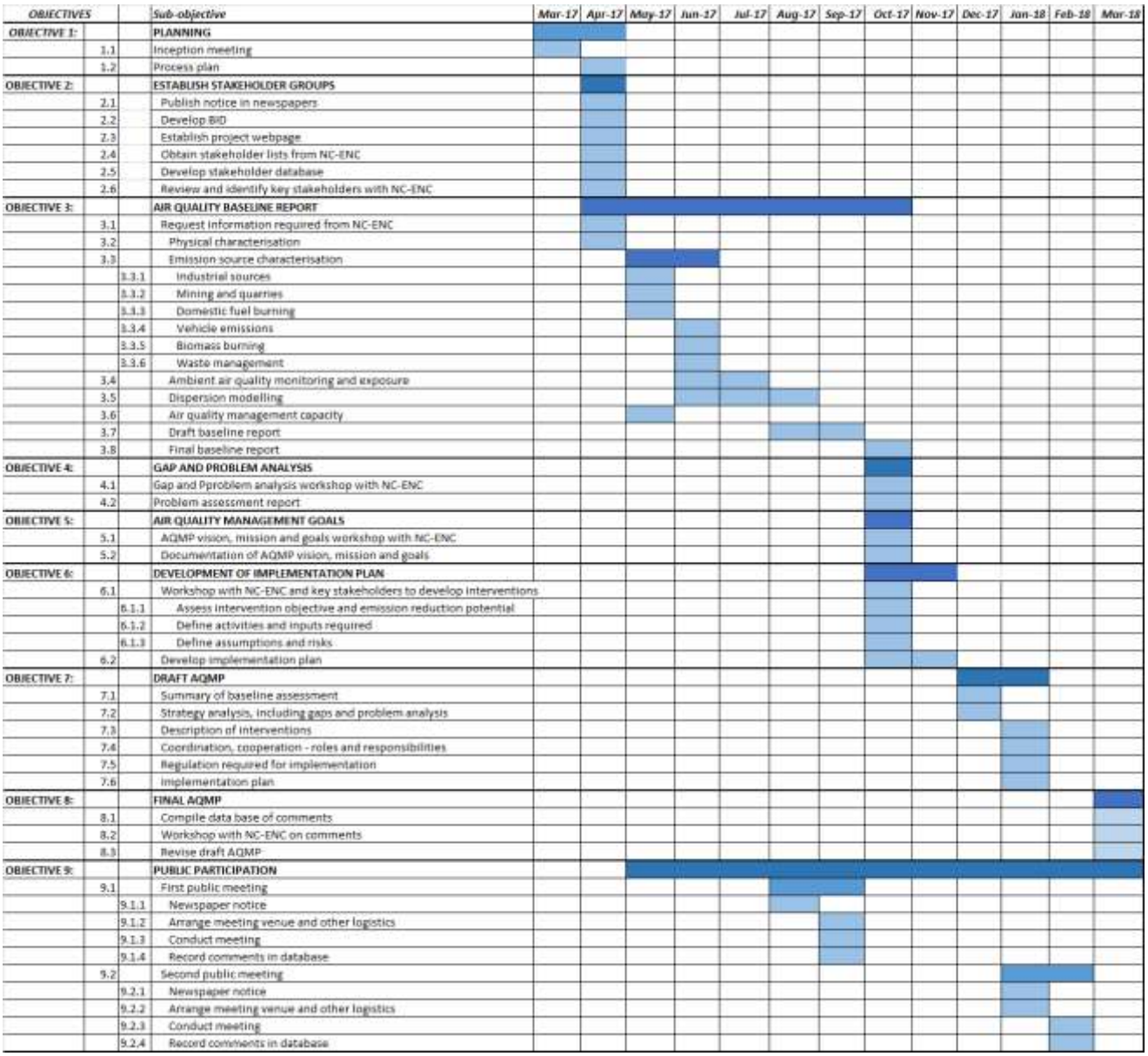

Figure 12-1: Proposed schedule of activities