

Implications of the regulatory landscape for the restoration of natural capital

INTRODUCTION

The principle that the person or the organisation responsible for pollution or environmental degradation should be responsible for the restoration of the relevant affected ecosystem has been established in South African legislation by the National Environmental Management Act (NEMA, Act 107 of 1998). This principle is also applied in other acts, such as the National Water Act (NWA, Act 36 of 1998) and the Conservation of Agricultural Resources Act (CARA, Act 43 of 1983).

However, what constitutes successful restoration remains a contentious issue as distinct criteria need to be applied to distinct situations. The lack of regulation of the restoration process may lead to failure in minimising and addressing the adverse environmental impacts as intended in the legislation.

This would be a failure to protect the environment. Therefore, the restoration process must be regulated through appropriate legislation and policies, and the capacity to implement existing legislation must be developed.

EXISTING LEGISLATION

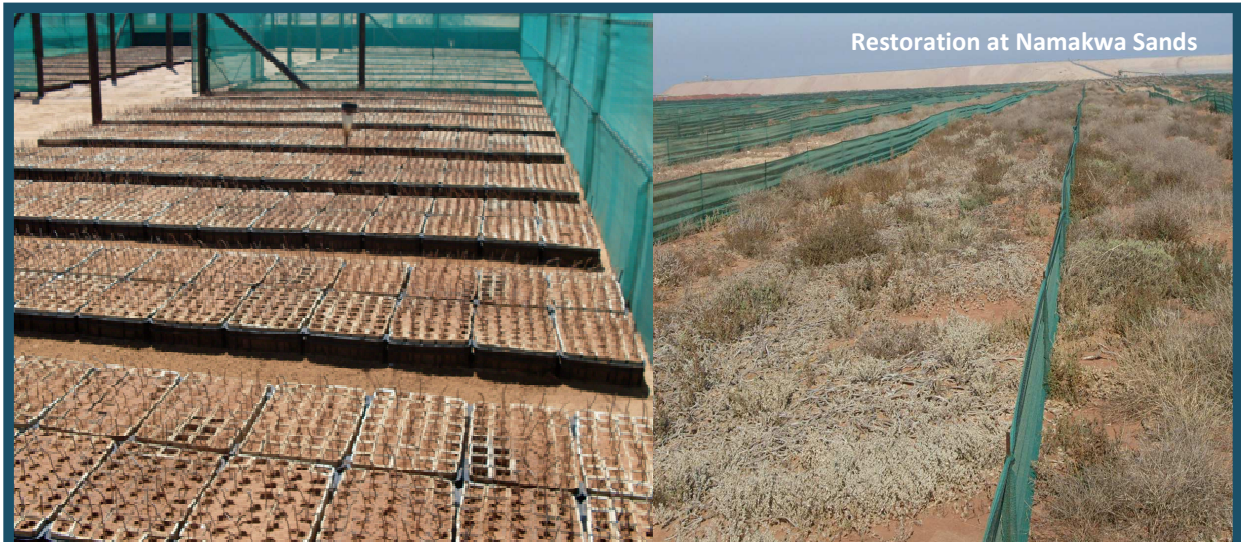
One principle stated in the NEMA, which applies to all environmental management areas in South Africa, is: "The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment." This is known as the "polluter pays" principle.

The "polluter pays" principle is also applied in the CARA and the NWA.

CARA gives the Minister of Agriculture the power to publish regulations that force land users to restore land that has been eroded, disturbed or denuded at cost to the land user. It also gives executive officers of the Department of Agriculture the power to direct a land user to comply with such a prescription or to carry out a specific action to achieve the objectives stated in CARA. The Act also states that any land user refusing to comply is guilty of an offense; and the Act then stipulates the penalties to be imposed on the offender.

RECOMMENDATIONS

- Existing legislation should be modified to regulate the process of restoration as prescribed in the South African legislation to ensure that the desired end-points are reached.
- The regulated process should include phased end-points acknowledging that restoration takes a long time and should continue until the desired end-points are met.
- The following should be considered:
 - A monitoring and evaluation requirement to be included in the regulation of restoration to ensure success;
 - Allowing flexibility in the permitting/licensing systems in order to respond appropriately to findings of monitoring and evaluation with minimum bureaucracy;
 - The introduction of incentives for the polluter to comply beyond minimum requirements of permits/licences.
- Capacity to effectively implement existing legislation should be developed to prevent degradation and ensure successful restoration.



Restoration at Namakwa Sands

NAMAKWA SANDS

The Exxaro Namakwa Sands mine on the west coast of South Africa extracts mineral-containing ore on a large scale by strip mining. Mined-out sites are backfilled and then revegetated by replacing topsoil, reseeding and transplanting nursery-grown cuttings and mature plants. The aim of these restoration measures is to return the capacity of the land to support small stock farming. The progress of restoration is continuously monitored and evaluated. This is an example of how regulation of the restoration process can ensure that the responsible party carries out restoration to achieve required objectives.

However, research on this site also pointed out a number of gaps in the regulation of restoration. (1) There are no incentives for mining companies to comply beyond the minimum requirements of licences. At Namakwa Sands there are currently no requirements to return the diversity of plants that will buffer the ecosystem against disturbances such as drought when the land-use capability has been restored. Although there is no incentive, Namakwa Sands is one of the few mining companies that do so regardless. However, many other mining companies only aim to meet the minimum requirements so as to increase their profits, often leaving the ecosystem in a vulnerable state. (2) There is a need to include phased end-points in the regulatory process where restoration takes a long time. Development of the diversity at some restoration sites at Namakwa Sands has stagnated, and, although land use capability is restored, these sites will not reach the diverse and resilient state desired by Namakwa Sands without active intervention. This illustrates how easily restoration sites can stagnate if they are not actively managed. Phased end-points will ensure this does not happen while sites are progressing towards the restoration objective. (3) Licensing systems are not flexible enough to respond appropriately to the findings of monitoring and evaluation. Namakwa Sands is currently developing suitable requirements relating to vegetation diversity and cover of restored ecosystems. However, the process to change requirements in the EMP is time-consuming and bureaucratic.

The NWA requires that the person responsible for the pollution of water must minimise and remedy such pollution as well as the effects of disturbance to the bed and banks of a watercourse. The Act also gives catchment management agencies (CMAs) power to order the responsible person to carry out such measures or to do it themselves and retrieve the costs from the polluter.

Although it is implied in these Acts that measures to minimise and remedy adverse environmental effects should be successful, appropriate policies to guide the processes by which the affected ecosystem is restored do not exist; therefore successful restoration is not

assured. Since the action of restoration is required by law, but the means are not specified, an opportunity exists for polluters to take shortcuts to decrease the cost of restoration and thus increase their profits. A more thoroughly regulated restoration process would help ensure that restoration achieves the appropriate objectives. This would ideally include regulation of the planning, execution, and monitoring and evaluation phases of the restoration process.

A good example of an Act that does regulate the restoration process (see box above on Namakwa Sands) is the Mineral and Petroleum Resources Development Act (MPRDA, Act 28 of 2002). It requires



Commercial forestry and general degradation have led to a decrease in the water yield in the Sand River Catchment (see box on page 4). Photos: Douglas Crookes

that an Environmental Management Programme (EMP) be developed, which specifies what adverse impacts on the environment will result from prospecting/mining and how these will be minimised and remedied. It requires that end-points for restoration be decided on in conjunction with interested and affected parties. The MPRDA also requires monitoring and evaluation to ensure that companies keep to commitments made in the EMP and to ensure the desired end-points are reached.

This Act also deems the company that has adverse environmental impacts responsible for environmental management and restoration until the actions causing these impacts have ceased and the desired end-points of restoration have been met. Although the MPRDA is not perfect, it has led to a major increase in the environmental management and restoration efforts in the South African mining industry. The way the MPRDA regulates environmental management and restoration could therefore be used as a blueprint for regulation in other sectors, including the agricultural and water sectors.

A major issue is that existing legislation that prevents degradation and prescribes restoration is not always effectively implemented, as illustrated in the box above on the Sand River. In this case study the extent of degradation would have been much smaller if it was prevented and remedied earlier. The capacity of the CMA and Department of Water Affairs to implement the NWA is thus brought into question.

It is also important to note that restoration is an ongoing process. If, for example, invasive alien plants are removed, restoration of the site is not complete until the end-points (usually ecosystem composition, structure or function) are reached. The management

of such sites are therefore important and such sites should not be returned to agriculture, forestry or other land-use that will cause further degradation and prevent successful restoration until fully restored.

GAPS IN EXISTING REGULATION

Specific gaps in the existing regulation of restoration, identified in this research, are the following:

- There is no incentive for compliance beyond the end-points specified in permits or licences issued for specific activities. However, there is an economic incentive (increased profits) for holders of permits or licences to comply with only the minimum requirements, which may leave an ecosystem vulnerable to subsequent disturbances. Policymakers should consider incentives such as awards or tax rebates to counter the economic incentive not to comply beyond minimum requirements. Environmental awards, while costing the state much less than tax rebates could improve a company's profile and therefore attract investors. If the benefits of such awards are made apparent to companies it could become a desirable incentive. Numerous environmental and sustainability awards, mostly presented by non-governmental organisation, exist in South Africa, however, they lack the prominence that would give them impact.
- Phased end-points are needed, linked to the restoration goal, some of which may take long periods of time to achieve. Restoration is ongoing and not a once-off activity. In some cases, especially in arid environments such as the Karoo, restoration may take a very long time. If the restoration process is not guided step-by-step it can easily stagnate

SAND RIVER

The water-stressed Sand River Catchment (SRC) is a sub-catchment of the Sabie River Catchment, which forms part of the Inkomati water management area in the Limpopo and Mpumalanga provinces. The most prominent land uses in the SRC are rangeland, conservation areas, residential, crop production, and forestry – in that order. Forestry activities have caused a decrease in water yield and therefore in the water available to downstream users. This has led to a decrease in cultivated land and caused the amount of water that reaches the Sabie Sand Game Reserve to fall below the ecological reserve – the amount of water required to ensure that the ecosystem remains intact – which is prohibited by the National Water Act (NWA, Act 36 of 1998).

Historically, forestry was the largest water user in the catchment. However, as part of a plan to include the SRC in a newly formed national park, a decision was made in the late 1990s to exit all forestry plantations. The clearing of plantations in the catchment started in 2001. The plan to include the SRC in a new national park did not materialise and subsequently the decision to exit forestry came under review. Unfortunately, the clearing of plantations did not lead to increased water yield as expected, mainly because the canal system in the middle catchment was in disrepair. The water users downstream are therefore still not receiving their water entitlements.

If the decision to exit all forestry plantations is reversed and afforestation takes place, water yield could decrease further. This could also be the case if cleared areas are used for irrigated agriculture in future. To remedy the situation, a payment for ecosystem services scheme was proposed, which would compensate farm owners not to pursue forestry in the catchment and help pay the costs of repairing the canal system. This would ensure that downstream water-users receive their due amounts of water.

This case study illustrates two issues about the regulation of restoration. The first is the lack of capability to implement current legislation. Under the NWA it is the state's responsibility to ensure the ecological reserve is conserved and that of the Minister and of CMAs to order the implementation of any measures necessary to ensure that this is done. Although the Inkomati CMA was the first CMA to be established, and it has been known for years that the ecological reserve in the SRC is not being conserved, little has been done to remedy the situation (the decision to exit forestry was made by the Department of Water Affairs for a different reason). Also, the Inkomati CMA should have prioritised the repair of the canal system. This lack of capacity may be due to institutional complexities, shortage of funding or lack of human capital. Through regulation of the restoration process would aid the CMA by guiding the planning and execution of restoration in the catchment.

The second issue is the management of restored sites is not regulated. If cleared sites are afforested or used for irrigated agriculture the ecological reserve would be compromised, however no policies or legislation exists that regulate the restoration process or otherwise preclude these land uses on cleared sites.

over such long time periods. This needs to be taken into account by policymakers and land users. Phased end-points can ensure that the trajectory of restoration proceeds as envisaged in the EMP or similar framework, and so contribute towards achieving the restoration objectives.

- If the process as regulated stops too soon the system may not be sufficiently robust to reach the condition envisaged in the original licence. For example, where a certain land-use is the desired end-point, and ecological integrity is not a requirement, the ecosystem might still be vulnerable to disturbance after the end-point is reached (see box on Namakwa Sands box). It may then deteriorate to a point where the end land-use is not realised, unless managed appropriately. Also,

if a site cleared of invasive alien plants is not managed correctly further degradation may take place (see above box on Sand River). The restoration process must therefore be regulated until the ecosystem is fully restored.

- Monitoring and evaluation (M&E) is needed, with flexibility within the permitting system to respond appropriately. Without M&E, the success of restoration cannot be established. If M&E shows that restoration is not progressing according to plan, that it will not be possible to reach the required end-points or the requirements are too lax, the licensing system should be able to respond with minimum bureaucracy. The present process of amending requirements is too time-consuming, requiring lots of paperwork and meetings.

CONCLUSION

The principle that a person or the organisation responsible for pollution or environmental degradation needs to pay for the restoration of the affected ecosystem has been established in South African legislation by the NEMA and applied in a number of other Acts. However, this alone does not ensure successful restoration and the need exists to further develop existing legislation to regulate the restoration process. This will help ensure that adverse environmental impacts are successfully remediated to protect the environment. One way of doing this would be to regulate the process in the relevant act for each sector. Alternatively, guidelines for restoration could be developed separately and the use of these made a requirement in each Act.

Recommendations to ensure that successful restoration takes place in future are: (1) To ensure that restored sites are resilient, incentives should be developed to comply beyond minimum requirement of licenses. (2) The regulatory process should include phased end-points where restoration takes a long time and continues until the desired end-points are met. This will ensure that restored sites continuously develop toward the desired end-points and that restoration that takes a long time will ultimately be successful. (3) A M&E requirement should be included to ensure restoration is progressing as planned and

that restoration is ultimately successful. (4) Licensing systems must be flexible in order to respond appropriately to the M&E findings.

The suggested regulations can help the state, as custodian, to protect the natural environment for present and future generations and to ensure that all South Africans live in an environment which is not adverse to their health or wellbeing, as required by the Constitution.

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