

**Title:** Sustainable mine closure – a new paradigm

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Mine Closure is a much debated topic in South Africa. The lack of proper controls and enforcement of closure legislation in the past has left a legacy of derelict mines, which then become the responsibility of the South African Government. Delays caused by social disruption, land disputes and resettlement can force premature closure of mining operations and/or require mining operations to be put on hold. This affects the “social license to operate” and the creation of a “second economy<sup>1</sup>” during the operational phase of a mine. These occurrences are in addition to the usual decommissioning and rehabilitation activities that relate to the objective to return the disturbed land to its natural state, or to a predetermined and agreed state or a land use which conforms to the principles of sustainable development.

As a responsible mining company, Anglo American Platinum (AAP) has a “*legal and social responsibility to minimise its impact on the environment and to do this through all the life-cycle stages of a mining operation. It also has to aim to ensure that it will be leaving and processing a positive legacy when its mines conclude their operational lives.*” (Anglo American Platinum, 2014 Sustainable Development report). Taking all this into account our closure vision is to focus on a sustainable post closure environment that is not harmful to the safety and health of surrounding communities. AAP’s vision for sustainable mine closure is best demonstrated at our Tier 1 Mogalakwena open pit mine close to the town of Mokopane in the Limpopo province of South Africa.

At Mogalakwena mine, in addition to the usual rehabilitation and decommissioning activities, AAP has initiated a different approach towards closure with the focus on sustainable development and with the intention of creating a “second economy” around the operation.

The approach supports:

- establishing a formal Incubator Support Programme at the mines’ Groenfontein Farm and Training Centre,

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<sup>1</sup> “Second economy” refers to an interim financial injection to the surrounding communities that supports sustainable practices that will last beyond closure for as long as the mine produces and can contribute to the financial well-being of the communities through salaries, bonuses, Social and Labour Plans, etc.

- assisting Mogalakwena mine in achieving its Social and Labour Plan (SLP), Sustainable Development (SD) commitments and its intent of “helping people to help themselves and their environment”,
- ensuring that from a land stewardship and biodiversity perspective, AAP land is used optimally and sustainably, and
- creating a post-closure solution for Mogalakwena Mine by working with other stakeholders in the development of a second economy assisted by mining.

To enable and support the mentioned objectives at Mogalakwena Mine in a sustainable and pragmatic way, a risk based software aid or system was created to support the development of a Sustainable Development Management Plan (SDMP). The plan, which looks at international, national and local commitments related to sustainable development, has added significant value to the operation in that a structured risk based approach is now available to guide the mine on the type of sustainable development projects it should get involved in.

The key modules of the SDMP (see Figure 1) are as follows:

### **1. Policy and commitments**

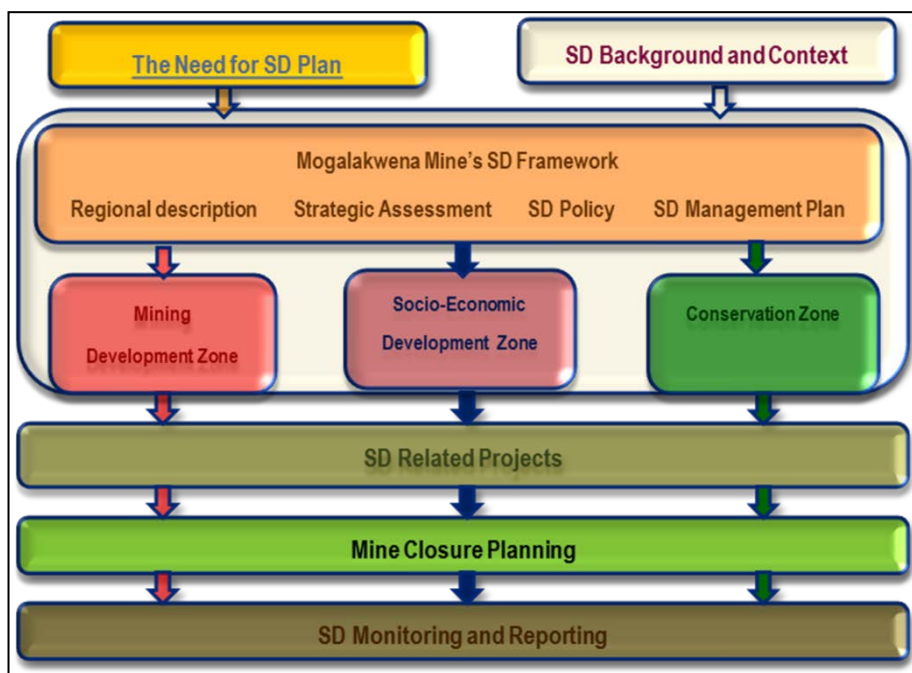
This module consists of a database of relevant international, national, mining sector and company specific information and commitments on SD that sets the broader context.

### **2. Framework**

This module consists of the mine’s SD Framework consisting of a regional description, a strategic assessment, SD Policy and an SD Management Plan that supports the regional and operational strategic context.

### **3. Management Plan (MP)**

Ultimately the SDMP consists of a management plan for each of the three pillars of the SDMP, namely the mining development zone, the socio- economic development zone and the conservation/rehabilitation zone. Each zone management plan consists of two sections, (1) SD practice or actions aimed at impact avoidance and mitigation across the disciplines of safety, health, environment and social, and (2) SD Practise or related projects, which is the means through which value for society is unlocked through mining. These projects in the SDMP are critically important as it is the only way sustainable development potential of the mine can be realised. Progress against commitments is also tracked by means of an action management module.

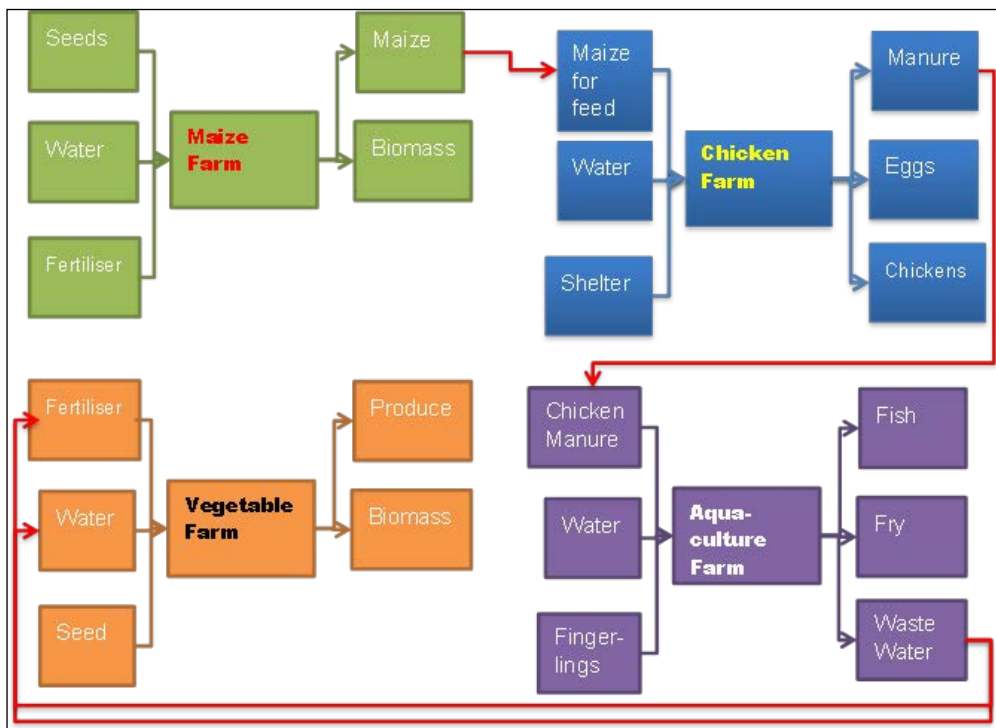


**Figure 1: Mogalakwena Mine: Sustainable Development Framework**

To ensure the SD related projects are aligned with the Mine's SD vision and principles and the goals and objectives of the zone within which the project falls, each project is subjected to an evaluation procedure that goes from a conceptual assessment, through a pre-feasibility to a final feasibility study. The conceptual and pre-feasibility studies culminate in a project evaluation checklist report and the feasibility assessment culminates in a 3 to 5 year business plan which includes a financial plan. This process ensures that only projects that meet the mine's SD vision and principles, as well as closure goals and objectives are taken forward with an approved business plan, ready for implementation.

As part of the SDMP, a detailed Regional Master Plan (see Figure 2) which focusses on sustainable community agricultural related projects and related action plans is under development to streamline and coordinate land stewardship and community development initiatives.

This is being done in order to improve the chance of creating a sustainable "second economy" through mining. A key component of the Master-plan is agro-ecological developments which will impact positively on rural communities.



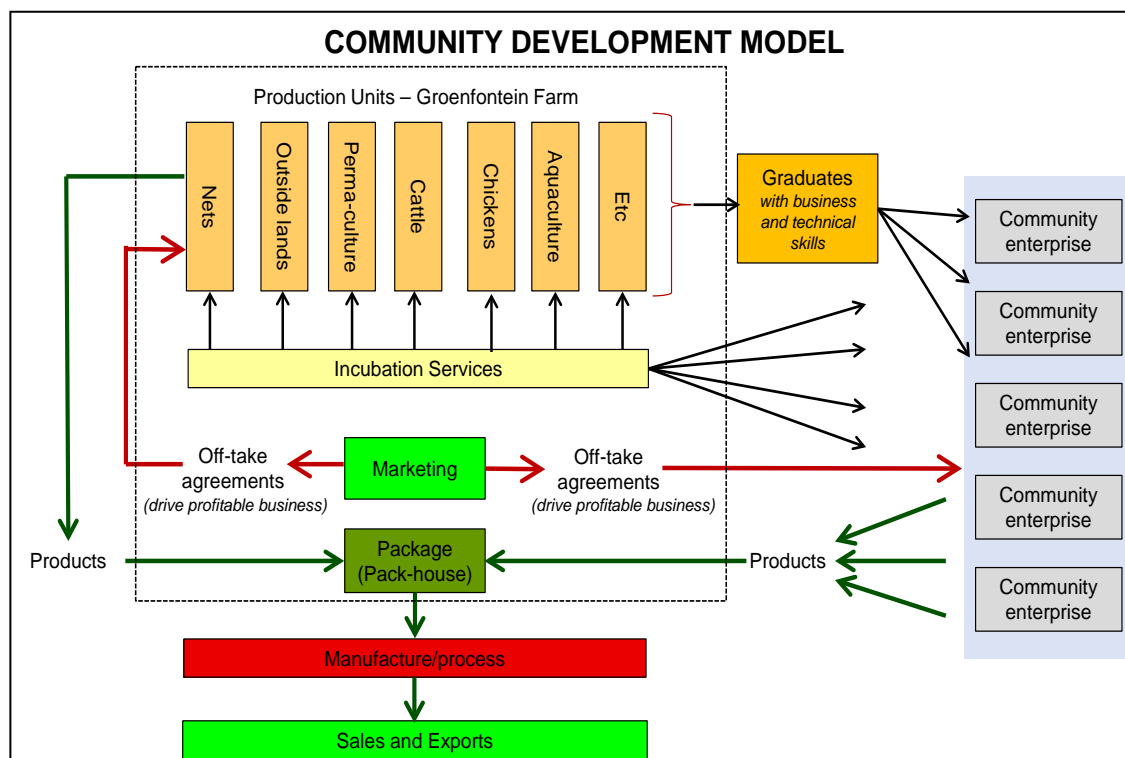
**Figure 2: Illustration of possible front and back-end linkages for agricultural projects making up the Master Plan**

The Mogalakwena Incubator<sup>2</sup> project is aligned with the mine's overarching SDMP and strategically located as a Special Purpose Vehicle (SPV). The direct role of the Incubator as the SPV is to promote the development of community cooperatives and small to medium enterprises (SME's) operating in the farming, food sector, land stewardship and environmental business areas, and while doing so, develop new models for growth, job creation and farm livelihood diversification.

Through the establishment of the Sustainable Development incubator (see Figure 3), direct job creation in-field within the cooperatives and up and down the supply chain (contracting, transport, etc) is significant. The first phase of the incubator which started in 2014 provides the basis from which more than 200 jobs have already been created in the surrounding communities.

<sup>2</sup> An incubator can be defined as "an organisation designed to accelerate the growth and success of entrepreneurial companies through an array of business support resources and services that could include physical space, capital, coaching, common services and networking connections".

To date, Mogalakwena Training has been a centre of learning and application of agricultural and environmental practices and training within the ambit of sustainable development falling under Mogalakwena Mine. Over the past three years of managing Groenfontein Farm and the Environmental Training Centre, Mogalakwena Training and Mogalakwena Mine have developed an effective partnership and have jointly demonstrated success.



**Figure 3: A schematic diagram of the Incubator model**

This success is measured in the number of jobs created in the agricultural field (more than 200), the amount of people trained in sustainable agriculture (more than 2000) and the number of people already growing food to feed their families (more than 400).

This early success has set a strong foundation from which to expand Mogalakwena Mine's positive influence and the mine has made available their Groenfontein Farm and Training Centre to be established as a Sustainable Development Incubator, in partnership with Mogalakwena Training (Pty) Ltd<sup>3</sup>, to develop, mentor and support the establishment of

<sup>3</sup> Independent contractor that manage the Incubator on behalf of Mogalakwena mine.

successful community cooperatives in agriculture, land stewardship and environmental management within the mine's area of influence and beyond to other AAP operations.

In conclusion, mine closure in its essence is about a sustainable means that needs to be established and entrenched during the operational phase. It is no longer just about shaping, demolishing, backfilling and re-vegetation, it's about creating a new natural and social paradigm that will survive time and support sustainable livelihoods beyond mining.