

Future-Proofing Businesses

Driving Sustainability:

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Green Innovations in **North Africa** and **Central Asia**

Green Innovations in North Africa – Outlook

North Africa faces considerable climate change & environmental challenges, necessitating substantial financial resources to address these issues and promote green growth effectively. To meet North Africa's renewable energy targets, an annual investment of USD 183 billion is required by 2030. Renewable energy infrastructure, sustainable agriculture, green transport, and waste management will be key focus areas.



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Green Innovations in North Africa – Country Profiling

Morocco's commitment to green innovation is evident through its comprehensive policies, favorable tax incentives, diverse funding mechanisms, and strategic collaborations with international players. Its abundant renewable energy resources, particularly solar and wind, position it as a leader in North Africa's energy transition.





Energy Mix refers to the combination of different energy sources it utilizes to meet its energy needs



Green Innovations in Central Asia – Growth Opportunities

Kazakhstan and Uzbekistan are attracting significant foreign investments in renewable energy, supported by favorable policies and regulatory frameworks, and possess substantial renewable energy resources, particularly in solar and wind, which present vast growth opportunities. Turkmenistan needs to enhance its policy framework to attract more investments in green technologies.

Country	Green Innovation Focus	Investment and Policy Support	Renewable Energy Potential	Infrastructure Development
Q Kazakhstan	 The country is focusing on solar, wind, and hydropower to diversify its energy mix and reduce its carbon footprint With vast wind energy potential estimated at 1,820 billion kWh (>>) and substantial solar energy prospects, Kazakhstan aims to expand its renewable capacity significantly by 2030 			
C.:::: Uzbekistan	 The country experiences approximately 320 sunny days each year, making it perfect for solar energy, with a potential capacity of 2,058 billion kWh (>>) Uzbekistan has signed numerous agreements with international companies to develop solar and wind power stations, aiming to add over 8,000 MW of renewable capacity by 2026 			
Turkmenistan	 Turkmenistan's green innovation prospects are currently limited by its heavy reliance on fossil fuels, particularly natural gas, which accounts for 85% of its exports (>>) Despite the slow progress, international collaborations, such as the TAPI pipeline project, highlight Turkmenistan's potential to engage more deeply in green innovation 			

Medium / T

Low

High 🤼

Opportunity

Source: leB Analysis

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Green Innovations – Shimadzu Product Portfolio Mapping

Shimadzu's comprehensive portfolio of analytical instruments plays a vital role in various aspects of green innovation. By integrating these tools, industries can enhance their sustainability efforts, ensuring more efficient, cleaner, and environmentally friendly processes. This alignment not only fosters innovation but also supports global efforts toward a more sustainable future.

Products	Product Solutions	Opportunities	Green Initiatives
 Gas Chromatography (GC) Solutions HPLC and LC-MS Systems 	 Analyzing complex mixtures of hydrocarbons and biofuels Crucial for analyzing biofuel compositions and impurities, providing detailed molecular information 	 Hydrogen Economy: Hydrogen production, storage, and distribution as a clean energy source Biofuels and Biomass: Analysis and quality control of biofuels derived from biomass 	Renewable Energy and Green Fuels
 IRXross FTIR Spectrometer GC-MS for Air Quality 	 Analyzing gases and materials related to energy and environmental studies, including emissions and pollutants Detecting trace levels of volatile organic compounds and other pollutants in air samples 	 Air and Water Quality: Continuous monitoring and analysis of pollutants to maintain environmental standards Climate Change Mitigation: Measuring greenhouse gases and their sources to inform reduction strategies 	Environmental Monitoring
 UV-Vis Spectrophotometers LC-MS/MS Systems 	 Used for monitoring chemical reactions and product purity in greener manufacturing processes Employed in the detailed analysis of complex samples from recycling processes, ensuring efficient material recovery and reuse 	 Chemical Manufacturing: Implementing greener processes and monitoring to reduce waste and improve efficiency Recycling and Waste Management: Analyzing materials for effective recycling and waste reduction strategies 	Sustainable Industrial Processes
 Electrochemical Analysis Instruments GC and HPLC Instruments 	 Supporting research in artificial photosynthesis and CO2 conversion technologies Essential for analyzing products from photochemical and electrochemical reduction of CO2 	 Artificial Photosynthesis: Developing systems to convert CO2 into usable fuels using sunlight, mimicking natural photosynthesis CO2 Sequestration: Techniques for capturing and storing or utilizing carbon dioxide to reduce atmospheric levels 	Artificial Photosynthesis and CO2 Reduction



Source: IeB Analysis

IeB Solution Framework

The objective of these modules is to identify and evaluate potential market opportunities for Shimadzu's products in the green innovation space, understand the regulatory landscape and policy environment affecting green innovations in key markets, and explore consumer behavior, attitudes, and adoption rates of green technologies.

Opportunity Assessment	Database Creation	Engagement Scope
 Market Size and Growth: Estimating the current and future market size for green technologies such as renewable energy, environmental monitoring, sustainable industrial processes, and CO2 reduction, and low carbon technologies Trend Analysis: Identifying emerging trends in green innovation that align with Shimadzu's product portfolio Market segmentation and target market identification Detailed opportunity mapping for Shimadzu's products Growth Drivers: Growth projections and revenue potential estimates Emerging Markets: Highlighting regions or countries where the adoption of green technologies is accelerating, potentially offering new markets for Shimadzu's products Sector-specific Trends: Identifying and analyzing the primary factors driving growth in green technology markets, such as increasing environmental regulations, technological advancements, and growing consumer demand for sustainable products. 	 Regulatory Requirements: Identifying the relevant regulations, standards, and compliance requirements for green technologies in major markets Policy Incentives: Analyzing government incentives, subsidies, and support programs for green innovations Impact Assessment: Assessing how regulatory and policy changes impact Shimadzu's market opportunities and strategic plans Incentive Programs: Listing available government grants, tax credits, and subsidies for green technologies in key markets Impact Analysis: Evaluating how these incentives can reduce costs and enhance the adoption of Shimadzu's products Legislative Developments: Monitoring and analyzing upcoming legislative changes that could affect green innovations, such as new emissions targets or renewable energy mandates Policy Shifts: Assessing potential shifts in policy under different political scenarios and their implications for the market. 	 Adoption Drivers and Barriers: Identifying factors driving and hindering the adoption of green technologies among different customer segments Behavioral Insights: Gathering insights into consum preferences, usage patterns, and satisfaction levels with green technologies Market Penetration Strategies: Developing strategies to enhance the adoption of Shimadzu's green technology products Segmentation Analysis: Segmenting the market based on customer characteristics such as industry size, geographic location, and sustainability goals Key Customer Profiles: Developing detailed profiles key customer segments, including their specific needs, challenges, and purchasing behaviors Adoption Readiness: Assessing the readiness and willingness of different customer segments to adopt green technologies, identifying early adopters and potential laggards



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