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A vision uniting efficiency, technology, and sustainability to drive green industry.

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Environmental Innovations: A Paper Bottle...An Innovation Opening a New Path Toward a Plastic-Free Future



RAS AL KHAIMAH CEMENT COMPANY

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A periodical magazine focused
on environment and sustainability

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Environment Protection & Development Authority

Vision

Leadership in environmental protection and
the sustainability of its resources

Mission

To enhance quality of life by protecting the
environment and sustaining its resources
through proactive capabilities, effective policies,
innovative strategies, and leading services
that ensure environmental compliance.

Strategic Objectives

- Strengthen environmental compliance
- Protect natural resources
- Improve services for customers, partners,
and the community
- Enhance institutional & financial efficiency
- Promote environmental awareness

Values

- Belonging
- Sustainability
- Engagement
- Social responsibility
- Good governance
- Foresight
- Team spirit

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Sustainability begins with awareness, grows through innovation, and thrives through shared responsibility



**Dr. Abdulrahman
Alshayeb Al Naqbi**

CEO

RAK Environment Protection &
Development Authority

Together Toward a More Sustainable Environment

Environmental challenges continue to change, but our responsibility toward nature and its resources remains constant. Protecting the environment is no longer a response to a problem; it is part of how we think about development, quality of life, and the future we want to leave behind. This makes building environmental awareness that keeps pace with change, turns knowledge into behavior, and responsibility into continuous practice important.

With this vision, the third issue of Ras Al Khaimah Environment magazine brings together knowledge, experience, environmental realities, and opportunities and solutions. We approach the environment from perspectives: nature and its richness, innovation and modern technologies, and human and community experiences showing that sustainability begins with awareness and grows through participation. The issue also welcomes perspectives reflecting the scope of environmental action and its connection with development, industry, legislation, society, and life.

Environmental protection cannot be achieved through decisions or projects alone, but through integrated efforts, sustained awareness, and turning knowledge into behavior and practice. We believe environmental culture should be present in our daily lives, institutions, decisions, and view of the resources we possess, while every individual recognizes a role in protecting and preserving their surroundings.

We hope this issue opens a window for reflection and knowledge, offering content that engages readers and encourages them to consider their role and responsibility. Every conscious step, however small, can create impact, and every shared effort brings us closer to a more balanced, sustainable environment, strengthening our ability to safeguard natural resources and preserve them as a legacy for future generations.

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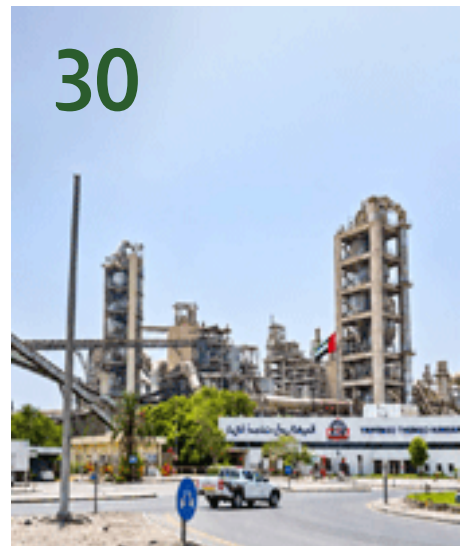
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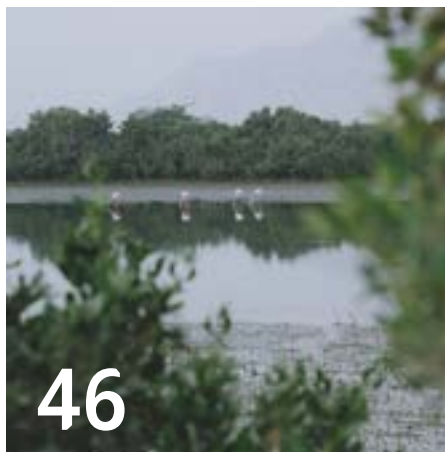
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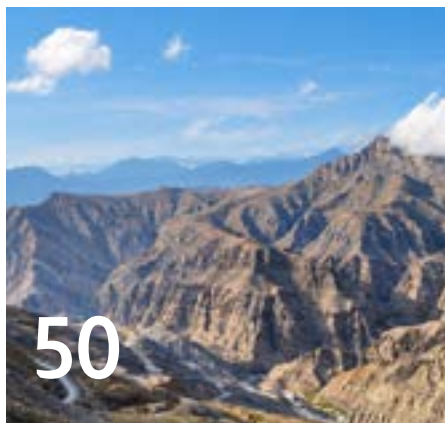
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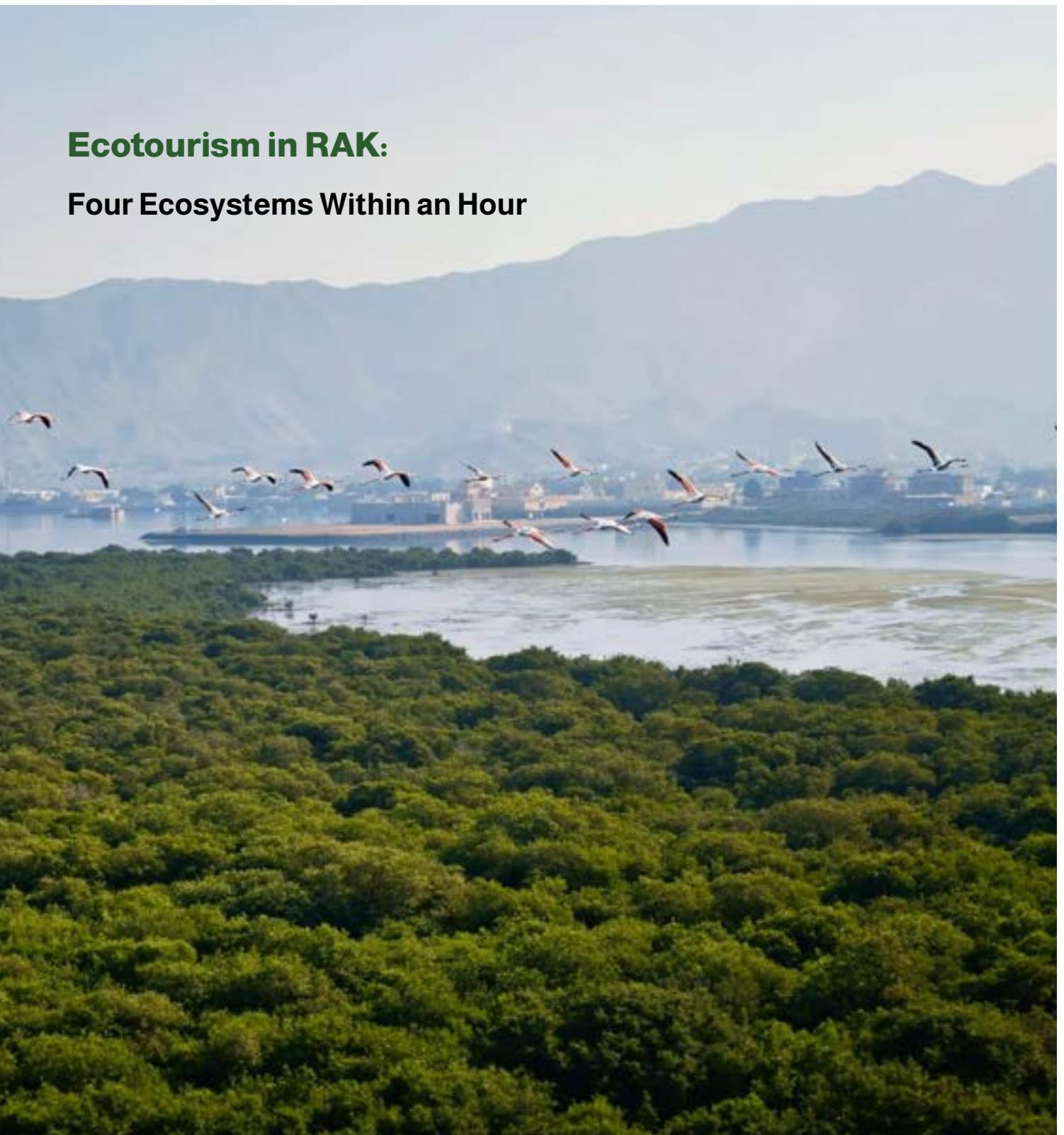
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Ecotourism in RAK:

Four Ecosystems Within an Hour



In most countries, travelling from a mountain summit to the coast requires a long journey. In Ras Al Khaimah, however, you can descend from Jebel Jais, at nearly 1,900 metres, to coastal mangroves in about an hour by car. Along the way, you cross gravel plains and red sand dunes. Four neighbouring ecosystems meet here: moun-

tain, gravel plain, desert and marine. Each has its own soil, plants and animals, and each responds differently to heat and water scarcity. People have lived here for around 7,000 years, drawing stone and rain from the mountains, groundwater and farming from the plains, grazing from the desert,



and fish and pearls from the sea. This unusual proximity makes the emirate ideal for ecotourism: visiting nature to understand it, not consume it.

The Mountains, Where the Air Cools

The Hajar Mountains are rocks uplifted by movements of the earth millions of years ago, with layers clearly visible along the wadis. Their highest point in the UAE is Jebel Jais, where temperatures are about ten degrees lower than on the coast and can approach freezing on some winter nights. People visit in summer to escape the heat and need warm clothing in winter.

Sidr, samar and wild fig grow in the valleys, while wild olive appears near the summits. Birds include wheatears, partridges and falcons using air currents above the slopes. Among the rarer mammals is Blandford's fox, a small nocturnal fox among the rocks, well adapted to the rugged terrain and cooler mountain conditions.

Stone terraces and old houses show how residents captured rainwater and cultivated steep land.

Walking is the best way to discover the mountains. Jebel Jais and Wadi Shawka offer varied trails, while the dark summit sky is good for stargazing. Adventure seekers can try Jais Flight, a zipline about 2.8 kilometres long, recognised by Guinness World Records in 2018 as the world's longest. Morning visits and advance weekend booking are recommended.

Gravel Plains: Land Made by Floodwater

This ecosystem receives less attention, although it links the mountains with the landscapes below. Over thousands of years, floods carried gravel and sand from the mountains and spread them into broad alluvial fans. The soil is more fertile than desert sand and groundwater is closer to the surface, helping farms and oases develop in Al Dhaidaga Plain and Khatt. Samar and ghaf trees are scattered across the plains, providing shade and shelter for wildlife, including



Arabian gazelles, while also helping stabilise the soil and reduce erosion naturally.

At the mountain's edge, the Khatt hot springs emerge. Groundwater is heated underground before reaching the surface rich in minerals. Visitors come to relax, and gardens with separate facilities for men and



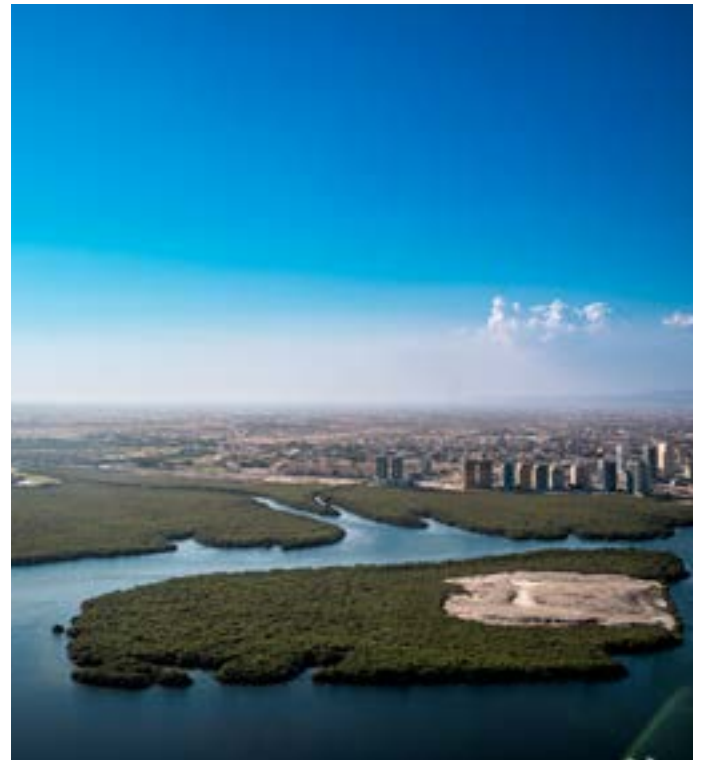
women suit family outings.

Human life also concentrated in this transitional zone. Dhayah Fort, the UAE's only hilltop fort, overlooks palm groves and the coast. In Shimal and Wadi Haqil, pottery making continued for more than 500 years using clay carried by floods. Early morning walks reveal the relationship between water, rock, farming and people.

Red Sands of the Desert

In the south, reddish-orange dunes stretch across the landscape, coloured by iron oxides coating the sand grains. They may appear lifeless by day, but they are not. Arta, thamam and ghaf anchor the sand with deep roots, while reptiles, rodents and foxes become active after sunset. Their tracks in the morning reveal what happened overnight, showing how much desert life remains hidden during daylight hours.

At Al Wadi Nature Reserve, Arabian oryx and gazelles can be seen in their habitat. The Arabian oryx became extinct in the wild in the 1970s and was restored through breeding programmes. Seeing it today shows that threatened species can recover when habitat is protected. Dawn and sunset are best for viewing, while campers should use designated sites and avoid fires on vegetation.



Mangrove Forests, Sea and Coast

Ras Al Khaimah's coastline extends for around 64 kilometres along the Arabian Gulf, with creeks, sabkhas and mangrove forests. Mangroves live in saltwater, remove salt through their leaves, and use aerial roots that rise from the mud to breathe. They protect shorelines from erosion, store carbon in their sediments, and shelter young fish, shrimp and crabs. The creeks host coastal birds, including herons, while flamingos appear seasonally. Quiet kayaking, without engines or noise, is one of the best ways to experience this environment. The sea also has a long history here. Julfar was an important trading port, and communities relied on fishing and pearl diving. Al Jazirah Al Hamra is an abandoned fishing village whose coral-stone houses still stand, showing how local materials shaped traditional architecture. Nearby, Suwaidi Pearls, the region's first cultured pearl farm, explains how oysters live and pearls form.

When to Visit and How to Reach the Area

The best period to experience all four ecosystems is

from October to April, when the coast and desert are mild and the mountains are cool. In summer, Jebel Jais remains a good option, while daytime visits to the desert or beach are harder, especially during the hottest hours when temperatures rise considerably. Ras Al Khaimah is about an hour by car from Dubai and has an international airport. The drive from the city to Jebel Jais takes around 45 minutes, making it possible to experience all four ecosystems in one day.

Visitors as Partners in Protecting the Place

Ras Al Khaimah's four ecosystems can regenerate if given the chance, and one of the greatest influences on them today is our behaviour while visiting. Changing it requires only simple awareness.

In mountains and wadis, staying on marked paths protects small plants that hold soil together and reduce erosion during floods. Carrying waste back out prevents it from entering wadis and reaching the sea. On gravel plains and in the desert, using established routes instead of creating new tracks protects shrubs that take years to grow and animal burrows hidden beneath the sand. Lighting fires away from ghaf and samar trees protects trees that may be older than the people sitting beneath them, while also reducing

unnecessary disturbance to surrounding wildlife and vegetation.

On the coast, observing mangroves and birds from a suitable distance and leaving shells and oysters where they are helps keep the creeks as habitats for fish and birds.

These steps do not diminish the journey; they make visitors part of the place's story rather than mere passers-by. The nature we see today reached us because earlier generations protected it; our role is to pass it on.

This responsibility grows as visitor numbers rise. The emirate welcomed more than 670,000 visitors in the first half of 2026, the highest first-half figure in its history, with domestic visitors up 47% from the previous year. This growth is an opportunity to spread environmental awareness, but it also means more footsteps on trails and more vehicles in wadis.

Ecotourism can be part of the solution when visitors follow simple rules: stay on marked trails, avoid fires beneath trees, carry waste out, keep away from birds during nesting season, and use a local guide who knows the area. A visitor can descend from mountain to creek in one day and understand how each ecosystem connects with the next.



A Journey Towards Tomorrow...

The Purple Line Leads the Transition to Cleaner Transport



From Al Dhait Station to five routes across the city, Ras Al Khaimah Transport Authority is transitioning public transport buses to electric power, delivering tangible benefits through cleaner air, quieter streets, and reduced emissions. In modern cities, quality of life is closely linked to the integration of urban planning elements, from infrastructure development to air quality, reduced noise levels on city streets, and the efficiency of transport systems in serving residents while minimising en-

vironmental impact. This integration contributes to building more sustainable and liveable cities, creating a healthier urban environment for future generations, enhancing residents' long-term well-being, improving resource efficiency, and keeping pace with global trends towards green transformation. In this context, Ras Al Khaimah's public transport buses represent a practical step towards a broader transition to cleaner, lower-emission mobility.

Sustainable Transport... From an Environmental Choice to an Urban Necessity

Road transport is a significant source of emissions in urban environments, as vehicles powered by fossil fuels release greenhouse gases, particularly carbon dioxide, alongside air pollutants such as nitrogen oxides and sulphur oxides, in addition to the noise generated by traffic.

With urban expansion and growing mobility needs, developing public transport has become essential to enhancing urban sustainability. Buses are particularly important due to their long operating hours and frequent journeys through residential neighbourhoods and key urban areas, making improvements in their environmental performance an influential factor in reducing emissions and enhancing quality of life.

As cities transition towards more sustainable mobility patterns, transport development is no longer limited to increasing network capacity. It now encompasses energy efficiency and reducing the environmental

impacts of operations. The transition to electric buses stands out as a practical approach to achieving these objectives by combining regular transport services with reduced local emissions, supporting urban growth while preserving environmental quality.

Developing sustainable public transport also represents a long-term investment in the future of cities, providing collective mobility options better suited to everyday needs and supporting more efficient resource utilisation. This approach becomes increasingly important when supported by integrated operational planning that considers traffic density, the distribution of residential, commercial and service areas, and the ability of transport networks to respond to future urban expansion.

The Purple Line... The Beginning of the Transition

On 3 June 2026, Ras Al Khaimah Transport Authority launched the upgraded Purple Line (Al Nakheel – Manar Mall), expanding its geograph



ical coverage by 14 kilometres and introducing the emirate's first electric public transport bus. This milestone marks a significant step towards decarbonising the transport sector and promoting sustainable mobility through more efficient, environmentally friendly buses that produce zero tailpipe emissions. The Purple Line serves as an initial model for integrating electric buses into the existing network, providing valuable operational experience to support future expansion. Its success depends on vehicle readiness, efficient journey management, charging infrastructure and service reliability. By adopting a gradual approach, the Authority aims to balance environmental objectives with operational efficiency, paving the way for cleaner, more sustainable public transport across Ras Al Khaimah.

Measurable Environmental Impact

The Authority's estimates of the environmental and operational impact of its planned fleet highlight the anticipated outcomes of electrification. With 16 electric buses in operation, annual electricity consumption is estimated at approximately 1.9 gigawatt-hours, equivalent to 5,200 kilowatt-hours per day. According to the Authority's calculations, the fleet is expected to reduce tailpipe carbon dioxide emissions by approximately 1,550 tonnes annually compared with diesel buses. After accounting for emissions associated with electricity generation, the estimated net reduction is approximately 800 tonnes per year, averaging 50 tonnes per bus. Electric buses produce zero tailpipe emissions during operation, including nitrogen oxides and sulphur oxides, while also reducing engine noise, contributing to an improved urban environment and enhanced quality of life. These indicators provide a basis for measuring the environmental impact of the transition and monitoring energy efficiency and operational performance. As the use of clean energy sources expands, the environmental benefits are expected to increase, further

reducing the carbon footprint of the transport sector and supporting the long-term sustainability of Ras Al Khaimah's public transport system.

From a Single Route to an Integrated Network

The Purple Line represents the first phase of Ras Al Khaimah Transport Authority's plan to expand the use of electric buses across its public transport network. The Authority aims to operate 16 electric buses across five routes within the city by the fourth quarter of 2026, serving residents, workers and visitors throughout the emirate. This expansion is expected to increase the availability of sustainable transport options and provide quieter, lower-emission services to a wider segment of the community while maintaining a balance between service development, operational efficiency and reduced environmental impact. The gradual transition towards an integrated electric





fleet will also enable the development of operating, maintenance and energy management practices. By utilising data on electricity consumption, distances travelled and charging times, the Authority can strengthen future network planning and enhance its readiness to meet the city's evolving needs and aspirations for more sustainable public transport.

Infrastructure... The Foundation of a Successful Transition

Successful electric transport requires integrated infrastructure, energy management and operational planning. To support this transition, Al Dhait Bus Station, the Authority's main transport hub, is undergoing renovation to accommodate electric bus operations. The station currently has two 180-kilowatt DC fast chargers, supported by a dedicated electrical capacity of 1 megawatt, with plans to install six additional chargers for future fleet expansion. This infrastructure will help ensure reliable services, efficient charging schedules and effective energy management, supporting the gradual expansion of

the electric bus network while improving operational efficiency and reducing its carbon footprint.

Towards a More Sustainable Quality of Life

The success of sustainable public transport is measured by its tangible benefits to the community, offering residents, workers and visitors more comfortable, efficient and environmentally friendly mobility options. Electric buses contribute to cleaner air, quieter streets and healthier urban environments by eliminating

The transition towards low-carbon transport requires long-term planning and alignment between strategic vision and phased implementation.

tailpipe emissions and reducing engine noise. Modern, reliable services also encourage greater use of public transport and improve resource efficiency. Beyond environmental benefits, these improvements enhance the city's attractiveness and quality of life, transforming sustainability goals into everyday advantages for residents and visitors.

Towards a Low-Carbon Transport Future

The Purple Line represents a significant milestone in Ras Al Khaimah Transport Authority's efforts to decarbonise the transport sector, aligning with Ras Al Khaimah Vision 2030 and its objectives of environmental protection, carbon reduction and sustainable development, while promoting long-term environmental benefits for future generations. The initiative follows a gradual approach, introducing electric buses across routes, expanding charging infrastructure, and monitoring environmental and operational performance through measurable indicators. From Al Dhait Station to routes across the city, the Authority is advancing cleaner, more efficient public transport, connecting residents and visitors while supporting a healthier, more sustainable urban future.

We Listen, We Improve, We Create Happiness

The Customer's Voice: Enhancing Services and Exceeding Expectations



Ms. Meera Ali Al Hindasi
Customer Happiness Manager
EPDA

deliver clearer, easier services that better meet customers' actual needs.

Listening Is the Starting Point

A successful customer experience begins with listening. Every comment, suggestion, or inquiry helps us better understand customers' needs and provide services more easily, quickly, and effectively. Genuine listening means understanding the entire experience from the customer's perspective: how the journey began, where information was found, which steps were followed, and what required further clarification. This perspective reveals details that may not be visible when evaluating the service internally. Even simple comments—such as a repeated question, an unclear step, or hard-to-find information—can highlight opportunities for improvement. Every interaction provides valuable insight that helps us

The Customer's Voice as a Partner in Development

At the Environment Protection and Development Authority, we are committed to listening to customers and using their experiences to improve our services. What we hear today may help simplify a procedure, remove an unnecessary step, or enhance a future service. Customer feedback is a valuable source of learning because it reflects the experience as lived by the beneficiary. A single comment may reveal the need to clarify wording, explain a requirement, or reorganise a step, while repeated feedback helps identify priorities for review and development. Every comment matters, whether it is a suggestion, inquiry, or expression of satisfaction. Questions highlight areas requiring clarification, sugges-

tions inspire new ideas, and positive experiences reveal successful practices worth strengthening. In this way, customers become genuine partners in development. Clear communication and attentive responses build trust and show that their voices are heard and their participation makes a meaningful difference.

From Feedback to Tangible Improvement

Listening is only the beginning; feedback must be transformed into visible improvements. We review procedures and simplify requirements to make the customer journey easier. Comments are analysed and classified to identify their causes and suitable solutions. Improvements may include clearer information, fewer requirements, or faster responses. Their impact is monitored to ensure that customers experience real benefits. This creates a continuous cycle of listening, reviewing, improving, and evaluating.

An Experience That Goes Beyond Completing a Transaction

Our objective goes beyond satisfying customers or completing their transactions as expected. We aim to create happiness by delivering an experience that exceeds expectations through faster service, greater attention, and effective responses. Customers remember not only the outcome but also the clarity of information, ease of access, response time, and attention they receive. These details transform a completed transaction into a positive and memorable experience. Simple touches can make a meaningful difference, including proactive explanations, clear updates, accessible language, and respect for customers' time and circumstances. Creating happiness begins with understanding their needs and responding appropriately. Customer happiness is closely linked to trust. When customers understand the requirements, steps, and expected completion time, they feel reassured. Clarity, transparency, and care are therefore as important

as speed in delivering an excellent service.

A Continuous Cycle of Listening and Development

This is the essence of "We Listen, We Evolve, We Deliver Happiness." We listen to understand customers' needs, develop our services to provide better solutions, and strive to deliver an experience that exceeds expectations. These three stages are interconnected: listening provides knowledge, development transforms it into action, and happiness is achieved when customers recognise the positive impact. Without listening, development may rely on assumptions; without development, valuable feedback produces no tangible results. As customer needs continually change, service excellence requires ongoing improvement that saves time and effort, facilitates access, and enhances every interaction. This approach becomes more effective when embedded in the organisational culture. Every employee then recognises their role in shaping the customer experience and views each interaction as an opportunity to strengthen trust. Happiness becomes the natural outcome of collective efforts that place people at the heart of every service.

Happiness Begins When Service Exceeds Expectations

Happiness begins when a service exceeds expectations through care, clarity, and timely delivery. It may involve anticipating customers' needs, simplifying procedures, providing clear information, or offering reassuring follow-up. Attention to these details makes customers feel valued and strengthens their confidence in the service. A meaningful experience begins with listening and turning feedback into visible improvements. Every simplified procedure and attentive response helps deliver a more human, efficient, and responsive service. This continuous commitment creates lasting satisfaction and ensures that the positive impact extends beyond the transaction itself.



Environmental Procedures in RAK

An Integrated Framework for Protecting Resources and Supporting Sustainable Development



ENG: Ali Mohammed Alhebsi
Senior Environmental Engineer
EPDA

Environmental Management as a Foundation for Balanced Development

Rapid economic and urban development in Ras Al Khaimah has increased the importance of effective environmental management as a key pillar for sustainable development, natural resource protection, and reducing environmental impacts. The Environment Protection and Development Authority plays a pivotal role by implementing procedures that balance development with environmental protection. Environmental management guides projects from their earliest planning stages, allowing potential pressures to be identified and addressed early. It also promotes efficient resource use and reduces waste and emissions, making environmental protection a shared responsibility among regulatory authorities, establishments, and the community.

An Integrated Framework of Environmental Procedures

The Authority applies regulatory and monitoring procedures from the planning stage through project implementation and operation to ensure compliance with approved environmental requirements. These procedures include environmental assessments, permits, approvals, inspections, and field supervision, alongside evaluating potential impacts on air,

water, and soil. This life-cycle approach allows environmental requirements to be updated whenever activities, production capacity, or materials change. Early assessment identifies potential emissions, waste, resource needs, and appropriate control measures before operations begin. Documenting inspections and review findings also provides reliable data for measuring performance, addressing risks accurately, and prioritising activities that require greater attention..

Environmental Permits and Approvals

Environmental permits and approvals ensure that projects comply with approved environmental requirements. Through its review process, the Authority verifies compliance with waste management, emissions control, pollution prevention, hazardous-material handling, and natural-resource protection standards. This preventive framework integrates environmental considerations into decision-making before adverse impacts occur, reducing potential risks and costs. Permits also establish appropriate controls for construction, operation, safe storage, and emergency response according to each activity's type, location, and scale. Periodic reviews ensure continued compliance when activities, equipment, or materials change, making environmental compliance an ongoing commitment.

Environmental Inspection and Monitoring

The Authority conducts regular visits and inspections to verify establishments' compliance with approved environmental requirements. Inspections cover emission sources, material storage and use, waste management, pollution prevention, and environmental protection measures. Field visits help confirm that daily practices and records align with environmental permits and reveal issues that may not appear in documents. Priority is given to higher-risk operations, materials, and locations, encouraging establishments to maintain equipment, train em-

ployees, and prepare for emergencies. When violations are identified, appropriate action is taken, and establishments are required to address their causes, rectify their status, and prevent recurrence.

Partnership and Awareness to Strengthen Environmental Compliance

Effective regulation and monitoring depend on strong partnerships with establishments, investors, and the community. Clear requirements, information sharing, and awareness help all parties understand their responsibilities and recognise the value of environmental protection. Continuous communication keeps establishments informed of updates and encourages the adoption of efficient technologies and practices that reduce impacts on air, water, and soil. As awareness grows, prevention becomes part of everyday operational decisions. This shared environmental culture strengthens responsibility, supports innovation, and balances the continuity of activities with the protection of natural resources.

Integrated Procedures for a Sustainable Future

Ras Al Khaimah's environmental procedures demonstrate that environmental protection and economic development are complementary paths. Environmental reviews, permits, inspections, and risk assessments are not separate steps; they are interconnected components that begin with planning, continue throughout implementation and operation, and support the continuous improvement of performance.

By effectively implementing requirements and strengthening monitoring, awareness, and partnership, it is possible to reduce sources of pollution, preserve natural resources, and support a safe and healthy environment for the community. Environmental procedures therefore become an essential tool for embedding sustainable development and ensuring that growth continues in a manner that respects the needs of the present and the rights of future generations.

Biodiversity in RAK

A Natural Treasure and Ongoing Conservation Efforts



ENG: Abdullah AL-Ahmad
Senior Environmental Monitor
EPDA

Biodiversity as the Foundation of Natural Ecosystem Stability

Biodiversity encompasses all living organisms, including animals, plants, and microorganisms, as well as their genetic diversity. It forms the foundation of life by supporting food, water, climate stability, and suitable habitats. Its elements are interconnected: plants provide food and shelter, microorganisms recycle nutrients, and animals support pollination, seed dispersal, and balanced food chains. In Ras Al Khaimah, diverse coastal, creek, terrestrial, and mountainous environments provide vital habitats, making their protection essential for preserving natural resources and ecological functions.

Scientific and Community Efforts to Protect Species

At the Environment Protection and Development Authority in Ras Al Khaimah, we protect biodiversity as an essential part of the Emirate's natural heritage. Our efforts include studying and classifying species according to their habitats and distribution, monitoring their growth and reproduction, and raising community awareness. Comparing data collected over time helps identify changes in species populations and habitats, assess environmental pressures,



and implement appropriate conservation measures. Community education also promotes responsible behaviour in natural areas and fishing activities, making biodiversity protection a shared responsibility and an everyday practice.

Water Quality as an Indicator of Marine Environmental Health

The Authority monitors the quality of Ras Al Khaimah's coastal waters and their effects on biodiversity through indicators such as temperature, dissolved oxygen, conductivity, pH, marine currents, salinity, and turbidity. Recorded water temperatures ranged from 19°C to 35°C, with higher temperatures potentially reducing oxygen levels and threatening marine organisms. Together, these indicators reveal chang-

es that may affect marine life's respiration, growth, and reproduction. Monitoring currents also helps track water circulation, sediments, and pollutants, enabling early detection of environmental changes and identifying areas requiring additional preventive measures..

Coral Reefs Under Pressure from Climate Change

Rising temperatures threaten marine organisms, particularly coral reefs, which provide essential habitats, feeding grounds, and breeding areas for many species. Heat stress can cause coral bleaching, while increasing carbon dioxide levels raise ocean acidity and hinder corals and shellfish from building their calcium carbonate structures. Coral decline therefore affects entire marine ecosystems and the species that depend on them. Regular monitoring of water temperature and chemical properties helps detect early signs of stress, assess their extent, and guide conservation and awareness programmes that reduce pressure on coral reefs.

Changes in Food Chains and Species Migration

Environmental changes can disrupt marine food chains, prompting some species to migrate towards more suitable habitats. When food resources decline or habitat conditions change, organisms seek better environments for survival and reproduction. The migration or decline of one species may have cascading effects on others connected through ecological relationships. Continuous monitoring helps distinguish seasonal variations from long-term changes, identify the most affected species and areas, guide conservation priorities, and preserve the marine environment's natural balance, resilience, and sustainability.

Mangroves and Green Cover as Pillars of Biodiversity

The Authority monitors Ras Al Khaimah's green-cover

project and organises mangrove planting in the Khor Al Muzahmi and Khor Al Hulaylah nature reserves. Green areas reached approximately 293,094.75 square metres, while around 59,710 native ghaf, samar, and sidr trees were distributed to community members and public and private entities. Mangroves provide habitats and nurseries for marine life, stabilise sediments, and protect coastlines from erosion. Native trees also offer food and shelter for various species. Community participation in planting and monitoring these trees expands green cover and strengthens shared responsibility for protecting natural resources..

Protecting Fish Stocks Is a Shared Responsibility

The Authority works to protect the Emirate's fish stocks by estimating fish populations, continuously monitoring markets, retail outlets, coastlines, and creeks, identifying violations, and taking the appropriate legal action. It also enforces federal laws and legislation regulating fishing methods, prohibits the fishing of certain species during their breeding seasons, including grouper, and raises community awareness about the importance of preserving fish stocks.

Monitoring markets and fishing sites helps curb practices that deplete fish stocks, while seasonal fishing bans allow fish to complete their reproductive cycles and replenish their populations, ensuring the sustainability of this resource for future generations. The success of these efforts requires cooperation among fishers, customers, and members of the community. This includes complying with permitted fishing seasons, sizes, and species and avoiding equipment and practices that damage marine habitats.

Protecting biodiversity in Ras Al Khaimah is an integrated process combining scientific research, field monitoring, and community awareness. As monitoring continues and partnerships expand, the capacity to protect species and habitats and preserve this natural heritage for future generations will continue to grow.

Arab Agriculture Day: A Sustainable Green Impact

Community Initiative with Cafex for Tree Planting and Environmental Awareness in RAK



Agriculture... A Renewed Responsibility

Agriculture represents a fundamental pillar in building sustainable communities, given its role in protecting the environment, expanding green spaces, and enhancing quality of life. Arab Agriculture Day, observed on 27 September each year, provides an important occasion to reaffirm the significance of agriculture and its contribution to sustainable development, while raising awareness of the need to protect natural resources. To mark the occasion, a community initiative was implemented through cooperation between the Environment Protection and Development Authority in Ras Al Khaimah and Cafex, involving the distribution of fruit-bearing seedlings and encouraging members of the community to adopt more sustainable environmental practices..

An Initiative That Plants Awareness Before Trees

The initiative was launched to strengthen the community's connection with agriculture and encourage simple practices that can create lasting environmental impact. Distributing seedlings is not merely symbolic, but an invitation to increase green spaces and care for plants and trees at home and in surrounding areas. Fruit-bearing seedlings add practical value by allowing individuals to follow the growth of trees, care for them, and benefit from their produce, promoting home gardening and a stronger connection with the environment.

Such initiatives also help instil environmental responsibility and reinforce the idea that sustainability is not only an institutional concept, but a daily practice

shaped by individual behaviour and choices.

A Partnership for the Environment

The cooperation between the Environment Protection and Development Authority in Ras Al Khaimah and Cafex highlights the importance of community partnerships in supporting environmental initiatives and promoting a culture of sustainability.

Protecting natural resources and encouraging sustainable behaviour are shared responsibilities that require cooperation between institutions, the private sector, and the community, helping turn environmental messages into everyday practices.

Such partnerships combine environmental expertise with community engagement, expand the reach of initiatives, and raise awareness of tree planting and environmental protection while encouraging wider participation in sustainable activities.

Tree Planting and Quality of Life

The benefits of planting trees go beyond visual appeal. Trees improve the surrounding environment by providing shade, supporting biodiversity, reducing the effects of dust and heat, absorbing carbon dioxide, and improving air quality.

Expanding green spaces in cities and residential areas also enhances quality of life by creating more comfortable environments and strengthening people's connection with nature.

Encouraging residents to plant and care for trees therefore represents a long-term investment in both the environment and more sustainable community behaviour.

From an Initiative to an Everyday Practice

The true value of Arab Agriculture Day lies in turning its message from an annual occasion into a year-round practice. A tree planted today needs ongoing care, while environmental awareness must also become

lasting behaviour.

Individuals can contribute through home gardening, caring for plants, using water efficiently, and choosing species suited to the local environment.

Encouraging children to participate in planting also helps build environmental awareness from an early age and strengthens their connection with nature.

Today's Seedling... An Impact for the Future

The seedling distribution initiative, implemented by the Environment Protection and Development Authority in Ras Al Khaimah and Cafex to mark Arab Agriculture Day, highlights that environmental protection begins with simple actions everyone can take.

Every tree planted contributes to the environment, while those who care for it become part of a wider effort to build greater awareness of natural resources and their sustainability.

Through such initiatives and community partnerships, agriculture can grow from a seasonal activity into a lasting community value, turning a small seedling into a green impact for the future.





Emirati Woman

Lasting Achievement, Enduring Impact



Eng. Mouza AlMehiri-
Assistant Director
General at the EPDA

On Emirati Women's Day, we do not simply celebrate what women have achieved; we celebrate the journey of a nation that believed in their capabilities, placed its trust in them, and saw them rise to that trust by helping shape the UAE's present and future. It is a celebration that goes beyond achievement as an outcome, extending to the continuity of women's presence, the renewal of their responsibilities, and an impact that grows year after year to become part of the wider story of the nation.

Ambition Rooted in Identity

Emirati women have moved forward with confidence, turning opportunity into responsibility and ambition into achievement.

Their journey reflects a strong balance between deep-rooted identity and aspirations for the future. They have shown that preserving values and traditions

can go hand in hand with progress and development. Their success extends beyond individual achievement to contribute knowledge, experience, and new opportunities to society.

In this way, Emirati women continue to play a vital role in shaping the nation's present and future.

When Achievement Becomes Impact

The true value of achievement lies in the impact it creates beyond the individual.

A woman's success can become knowledge, inspiration, opportunity, or a path for others to follow.

In this way, achievement becomes not an end, but the beginning of something new.

Its impact may appear in greater confidence, new ambitions, or ideas that grow into meaningful initiatives. Each success therefore helps widen the circle of opportunity for future generations.

Sustainability... What Remains Beyond Achievement

This is the deeper meaning of sustainability: not to think only about what we can accomplish today, but also about what can continue after us. It means viewing what we do as part of a longer journey and recognising that what we have today is the result of the efforts of generations before us, while our responsibility is to build on those efforts and leave something better for those who come after us.

Sustainability is not connected only to major projects. It begins with an individual's awareness of the value of what they do today and the effect it may have tomorrow. In this way, sustainability becomes connected to life itself: to the knowledge, values, behaviour, and sense of responsibility we leave behind, and to the opportunities we create for future generations.

Women and Protecting Our Environment

Emirati women play an important role in protecting the environment for future generations.

Their contribution begins with raising environmental awareness within families and communities.

They support practices that conserve resources and protect terrestrial and marine ecosystems.

Daily actions such as reducing waste and respecting nature help create lasting change.

Teaching children sustainable habits strengthens environmental responsibility from an early age.

Together, these efforts help build a more environmentally conscious and responsible society.

From Building People to Protecting the Future

Just as women have contributed to building people, they can also help protect the place where future generations will live. Nations progress when each generation transforms what it inherits into a foundation for those who follow.

From this perspective, the journey of Emirati women is not only a story of success, but also one of continuity—of trust, opportunity, knowledge, and achievements that pave the way for further progress.

Celebrating Emirati women therefore means celebrating every woman who turns her presence into value, her work into responsibility, her success into opportunities for others, and her ambition into a path toward a more sustainable future.

An Impact That Continues to Shape the Future

Emirati women remain vital partners in the nation's present and makers of its future.

Their journey reflects ambition that continues beyond what has already been achieved.

Each success can inspire another, and every experience can create new opportunities.

Their impact extends across generations through knowledge, responsibility, and contribution.

What we achieve today is our accomplishment; what we leave for tomorrow is our impact.

Happy Emirati Women's Day to every woman whose achievements continue to shape the future.



Emirati Woman

A Sustainable Impact



Nouf Alshemeili
Corporate Communication
Specialist at the EPDA

Emirati women are an essential part of their nation's success story. They are mothers, daughters, employees, teachers, and leaders. I am proud to be an Emirati woman who grew up in a remarkable environment and a safe, successful country, under wise leadership that believed in women's abilities, supported them, and provided opportunities to become active partners in development and shaping the future with confidence.

This support has been key to empowering women to participate in different fields, assume responsibility, and serve society. Emirati women are no longer simply participants in development; they have become partners in shaping the future through knowledge, ambition, and determination. Today, they contribute across many fields and prove that true success combines achievement with responsibility and ambition with service to the nation.

Partners in Development

Emirati women have become essential partners in development, contributing with competence, ambition, and leadership. Their role extends across education, health, administration, media, the economy, the environment, and community work.

They have successfully balanced professional, family, and social responsibilities while strengthening their impact on society. What distinguishes their journey is the ability to preserve identity and values while embracing progress and future opportunities. By combining authenticity with ambition, Emirati women have become an integral part of the UAE's development story.

The Environment Is a Shared Responsibility

Environmental protection is an essential part of development, and I am proud to support environmental awareness through corporate communication and community engagement. This role helps promote sustainability and encourages practices that protect natural resources for future generations.

Environmental awareness begins with knowledge, but its true value appears when it becomes part of everyday behavior. Clear communication helps people understand that protecting the environment is a shared responsibility, not the duty of one organization alone. Simple actions such as saving water and energy, reducing waste, respecting wildlife, and protecting natural spaces can create a lasting impact across society.

Communication Builds Awareness

Corporate communication connects environmental efforts with society and turns complex concepts into clear, practical messages.

Through initiatives, programs, and awareness activities, it strengthens the relationship between people and their environment.

It also reinforces the idea that protecting natural resources is an ongoing responsibility, not a temporary campaign. Dialogue with the community helps us understand needs and improve the way environmental messages are delivered. As awareness grows, positive environmental practices become more deeply rooted in everyday life.

Women and a Culture of Sustainability

Women have an important role in embedding this culture, at work, in families, and communities. They can introduce sustainability to children early, teach respect for nature and resource conservation, and encourage responsible behavior toward the environment. Their influence can help turn environmental awareness into everyday habits that become part of a shared social culture. Women can also be positive role models, because daily behavior may have greater influence than any message or campaign. When sustainability becomes part of life, it passes naturally from one generation to the next.

An Impact That Reaches the Future

I believe the value of our work is measured not only by what we accomplish today, but by the impact it leaves for the future. For me, spreading environmental awareness is part of my responsibility toward society and an opportunity to help protect resources future generations need. Emirati women can leave their mark in every field, turning experience and ambition into positive change. When that ambition is connected with sustainability and environmental protection, the impact becomes deeper and more enduring.

In this way, Emirati women continue as partners in development, combining ambition with responsibility and service to people with protection of place, leaving a sustainable impact that confirms that what we do today forms the foundation for the future of coming generations.

RAK Strengthens Oversight of Public Health Pest-Control Pesticides

New Resolution Regulates Pesticides to Protect Health and the Environment

In a step reflecting Ras Al Khaimah's commitment to strengthening public health and environmental protection, the Executive Council issued Resolution No. 2 of 2026, approving schedules of service fees, violations, and fines relating to public health pest-control pesticides. The Resolution aims to regulate training, storage, transport, and use, and curb unsafe practices that may endanger residents and workers. It complements Law No. 3 of 2023.

An Integrated Regulatory Framework

Beyond setting municipal service charges, the Resolution establishes oversight covering every stage of pesticide circulation. Their handling encompasses training, qualification, storage, transport, contracting, implementation, and documentation.

The Resolution regulates the accreditation of training establishments, trainers, supervisors, and technical personnel. It also covers operational plans for storage facilities, registration of vehicles transporting pesticides and equipment, and issuance of certificates, cards, and permits needed to conduct activities safely and efficiently.

Training as the Foundation of Safe Use

Regulating training is central to the Resolution because safe pesticide use depends on workers understanding pesticide characteristics, preparation and application methods, and associated risks. Specialized qualifica-



tion ensures technical requirements are accurately applied throughout pest-control operations. Accrediting training establishments, trainers, supervisors, and technicians therefore helps improve professional competence and reduce errors.

Training also familiarizes workers with appropriate doses, protective equipment, safe storage and transport, and procedures for responding to spills or accidental exposure, providing protection for workers, the public, and the environment.

Fees Proportionate to Services

Service fees under the Resolution range from AED

50 to AED 1,000. The highest fee, AED 1,000, applies to accrediting a public health pest-control pesticide training establishment, while trainer accreditation costs AED 500.

Supervisor accreditation, renewal of a training establishment's accreditation, and approval of a storage facility's operational plan each cost AED 300. The lowest fee is AED 50 for renewing a supervisor's or technician's card.

These fees regulate relationships between the Municipality Department, establishments, and individuals, while standardizing procedures for obtaining and renewing accreditations and permits. Each service is linked to a regulatory or technical procedure confirming that the establishment, person, vehicle, or storage facility meets requirements.

Graduated Violations and Fines

The Resolution identifies ten violations, with fines ranging from AED 500 to AED 3,000 depending on their seriousness. These include breaching technical or general operating conditions, violating training-establishment requirements, and advertising without prior authorization.

Other violations cover noncompliance with vehicle and storage requirements, inadequate logistical resources, failure to submit monthly reports, and conducting pest-control operations without a documented contract or contrary to its terms.

Contract and report documentation enables regulators to track operations, verify compliance, and investigate complaints. A general fine also applies to other breaches of the Law and its implementing regulations.

Stricter Penalties for Repeated Violations

The Resolution strengthens deterrence by doubling the fine when the same violation recurs within one

year of the previous violation, encouraging establishments and workers to correct their practices and avoid repetition.

A claim issued by the Director General of the Municipality Department, or an authorized delegate, also constitutes an enforceable instrument executed through the competent enforcement judge, strengthening implementation and ensuring collection of outstanding amounts.

Protecting Public Health and the Environment

The Resolution extends public health protection beyond pesticide monitoring to all related professional practices. Improper storage, transport, or use may endanger workers, the public, non-target organisms, and the environment.

By regulating training, storage, transport, advertising, contracting, and documentation, it creates an integrated framework that reduces risks, strengthens compliance, and promotes responsible pesticide use.



Ras Al Khaimah Cement: An Industrial Vision for a Greener Future

A vision uniting efficiency, technology, and sustainability to drive green industry.

The cement industry is no longer measured by its ability to meet construction and development needs, but by its capacity to redefine its relationship with energy, resources, and the environment. As economies move toward sustainability, energy-intensive industries face an equation: maintaining growth and production while reducing environmental impact and improving resource efficiency.

Ras Al Khaimah Cement is developing its model by investing in energy efficiency, generating electricity from waste heat, reusing water, employing alternative materials and fuels, monitoring emissions, and developing products with lower envi-

ronmental impact. This shows how sustainability has evolved from an environmental concept into a part of the company's operations and direction.

In this interview, the General Manager of Ras Al Khaimah Cement Eng. Mohammad Yahia AlShaddad examines sustainability in an industry, addressing energy, emissions, resources, low-carbon cement, the circular economy, and the role of technology and artificial intelligence. He presents his vision for an industry that supports economic development while protecting the environment and preserving resources for future generations.





Sustainability at the Heart of Industry

1. How does Ras Al Khaimah Cement view sustainability within the company's strategy and industrial operations today?

At Ras Al Khaimah Cement, we view sustainability as a fundamental commitment and an integral part of our strategy and production processes, not merely separate or temporary initiatives. This approach reflects our commitment to optimizing natural resources and improving energy efficiency throughout production. We continually develop our operations and performance to achieve greater efficiency while reducing environmental impact. We believe industrial sustainability depends on balancing production requirements with conserving available resources. We therefore integrate environmental considerations into operational decisions and future plans. Our goal is to align the company's industrial growth with its responsibilities toward society and the environment.

2. What are the main environmental challenges facing cement production, and how does the company balance production requirements with protecting the environment and natural resources?

The cement industry faces major environmental challenges, particularly energy consumption, emissions, natural resource use, and waste from industrial operations. At Ras Al Khaimah Cement, we address them by continually improving processes and increasing energy and resource efficiency. We emphasize con-



We consider environmental protection and social responsibility to be fundamental commitments that are fully integrated into our industrial operations.

tinuous environmental monitoring and responsible resource management, enabling early identification of improvement opportunities. We work to reduce waste and maximize the use of materials and energy throughout production. This approach combines efficiency and production requirements with environmental protection. Our objective is sustainable industrial performance that balances operational, environmental, and social responsibilities.

From Energy Efficiency to Resource Sustainability

3. What environmental initiatives and projects has Ras Al Khaimah Cement implemented recently, and what results have they achieved?

In recent years, we have focused on practical initiatives to improve energy efficiency, reduce natural resource consumption, and enhance the plant's environmental performance. A leading initiative recovers waste heat from industrial operations and converts it into usable electricity. We have also introduced alternative materials to reduce dependence on natural resources used in production. These measures have improved resource efficiency and enabled better use of available energy within the plant. They have also improved the environmental performance of production operations. We continue evaluating and developing these initiatives to support the company's transition toward a more efficient, sustainable industrial model over the long term.

4. Energy is central to cement manufacturing. What measures is the company taking to improve energy efficiency, and are you adopting renewable energy or alternative fuels?

Energy efficiency is a central pillar of our operations, given cement manufacturing's energy requirements across production stages. We therefore continually

improve mills, the kiln, and other major equipment to optimize energy use. An important measure was establishing a waste heat recovery power project in 2018, allowing us to use energy produced by industrial operations instead of losing it. Over the past ten years, the company has also used several alternative fuels. This reduces dependence on nonrenewable energy sources, especially gas and coal. We regard energy efficiency as an ongoing process requiring better equipment, improved operations, and continuous exploration of more efficient, sustainable options. This also strengthens production reliability over the term.

5. How does the company improve water-use efficiency and reduce waste and losses arising from industrial operations?

We regard water as an important natural resource requiring responsible management, so we strive to improve its use and reduce waste and losses from plant operations. The company established an industrial wastewater treatment facility to enable reuse instead of loss. This measure reduces water consumption and improves utilization of available resources. Reuse is also an important part of our direction toward sustainable resource-management practices. At the same time, we monitor water consumption and explore further efficiency opportunities within operations. We believe effective water management is a fundamental component of the environmental sustainability framework the company



continually develops.

Reducing Emissions: An Industrial and Environmental Priority

6. Reducing emissions is among the cement industry's greatest challenges. What measures and technologies does the company apply to reduce emissions and its carbon footprint?

We recognize emissions reduction as a foremost environmental challenge associated with cement production. Our approach combines filtration, energy recovery, operational controls, and ongoing environmental performance assessment. The company continuously limits gas and dust emissions generated by industrial operations. The plant has an extensive range of industrial air-filtration systems, helping control emissions and improve environmental performance. We also reduce our carbon footprint by improving energy efficiency and recovering energy previously wasted during production. The waste heat recovery power project is among the company's most significant measures in this area. Emissions reduction is supported by continuous monitoring, evaluation, and operating improvements. We continue developing our performance to achieve better environmental and operational efficiency.

7. How are emissions and environmental performance monitored and measured inside the plant, and what main indicators do you use to assess improvement?

The company considers continuous monitoring essential to emissions management and environmental perfor-



mance assessment within the plant. Measurements use advanced real-time devices operating around the clock, enabling continuous tracking of emissions from industrial processes. These systems provide information that helps us monitor performance and ensure operations remain within approved environmental requirements. We also monitor compliance with governing laws and regulations in coordination with supervising government authorities. Results help identify performance changes and enable appropriate action when necessary. Through this system, we establish an approach based on measurement, monitoring, and continuous improvement of environmental performance.

Toward Cement with a Lower Carbon Footprint

8. How do you view the future of low-carbon cement, and does the company plan to develop products or blends with lower environmental impact and carbon footprints?

We believe low-carbon cement will be an important part of the industry's future, amid growing efforts to develop resource-efficient industries with less environmental impact. Ras Al Khaimah Cement has already produced environmentally friendly cement types while developing more sustainable products.



We are also conducting trials using alternative materials instead of certain natural materials employed in production. In every trial, we ensure alternatives do not affect product quality or required properties. This approach supports product innovation while preserving technical characteristics required by customers. We believe product development must combine performance, quality, resource efficiency, and lower environmental impact. We will continue exploring options supporting our direction toward products with a smaller future environmental footprint.

The Circular Economy: Turning Waste into Resources

9. How does Ras Al Khaimah Cement apply circular economy principles, and how can waste or by-products be reused as inputs within industrial operations?

We apply circular economy principles by using suitable waste and industrial by-products from other companies as raw materials or alternative fuels. This approach transforms waste into valuable resources that can be reused within the production cycle. It also reduces dependence on natural resources and conventional energy sources while promoting greater integration across industrial sectors. Expanding the use of alternative materials will support the cement industry's long-term sustainability.

Technology Is Reshaping the Cement Industry

10. What role do technology, digital transformation, and smart systems play in improving production efficiency and monitoring energy, resources, and emissions?

Technology and digital systems provide real-time monitoring of production, energy consumption, and emissions. The resulting data offer clear insights into process and equipment performance, helping identify improvement opportunities and support efficient operational decisions. They also enable early responses to operational changes. Digital transformation will therefore play an important role in improving resource

efficiency and advancing a more sustainable cement industry.

11. How can artificial intelligence and automation contribute to making the cement industry more efficient and sustainable in the future?

Artificial intelligence and automation offer significant potential to advance cement manufacturing and improve operational and environmental efficiency. These technologies can optimize production, predictive maintenance, energy management, and quality control. Data analysis helps detect problems early, reduce downtime, and improve equipment performance. We expect these technologies to play an increasingly important role in supporting a more efficient, sustainable cement industry.

A Responsibility Beyond the Plant

12. How does Ras Al Khaimah Cement view its environmental and social responsibilities, and what initiatives promote sustainability within and beyond the organization?

We consider environmental protection and social responsibility fundamental commitments integrated into our industrial operations. We promote sustainability through awareness, training, and responsible environmental practices. We also focus on responsible energy and resource use, alongside environmental and community contributions. We believe industrial success depends on economic performance balanced with a positive, sustainable impact on society and the environment.

Figures That Translate Sustainability into Results

13. What significant figures and results reflect the company's environmental progress, particularly in energy, water, emissions, reuse, and recycling?

Our environmental initiatives have delivered measurable results in energy and water management. Between 2018 and 2026, we generated more than 220 million kilowatt-hours of electricity by recovering waste heat

from industrial operations. We also recycled over 32 million gallons of wastewater between 2015 and 2026. These achievements demonstrate the practical impact of our sustainability projects and reinforce our commitment to improving resource efficiency and environmental performance in the coming years.

The Industry's Future: Growth and Responsibility Side by Side

14. How do you envision the cement industry's future in Ras Al Khaimah and the UAE, and what message would you offer industry about combining economic development with preserving the environment and natural resources for future generations?

We believe the cement industry will remain a strategic pillar supporting Ras Al Khaimah and the UAE because of its important development role. Its future depends on improving energy and resource efficiency while reducing environmental impact. Industrial growth and environmental responsibility must advance together through innovation and continuous improvement. A sustainable industry supports development today while protecting the environment and natural resources for future generations.





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String Transport

Rethinking Mobility with a Smaller Environmental Footprint



Dr. Anatoli Unitsky
a Visionary Engineer, inventor and Scientist

How elevated transport infrastructure can support mobility while reducing land use, construction impact and pressure on natural ecosystems?

Modern transport is essential to economic development, tourism and quality of life, yet conventional transport infrastructure can place significant pressure on the environment. Roads, railways and large transport corridors require extensive land allocation, earthworks and construction materials, while also creating physical barriers across natural landscapes. As cities and regions seek to expand their transport networks without compromising environmental objectives, the question is no longer simply how to move more people. Increasingly, the challenge is **how to provide mobility while using less land, fewer resources and less energy.

One approach being developed to address this challenge is uST transport and infrastructure technology**, based on a prestressed rail-string structure positioned above ground level. A scientific study published in the *Vestnik of Brest State Technical University* describes uST as a “second-level” transport system in which passenger and freight vehicles operate automatically on an elevated rail-string structure. The system combines an elevated track, electric rail vehicles, automated control and associated passenger or freight infrastructure.



Preserving the Ground Below

One of the main environmental advantages of elevated transport is its reduced occupation of land. Traditional roads and railways often require continuous roadbeds, excavations, embankments and drainage infrastructure. By contrast, uST transfers much of the infrastructure above ground and relies on discrete supports. This approach can help preserve vegetation, natural drainage and existing land uses beneath the route. It may also reduce landscape fragmentation and allow animal migration paths to remain more continuous, particularly in environmentally sensitive areas.

Less Earthwork, Fewer Materials

The environmental impact of infrastructure begins long before operation. Construction can require ma-

for quantities of soil, aggregate, concrete and steel. According to the study, the elevated rail-string structure reduces the need for extensive excavation, embankments, retaining structures and continuous prepared roadbeds. Its prestressed design is also intended to reduce structural material requirements.

The principle is simple: mobility can be improved not only by building more infrastructure, but by designing infrastructure more efficiently.

Electric Mobility and Energy Efficiency

uST vehicles are electrically powered and operate on steel wheels. Their design aims to reduce energy demand through lower rolling resistance, improved aerodynamics and an efficient track structure.

The 2023 research reports comparatively low calculated specific energy consumption for the configurations assessed. Electrification also eliminates exhaust emissions at the vehicle itself, while the study identifies the absence of tyre and asphalt wear products and reports operational noise levels of no more than 75 dB for the systems examined.

The overall environmental benefit naturally depends on the electricity source. As power grids integrate more renewable and lower-carbon energy, efficient electric transport can provide greater sustainability benefits.

Intelligent Infrastructure

Automation can further improve environmental efficiency. The uST system uses sensors, GPS, RFID, cameras, lidar and digital mapping to monitor vehicle position, regulate speed and maintain safe operating intervals. Continuous communication between vehicles, infrastructure and control systems can allow transport capacity to respond more closely to actual passenger or freight demand. Better management can therefore improve the use of existing infrastructure without continuously expanding its physical footprint.

Transport Infrastructure as Part of the Environment
Perhaps the most important shift represented by second-level transport is conceptual. Transport infrastructure has traditionally reshaped the landscape to accommodate mobility. Elevated systems create an opportunity to reverse that relationship: **designing transport around the existing environment rather than forcing the environment to accommodate transport. The research identifies potential applications in urban and suburban connections, airports, transport hubs, environmentally sensitive territories and routes crossing physical barriers. For rapidly developing destinations such as Ras Al Khaimah, this approach may be particularly relevant as mobility, tourism, development and environmental protection increasingly need to progress together. No transport technology alone can solve every environmental challenge. Each project must be evaluated against its location, passenger demand, ecological conditions, engineering requirements and long-term economic feasibility. However, the principles behind elevated string transport—reduced land occupation, limited earthworks, electric propulsion, resource-efficient structures and automated operation—illustrate how future transport infrastructure can be designed with environmental preservation as a fundamental engineering requirement rather than an afterthought. The future of sustainable mobility may therefore depend not only on changing the vehicles we use, but also on reconsidering **where and how the infrastructure supporting those vehicles is built.



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disposal,

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A Paper Bottle...

An Innovation Opening a New Path Toward a Plastic-Free Future

Could there come a day when we buy drinks and liquid products in paper bottles that can be placed directly with paper and cardboard for recycling? This is what Pulpex is seeking to achieve through an innovative bottle made from wood fibres and equipped with an internal liquid-resistant barrier that contains no plastic. This innovation differs from many previous attempts to develop paper containers for liquids. The bottle has been designed so that it can be processed through existing paper and cardboard recycling streams without requiring the removal of a separate plastic lining. With preparations under way to establish

commercial production capacity near Glasgow, the project is gradually moving from development toward testing its potential on a much broader industrial scale.

The Problem Is Not Just the Bottle

Plastic packaging is widely used because it is light-weight, durable and easy to manufacture, yet much of it becomes long-lasting waste that can reach land and marine environments. This has encouraged companies and researchers to develop alternatives that better support the circular economy. The goal is to create packaging that is easier to collect,

sort and recycle. However, paper-based packaging faces a major challenge in containing liquids. To improve moisture resistance, many earlier solutions relied on plastic coatings or composite materials..

The Innovation Is on the Inside

Pulpex addresses this challenge by using a bottle made mainly from wood fibres with a plastic-free internal barrier that resists liquids. The design aims to allow the bottle to enter paper and cardboard recycling streams without removing a plastic lining. This reflects the growing concept of “design for recycling,” where packaging is created with its end of life in mind. By simplifying the materials used, the bottle may be easier to recover, recycle and return to the manufacturing cycle.

From the Laboratory to the Factory

Environmental innovation does not prove its real success simply by producing a prototype. Its true test comes when it can be manufactured in commercial quantities while maintaining consistent quality and performance. This is why preparations to establish a production facility near Glasgow are particularly significant. The next phase will test whether the technology can move from an innovative concept to a product capable of entering commercial supply chains and reaching the wider market. It will be necessary to confirm that the bottle can withstand filling, transportation and storage conditions while preserving the quality of the liquids inside and meeting relevant safety and performance requirements. Cost will also play a central role. Environmentally preferable alternatives can have a much greater impact when they are able to compete economically with conventional packaging.

Could It Become an Alternative to Plastic?

If the paper bottle proves commercially success-

ful, it could open the way to a wide range of applications, from beverages to personal care products, detergents and other liquid products that currently rely on large quantities of plastic packaging. However, describing any package as more sustainable requires examining its entire life cycle. The source of the wood fibres, the energy and water used during manufacturing, the weight of the container, transportation requirements, and the rate at which it is recovered and recycled can all affect its final environmental performance. Future life-cycle studies will therefore be important in determining the actual environmental benefits of these bottles compared with conventional alternatives.

A Package Designed with Its Ending in Mind

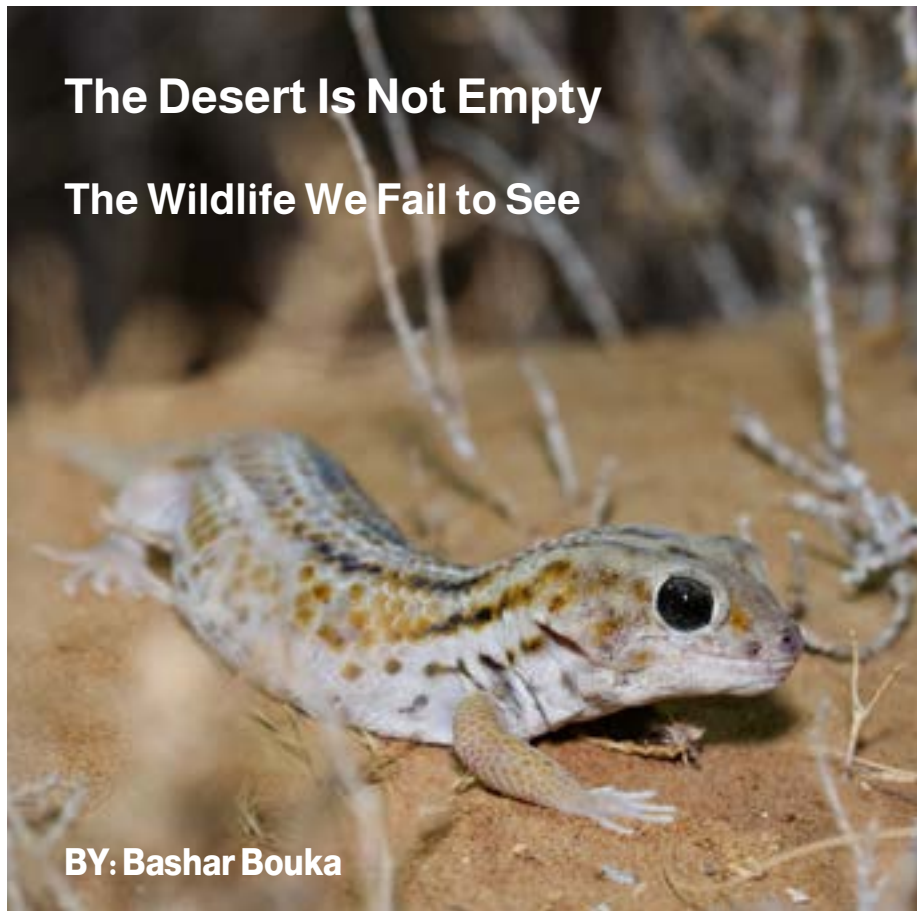
The new paper bottle reflects a shift in environmental innovation from simply replacing plastic to designing products that keep materials in use for longer. Pulpex aims to combine liquid resistance with easier recycling, addressing a major challenge in paper packaging. If the technology succeeds at commercial scale, it could support a new generation of packaging designed for recovery and reuse, allowing its fibres to return to the manufacturing cycle instead of becoming waste after one use.



The Desert Is Not Empty

The Wildlife We Fail to See

BY: Bashar Bouka



The Unseen Is Already There

We often head into the desert to camp, drive off-road, or simply enjoy the scenery, then return home having seen very little wildlife. It is therefore easy to assume that the desert is empty of life.

Yet this assumption can be dangerous.

When we believe there are no creatures around us, we become less careful about where we drive or camp, how much noise we make, and the traces we leave behind.

But the wildlife was there; we simply could not see it.

Animals Sense Us First

Desert animals often detect us long before we detect them. They feel vibrations, hear engines and people, and sense movement. Their natural response is to hide, remain motionless, move away, or retreat to safety.

During field visits across the United Arab Emirates, particularly in Ras Al Khaimah, I encountered many species that are easily overlooked.

Endangered Gecko in Seemingly Empty Sand

Keyserling's wonder gecko (**Teratoscincus keyserlingii**) is a clear example. Although classified globally as "Least Concern," it is listed as "Critically Endangered in the United Arab Emirates." Its local populations are fragmented, making it highly vulnerable to habitat loss and human disturbance. A seemingly empty patch of sand may be an important natural habitat for this species.

Hidden Life Inside Burrows

Cheesman's gerbil (**Gerbillus cheesmani**) is rarely seen by day, spending most of its time inside burrows. Only tracks or tiny openings in the sand may reveal its presence. Although globally classified as "Least Concern," its burrows can be damaged by vehicles, campsites, and repeated soil disturbance. This requires caution when visiting its natural habitats





and avoiding random driving across the sands.

Camouflage Conceals Birds

The same applies to birds. The Egyptian nightjar (*Caprimulgus aegyptius*), also classified globally as “Least Concern,” has remarkable camouflage that makes it almost disappear against the desert floor. Because it rests and nests on the ground, it becomes vulnerable when people, vehicles, and photographers approach too closely.

Life Beneath the Sand

Life continues beneath the sand. The Arabian sand boa (*Eryx jayakari*), globally classified as “Least Concern,” spends most of its time buried below the surface. A vehicle may cross a seemingly empty dune while passing over reptile habitat, without the driver realizing it.

These are only four examples.

The desert is not barren land, but a living ecosystem, and we are its guests. We should stay on established tracks, avoid disturbing burrows and plants, keep a safe distance from wildlife, reduce noise, and leave no waste. Not seeing wildlife does not mean it is absent; it often sees or hears us first.

An Invisible Environmental Impact

Our environmental impact is therefore greater than we see. Disturbance does not always mean finding an injured animal. A bird may abandon its resting place, a burrow may be damaged, plants crushed, or wildlife may avoid an area because of repeated noise, vehicle movement, or human activity. One person’s impact may seem limited, but when hundreds or thousands of visitors repeat that behaviour, environmental pressures become far greater.

Global Classification Does Not Tell Everything

Conservation status does not tell the whole story. A species may be globally classified as “Least Concern” yet remain at risk locally. Keyserling’s wonder gecko is a clear example: it is stable globally, but critically endangered within the United Arab Emirates.

Guests in a Living Habitat

The desert is not barren land, but a living ecosystem. When we enter it, we are its guests. We should drive responsibly, stay on established tracks, avoid disturbing burrows and plants, maintain a distance from wildlife, keep noise low, and leave no waste. Sometimes, the most important wildlife encounter is the one we never see. Failing to see wildlife does not mean it is absent; often, it has seen, heard, or sensed us before we discover its presence.



Ras Al Khaimah...

Where Nature Speaks the Language of Place



Veinna Fouad
Engineer and Visual
Artist

Diversity Shapes a Sense of Place

In the UAE's far north, Ras Al Khaimah resembles an open page in nature's book, where mountains, desert and sea meet. Scenes shift from towering rocks to tranquil sands, from mangrove forests to sweeping coastlines. Here, nature never presents a single, unchanging image of itself. Instead, its features change as we move from one place to another, revealing, with every journey, an ecological richness that gives the emirate its distinctive beauty.

Mountains and Desert... Life and Adaptation

Ras Al Khaimah enjoys remarkable geographical and ecological diversity. It encompasses parts of the Hajar Mountains, including Jebel Jais, the UAE's highest

peak at 1,934 metres. Valleys and ravines retain traces of rainfall, giving the mountainous landscape a different sense of life and bringing renewed vitality to its surroundings, particularly when wild plants flourish. Elsewhere, desert sands and gentle formations support a distinctive ecosystem with its own animals and plants, all of which have adapted to harsh climatic conditions. Ghaf, acacia and other desert plants belong intrinsically to this landscape. After rain, the land grows greener, as seasonal plants bring a brief season of life, temporary in duration yet truly extraordinary in beauty.

Sea and Mangroves... Habitats Embracing Diversity

The sea tells another of Ras Al Khaimah's stories. Its long coastline encompasses beaches, salt flats, coastal areas, bays, mangroves and seagrass. Beyond their visual beauty, these environments provide

essential habitats for marine creatures and birds. Mangroves rank among the ecological treasures deserving particular attention. Growing in tidal areas, these trees offer far more than beauty: they protect shorelines against erosion, shelter marine organisms as they breed and grow, and provide important habitats for numerous birds. Here, this greenery intertwines with the urban landscape, bringing human presence and nature's continuity together.

Coastal areas further demonstrate the importance of ecological diversity. Studies have identified sea-grass beds, muddy habitats and salt flats alongside mangroves. These interconnected environments sustain marine life and resident and migratory birds, while providing important feeding grounds for green turtles and other creatures.



Wildlife and Protecting Natural Systems

Ras Al Khaimah's natural wealth extends beyond plants and habitats to diverse wildlife. Deserts, mountains, coastlines and mangroves support numerous birds, reptiles and mammals. Mangroves are particularly suitable for observing flamingos, herons and other coastal birds.

Protecting this natural system is therefore essential. Ecological diversity is more than scenery to cherish: it forms an interconnected network, where changes in one component affect others. Accordingly, the emirate's competent authorities protect natural habitats and strengthen biodiversity through measures including maintaining protected areas and monitoring ecologically significant species and habitats. Khor Al Muzahmi Nature Reserve, for example, contains coastal environments, mangroves and significant numbers of green turtles, illustrating the importance of conserving sensitive natural areas.

Shared Responsibility Preserves the Memory of Place

Ras Al Khaimah's beauty lies in the connections between its mountains, sea, desert and mangroves. Together, they reveal nature's capacity for coexistence, diversity and renewal. As environmental challenges intensify, preserving this natural heritage becomes a shared responsibility. Every ghaf tree, valley, beach and bird forms part of the emirate's memory and future. Protection begins with keeping natural sites clean, respecting wildlife and avoiding damage to plants. Following reserve guidelines helps preserve these environments for generations to come. Connecting children with nature nurtures understanding and a commitment to its protection and strengthens their environmental awareness. By safeguarding Ras Al Khaimah's nature, we preserve a story that began before us and continues beyond us.

Two Cities, One Wind:

Notes from Weifang, China, to Ras Al Khaimah



Zhifei Jiang
Photographer

Recognition Carried by the Tide

When I moved from Weifang to Ras Al Khaimah, I did not expect déjà vu to reach me through my nose before my eyes.

The first time I walked to the edge of Khor Al Muzahmi at low tide, the scent arrived before the view: that primordial mixture of salt, silt, and a faint sulphurous tang. I had not encountered it since childhood, when I wandered the intertidal flats near the Bohai Sea with my grandfather. He used to tell me that coastal mud “remembers the sea even when the water leaves.”

Standing among the Saraya islands, I watched the pencil-like breathing roots of grey mangroves disappear into cracked, hypersaline white crust. It resembled the ground I dug into for salt crystals as a boy. It was recognition: two environments I would

never place in the same sentence were engaged in the same slow, patient ecological work.

Learning to Live with Salt

Weifang and Ras Al Khaimah are northern maritime gateways built on land the sea barely tolerates. Weifang sits on the saline-alkali flats south of Laizhou Bay. Ras Al Khaimah faces the Strait of Hormuz, backed by the limestone folds of the Hajar Mountains rising toward Jebel Jais. Neither city was granted gentle ground. Both learned the same lesson: you do not wage war against salt; you learn to coexist with it.

My hometown’s coastline was once dismissed as an unproductive alkaline wasteland. Today, where the Wei River meets the sea near Changyi, halophyte marshes support migratory bird colonies. The landscape is anchored by forests of tamarisk (**Tamarix chinensis**) and includes China’s national-level reserve dedicated to a tamarisk-forest ecosystem. These resilient trees do more than survive saline soil. Their

the Al Qawasim, Al Hamra, Flamingo, and Al Rams corniches, and a source of energy that sustainable infrastructure may increasingly seek to harness. The applications differ, but the instinct remains the same: read the wind, respect its patterns, and design life around its currents instead of building barriers against them.

A Familiar Ecological Language

Standing thousands of kilometres from the landscapes of my youth, I return to something more intimate than a grand theory of coastal urbanisation: the unmistakable aroma of low tide. Certain landscapes teach us how to live with the sea as it leaves and returns, again and again.

Once that lesson has been absorbed in one corner of the earth, its signature becomes recognisable in another, even when the language, mountains, and birds have changed. In Changyi and Ras Al Khaimah, the winds feel remarkably similar. They carry the same reminder: resilience does not always mean resisting nature. Sometimes it means listening closely, adapting patiently, and learning how to move with forces far older than any city.

roots stabilise ground and help rebuild a landscape once reduced to windblown crystalline crust.

In Ras Al Khaimah, I have watched the rangers and scientists of the Environmental Protection and Development Authority pursue a strategy that appears different on the surface. They restore tidal channels and improve hydrodynamic flushing rather than washing soil through agricultural drainage ditches. Yet both approaches seek the same ecological outcome: preventing hypersalinity from choking life and allowing damaged habitats to recover.

Two Cultures Reading the Wind

Then there is the wind—the part of this comparison I trust most because I have felt it on my skin. Weifang built a cultural identity around wind, shaping it into bamboo, silk, and paper. The city is famous for its kites and is home to a museum devoted to their history. Growing up, flying a kite was never merely play. Older relatives watched its ascent to read atmospheric shifts and anticipate the winds of the planting season.

In Ras Al Khaimah, the wind carries another name: the *Shamal*. It commands a different vocabulary. It is the invisible force pursued by kitesurfers along



RAK Nature's Treasures

A Lesson in Sustainability



Myziana A
College Student in RAK

A Vision of the Future Inspired by Nature

Imagine a future that mixes flying cars, remarkable skyscrapers, and impressive intricate technologies with clean air to breathe, plenty of water and sunlight from all directions, and harmony with plants and animals. This concept is called “solarpunk” and it is an aesthetic that was first imagined in a video game and is now becoming a growing movement by ecologically conscious as well as positive people; People who love the planet, yet do not call for the halting

of humanity’s formidable inventions and ventures into innovation. This idea may sound crazy at first but what if something symbolic of it actually existed much closer to you than you may think?

A Safe Haven Away from Everyday Life

Though most days are spent traversing the turbulent seas and endless traffic between jobs, homes and other responsibilities, a safe haven resides not far away. In RAK Nature’s Treasures the usual hustle and bustle of the city and everyday life is suspended and left behind as the immersiveness of nature takes hold. The commotions of cars are replaced by the chirping of birds and callings of various animals like the cows, camels, donkeys, goats and an array of feathered creatures. The protrusions of cement and metal are replaced by stalks of trees and intertwining



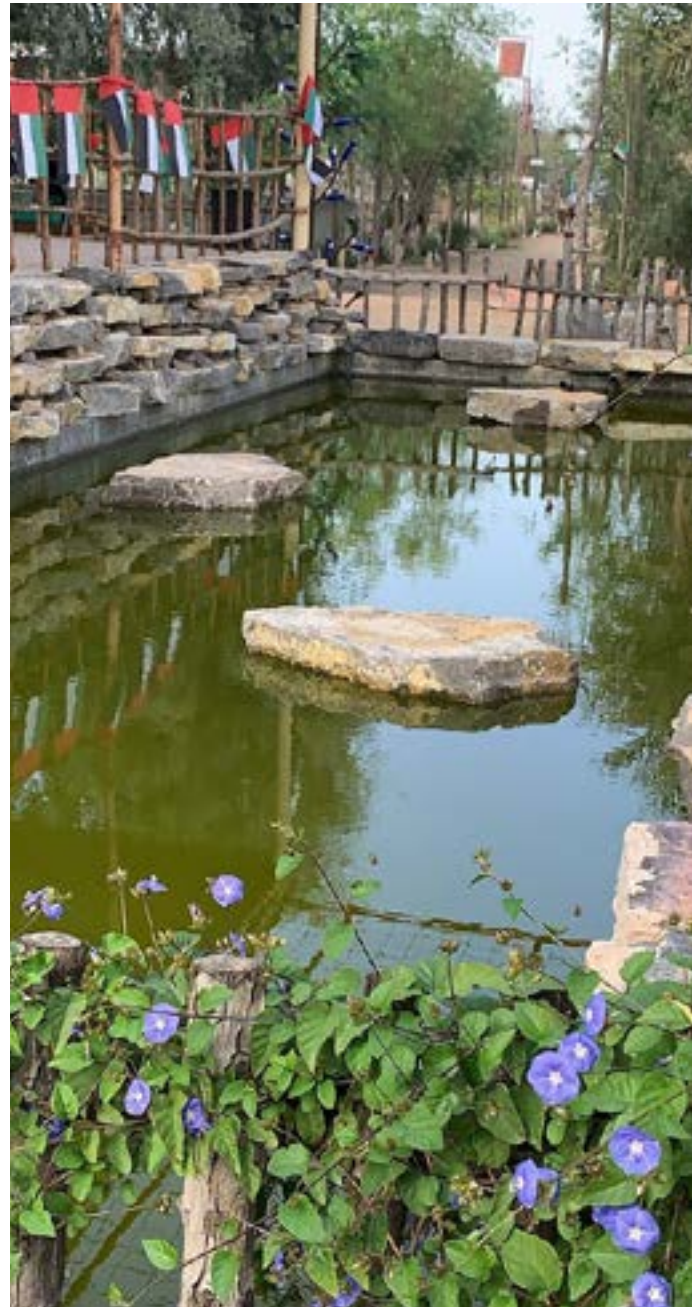
plants, and the noisiness in the mind is replaced by a calm and steady tranquility. But this description doesn't encompass the whole truth, as some days when events are taking place the patter and chime of a joyful community join as they involve themselves with the various activities. For example, the parrot and boa may be in the front welcoming their guests. Some may choose to be brave and hold the boa around their shoulders, while others cower away, but one thing they'll both have in common is the unfading smile as they explore this wonder of RAK.

Where Sustainability Meets Creativity

But RAK Nature's Treasures is not only an enjoyable attraction for visitors; it also tells a unique story on sustainability. Some may believe that sustainability means less, or that it limits a person's ability to express oneself through passion projects. The owner of the site embodies a drastically different story through his unique endeavors and hobbies. Once you step foot inside, you will immediately notice the distinct mixture of nature and art through the creative transformation of scraps of metal to beautiful sculptures. The owner creates these sculptures by soldering together pieces of metal, then paints them to create fun figurines. Importantly, this art does not ruin nature nor take its place, but enhances it. In RAK Nature's Treasures, the employees who care for the animals and the plants understand the value of them and have long lived experiences which taught them the numerous processes which goes into keeping the farm in shape while simultaneously keeping it a hospitable location for people.

A Tribute to Mother Nature

RAK Nature's Treasures is a tribute to Mother Nature; it presents to the viewer the way through which we should view nature and more essentially, how to treat it. It is proof that beauty does not require the cutting of trees nor the invading of natural habitats;



If anything beauty cannot exist without nature. This planet is the only one we have and it will only reflect the love which we shine on to it first. A "solarpunk" future is the very same futuristic world we all envisioned as kids, but with the considerations we later had to learn as adults of a clean and healthy world in mind and with a little bit of help from each one of us, a lot more change is possible. Thank you RAK Nature's Treasures for taking the fast-paced world and slowing it down and for upholding the social responsibility which should be shared among all of us to take care of our Planet Earth.



By :Inas Ali Zeidan

From the Alps to Jebel Jais

A Personal Journey Through the Mountains

In December 2025, I joined a four-hour group hike in the Hajar Mountains near Jebel Jais. I had moved to Ras Al Khaimah earlier that year and wanted to explore more of the area beyond the places I had already visited. I have been hiking for many years, but this was my first experience of the Hajar Mountains on foot. The rocky terrain was quite different from what I was used to, with enormous boulders, steep slopes and mountain ridges stretching into the distance. We had a great guide who knew the route and led us through the mountains. Our group included people from different backgrounds and with different levels of hiking experience, and I really enjoyed being part of it. We spent the morning walking together, taking in the scenery and getting to know a little more of Ras Al Khaimah. Walking beside the high rock walls and along the stony trail was an incredible experience for me.

A different kind of mountain landscape

While living in Germany, I was a member of the German

Alpine Club (DAV) and spent many years hiking in the Alps across Germany, Austria, Italy and Switzerland. I also lived in Canada for over 12 years, where I had the opportunity to explore the Canadian Rockies, including Jasper and Banff. My travels also took me to the Rocky Mountains and the Grand Canyon in the United States.

I have always loved the lakes, forests and mountain views, particularly in the Alps. Some of my favourite memories are of hiking with my children and spending time together outdoors.

The Hajar Mountains have a very different character. The landscape is rugged and rocky, with little shade along many of the exposed routes. During our hike, I was struck by the size of the rock formations and how different the mountains looked from the green landscapes I had known in Europe and Canada. Having previous hiking experience was helpful, but I was glad to have someone familiar with the local terrain leading our group.

Exploring the mountains responsibly

Our hike was a reminder to prepare properly when exploring unfamiliar areas.

The Hajar Mountains offer wonderful opportunities for hiking, but the terrain and weather conditions need to be taken seriously. Choosing a suitable route, checking the forecast, carrying enough water and wearing appropriate footwear can make a considerable difference to the experience.

For anyone new to hiking in Ras Al Khaimah, I would encourage joining an organised group with an experienced local guide. It is a good way to discover the area, meet other people and become more familiar with the mountain environment.

I also believe that we should be mindful of how we treat the places we visit. Taking our rubbish home, following appropriate trails and avoiding unnecessary disturbance to plants and wildlife are simple things we can all do.

The mountains are there for us to enjoy, and looking after them should be part of the experience.

Discovering more of Ras Al Khaimah

One of the many things I appreciate about living in Ras Al Khaimah is having the mountains so close



to home. There are still many places I would like to explore, and I hope to join more group hikes during the cooler months.

I would also love to see more families getting involved in outdoor activities. Hiking with my own children was something I enjoyed for many years, and I hope other families will have the opportunity to make similar memories here in RAK.

Our December hike was a lovely way to spend a morning, meet new people and discover another part of the emirate. I am already looking forward to my next visit to the Hajar Mountains.



Harmony of Care

Why Natural Beauty Begins with Responsibility



Latifa
Makeup Artist

Beauty in Harmony with Nature

In today's world, we think about what we put on our bodies and the footprint we leave behind. Self-care and environmental care have become inseparable. My cosmetics brand, Latifa's Garden, was founded on the belief that true beauty is born in harmony with the world around us.

For me, this belief reaches beyond the contents of a jar. It reflects a way of living that values thoughtful choices, respect for resources, and appreciation for nature. A daily beauty routine can become a moment to pause, reconnect with ourselves, and consider how our personal habits affect the environment we share.

Skin Health: Power Gifted by Nature

Our skin is a living organ that deserves thoughtful care. Choosing cosmetics means considering the complete formula, its purpose, and our individual needs. An ingredient's natural origin alone does not guarantee that it will suit every person, just as a synthetic ingredient is not automatically harmful. Responsible beauty begins with knowledge rather than assumptions.

At Latifa's Garden, plant oils, botanical extracts, and natural minerals are central to my approach. My interest in these ingredients comes from an appreciation of their variety, textures, and possibilities in cosmetic formulations.



Responsible skincare also means recognising individual differences. Natural fragrances and botanical ingredients can cause reactions in some people. Clear ingredient information, appropriate formulation, patch testing when suitable, and attention to product quality therefore matter as much as the story behind a product. Trust grows when beauty is presented honestly.

Handmade Care: Intention in Every Detail

There is something deeply personal about creating cosmetics by hand. The process invites attention to texture, consistency, aroma, and the experience of using a product. It also encourages reflection on why each ingredient belongs in a formula and what purpose it serves.

For me, handmade beauty is an expression of care



and creativity. Yet craftsmanship must go hand in hand with sound practices. Hygiene, suitable preservation, and appropriate safety assessment remain essential. A product should offer more than an appealing appearance or pleasant scent; it should be developed responsibly, with its intended use and shelf life in mind.

Environmental Protection: Looking Beyond the Formula

By choosing products thoughtfully, we can consider both our needs and the ecosystems around us. Environmental responsibility begins with questions about ingredients, but it also extends to sourcing, manufacturing, packaging, transport, use, and disposal. Every stage contributes to a product's wider impact.

Calling a cosmetic "natural" does not tell its whole environmental story. Claims about biodegradability, sustainability, or reduced pollution need evidence relevant to the ingredients, packaging, and finished formulation. For me, respecting nature also means being honest about what a product can promise, recognising its limitations, and remaining open to

improvement.

In Ras Al Khaimah and across the UAE, our connection to the landscape gives these questions personal meaning. From mountains and deserts to mangroves and coastlines, nature shapes our identity and wellbeing. Caring for it means considering what we consume, what we discard, and what we hope to preserve for future generations.

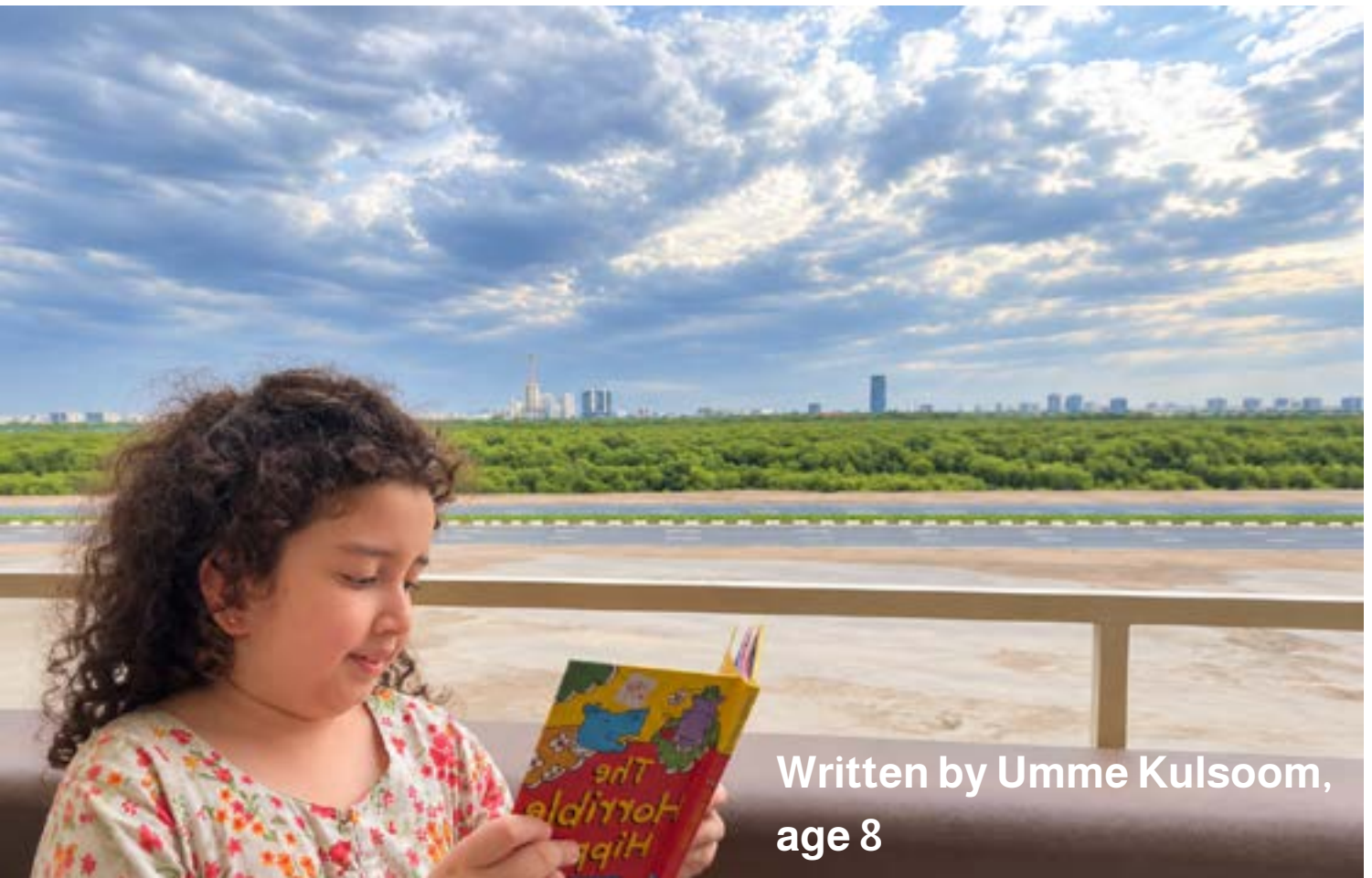
Small Choices, Lasting Values

A thoughtful beauty routine can begin with simple habits: purchasing only what we need, using products as directed, storing them properly, finishing them before replacing them, and avoiding unnecessary waste. Packaging choices also deserve attention, including the material used and whether containers can be reused or recycled through locally available services.

These decisions turn an abstract concern for the environment into practical action. They remind us that care is expressed through repeated actions, including the quiet choices made at home.

Latifa's Garden grew from my desire to bring this spirit into everyday life. My hope is that each encounter with the brand encourages a closer relationship with personal care and a deeper appreciation of nature. To me, beauty is a daily expression of love for ourselves, consideration for others, and respect for the world that sustains us.





Written by Umme Kulsoom,
age 8

The Mystery Trees Outside My Window

A Little Girl's Journey into the Hidden World of Mangroves

Every day when I look out from my balcony, I see mangroves. They're just sitting there, right across the water. I don't really know why, but I've always wanted to ask questions about them. Like, how do trees even grow in the sea? Who lives inside them? And why do we even need them anyway? Well, now I know the answers! And I really want to tell you.

A New Adventure Every Day

I do not need to travel far to feel curious about nature. Sometimes, all I need is my balcony and a little patience. The water looks different as the light changes, and I

wonder what might be happening underneath. There could be a tiny crab hiding somewhere I cannot see! Sometimes I imagine being small enough to follow it between the roots. What would its world look like from down there? Even when everything seems quiet, I wonder how many little creatures are busy going about their day.

How Do They Even Grow in the Sea?

Okay so most trees would just die if salty water touched their roots all the time. But mangroves are not like most trees. Their roots poke out of the mud like little bent knees, and they're actually called "prop roots," which I think is such a cool name. The roots help the tree breathe and stay standing even when the tide comes in and covers everything up with water. Isn't that crazy?

When I look really closely at the water near the mangroves, I can see tiny fish zooming in and out between

the roots. My baba told me the roots are like a hideout for baby fish and crabs, so the big fish in the open sea can't get them. I also see herons just standing there, hunting or resting in the branches like they own the place.

A Busy Neighbourhood

I like imagining the mangroves as a neighbourhood with lots of different homes. The branches are upstairs, and the muddy spaces between the roots are downstairs. There are no doors or doorbells, but there is plenty to notice. It makes me want to watch quietly, because this is their home.

If I could draw a map of this neighbourhood, I would mark all the hiding places and give them funny names. A narrow gap could be "Little Fish Lane," and a branch where a heron rests could be "Heron's Lookout."

Nature's Own Wall

Ras Al Khaimah is right next to the sea, so big waves and storms could actually be a problem for us. But guess what? The mangroves act like a wall! They break the waves before they even get close to the shore. Their roots are all tangled up together, and they trap mud and sand, so instead of the land washing away, it actually builds up more.

It makes me think about how something that looks so ordinary can be doing such an important job. From my balcony, the trees seem to be standing still, but there is much more to them than I first thought.

Cleaning the Air and Water

Mangroves are also really good at soaking up carbon from the air, even better than a lot of other trees. And at the same time, their roots are like a filter for the water, catching all the dirt so it comes out cleaner for the fish, and for us too.

Learning about these jobs makes me appreciate my view even more. I used to wonder why those trees were there. Now I wonder how we can make sure



they will always have a place beside the water.

Little Ways to Help

I may only be eight, but I can still help look after the places I love. I can put my rubbish in a bin and make sure nothing blows into the water. When we visit natural places, I can leave plants alone and give birds space instead of chasing them.

I also want to keep asking questions. Maybe I could draw the trees and the animals I notice, then leave room for new discoveries. I do not have to understand everything straight away. Learning one little thing can make an ordinary view feel exciting all over again. Nature has so many stories, and I want to keep listening from my balcony.

I could also share my drawings with my friends and ask what they can spot near their own homes. Maybe we would all discover something we had walked past before without really noticing.

Why I Love My View

Some people probably just see green trees in muddy water when they look at the mangroves. But not me. Now when I look outside, I see a whole hidden world. I really hope everyone in Ras Al Khaimah looks out their window one day and sees the same magic I see, so we can all help take care of it forever!

The UAE and Global Environment Through the Lens of Indicators

Progress and Challenges on the Global Stage



Environmental indicators tell a story beyond individual figures. They track change over time and reveal differences that a single measure may miss. Comparing UAE data with global figures shows growth in renewable energy capacity and access to water and sanitation, while protection levels vary across marine, terrestrial, mountain, and freshwater habitats.

These comparisons clarify what has been achieved and where efforts could focus next, provided each indicator is read in the context of its reporting year, unit, and scope. Together, the figures offer a broader picture of environmental progress and the challenges that remain.

Renewable energy: Growth led by solar power

UAE renewable capacity rose from 3 GW in 2021 to 7.91 GW in 2025, passing 3.61 in 2022, 6.07 in 2023, and 6.85 in 2024. Globally, capacity rose from 3,077 to 5,149 GW.

Solar photovoltaics dominated UAE renewable capacity, rising from 2.90 to 6.72 GW between 2021 and 2025. Worldwide, solar capacity rose from about 860 to 2,383 GW. UAE wind capacity was 0.099 GW in 2023 and 0.11 GW in 2024 and 2025, versus 1,291 GW worldwide in 2025. These figures show that solar power has been the principal driver of the UAE's expansion. Renewables' share of UAE installed electricity capacity grew from 8.3% in 2021 to 15.3% in 2025, versus 38.3% to 49.4% globally. The share measures renewables within electricity capacity; gigawatts measure their absolute size.

Renewables' share of final energy consumption reached 1.96% in the UAE in 2023, against 18% globally; the UAE figure was 1.05% in 2021. Final consumption covers uses beyond electricity, so its percentage should be read separately from the share of installed capacity.

Clean transport: Rising sales

Global electric vehicle sales increased from 6.5 million in 2021 to 10.3 million in 2022, 13.7 million in 2023, 17.3 million in 2024, and 20.9 million in 2025. Estimates suggest they could reach 23 million in 2026; this is a projection, not a final sales total for the year.

Water and sanitation: Expanding coverage

In 2024, 98.64% of UAE residents used safely managed drinking water services, compared with 73.74% globally. The UAE rate stayed near that level since 2021; the global rate rose from about 71.06%.

Coverage of safely managed sanitation services reached 98.45% in the UAE in 2024, compared with 58.50% globally. Globally, coverage was about 56.11% in 2021, indicating progress and a persistent gap.

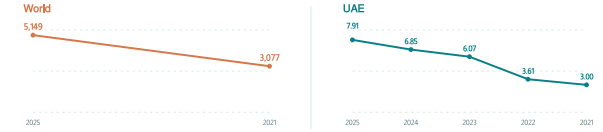
The worldwide share of people with basic handwashing

Renewable energy: growth led by solar power

UAE and global installed capacity, capacity share, and final energy use

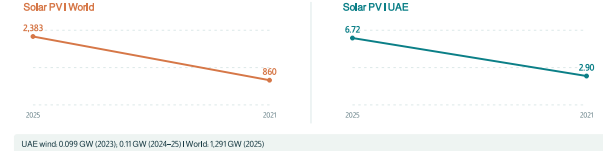
01 Installed renewable capacity

GW | separate scales for the UAE and world charts



02 Solar photovoltaics and wind

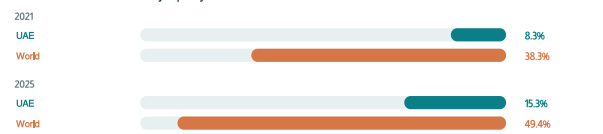
Installed capacity (GW) | separate scales



03 Renewables in the energy mix

Percent | these measures describe different aspects of energy use

Share of total installed electricity capacity



Share of final energy consumption | 2023



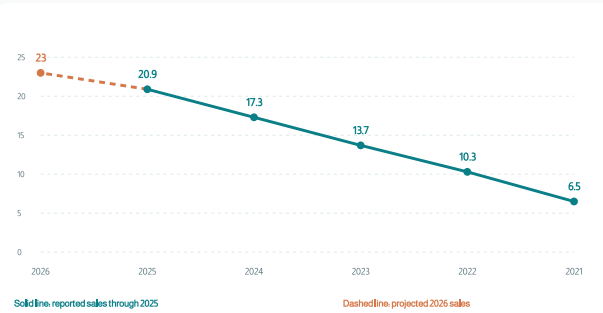
UAE comparison: 1.05% in 2021

Gigawatts show absolute capacity, percentages show a share of a defined total.

Source: International Renewable Energy Agency (IRENA).

Global electric vehicle sales

Millions of vehicles sold annually | 2026 is a projection



The 23 million estimate for 2026 is not a final annual sales figure.

Water, sanitation and hygiene

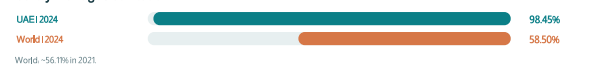
Share of people using specified services | latest data, 2024

Safely managed drinking water



World: ~71.06% in 2021; UAE remained near its 2024 level.

Safely managed sanitation



World: ~56.11% in 2021

Basic handwashing facilities | World



No UAE value was supplied for the handwashing indicator.

Source: WHO/UNICEF JMP

These indicators measure access, not water abundance or use efficiency.

facilities increased from 77.43% in 2021 to 79.73% in 2024. These access indicators cannot alone establish water abundance or use efficiency.

Clean cooking and climate finance

The share of people primarily using clean cooking fuels and technologies reached 99% in the UAE in 2024, compared with 75% globally. The UAE figure stayed at 99% from 2021 to 2024; globally, it rose from 72% to 75%.

In climate finance, total specific financial support for climate action worldwide increased from \$56.32 billion in 2021 to \$68.86 billion in 2022. This indicator reflects the volume of reported support through the channels covered by its definition.

Electronic waste: Collection and recycling

Officially collected electronic waste worldwide amounted to 13.78 million tonnes in 2022, compared with 13.53 million tonnes in 2021. The officially recycled amount was 13.81 million tonnes in 2022, compared with 13.55 million tonnes in 2021. Collection and recycling are separate indicators, each with its own definition.

In the UAE, approximately 0.00377 million tonnes were recorded for each indicator in 2022, increasing to approximately 0.01361 million tonnes for each in 2023. These recorded amounts rose, but assessing performance requires further indicators because absolute quantities are influenced by population and the scale of economic activity.

Biodiversity: Differences among habitats

Protection indicators measure how much important biodiversity area lies within protected areas. In 2025, the figure for marine areas was 48.30% in the UAE versus 46.69% globally; for terrestrial areas it was 49.88% versus 45.16%.

By contrast, coverage of important freshwater areas was 26.37% in the UAE versus 44.21% globally, while coverage of important mountain areas was 28.39% versus 41.80%. UAE values remained unchanged from

Clean cooking and climate finance

Two distinct indicators with different units and reporting years

People using clean cooking fuels and technology

Share of population | 2024



UAE: 99% in every published year from 2021 to 2024.
World: 72% in 2021, rising to 75% in 2024.

Source: World Health Organization (WHO).

Global financial support for climate action

US\$ billions | reported support under the indicator definition



The total covers support reported through channels in this measure.

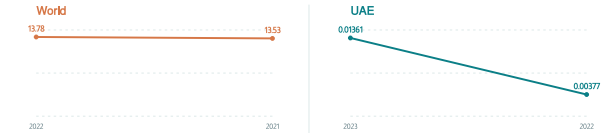
Source: United Nations.

E-waste: official collection and recycling

Recorded volumes in million metric tonnes | independent scales

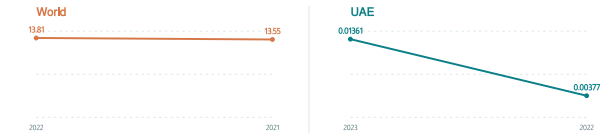
Officially collected

Global and UAE charts use separate scales.



Officially recycled

Global and UAE charts use separate scales.



Collection and recycling are separate measures, totals depend on population and economic activity.

Source: UNITAR / WESR.

Biodiversity: protection differs by habitat

Share of important biodiversity areas within protected areas | 2025

Common scale: 0-55%

Marine areas



Terrestrial areas



Freshwater areas



Mountain areas



UAE values were unchanged from 2021 to 2025, global values rose slightly.

Protected coverage alone does not indicate site management quality or species status.

Source: BirdLife International / IUCN / UNEP-WCMC.

2021 to 2025; global values increased slightly. Each habitat must be considered separately: protected area coverage alone does not describe the quality of site management or the condition of species living there.

Forests and land: Distinct measures

Globally, 56.48% of forest area was under a long term management plan in 2025, up from 49.15% in 2000. This series is published periodically. Also in 2025, 4.24% of forest area in the UAE was within legally protected areas, compared with 19.28% worldwide. Aboveground forest biomass reached 111.84 tonnes per hectare in the UAE, against 123.29 tonnes globally. Each figure captures different aspects of management, protection, or resources, shaped by forest type and extent.

Fisheries and ocean science

In 2026, the UAE scored four out of five on the indicator for implementing instruments to combat illegal, unreported, and unregulated fishing, matching the global score. It also scored four out of five on the indicator for protecting access rights for small scale fisheries, again matching the global value. The first concerns tools to counter unlawful fishing; the second concerns frameworks governing small fishers' access to resources.

Ocean science received 0.74% of global research and development funding in 2024, showing its funding priority.

Governance and genetic resources

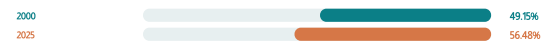
The Nagoya Protocol had 141 parties in 2025, including the UAE. Seventy nine countries reported benefit sharing frameworks, including a UAE framework in 2024 and 2025.

The International Treaty on Plant Genetic Resources for Food and Agriculture had 154 parties in 2025, including the UAE. Ninety eight countries reported related compliance frameworks, and the UAE had appeared in this indicator since 2022.

Forests: management, protection, biomass

Three distinct measures | latest reported values

Forests under a long-term management plan | World



Forest area protected by law | 2025



Above-ground forest biomass | 2025



Management-plan data are published periodically rather than annually.

Forest area and forest characteristics affect comparisons.

Source: Food and Agriculture Organization (FAO).

Fisheries and ocean science

Two fisheries indicators (2026) and one global research indicator (2024)

Tools to combat illegal, unreported and unregulated fishing



Protecting access rights for small-scale fisheries



Ocean sciences as a share of global R&D funding

2024 | share of total research spending

0.74%

Sources: FAO (fisheries), IOC-UNESCO (ocean sciences).

Genetic Resources Governance and Trends

Treaty participation, reported frameworks, and material transfers

Nagoya Protocol and benefit-sharing | 2025



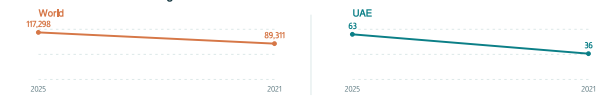
The UAE is a Party; one framework was reported in 2024 and 2025.

Plant Treaty, compliance frameworks | 2025



The UAE is a Party and has been recorded in this measure since 2022.

Standard Material Transfer Agreements



Charts use separate scales; the measures describe different activities.

Sources: CBD Secretariat (Nagoya), Plant Treaty Secretariat (ITPGR).

The number of standard material transfer agreements for plant genetic resources in the UAE rose from 36 in 2021 to 63 in 2025, while the global number increased from 89,311 to 117,298. These figures document international participation alongside resource and service indicators.

Reading the full picture

The indicators show growth in solar power and essential services, alongside uneven habitat protection and trends in waste, forests, fisheries, and governance.

Comparisons must account for national differences and reporting years; charts should show each value's year and unit and label 2026 electric vehicle sales as a projection.

Plant a Legacy...

That Lasts for Generations

Every tree we plant today,
is a space of life we leave for tomorrow.

