Photo:Wolseley Tourism

WORLDWIDE fruit

Case Study 3:

A South African Water Roadmap Case Study on the

Hex & Wolseley – Hex & Breede River Catchment

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Context

Water, the lifeblood of our planet, sustains ecosystems, agriculture, and human societies. However, this finite resource faces unprecedented pressure globally. Agriculture, consuming 70% of freshwater withdrawals, is a major driver of water stress and biodiversity decline. Projections indicate a potential 40% shortfall between freshwater demand and supply by 2030, posing significant risks to global food security, economic stability, and environmental health [1].

South Africa exemplifies these challenges. As a nation reliant on its agricultural sector – a key supplier of high-value fruit like citrus, apples, grapes, and stone fruit to markets including the UK [2] – it confronts escalating water insecurity. Factors such as recurrent droughts exacerbated by climate change, naturally arid conditions, and growing demand place immense strain on water resources. The Western Cape province, home to critical agricultural catchments like Groenlandberg, Koue Bokkeveld, and Hex & Wolseley, is particularly significant. Water security in these sourcing regions for **Worldwide Fruit Limited** (WFL) is influenced by factors such as fluctuating water availability, managing water quality, and adapting to more frequent extreme weather events like floods and droughts. Without proactive, collaborative intervention, these pressures threaten the long-term viability of farming communities, the resilience of supply chains, and the integrity of unique ecosystems.

Recognising the interconnectedness of environmental health and business resilience, WFL is deeply committed to responsible water stewardship. As a signatory to the **UK Food and Drink Pact** (Courtauld Commitment 2030) – a UK-based initiative driving sustainability across the food system – WFL is part of a collective effort targeting reductions in greenhouse gas emissions, food waste, and water stress. Addressing the water targets within this Pact requires focused action, particularly in international supply chains. This is where **WRAP's Water Roadmap** plays a crucial role, providing a framework specifically aimed at improving water security in key sourcing areas for the UK food and drink industry.

WFL's commitment translates into action in South Africa through collaboration with **WWF South Africa**. WWF-SA is a central partner in implementing the Water Roadmap's objectives in the Western Cape, leading projects in the priority fruit-growing catchments from which WFL sources. Furthermore, WWF-SA is instrumental in broader initiatives like the **Western Cape Collective Action Project**, providing governance support, expertise, and facilitating the collaborative conservation and rehabilitation efforts essential for long-term water security in the region. Through this multi-layered partnership structure, WFL supports a two-tiered strategy: promoting best practices at the farm level (efficient irrigation, soil health) and strengthening catchment-level governance (balancing agricultural, community, and ecological water needs).

This final case study in a series of three explores collaborative efforts within the **Hex & Wolseley – Hex & Breede River Catchment** focusing on the practical actions driven by the UK Food and Drink Pact and WRAP's Water Roadmap. It highlights the pivotal implementation role of WWF South Africa and illustrates how the initiative is advancing water security and ecological resilience in one of South Africa's key agricultural regions. Select examples from WFL suppliers and their growers help to illustrate how growers are aligning with and contributing to these broader efforts.

South African Water Roadmap Case Studies:

- Case Study 1: A South African Water Roadmap Case Study on the Groenlandberg – Palmiet River Catchment
- Case Study 2: A South African Water Roadmap Case Study on the Koue Bokkeveld – Olifants & Doring River Catchment
- **Case Study 3: A South African Water Roadmap Case Study on the Hex & Wolseley – Hex & Breede River Catchment**

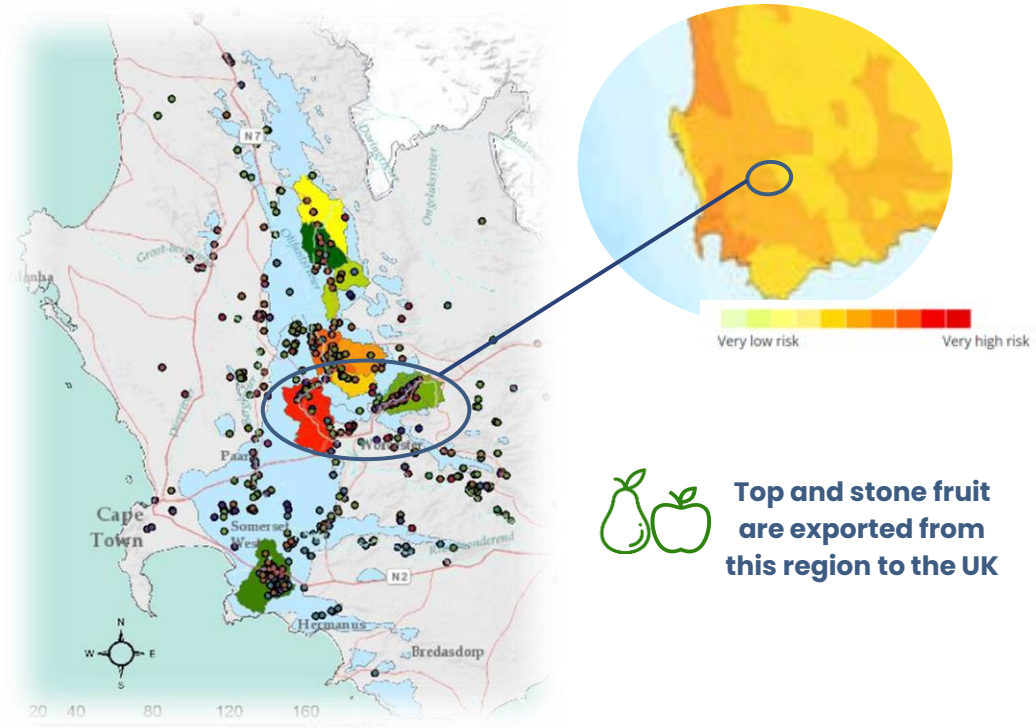
BLUE NORTH

THINKING. FUTURE

Report compiled by Malissa Murphy
Blue North Sustainability

Contents & Overview

WWF SA leads the on-ground Water Roadmap work.



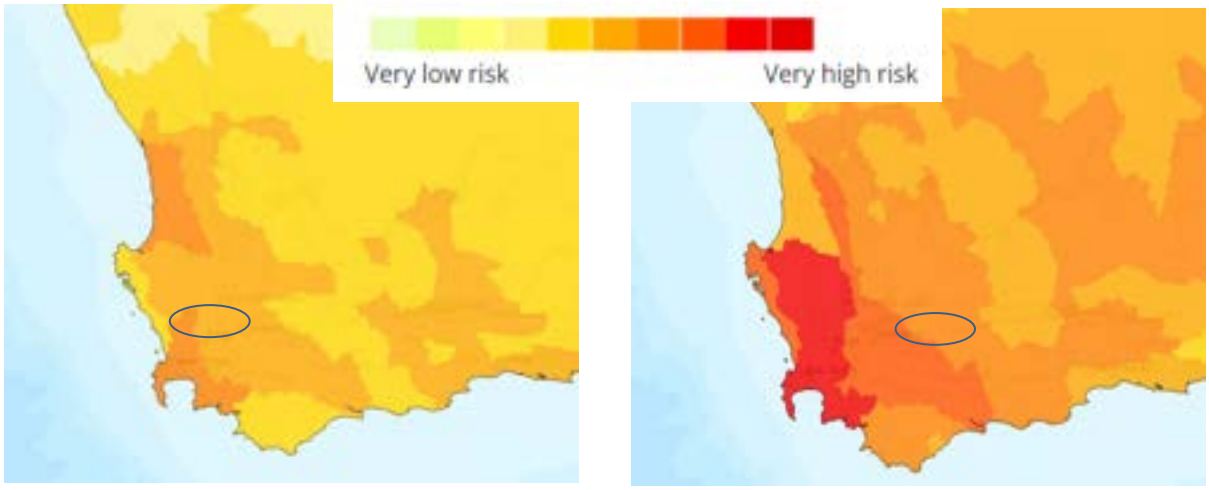
Top and stone fruit are exported from this region to the UK

1. The Hex & Wolseley – Hex & Breede River Catchment

The Hex & Wolseley catchment, situated within the Breede-Overberg Water Management Area in the southwestern Western Cape, is a vital region renowned for its agricultural productivity and ecological significance. The Hex River Valley acts as a crucial link between the Boland and the Great Karoo, while Wolseley lies in the upper Breede River Valley, strategically positioned on the hydrological divide between the Breede and Berg River systems [3]. The Upper Breede catchment forms part of the Boland Water Source Area, critical for supplying water to much of the Western Cape.

With its Mediterranean climate - warm, dry summers and cool, wet winters - the region is well-suited to agriculture. The Hex River Valley is South Africa's oldest and largest table grape region, producing over half of the country's exports [3]. Around Wolseley, a diversity of deciduous fruits such as pears, plums, peaches, and apples are also cultivated, supporting the regional economy and providing vital employment [4]. Water resources are managed locally through two dedicated bodies: the Hex River Valley Water Utilisation Association, which oversees around 5,000 hectares of irrigated land, and the Wolseley Water User Association (WWUA), established in 2008 from the former Dwars River Irrigation Board [5]. These organisations manage both surface and groundwater use, reflecting a structured, place-based approach to water stewardship.

Ecologically, the catchment lies within the Cape Floristic Region - a global biodiversity hotspot and UNESCO World Heritage Site - featuring unique fynbos vegetation and important mountain-to-river transition zones. Riverine areas along the Hex and Breede Rivers support diverse plant and animal life, with ecosystem health critical for sustaining water provision and biodiversity [6]. However, water resources are under growing pressure due to groundwater dependence, invasive alien plants, and other threats. The WWF Water Risk Filter flags the Hex & Wolseley catchment as high risk, with challenges around scarcity, quality, and ecosystem degradation expected to worsen with climate change and rising demand. This highlights the urgent need for integrated, proactive water stewardship.



Current physical risk (left) and expected risk in 2030 (right) for the Hex & Wolseley – Hex & Breede River catchment (circled), according to the WWF Water Risk Filter.

Scan to learn more about WRAP's Water Roadmap Project in South Africa.

2. Collective Action in Motion

The complex water challenges – including groundwater dependence, IAP threats, climate variability, and the increasing water risk profile – necessitate a collaborative approach beyond individual farm boundaries. The Water Roadmap provides the framework for this collective action, bringing together WFL, its suppliers and growers (like Two-A-Day, Ceres Fruit Growers and Delecta), WWF-SA, local WUAs (like the WWUA), government departments, and other NGOs.

This partnership structure allows for coordinated efforts addressing both farm-level practices and catchment-wide issues. Willie Wood, Head of Technical at Worldwide Fruit, emphasises the importance of this approach: "To ensure that we can demonstrate that we have a resilient supply base in the Western Cape it is really important that we understand the on-the-ground realities… And therefore we do need a collaborative approach that brings all stakeholders together because we've all got different perspectives. But all those perspectives are important, and they need to be collated to form strategy and inform tactics to ensure that we have got a continuous improvement roadmap".

Key focus areas for collective action include improving the understanding and management of water resources (especially groundwater), tackling the pervasive IAP problem, promoting water-use efficiency, and enhancing the ecological health of the river systems.

Foundational Work and Groundwater Assessment

Invasive alien plant clearing has been undertaken in the catchment for several years prior to the formal Water Roadmap activities. These longer-term efforts, involving various partners, have resulted in the clearing of approximately 13,250 hectares of alien vegetation, the planting of over 100,000 indigenous trees, and the creation of 1,237 jobs over time [9], with notable work conducted in areas like the Titus River and Dwars River. Complementing this, a crucial step in understanding the catchment's water resources involved a 2018 collaboration between WWF-SA and the Titus River Irrigation Board (IB). This partnership undertook a geohydrological review and hydrocensus across 24 farms (~4,100 ha). The subsequent 2019 WWF technical report provided vital baseline data on the area's geohydrology, groundwater recharge, usage, levels, and quality, establishing the foundation for informed long-term groundwater monitoring and management [7].

Invasive Alien Plant Clearing and Restoration

Since 2017, Ryno Pienaar has served as the Catchment Coordinator for the Wolseley Water User Association, playing a pivotal role in scaling up IAP clearing efforts under the Water Roadmap framework. He leads several alien clearing teams, fostering collaboration between NGOs, government bodies, and landowners. Ryno describes the integrated approach: "It's a joint project where we do alien invasive clearing along the riparian zones of the rivers. We also replant indigenous vegetation along the river courses for water security and biodiversity and to do flood attenuation. This system where somebody is employed as a warm body in a community, leveraging project funding hasn't really been done up until before we started this…".

The Water Roadmap project has accomplished the following achievements over the past four years [8,9]:

- ~150 ha of IAPs removed along priority river systems.
- 15,000 indigenous plants propagated.
- 10,000 indigenous plants replanted or reseeded.
- Biomass converted to mulch, supporting 1 small chipping business.
- 3 river rehabilitation measures completed post-floods.
- 13 ongoing groundwater monitoring sites established or maintained.

Complementing the broader initiatives, growers supplying WFL demonstrate a significant commitment to IAP management and restoration on their own farms and beyond.

Achtertuin farm showcases long-term dedication, having cleared IAPs for 25 years, performing annual follow-ups, clearing adjacent state land, and actively pursuing riverine forest restoration with LandCare, despite major setbacks like the 2023 floods where, "Unfortunately, 75% of the new planting washed away".

Romansrivier exemplifies ambitious targets, having recently cleared 35 ha and replanted over 100 indigenous trees like Breederivier Geelhout (*Podocarpus Elongatus*), with concrete plans to clear another 40 ha of Hakea, Pine, and Wattle and replant diverse species including Wit Peer (*Apodytes Dimidiata*) by 2026.

Rora farm focuses on targeted clearing in the Vergenoeg and Palmietvlei riverbeds, having removed 18 ha of Black Wattle and Port Jackson, replanted 2-3 ha, and incorporating annual biodiversity risk assessments. Their focus includes diligent follow-up: "We are planning to do maintenance in the next few years by cutting regrowth and implementing preventative measures," alongside plans for a spekboom nursery.

Sparrenburg adopts a steady approach, removing invasive pines over time while maintaining natural veld biodiversity and collaborating with neighbours on clearing efforts. As they put it, “We had many pine trees in the past, but we have been slowly cutting them down when we have time… I have a neighbour that drives a project to go into the mountain once a year… he always takes a team from our farm as well” – recognising that effective water management is also an economic necessity: “Water costs money, we have to manage it to be competitive in the market“.

These dedicated individual actions are crucial components of the wider catchment health strategy.

Socio-Economic Impact:

The IAP clearing work provides significant socio-economic benefits beyond water security. Creating employment in areas with high unemployment rates (around 24% in the Western Cape) is a key outcome. The value of these opportunities is profound, as highlighted by the experience of one employee shared with Ryno Pienaar: “Many of the people I employed told me they would not have been able to find employment elsewhere because of their past bad choices and that I was their only hope. I helped them to become reliable hard workers who can put food on the table and look forward to their future” [10]. This demonstrates the life-changing potential of integrating ecological restoration with social upliftment.

Knowledge Exchange

Several learning exchanges have been facilitated for growers, landowners, and other interested parties to share knowledge and build capacity. These include River Health Learning sessions utilising tools like MiniSASS and iNaturalist, as well as workshops focused on Alien Invasive Plants and Soil Erosion.

Photo from WWF Report [9]

Farm-level Stewardship and Innovation

Across the catchment, farmers are adopting innovative water and land stewardship practices that balance productivity with conservation—and these actions collectively benefit the broader catchment.

Precision irrigation is a common thread, with farms like Achtertuin and Romansrivier using computerised scheduling, probes, and weather data to fine-tune water use. “You can’t irrigate sufficiently without these - and this helps a lot with water saving,” shares a farmer at Romansrivier.

Vadersgawe reports doubling production after switching to micro-sprayers, while drape nets have reduced water use by 33% and sunburn by two-thirds. “The newer technology has helped us a lot, especially with measuring, so we know how much water we use and where it is going,” they note.

Dreem Fruit is shifting to earlier cultivars to align better with rainfall patterns, reusing old vineyards as mulch, and encouraging diverse cover crops to promote soil and ecosystem health.

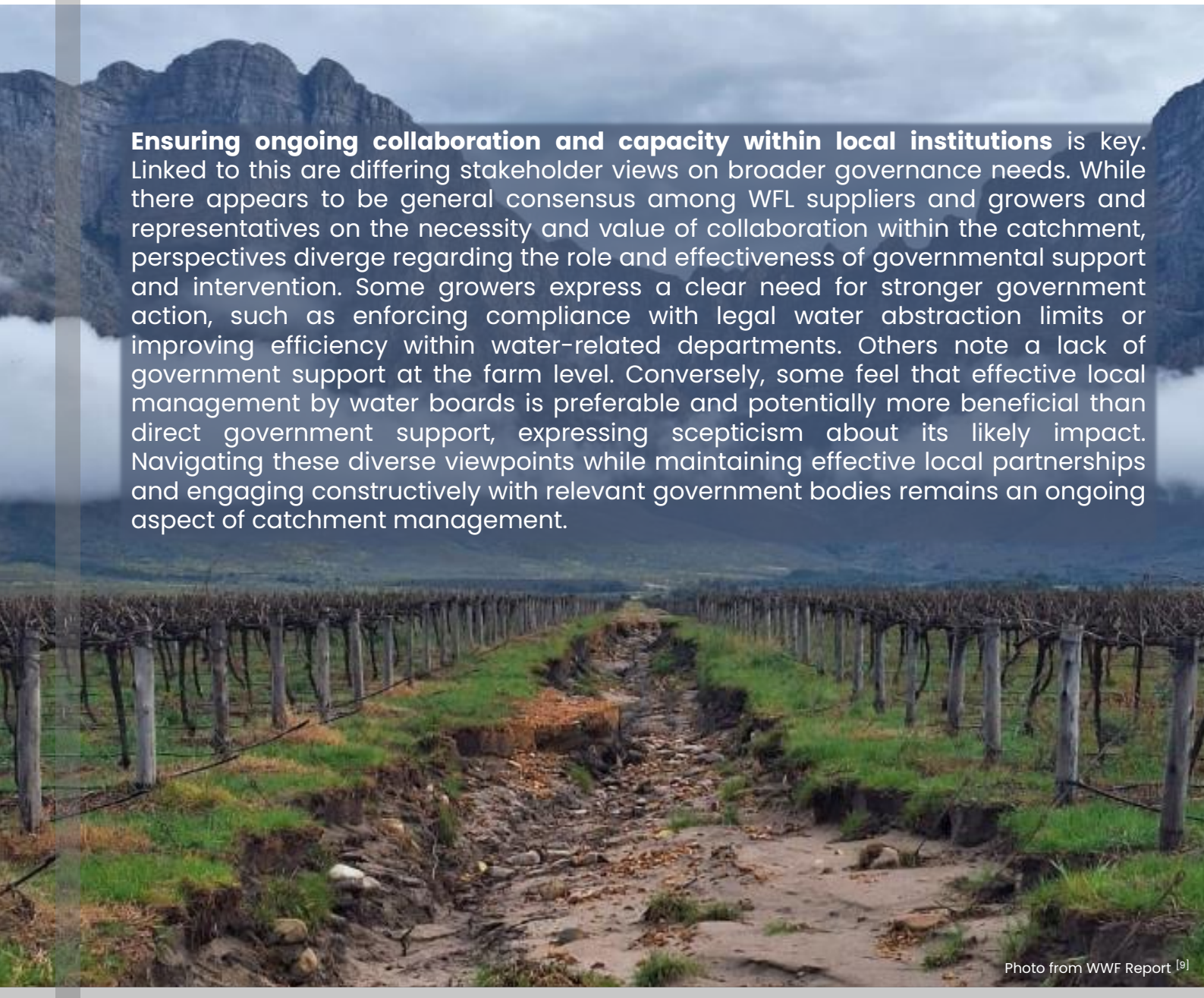
Beyond irrigation, efforts like restoring natural areas, protecting small dams, and conserving habitat for species like the geometric tortoise further demonstrate how farm-level actions are contributing to catchment-wide sustainability and ecological resilience.

Photo by Carina Wessels

4. Navigating the Challenges of Collective Water Management

Despite progress, significant challenges impact collective water management efforts:

- **Extreme Weather Events**: Recent significant weather events, including major floods (e.g., 2023 'one in a hundred-year' floods mentioned by Achtertuin), have caused infrastructure damage (roads, farm structures, replanting projects). This affects access for field officers and constrains farm budgets, diverting funds from proactive stewardship to urgent rebuilding. Positively, it has also prompted some farms to increase natural river buffer zones.
- **Resource and Capacity Constraints:** Limitations exist in the capacity for consistent groundwater monitoring across the catchment. Sustained funding for large-scale, long-term IAP clearing and restoration remains crucial.



Ensuring ongoing collaboration and capacity within local institutions is key. Linked to this are differing stakeholder views on broader governance needs. While there appears to be general consensus among WFL suppliers and growers and representatives on the necessity and value of collaboration within the catchment, perspectives diverge regarding the role and effectiveness of governmental support and intervention. Some growers express a clear need for stronger government action, such as enforcing compliance with legal water abstraction limits or improving efficiency within water-related departments. Others note a lack of government support at the farm level. Conversely, some feel that effective local management by water boards is preferable and potentially more beneficial than direct government support, expressing scepticism about its likely impact. Navigating these diverse viewpoints while maintaining effective local partnerships and engaging constructively with relevant government bodies remains an ongoing aspect of catchment management.

Photo from WWF Report [9]

4. Conclusion and Future Outlook

The Hex & Wolseley catchment is a region where critical agricultural production, unique biodiversity, and increasing water pressures converge. Through the Water Roadmap, partners like WWF-SA, WFL, its suppliers and growers, and local WUAs are making meaningful progress in addressing these challenges.

Efforts such as groundwater assessments, invasive alien plant clearing (with job creation), river restoration, and advanced on-farm water stewardship are already showing impact. While climate change, resource limitations, and institutional hurdles remain, the commitment to collaboration is strong. Future work will focus on follow-up clearing, erosion control, indigenous replanting, and continued knowledge sharing among growers and field teams.

With WFL's support and the power of collective action, stakeholders are building a more resilient, water-secure future for the region's farming communities and ecosystems.

Photo by Malissa Murphy

Sources:

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