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Environmental management frameworks: balancing environmental and developmental imperatives in sensitive areas

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Synopsis

South Africa is well endowed with a plethora of valuable minerals, as well as being of world renown for its significant ecological and cultural resources. The unfortunate reality is that these two important attributes often come into collision when developmental decisions are made. Robust environmental planning tools are required to guide such development in areas of heightened sensitivity. Environmental management frameworks are one of the tools that can attempt to achieve the desired developmental and ecological balance by utilizing early identification and mapping of sensitive ecosystems and resources to assist in pre-empting potential future land use conflicts. This paper unpacks the characteristics of environmental management frameworks and further investigates their potential, as well as its current design and implementation challenges. The findings show that environmental management frameworks have the potential to provide meaningful resource information to decision-makers on the opportunities and risks of developments in sensitive areas. They further provide a platform and process through which local stakeholders can voice their opinions and collectively drive the developmental priorities of the identified area.

Keywords

environmental planning, sustainability, sensitive areas, invasive development, environmental management frameworks, resource mapping.

Introduction

At the core of a harmonious and prosperous society is the balancing of a broad spectrum of needs, rights, and imperatives. As South Africa's resource and energy needs expand, it becomes increasingly important to safeguard environmental rights and ensure sustainable development through creative measures. The State's drive for accelerated development to meet the targets in the National Development Plan 2030 is contributing to the growth of invasive developments in previously undeveloped areas. The unfortunate reality is that the heightened tensions between rapid economic growth and environmental sustainability are threatening sensitive areas.

A potential solution to these challenges is a clear and practically implementable spatial planning system with environmental and ecosystem integrity at its core (Zaki *et al.*, 2000). Environmentally focused spatial planning is a key pillar in achieving sustainable development through scientifically defined ecological thresholds and stakeholder participation. There are existing spatial planning tools that have the potential to lay the foundation for appropriate and considered growth in sensitive rural areas (Gauteng EMF, 2014). These tools are especially useful where the area has the potential for high-impact developments and where a multitude of interests, rights, and vulnerable ecosystems will be affected.

The early identification and mapping of sensitive ecosystems and resources are therefore crucial to pre-empting potential future land use conflicts (Slootweg *et al.*, 2009). As a consequence, government regulators are increasingly using planning tools, such as environmental management frameworks (EMFs), to achieve this balance. However, in so doing, they are encountering fundamental difficulties in both their design and implementation, suggesting considerable scope for refinement.

Aim

The aim of this paper is to critically analyse the tools used in environmentally focused spatial planning in South Africa, with particular focus on EMFs and with a view to revealing the areas that require attention in order for this crucial instrument to reach its proper potential. This paper undertakes a high-level assessment of how EMFs can be utilized as tools to balance the environmental, social, and economic imperatives affected by high-impact activities in sensitive areas. This paper will form a part of a much larger thesis that will analyse the root causes of land use conflicts and attempt to make environmental planning tools more applicable to the South African context.

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Environmental management frameworks

Problem

How do we balance the seemingly conflicting environmental, social, and economic considerations that make up sustainable development? In other words, how do we harmonize the imperatives of conservation, biodiversity, and heritage protection with the need to develop and sustain steady job creation and poverty alleviation in a country that has real and present problems with ingrained societal imbalances? This is ultimately a question of how we harmonize environmental and developmental rights, and is therefore a human rights issue.

From a preliminary assessment, it seems that the regulatory frameworks for environmentally focused spatial planning are not sufficiently clear or aligned to provide the answers to these important questions (EIAMS, 2014). The failure of this system to promote sufficiently integrated management of sensitive areas jeopardizes the integrity of the natural capital and ecosystem services (the benefits people obtain from ecosystems, such as fresh water, clean air, and arable soil) that are a necessary condition both for commerce and basic human survival.

The fragmentation of legislation, additionally, creates management and governance problems allowing development to occur in a manner inconsistent with the principles of sustainability and considered planning (Kotze, 2006). What is especially concerning is that these flaws open the door to developments that place sensitive areas at risk. Some examples of sensitive areas that have been subject to unconsidered planning, with particular focus on extractive developments, are the Mapungubwe World Heritage Site, the Blyde River Canyon Nature Reserve, Imfolozi Game Reserve, and the Mtunzini Conservancy. An integrated, aligned, and consistent regulatory system is therefore required in order to produce results in line with the right to environment in Section 24 of the Constitution of the Republic of South Africa Act 108 of 1996 (Constitution).

EMFs are one of the chief tools chosen to implement the constitutional imperative of sustainable development. More specifically, they have been designed for the purpose of enabling the accommodation of a broad spectrum of stakeholders and minimizing the social and economic cost of maintaining sensitive areas (Dowie, 2009). However, the EMF is still in its relative infancy and, not surprisingly, has its defects. Although the planning framework and design needs further refinement, the EMF remains valuable as it is consistent with, and even embodies, the principle of, sustainable development, which is foundational to South Africa's system of environmental law and management.

Spatial planning and environmental management

Integrated, inclusive, and sustainable spatial planning has become internationally accepted as a necessary component of sustainable growth, especially in sensitive areas. This process involves the scientific study of the biophysical and socio-economic systems of a geographically defined area to reveal where specific land uses may best be practised and to offer performance standards for maintaining appropriate land use (EMF Regulations, 2010).

South Africa finds itself in a situation where heavy industry, in particular extractives, is entering previously undeveloped and sensitive areas, an example being the upsurge of prospecting licenses in Limpopo Province, where over 400 new applications were made in 2013 (Limpopo Business Guide, 2013). This results in an increasing tug-of-war between invasive development and environmental protection. By taking the value of ecosystems services into account, spatial planning can enable the identification of alternative strategies that limit the impacts on the natural resources that sustain rural livelihoods. Such strategies can capitalize on the economic potential of ecosystem services while maintaining environmental integrity and operating within designated limits (TEEB, 2010).

Balancing the need for development, growth, and job creation with the importance of protecting sensitive areas is a complex task. However, environmentally focused spatial planning has the potential to strike this delicate balance and is a viable option for realizing sustainable development in areas of ecological, hydrological, or cultural significance (SEMP, 2014).

South Africa has recognized the potential of spatial planning for guiding the optimal and sustainable use of ecosystem goods and services and balancing the aforementioned imperatives. It is one of the few countries to have legally adopted spatial planning tools, such as EMFs, buffer zones, biodiversity frameworks, and catchment management areas (French and Natarajan, 2008). South Africa has also formulated and adopted National Biodiversity Strategies and Action Plans as tools for integrating biodiversity into planning (SCBD, 2010). Yet impact still lags considerably behind intention, and despite the bold advances in the areas of legislation and policy, the desired results remain elusive.

Legal framework for spatial planning and environmental management frameworks

The legacy of apartheid-era planning has been an unwelcome inheritance for the spatial layout of South Africa and has proven difficult to redress in the democratic era. The segregationist history of Johannesburg, for instance, is evidenced by the location of the majority of black townships in the city's outlying areas. Although spatial planning is more equitable today it still focuses on zoning and largely unscientifically delineated boundaries, promoting development above most other considerations. Addressing historical spatial imbalances and the integration of the principles of sustainable development into land use planning tools and legislative instruments is the basis of South African land use planning (Section 12(1)(i) of the Spatial Land Use Management Act No. 16 of 2013 (SPLUMA)). At the same time, the weight accorded to each consideration remains uneven as environmental considerations are often not sufficiently integrated (Khulekani, 2010).

Any analysis of the legal framework for spatial planning needs to begin with the allocation of authority under the Constitution. In terms of Section 40 of the Constitution, the South African government is constitutionally delineated into a three-tier authority system (Wary Holdings (Pty) Ltd *v* Stalwo (Pty) Ltd and Others 2009 1 SA 337 (CC) 80). These spheres are distinctive, interdependent, and interrelated and must observe and adhere to the principles in Chapter 3 of the Constitution and conduct their activities within set

parameters (Section 41(1) of the Constitution). Planning powers in municipal areas are assigned to the local authorities and are captured in their individual local integrated development plans (Maccsand (Pty) Ltd *v* City of Cape Town and Others 2012 (7) BCLR 690 (CC)). The court has established that land use is central to developmental planning. Local municipalities have the exclusive executive competence to tailor municipal developmental plans and are best placed to allocate assets and map their own future (City of Johannesburg Metropolitan Municipality *v* Gauteng Development Tribunal and others 2010 (6) SA 182 (CC)). The foundational National Environmental Management Act No. 107 of 1998 (NEMA) principles listed in Section 2 must be taken into account during decision-making on a local, provincial, and national level where actions significantly affect the environment. Importantly, the court found that municipalities have a constitutional obligation to promote 'ecologically sustainable development' (Le Sueur and Another *v* Ethekwini Municipality and Others 2013 (6) ZAKZPHC 6).

The spatial planning system is currently undergoing reform and will soon be subject to the new overarching SPLUMA. SPLUMA attempts to align all planning principles and law into one clear and unambiguous system. Furthermore, SPLUMA is founded on constitutional rights, including the right to environment, water, food, and housing, and makes reference to sustainable development in forward planning and land use management. Case law supports the interconnected nature of environmental and planning considerations, stating that they are 'inseparable' (Fuel Retailers Association of Southern Africa *v* Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province and Others 2007 (6) SA 4 (CC)).

The new system recognizes the importance of EMFs and other environmental instruments as considerations during developmental sustainable decision-making (Section 7(b)(3) of SPLUMA). The status of EMFs was significantly enhanced by the promulgation of the 2010 EMF Regulations and is now seen as a crucial part of the suite of integrated environmental management tools (EMF Guideline, 2010).

EMFs have been identified as one of the spatial decision support tools that can successfully be used to assist in forward planning (Marais, 2015), environmental governance, and land use management within a jurisdictional area and should be complementary to the provincial spatial development framework (Section 7(b)(iii) of SPLUMA). The EMF should be used to inform stakeholders and role-players during the EIA process as to the environmental sensitivities of an area that need to be considered in the planning and development processes or where potential environmental issues conflict with development in a specific geographic area (Section 24(4) (b)(vi) of NEMA).

The legal effect of EMFs, however, remains somewhat uncertain. In the Magaliesberg Protection Association *v* MEC: Department of Agriculture, Conservation, Environment and Rural Development, North West Provincial Government and Others 2013 (80) ZASCA, the Supreme Court of Appeal stated that assertions in an EMF regarding environmental sensitivities and recommended restrictions are not absolute. Therefore, the conclusions reached in an EMF would form part of the decision-making process during the regulatory assessment of the suitability of the development but would not have the effect of declaring the area a no-go zone[1]. The failure to consider the EMF therefore did not affect the substance of the decision but rather served as a factor to be considered and weighed. The court made it clear that the decision rests with the appropriate decision-maker and not with the authors of the EMF. The EMF was branded as purely a policy consideration and not a legally binding prohibition on certain land use activities.

It is currently not a prerequisite for any authority to conduct an EMF (Magaliesberg), although once adopted the EMF must be taken into account in the consideration of applications for environmental authorization in or affecting the geographical area (Section 24(3) of NEMA). However, the extent to which they must be taken into account is still up for debate (Ilembe Municipality EMF Status Quo Report, 2012).

It is important that EMFs have a greater status in legislation than simply being one of many considerations, as they focus on the scientific suitability of developments and involve broad-based agreement between stakeholders (GEMF, 2014). Stakeholders should have confidence that the considerable time and resources they have invested in the engagement process translates into a plan that is capable of defeating the authorization of developments that contradict the EMF in the future.

Ongoing uncertainties as to the legal status and effect of planning tools such as EMFs provide loopholes for inappropriate developments to proceed. A cohesive regulatory approach is therefore required to protect areas of ecological and spiritual value in South Africa.

The potential of environmental management frameworks

Having laid out the broad legal framework, we shall now look closer at EMFs that exemplify the thrust towards environmental spatial planning. The EMF is an environmentally focused spatial development tool that can be used to assist in achieving integrated environmental management (IEM). The tool looks at social and economic considerations through an environmental lens and attempts to guide development in a specific geographic area (Cape Gateway EMF, 2005). An EMF can be described as a set of information that can be used by decision-makers to assist in determining the best approaches (procedural and/or technical) to dealing with a variety of environmental challenges (GREMF, 2010). EMFs can assist in mapping the ecological integrity of an area by considering impacts of invasive developments and harmonizing conflicting land use imperatives, identifying different interests, and understanding how the costs and benefits of conservation are distributed (Czech, 2008). EMFs are therefore a testament to and the embodiment of IEM, focusing on strategic and pre-emptive measures that guide stakeholders and raise awareness in biodiversity conservation (Marais, 2015).

The development of an EMF involves the following process. Once important information on the area's attributes has been collected and assessed (the *status quo* phase), the

[1]For example, listed activities in terms of Section 24(2) of NEMA.

programme leaders can advise stakeholders on the status of sensitive resources in the area and provide options to best utilize ecosystem services for sustainable and considered growth. An ecosystem sensitivity map is then developed and management can begin to identify drivers of development in consultation with stakeholders. This process is made up of discussing potential impacts on ecosystem services, expressed as either opportunities or risks to social, environmental, and economic wellbeing (EMF Guidelines, 2012).

The entire system depends on the reliability of data collected and accuracy of assessments to establish the ecological *status quo* and delineate thresholds for ecosystem services (GREMF, 2010). Establishing the ecological thresholds is crucial for protecting the ecosystem, as stakeholders begin to understand the capacity of an ecosystem to tolerate disturbance without collapsing.

A foundational characteristic of the EMF process, and what sets it apart from other spatial planning tools, is the breadth of stakeholders who are involved in the process of design. EMFs embody the principle of participatory democracy, utilizing the input of affected communities and governmental departments to craft options for a specified area, guided by the assessed ecological limits. Open and collaborative spatial planning enables agreement between diverse stakeholders with a variety of agendas, backgrounds, and interests (TEEB, 2010).

Meaningful participation and consultation must be a consistent thread through the spatial planning process as important input can be garnered from the beginning of the impact assessment process, through to the policy framework development stage and continuing through the implementation and monitoring phases (EMF Guidelines, 2012). Partnerships between stakeholders, government, and project teams can facilitate the exchange of important insights at all stages of the process.

Robust discussion is required in order to come to mutually agreeable decisions. The EMF process is by its very nature a negotiation, which requires compromise by all stakeholders with various conflicting interests. The EMF process should mediate these conflicts and agree on a way forward that reasonably satisfies all parties. When consultation is not undertaken in a meaningful manner the process suffers and the buy-in of stakeholders required to make sacrifices under the EMF, for example farmers who will need to limit their use of water, is less likely to be obtained.

In order to enact a plan as integrated as an EMF, multiple governmental departments as well as national, provincial, and local spheres of government will typically all need to be consulted (EMF Guidelines, 2012). This is especially challenging when, for example, the designated area is a national park, World Heritage Site, or protected ecosystem. The regulations do not assign tightly crafted roles to these different sectors during this process. With only the high-level constitutional principle of cooperative governance to assist, the mediation of conflicting interests presents a challenge.

It must be the responsibility of the EMF project team and the government to capacitate and train stakeholders so that they can meaningfully engage with the information in order to make informed comments and decisions (EIAMS, 2011; du Plessis, 2008). This type of training should focus on understanding ecosystem services and the impacts that proposed developments could have on livelihoods and the ecology of the areas, but also on the economic and business opportunities that exist.

During the engagement process facilitators must realize that not all stakeholders have the same access to resources, education, and negotiating power at the deliberating table. For example, in remote rural areas stakeholders might have limited infrastructure or information connectivity. This must be recognized and carefully managed in order that the disparity of power does not cause exclusion of or discrimination towards any party. Adaptations must be made regarding the language of presentations and material, as well as the user-friendly nature of the information presented (EMF Guidelines, 2012).

Traditional and indigenous knowledge systems need to be taken into account when explaining the course of development, as Western understandings of development might be different to that of those in a more rural setting. Importantly, the traditional knowledge of a particular area could prove invaluable in assessing the compatibility of certain activities in a specific area; oral histories and local knowledge could add important information to assessments of biodiversity, hydrological cycles, and climate change. While physical drivers of change can be modelled by experts, impacts are 'felt' by people and are location-specific (Sallenave, 1994).

Inclusive and participatory planning requires that the requisite time must be taken to study and understand the social context in a specific area (Burns, 2004). Microcosms of society are incredibly complex and the impact of undertaking the planning process must be understood in the context of a specific area, with often various distinct political and cultural dynamics. For example, various political parties, with various factions and traditional structures within a defined area, are commonplace. Community members living in the same area often do not share the same priorities and may have conflicting opinions on conservation and development. These positions need to be understood thoroughly before any negotiation or mediation can take place with regard to a future developmental and conservation roadmap.

Information needs to be freely available and extra effort must be made by the management or project team to ensure that all stakeholders have the requisite information in order to ensure that the process is transparent and understandable (du Plessis, 2008). If meetings are conducted in secret, a suspicion of intentional exclusion can arise and distrust will mount, ultimately souring the process.

Therefore, specific attention must be paid to access to information, with organizers going beyond compliance to ensure that stakeholders can make informed decisions. Inclusive participatory structures such as multi-stakeholder management or compliance bodies should be established in instances where high-impact developments are expected in sensitive areas. These bodies, if run properly, would go very far in creating trust and ensuring participation in the planning process.

Generating support for EMFs can be a challenge, especially when attempting to garner support from role-players whose mandate is to drive development (Postel *et al.*, 2005). Arguably, many corporate and state role-players feel that EMFs limit growth and development because of their

environmental focus. Therefore it is important that a business-oriented case for ecological protection and considered development be made through the completion of an economic assessment of natural capital and ecosystem services (Pagiola, 2007). Such a financial quantification is a persuasive tool when used to convince politicians, policy-makers, and private sector developers of the economic value in protecting and enhancing ecosystem services like watercourses and biodiversity. This is crucial, as no project will be initiated without the requisite political will.

It must be kept in mind that from a political point of view, politicians have five years to show the success and impacts that they have made and there are far more visible projects to focus on during their term of office. Conserving ecosystem services could take decades to return a profit that is not always as visible as industrial development. These economic assessments of sensitive areas can therefore be critical in generating support for such integrated projects as they are packaged in the form that developers and government can relate to and understand.

This is not to say that an economic valuation can always accurately quantify the full cumulative importance of the value of a particular environment, especially when it comes to less tangible attributes such as spiritual connectivity, sense of place, heritage, and all the benefits of a stable ecosystem. We live in a capitalist, profit-driven world and accurately assessing the financial value of sustainability seems an unavoidable condition for securing long-lasting protection for sensitive areas.

Sensitive protected areas should be seen as central assets to the surrounding communities and as an advantage and not an obstacle to development. Utilizing ecosystem services to drive a local green economy is a viable and sustainable form of economic development, and EMFs can facilitate this through identification of economic potential. Protecting sensitive areas is more far-reaching than the protection of endangered biodiversity: it preserves human health and wellbeing while creating various opportunities in the broader green economy.

Communities that surround sensitive areas are employed in a range of sectors, including commercial agriculture and the services sector. A significant proportion of rural communities is made up of low-income households and levels of unemployment are high. There is much potential for translating the unique value in protected areas into economic benefits for communities through the use of EMFs. The tourism industry and ancillary services can be utilized for community development. Sensitive protected areas can also facilitate education and social work with youth by allowing people to reconnect with nature, reinforcing the interdependence between the protected area and the surrounding communities (Trzyna, 2007). Additionally, the management of controlled bioprospecting[2] can facilitate the private and commercial use of natural resources for the benefit of the community, while not risking the sensitive balance of the ecosystem.

Understanding the potential of a sensitive protected area is a complex and time-consuming exercise that requires thorough scientific assessment of the economic, social, and environmental characteristics that are unique to each sensitive area. EMFs provide the framework that enables decision-makers to factor such characteristics into developmental decisions in sensitive areas.

Conclusions and recommendations

Environmentally focused spatial planning is admittedly in its infancy in South Africa, yet I believe that this paper, in its examination of one form of spatial planning, namely EMFs, indicates that it has the potential to catalyse the kind of sustainable change we want to see in sensitive and undeveloped areas. From the EMF example, I have also identified a handful of principles that, if heeded, might make success more likely.

One of the main recommendations that I can put forward is that early planning is a developer's best weapon; EMFs provide this framework, albeit for mining or any large-scale development. In a planning context, being prepared and having environmental, social, and economic issues and possibilities laid out strengthens the design process and makes the mitigation of impacts easier to manage.

Secondly, the EMF that is developed must be a living document that is resilient and can be adapted to ever-changing variables, such as identifying accurate growth rates for the area and climate change, which are crucial to the sustainability of local economic viability and the protection of sensitive areas. This living document must have people and the environment at its core, focusing on how best to preserve and sustainably utilize ecosystem services. The key to socio-ecological integration is combining environmental with socio-economic decision-making into one process.

Thirdly, conducting rigorous and robust public participation processes is imperative and ensures that a knowledgeable and supportive community base is established. Planners and project managers must ensure that stakeholders remain involved throughout the planning process and participatory structures are created to facilitate information exchanges and collective decision-making. The decision-making process needs to be as transparent and as fair as possible, recognizing power disparities between stakeholders, in particular between the State, business, and community parties.

We must recognize that South Africa has a unique history and therefore has specific socio-economic issues to deal with. Poverty alleviation is at the core of the State's action and the only way to preserve ecological resources is to show their value from a balanced environmental, economic, and social perspective. Furthermore, the valuation of ecosystem services fosters political will and creates a culture of compliance because of the potential economic benefits.

The drivers of such processes must also realize that civil society can play a supportive role, assisting with capacity-building on a local level but also playing an observational role on a higher level. For, instance civil society can assist in capacitation of local communities and authorities, giving them the tools and resources to manage their areas of responsibility successfully. Civil society should strive to add meaningfully to the developmental and conservation conver-

[2]Bioprospecting refers to the exploration and exploitation of biodiversity for commercially valuable genetic resources and biochemicals, including for medicinal purposes

sation, but also provide legal and scientific expertise during the negotiation phase. Civil society's role is most importantly there to represent the interests of the marginalized communities and provide them with a platform.

In conclusion, more needs to be done to the environmentally focused spatial planning framework to identify economic potentials in order to achieve real sustainable development. Work must be done to identify and encourage opportunities for the integration of ecosystem services. The integration of integrated development plans with the spatial planning process at an early stage could embolden and facilitate earlier and more considered growth. Integration is therefore crucial, both between different spatial planning tools and other developmental processes. These challenges require an aligning of all spatial planning with environmental principles of sustainable development to make it more practical, holistic, and ecosystem-service focused.

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