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South Africa's Biodiversity Stewardship Programme

Case Study for the GIZ Project BioFrame and partners



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Assessing the transformative potential of the Biodiversity Stewardship Programme to safeguard biodiversity and ecosystems based on the transformative change framework developed as part of the report "Transformative change for a sustainable management of global commons" (Wittmer et al, 2021)

Case Study for the GIZ Project BioFrame and partners

Developed by Helmholtz-Zentrum für Umweltforschung – UFZ, Themenbereich Umwelt und Gesellschaft

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Content

1	Summary	4
2	Background and Methodology	5
3	General context and assessment of a transformative vision (Step 1)	9
4	Assessment of the specific measure (Step 2)	12
	4.1 Description of the measure (Step 2 a)	12
	4.2 Assessment with regard to the four ambitions (Step 2b)	15
	4.3 Assessment with regard to the building blocks (Step 2 c)	18
5	Recommendations	23
6	Literature used	25
Im	print	27

1 Summary

South Africa's Biodiversity Stewardship Programme (BSP) involves establishing agreements with private and communal landholders to safeguard and oversee land within areas of high biodiversity importance. This initiative is spearheaded by provincial conservation authorities in South Africa. It has shown to be an efficient strategy for increasing protected area coverage in the country and helps to meet internationally agreed conservation targets. The land's ownership remains with the landholder. The approach integrates biodiversity conservation within a broader context of land utilisation allowing for different management regimes including strict biodiversity conservation and sustainable use.

With first examples on province level in 2003 and BSPs established in all nine of South Africa's provinces by 2013, substantial experiences are at hand. By 2014, 70 protected areas had been declared through provincial BSP agreements and another 145 were under negotiation. By 2016, 564,000 ha of protected areas had been declared using that mechanism (SANBI, 2017). Over the years, these were used within the BSP to improve and sophisticate implementation of conservation action on private lands. The BSP is the biodiversity policy tool that allowed to significantly expand South Africa's terrestrial protected area coverage to address the national and international biodiversity conservation targets under the Convention on Biological Diversity (CBD). Between 2008 and 2016, 68% of added protected estate was achieved through the Biodiversity Stewardship declaration (DEA, 2017).

The Global Assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) defines transformative change as "a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values, towards an equitable, just and sustainable society" (IPBES 2019). Transformative change is recognised as necessary to ensure wellbeing and prosperity for humankind. In this case study, the transformative change framework developed by the Helmholtz Centre for Environmental Research – UFZ is used to assess the transformative potential of the BSP.

Specifically, an overarching vision for transformative change as expressed in public strategies and plans, most notably the National Development Plan (NDP) of South Africa, is analysed. Further, the transformative potential based on three building blocks concerning three characteristics of transformative change (i) transformative knowledge, (ii) dynamics, and (iii) emancipation and agency is assessed. Each of these is broken down to criteria indicating transformative change potential.

It is important to note that assessing transformative potential as suggested here is an approximation. The cursory character of the criteria is part of the nature of the exercise where transformation can only be judged as such in retrospect. Transformative potential is assessed by comparing the aspirations and policy actions expressed in public plans and strategies regarding the case study and the set-up and operation of the instrument itself to the criteria formulated for each of the building blocks.

The BSP is contributing to policy goals that link social prosperity to environmental sustainability described in the NDP. It can contribute to transformative change in several ways, especially by reducing direct pressure on biodiversity and by ensuring connectivity. Some recommendations are made with regards to the wider integration of biodiversity conservation thinking in land use planning and climate activities. The BSP can easily and effectively contribute to transformative change.

2 Background and Methodology

This case study has been elaborated within the scope of the IKI Support Project for the Design and Implementation of the New Global Biodiversity Framework (BioFrame) by the Helmholtz Centre for Environmental Research – UFZ. It investigates the transformative potential of South Africa's Biodiversity Stewardship Programme (BSP) as the Kunming-Montreal Global Biodiversity Framework (GBF) adopted at the 15th UN Biodiversity Conference (CBD 2022) and other international organisations and agreements demand for socio-ecological transformation¹.

Traditionally, the global commons are defined as the common heritage of humankind, referring to e.g. the atmosphere or the high seas. Lately, is has been expanded to include resources relevant to the welfare of humanity, like tropical rain forests and biodiversity (Mrema 2017). This section seeks to explain what transformative change means for biodiversity conservation. It also presents key considerations for understanding, assessing and raising the potential for transformative change in biodiversity policy and actions.

The report "Transformative change for a sustainable management of global commons" (Wittmer et al, 2021) summarising recommendations from international assessment reports, concludes that transformative change of global production and consumption systems is necessary to safeguard and maintain global biodiversity, natural terrestrial, inland water, and coastal and marine ecosystems, and to stabilise climate at the global scale.

In order to address the biodiversity crisis and the essentially cross-cutting challenges, **four ambitions to guide transformation** and enable sustainable management of global commons were identified:

- **1. Significantly reduce consumption and waste,** especially in the Global North (also addressed by GBF action targets 7 and 16).
- 2. Strive for production without external costs by avoiding and including / internalising any remaining social and environmental costs to return within planetary boundaries (also addressed by GBF action targets 10, 15 and 18).
- 3. Reduce socio-economic inequalities, both by ensuring fair distribution of ecosystem service benefits and by ensuring self-determined choices and a life in dignity for all (also addressed by GBF action targets 11, and 20 to 23).
- 4. Safeguard and restore critical elements of global commons to ensure and where possible to increase nature's contribution to people; parts of global commons require explicit protection, even if production and consumption is organised much more sustainably (also addressed by GBF action targets 1 to 3 and 11).

¹ For example: IPBES Global Assessment (2019), Global Sustainable Development Report (2019), IPCC Special Report on Climate Change and Land (2019), IPCC Special Report on Global Warming of 1.5 °C (2018), The State of the World's Forests (2020), The State of Food Security and Nutrition in the World (2019).

It is important to keep in mind that in order to achieve sustainability not only introducing sustainable practices is needed, but also phasing-out unsustainable ones. To achieve this, existing instruments, frameworks and incentives must be questioned and where needed be replaced by different ones that do not degrade biodiversity or otherwise counteract socio-ecological changes towards sustainability.

To address root causes of unsustainable use patterns, it is necessary to look into the fabric of society and communities. Social inequality and injustice often un

derlie environmental degradation. Taking these social, distributive and economic factors into account and seeking solutions to address the root causes will result in interventions with higher potential to contribute to transformative change.

A framework was developed based on the review of the academic literature on transformative change and global assessment reports. It proposes five key elements – called building blocks – helping to rethink interventions in a way so that they can contribute to transformative change.



TRANSFORMATIVE VISION

What futures do we want?







TRANSFORMATIVE KNOWLEDGE

What needs to be known for changing?





DYNAMICSHow to navigate, nudge and

nurture system change?





EMANCIPATION AND AGENCY

How can spaces be created for deliberating just transformations?





TRANSFORMATIVE GOVERNANCE: ACTORS AND INTERVENTIONS

A broad range of situation-specific interventions. Their impact / success depends on an adequate combination of:



Relevant actors (who?)

Instruments (what?)

Governance modes (how?)

The five building blocks are

1

A compelling transformative vision – What futures do we want?

A shared vision of the future and a set of mutually compatible compelling new narratives are needed to motivate and guide transformative change conducive to biodiversity and other global commons. These cannot rely mainly on desired biodiversity outcomes but need to address economic and social concerns, and should contribute to the reduction of inequalities.

2

Knowledge on systemic change – What needs to be known for changing the system? And how can experiences and knowledge gained along the way be integrated?

An important gap is knowledge on system change, specifically on how to transform production and consumption patterns while addressing inequality at the same time. Democratisation of knowledge is needed: with the goal of deriving context-based, pluralistic and vision-compatible options for strategic interventions. Knowledge co-production and establishing interactive platforms for experience sharing can be effective in strengthening the interfaces between science, policy, and society.

3

Navigation of the dynamics inherent in changing development pathways – How to navigate, nudge and nurture system change?

Transformation cannot be designed nor steered by a master plan or expert panel. To nurture change means to create fertile ground for it; to nudge into change means to provide situation-specific stimuli; and to navigate change refers to seizing opportunities and recognizing obstacles along the way. Timing is also of key importance: Instruments to institutionalize new practices can only work if these practices are already known and proven by a relevant number of users.



Emancipated agency providing room for inclusive deliberation – How to open spaces for deliberation, inclusion and emancipation?

Respecting the importance of cultural diversity and opening spaces for debate, involving all groups in society on how we want to live is essential to achieving fundamental change. Collective debate on what a good life entails and how decent living for all humans can be achieved without degrading global commons is expected to generate a multitude of situation specific strategies. This is especially important considering strong resistance to change expected from those who benefit from the current set-up. Instruments which integrate spaces for open discussion and experimentation are more likely to empower stakeholders to engage and unleash ideas and co-production.



Transformative modes of governance: adequate combination of relevant actors (who?), instruments (what?), and governance modes (how?)

Transformative governance needs to be informed, inclusive, integrated, adaptive, and accountable (Visseren, Hammaker 2018). If taken seriously, knowledge, dynamics and emancipated agency provide guidance on how to engage stakeholders meaningfully, and help to identify the aspects to include when improving governance structures to allow for learning, recognising dynamics and acting upon them, and raising stakeholders' awareness and self-efficacy.

This understanding of transformative change is guiding the assessment of the South African policy instrument Biodiversity Stewardship Programme and its specific context. The aspiration of this assessment is to inform the future implementation of the BSP. The framework helps to structure and interpret different elements of the instrument's characteristics, possibly contributing to transformative change or not. Recommendations resulting from this assessment shall help to guide future implementation to raise the transformative potential of the BSP, and contribute to transformative change as defined above.

Underlying questions motivating this case study are: "How can the transformative potential of this policy instrument be increased? How can it be altered and implemented differently to unfold increased transformative potential?" The objective is not to evaluate the programme but to assess where there might be strengths or weaknesses in terms of magnitude of change (assessing against the ambitions) and in terms of enhancing the conditions for transformative change in the specific setting (in this case South Africa). This is an outsider perspective meant to raise attention and inspire discussion rather than a judgement.

2.1 Assessment Process

STEP 1

Assessing the context

Brief assessment of the general context: Key questions here is whether a transformative vision exist. If it does not exists, it should be determined what desirable future (vision) arises within the context in which the measure is implemented.

STEP 2

Assessing

Assessment of the (policy) measure with regard to the four ambitions and to the building blocks transformative knowledge, transformative dynamics, emancipation and agency

Step 2 a: General description of the measure

Step 2 b: Assessment with regard to the four ambitions

Step 2 c: Assessment with regard to the building blocks

STEP 3

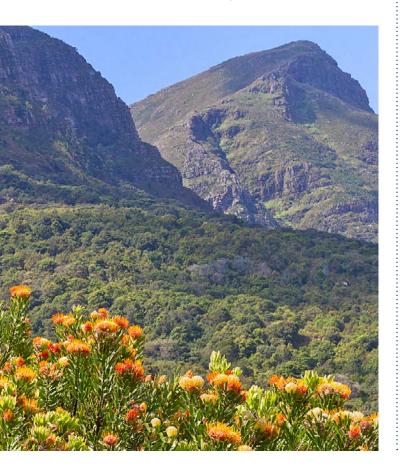
Conclusions & recommendations

Main findings and conclusions are eloborated. Ideally concrete ideas and recommendations surface to raise the transformative potential of the (policy) measure. These recommendations should be discussed and validated.

3 General context and assessment of a transformative vision (Step 1)

South Africa's National Development Plan (NDP) titled "Our future – make it work!" (2012) is a long-term strategic plan developed by the South African government to guide the country's social, economic, and environmental development until 2030. It sets out a vision for South Africa and outlines specific goals, targets, and strategies to address key challenges and promote inclusive growth, social cohesion, and sustainable development.

The NDP recognises the critical role of biodiversity conservation and protected areas as a key component of sustainable development in South Africa. It clearly states that protecting and preserving biodiversity and ecosystems is essential for maintaining ecosystem services, promoting resilience, and ensuring long-term environmental sustainability.



Protected areas are seen as a critical tool for biodiversity conservation. Furthermore, they are presented as opportunities for ecotourism, sustainable land use practices, where applicable, and the generation of revenue and employment.

The NDP also recognises the role of private protected areas, where private landowners voluntarily participate in stewardship programmes and establish protected areas on their lands. The national protected area system has been and continues to be expanded also via private protected areas. "Many Protected Environments are examples of contract protected areas established through biodiversity stewardship programmes... From 2015 to 2020, the land area of Protected Environments increased by 171,4 % (or by 5 071 km²)" (STATS SA, 2021). Next to enhancing biodiversity conservation efforts, private protected areas are also seen to contribute to local economic development, job creation, and community empowerment through e.g. ecotourism initiatives and the sustainable utilisation of natural resources.

Collaboration and partnerships between stakeholders, including private landowners, conservation organisations, and government agencies are important. The NDP stresses the need to provide incentives, support mechanisms, and capacity building to encourage private landowners to engage in biodiversity conservation, establish protected areas, and adopt sustainable land management practices.



South Africa's National Biodiversity Strategy and Action Plan (NBSAP) dates back to 2015. After the adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) in December 2022, the NBSAP will be revised to align with the GBF targets, building on the Aichi targets but exceeding these in scope and ambition. Main causes for biodiversity degradation outlined in the NBSAP are habitat loss and fragmentation, invasive alien species, climate change, unsustainable resource use, lack of awareness and understanding, and limited financial resources.

South Africa's 2015 NBSAP highlights the contribution of protected areas to biodiversity conservation as well as to economic growth, job creation, and poverty alleviation.

It recognises the interdependence between biodiversity conservation and climate change adaptation. Specific programmes that address synergies between them are the "Working for Water" and the "Working for Wetlands" Programs (WfW). They align with the objectives and priorities outlined in the NBSAP as well as contributing to social challenges such as unemployment.

Another important government document is the National Protected Area Expansion Strategy (2018). It reiterates the role of protected areas for biodiversity conservation, ecological sustainability, climate change adaptation, land reform, and rural livelihoods as well as socio-economic development.

Generally, for South Africa's government it is clear that the exceptional nature found within the country is a national asset that can be utilised to contribute to development goals. In addition, biodiversity and ecosystem services are recognised to contribute to climate change adaptation. Restoration initiatives exist, and in the WfW Programs these are even coupled to social goals such as decreasing unemployment.

Lastly, one the most recent government documents on conservation, the White Paper on the conservation and sustainable use of South Africa's Biodiversity (2023), states a comprehensive vision: "An inclusive, transformed society living in harmony with nature, where biodiversity conservation and sustainable use ensure healthy ecosystems, with improved benefits that are fairly and equitably shared for present and future generations." Protected areas (PAs) are portrayed as a tool for socio-economic development (and BD conservation outcomes), and as foundations for business development within a wildlife economy.

Interestingly, the White Paper identifies a lack of transformation in the sector "where a majority of the population are disadvantaged and disenfranchised from contributing to conservation and sustainable use" as one of the five main challenges for biodiversity conservation. The other four challenges pertain to the sector itself, the legislation governing it and lack of financial means of the sector.

The white paper calls for conservation as a land management option next to others necessary to not jeopardise conservation success. It outlines changes in e.g. agricultural practices that are necessary next to conservation measures itself like conservation agriculture, biosphere reserves, restoration, and wildlife on rangelands.

Context and building block 1: Transformative vision

Has an overarching vision, a development trajectory, a desired future state been formulated?

South Africa's NDP (2012) envisions a South Africa that is economically inclusive (p.24), socially cohesive, environmentally sustainable (p.34), and characterized by good governance (p.54).

Biodiversity and nature play important roles in supporting sustainable development in South Africa according to the NDP. Potential roles of nature and biodiversity in reaching development targets are:

- · Provision of ecosystem services,
- · Nature-based activities, such as sustainable agriculture, fisheries, forestry, and ecotourism which can contribute to poverty alleviation;
- Biodiversity conservation to mitigate climate change and to adapt, including through restoration activities;
- · Contribution to social cohesion and the overall well-being of communities by respecting cultural and spiritual values of nature for many communities, including indigenous and local peoples.

Environmental sustainability and inequality reduction are considered important elements. Both are considered essential for (socio-ecological) transformation. The country's biodiversity is regarded as an asset. The role of nature restoration for climate change mitigation and adaptation is clearly articulated and fostered in expanded public works programmes such as Working for Water and Working for Wetlands, and to some degree in Working on Fire. The latter also seek to address social issues like unemployment. The Biodiversity Stewardship Programme that is specifically analysed here could entail those elements as well (see below and recommendations for more).

Economic growth plays a pivotal role in the development of South Africa according to the NDP. It recognises, however, that this economic growth needs to be sustainable and inclusive in order to address key challenges such as poverty, unemployment, and inequality.

These points are reiterated and specified in the 2023 White Paper on the Conservation and Sustainable Use. In light of transformation, it seems particularly important that people's disenfranchisement and disadvantages are recognised when it comes to contributing to and sustainably using biodiversity.

4 Assessment of the specific measure (Step 2)

4.1 Description of the measure (Step 2 a)

The Biodiversity Stewardship Programme (BSP) was established to conserve biodiversity on privately owned or managed land through voluntary agreements between landowners and the government. It is considered a key mechanism to expand and effectively manage South Africa's Protected Area Network. In 2020, 16% of South Africa's land area and 5% of its exclusive economic zone (EEZ) has been under different kinds of formal conservation (DFFE, 2022). Between 2008 and 2016, 68 % of all protected areas expansion is credited to the BSP (Wright, 2018). The BSP has "played an increasingly important role in expansion of the protected areas network, helping to leverage conservation investments by private landowners in a fiscally constrained environment where acquisition of land by the state is often not feasible" (Statistics South Africa, 2021, p.2). First initiated at the provincial level in 2003, the first national guideline laying out the implementation of stewardship agreements dates back to 2009 and was updated in 2018.

Vision of the programme and benefits to participants

The BSP envisions a landscape where private landowners actively participate in biodiversity conservation, contributing to the country's overall conservation objectives (as formulated in the NBSAP). It seeks to create a collaborative and inclusive approach that recognises the critical role of private land in protecting and enhancing South Africa's biodiversity.

The BSP enables contractual agreements between private landowners and the government which incentivize and recognise the efforts of landowners in conserving biodiversity while promoting sustainable land use management in most cases, which means to change land-use practices and enter into new value-chains. The benefits are, e.g.

 Formal recognition of landowner's commitment to biodiversity conservation through a legal framework that acknowledges the conservation value of the land and its contribution to the protected area network.

- Access to various funding and support mechanisms to assist with conservation efforts, e.g. financial incentives, grants, technical expertise, and capacity building support.
- Recognition of ecosystem services provided and enhanced which do have a significant ecological and economic value through sustainable land management.
- Joining the BSP provides opportunities for landowners to collaborate with like-minded individuals, conservation organisations, and government agencies, allowing for knowledge sharing, learning from best practices, and accessing a broader conservation community.
- Protection and enhancement of biodiversity values including habitat restoration, managing invasive alien species, implementing sustainable land use practices, and supporting ecosystem processes.

Who implements?

The implementation of protected areas under the BSP in South Africa involves the collaboration and participation of various stakeholders:

Private landowners are essential stakeholders in the BSP. They voluntarily participate in biodiversity stewardship by entering into stewardship agreements, committing to the conservation and sustainable management of their lands. Landowners contribute their resources, expertise, and land for biodiversity conservation.

Conservation organisations play a crucial role in the BSP. They provide technical expertise, capacity building, and support to landowners in implementing biodiversity conservation measures. Organisations such as BirdLife South Africa, Conservation South Africa, WWF, and others may assist in identifying priority areas, conducting biodiversity assessments, developing management plans, and monitoring the effectiveness of stewardship agreements.

Various government agencies are involved in the implementation of protected areas under the BSP, including the South African National Biodiversity Institute (SANBI) and the Department of Forestry, Fisheries and Environment (DFFE), formerly known as the Department of Environmental Affairs (DEA) and SANParks. These and other agencies provide policy guidance, legal frameworks, funding support, and coordination of conservation efforts.

In areas where traditional authorities or communities have land tenure or custodianship, they are important key actors in the establishment and management of protected areas. Engaging and involving local communities in decision-making processes and benefit-sharing arrangements is crucial for the success and long-term sustainability of stewardship agreements.

Scientists and researchers contribute their expertise in biodiversity assessments, ecological monitoring, and guidance for the establishment and management of protected areas.

Local and regional government entities, such as municipalities and provincial conservation authorities, may be involved in supporting the establishment and management of protected areas.

Criteria to enter the BSP

To declare a Private Protected Area under the BSP an (up to) 8-step systematic and collaborative approach is applied:

- A landowner expresses interest by contacting the relevant conservation authority or organisation responsible. BSPs are declared by the conservation authorities of the Provinces.
- **2.** A pre-assessment is conducted to evaluate the ecological value and conservation potential of the property.
- 3. The landowner, conservation authority, and relevant stakeholders, such as neighbouring landowners, community representatives, and experts, engage in discussions to assess the feasibility and desirability of establishing a private protected area (PPA), and to foster collaboration.
- **4.** An ecological assessment is conducted to evaluate the ecological condition of the property. It provides the information for the PPA management plan.
- A management plan with objectives, conservation actions, and monitoring requirements is developed in collaboration with the landowner and other stakeholders.
- **6.** Legal agreements establishing the terms and conditions of the PPA are negotiated and formalised between the landowner and the relevant conservation authority or organisation.
- **7.** Then the PPA is formally declared, and the land is recognized as a protected area.
- 8. Regular monitoring and evaluation of the PPA's ecological status and management effectiveness are conducted. Adaptive management practices are implemented if necessary.



In this 8-step process different criteria are applied that determine if a certain area can enter the BSP:

- Impacts on Culture and Traditions: consideration of the potential effects on local people's traditional livelihoods, cultural practices, and access to natural resources.
- Community Engagement: importance of involving communities in decision-making processes, promoting their participation, and respecting their rights and knowledge systems.
- Livelihoods and Socio-economic Development: Assessing the potential impacts on local livelihoods is essential, including identifying any potential disruptions or opportunities that may arise from participating in the scheme and considering ways to enhance local economic activities, such as through eco-tourism, sustainable agriculture, or iob creation.
- Benefits and Incentives for the Landowners: determination of appropriate benefits and incentives, including financial incentives, technical support, capacity building, access to markets, or other forms of assistance that recognise and reward their contributions to biodiversity conservation.
- Land Tenure and Rights: It is important to ensure that the participation of landowners and custodians aligns with legal frameworks, respects existing land rights, and avoids any potential conflicts or disputes. If necessary, land tenure needs to be clarified.

These social and economic considerations are set up with the intention to ensure that biodiversity stewardship initiatives are not only ecologically effective but also socially equitable, economically viable, and culturally sensitive. They aim to foster collaboration, support local communities, and promote sustainable development alongside biodiversity conservation efforts.

After 20 years of implementation, the BSP has evolved into a sophisticated institutional system. On the provincial level, the operational and geographic implementation is located based on the provincial protected area targets. BSP implementation mostly takes place in rural and agricultural landscapes. This requires a collaboration with other government departments, like the Department of Agriculture, Department of Mineral Resources, or the Department of Tourism. Also, the private sector is another stakeholder to be considered, for example for creating business cases for BSP sites in form of e.g. eco-tourism operations or sustainable management and value chain development.



4.2 Assessment with regard to the four ambitions (Step 2b)

Background

In assessments on the state and prospect of global biodiversity, core challenges for the sustainable management have been summarised. To counter these challenges, we can formulate the following four ambitions that measures should aim at. These ambitions address cross-cutting challenges and guide transformative change. Therefore, the more a measure contributes to one or more of the following ambitions, the higher its transformative potential.

Ambition No 1: Accounting for (all) socio-ecological costs.

Description: This refers to the costs of degradation of biodiversity and ecosystem services and who has to bear them, and the benefits of biodiversity and ecosystem services and who gets to enjoy them. The better suited a measure is to correct for the non-accounted and non-attributed costs, the higher its transformative potential.

Does the BSP contribute to account for social and ecological costs?	The role of ecosystem services and their provision for society are recognised and underlined in all four closely examined documents (NDP, NBSAP, White Paper, BSP Guideline).
Does the BSP contribute to include and highlight the social and ecological costs of an (economic) activity?	However, there is no mechanism yet to account for specific ecosystem services. The natural capital accounting so far is limited to protected area coverage and distinction by biome (Statistics South Africa, 2021). There are plans for future uptake that link compensation as part of the carbon market scheme.

Results: Where would you position the measure on the continuum and why?²



Generally, there is a good understanding of the ecosystem services provided. Still, distributional effects of costs and benefits related to conservation or degradation are not explicitly addressed and tackled.

² Use the continuum to position the measure anywhere on the continuum from no contribution (left side) to full contribution (right side).

Ambition No 2: Fair distribution of (global) commons to ensure human wellbeing for all.

Description: A measure that contributes to reducing inequalities by more fairly distributing the global commons has higher transformative potential. In highly unequal societies, there is a stronger impact on the environment both by the relatively rich and by the relatively poor.

Does the measure increase the fair distribution of (global) commons in order to increase human wellbeing for all?	Redistribution of global commons in form of enhanced ecosystem services provided through better conservation management on newly established private PAs is possible whenever this enhanced provision benefits the wider society.
Does the measure contribute to a fairer distribution of resources, income opportunity or access to goods and services?	In terms of local effects on inequality, it depends on if and how the individual BSP scheme provides and distributes benefits, e.g. decent employment for local people, or by providing water regulation or local climate improvement based on these schemes.
Could the measure contribute to unintended effects that lead to	The BSP scheme does not address unfair distribution of the commons generally. Neither does it easily contribute to unintended effects leading to unfairer distribution. In

unfair(er) distribution? any case, especially the latter needs to be examined site- and context specifically. E.g. does a touristic hunting operation as part of an eco-tourism enterprise disadvantage hunting rights or other land and resource use rights of local communities?

Results: Where would you position the measure on the continuum and why?



Potential to generate income opportunities from a more sustainable use of biodiversity through protection and different business models like eco-tourism and carbon trade moves the needle towards fairer distribution (light). If the scheme prevents formerly accepted use by local communities, it moves towards unfairer distribution (dark).

Ambition No 3: Restoration and regeneration of (global) commons

Description: If a measure allows for restoration or regeneration of biodiversity, ecosystems, and their functions and services, it has potential that transformation works in favour of biodiversity. It is important to realize that not only direct restoration efforts (active restoration) should be assessed but also indirect effects (assisted restoration, assisted natural regeneration or passive restoration) along the restorative continuum³ that can lead to restoration / regeneration of biodiversity, ecosystems, and their functions and services.

Does the measure allow for restoration or regeneration of biodiversity and ecosystems?	Yes, regeneration and possibly restoration can be part of the new management plan of a site. Further, protecting an area for conservation and shifting land-use towards non-use or sustainable use almost certainly ensures regeneration and prevents further degradation.
Does the measure at least prevent further degradation?	Specifically restorative management activities contribute to conservation outcomes.
Does it further contribute positively to restoration and / or regeneration efforts?	The BSP guidelines link community conservation areas (CCA) to the "Working-for"-programmes (SANBI, 2018, p.69)

Results: Where would you position the measure on the continuum and why?



BSP agreements can include restoration of biodiversity and ecosystems. Management for conservation almost certainly will have regenerative effects.

Ambition No 4: Reduction of consumption and waste

Description: If a measure contributes to the reduction of consumption or reduces wastes leading to less pressure on natural resources, it has transformative potential. While first and foremost this refers to a wasteful use of products, it can also refer to a wasteful use of natural resources such as degrading arable land. The contribution of a measure can be indirect.

Does the measure contribute to the reduction of consumption and waste? No, there is no direct link to the reduction of consumption and waste.

Results: Where would you position the measure on the continuum and why?



No, there is no link to the reduction of consumption and waste.

³ Standards of practice to guide ecosystem restoration: A contribution to the United Nations Decade on Ecosystem Restoration (ymaws.com)

Assessment with regard to the building blocks (Step 2 c) 4.3

Building Block 2: Tranformative Knowle				
Due to the very nature of transformation, continuous learning is necessary. Transformative knowledge means the capacity and willingness to learn about: i) uncertainty inherent in each transformative vision since it is not a fixed goal, but a beacon that guides a plurality of possible interventions; ii) how knowledge may change with time; iii) knowledge gaps which are progressively filled with scientific advancement; iv) how the process becomes more inclusive.				
Who is involved?	Depending on the site, different stakeholders are involved. They can be private landowners, conservation organisations, government agencies from relevant sectors, possibly traditional authorities or communities, scientists and researchers, and local and regional government.			
Is the diversity of knowledge holders and their specific knowledge captured?	The diversity of knowledge going into the process depends on the site as well as the diligence of the persons organising the engagement process. In three cases reviewed, no traditional knowledge in community conservation			
	areas (CCA) under the BSP was used. Communities were supported to establish commercial value chains conducive with biodiversity conservation. These income generating activities allowed the communities to improve their livelihoods (SANBI, 2019; Chevallier, 2021).			
Are forms of knowledge and knowledge cultures different to the predominant/Western ones taken into account?	The guidelines address questions of indigenous traditions and knowledge to some extent, expressing the need to respect and integrate traditional knowledge systems into conservation practices. The BSP Guidelines point out that CCAs can include "cases of continuation, revival or			
	modification of traditional practices" (SANBI 2018, p.20), and that these should be recorded in the site management plans (p.42).			
Criteria: Measure uses available knowled this knowledge including different world	dge to understand the complexity of the system or contributes to building driews.			
Are the main interactions within the system understood?	As part of the protected area declaration process under the BSP, an assessment of each site is being done. Drivers of degradation are assessed there. When these assessments consider socio-economic conditions and what could be done to reduce pressures behind the drivers of degradation, transformative potential is further increased.			
Does the measure contribute to learning about the system and its ability to (systemically) change?	Conservation management is done in an adaptive way that allows to learn and alter management decisions when necessary at site level. The ability to do so depends on e.g. monitoring, implementation and planning capacity. Learning is envisaged.			
	On the programme level, BSP aims to provide room for exchange and learning as part of a wider network of private PA practitioners. An example is the yearly "Peer Learning Forums" which have been established in the Western Cape (Wright et al., 2018). This format facilitates learning. Evaluation of the BSP suggests that more could be done here (SANBI, 2017).			

Criteria: Measure uses available knowledge	e about phase-in and phase-out sequences or contributes to building this knowledge4.
Is the problem / are the root causes understood?	Site-specific assessment to determine ecological state of land and propose management measures. A root causes' assessment is not specifically mentioned. Identifying and analysing root causes can make a considerable contribution.
Which activities or practices are to be replaced, what alternative approaches are envisaged?	The BSP is designed to create areas for biodiversity conservation by either taking out or reducing pressures mainly from agriculture resulting in strict conservation (non-use) or productive systems under a sustainable use regime. Mostly areas formerly used for agriculture are replaced.
Is knowledge about phase-in and phase-out sequences available?	Partially. The broader vision of the BSP is to contribute to the PA system of South Africa. One could argue that on a site-specific level, BSP contributes to phasing out land-uses that are not economically viable under market conditions. Possibly new value chains are piloted that contribute to wildlife economy where development aspirations are linked to a long-term use that is not degrading nature but on the contrary increasing biodiversity, ecosystem functions and (especially regulating) ecosystem services.
If yes: how does the proposed measure contribute to phasing in and / or out, can it be better tailored to fit?	This knowledge can be better captured and then shared within the wider BSP network but also beyond. What are interesting and viable activities? Are they marketable? Do they function differently, maybe in traditional or regional contexts remote from markets and therefore viable?
If no: can the measure contribute to acquiring this knowledge?	To pay attention to this knowledge and learning, to capture it and share it is very relevant to understand what works, what does not and why that is. Taking time to assess and discuss these learnings is an important contribution BSP can make towards transformative action.
Criteria: Measure uses available knowledge to building this knowledge.	e to design strategic interventions for system change or contributes
Is a systemic and strategic analysis and thinking applied?	Partially. The main focus and pre-occupation is related to biodiversity value and conservation. Other aspects like the inclusion of local groups, stakeholders, economic opportunities in sustainable use schemes, or carbon market integration evolve.
Have potential entry points for addressing root causes been identified?	Site-level specific.
How are uncertainties and the unknown considered and addressed (e.g. adaptive management)?	Adaptive management of conservation action is explicitly foreseen in the BSP procedures. The preparation of a management plan is mandatory for BSP sites. These are supposed to be formally reviewed at least every 5 years. According to the BSP Guidelines, the operation plans ideally undergo a six-monthly review followed by adaptive action if needed (SANBI, 2018).

Where would you position the measure on the continuum with regards to transformative knowledge and why?



Participatory set up, continuous monitoring and re-adjustment of conservation planning linked with participatory stakeholder processes provide good grounds for understanding and learning more about the complexity of the system. Different worldviews are explicitly mentioned and can be brought into the planning process. Phasing in and out sequences are not explicitly mentioned in the BSP. However, the continuous work and adjustment of conservation plans and other management activities allow for an understanding of what works and what does not, and can potentially outphase actions degrading biodiversity while at the same time bringing in activities that are beneficial not only to biodiversity but also to human wellbeing.

⁴ Non-coercive system change requires two main movements: (1) phasing out of unsustainable system or system characteristics and (2) phasing in of new sustainable systems. Phase-in processes usually start off with small pilot solutions in niches where experimentation and learning can take place (see BB knowledge). The promotion of successful pilots can then lead to scaling up and eventually institutionalization which means that these solutions are the new normal. Phase-out' processes often have a disruptive character with regards to established unsustainable practices.

Building Block 3: Transformative Dynamics

Far-reaching system change cannot be anticipated, managed or controlled. These processes need fertile grounds, which have to be prepared, as well as situation-specific stimuli, approaches, strategies, and measures. Opportunities on the way need to be seized and obstacles recognised and addressed.

Is there capacity to nurture, nudge and navigate change into the desired direction?

The conservation management capacity as well as the capacity to organise participatory planning and management processes seems to be mostly brought to the site from the outside in form of advisory services by state institutions / conservation authorities or civil society organisations involved in the BSP process.

These groups are also active on a political level when it comes to spreading the BSP and raising political momentum. The BSP offers a number of different benefits to landowners making their land available for conservation. This broad array of possibilities shows the creativity of different people and knowledge holders involved, allowing to cater to different situations and interests. This exemplifies that there was and is capacity to nurture, nudge and navigate change towards more conservation. Whether or not the different agreements promote a change that is conducive (or at least not harmful) to all ambitions and that will help to achieve the broader shift towards a less damaging way of agricultural production, depends not only on the individual agreements but also on the overall vision and coordination in building up the network of all types of protected areas, and on how the agricultural sector and policy evolve.

What is the role of the measure in this regard?

The measure is flexible and can be adjusted to different circumstances. This role provides flexibility to incorporate different paths and possibilities to be explored. The role will also depend on overall coordination, as outlined in the previous point.

Criteria: Measure contributes to increasing the potential to generate momentum, incl. the use of triggers and timing.

To what extent does the measure use available windows of opportunities which are at best cross-sectoral and inclusive?

The BSP was first established and used in 2008. Since then, many experiences were gained. After the adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) in December 2022, the ambitious global action targets now need to be translated into national context and local action. The BSP with its experience and flexibility seems well positioned to contribute to a number of GBF targets (see recommendations), not only the conservation of ecosystems and their services (GBF target 3).

Are leverage points and levers known and understood?

Depends. This is site-specific. The participatory discursive format of the BSP certainly enables generating understanding for leveraging points and levers. In the broader context of the agrifood system transformation, good relationships built with BSP measures could prove very useful for forming alliances across different groups of stakeholders.

Criteria: Measure contributes to anticipating and pro-actively addressing resistance (in order to keep a certain positive dynamic or weaken the impact of negative dynamic stemming from resistance).

Are potentially opposing stakeholders involved to counter resistance early on?

Are alliances sought to increase the probability of mobilisation and transformative dynamic?

The set-up of a PPA under the BSP includes a consultation process. This allows to, early on, identify opposing views and integrate them into the scheme, thereby finding a management solution that fits best. Lessons learnt in this regard have been published in SANBI & Wildlands Conservation Trust (2015). They include e.g. continual engagement with landowners, the active involvement of willing landowners, champions and influencers.

Where would you position the BSP on the continuum with regards to transformative dynamics and why?



Since its inception in the 2000s, the BSP has evolved and many different examples for PPA were created under the programme. The revision of the guideline in 2018 (2020) is testimony of the willingness to continue using this instrument. Many newly created PAs are private. The new GBF calls for the creation of even more PAs. The experience, continuous use and practical sophistication gained since the BSP was first invented illustrate how dynamics are picked up, and it seems likely that this will be continued.



Building Block 4: Emancipation and Agency for Transformstion

Transformative change needs democratic involvement and engagement of individuals and communities to take action on their own behalf. This requires spaces to do so. Such spaces offer possibilities for different voices to be expressed and heard, for discourse and engagement. This is necessary to form opinions in a democratic and inclusive way and create legitimacy of decisions, and to generate adequate and adapted strategies.

Is the human, institutional, financial and social capital in support of implementation of the transformation pathway available?

The BSP is supported by the public sectors with regulation, guidelines, and benefit schemes like tax incentives. Conservation management know-how is also available in conservation authorities and supported by a number of civil society organisations.

More financial support is needed nonetheless as well as expertise unique to local situations and networks. The latter cannot be easily found or replaced. Longer-term engagement of persons with a special skill-set are necessary.

Criteria: Measure strengthens spaces for deliberation, negotiation and emancipation.

Does the measure encourage diverse, inclusive, bottom-up arenas and processes?

According to the BSP guideline, cultural values and engaging with indigenous communities to ensure that their perspectives are heard and their rights respected is important and to be taken into account during the planning and management of protected areas.

Collaboration and engagement with indigenous communities and other relevant stakeholders in the development and implementation of biodiversity stewardship initiatives is pointed out as well as the value of traditional ecological knowledge held by indigenous communities.

The BSP anticipates integrating traditional ecological knowledge with scientific information to inform biodiversity assessments, management plans, and conservation strategies.

The guidelines suggest a large number of different participatory appraisal and meeting formats to be used during the assessment process, the conservation management planning as well as the accompanying formats after PA declaration (e.g. advisory forums, annual management meetings).

Building Block 4: Emancipation and Agency for Transformstion

Does it encourage participatory processes to generate ideas and create ownership without deterring important stakeholders?

Participatory processes are regarded as vital for the long-term functioning of the PPAs under biodiversity stewardship. As such they also receive support from conservation authorities and civil society organisations where possible.

Criteria: Measure strengthens capacities for pursuing own visions of a good life and builds on them.

To what extent does the measure encourage and foster active involvement and fair and equitable processes?

The BSP and the way PPAs are set up under it require active involvement of stakeholders, sharing knowledge, expectations and planning together. It is not clear from the literature reviewed how fair and equitable these processes are. This is certainly site-specific.

Is the regulatory system considered in its ability or disability to support implementation of measures with a transformative potential?

The BSP as set up has the ability to support measures that derive from participatory processes. This set-up is well suited to support transformative processes.

Where would you position the BSP on the continuum with regards to emancipation and agency and why?



Participation and active engagement are certainly regarded as very important for the BSP and the long-term success of private conservation initiatives generally. Especially with regards to biodiversity stewardships on communally owned and occupied lands, the transformative potential for supporting emancipation and agency seems strong. Communities have the possibility to engage in biodiversity enhancing economic activities, receiving (some) support in these endeavours, and have the chance to increase their wellbeing in this way.

On privately owned lands, that seems to depend on the landowners themselves. While broad stakeholder engagement is also the premise here, landowners do have more power because of the user rights enshrined with the property rights. How well this works out for emancipation of marginalised groups in practise and if there is any room for further improvement would require closer follow-up and probably discussion with all groups of stakeholders involved.

5 Recommendations

Biodiversity conservation and the sustainable use of natural resources to create economic opportunities and improve people's livelihood is widely recognised in South Africa's public plans and strategies. 20 years after its start, the BSP has evolved into a sophisticated mechanism that allows for private lands to be dedicated to biodiversity conservation and sustainable use. The BSP is carrying the visionary idea that development opportunities also lie in the sustainable use of nature and its conservation. It is an important instrument for South Africa to achieve its biodiversity policy commitments under the CBD while at the same time creating new development opportunities that benefit people and nature. The experiences gained in the last 20 years have been used to enhance the instrument's implementation practically and financially.

To assess the potential for transformative change, the BSP was assessed using the three building blocks transformative knowledge, transformative dynamics, and emancipation and agency. For all three, the BSP shows potential that the way it is implemented can contribute to transformative change.

From the knowledge perspective, the participatory set up, continuous monitoring and re-adjustment of conservation planning linked with participatory stakeholder processes are elements to foster learning about the instrument as well as the context in which a specific BSP agreement is being implemented.

From a dynamics point of view, the evolution of the instrument has to be mentioned: this refers to institutional aspects and heightened sophistication of the instrument including a series of compensation measures and incentives for private landowner that are e.g. linked to tax legislation. This also refers to the learnings incorporated into the set-up of PPAs under the BSP, specifically the attention paid to stakeholders concerns to avoid resistance and / or deal with it seriously.

Lastly, from an emancipation and agency perspective, the participatory nature of the instrument and active stakeholder engagement are most certainly one of the long-term success factors for private conservation. Especially the role of the BSPs for communally owned and occupied lands appears important and linked to other policies. E.g. the land reform can provide good examples of conservation and sustainable use regimes that have the potential to enhance wellbeing of local communities in line with environmental sustainability goals.



- Nonetheless, there might be further potential to improve the contribution along all of these dimensions. Particularly, when reflecting on the BSP within the broader context. Some potential avenues for this include:
- Explore links to climate policy and make more use of nature-based solutions (NbS) and ecosystem-based approaches (EbA) to broaden financial opportunities for BSPs.
- Together with other sectors, explore how BSPs can be used in landscape approaches to carbon neutral, climate-resilient and biodiversity positive landscapes, e.g. through participatory, biodiversity inclusive and integrated spatial planning, and the use of different sector policies instruments.
- Explore how an application of the South African Green Finance Taxonomy could help to make the case for PPAs under BSP in a manner that is relatable to the local stakeholders and effective to make the case for PPAs.
- Enhance where possible learnings from BSP partners, especially with regard to BSPs creating economic opportunities to rural communities. Exchange of experiences and network building can motivate and inspire BSP actors and strengthen the confidence in conservation land-use.

- Ensure adequate alternatives or compensation in case local communities lose livelihood opportunities through BSP.
- Evaluate and ensure that the programme does not increase resource-intensive consumption which entails high levels of biodiversity loss elsewhere, e.g. through road or airport construction, high levels of additional traffic, or people collecting protected species as souvenirs.
- Pay additional attention to the role that communally owned and occupied lands can play in BSP, possibly through special exchange formats for these PPAs, to explore how local and traditional knowledge can play a bigger part in conservation strategies and increase ownership and engagement.
- Explore risks and opportunities regarding longterm conservation outcomes and use on private lands, e.g. what could possibly hinder conservation in perpetuity on private lands (e.g. withdrawal of landowners from BSP agreements), and explore ideas to overcome these possible obstacles.
- Extract and share the learnings obtained from decades of successful implementation with other initiatives or programmes.



6 Literature used

CBD, 2022. Kunming-Montreal Global Biodiversity Framework. <u>CBD/COP/DEC/15/4</u>. (Accessed 31.08.2023)

Chevallier, S., 2021. Elevating the Role of Communities in Conservation Management Areas – Policy Briefing 242. South African Institute of International Affairs (SAIIA)

Department of Environmental Affairs (DEA), 2017. Factsheet: Biodiversity Stewardship Achievements.

Department of Environmental Affairs (DEA), 2018.

National Protected Area Expansion Strategy 2018.

DEA, Pretoria, South Africa. (Accessed 31.08.2023)

Department of Forestry, Fisheries and the Environment (DFFE), 2022. 2021 / 2022 Annual Report of DFFE.

Department of Forestry, Fisheries and the Environment (DFFE), 2023. White Paper on the Conservation and Sustainable Use of South Africa's Biodiversity as approved by Cabinet.

FAO, IFAD, UNICEF, WFP and WHO, 2019.

The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns. Rome, FAO. (Accessed 31.08.2023)

FAO and UNEP, 2020. The State of the World's Forests 2020. Forests, biodiversity and people. Rome. (Accessed 31.08.2023)

Government of South Africa, 2015. National Biodiversity Strategy and Action Plan, Department of Environmental Affairs, Pretoria. GSDR (Independent Group of Scientists appointed by the Secretary-General), 2019. Global Sustainable Development Report 2019: The Future is Now – Science for Achieving Sustainable Development. United Nations. (Accessed 31.08.2023)

Intergovernmental Platform on Biodiversity and Ecosystems (IPBES), 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES Secretariat, Bonn.

Intergovernmental Panel on Climate Change (IPCC), 2019. IPCC SRCCL SPM: Summary for Policymakers. In: Climate Change and Land: An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. (Accessed 31.08.2023)

Intergovernmental Panel on Climate Change (IPCC), 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3-24. (Accessed 31.08.2023)

Mrema, E., 2017. Introduction. Protecting the Global Commons: The Challenge of Collective Action. Georgetown Journal of International Affairs Georgetown University Press Volume 18, Number 1, Winter/Spring 2017. https://doi.org/3-5. 10.1353/gia.2017.0001

National Planning Commission, 2012. National Development Plan 2030 – Our Future-make it work. ISBN: 978-0-621-41180-5, accessible:

South African National Biodiversity Institute (SANBI), 2015. Factsheet on Biodiversity Stewardship, second edition.

South African National Biodiversity Institute (SANBI), 2017. The business case for biodiversity stewardship. SANBI Factsheet Series. Pretoria.

South African National Biodiversity Institute (SANBI), 2017. The business case for biodiversity stewardship. A report produced for the Department of Environmental Affairs. Developed by Cumming, T, Driver, A, Pillay, P, Martindale, G, Purnell, K, McCann, K & Maree, K.. Pretoria.

South African National Biodiversity Institute (SANBI), 2018. Biodiversity Stewardship Guideline. A guideline produced for the Department of Environment, Forestry and Fisheries. Developed by Wilson, N., Kershaw, P., Marnewick, D. and Purnell, A.

South African National Biodiversity Institute (SANBI), 2019. Biodiversity stewardship for communities. SAN-BI Factsheet Series. South African National Biodiversity Institute, Pretoria.

Statistics South Africa, 2021. Accounts for Protected Areas, 1900 to 2020.

Statistics South Africa (Stats SA), 2021. Data stories: The nature of South Africa's protected area estate; (last accessed August 9th, 2023)

Visseren-Hamakers, Ingrid J., 2018. A framework for analyzing and practicing Integrative Governance: The case of global animal and conservation governance." Environment and Planning C: Politics and Space 36, no. 8 (2018): 1391-1414.

Wittmer, H. Berghöfer, A., Büttner L., Chakrabarty, R., Förster, J., Khan, S., König, C., Krause, G., Kreuer, D., Locher-Krause, K., Moreno Soares, T., Muñoz Escobar, M., Neumann, M., Renner, I., Rode, J., Schniewind, I., Schwarzer, D., Tröger, U., Zinngrebe, Y., Spiering, S., 2021. Transformative change for a sustainable management of global commons — biodiversity, forests and the ocean. Recommendations for international cooperation based on a review of global assessment reports and project experience. UFZ-Report 2021/3.

Wright, D.R., 2018. Enhancing Biodiversity Stewardship in South Africa – A review of the challenges facing biodiversity stewardship in South Africa and the opportunities which can be leveraged to enhance the sector. Report for the Table Mountain Fund and BirdLife SouthAfrica.

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