Comprehensive Regeneration

The AlUla Approach to Sustainable Development

الهيئة الملكية لمحافظة العلا
Royal Commission for AlUla

COMPREHENSIVE REGENERATION

The AlUla Approach to Sustainable Development

Report

Foreword

LETTER FROM AMR ALMADANI, CEO, THE ROYAL COMMISSION FOR ALULA

Today's world has fallen out of sync. Communities, economies, and the environment are at odds with each other as a result of ideas, strategies, and motivations that are being disproven, dismantled, and reevaluated. Our actions have led us here. Our intentions were good, despite the outcomes now revealed to us. But now is the time to rethink and refocus.

We have the opportunity to advance our world harmoniously, using coordinated strategies that support our populations, strengthen our financial systems, protect our heritage, and revitalize natural habitats. We can grow in unison, using a framework for action that shifts the norms of conservation, industry, and economics towards a singular goal that benefits people and places equally, for generations to come.

We believe that *Comprehensive Regeneration*, as defined in the pages of this report, provides that framework. It guides our work in AlUla. It drives us to harness the skillsets of global partners, to incorporate new technologies, to find new solutions.

As a business model, it is based on the principles of naturalization, conservation, and the enablement of thriving ecosystems, both economic and natural, rather than outdated ideas of extraction and exploitation. Now, we no longer need to choose between meeting the diverse needs of society with safeguarding the future of the environment — they are intertwined. *Comprehensive Regeneration* is reevaluating our relationship with the world, how we establish the pillars of new economic growth, enabling sustainable development to go hand in hand with progress.

In AlUla, we see our Cultural Oasis is growing thanks to careful restoration. Our natural environment is flourishing through successful rewilding and regreening programmes. Visitor numbers are increasing as a result, and direct economic opportunities for our community are expanding. *Comprehensive Regeneration* creates the necessary landscape to advance our unique value proposition, establishing the right actions, conservation goals, and economic drivers to empower a sustainable and inclusive vision of development.

Our work has only just begun. We have seen success, but we are not yet where we want to be. With *Comprehensive Regeneration* as a guide, the path ahead is clear.

LETTER FROM DR. BRUNO OBERLE, DIRECTOR GENERAL, IUCN (JULY 2020 – JUNE 2023)

In an increasingly volatile world, affected by compounded health, humanitarian, economic and environmental crises, the international community came together in December 2022 to adopt the historic Kunming-Montreal Global Biodiversity Framework. This is testament to the fact that, as never before, leaders and decision makers have realized the fundamental role that nature plays in sustaining life, livelihoods and economies on our planet.

IUCN, the International Union for Conservation of Nature, was deeply engaged in the years leading up to this moment. Attention is now turning to implementing the Kunming-Montreal Global Biodiversity Framework. IUCN, as a union of 1,400 Member organizations, has a key role to play in achieving this ambitious objective.

The Royal Commission for AlUla has been an active Member of IUCN since 2020. Together, we apply IUCN's knowledge, standards and tools to conserve and restore AlUla's natural beauty. Our work in AlUla ranges from developing a network of protected and conserved areas, to restoring degraded land, to reintroducing charismatic species, such as the Arabian Leopard, and educating conservation professionals in the country and in the region.

In witnessing AlUla's determination to contribute to IUCN's vision for a just world that values and conserves nature, it is my hope that AlUla's example and experience will inspire other public authorities to implement *Comprehensive Regeneration*.

Introduction

Governments are waking up to the reality that the natural world is in crisis. In October 2022, leaders and changemakers from around the world came together at the IUCN Leaders Forum in Jeju, Republic of Korea to promote the transition to a nature-positive global economy. And in December 2022, 196 nations developed a visionary new framework to stem the loss of nature — the Kunming-Montreal Global Biodiversity Framework — at COP15 in Montreal, Canada.

These efforts come at a crucial time, as the decline of biodiversity is accelerating at an unprecedented pace. Entire ecosystems and species are threatened by land use change, deforestation, over-exploitation of natural resources and the effects of climate change. If the current trajectory continues, the world risks losing around 1 million animal and plant species by the middle of the century, according to the IPBES Global Assessment Report on Biodiversity.

The challenges facing the natural world are especially pronounced in the Middle East region where crucial desert ecosystems are threatened by climate change, urbanization, and increasing demands for land and water. According to the IUCN, over 2,000 species in the region are under threat — including many unique desert species like the Arabian Leopard, Golden Hamster, Nubian Ibex, Arabian Oryx, and Striped Hyena.

The current path is dangerous and unsustainable. The World Economic Forum estimates that approximately $44 trillion of economic value generation — over half the world's total GDP — is moderately or highly vulnerable to the loss of nature and its services. Biodiversity loss also brings humans into contact with stressed ecosystems in a way that increases the risks of zoonotic disease transmission, and it further reduces the ability of ecosystems to mitigate the effects of climate change.

Global efforts towards a nature-positive track need to accelerate. Governments, the private sector, and civil society must come together and commit to halt and reverse the loss of nature. At the same time, they must reduce future negative impacts by putting both living and non-living nature measurably on the path to recovery.

This report offers a glimpse of AlUla's answer to the current challenges: by applying Comprehensive Regeneration as a framework for sustainable development, with the hope to inspire others to engage and act. Comprehensive Regeneration promotes a diverse, but harmonious set of efforts aimed at revitalizing the way that society interacts with the natural world and cultural landscape.

The paper is a joint effort of the Royal Commission for AlUla (RCU) and the International Union for Conservation of Nature (IUCN). It is structured in three sections.

- The first section details the challenges to the region's biodiversity and degradation of the environment.
- The second section includes case studies and best practices that demonstrate the power of Comprehensive Regeneration.
- The third section includes key recommendations for policymakers and business leaders.

I. The Natural Environment Under Pressure: Key Challenges

The global loss of nature is occurring so rapidly, and with such profound consequences, that it merited the naming of a new geologic epoch — the Anthropocene, or the period when human activity began to significantly alter the planet's climate and ecosystem. Globally, the evidence of nature loss is staggering. Scientists estimate the world is now losing species at up to 1,000 times the natural rate. The Paulson Institute notes that abundance of mammals, birds, fish, reptiles, and amphibians has declined, on average, by 60 percent over the last four decades.

Across the Middle East, the arid climate makes the region particularly vulnerable to the effects of biodiversity loss. For example, Saudi Arabia, Jordan, and Syria have reported that droughts and heatwaves are having a significant effect on biodiversity for food and agriculture. Similarly, Egypt is facing significant pressure on its fish populations and fishery production due to rising temperatures. Morocco has nearly 200 threatened species; Yemen has close to 300.

The contributors of biodiversity loss in the region are complex and varied. Some of the major causes include:

POPULATION GROWTH

Since 1990, the population in Arab countries has more than doubled, from an estimated 216 million in 1990 to 444 million in 2021.[1] This growth has put significant pressure on the region's natural resources, such as fresh water and arable land, and has increased the demand for infrastructure development that has displaced many species and natural habitats.

CLIMATE CHANGE

Climate change is linked to a growing spectrum of adverse effects across the natural world, affecting genetic variability, species richness and abundance, and ecosystems. In the Middle East region, a number of unique species are restricted in their habitat range — such as the mangroves in Qatar or the marshes of Iraq. This makes them especially vulnerable to changes in climate and makes it increasingly difficult for them to function as essential carbon sinks.

HUNTING AND WILDLIFE TRADE

Poaching and animal trafficking across the Middle East risks erasing some of the most threatened species from the planet. At the same time, overhunting has caused numerous species to have severe population declines. For instance, the Arabian oryx was previously declared extinct in the wild in the IUCN Red List of Threatened Species, primarily due to overhunting.

[1] Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, State of Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen

POLLUTION

Environmental pollution in the Middle East region has affected flora and fauna. The biggest issue is air pollution, the result of rapid urbanization, which has severe effects on vegetation and wildlife. According to a 2018 report from the WHO, the major cities of the Middle East have levels of particulate matter that are well above the WHO's recommended figures.

DEFORESTATION AND DESERTIFICATION

Deforestation and desertification are closely related and severely affect biodiversity within the Middle East region. Uncontrolled deforestation leads to loss of biodiversity and directly contributes to changing climate patterns and resulting desertification. This leads to a multiplication of extreme weather events, such as much more severe dust storms and increasingly devastating floods and more displaced populations.

II. Comprehensive Regeneration in Practice

Comprehensive Regeneration is a concept developed by the Royal Commission for AlUla.[2] It implies a diverse, but harmonious, set of efforts aimed at revitalizing the way that society interacts with the natural world and cultural landscape. In the context of environmental protection, a framework for Comprehensive Regeneration begins with the principles of respect for landscape, culture, and heritage. It emphasizes the circular economy, the importance of restoring the past for the future, and the role of local communities through livable, sustainable, and resilient urban regeneration. These principles can be summarized as follows:

1. Environment and heritage safeguarding
2. Sustainable settlement patterns
3. Development, growth and activation
4. Resilient infrastructure

The following case studies demonstrate how these principles can be put into action and serve as a global model for responsible development:

[2] https://www.weforum.org/agenda/2021/01/saudi-arabia-alula-sustainable-development/

CASE STUDY: THE ARABIAN LEOPARD PROGRAM AND SHARAAN NATURE RESERVE

The RCU developed the Arabian Leopard Program to ensure a viable and sustainably managed population of the Arabian Leopard, its wild prey and natural habitats in coexistence with local communities. The total population of Arabian Leopards is probably lower than 200, and perhaps even as low as 100. The Arabian Leopard population appears to have reached such a critically low level that the species may not survive in the wild without the support of a reintroduction program using captive-bred animals. The endangered leopards require enhanced habitat and prey populations to thrive, as well as protected corridors to connect increasingly fragmented populations. The RCU's Arabian Leopard Program combines several projects working together to conserve this critically endangered species and advance its reentry into the Sharaan Nature Reserve:

- Establishment of the Arabian Leopard Fund, which will partner with national and regional organizations dedicated to conserving the Arabian Leopard and its habitat. Funding will be used to promote the plight of the species and raise awareness of the threats the species face such as habitat loss, trophy hunting and poisoning.
- The Panthera partnership demonstrates a commitment to invest $20 million over the next 10 years for conservation measures, which will be achieved through several initiatives, including captive breeding programs, international collaborations, community-based conservation projects, and scientific research to support the future of the Arabian leopard.
- Public education campaigns will seek to reduce leopard-human conflict and demonstrate the value of leopards to local communities, for example through ecotourism initiatives. One of the first actions to be carried out includes funding comprehensive surveys of the distribution of Arabian Leopards within Saudi Arabia, identifying key areas for protection, assessing threats, such as prey population numbers and poaching and strengthening existing captive breeding facilities.
- The Sharaan Nature Reserve aims to conserve, restore, and reintroduce native vegetation, habitats and fauna and other threatened species of outstanding universal value.

- The RCU is working with IUCN to have the Sharaan Nature Reserve included on the IUCN's Green List — which provides a benchmark for effective and equitable management of conserved areas.
- The RCU partnered with the College of African Wildlife Management (CAWM), Mweka, to train a team of carefully selected members of the local community to become rangers for Sharaan Nature Reserve. These rangers will be responsible for protected area management and administration, scientific monitoring, and anti-poaching techniques. The vision is to vest the local population in the success of the reserve and see its preservation as an opportunity for economic development.

- Ultimately, efforts to restore habitats and reintroduce wildlife can create a blossoming ecotourism sector that diversifies the economy and provides opportunities for local communities.

The Arabian Leopard is the apex predator whose successful reintroduction means that all other elements of the ecosystem regeneration have been successful.

CASE STUDY: THE ALULA CULTURAL OASIS DISTRICT

The AlUla Cultural Oasis is a district comprised mainly of the agricultural areas around the AlUla Wadi. It is a cultural landscape, one where the interaction of people and nature over time has produced a distinct character with significant aesthetic, heritage and symbolic value as well as ecological integrity. In recent decades, this landscape has been degraded by a complex set of factors — from a decline in the water table and poor agroeconomic practices to a decline in the farming profession and limited support from enabling organizations. The consequences have been stark. And 85% abandonment of farmland. 78 buildings disintegrating. 16,000m mud walls disappearing. To regenerate this landscape, RCU is employing the following best practices:

- Bringing back local farmers and land owners to the land
- Encouraging local involvement and public leisure use
- Improving agricultural profitability and increasing farmer's income with complimentary tourist activities
- Supplying AlUla residents and visitors with top-quality sustainable made local food products
- Developing an efficient irrigation system and sustainable water management techniques
- Rehabilitating and preserving the heritage of the cultural landscape

CASE STUDY: ALULA SEED BANK AND PLANT NURSERY

One of the main challenges of arid ecosystem restoration is to secure the plant genetic materials that are needed for restoring the ecosystem back to its pristine condition. To overcome the lack of enough native seeds and reproductive organs of native plants for revegetation, restoration, and greening programs, RCU established the AlUla native plant nursery and seed bank. The initiative demonstrates how ecological restoration efforts can both safeguard the environment and promote socioeconomic benefits.

- Starting from almost zero native plant seeds or seedling in 2019, the team was able to collect native seeds and cutting of 83 plant species in from their natural habitats and produce seedlings from 60 plant species.
- The nursery is equipped by necessary tools to allow native plant seed handling, cleaning, graded, testing, and conservation.

- Seedlings production starts in the climate controlled greenhouse and applies the proper seeds treatment to enhance the germination. After around 2 months, young seedlings are transplanted in seedlings container at the shading house.
- The third stage of the seedling production process is the hardening zone, where seedlings remain for one to two months before moving to their natural habitats.
- Following the high standard procedures, the nursery produced more than 350,000 native plant seedlings from 60 plant species.
- 22 people are employed in the nursery, working in various units such as the seed bank, laboratory, and production facilities, and four of them are employees from AlUla's local community.
- Ecological restoration of degraded habitats depends heavily on identifying the different native plant species for each habitat, collecting their seeds, and producing their seedlings to be used the ecological restoration research project. Since Sharaan Nature Reserve ecosystem was highly degraded, the project required many plant species to be planted on the site. Research protocols and ecological restoration actions identified the required number of seedlings for the project by 15,000 seedlings from 56 different native plant species which produced in the nursery.
- To scale up ecological rehabilitation and vegetation development in 1000 ha in 2022 at Sharaan Nature Reserve, around 80,000 seedlings from 22 different native trees and shrubs were needed and the native plants nursery provided high quality seedlings.
- AlUla native plant and seed bank is considered a successful showcase for other entities within Saudi Arabia as it received several visits and provided technical specification and guidance for other entities who are interested in establishing native plant nursery and seed banks.

III. Key Recommendations

The key insight from this report is that governments and the private sector should incorporate the principles of Comprehensive Regeneration into their decision-making. They should acknowledge the importance of integrating a diversity of sustainability efforts and circular economy principles, from protecting wildlife and natural heritage, to supporting local communities, to promoting green and sustainable infrastructure and design. Advancing these principles should be seen as a harmonizing act — not a balancing act — that can serve as a model for the Arab world and beyond to develop in a sustainable manner.

The following items offer a starting point to catalyze action, galvanize regional cooperation, and put governments, businesses, and civil society on a pathway to become nature-positive.

1. Political will must be communicated from the top levels of government to set in motion increased policy action to conserve and restore biodiversity. Governments must work to put an economic value on nature, and account for the negative externalities of its destruction.
2. Governments at the central level must establish the right policy and regulatory frameworks. And especially in these difficult economic times globally when tradeoffs are being considered related to climate and economic growth, policy leaders must establish financial incentives to attract private sector capital in support of nature conservation and fight against climate change. Governments alone cannot afford to finance the necessary commitments to ensure progress on climate and biodiversity.

3. Governments should establish and support protected areas where habitats are protected from urbanization, and incorporate international best practices — for example, the IUCN's Green List of Protected and Conserved Areas Standard, which lays out the criteria, components, and indicators for successful conservation in protected and conserved areas.
4. Governments should address environmentally harmful subsidies that degrade nature — including forestry, fisheries, and agricultural subsidies. These subsidies can be redirected into investments in nature-positive outcomes, such as rehabilitating and restoring degraded rangelands.
5. Transparency must be improved through stronger monitoring, reporting and evaluation. This is needed at all levels — from a global scale via the UN Convention on Biological Diversity (CBD) to the reporting of individual companies.
6. Infrastructure developers should mainstream nature-related risk management practices in ways that mitigate damage to biodiversity.
7. Investments in nature should be undertaken with early involvement from local communities to ensure economic opportunities flow to those who are on the front lines. Local communities should have access and ownership of their natural heritage, and not be neglected in favor of foreign tourists and visitors. Job training programs and microloans should be available to support local regeneration of natural sites.
8. Wherever possible, governments should prioritize actions that have the dual benefit of addressing climate change. Specifically, developed nations and entities should dedicate a significant portion of their climate finance for nature.
9. Cities — which are on the front lines — must incorporate the protection of nature into their own city planning and prioritize the creation of green spaces and ensure that urbanization does not come at the expense of loss of biodiversity.

The Royal Commission for AlUla (RCU) was established in 2017 to implement a sustainable transformation to AlUla governorate, the natural heritage sites in the province of Khaybar and Al-Mua'aazam, and the natural heritage sites in the province of Tayma, reaffirming it as one of the most important archaeological and cultural destinations for visitors from around the world. The development plans and infrastructure development that underpins AlUla's future will be carried out while protecting the region's natural beauty and historical sites. RCU has been an active member if IUCN since February 2022.

The **International Union for Conservation of Nature (IUCN)** is a membership Union composed of both government and civil society organisations. It harnesses the experience, resources and reach of its more than 1,400 Member organisations and the input of more than 15,000 experts. IUCN is the global authority on the status of the natural world and the measures needed to safeguard it.

RCU and IUCN are united in a strategic and cross-sectoral partnership in line with RCU's ambition and vision to protect, develop and promote AlUla as a unique destination with focus on heritage, nature and a sustainable destination. The partnership is centered on: protected area development and planning; ecosystem restoration; education and capacity building for conservation professionals, sustainable tourism in protected areas; strategic publications; global advocacy.