



SOUTH AFRICA

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POLICY BRIEF

LESSONS FROM WEF GOVERNANCE

INCLUSIVE LIVING LANDSCAPES WITH THRIVING COMMUNITIES

EXECUTIVE SUMMARY

The water-energy-food (WEF) nexus offers an integrated approach to managing growing demands for water, energy and food. However, implementing WEF nexus solutions often involves competing resource claims, which can deepen inequalities and challenge social justice.

This policy brief explores WEF nexus governance in South Africa through a dual lens: insights from multidisciplinary scholars and the lived experiences of rural communities. It emphasises the critical need for transdisciplinary collaboration that integrates local knowledge, ensuring that solutions address the realities of vulnerable households.

While moderate progress has been made in water and food security, energy security lags significantly behind. Policies like land restitution have improved food access but could be at the expense of water and energy, revealing the interconnected nature of these systems. Social protection programmes, such as indigent support, provide temporary relief but fail to address systemic inequities.

Challenges include insufficient cross-sectoral collaboration, limited integration of indigenous and conventional governance systems and inadequate community participation in decision-making. Promising pathways include:

- Strengthening local decision-making structures
- Expanding social protection
- Establishing public-private-traditional partnerships
- Improving inclusivity, particularly for women and youth.

South Africa's policy frameworks, including the Intergovernmental Relations Framework Act and the Just Transition Framework, provide opportunities to align governance with community needs. Integrating African customary law and leveraging sustainable practices can further enhance resilience and social justice. By fostering decentralised governance, embracing digital tools and aligning actions with the National Development Plan 2030, WEF governance can pave the way for a more inclusive and equitable future.

KEY RECOMMENDATIONS

1. Develop a comprehensive legal and policy framework for WEF governance
2. Foster inclusive participation and capacity building
3. Strengthen collaborative governance across sectors
4. Centre decision-making at the community level
5. Leverage transdisciplinary collaboration and local knowledge.



WATER ENERGY FOOD NEXUS
TOWARDS SOCIAL JUSTICE

www.wefcommunities.co.za

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COMMUNITIES AT THE HEART OF CONSERVATION

In March 2024, I was delighted to attend the South African-Netherlands research consortium's WEF Nexus Knowledge Festival in Matatiele, as this showcased the power of inclusive collaboration at a landscape level, with communities at the centre.

This policy brief encapsulates my observations that the interlinkages between water, energy and food (WEF) in the WEF nexus approach require policy and funding support to succeed in transitioning rural economies.

My journey to the beautiful Eastern Cape Drakensberg landscape began when I relocated from the Free State to the Eastern Cape nine years ago. In 2016, I left a restoration project management role at the Golden Gate Highlands National Park to do biodiversity stewardship work with the Eastern Cape Parks and Tourism Agency (ECPTA). Based in Matatiele, this was my first time living in the Eastern Cape and working outside formally protected areas.

My ECPTA role was to secure conservation-worthy areas by engaging with willing landowners. Operating outside formal protected areas was the most exciting part! This enabled me to connect more with people and understand the dynamics of expanding South Africa's protected area network with private and communal landowners.

My initial engagements with rural communities around Matatiele and Mount Fletcher inspired me to change how I once perceived conservation. In one community engagement, Chief Lehana emphasised: "My people are highly dependent on natural resources. Water for drinking, crop production and livestock, good grass for grazing and energy for cooking. This means whatever you are proposing within my community should promote access to the land."

I realised my approach could not only be about the conservation of natural resources; it needed to focus on improving community livelihoods through embracing their land-use activities. Water, energy and food became key enablers for connecting with previously disadvantaged rural communities. This shift brings a change in how communities interact with nature. Sustainable use of grazing lands was a perfect starting point. Avoiding overgrazing and preparing for the wildfire season made sense. Better rangeland management practices enable healthy grasslands and improve local food security. A win-win – for people and nature.

In 2019, I joined WWF South Africa to lead the implementation of a flagship initiative of working with the government to co-create South Africa's first inclusive grasslands national park. Over the past five years, more than 20 grazing associations have been established to unite communal livestock farmers and support them with better management practices. Many of those people didn't consider the benefits of conservation and rangeland management before. I'm so proud to see that communities are now governing and managing their rangelands. With good and inclusive governance comes better community livelihoods, and both contribute to social justice. To enhance inclusivity, we now have governance structures that are led by females within the landscape.

Additionally, we are in the process of securing 60 000 ha under a formal protected area declaration – as a protected environment – in the upper catchment of the uMzimvubu River.

Within less than a decade, we have achieved more than just conservation areas in the Eastern Cape Drakensberg, we have enabled and capacitated communities to be stewards of their land. The communities now receive direct, sustainable financial benefits through livestock and crop production. These achievements are thanks to effective and functional partnerships within the landscape, including with government, communities and NGO partners.

There is still a long way to go in terms of improving communities' livelihoods and social justice. We need to enable a living landscape and promote sustainable, climate-resilient forms of livelihood strategies such as agriculture at the household level. We need a model that fosters environmental conservation, community resilience and economic prosperity. This is why I will continue to promote conservation that delivers net benefits to less privileged people and that puts rural communities and their priorities at the heart of decision-making – for a sustainable future for people and nature in South Africa.

For Nature. For You.

**Thembanani Nsibande | WWF Landscape Manager:
Eastern Cape Drakensberg and
Southern Drakensberg**



"I've learnt through my career journey that effective conservation is about much more than clearing and counting hectares to ensure project compliance. It is about the people. I've experienced the reality of inclusive conservation – with communities participating in decision-making around the resources they rely on. This is a winning formula for reshaping conservation."

– Thembanani Nsibande, WWF South Africa

WEF NEXUS GOVERNANCE

South Africa faces profound challenges in ensuring equitable access to water, energy and food, particularly in rural areas such as the Eastern Cape.

Many households go to bed hungry and struggle with unreliable and low-quality water deliveries, energy poverty and inadequate waste management, which undermines their ability to sustain agricultural production and food security.

Government social grants are the primary source of income for many, but the grants do not compensate for systemic inequalities in resource distribution. In addition to climate change, governance challenges exacerbate these issues, with unclear roles and responsibilities among national, provincial and local government tiers, leading to fragmentation and blame-shifting. For example, traditional councils, which could play a crucial role in supporting development, report a diminished capacity and an increasing disconnect from formal governance structures. In response, some communities have adopted informal rules to manage resources, highlighting gaps in formal governance mechanisms. In some countries, the water-energy-food (WEF) nexus approach has been proven to be a framework that brings about an integrated, inclusive policy solution. This research initiative is an attempt to advocate for the WEF approach in addressing environmental, social and governance challenges faced by rural communities in areas of biodiversity in South Africa such as the Eastern Cape province.

In South Africa, the need for WEF nexus governance is particularly urgent. Ongoing challenges such as climate change, long-standing inequalities rooted in apartheid and fragmented governance systems exacerbate resource insecurity for marginalised communities. Coordination across sectors and levels of government remains limited, often following a siloed approach that compromises efficiency and equity.

This research introduced the concept of WEF communities as a mechanism for integrating local decision-making into broader governance systems. Inspired by the EU's energy communities, WEF communities emphasise self-determination and collaborative decision-making to achieve WEF security in a socially just manner. However, realising their potential requires addressing systemic barriers, such as inequities in legal access to energy, water and land tenure.

The absence of a legal framework for food provision in South Africa further complicates efforts to achieve WEF security. While solid legal frameworks exist for water and energy, community ownership for energy production is notably lacking. The Just Transition Framework offers opportunities to enhance community involvement in water, energy and food provision, particularly in rural areas. Embedding WEF nexus governance in traditional and cultural practices has also proven effective in fostering youth participation, raising awareness and promoting behavioural change.

Environmental issues further underscore the interlinkages within the WEF nexus. For example, invasive alien tree species deplete groundwater supplies and limit pasture availability, affecting both water and food security. However, their removal can enhance energy security by providing wood for fuel. Addressing such interconnected challenges requires multi-actor governance, with local, provincial and national governments playing key roles.

By aligning South Africa's governance systems with the principles of the WEF nexus, the country can advance social justice and sustainability. Empowering WEF communities, enhancing legal certainty and promoting cross-sectoral collaboration are essential steps toward ensuring equitable access to vital resources.

ABOUT THE PROJECT

The project is an initiative by a consortium of four research institutions from The Netherlands and South Africa, partnering with WWF and an Eastern Cape-based implementing partner, Environmental and Rural Solutions.

While WWF has produced thought leadership on the WEF nexus over the years, this research project went further and introduced the concept of "WEF communities" as a bottom-up approach to integrating local decision-making into national frameworks. These communities demonstrate potential for fostering self-determination while addressing trade-offs between vital needs for water, energy and food.

Drawing on insights from the European Union's legal frameworks and South African governance structures, the research emphasised the importance of legal certainty and multi-actor collaboration for effective WEF governance.

Despite the growing international recognition of the WEF nexus, South African policies have yet to fully adopt its principles. This gap perpetuates inequalities, particularly for women and marginalised groups, and underscores the need for systemic reforms to integrate WEF interdependencies into governance at all levels.

This policy brief offers actionable insights for policymakers, practitioners and researchers, providing a roadmap for advancing social justice through improved WEF governance. It highlights the importance of integrating indigenous knowledge with conventional governance systems, decentralising decision-making and building community capacity. By fostering inclusive and participatory approaches, South Africa can address historical inequities and leverage the WEF nexus to promote sustainable development.

THE EASTERN CAPE DRAKENSBERG

The Eastern Cape is one of the most biodiverse and poorest provinces in South Africa with a poor track record for social progress and unsatisfactory service delivery around water, energy and food security.

From a social angle, this has huge impacts, let alone the impact on or investment in nature conservation. The province is home to over 7 million people, from the high-altitude inland areas to the coast. Consisting of vast stretches of grassland vegetation, many rural communities live and farm in areas with high levels of biodiversity and crucial water resources such as wetlands and free-flowing rivers.

WATER

Water is the lifeblood of a thriving economy, but in South Africa rural communities generally do not have access to drinking water despite their proximity to strategic water source areas (SWSAs). In South Africa, 50% of the water in our rivers and dams comes from only 8% of our land area, which consists of 22 SWSAs that provide disproportionate volumes of water. This landscape is home to two prominent SWSAs, Eastern Cape Drakensberg and Southern Drakensberg, which are critical to safeguard South Africa's water security. The grasslands landscape acts as a buffer to absorb the high rainfall which feeds rivers, wetlands and springs. Water is also essential for the sustenance of the habitat that supports food production and the rural economy of this region.

An environmental challenge relating to water is the fast spreading of invasive alien plants, such as wattle trees. Wattle grows in the region among villages. While there is not much pollution going into the rivers from livestock farming, the dense stands of invasive alien trees consume more water than indigenous vegetation would.

Around Matatiele, the upper catchment area of the uMzimvubu River provides water for millions of people in the landscape and downstream. This river flows 400 km to

the coast at Port St Johns. Some areas experience severe water scarcity, while others lack proper water distribution systems, leaving many households and farmers reliant on rainwater for drinking and irrigation.

One of the most pressing challenges facing these rural communities is the lack of safe and consistent access to clean water. In some villages, the municipality has installed pipelines and boreholes to supply water to people's houses. Alas, the pipes are not maintained and the borehole pumps often don't run due to a lack of diesel. Because this infrastructure is often unreliable or dysfunctional, communities are forced to rely heavily on natural springs for domestic and agricultural use. Unfortunately, these springs are increasingly at risk from pollution – especially from improper disposal of nappies, proximity to pit latrines and livestock intrusion – which contributes to contamination from E. coli and other pathogens.

Securing springs through protection and proper use is therefore a key requirement to ensure a reliable and safe local water supply. In recent years, WWF and partners have secured over 45 natural springs. This has enabled some underprivileged communities within SWSAs to access clean and safe drinking water.

ENERGY

Everyone needs access to energy, but South Africa's current energy system strongly impacts the planet and is not fully inclusive. Like many rural areas, electricity supply is a challenge in Matatiele for rural communities to irrigate small plots and for bigger commercial farmers to support food production. Yet the renewable energy opportunities that could empower these communities through energy access and ownership of energy production remain untapped.

Some communities do not have access to electricity and those who do can't afford it, hence they rely on wood from nearby trees for cooking and keeping warm during cold winter.

WWF supports the removal of water-thirsty invasive alien plant species and has supported a few pilot projects to trial biochar and other innovative uses of alien biomass. This cut-down wood can be used as firewood and turned into various byproducts to enable the local communities to earn an income.





FOOD

A quarter of the South African population goes to bed hungry. Food insecurity is rife in rural areas, which happen to be the high biodiversity areas of South Africa. In the remote Eastern Cape Drakensberg grasslands, rural communities are highly dependent on livestock and crop production for income generation and to provide food for their families. About 95% of households own cattle, sheep or goats. Yet unsustainable land-use practices on rangelands, such as overgrazing, and poor rangeland and fire management practices, are causing significant degradation in many areas. Poor farming practices and intensified agriculture have also led to severe soil erosion, which impacts the land, natural resources and water sources. This impacts long-term farming in the landscape.

Matatiele has a short growing period (short summers and long winters). Farmers need to grow plants that can adapt to such weather conditions or transition to agroecological methods that can better withstand these changing conditions. There have been many food projects in Matatiele, largely due to the presence of strong community structures and committed leaders.

WWF has been working with communities to promote sustainable rangeland management practices and climate-resilient agroecology initiatives. With wider uptake, we could transform smallholder farming and food security at a household level.



Based on WWF's previous experience in articulating the importance of the WEF nexus approach in South Africa combined with a commitment to implement the Global Biodiversity Framework, WWF worked with a research consortium of universities from South Africa and the Netherlands. In the priority landscapes where WWF works, namely the Eastern Cape Drakensberg, communities were engaged about the relevance of a WEF approach in advancing the relation between conservation stewardship and service delivery.

Only 1% of the Eastern Cape Drakensberg Strategic Water Source Area (SWSA) is formally protected. Formally protecting such land – to secure the SWSAs – will not only contribute to the national protected area network and water security, but will boost the national economy.

POLICY LANDSCAPE FOR WEF NEXUS INTEGRATION

South Africa's legal and policy landscape offers both challenges and opportunities for advancing water-energy-food (WEF) security through socially just and integrated governance.

Despite the country's constitutional guarantees of access to water, energy and food, significant gaps remain in translating these rights into actionable frameworks. For example, the absence of a specific legal framework for food provision undermines community access to sufficient food, while South Africa's energy legislation does not recognise community ownership of electricity.

Drawing inspiration from the European Union's energy communities, the concept of WEF communities has emerged as a potential vehicle for promoting local self-determination and integrated governance. Existing legal structures – such as cooperatives, stokvels, public-private partnerships, community forest agreements and multi-actor instruments in water legislation – could be leveraged to establish such communities.

However, several prerequisites must be met, including addressing inequalities in legal access to water, energy and land tenure, and strengthening the legal capacity of communities to participate in governance. The Just Transition Framework holds promise for enhancing rural community involvement in WEF governance, particularly in energy generation and storage. Its alignment with poverty alleviation strategies positions it as a critical tool for promoting social justice and WEF security in marginalised areas.

While South Africa's Constitution mandates cooperative governance across national, provincial and local levels, the integration of WEF nexus principles remains limited. Policies and frameworks such as the National Development Plan (NDP) 2030, Climate Change Act 2024 and local indigent policies provide a foundation for cross-sectoral collaboration

but implementation often occurs in silos, undermining efficiency and equity. Good levels of public trust can complement WEF nexus governance by fostering awareness and recognition of interconnected resource systems. However, challenges like illegal waste dumping in rural areas highlight the need for stronger community waste management rules and broader public education to encourage citizen action.

Alarmingly, between 60% and 70% of communities are unaware of their constitutional rights related to water, energy and food. This lack of awareness underscores the urgent need for education and training programmes to empower communities and enable meaningful participation in governance processes. Traditional and cultural practices, alongside African customary law, can play a pivotal role in embedding WEF principles at the local level, fostering behavioural change and enhancing social justice.

South Africa has a robust array of policies and legislation relevant to WEF governance, including water-related laws such as the National Water Act and Water Services Act, energy frameworks such as the Electricity Regulation Act and National Energy Act, and food governance policies like the National Policy on Food and Nutrition Security. However, these frameworks often lack cohesion, with significant gaps in community ownership and local generation. The District Development Model, municipal indigent policies and courts – such as the Constitutional Court's recognition of a right to energy access in the *Joseph* decision (*Joseph v City of Johannesburg* 2010) – further shape WEF governance. The legal framework pertaining to water, energy and food is illustrated in Annexure 1.

In the European Union (EU), energy communities are groups of individuals, households, businesses or organisations that come together to promote sustainability, energy independence and local empowerment. They aim to reduce reliance on centralised energy systems and fossil fuels, ultimately lowering carbon emissions. These communities collectively produce, manage and share energy, typically from climate-friendly renewable sources such as solar, wind or biomass.



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GOVERNANCE FOR STRONG WEF COMMUNITIES

Effective governance of the water-energy-food (WEF) nexus requires collaboration across multiple levels of government, including diverse actors from public, private and traditional sectors.

Stakeholder workshops held in Pretoria, Mahikeng, East London and Kimberley revealed limited cross-sectoral coordination and a lack of institutionalised inclusion of traditional governance. Participants emphasised the potential of community-based initiatives – such as biodiversity stewardship programmes, cooperatives and stokvels – to foster a functional WEF nexus. However, community members expressed reluctance to upscale non-indigenous governance methods, highlighting the need to integrate conventional and indigenous knowledge systems. Public-private-traditional partnerships (PPTPs), supported by the Department of Cooperative Governance and Traditional Affairs (CoGTA), offer a promising approach to achieving this integration at the community level.

Governance at the household level significantly affects welfare outcomes. When women exercised decision-making power regarding food, food security improved, while decisions made by non-nuclear household members often led to reduced food security. Similarly, land restitution initiatives have, in some cases, exacerbated WEF governance challenges due to poor accountability and infrastructure neglect. Addressing these issues requires bottom-up governance frameworks, nature-based solutions and increased procedural justice.

Water, energy and food governance spans a wide range of actors (see Annexure 2). Key actors include national institutions such as the Department of Water and Sanitation, Eskom and the Department of Agriculture, as well as community-based entities like traditional councils, cooperatives and households. While intergovernmental structures such as the Intergovernmental Relations Framework Act (2005) provide a basis for cooperation, they often lack a specific mandate to address WEF issues comprehensively and require strengthening through updated policies and regulations. Enhanced co-operation and coordination between national, provincial and local government levels are essential for effective WEF nexus governance.

At the community level, the reluctance to adopt non-indigenous governance practices underscores the importance of culturally sensitive approaches. Community-based initiatives must not only align with local traditions and practices but must also be scalable to address broader governance challenges. Increasing awareness of WEF-related laws, policies and regulations through public campaigns and media outreach can empower communities to actively engage in governance processes. Decentralising decision-making further enhances procedural justice by promoting accountability and inclusiveness.



The complexity of the WEF nexus requires the involvement of a broad range of stakeholders. Annexure 2 provides an overview of key governance-related actors, encompassing government entities, private actors, traditional leaders and households. For example, national ministries, such as the Department of Water and Sanitation and the Department of Energy, play critical roles in resource management, while local entities, including municipalities, traditional councils and community organisations, are vital for implementation at the grassroots level. Private actors, such as NGOs, farmer organisations and developers, add another layer of capacity and innovation to address nexus-related challenges.

To ensure effective governance, the existing intergovernmental structures, such as technical committees, advisory councils and clusters, need to be aligned with WEF governance priorities. Emerging climate change structures should also integrate WEF considerations to address the interconnectedness of environmental and resource challenges. Strengthening these structures with specific mandates for WEF governance will facilitate a more coordinated approach, ensuring that national goals align with regional and local realities.

In conclusion, multi-level and multi-actor governance is central to advancing the WEF nexus in South Africa. By fostering collaboration across sectors, incorporating indigenous knowledge systems and decentralising decision-making, governance frameworks can become more inclusive and responsive to the needs of communities. These efforts will not only address immediate challenges but also build a foundation for long-term sustainability and social justice.

EMPOWERING AND ENGAGING WEF COMMUNITIES

Achieving social justice within the context of WEF nexus governance necessitates the active participation of local communities in decision-making processes. At the heart of this effort lies community engagement, which ensures that social justice is not just a theoretical concept but a tangible, lived reality.

Communities, particularly those marginalised in governance processes – such as women, youth, indigenous groups and the poor – must have a central role in the management and distribution of resources, especially in resource-scarce and vulnerable areas. Social justice within the WEF nexus framework goes beyond addressing economic disparities. It strives to correct power imbalances by ensuring equitable participation in the governance of water, energy and food systems. By engaging communities in these processes, we can ensure that policies reflect the needs, rights and aspirations of all stakeholders, particularly those who are most vulnerable to environmental and social challenges.

At the community level, social justice within the WEF nexus must focus on the recognition of local needs, the empowerment of local actors and the integration of diverse forms of knowledge into decision-making. It is essential to address the systemic inequalities that often marginalise rural, indigenous and low-income communities, particularly in the context of resource governance. Community engagement serves as a powerful tool for creating epistemic justice, which involves the recognition, validation and integration of local knowledge alongside scientific expertise. Social justice at this level means:

- Access to resources: Ensuring that all members of the community, especially marginalised groups, have equitable access to essential resources like water, energy and food.

- Participation in decision-making: Enabling communities to actively participate in governance structures, ensuring that their priorities and local knowledge shape the policies that affect them.
- Recognition of rights: Acknowledging and respecting the rights of marginalised groups, particularly in relation to land, water and environmental resources, and ensuring that these rights are not overlooked in the face of top-down policies.

Through community engagement, social justice can be achieved by addressing these key issues and fostering an inclusive and participatory governance approach that benefits everyone, especially the most disadvantaged.

Two initiatives stand out in their efforts to promote social justice and community engagement within the WEF nexus: the Ecochamps initiative and the WEF Nexus Knowledge Festival. These initiatives are relevant to the WEF nexus, but also beyond, including natural resource management more generally. Such initiatives exemplify how local communities can lead efforts for sustainable development and resource management.





ECOCHAMPS: COMMUNITY-DRIVEN SUSTAINABILITY AND RESEARCH INTEGRATION

The Ecochamps initiative, developed by a Matatiele-based social enterprise non-government organisation (NGO), Environmental and Rural Solutions (ERS), exemplifies how local champions can lead efforts in sustainability, bridging the gap between community needs and broader governance structures.

The Ecochamps are young people, typically aged 18 to 35, with 40% of them being women. They are selected from local communities and trained to act as facilitators and brokers between various stakeholders, such as traditional leaders, NGOs, government agencies and research institutions. Their central role is to facilitate dialogue, promote sustainable practices and ensure that development efforts align with the community's cultural and environmental realities.

The Ecochamps initiative is designed to empower youth and marginalised groups to take active roles in natural resource management and agricultural practices, enabling them to participate in research and knowledge sharing. The Ecochamps serve as liaisons who not only translate technical information for local communities but also mediate relationships between stakeholders, helping to build trust and resolve conflicts that might arise between communities and external actors. This role is particularly important in areas where language barriers, cultural differences and historical mistrust may impede collaboration.

A significant aspect of the Ecochamps programme is its focus on citizen science. By involving local communities in the identification of problems, data collection and the implementation of actionable solutions, Ecochamps help build local capacity in environmental monitoring and sustainable land-use practices. They collaborate with research institutions, using scientific methods to gather data while ensuring that traditional knowledge is respected and integrated into the process. This fusion of traditional ecological knowledge and modern scientific research enhances the relevancy and effectiveness of the sustainability solutions developed, making them more culturally appropriate and locally accepted.

Through their work, Ecochamps promote social cohesion and environmental stewardship, particularly in rural areas that are often neglected by formal governance systems. The

initiative fosters a sense of ownership within the community, as local youth are not only trained but are also empowered to take responsibility for the sustainable management of natural resources such as water, energy and food systems.

The integration of Ecochamps into participatory action research is a key element that highlights their dual role in governance. They are both environmental leaders and research facilitators, ensuring that the data collected reflects local needs while also contributing to larger policy and governance frameworks. This approach encourages joint decision-making between local communities and external stakeholders, resulting in more effective and equitable solutions to sustainability challenges.

One of the critical lessons from the Ecochamps model is the importance of establishing knowledge hubs within communities. These hubs serve as spaces where information can be exchanged between the Ecochamps, local stakeholders and external actors, enabling better knowledge management and collaborative problem-solving. By strengthening the capacity of local communities to manage their resources sustainably, Ecochamps also contribute to long-term resilience, particularly in regions vulnerable to environmental and economic challenges.

Additionally, the success of Ecochamps lies in its scalability. The model has demonstrated how local champions can take on significant roles in resource management, research, and policy advocacy, and it serves as a replicable model for other communities worldwide. The training and empowerment of local youth in sustainable practices, citizen science and knowledge integration are vital for fostering more inclusive and participatory governance structures.

In conclusion, the Ecochamps programme provides a clear example of how youth empowerment, community-driven sustainability and research integration can contribute to a more just and sustainable future. By prioritising the empowerment of marginalised groups, such as young women and indigenous communities, Ecochamps fosters both environmental and social justice, such as ensuring that the governance of the water-energy-food (WEF) nexus reflects the diverse needs and wisdom of all stakeholders.



LOCAL INITIATIVES

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WEF NEXUS KNOWLEDGE FESTIVAL: CELEBRATING LOCAL KNOWLEDGE AND SUSTAINABILITY SOLUTIONS

The WEF Nexus Knowledge Festival, organised by ERS, took place in Matatiele in March 2024, bringing together local communities, traditional leaders, researchers and youth to address the interconnected challenges of the WEF nexus. The festival's inclusive approach ensured that local communities were involved from the outset, promoting a sense of ownership and participation. This approach not only allowed for a diverse exchange of perspectives but also ensured that the event was rooted in the cultural and environmental context of the community.

One of the key elements of the festival was a school competition that encouraged students to engage critically with WEF-related issues in their local context. The competition challenged them to develop innovative solutions to pressing problems, allowing them to become active contributors to the broader conversation about sustainability. The involvement of youth change agents, known as Ecochamps, was integral to the festival's success. Ecochamps played a critical role as facilitators and communicators, bridging the gap between local languages and English, ensuring that everyone could participate in discussions and activities in the language they felt most comfortable with, allowing for inclusive participation.

Over the course of the three-day event, more than 200 participants engaged in a range of activities that blended research, art and community-driven solutions. These included roundtable discussions where community representatives shared local challenges and policy recommendations, providing a platform for direct dialogue between community members, researchers and policymakers. Traditional performances, such as dances and songs performed by local

schoolchildren, celebrated the interconnectedness of water, energy and food, reinforcing the cultural significance of these resources. A theatre performance by Ecochamps utilised storytelling and drama to explore local WEF challenges in a relatable and engaging way, helping participants connect emotionally with the issues.

Music played an integral role in the festival's success. This emphasis on music and dance helped create a welcoming environment where participants felt more engaged and connected, energising them and enhancing the overall experience.

Additionally, poetry readings by local community members gave voice to personal experiences with WEF-related challenges, highlighting the lived realities of the community. Field visits to village sites allowed participants to witness local issues firsthand and learn about community-led solutions in water, energy and food security. These visits created an immersive experience, connecting theory with practice and deepening the understanding of how local communities are addressing sustainability challenges.

The festival also featured a Cultural Day, where participants wore traditional attire, celebrating their heritage and reinforcing the importance of cultural values in addressing sustainability challenges. The festival culminated in the co-creation of problem-solution trees, a visual tool collaboratively designed by participants to identify key issues and potential solutions in their communities. This activity served as a powerful method for fostering collective problem-solving and ensuring that the solutions developed were grounded in local knowledge and experiences.

From these initiatives, we can draw several important lessons for advancing social justice through community engagement in the WEF nexus:

- **Empowerment through capacity-building:** Both the Ecochamps programme and the WEF Nexus Knowledge Festival demonstrate that empowering communities to take on leadership roles and participate in governance is essential for achieving sustainability and justice. Training local leaders and providing opportunities for communities to engage in decision-making processes strengthen resilience and promote equity.
- **Inclusivity and participation:** The involvement of marginalised groups — especially women, youth and indigenous people — in decision-making ensures policies are equitable and more responsive to the diverse needs of communities. Participatory processes help to dismantle power imbalances and ensure marginalised voices are heard.
- **Integrating local knowledge into governance:** As shown by the WEF Nexus Knowledge Festival, the integration of local knowledge with scientific knowledge creates more contextually relevant and effective policies. Local knowledge not only offers valuable insights into sustainable resource management but also ensures that solutions are culturally appropriate and tailored to the unique needs of the community.

5 WAYS FOR WEF GOVERNANCE

1. DEVELOP A COMPREHENSIVE LEGAL AND POLICY FRAMEWORK FOR WEF GOVERNANCE

- **Adapt cooperative governance instruments:** To balance the competing priorities within the water-energy-food (WEF) nexus, South Africa must adapt existing cooperative governance structures. This includes integrating WEF considerations into decision-making frameworks, such as MinMec, the Committee for Environmental Cooperation and climate change initiatives. These structures should be revised to ensure that WEF-related decisions are made collaboratively across departments, reflecting both local needs and national priorities.
- **Draw from international frameworks:** Lessons from global models, such as European Union directives, should be examined to identify best practices for governance and tailored to South Africa's unique socio-political and economic context, ensuring that they are relevant to local communities and responsive to issues of access and equity within the WEF nexus.

2. FOSTER INCLUSIVE PARTICIPATION AND CAPACITY BUILDING

- **Empower marginalised groups:** Central to achieving social justice in WEF governance is the active involvement of marginalised groups, particularly women and youth. Targeted programmes should be developed to empower these groups with the knowledge and tools to participate meaningfully in governance processes. This could include training in decision-making, resource management and rights awareness.
- **Raise awareness of constitutional rights:** Rural and vulnerable communities must be made aware of their constitutionally guaranteed rights, particularly in relation to water, energy and food access. NGOs and policy advocacy groups have a pivotal role in extending awareness beyond the reach of government programmes. Informed communities are better equipped to engage in governance processes, ensuring that their voices contribute to shaping policies that reflect their needs and aspirations.

3. STRENGTHEN COLLABORATIVE GOVERNANCE ACROSS SECTORS

- **Bolster existing governance structures:** The integration of WEF nexus considerations into existing governance frameworks is crucial. By strengthening collaborative structures at local, provincial and national levels, such as those facilitated by the District Development Model, it is possible to foster cross-sectoral decision-making that prioritises WEF sustainability. These structures must be adapted to incorporate explicit WEF governance criteria, ensuring that all sectors align towards sustainable and equitable resource management.

- **Create new governance structures:** In addition to strengthening existing mechanisms, there is a need for new, dedicated structures that span across all levels of government. These structures should be focused on facilitating intergovernmental collaboration on WEF-related issues, ensuring that decisions are made with a holistic understanding of the interdependencies between water, energy and food systems.

4. CENTRE DECISION-MAKING AT THE COMMUNITY LEVEL

- **Prioritise early engagement with traditional councils and local communities:** Local communities, especially those living in rural and informal settlements, must be actively engaged in decision-making processes related to the WEF nexus. This requires prioritising the early involvement of traditional councils and community leaders in planning and implementation to ensure that policies reflect community needs.
- **Ensure informed consent for projects impacting communities:** Any development project impacting communities with informal land rights, such as mining or infrastructure projects, must ensure prior and informed consent. This approach is essential to protecting the rights of communities and ensuring that their participation is meaningful and respects their land rights.

5. LEVERAGE TRANSDISCIPLINARY COLLABORATION AND LOCAL KNOWLEDGE

- **Use knowledge platforms, such as knowledge festivals for equitable knowledge exchange:** Platforms such as these provide an opportunity for researchers, policymakers and communities to engage in equitable knowledge exchange and mutual learning, ensuring that both scientific and local knowledge contributes to the development of contextually relevant solutions for WEF governance.
- **Promote youth leadership:** Youth engagement is critical to fostering long-term sustainability in WEF governance. Programmes like Ecochamps should be scaled up and integrated into broader governance frameworks. These initiatives help build the leadership capacity of youth while promoting intergenerational knowledge transfer on WEF issues.
- **Facilitate partnerships for contextual solutions:** Collaborative efforts between academia, NGOs and government can create context-specific solutions that respond to local needs. These partnerships should focus on co-creating sustainable resource management strategies that leverage both scientific research and local knowledge, ensuring that solutions are culturally appropriate and sustainable.

TOWARD EQUITABLE AND COMMUNITY-LED WEF GOVERNANCE

Achieving sustainability and social justice in WEF governance requires more than technical solutions, it demands the integration of local knowledge and the active participation of marginalised groups.

Initiatives such as the Ecochamps programme and the WEF Nexus Knowledge Festival show how community leadership can strengthen resilience and promote equity across water, energy and food systems.

Capacity-building is essential. Training local leaders and equipping communities with the tools and resources to

engage in governance enables meaningful participation and long-term ownership. At the same time, WEF policies must recognise and integrate diverse knowledge systems, valuing scientific insights and indigenous knowledge. This ensures that governance frameworks are not only effective, but also culturally appropriate and contextually relevant.

Ultimately, embedding inclusivity, knowledge pluralism and community leadership at the heart of WEF governance can lead to systems that are more resilient, just and responsive to the needs of all communities.



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CONCLUSION

The integration of WEF decision-making is a crucial step toward achieving social justice in South Africa's rural communities. The establishment of WEF communities, alongside targeted policy reforms, can empower local communities to take control of their natural resources and governance. Transdisciplinary collaboration – involving government, NGOs, academia and local communities – can lead to the co-creation of context-specific solutions that meet the diverse needs of marginalised groups, with a special focus on women and youth.

Furthermore, platforms like knowledge festivals offer valuable opportunities for fostering equitable knowledge exchange and collaboration, while ensuring that local knowledge is incorporated into decision-making processes.

In conclusion, the establishment of integrated governance structures that prioritise community engagement and local knowledge is critical for addressing the WEF nexus challenges. By fostering collective action and ensuring equitable access to resources, South Africa can achieve social justice and enable communities to actively shape and be fully invested in their futures, thus promoting a more sustainable and inclusive development model.

WWF'S 6 ACTIONS TO ELEVATE THE WEF NEXUS APPROACH

WWF recognises that the WEF approach is still a novelty in South Africa and suggests the following practical actions for policymakers to adopt when implementing conservation and service delivery projects in rural areas.

Recognising the WEF governance recommendations by interdisciplinary teams, WWF South Africa - through Strategy 2030 - is keen on leveraging the WEF nexus approach to drive the whole-of-society and whole-of-government approach. This will contribute to realising the goals of the Global Biodiversity Framework, Mega Living Landscapes and the just transition. There is an urgency to the WEF approach!

As part of its Strategy 2030, WWF is committed to work with partners in landscapes and at the policy level to drive the following 6 actions:



1. SUPPORT COMMUNITY GOVERNANCE FOR LAND STEWARDSHIP



Properly structured and capacitated governance structures at a community level, with the help of stakeholders, can lead and manage initiatives around water, energy and food initiatives. To encourage the value of collective action around WEF, communities need to be organised around a shared vision to approach the WEF nexus opportunities. These are steps to get started:

- Establish a legal body such as a community-based organisation (CBO); this could be a co-operative or a communal property association (CPA). Such bodies allow communities to access funding and technical support.
- Integrate local traditional leadership into the CBO to ensure on-the-ground buy-in.
- Include local municipalities in CBOs to better engage on service delivery issues.
- Partner with other NGOs for access to funding and social capital.
- Establish relationships with other successfully organised WEF communities and arrange learning exchanges for knowledge transfer and to scale efforts.

WWF's focus is to work with willing communal landowners – and help to establish appropriate CBOs – to support them in identifying sustainable land-use activities that enhance the local biodiversity while benefiting the communities and their livelihoods.

WWF case study

In the Eastern Cape, the Umzimvubu Catchment Partnership (UCP) was started in 2013 by ERS in collaboration with Conservation South Africa, local stakeholders and community representatives. WWF is a member of UCP. Through its connections, many corporate partnerships have been enabled in the landscape. UCP has implemented various projects to engage rural communities in local job creation initiatives and enterprise development. These projects address WEF nexus challenges, including invasive alien plant species removal, wetland rehabilitation, natural spring protection, rangeland management and soil management initiatives. All of these improve water and food security at the household level. In the energy space, through ERS, we worked with small enterprises to develop biochar from cut-down alien trees.

2. ENABLE GRAZING ASSOCIATIONS FOR SUSTAINABLE RANGELAND MANAGEMENT



Grazing associations, when properly managed, promote sustainable practices such as rotational grazing and the prevention of overgrazing. When rangelands are well managed, this can significantly reduce soil erosion and enhance biodiversity.

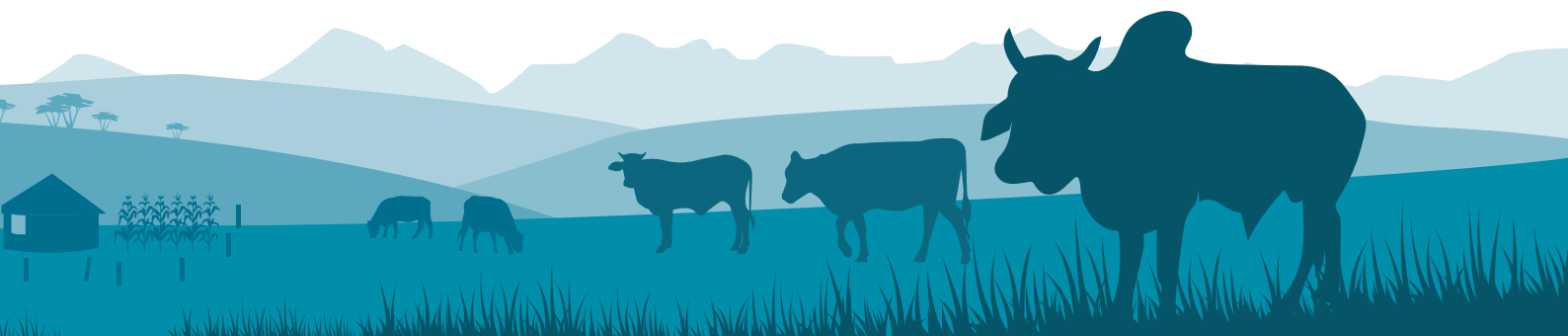
These associations can contribute to sustainable resource management by:

- Ensuring equitable access to grazing land, particularly for marginalised communities.
- Promoting community-led decision-making for managing shared rangelands, which ties into inclusive governance.
- Addressing issues of land rights and resource ownership, ensuring that communities have a say in resource use and protection.

WWF works with grazing associations to reach local farmers and herders for training in sustainable rangeland management practices, such as rotational grazing, proper stocking density and water conservation.

WWF case study

WWF directly established nine grazing associations within the Eastern Cape Drakensberg and Southern Drakensberg landscape. In these rural grasslands, livestock farming is a way of life and a source of livelihood. These grazing associations have grown to a total of over 1 000 livestock farmers with over 20 000 ha secured under improved rangeland management. Each association has a formalised and functional governance structure, two of which are led by women as their chairpersons. With women stepping up and taking the lead in managing rangelands, it proves that we are reshaping the management of natural resources and promoting inclusivity at scale.



3. IMPLEMENT COST-EFFECTIVE SPRING REHABILITATION FOR WATER ACCESS



Amid the water access challenges in rural landscapes such as Matatiele, a focused response has been to implement cost-effective solutions for securing and rehabilitating natural springs by separating their use for humans and livestock. This approach reduces the impact of litter and resultant pathogens from soiled disposable nappies. The spring structure also provides water storage which reduces the wait times, and improves both water quality and reliability. This intervention is particularly beneficial for women and children, who bear the burden of water collection in most rural households.

These spring protection structures not only improve access but maintain nature's ecological functions by allowing excess water to return to the landscape. In turn, the secured springs support food production, livestock, and traditional uses such as foraging and medicine, while respecting spiritual and cultural values linked to these springs. This integrated approach recognises water's central role in sustaining rural life and biodiversity

WWF case study

In Matatiele, spring protection initiatives supported by WWF through corporate partnerships have shown effective results. These springs, implemented by ERS and Lima Rural Development Foundation, have provided almost 50 000 people with reliable water. Each spring's design has been tailored to its unique topography, flow rate and surrounding community. In addition to the investment in the physical infrastructure, success is down to the inclusion of trained local youth – Ecochamps – who conduct regular spring monitoring, maintenance and awareness within their communities. These locally based teams build trust, ensure responsiveness to issues and reduce reliance on external support. Empowering communities, particularly youth and women, to be the stewards of their own water sources enhances ownership and long-term sustainability. By focusing on what works – spring protection, tailored solutions and community ownership – we can address WEF challenges in a way that is practical, scalable and deeply rooted in local realities.

4. INVEST IN A RENEWABLE ENERGY TRANSITION FOR ENERGY ACCESS FOR COMMUNITIES



South Africa's transition to a low-carbon economy has potential for rural beneficiation and equity compared to the negative impacts of energy generation from coal. The WEF nexus is an important approach to addressing rural energy poverty issues. Policy makers should support the concept of energy communities whereby communities are supported to develop meaningful use of biomass from invasive alien plant clearing and supplying clean modern energy through grid expansion or local mini-grids that in turn support communities and local economies. In addition to wind energy and localised battery storage, renewable energy and crop-based biofuels present a collaborative opportunity for rural communities and policy makers to embrace the WEF approach and contribute to pragmatic energy solutions for rural communities.

Renewable energy (RE) typically has a very low water footprint, which is important when considering the current consumption of the coal-heavy thermal electricity industry. However, both wind and solar energy (when not installed on roofs) use land, so clear planning for the placement is necessary. Agrivoltaics – agricultural production together with grid-scale photovoltaics (PVs) – has been demonstrated to reduce agricultural water demand and increase production in marginal areas. Where such PVs can be located on land

rented from local communities and combined with support for agrivoltaics and employment of communities for cleaning and maintenance of the installation, there is considerable potential for local livelihood uplift. Proper planning of placement of RE resources will also support biodiversity, by avoiding high risk areas and potentially supporting restoration.

Crop-based biofuels present an empowerment opportunity for rural communities, but also a considerable risk for WEF as competition for scarce arable land and water resources may increase risks to food security and inequity in access to resources. However, a focus on removal of invasive alien plants (IAPs) for biofuel purposes may have the opposite effect, increasing water resources, biodiversity and avoiding impacts on land, whilst also providing considerable potential for SMME development in the supply chains. For this reason, WWF recommends biofuel/biomass consumption for energy to be focused primarily on the removal of IAPs.

Overall, addressing social justice elements of the energy transition is non-trivial. While there is huge potential for social upliftment and the addressing of energy insecurity, and there are considerable opportunities for just transition into agriculture and land management, it could easily be captured by private sector interests with huge impacts on the ownership and use of land and water resources.



5. PROMOTE CLIMATE-RESILIENT AGROECOLOGY FOR FOOD SECURITY



Farming with agroecology practices demonstrates the positive relationship between agriculture, water, energy and biodiversity. It is about optimising the natural environment and utilising local knowledge to grow food in ways that enhance indigenous biodiversity, soil health and water conservation. Key practices include crop diversification, reduced use of chemical fertilisers, water conservation through rainwater harvesting and improved livestock management.

Agroecology supports food security by increasing the resilience of communities to climate variability and reducing dependency on external inputs (such as fertilisers and pesticides), which is essential in areas like Matatiele where access to such inputs may be limited. Additionally, agroecological practices are often better aligned with social justice goals within the WEF nexus, as they typically emphasise local participation, equitable access to resources and the protection of indigenous knowledge systems.

WWF's focus is to build capacity in agroecology and enable compliance with organic standards to increase the opportunity for these smallholder farmers to access new markets.

WWF case study

The success of enhancing food security in the small village of Upper Tsitsana, outside of Nqanqarhu (Maclear), is attributed to three things. These are the strong focus on community involvement, integration of local knowledge, and early involvement and collaboration with the chief, councillors and partners such as the Lima Rural Development Foundation, the local department of agriculture and the local municipality. In 2024, 80 farmers received agroecology training and experienced agroecology demonstration plots. The community has embraced agroecology practices that enhance resilience to climate change and improve soil health. A select few farmers were even given access to tunnels, enabling them to grow crops year-round despite harsh weather conditions. Additionally, the community has been introduced to agroforestry techniques, with 56 fruit trees distributed to encourage biodiversity and sustainable land use. One important aspect of this success is community-driven resource management, where local communities take ownership of their food security strategies. By organising into groups, farmers can share their knowledge, discuss production-related issues and tackle challenges like water management. Many farmers are utilising watering cans for their gardens and practicing mulching which helps retain moisture in the soil, reducing the need for frequent irrigation. These practices align closely with the broader goals of the WEF nexus, as they ensure that food security is achieved while also conserving water and managing energy resources sustainably.

6. EMBED WASTE-REDUCING CIRCULAR INTERVENTIONS IN RURAL LANDSCAPES



Disposable nappy waste is a growing concern in peri-urban and rural communities with limited to no regular waste collection services. Communities have the option to engage with the local municipality responsible for household waste collection with follow-up action dependent on several factors outside of the control of the community. An alternative and more impactful intervention that falls within the community's control is to influence the kind of products entering and being used by households. Disposable, single-use products – such as disposable nappies – are designed to be used once and then discarded resulting in waste generation which pollutes the environment. This pollution is detrimental to the soil condition (microplastics and chemicals), people and livestock health (ingestion), aquatic ecosystems and community livelihoods within these landscapes.

WWF case study

An example of where a community has collectively co-designed and implemented upstream interventions to nappy pollution, which is within the remit of control of the community, is the reusable nappy project in Matatiele. ERS facilitated the collective identification and solutions to the crisis of every increasing volume of disposable nappy waste around Matatiele. This was done using principles of community empowerment and inclusion around a shared vision to reduce disposable nappy waste and explore livelihood creation. To co-develop solutions, they brought together community members, both those affected and others with an interest in the issue. They also sourced external solution providers with product offerings that not only ensure less nappy waste generation but also provide the opportunity to improve the livelihoods of women and youth. They worked with the Ecochamps to socialise the solution and receive feedback from households and the wider community. The most feasible solution was validated with the community and they are now exploring further collaboration and funding opportunities for piloting and scaling. To date, the project has shown promising outcomes not only for the environment, including spring protection and livelihood improvement for women and youth.



APPENDIX 1: WEF LEGAL FRAMEWORK

CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA

- Right of access to sufficient water and food (s 27)
- Right of access to energy (Constitutional Court)
- Right to an environment that is not detrimental to one's health and well-being (s 24)
- Cooperative governance (ch 3)
- National, provincial and local spheres of government
- Schedules 4 and 5
- Traditional governance (ss 211 and 212)

FRAMEWORK LAW AND LEGISLATION

- Common law, African customary law and religious legal systems
- Intergovernmental Relations Framework Act 13 of 2005
- Local Government: Municipal Structures Act 117 of 1998
- Local Government: Municipal Systems Act 32 of 2000
- Local Government: Municipal Finance Management Act 56 of 2003
- Traditional Governance and KhoiSan Act 3 of 2019
- National Environmental Management Act 107 of 1998
- Climate Change Act 22 of 2024
- Mineral and Petroleum Resources Development Act 28 of 2002
- Communal Property Association Act 28 of 1996
- Interim Protection of Informal Land Rights Act 31 of 1996
- Protection of Administrative Justice Act 3 of 2000
- Protection of Access to Information Act 2 of 2000

WATER

- National Water Act 36 of 1998
- Water Services Act 108 of 1997
- National Environmental Management: Waste Act 59 of 2008
- Municipal bylaws

ENERGY

- Electricity Regulation Act 4 of 2006
- National Energy Regulator Act 40 of 2004
- National Energy Act 32 of 2008
- Eskom Conversion Act 13 of 2001
- Gas Act 48 of 2001
- Petroleum Pipelines Act 60 of 2003
- Energy Policy White Paper
- White Paper on Renewable Energy
- Integrated Energy Plan
- Integrated Resource Plan
- National Forest Act 84 of 1998
- National Environmental Management: Biodiversity Act 10 of 2004
- Municipal bylaws

FOOD

- 2002 Integrated Food Security Strategy for South Africa
- 2018 Draft Climate Smart Agriculture Strategic Framework for Agriculture, Forestry and Fisheries
- Agricultural Pests Act 36 of 1983
- Agricultural Product Standard Act 119 of 1990
- Animal Diseases Act 35 of 1984
- Animal Health Act 7 of 2002
- Animal Identification Act 6 of 2002
- Animal Improvement Act 62 of 1998
- Animals Protection Act 71 of 1962
- Conservation of Agricultural Resources Act 43 of 1983
- Fertilizers, Farm Feeds, Seeds and Remedies Act 36 of 1947
- Meat Safety Act 40 of 2000
- Perishable Products Export Control Act 9 of 1983
- Plant Breeders' Rights Act 15 of 1976
- Plant Improvement Act 53 of 1976
- Veterinary and Para-Veterinary Professions Act 19 of 1982
- Applicable provincial legislation
- Marine Living Resources Act 18 of 1998
- Regulations related to small-scale fishing as pertaining to section 19 of the Marine Living Resources Act 18 of 1998
- Marine Spatial Planning Act 16 of 2018
- 2025 draft Oceans Economy Master Plan

APPENDIX 2: WEF ACTORS

WATER	ENERGY	FOOD
Minister of Water and Sanitation Department of Water and Sanitation Catchment Management Agencies Water Use Associations Water Service Institutions Catchment management forums and partnerships Water Boards Municipalities	Minister of Electricity and Energy Department of Electricity and Energy Eskom National Energy Regulator of South Africa (NERSA) National Nuclear Regulator Municipalities Exploration and production of gas and petroleum: Minister of Mineral Resources Department of Mineral Resources	Minister of Agriculture, Land Reform and Rural Development Department of Agriculture, Land Reform and Rural Development Members of the Executive Council (MECs) responsible for agriculture Provincial department responsible for agriculture Traditional councils Department of Forestry, Fisheries and the Environment Local municipalities Marine Protected Area Management Authorities



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ABOUT: This policy brief presents findings from a multidisciplinary project that explored the intersection of water-energy-food (WEF) nexus governance and social justice in South Africa. Conducted by a consortium of South African and Dutch universities, NGOs and local associations, the project combined expertise from fields such as environmental governance, development studies, law and sustainability science. A primary element of what made this project successful was the collaboration among research entities, national NGOs and on-the-ground implementing NGOs, like Environmental and Rural Solutions based in Matatiele. Together, these partners enabled strong participation from local youth, community structures and the Congress of Traditional Leaders of South Africa.

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