



Investment Trends in Research, Development, and Innovation for Sustainability



Foreword



Eng. Abdulrahman Abdulmohsen AlFadley

His Excellency Minister of Environment, Water, and Agriculture

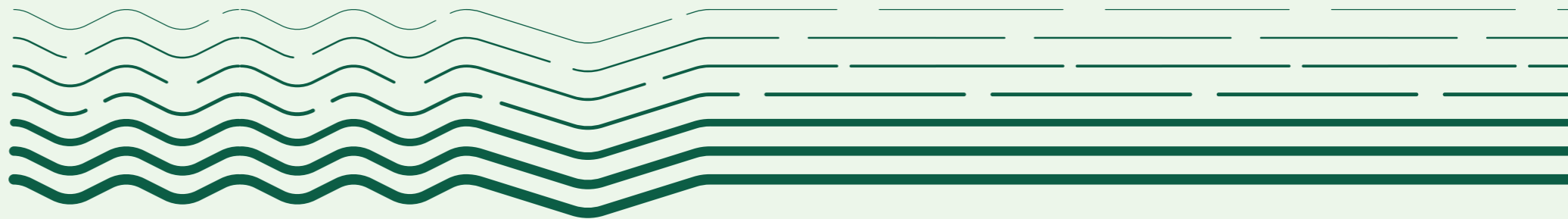
The Kingdom's leadership believes in the importance of research and innovation to build a knowledge economy and achieve true diversification of the state's resources, especially in the vital, priority sectors of environment, water, and agriculture. The Ministry of Environment, Water, and Agriculture aims to enable partners across the innovation ecosystem to stimulate and localize technologies to provide effective sustainability solutions within the Ministry's sectors.



Eng. Mansour bin Hilal Al Mushaiti

His Excellency Vice Minister of Environment, Water, and Agriculture

The innovation ecosystem enjoys unlimited support and keen interest from our wise leadership, may God support them. The Ministry of Environment, Water, and Agriculture has taken several steps to enable innovation, including establishing a deputyship for research and innovation to help find innovative solutions for issues related to sustainability of natural resources, environmental protection, meeting basic water and food needs, and achieving economic and developmental outcomes.



Foreword



Dr. Abdulaziz bin Malik Al-Malik

Deputy Minister for Research and Innovation

The Kingdom of Saudi Arabia has placed increasing emphasis on strengthening its research, development, and innovation (RDI) ecosystem, recognizing the vital role that emerging technologies and targeted investments play in advancing sustainability, safeguarding resource security, and enhancing the global competitiveness of the environment, water, and agriculture sectors. This strategic direction reflects the priorities and long-term ambitions of the national RDI ecosystem for the coming two decades, reinforced by the launch of national missions under the priority of environmental sustainability and basic needs, including food security and self-sufficiency, water security, reduced reliance on non-renewable resources and the mitigation of environmental challenges.

In recent years, global and regional investment activity has witnessed significant growth in both scale and quality, particularly in the development of sustainable technologies, the reinvention of value chains, and the acceleration of digital adoption, driven by ambitions to build more resilient and sustainable economies. Saudi Arabia exemplifies this momentum through its unprecedented strategic investments exceeding US\$160 billion across environment, water, and agriculture (EWA) technology priorities representing one of the largest national commitments to sustainable technology development in the region. Within this context, attracting and directing capital toward high-potential technologies in the EWA sectors has become increasingly critical, as these technologies constitute a foundational pillar for enhancing productivity, lowering costs, maximizing economic value, and building an RDI ecosystem capable of elevating the Kingdom's competitiveness on the global stage.

In alignment with this direction, the Ministry has established an integrated framework to stimulate investment in priority technologies, strengthen public-private partnerships, and enable both local and international companies to access high-quality investment opportunities. The Ministry has also placed strong emphasis on advancing analytical tools and

methodologies to monitor international and regional investment trends, understand emerging financing models, and anticipate the technologies most attractive to capital, thereby supporting informed, evidence-based investment decision-making.

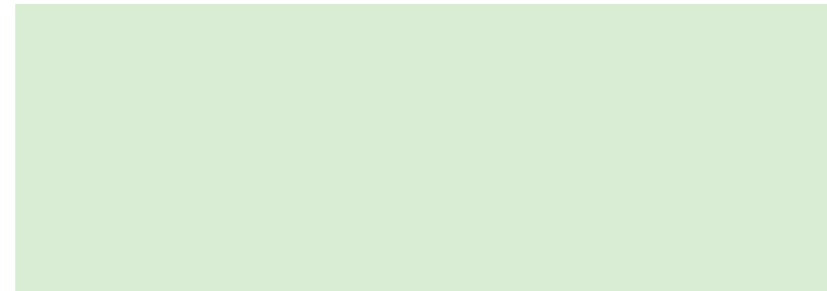
Within this framework, the publication of the "Investment Trends in Research, Development, and Innovation" report forms part of a series of periodic publications issued by NPRAS. The report provides an in-depth analytical perspective on global and domestic capital flows, identifies high-potential investment opportunities, and links national RDI priorities with the financing trends shaping the future of the environment, water, and agriculture sectors.

At the Ministry of Environment, Water, and Agriculture, we reaffirm our commitment to strengthening the investment ecosystem for emerging technologies, enhancing sector readiness for innovation adoption, and empowering government entities, the private sector, and investors to make strategic decisions grounded in robust analysis and advanced foresight. We firmly believe that effective integration between government, industry, and the research community remains a cornerstone for achieving the desired transformation toward more sustainable, competitive, and resilient environmental, water, and agricultural systems.

National Platform of R&I Analytics for Sustainability “NPRAS”



المنصة الوطنية لاستشراف البحث والابتكار للاستدامة
National Platform of R&I Analytics for Sustainability



The Ministry of Environment, Water and Agriculture has placed research and innovation at the forefront of its priorities to advance its sectors and ensure their long-term sustainability. Through its Executive Plan for Research and Innovation, the Ministry aims to effectively direct research and innovation efforts toward national priorities and strengthen sustainability in support of the Kingdom’s Vision 2030 objectives. In line with this commitment, the Ministry recently launched the National Platform of R&I Analytics for Sustainability, “NPRAS”, which aggregates accurate and up-to-date data related

to the environment, water, and agriculture sectors. The platform analyzes this data using advanced analytical tools such as big data analytics, artificial intelligence, generative AI, agentic AI, and scenario analysis tools. NPRAS relies on more than **10,000** local and international sources, including databases of scientific publications, patents, sectoral reports, and news, and it monitors over **100** million data points updated daily. This enables the platform to deliver precise insights that support evidence-based research and innovation decision-making within the environment, water, and agriculture sectors.

NPRAS serves as an effective model for transforming data into insights with tangible national impact. It supports leaders, decision-makers, and policymakers by providing data-driven guidance and strategic insights that enhance innovation adoption policies and identify promising technologies to address national challenges. The platform also equips investors with information that helps mitigate investment risks and uncover opportunities aligned with national priorities. Moreover, it opens the door for innovators and entrepreneurs to better understand sectoral needs and funding opportunities. For researchers and scientists, NPRAS provides access to a network of scientists and researchers, highlighting innovation and research gaps, and priority areas—thereby enhancing scientific collaboration and facilitating the practical application of research outcomes.



Policymakers and Decision-Makers

- + Data-driven and analytical decision-making
- + Strategic insights to improve policies
- + Identifying promising technologies for national challenges

Investors

- + Data that reduces investment risks
- + Investment opportunities aligned with national priorities
- + Access to data on high-impact projects

Innovators and Entrepreneurs

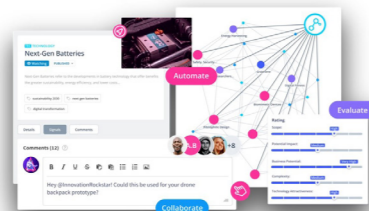
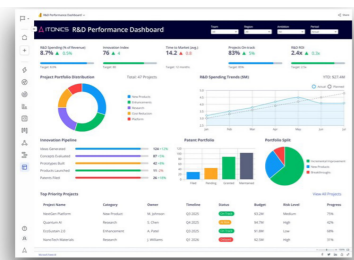
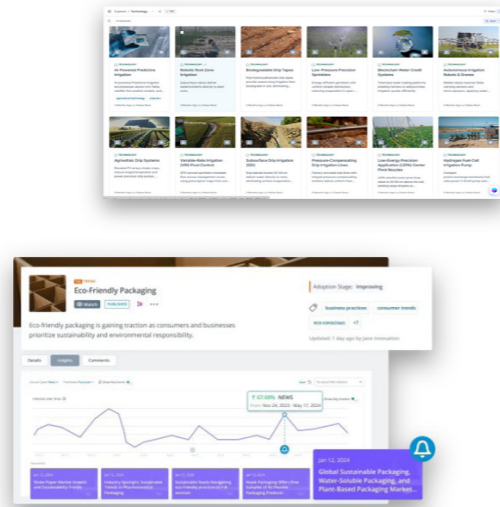
- + Access to the needs of national sectors
- + Data on partnership opportunities and financing for promising technologies
- + Highlighting innovative solutions

Researchers and Scientists

- + Data on leading scientists and researchers
- + Identifying research gaps and priorities
- + Data that strengthens collaboration to apply research outcomes

National Platform of R&I Analytics for Sustainability “NPRAS”

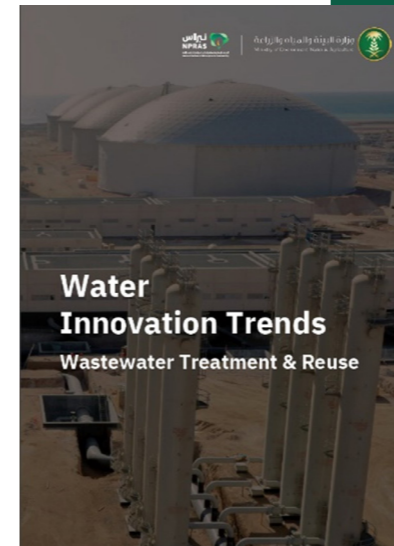
NPRAS offers a comprehensive suite of solutions that include platform access as well as specialized value-added services. The platform continuously monitors and anticipates technological trends by tracking the latest global innovations and developments and aligning them with the needs of the Kingdom’s sectors. It also supports decision-making by providing dashboards and analytical methodologies that enable relevant entities to assess technological solutions and select the most suitable ones.



Furthermore, the platform promotes knowledge dissemination, generating analytical reports, and knowledge briefs that help raise awareness of emerging technologies, their impact, and opportunities for adoption. It also enhances scientific collaboration by offering a space for interaction among experts, researchers, and relevant stakeholders to foster joint efforts and knowledge exchange.



NPRAS specialized services also include the development of technology adoption roadmaps in collaboration with various entities, helping them adopt effective technological solutions at lower costs. In addition, the platform publishes periodic sectoral reports highlighting key technologies, trends, and future opportunities, as well as a monthly innovation brief that tracks the most important global and local technological developments in a simplified and practical manner. NPRAS additionally provides knowledge-based and training workshops that support knowledge transfer, clarify practical technology applications, and strengthen technical and innovation-related collaboration.



In September, the platform published its first report, titled “Water Innovation Trends: Wastewater Treatment & Reuse” The report examined the most prominent technological innovation trends, innovation-support policies, and investment opportunities in emerging technologies, serving as a strategic reference for policymakers, sector leaders, investors, and entrepreneurs. It included insights from several leaders in the private sector, reflecting the pivotal role of national companies and adding a practical, market-oriented dimension to the report. Additionally, the report provided data-driven insights supported by interviews with innovation leaders, offering a practical framework that supports ongoing efforts to advance innovation in the water sector in alignment with the objectives of Saudi Vision 2030.

Thus, NPRAS Platform serves as the Ministry’s foresight arm, transforming data into insights that support research and innovation decision-making. It aims to support advancing the development of the environment, water, and agriculture sectors, and to strengthen water and food security as well as environmental sustainability—all in alignment with the national priorities for research, development, and innovation.

About the report

The strategic direction of the Kingdom's research, development, and innovation (RDI) system requires a clear understanding of how global investment flows are shifting across priority technologies. As competition intensifies and technological breakthroughs accelerate, decision-makers must continuously benchmark domestic investment activity against global patterns to remain competitive, anticipate disruptive shifts, and prioritize sectors that demonstrate the highest potential for economic and strategic impact.

To support this effort, NPRAS has developed this **Investment Trends in Research, Development, and Innovation** an analytical publication designed to track and interpret global investment movements across priority-oriented technologies. Leveraging structured investment models, advanced data mapping, and global market intelligence, the report provides decision-makers with a comprehensive view of where capital is flowing, what models are driving these flows, and how they align with transformative technological missions relevant to Saudi Arabia's long-term priorities.

Specialized analytical outputs produced NPRAS to strengthen evidence-based decision-making and guide national RDI investment strategy. This edition focuses on mission-oriented investment opportunities across the environment, water, and agriculture sectors, providing a detailed examination of global capital allocation, dominant investment models, strategic partnership trends, and emerging high-growth niches. It highlights where global players are directing resources today, why these investments are occurring now, and how these signals can inform targeted investment actions within the Saudi RDI ecosystem.

By synthesizing global investment intelligence into actionable insights, this report aims to equip policymakers, investors, and sector leaders with the knowledge needed to make informed decisions, refine national investment priorities, and accelerate the Kingdom's leadership in critical emerging technologies.



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Executive Summary

The accumulated investment volumes across the 14 Technology Priority Groups (TPGs*) highlight a strong and differentiated capital allocation pattern across the environment, water, and agriculture sectors. Strategic and financial investments are concentrated in technologies that address resource efficiency, food security, and environmental resilience, reflecting global and national priorities to scale deployable, impact-driven solutions.

According to the accumulative investment amount for only both strategic and financial models for each sector, it highlights that the agriculture sector is more private-capital oriented, where the main investors are venture capital entities and large private organizations, while the water and environment sectors rely more heavily on government funding and public-led investment mechanisms. This distinction reflects the differing maturity levels, risk profiles, and monetization pathways across the three sectors.

In the agriculture sector, investment volumes are driven by scalable, market-ready technologies with clear commercial pathways. High levels of capital concentration in food preservation and waste valorization, integrated aquaculture farm management indicate strong investor confidence in technologies that enhance

productivity, optimize inputs, and unlock new value chains. The prominence of private capital in this sector underscores its attractiveness for venture-scale growth, platform-based business models, and regional expansion.

The water sector shows substantial investment concentration in advanced reverse osmosis, wastewater treatment and reuse, reflecting the capital-intensive nature of water infrastructure and the strategic importance of water security. While private investment is present, funding patterns indicate a stronger dependence on government-backed initiatives, public-private partnerships, and long-term infrastructure-oriented capital to de-risk technology deployment and ensure system-wide adoption.

The environment sector exhibits large accumulated investments in waste management and ecosystem monitoring, emphasizing the role of public policy, regulatory mandates, and sustainability commitments in shaping funding flows. These technologies often require enabling regulation, public procurement, and long investment horizons, which explains the dominant role of government and sovereign actors in driving capital allocation.

Overall, the investment distribution across the 14 TPGs demonstrates a complementary investment landscape: agriculture acts as a magnet for private and venture capital due to its scalability and commercial clarity, while water and environment technologies depend more on public leadership to enable infrastructure deployment, regulatory compliance, and long-term sustainability outcomes. This dynamic presents an opportunity for Saudi Arabia to strategically balance public funding with private capital mobilization, ensuring that high-impact technologies across all EWA sectors can transition from innovation to large-scale implementation.

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Introduction

Investment activity across the environment, water, and agriculture (EWA) sectors has accelerated significantly in recent years, driven by mounting resource pressures, climate risks, and the need to secure resilient and sustainable systems. Globally, governments, corporates, financial institutions, and technology leaders are directing capital toward research, development, and innovation (RDI) solutions that address water scarcity, food security, environmental degradation, and efficiency across natural resource value chains. These investments are no longer limited to incremental improvements, but increasingly target transformative technologies capable of reshaping production models, reducing dependency on scarce resources, and enhancing long-term resilience.

In the Kingdom of Saudi Arabia, investment in EWA sectors plays a central role in advancing national research, development, and innovation priorities under Vision 2030. Recognizing the strategic importance of sustainable resource management, food and water security, and environmental protection, Saudi Arabia has intensified investment efforts through government and sovereign funding, strategic corporate partnerships, financial investment mechanisms, and internal corporate R&D initiatives. Together, these investment models aim to accelerate technology development, stimulate private-sector participation, and strengthen the national innovation ecosystem.

This report examines investment signals across **14 Technology Priority Groups (TPGs)** spanning the environment, water, and agriculture sectors. These TPGs represent critical technological domains where innovation is essential to addressing sector-specific challenges and achieving national missions. **Environment technologies** are witnessing significant research and development investments, particularly in ecosystem monitoring and waste management solutions. Recent innovations include IoT-integrated wastewater treatment systems that demonstrate the convergence of digital technologies with traditional environmental management. **Water technologies** represent the most capital-intensive investment category, with advanced reverse osmosis and smart leakage management systems attracting both government and private funding. The development of smart IoT-based reverse osmosis wastewater irrigation systems exemplifies the sector's move toward intelligent, automated solutions. **Agriculture technologies** are experiencing rapid innovation cycles, particularly in precision agriculture and controlled environment systems. UAV and satellite imagery applications for irrigation and water resource management are gaining substantial traction, supported by both venture capital and strategic corporate investments.

By analyzing both global and local investment patterns, this report provides insight into how capital is being allocated across the 14 TPGs, which investment models are most prominent, and what drivers are shaping funding decisions. It highlights areas of strong alignment between Saudi Arabia's national priorities and international investment trends, while also identifying emerging opportunities for further investment, collaboration, and localization.

The report aims to support policymakers, investors, and RDI stakeholders in understanding where investment momentum is building, how Saudi Arabia compares globally, and which technology areas hold the greatest potential to advance sustainable growth across the environment, water, and agriculture sectors.



Scope of the Report

This report centers on tracking and analyzing global and local investment flows across the environment, water, and agriculture sectors, with a focus on mission-oriented technologies prioritized by Saudi Arabia. It examines key investment models: government and sovereign funding, strategic corporate investments and partnerships, financial investments, and corporate in-house R&D — and maps how capital is directed to technologies addressing sector-specific challenges such as sustainable water management, climate-smart agriculture, and environmental sustainability solutions.

The report explores key investors, funding amounts, investment logic, geographic focus, technology areas receiving capital, market signals, and emerging trends. It provides actionable insights on where investments are flowing, the models driving these flows, and how Saudi Arabia's RDI priorities align with global funding realities.

Target Audience:

This report is designed to equip stakeholders with the knowledge needed to prioritize resources, foster collaborations, and strengthen the Kingdom's position in emerging technologies across the environment, water, and agriculture sectors.

Leaders and Decision Makers

Senior officials and executives within Saudi ministries, authorities, and government-affiliated organizations who shape national strategies and lead sustainability initiatives across the Environment, Water, and Agriculture (EWA) sectors.

Policymakers

Government officials and advisors responsible for formulating agriculture-related policies and regulations in line with Saudi Arabia's Vision 2030, national priorities, and regional development plans.

Investors

Public and private sector stakeholders, including sovereign funds, local investment firms, and strategic partners committed to financing innovative, high-impact agriculture technologies and infrastructure projects within the Kingdom.

Researchers and Scientists

Experts from Saudi universities, research centers (such as KAUST and KACST), and specialized institutes driving R&D to advance sustainable agriculture solutions tailored to the Kingdom's unique agricultural context.

Innovators and Entrepreneurs

Saudi-based startups, incubators, and technology developers creating localized, scalable innovations to address challenges in agricultural productivity, resource efficiency, and sustainability, aligned with national goals for food security and sectoral transformation.

Methodology

1. Signal Collection & Investments Identification

The first analysis step involved the systematic collection and evaluation of signals to identify relevant investments within the identified 14 technology groups across the environment, water, and agriculture sectors. To achieve this, the team employed a scanning method that combines the advantages of human expertise and machine intelligence, utilizing a signals database that contains over 100 million data points (e.g., news, industry reports, scientific publications, etc.). Over the past five years (2025-2020), signals related to Government and Sovereign Funding Models, Strategic Investment Models (Corporate & M&As), Financial Investment Models (VCs, Private Equity, Impact Funds), and Corporate RDI Investment Model were sourced. Using Retrieval-Augmented Generation (RAG) AI and human expert validation, a longlist of about 1000 investment signals was tracked and compiled within the four investment models across the three sectors.

2. Investment Assessment & Landscape Creation

In the second step, a comprehensive global investment landscape was created from the longlist of investments mentioned in the signals. First, the total amount of investments across the three sectors was identified based on the collected signals. In addition, all investments less than **USD 500,000** were eliminated. Then, the top 10 investments within each investment model across the three sectors were selected based on their investment volume. Finally, three drivers: technological supply, demand pull, and regulatory push, were categorized to illustrate how each influences investment activity.

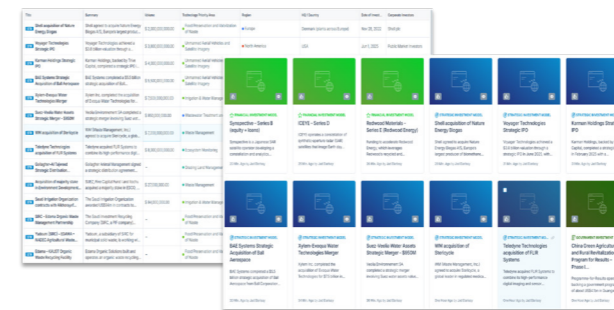
3. Detail Analysis & Investment Spotlight Selection

In the final step, two investment models, **strategic investments** and **financial investments**, were highlighted, providing a clear view of private-sector expenditure and establishing a foundational understanding of investment behavior within the EWA technology landscape. Government/Sovereign and Corporate RDI investments are not represented at the Technology Priority Group level, as these investments are typically deployed at a sector-wide level rather than being allocated to discrete Technology Priority Groups (TPGs) across the 14 EWA technologies, limiting their direct attribution to specific technologies. These investors typically allocate funding to entire sectors rather than individual technologies, making disaggregation impractical. The investments across the 14 Technology Priority Groups (TPGs) were identified and scoped based on two key criteria: **first**, the time frame, covering investments made between **2020 and 2025**; and **second**, the investment volume, focusing on top investments exceeding **USD 500,000**. This approach ensures that the analysis highlights the most significant and recent financial and strategic activities within the EWA sector.

4. Expert Insights & Validation

To complement the quantitative and signal-based analysis, the methodology incorporated insights from investment experts with extensive experience in technological investments and diverse investment models. A group of selected experts was consulted through structured interviews to validate the identified investments, assess the practical relevance of investments, and reflect policy considerations. This step ensured that the report reflects both data-driven evidence and practical expertise, enhancing the robustness, relevance, and actionable value of the technological investment landscape and spotlight selection.

The analyses leading to this report were conducted during the first iteration of MEWA's NPRAS Platform – an AI-enhanced Innovation Operating System that enables the systematic scouting of technology signals, the continuous tracking of emerging technologies and innovation efforts, and the creation and continuous updating of comprehensive technology databases across various fields of innovation.

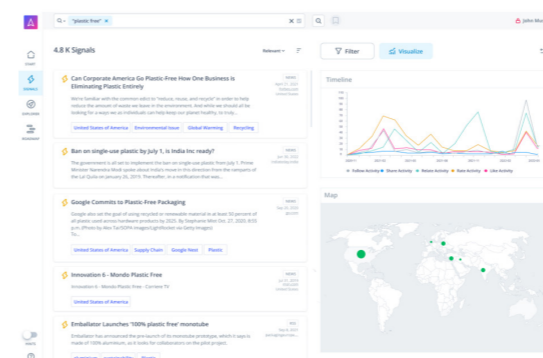
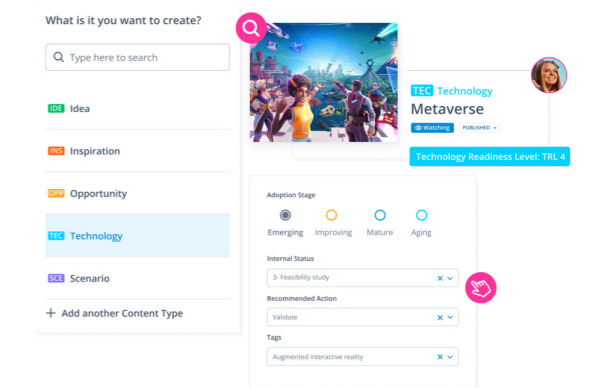


Collaborative Evaluation

The platform enables a structured, collaborative evaluation of emerging technologies. The involvement of various experts minimizes subjective assessments and facilitates the efficient identification of innovation opportunities and risk evaluation.

Investment Signals

In an interactive, visual view, where investments can be analyzed and their relevance. The investment signal identification helps identify new investments, strategically prioritize innovation fields, and continuously monitor investment trends across the environment, water, and agriculture sectors.



Automated Monitoring

The platform's scouting function utilizes AI-powered analytics to continuously capture technological developments from various sources such as scientific publications, patents, industry reports, and news. Through intelligent filters and algorithms, relevant signals are identified, categorized, and updated in real time.

Methodology

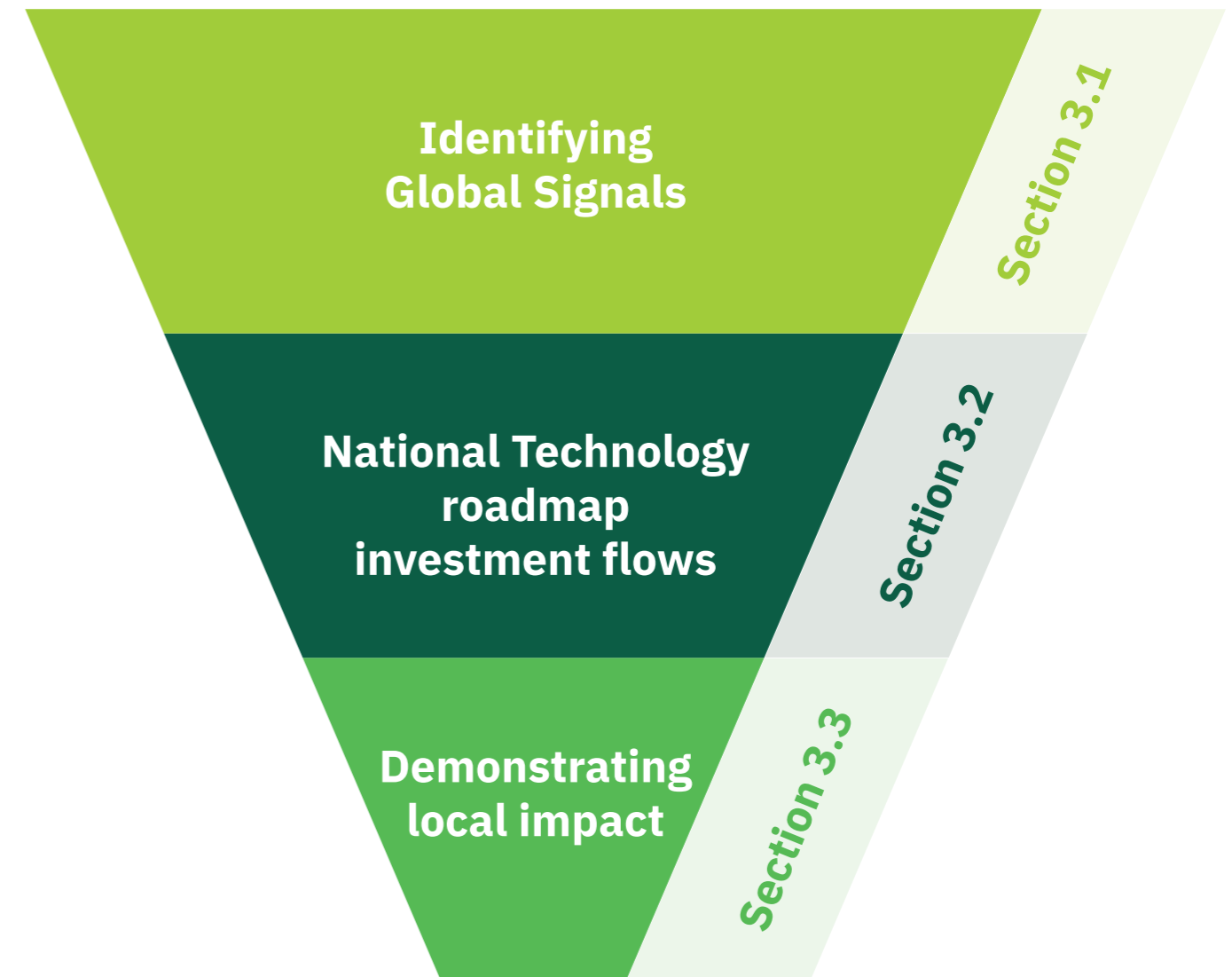
Key sections

Section 3.1 maps global and local investment signals and funding patterns, while **Section 3.2** aligns these signals with sectoral challenges and national technology priorities.

By showcasing startups, large-scale projects, initiatives, and capital inflows, **Section 3.3** validates that the identified investment signals are not abstract trends but active **forces shaping innovation, deployment, and ecosystem development.**

It illustrates how funding models and strategic priorities materialize into operational solutions, infrastructure, and market activity across the environment, water, and agriculture sectors.

Section 3.3 closes the analytical loop of the report by moving from signal identification to real-world impact.



3.1

Global Perceptive

3.1.1 Purpose and Key Insights

3.1.2 Recent Large-Scale RDI Funding Announcements (2020 – 2025)

3.1.3 Cross-Sector Trends

Purpose and Goal of the Section

To set the global context we map three things simultaneously: where capital is being deployed across the Environment, Water and Agriculture (EWA) RDI landscape; which investment models (Government / strategic corporate / financial capital / Corporate R&D) are driving that deployment; and why these flows are occurring now, the combination of technological advancement, behavioral shifts, regulatory pressure, and material environmental constraints. This layered view does three things for Saudi decision-makers:

1

Positions national RDI priorities and programs relative to international funding intensity and investor preferences.

2

Identifies high-growth niches and “fundable” technologies where Saudi public or private capital can most efficiently create strategic value.

3

Reveals the financing instruments and policy levers that successfully move technologies from lab to pilot to scale in other markets. The goal is not only to describe external activity, but to convert global signals into a prioritized investment plan for Saudi Arabia.

Where capital is being deployed across the Environment, Water and Agriculture (EWA) RDI landscape

Which investment models Government and Sovereign, Strategic, Financial, or Corporate R&D are driving that deployment

Why these flows are occurring now the combination of

- Technological advancement
- Behavioral shifts
- Material environmental constraints
- regulatory pressure

Four different investment models have been identified to track investment volume across the Environment, Water, and Agriculture sectors



Government and Sovereign Funding Models

Public-sector–driven investments that direct capital toward national priorities through grants, R&D programs, sovereign wealth funds, and public–private initiatives. These investments aim to stimulate innovation, address strategic challenges, and accelerate technologies critical to national security, sustainability, and economic competitiveness.

Strategic Investment Models (Corporate & M&As)

Investments made by corporates to secure technology leadership, expand capabilities, or form long-term partnerships. These include Merger & Acquisitions (M&A), joint ventures, strategic partnership, and co-development projects. The primary goal is not financial return alone, but gaining market access, strengthening supply chains, or fulfilling sustainability and operational requirements.

Financial Investment Models (VCs, Private Equity, Impact Funds)

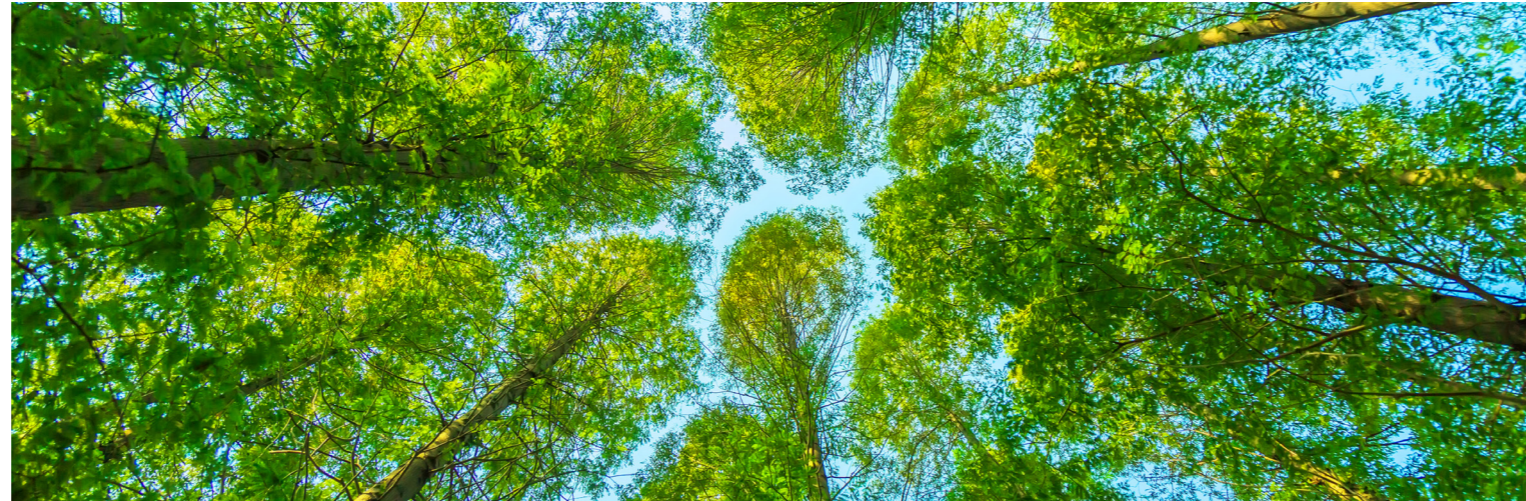
Investor-driven capital deployed to maximize financial returns while supporting scalable innovation. This includes venture capital, private equity, growth capital, and impact investment funds. These investors provide funding to startups and high-growth companies with strong commercial potential, clear exit strategies, and proven technological or business-model innovation.

Corporate RDI Investment Model

Capital deployed by companies to develop new technologies, enhance existing products, or improve operational performance through internal research, innovation labs, and technology development units. These investments strengthen competitiveness by accelerating proprietary innovation without relying on external acquisition or partnerships.

Sectoral Key insights

Through our research, which identified approximately **1,000 global and local investment signals**, calculated the total accumulated investments across the three sectors for the four investment models between 2020 and 2025. From 2020 to 2025, the investments for each sector across the four investment models **accumulated** to



Environment sector
\$1.62 trillion

Water sector
\$1.17 trillion

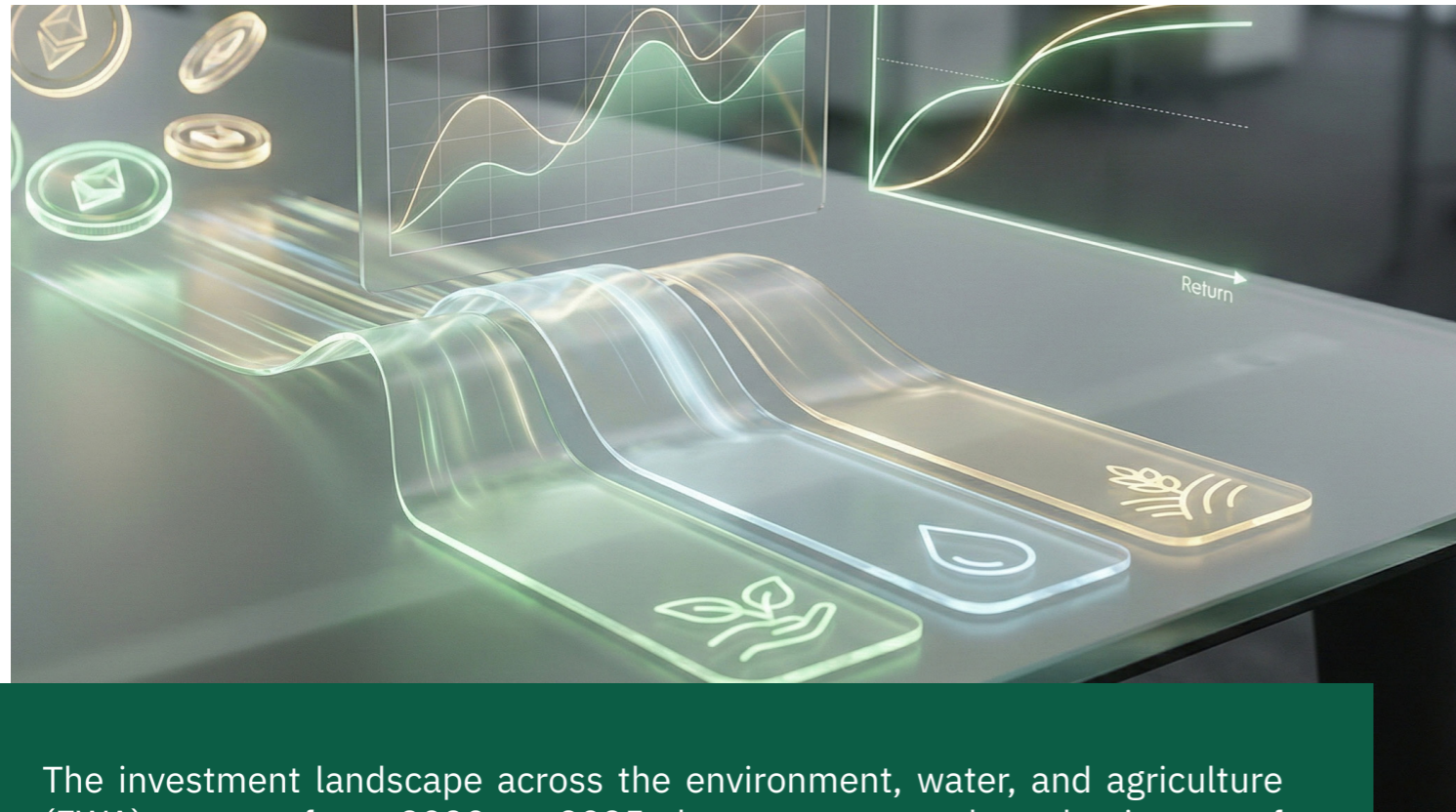


Agriculture sector
\$381.8 billion

Source: Team analysis based on the 1000 investment signals identified

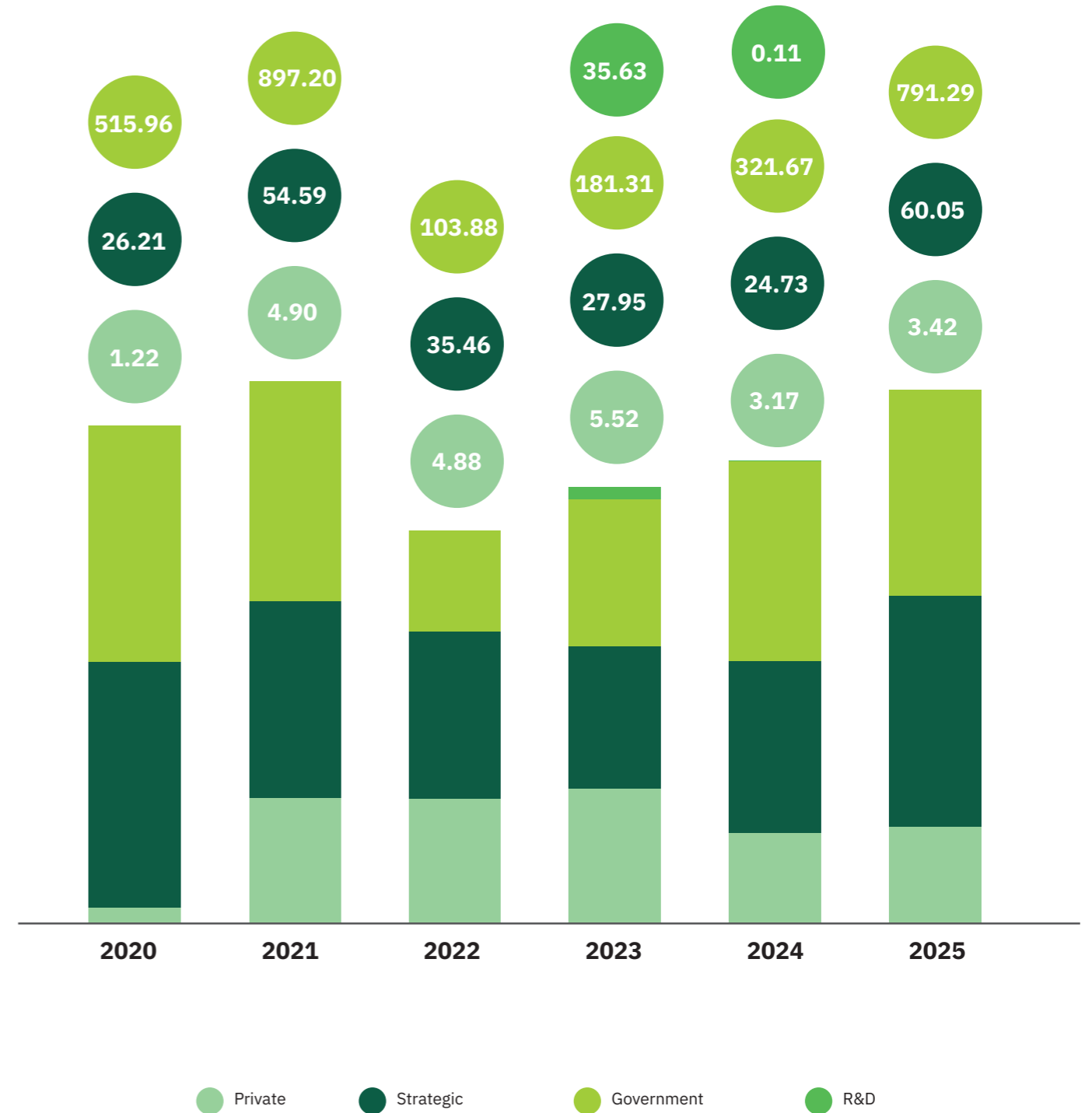


The graph shows the total amount of investments in the **environment, water, and agriculture** sectors across the four investment model types: Financial (Private) Investment Model (VCs, Private Equity, Impact Funds), Strategic Investment Model (Corporate & M&As), Government and Sovereign Funding Model, and Corporate RDI Investment Model for the years 2020 - 2025



The investment landscape across the environment, water, and agriculture (EWA) sectors from 2020 to 2025 demonstrates a clear dominance of **government funding**, which consistently represents the largest share of total investment, underscoring the public sector's central role in driving large-scale, capital-intensive and mission-oriented initiatives. **Strategic investments** show fluctuating trends over the five-year period, reflecting increased M&A activity and partnerships aimed at securing technologies and market positions. While, **financial investments** remain comparatively smaller and **Corporate RDI investments** are limited.

EWA Investment Model Amounts (in \$billions)



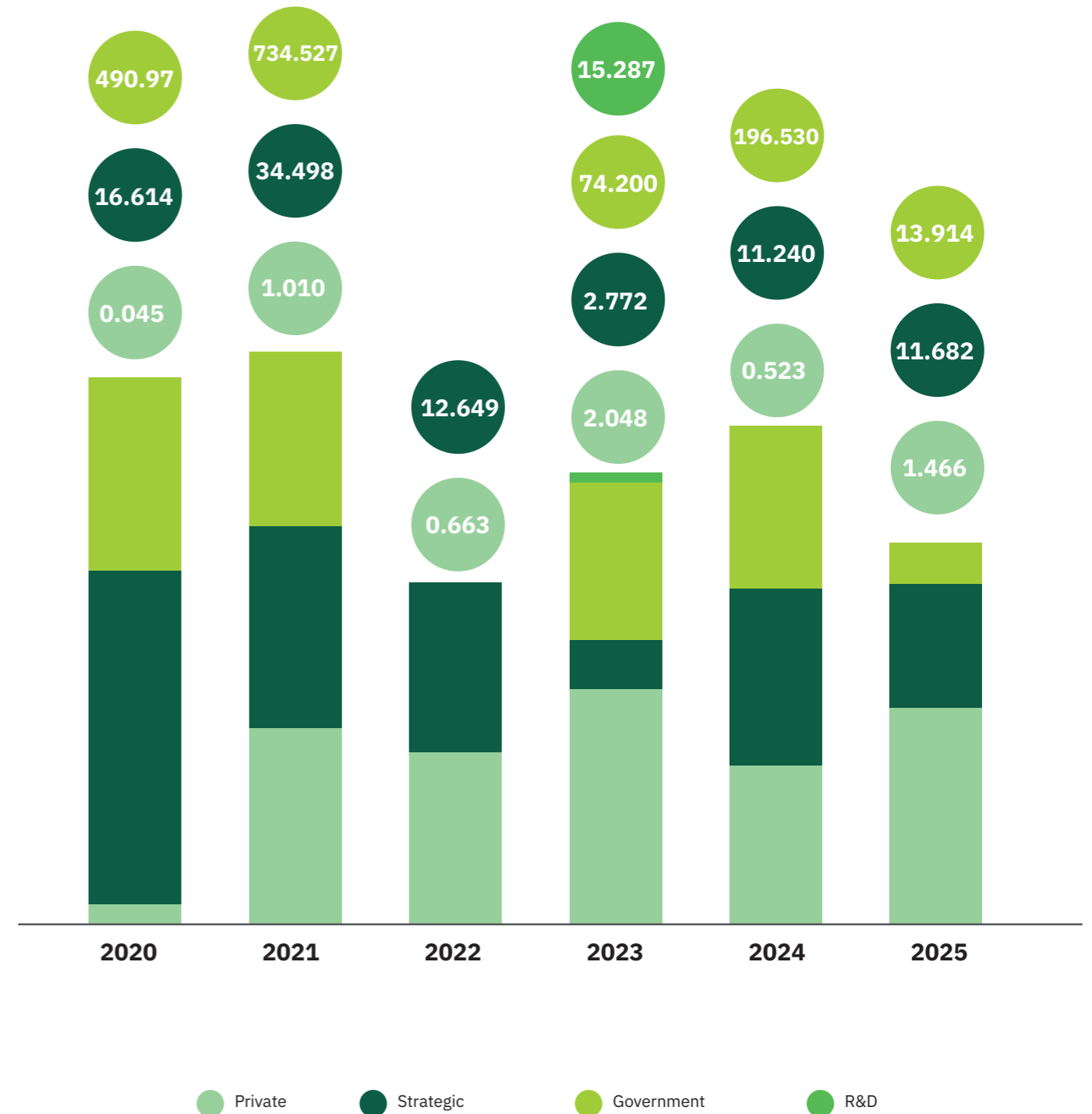
Source: Team analysis based on the 1000 investment signals identified

The graph shows the total amount of investments in the **environment sector** across the four investment model types: Financial (Private) Investment Model (VCs, Private Equity, Impact Funds), Strategic Investment Model (Corporate & M&As), Government and Sovereign Funding Model, and Corporate RDI Investment Model for the years 2020-2025



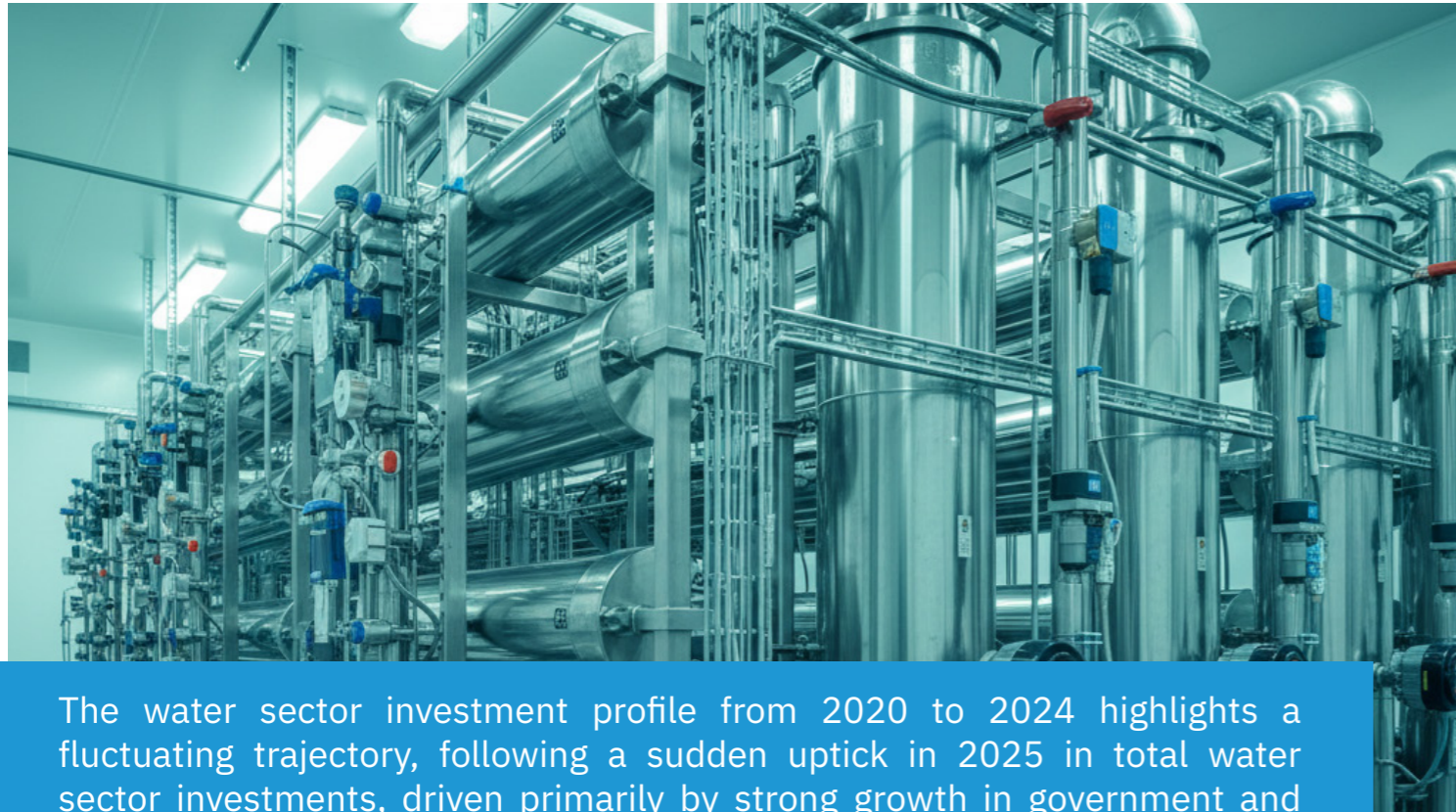
The environment sector investment profile from 2020 to 2025 is heavily skewed toward government and sovereign funding, which dominates total capital deployment across most years, reflecting the public sector nature and long payback periods of environmental initiatives. **Government funding** peaks notably in 2020 and 2021, signaling cycles of large-scale national programs. **Strategic investments** remain modest, indicating selective acquisitions and partnerships. **Financial investments** are comparatively limited and fragmented, suggesting fewer scalable commercial models. **Corporate RDI investments** remain minimal throughout, highlighting continued dependence on public funding rather than sustained private-led R&D in the environment sector.

Environment Investment Model Amounts (in \$billions)



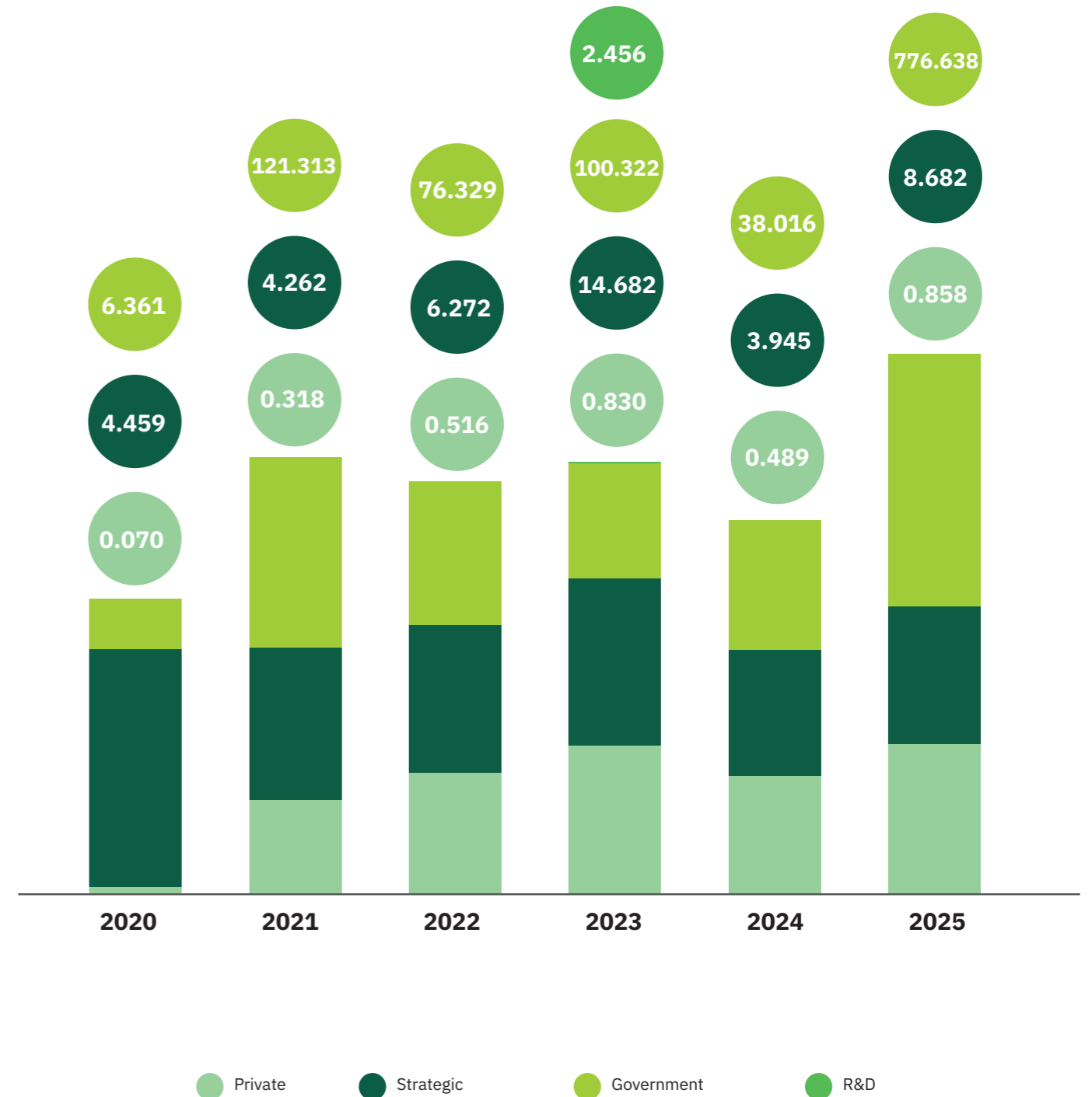
Source: Team analysis based on the 1000 investment signals identified

The graph shows the total amount of investments in the **water sector** across the four investment model types: Financial (Private) Investment Model (VCs, Private Equity, Impact Funds), Strategic Investment Model (Corporate & M&As), Government and Sovereign Funding Model, and Corporate RDI Investment Model for the years 2020-2025



The water sector investment profile from 2020 to 2024 highlights a fluctuating trajectory, following a sudden uptick in 2025 in total water sector investments, driven primarily by strong growth in government and sovereign funding. **Government funding** dominates across all years, peaking sharply in 2025, indicating increased public-sector prioritization of water security and infrastructure. **Strategic investments** volume peaked in 2023 almost doubling, reflecting consistent corporate M&A activity. **Financial investments** show gradual but steady growth, signaling sustained investor confidence. **Corporate RDI investments** remain modest throughout the period, suggesting that while innovation is recognized, large-scale capital deployment is still concentrated in deployment and infrastructure.

Water Investment Model Amounts (in \$billions)



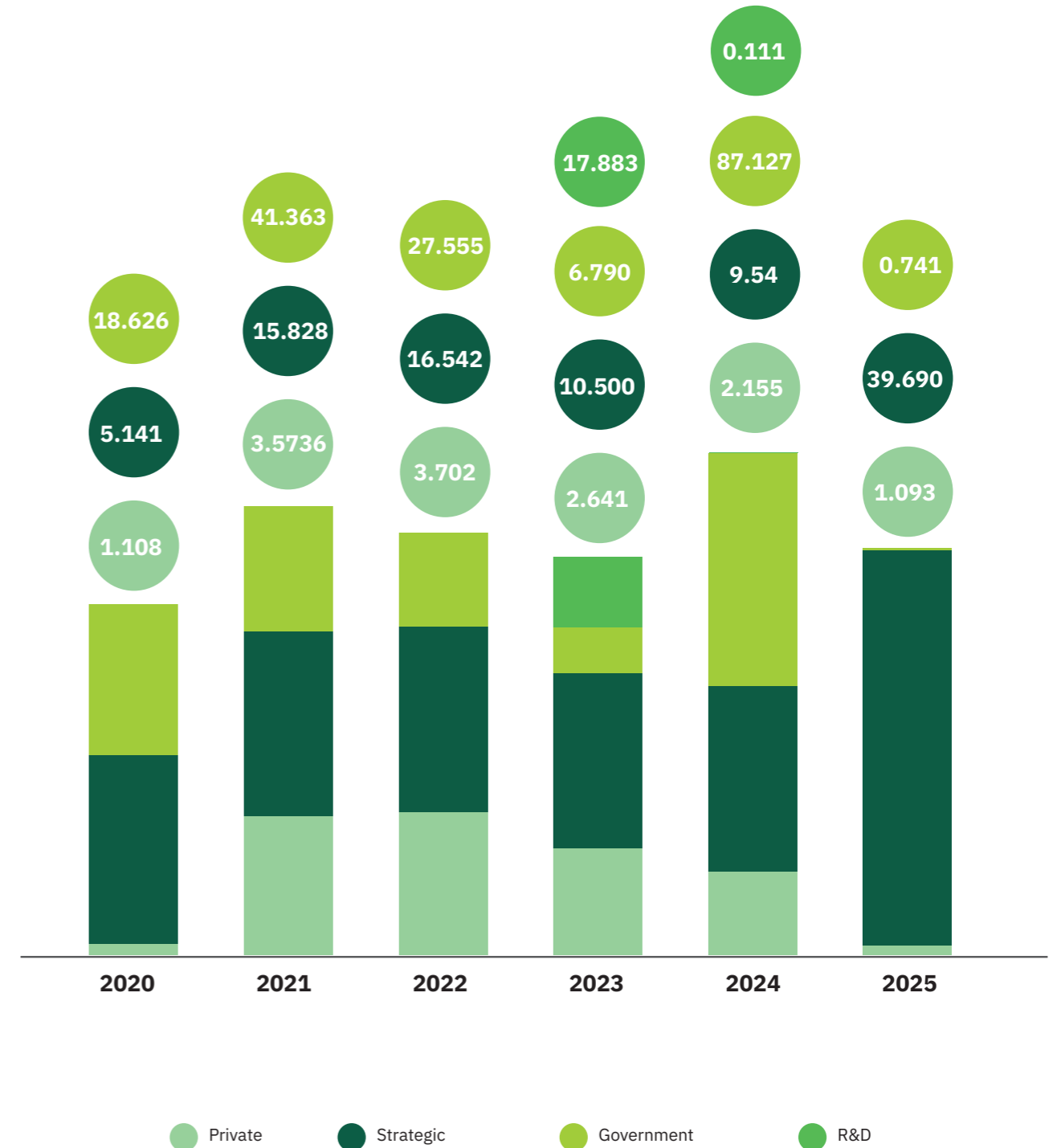
Source: Team analysis based on the 1000 investment signals identified

The graph shows the total amount of investments in the **agriculture sector** across the four investment model types: Financial (Private) Investment Model (VCs, Private Equity, Impact Funds), Strategic Investment Model (Corporate & M&As), Government and Sovereign Funding Model, and Corporate RDI Investment Model for the years 2020-2025



The agriculture sector investment profile from 2020 to 2025 shows a volatile but overall expanding investment landscape. **Government funding** plays a strong stabilizing role, peaking during 2024. **Strategic investments** emerge as the dominant funding model, particularly in 2023 and 2025, reflecting heightened corporate consolidation and M&A activity. **Financial investments** spiked in 2021 but declined thereafter, indicating sensitivity to market conditions. **Corporate RDI investments** remain consistently limited across the period, suggesting that most capital is directed toward scaling, acquisition, and market deployment.

Agriculture Investment Model Amounts (in \$billions)



Source: Team analysis based on the 1000 investment signals identified

3.1

Global Perceptive

3.1.1 Purpose and Key Insights

3.1.2 Recent Large-Scale RDI Funding Announcements (2020 – 2025)

3.1.3 Cross-Sector Trends

Overview of the Recent Large-Scale RDI Funding Announcements

This chapter provides a clear, data-driven overview of the most significant global R&D funding announcements across the Environment, Water, and Agriculture (EWA) sectors. It focuses on large-scale, high-impact investments that signal where global innovation efforts and capital allocation are being concentrated. By analyzing these announcements, the section establishes a foundational understanding of the size, direction, and strategic intent behind global R&D funding activity.

The chapter highlights how governments, multinational corporations, and financial institutions are directing capital toward mission-critical technologies that address pressing environmental and resource challenges. These include areas such as advanced water treatment and efficiency, climate-smart and resilient agricultural systems, circular economy and resource recovery solutions, and sustainable environmental monitoring and management technologies. The scale and frequency of these investments reflect increasing urgency around sustainability, resource security, and long-term economic resilience.

Through examination of these high-value funding activities, the chapter illustrates how the global innovation ecosystem is evolving in response to technological maturation, regulatory pressure, and shifting market and societal expectations. It sheds light on the different investment models shaping this evolution whether government-led programs, strategic corporate investments, financially driven capital deployment, or in-house corporate R&D and how each model contributes to moving technologies from research to deployment.

Finally, the chapter places Saudi Arabia's priorities within a broader global context by demonstrating how leading economies and global corporations are financing innovation today. This perspective enables decision-makers to better understand where global momentum is heading, which investment models are gaining traction, and which EWA sectors are receiving the strongest funding focus. In doing so, the section supports more informed strategic alignment, policy design, and capital allocation decisions within the Kingdom.



Four clear archetypes, each illustrating a different financial mechanism that will be highlighted in the report



Government and Sovereign Funding Models

Illustrate how governments are steering R&D via **stimulus, sustainability programs, and sovereign funds.**

Strategic Investment Models (Corporate & M&As)

Show how large corporates are positioning strategically for **technology access, sustainability compliance, or market consolidation.**

Financial Investment Models (VCs, Private Equity, Impact Funds)

Capture the role of private capital and risk investors in **scaling emerging technologies.**

Corporate RDI Investment Model

Show how corporate innovation and reinvestment into R&D act as a direct driver of technological advancement, **often pre-commercialization, and set standards that ripple across supply chains.**



Government and Sovereign Funding Investment Models Overview

Public-sector-driven investments deployed through national budgets, sovereign wealth funds, development banks, and dedicated RDI programs. These investments are typically mission-oriented and designed to address systemic national priorities such as food security, water sustainability, climate resilience, and economic diversification. The purpose is to steer innovation in areas with high strategic value but long payback periods, catalyze market creation, and reduce risk for private investors.

Types of investment model under it

01

Grants

04

National R&D programs and mission-based initiatives

02

Subsidies

05

Sovereign funds investing in strategic technologies

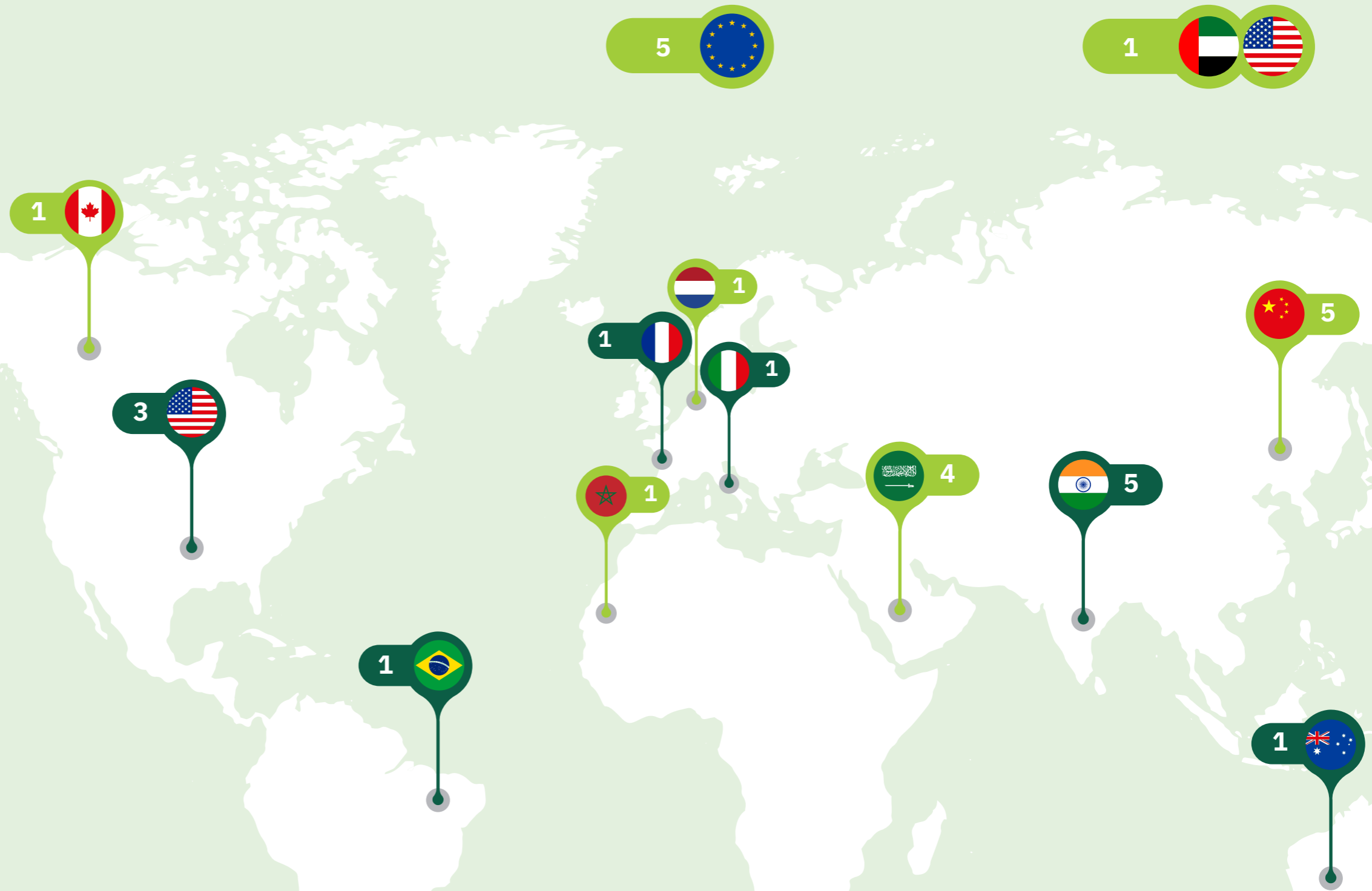
03

Research funds



Number of Government Investment Projects Across EWA Sectors Globally

The bubbles represent the distribution of the top 30 Government Investment Projects globally across the EWA sectors.




Top 10 investments for Environment



The investments span massive scales from \$200 million to \$420 billion, with most programs targeting multi-year implementation periods (2021-2035). Water management and irrigation modernization emerge as primary focus areas, followed by ecosystem restoration and environmental compliance. Geographically, investments concentrate in Asia, Europe, and MENA regions.


The investment pattern reveals government preference for comprehensive, long-term programs rather than targeted technology-specific funding, emphasizing infrastructure development and regulatory compliance over pure innovation funding.

01 
420\$b

Master Plan for National Key Ecosystem Protection and Restoration Major Projects (2035-2021) – China

04 
170\$b

2023 National Water Conservancy Investment Drive – China

07 
40\$b

National Water Plan (PNE) 2050-2020 – Morocco

10 
23\$b

EU Just Transition Fund (JTF) – Europe

03 
180\$b


Saudi Green Initiative (SGI) – First Wave of Projects – Saudi Arabia

06 
45\$b

Jal Jeevan Mission – Har Ghar Jal (Rural Water Programme) – India

09 
28\$b

National Circular Waste and Plastics Program (NCWM and SIRC Pledge) – Saudi Arabia

05 
50\$b

Bipartisan Infrastructure Law – Water Infrastructure Investments - USA

08 
28.7\$b

Italy Recovery and Resilience Plan – Renewable Energy, Circular Economy, Waste and Water Pillar - Italy

02 
410\$b

EU Common Agricultural Policy (CAP) –2021 2027 – Green Architecture & Eco-schemes – Europe

Refer to the appendix for more details on the projects

Top 10 investments for Water




Investment volumes range from 36\$ million to 757\$ billion, with most programs targeting multi-year implementation. Water infrastructure modernization and treatment technologies dominate funding priorities, followed by digitalization and smart water management systems.

Geographically, investments span North America, Europe, Asia, and MENA. The investment pattern reveals government preference for comprehensive infrastructure upgrades over targeted technology development, emphasizing resilience, efficiency, and circular water economy principles through advanced treatment and reuse capabilities.

01 
757\$b

14th Five-Year Water Conservancy Investment Programme – China

Refer to the appendix for more details on the projects

02 
80\$b

National Water Strategy 2030 – Water Projects Capital Portfolio – Saudi Arabia

03 
50\$b

U.S. Bipartisan Infrastructure Law – Water Infrastructure Package – USA

04 
43\$b

Jal Jeevan Mission – Har Ghar Jal (Rural Drinking Water) –India

05 
36\$b

AMRUT 2.0 – Urban Water & Sewerage Mission – India

06 
34.6\$b

Jal Jeevan Mission (Urban) – India

07 
24\$b


Delta Fund – National Delta Programme (Water Safety & Freshwater) – Netherlands

08 
17\$b

EIB Water Resilience Programme (EU Water Resilience Strategy) – Europe

09 
15\$b

Water-related Investments under the EU Recovery and Resilience Facility (RRF) – Europe

10 
14\$b

Plan Eau 2023 & Water Agencies' 12th Multiannual Programmes (2030–2025) – France

Top 10 investments for Agriculture

Investment volumes range from 8.5\$ million to 80\$ billion, with most programs targeting multi-year implementation. Digital agriculture and precision farming technologies receive the highest priority, followed by controlled-environment agriculture (greenhouses, vertical farms) and climate-smart agricultural practices.

Geographically, investments span Europe, Asia, North America, MENA, and Africa. The investment pattern reveals government preference for comprehensive agricultural transformation over isolated technology deployment, emphasizing sustainability, digitalization, and food security through advanced farming systems, data-driven decision making, and climate-resilient agricultural practices.

01 

80\$b

Plano Safra 2025/2024 – Rural Credit Plan – Brazil

Refer to the appendix for more details on the projects

02 

29.2\$b

Agriculture Innovation Mission for Climate (AIM for Climate) – USA & UAE

03 

19.5\$b

Inflation Reduction Act – Climate-Smart Agriculture & Forestry Conservation Funding – USA

04 

12\$b

Agriculture Infrastructure Fund (AIF) – India

05 

10.4\$b

Horizon Europe – Cluster 6 ‘Food, Bioeconomy, Natural Resources, Agriculture & Environment – Europe

06 

5.1\$b

Green Agricultural and Rural Revitalization Program for Results – Phase I (Guangxi & Guizhou) – China

07 

4.4\$b

China Green Agricultural and Rural Revitalization Program for Results (Hubei & Hunan) – China

08 

4\$b

Future Drought Fund (FDF) – Australia

09 

3.3\$b

Sustainable Canadian Agricultural Partnership (Sustainable CAP) – Canada

10 

3.1\$b

Sustainable Rural Agricultural Development Program (Saudi Reef) – Phase 1 – Saudi Arabia

Strategic Investment Models Overview

Large companies, utilities, industrial firms, agrifood corporates, technology providers invest strategically through acquisitions, joint ventures, technology partnerships. The model focuses on securing access to critical technologies, entering new markets, strengthening competitive positioning, and enhancing operational efficiency and regulatory compliance.

Types of investment model under it

01

Merger & Acquisition (M&A)

03

Joint Venture

02

Growth Expansion

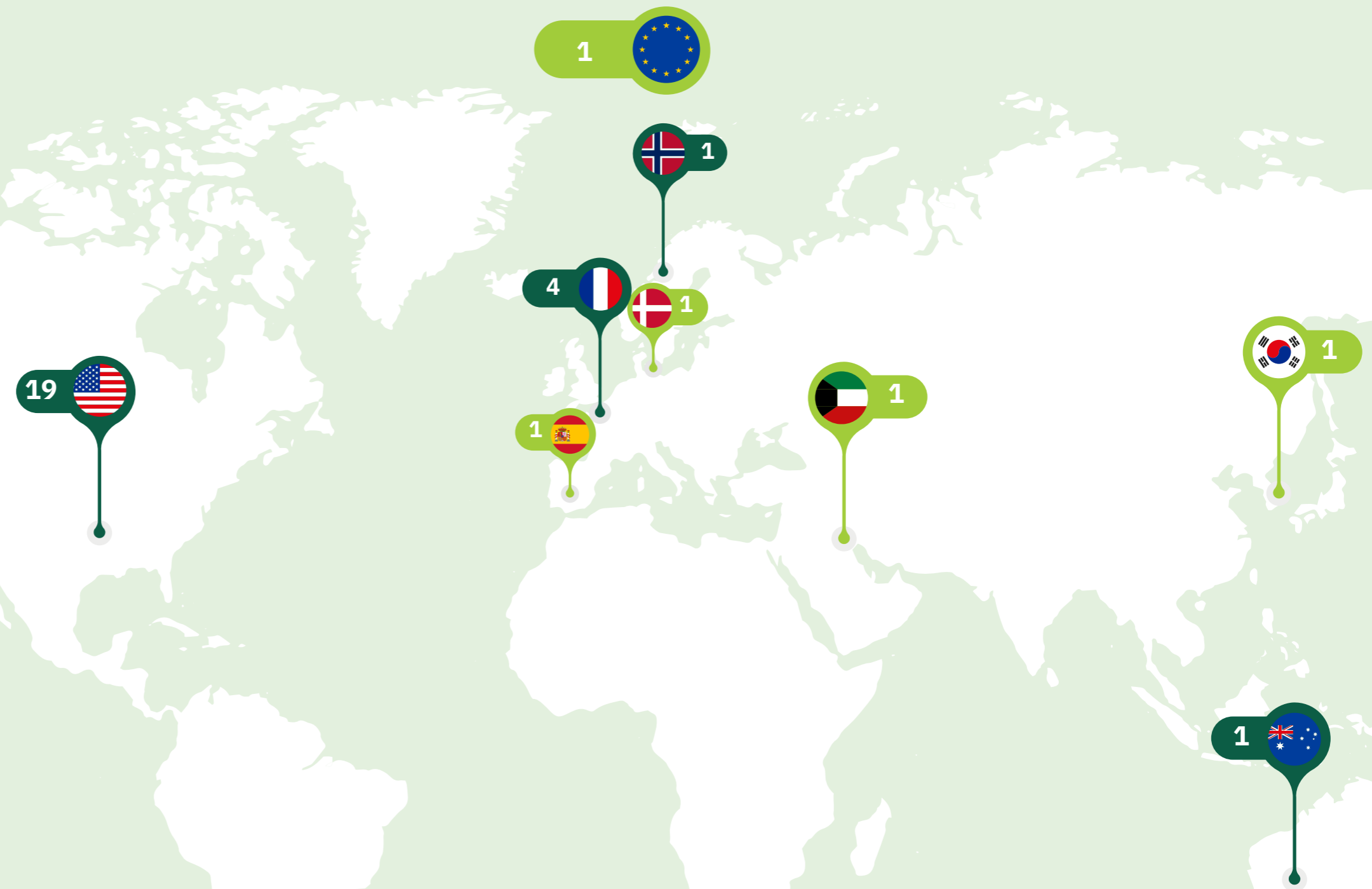
04

Partnership



Number of Strategic Investment Projects Across EWA Sectors Globally

The bubbles represent the distribution of the top 30 strategic Investment projects globally across the EWA sectors.




Top 10 investments for Environment



Environment technology investments range from strategic partnerships to multi-million dollar infrastructure projects, with the largest investments concentrated in water-efficient systems and ecosystem restoration.

Investments emphasize remote sensing, IoT monitoring, and precision irrigation technologies, combining hardware infrastructure with data analytics platforms for enhanced environmental management.

The highest investments target resource-efficient systems and ecosystem restoration technologies, reflecting global priorities around environmental sustainability and natural resource conservation.

01 
15.4\$b

Veolia acquisition of Suez – France

Refer to the appendix for more details on the projects

02 
8\$b

Teledyne Technologies acquisition of FLIR Systems – USA

03 
7.2\$b

WM acquisition of Stericycle – USA

04 
5.3\$b

EQT Infrastructure Acquisition of Covanta - 5.3\$B Waste-to-Energy Deal – USA

05 
4.9\$b


Waste Management Inc Acquisition of Advanced Disposal - 4.9\$B Market Consolidation – USA

06 
3.2\$b


NRO EOCL Strategic Partnership - Ecosystem Monitoring – USA

07 
3\$b

WM Sustainability Growth Strategy – Recycling & RNG Infrastructure – USA

08 
3\$b

Veolia Acquisition of Clean Earth from Enviro - 3.0\$B Environmental Services Expansion – France

09 
2.3\$b

Cinven and GTCR Acquisition of Stericycle - 2.3\$B Medical Waste Buyout – USA

10 
2.2\$b

Fortum sale of %50 of Fortum Oslo Varme (waste-to-energy & district heating) – Norway

Top 10 investments for Water



Water technology investments demonstrate significant capital intensity, with major acquisitions ranging from hundreds of millions to multi-billion dollar transactions, reflecting the infrastructure-heavy nature of water systems.

Investments emphasize smart monitoring, membrane technologies, and integrated treatment systems, combining traditional infrastructure with IoT sensors and data analytics for enhanced water management efficiency.

The highest investments target wastewater treatment and reuse systems alongside Advanced reverse osmosis, reflecting global priorities around water security, circular economy principles, and smart utility management.

01 

7.5\$b

Xylem acquisition of Evoqua Water Technologies – USA

Refer to the appendix for more details on the projects

02 

3\$b

Whirlpool acquisition of InSinkErator from Emerson – USA

03 

2.6\$b

ECP Energy Capital Partners - Atlantica Sustainable Infrastructure Acquisition – USA

04 

2.3\$b

Alkimos Seawater Desalination Plant (ASDP) – Australia

05 

1.75\$b

Veolia acquisition of CDPQ's %30 stake in Water Technologies & Solutions (WTS) – France

06 

1.6\$b

Umm Al-Hayman Wastewater Treatment Plant PPP – Kuwait

07 

1.2\$b

TAQA acquisition of GS Inima – Spain

08 

1.05\$b

Korea Water Resources Corporation - LG Chem Water Solutions Acquisition – South Korea

09 

1\$b

ADS acquisition of NORMA Group Water Management business (NDS) – USA

10 

950\$m

Suez-Veolia Water Assets Strategic Merger - 950\$M – France

Top 10 investments for Agriculture

Investments emphasize precision agriculture, controlled environment systems, and data-driven farm management, combining IoT sensors, satellite imagery, and automated systems for enhanced agricultural productivity and resource efficiency.

The highest investments target food preservation and valorization of waste and unmanned aerial vehicles and satellite imagery, reflecting global priorities around food security, resource optimization, and climate-resilient agricultural systems.

01 
10.3\$b

Sealed Air Corporation Private Equity Acquisition – USA

02 
8.43\$b

Amcor-Berry Global Strategic Merger – Europe

03 
7.5\$b

Xylem-Evoqua Water Technologies Merger – USA

04 
5.6\$b

Coca-Cola BodyArmor Strategic Acquisition – USA

05 
5.5\$b


BAE Systems Strategic Acquisition of Ball Aerospace – USA

06 
4.1\$b

BP acquisition of Archaea Energy (RNG from waste) – USA

07 
4\$b


Karman Holdings Strategic IPO – USA

08 
3.8\$b

Voyager Technologies Strategic IPO – USA

09 
3.24\$b

National Reconnaissance Office EOCL Strategic Partnership Program – USA

10 
2\$b

KPS Capital Partners acquisition of Crown EMEA Food & Consumer Packaging (Eviosys) – Denmark

Refer to the appendix for more details on the projects

Financial Investment Models Overview

Private capital, venture capital, private equity, venture studios, impact investors, climate-tech funds that targets scalable technologies with commercial potential. These funds take higher risks in exchange for higher returns, focusing on disruptive startups and fast-growing market niches. The model includes early-stage VC for breakthrough technologies, growth capital from private equity, and impact funds financing sustainability-linked innovation.

Types of investment model under it

01

Private equity

03

Climate funds

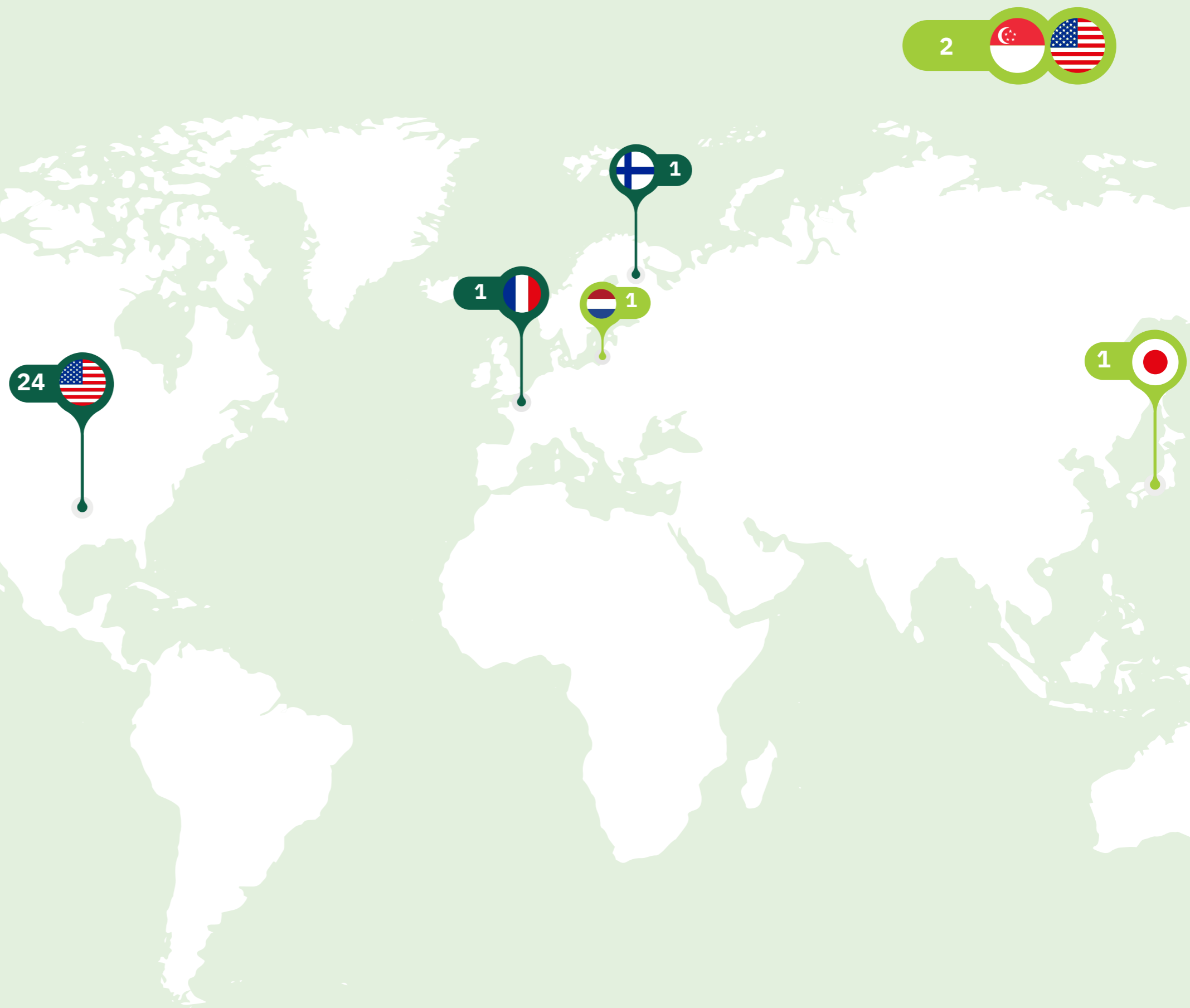
02

Venture capital



Number of Financial Investment Projects Across EWA Sectors Globally

The bubbles represent the distribution of the top 30 financial Investment projects globally across the EWA sectors.



Top 10 investments for Environment

Financial investments demonstrate concentrated focus on waste management technologies within the environment technology priority area, representing the primary commercial opportunity that attracts venture funding.

The analysis confirms that within environment technology priority areas, Waste Management captures the majority of private capital attention, reflecting market recognition of circular economy opportunities and commercial viability of waste-to-value solutions. Other environment priority areas show significant investment gaps that may require government or strategic corporate funding to advance.

01 

1\$b

Redwood Materials – Series D – USA

Refer to the appendix for more details on the projects

02 

700\$m

Redwood Materials – Series C – USA

03 

542\$m

Ascend Elements – Series D & associated equity – USA

04 

474.1\$m

Solugen - 474.1\$m Multi-Series Investment for Chemical Recycling – USA

05 

350\$m

Redwood Materials – Series E (Redwood Energy) – USA

06 

172.5\$m

Brightmark Plastics - 172.5\$m Debt/Equity Financing for Plastic-to-Fuel Technology – USA

07 

145\$m

HawkEye 360 – Series D – USA

08 

136\$m

ICEYE – Series D – Finland

09 

128.7\$m

Orbital Insight Series D - 128.7\$m Geospatial Analytics Investment – USA

10 

100\$m

Synspective – Series B (equity + loans) – Japan


Top 10 investments for Water



Financial investments demonstrate strong preference for wastewater treatment and reuse technologies, representing nearly %50 of total water technology investments. The funding landscape reveals mature-stage companies (Series C+) securing larger rounds of investments.

Geographic concentration is notable in North America and emerging activity in Europe and MENA regions. The investment data reveals private capital's strategic focus on scalable, AI-driven solutions that address water scarcity, infrastructure efficiency, and regulatory compliance challenges.



The analysis confirms that Wastewater Treatment and Reuse represents the most capital-intensive and investor-attractive water technology priority area, reflecting market recognition of circular economy opportunities and regulatory drivers for water recycling infrastructure.

01 
557\$m

Solugen - 577\$m Multi-Round Plant-Based Chemical Manufacturing – USA

02 
228\$m

Gradiant Corporation - Unicorn Water Treatment Investment – USA

03  
225\$m


Gradiant – Series D – USA & Singapore

04 
225\$m

Gradiant Corporation Series C - 225\$m Zero Liquid Discharge Technology – USA

05 
200\$m

Cambrian Innovation – Growth equity commitment by Pennybacker – USA

06  
100\$m

Gradiant – Series C – USA & Singapore

07 
85\$m


Aquatech International Series C - 85\$m Advanced Water Treatment – Netherlands

08 
75\$m

Fluence Corporation Private Equity Buyout - 75\$m – USA

09 
65\$m

Bionomic Industries Growth Investment - 65\$m – USA

10 
58.4\$m

ZwitterCo – Series B – USA

Refer to the appendix for more details on the projects

Top 10 investments for Agriculture



Financial investments demonstrate overwhelming preference for integrated aquaculture farm management. This reflects the massive scale of global aquaculture market opportunities and the capital-intensive nature of integrated farm management systems.

The analysis confirms that Integrated Aquaculture Farm Management represents the most capital-intensive agriculture technology priority area, reflecting private capital's recognition of food security challenges and the scalability of integrated aquaculture solutions in addressing global protein demand.

01 
851.4\$m

Skydio Series E - 851.4\$m Autonomous Drone Investment – USA

02 
704.5\$m

Zipline Series E - 704.5\$m Medical Delivery Drone Investment – USA

03 
700\$m

BlackRock acquisition of Vanguard Renewables – USA

04 
700\$m

Bowery Farming - Series C/D – USA

05 
588.1\$m

Shield AI Series E - 588.1\$m Defense UAV Investment – USA

06 
567\$m

GrubMarket Food Waste Management Investment - 566.96\$m – USA

07 
440\$m

Gotham Greens - Series B/C – USA

08 
400\$m

Plenty Unlimited - Series E – USA

09 
372\$m

Ÿnsect – Series C

10 
308.5\$m

Saildrone Series C - 308.5\$m Ocean Monitoring Platform Investment

Refer to the appendix for more details on the projects

Corporate RDI Investment Models Overview

Investments made by companies using their internal budgets to develop new technologies, improve processes, or enhance products and services. This includes expenditures on laboratories, prototypes, digital platforms, patents, and AI systems aimed at maintaining competitive advantage and market leadership. The purpose is to strengthen core capabilities, reduce operational costs, achieve sustainability targets, and create market differentiation without relying on external acquisitions.

Types of investment model under it

01

Internal capital reinvestment

03

Research centers

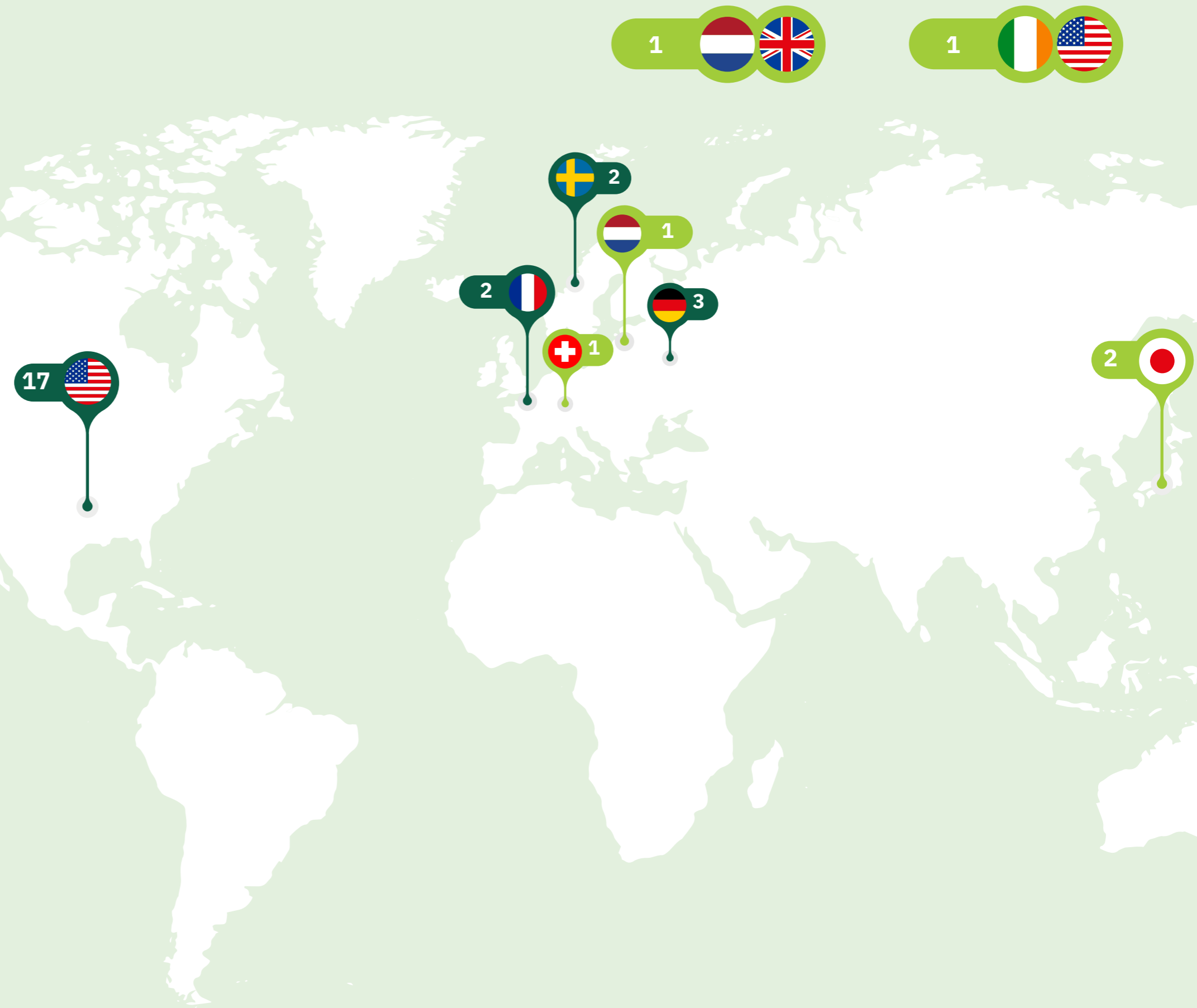
02

Innovation labs



Number of Corporate RDI Investments Projects Across EWA Sectors

The bubbles represent the distribution of the top 30 financial Investment projects globally across the EWA sectors.



Top 10 investments for Environment

The R&D investments in environment technology demonstrate unprecedented scale, with approximately 14\$ billion concentrated among the top 10 investments. Those investments are dominated by precision agriculture), alongside smart infrastructure, indicating that environmental solutions and energy-efficient infrastructure command the highest R&D confidence.

In the number of deals, USA dominates, while European companies dominate in terms of investment volume. This distribution reflects mature environmental markets driving precision farming adoption and established infrastructure sectors investing in smart grid modernization.

The data demonstrates that sustainability-focused R&D has moved beyond experimental phases into large-scale commercial deployment, with companies investing billions in technologies that directly address water scarcity, soil health, energy efficiency, and environmental monitoring.

01 
6.6\$b

Siemens AG - Industrial IoT (MindSphere), grid and building digital twins, smart infrastructure solutions for water, energy and city management – Germany

Refer to the appendix for more details on the projects

02 
2.17\$b

Deere & Company - See & Spray computer-vision sprayers, Operations Center digital platform, precision seeding and tillage systems enabling reduced inputs and healthier soils – USA

03 
2.01\$b

Schneider Electric - EcoStruxure platform for smart grids, buildings and water, microgrids for remote communities, digital energy and cooling systems for critical infrastructure – France

04 
1.04\$b

CNH Industrial - Precision farming tech (Raven, Case IH, New Holland), autonomous and assisted tractors, digital agronomy platforms for efficient land and water use – USA & Netherlands

05 
700\$m

Hexagon AB - HxGN geospatial and digital twin platforms, agriculture guidance via OEM partners, environmental monitoring and smart-city solutions for land and water assets – Sweden

06 
664.3\$m

Trimble Inc. - Trimble Ag precision guidance and variable-rate systems, water/utility GIS and asset platforms, connected construction and land-survey systems for environmental baselines – USA

07 
420.9\$m

AGCO Corporation - Fendt and Valtra precision platforms, precision application tools, and smart implements supporting reduced water and chemical use – USA

08 
412.6\$m

Teledyne Technologies - Marine and ocean sensors, environmental and industrial cameras, components for earth-observation platforms relevant to coastal and desert ecosystems – USA

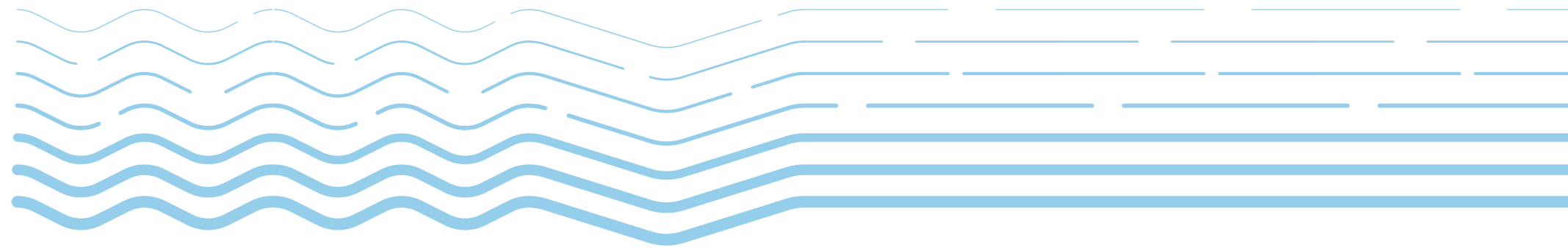
09 
232\$m

Xylem Inc. - Smart metering and network analytics, advanced pumps and control systems, digital twins for water networks integrating climate and usage data – USA

10 
208.7\$m

Itron Inc. - Advanced metering infrastructure (AMI), smart water solutions, distributed intelligence platforms used by utilities globally – USA

Top 10 investments for Water



The water technology R&D top 10 investments demonstrate approximately 2.3\$ billion. This represents a strategic focus on membrane technologies, treatment systems, and smart water infrastructure rather than broad diversification.

USA dominate the investments across the water sector reflecting mature water infrastructure markets and regulatory drivers for efficiency, while, Europe focuses on treatment technologies.


The investments demonstrate that water security R&D has evolved into a mission-critical investment area, with companies prioritizing technologies that address fundamental challenges of scarcity, efficiency, and quality.

02 ●
500\$m

Toray Industries - Advanced RO, wastewater reuse, high-recovery RO for industrial/brine streams – Japan

05 
209\$m

Itron- Smart leakage management, demand management, innovative home consumption via smart meters – USA

08 
99.8\$m

Pentair plc - Innovative home water consumption, point-of-use RO, small-scale greywater/wastewater reuse – USA & Ireland

03 
270\$m

Veolia Environnement - Wastewater treatment & reuse, smart leakage management, advanced RO, innovative home consumption via utility platforms – France

06 
195\$m

Ecolab - Wastewater treatment & reuse, advanced RO support chemistries, industrial demand management – USA

09 
98\$m

A. O. Smith - Innovative home water consumption, point-of-use RO, smart hot-water demand management – USA

01 
508\$m

DuPont de Nemours - Advanced RO, wastewater reuse, industrial demand optimization, membranes for home/industrial treatment – USA

04 
232\$m

Xylem Inc. - Smart leakage management, wastewater treatment & reuse, innovative home/utility consumption analytics – USA

07 ●
170\$m

Kurita Water Industries - Wastewater treatment & reuse, advanced RO/ZLD for industry, industrial demand efficiency – Japan

10 
55\$m

Valmont Industries - Innovative irrigation, farm water demand management, pressure/leakage optimization in pressurized networks – USA

Refer to the appendix for more details on the projects

Top 10 investments for Agriculture

European companies lead the majority of the top investments with 11.5\$B of total investment, dominated by German chemical giants Bayer AG and BASF SE, reflecting Europe's strength in crop science and biological innovation. USA companies contribute 5.2\$B focused on precision machinery and digital platforms, demonstrating complementary regional specializations.

The investments demonstrate that agricultural R&D has evolved into a capital-intensive technology sector, with companies investing billions in technologies that directly address food security, water efficiency, climate resilience, and sustainable production

01 

5.7\$b

Bayer AG - Short-stature maize, climate-smart cereals, biological crop protection, Climate FieldView digital platform for variable-rate seeding, spraying, and irrigation – Germany

02 

2.3\$b

BASF SE - xarvio digital farming, new fungicide and herbicide modes of action, biological seed treatments, advanced food- and packaging-related polymers for shelf-life – Germany

03 

2.17\$b

Deere & Company - See & Spray computer-vision weeding, autonomous tractors, John Deere Operations Center cloud platform integrating machinery, imagery, and agronomy data – USA

04 

1.9\$b

Nestlé S.A. - Ambient dairy and coffee, plant-based proteins, upcycled ingredients from side-streams, digital twins of factories to cut energy and water use – Switzerland

05 

1.34\$b

Corteva Agriscience - Vorceed corn, nitrogen-use-efficient hybrids, biological crop-protection portfolio, Granular digital platform for field intelligence – USA

06 

940\$m

CNH Industrial - Raven autonomy technologies, precision planting and spraying systems, telematics, and connected-farm platforms for Case IH and New Holland brands – Netherlands

07 

664\$m

Trimble Inc. - Trimble Ag Software, water-management tools, automated steering and section control, data services for irrigation optimization – USA

08 

640\$m

Hexagon AB - GNSS receivers and guidance systems for farm machinery, HxGN platforms, geospatial analytics for agriculture and water-resource monitoring – Sweden

09 

614\$m

Zoetis Inc. - Next-generation poultry and cattle vaccines, genomic tools, on-farm diagnostics, digital monitoring for herd health and productivity – USA

10 

421\$m

AGCO Corporation - FendtONE digital platform, precision planters and sprayers, smart implements, and retrofit guidance systems – USA

Refer to the appendix for more details on the projects

3.1 Global Perceptive

3.1.1 Purpose and Key Insights

3.1.2 Recent Large-Scale RDI Funding Announcements (2020 – 2025)

3.1.3 Cross-Sector Trends



Overview of the Cross-Sector Trends

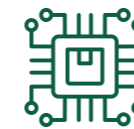
The purpose of this chapter is to explain why global and local investments in the environment, water, and agriculture (EWA) sectors are accelerating, by unpacking the drivers and underlying forces shaping capital allocation patterns. Rather than only presenting where money is flowing, this chapter interprets why it is flowing in certain directions offering readers a deeper understanding of the motivations behind public, private, strategic, and corporate investment decisions.

Drivers have been categorized into three categories:



Technological Supply

Innovation becomes technically viable and cost-effective, pushing new solutions into the market and attracting investment.



Demand pull

Market needs and economic pressures create demand for technologies that solve urgent environmental, water, and agricultural challenges.



Regulatory push

Policies, mandates, and incentives shape investment direction by rewarding innovation adoption or penalizing outdated practices.

These three drivers often work in combination, creating reinforcing cycles where technological advances enable new regulatory possibilities, regulations create demand for innovative solutions, and market demand incentivizes further technological development. Understanding how these drivers interact in specific technology areas can help explain why certain sectors attract more investment and guide strategic decision-making for future funding priorities.

Technological Supply

Technological Supply refers to the availability and maturity of innovative solutions that create new market opportunities and attract investment. This driver is characterized by breakthrough technologies, improved performance capabilities, and cost reductions that make previously unfeasible solutions commercially viable.

In the EWA sectors, technological supply manifests through:



Advanced materials and engineering

Development of more efficient reverse osmosis membranes, smart sensors for precision agriculture, and biodegradable materials for sustainable packaging.



Digital transformation

IoT sensors, AI-powered analytics, satellite imagery, and machine learning algorithms that enable real-time monitoring and optimization.



Biotechnology advances

Genetic improvements in crop varieties, microbial solutions for wastewater treatment, and bio-based alternatives to traditional chemicals.



Energy efficiency breakthroughs

Solar-powered irrigation systems, energy-neutral water treatment processes, and battery storage solutions for remote agricultural operations.



The supply-side push occurs when research institutions, technology companies, and startups develop solutions that demonstrate clear performance advantages, cost benefits, or novel capabilities that weren't previously available in the market.

Demand pull

Demand Pull represents market forces and user needs that create attractive investment opportunities by demonstrating clear commercial potential and customer willingness to pay for solutions. This driver is fueled by growing market demand, resource scarcity, and changing consumer preferences.

Key demand pull factors in EWA sectors include:



Resource scarcity pressures

Water stress, arable land limitations, and climate variability driving demand for efficiency solutions.



Population growth and urbanization

Increasing food security needs and urban water management challenges.



Consumer preferences

Growing demand for sustainable products, organic food, and environmentally responsible practices.



Economic incentives

Rising costs of traditional resources making alternative solutions more economically attractive.



Corporate sustainability commitments

Companies seeking solutions to meet environmental targets and ESG requirements.



This demand creates market pull by demonstrating proven customer need, willingness to pay premium prices for solutions, and scalable market opportunities that justify investor confidence.

Regulatory push

Regulatory Push encompasses government policies, regulations, and incentives that either mandate the adoption of certain technologies or create favorable conditions for investment in specific sectors. This driver shapes market dynamics through policy frameworks that can accelerate or redirect investment flows.

Regulatory push mechanisms include:



Environmental regulations

Emissions standards, water quality requirements, and waste management mandates that create compliance-driven demand.



Sustainability targets

National commitments to carbon neutrality, water conservation goals, and biodiversity protection that require technological solutions.



Financial incentives

Tax credits, subsidies, grants, and preferential financing for clean technologies and sustainable practices.



Standards and certifications

Quality standards, organic certification requirements, and sustainability reporting mandates that drive technology adoption.



Public procurement policies

Government purchasing preferences for sustainable solutions that create guaranteed market demand.






Research and development support

Public funding for innovation, technology transfer programs, and public-private partnerships.



In the Saudi context, Vision 2030 and MEWA's transformation programs exemplify regulatory push by establishing clear sustainability targets, providing funding mechanisms, and creating policy frameworks that incentivize investment in EWA technologies.

Summary slide stating the major drivers across countries

-  Technology Supply
-  Demand Pull
-  Regulatory Push



Key Reasons Behind the Emergence of These Drivers in Selected Countries



Technology Supply:

USA

- Silicon Valley's venture capital ecosystem driving cleantech and agri-tech innovation
- Strong R&D infrastructure and technology transfer from universities
- Leading in AI, IoT, and precision agriculture technologies

Netherlands

- Global leader in controlled environment agriculture and greenhouse technology
- Advanced water management and flood control innovations
- Strong agricultural technology export industry

Germany

- Industrial automation and precision agriculture equipment
- Advanced wastewater treatment and circular economy technologies
- Strong engineering capabilities in environmental technology

Key Reasons Behind the Emergence of These Drivers in Selected Countries



Demand Pull:

China

- Massive domestic market demand driven by population and urbanization
- Water scarcity and food security challenges creating market opportunities
- Growing middle class demanding sustainable and organic products

India

- Water stress and agricultural productivity challenges
- Large-scale irrigation and water management needs
- Growing demand for food security solutions

Australia

- Drought conditions and water scarcity driving innovation demand
- Agricultural efficiency needs in arid conditions
- Corporate sustainability commitments in mining and agriculture

Key Reasons Behind the Emergence of These Drivers in Selected Countries



Regulatory Push:

European Union (Denmark, Sweden, Germany)

- Strict environmental regulations and carbon neutrality targets
- Green Deal and taxonomy creating investment frameworks
- Mandatory sustainability reporting and ESG compliance

Saudi Arabia

- Vision 2030 and MEWA transformation programs
- National water and food security strategies
- Government funding for sustainable technology adoption

South Korea

- Green New Deal and carbon neutrality commitments
- Government investment in clean technology
- Regulatory frameworks supporting innovation

Summary - Why These Drivers Are Emerging in Saudi Arabia?

The research reveals that **Technological Supply** is primarily driven by countries with strong innovation ecosystems and R&D capabilities, **Demand Pull** is strongest in countries facing resource scarcity and rapid economic development, while **Regulatory Push** is most prominent in countries with ambitious climate targets and strong governance frameworks. These drivers often overlap, with some countries like Germany and the Netherlands exhibiting characteristics of all three drivers simultaneously.

The Kingdom of Saudi Arabia demonstrates a unique positioning across all three investment drivers:

Technological Supply Development

Saudi Arabia is actively building its innovation ecosystem through initiatives like NEOM, King Abdullah University of Science and Technology (KAUST), and the Saudi Research and Development Authority. The Kingdom is transitioning from a technology adopter to a technology developer, particularly in areas aligned with its natural advantages such as solar energy, desalination, and arid agriculture technologies. Strategic partnerships with global technology leaders and significant investments in R&D infrastructure are positioning Saudi Arabia to become a regional hub for EWA innovation.

Strong Demand Pull Dynamics

The Kingdom faces significant resource challenges that create compelling market demand for EWA technologies. Water scarcity in one of the world's most arid regions, the need to diversify from oil-dependent agriculture, and rapid urbanization under Vision 2030 create substantial domestic demand for innovative solutions. This demand is amplified by the Kingdom's ambitious goals for food security, water independence, and environmental sustainability, making it an attractive market for both domestic and international technology providers.

Robust Regulatory Push Framework

Vision 2030 and MEWA's transformation programs represent one of the world's most comprehensive regulatory push frameworks for EWA technologies. The Kingdom has established clear sustainability targets, substantial government funding mechanisms, and policy incentives that actively drive investment toward environmental, water, and agricultural innovations. The regulatory framework includes direct government investment, public-private partnerships, and strategic initiatives that create guaranteed demand for sustainable technologies.

The analysis shows that investment patterns are shaped by the interplay of these drivers, with successful technology adoption occurring where supply capabilities meet demand needs within supportive regulatory frameworks. **Saudi Arabia's strategic advantage lies in its simultaneous development of all three drivers:** building technological capabilities while leveraging strong natural demand and implementing comprehensive regulatory support. This convergence positions the Kingdom not just as a market for EWA technologies, but as a potential global leader in developing and scaling solutions for arid and resource-constrained environments.

The Kingdom's approach demonstrates how emerging economies can accelerate their transition by strategically aligning supply-building investments with existing demand pressures and supportive policy frameworks, creating a reinforcing cycle that attracts both domestic and international investment in critical EWA technologies.

The relationship between investment drivers and funding models follows a clear pattern that explains capital allocation logic across the EWA sectors. **Regulatory Push drivers** primarily activate government investment models, as policy mandates and sustainability targets require public sector leadership to establish market foundations and de-risk early-stage technologies. **Demand Pull drivers** predominantly trigger strategic investment models, where corporations invest to secure market access, acquire capabilities, or respond to customer demands and resource constraints. **Technological Supply drivers** mainly catalyze financial (private/venture capital) investment models, as breakthrough innovations and scalable solutions attract risk capital seeking high returns from commercialize technologies.

R&D investment models are uniquely activated by the convergence of all three drivers, occurring when technological possibilities align with market demand within supportive policy frameworks, creating the collaborative funding environment necessary for long-term research initiatives. This framework explains why water-scarce regions see more government desalination investments (regulatory push), why agtech companies attract strategic corporate funding (demand pull), why breakthrough cleantech startups secure venture capital (technological supply), and why comprehensive R&D programs emerge in countries like Saudi Arabia where Vision 2030 creates regulatory support, resource scarcity generates demand, and growing innovation capabilities enable technological development.

3.2 National EWA Technology Priority Groups

3.2.1 Purpose and Goal of the section

3.2.2 Environment Sector Investment Flow

3.2.3 Water Sector Investment Flow

3.2.4 Agriculture Sector Investment Flow

Purpose and Goal of the Section

The objective of this section is to demonstrate how Saudi Arabia's technology priority groups in the Environment, Water, and Agriculture (EWA) sectors align with global funding patterns. It translates the logic of capital allocation into sector-specific insight, showing where challenges exist, which technologies address them, and how investments are distributed both locally and internationally. This is achieved by highlighting the top 10 investments within each technology area across the environment, water, and agriculture sectors, covering a total of 14 technology priority groups. This analysis evaluates the top 10 strategic and financial investment signals over the past six years. While this sample represents a concentrated subset of the market, these mega signals are selected for their directional weight acting as lead indicators for sector maturity, technology adoption, and sovereign priority in the EWA landscape.

The chapter focuses on two investment models **strategic investments and financial investments** providing a clear view of private-sector expenditure and establishing a foundational understanding of investment behavior within the EWA technology landscape. Government/Sovereign and Corporate RDI investments are not represented at the Technology Priority Group level, as these investments are typically deployed at a sector-wide level rather than being allocated to discrete Technology Priority Groups (TPGs) across the 14 EWA technologies, limiting their direct attribution to specific technologies. These investors typically allocate funding to entire sectors rather than individual technologies,

making disaggregation impractical. Therefore, **Chapter 3.2** (National EWA Technology Priority Groups) focuses solely on Strategic Investments and Financial Investments, as these can be directly mapped to specific technologies.

The investments across the 14 Technology Priority Groups (TPGs) were identified and scoped based on two key criteria: **first**, the time frame, covering investments made between **2020 and 2025**; and **second**, the investment volume, focusing on top investments exceeding **USD 500,000**. **Over 1000** investments were captured across the three sectors, where they were filtered based on the set criteria. This approach ensures that the analysis highlights the most significant and recent financial and strategic activities within the EWA sector.



3.2 National EWA Technology Priority Groups

3.2.1 Purpose and Goal of the section

3.2.2 Environment Sector Investment Flow

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3.2.4 Agriculture Sector Investment Flow






Environment Sector

Key Challenges

The figure below provides an analytical overview of the primary environmental challenges and corresponding opportunities within five main areas of the environment value chain based on Innovation in the Environment Sector in Saudi Arabia - Technology Adoption Roadmap

mapped against the environment Technology Priority Groups that represent strategic investment focal points for addressing these challenges. This framework serves as both a diagnostic tool and an investment strategy guide, identifying areas requiring immediate

attention while highlighting where targeted capital deployment in specific technology priority groups can generate the greatest environmental and socioeconomic returns on investment.

 Biodiversity	 Land, Vegetation & Desertification	 Waste Management	 Pollution Control and Compliance	 Meteorology
Restore and promote sustainability of terrestrial ecosystems	Protect against overgrazing	Reduce volume of generated waste	Reduce emission levels (incl. CO2, CH4, PM)	Improve climate prediction and early warning capabilities
Restore and promote sustainability of marine and coastal ecosystems	Promote sustainable greening practices	Improve waste treatment	Increase effectiveness of air quality monitoring	Increase automation of meteorological data and reports
Increase protection of biodiversity hotspots	Protect against desertification, soil erosion, and droughts	Reduce mixed waste collection	Increase capacity to monitor environment compliance	Increase geographical coverage
Increase effectiveness of monitoring and assessment	Mitigate spread of invasive species and plant diseases	Improve hazardous waste safety levels	Improve control over soil contamination	Increase meteorological services offered
Increase effectiveness of conservation	Increase effectiveness of land monitoring and sustainable management	Increase capacity to monitor environmental compliance	Increase effectiveness of water quality monitoring	Improve forecasting & simulation techniques

Environment Technology Priority Groups

These technologies directly address KSA's environmental sustainability missions and mirror the global push for low-carbon innovation.



Ecosystem Monitoring

Ecosystem monitoring techniques focus on understanding, assessing and managing wildlife ecosystems. It allows for greater levels of effectiveness in tracking, understanding, and monitoring biodiversity in marine and terrestrial environments. Ecosystem monitoring includes Ground/terrestrial monitoring and Marine surveillance



Grazing Land Management

Rangeland management techniques aim to sustainably manage pastures and open grazing lands to protect them from overgrazing and desertification. These technologies include: Grazing monitoring techniques and Feeding techniques



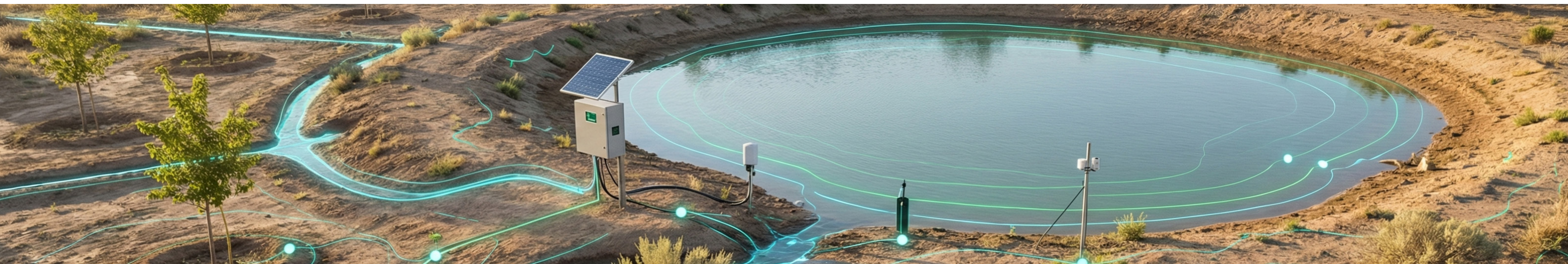
Waste Management

Waste treatment technologies include material recycling, energy recovery, and recycling of organic waste into all types of waste, including construction and demolition waste, municipal solid waste, and agricultural waste. These technologies include: Material recycling, Energy recovery, and Organic waste recycling



Innovative Irrigation Techniques for trees and Wild Plants

Innovative irrigation techniques for trees and wild plants encompass a range of systems designed to facilitate the growth of natural vegetation while optimizing water usage and increasing efficiency in managing water resources. These techniques allow for the efficient allocation of irrigation water tailored to specific plant needs and land characteristics, without compromising plant growth. These technologies include: Micro/drip irrigation, Flood irrigation in ponds, Subsurface irrigation with leaky hoses, and Smart irrigation



Source: Innovation in the Environment Sector in Saudi Arabia - Technology Adoption Roadmap

Aligning Technology Priority Group Investments with National Missions

Targeted investments in the upcoming technology priority groups are essential to advancing Saudi Arabia's Vision 2030 environmental sustainability goals while also stimulating the development of new economic sectors and job opportunities.

By systematically identifying sector challenges, mapping emerging opportunities, and defining investment-ready technology priority groups, the framework establishes a robust basis for evidence-driven capital allocation. This allows policymakers, investors, and environmental planners to align national sustainability objectives with practical technological solutions that are:



Top Ecosystem Monitoring Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to environmental technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Teledyne Technologies acquisition of FLIR Systems	USA	8,000,000,000	Teledyne Technologies (USA)
2	NRO EOCL Strategic Partnership - Ecosystem Monitoring	USA	3,240,000,000	National Reconnaissance Office
3	OceanPact – Petrobras marine environmental monitoring contracts	Brazil	700,000,000	OceanPact (Brazil)
4	Planet Labs – Business Combination with dMY Technology Group IV	USA	590,000,000	dMY Technology Group IV (SPAC sponsor), PIPE investors incl. CPP Investments, Koch Strategic Platforms, TIME Ventures, Google, others
5	Thales Alenia Space – Copernicus ROSE-L environmental monitoring mission contract	Italy	482,000,000	Thales Alenia Space (Italy)
6	OHB System – Copernicus CO2M atmospheric CO2 monitoring mission (Satellites 2 & 1)	Germany	518,069,000	OHB System AG (Germany)
7	Airbus Defence and Space – Copernicus LSTM (Land Surface Temperature Monitoring) mission	Spain	442,396,000	Airbus Defence and Space (Spain)
8	OHB System – ESA Earth Explorer “Harmony” mission	Germany	325,976,000	OHB System AG (Germany)
9	Satellogic – Business Combination with CF Acquisition Corp V	USA	262,000,000	CF Acquisition Corp V (SPAC), Liberty Strategic Capital, Cantor Fitzgerald affiliates, other PIPE investors
10	OHB System AG – third Copernicus CO2M satellite contract	Germany	204,317,100	OHB System AG (Germany)

	Investment title	country	Amount (USD)	Investor
1	Orbital Universe “Design in Saudi Arabia with AI (DISAI)” Mangrove Monitoring Project	Saudi Arabia	Undisclosed	Program sponsors: Aramco Overseas Company B.V., Qualcomm Technologies International, Inc., Saudi RDI, Orbital Universe as investee/partner
2	Saudi Space Commission – CNES Cooperation Agreement incl. Space	Saudi Arabia / France	Undisclosed	Saudi Space Commission (now Saudi Space Agency) and CNES
3	Neo Space Group (NSG) acquisition of UP42 Earth Observation Platform from Airbus	Saudi Arabia / Germany	Undisclosed	Neo Space Group (PIF company) acquiring UP42 from Airbus Defence and Space
4	US–Saudi Civil Space Framework (incl. Earth Science & EO)	Saudi Arabia / USA	Undisclosed	Saudi Space Agency and US Government / NASA
5	Saudi–Italian Space Agencies MoU (ASI–Saudi Space Commission) on Earth Observation Cooperation	Saudi Arabia / Italy	Undisclosed	Saudi Space Commission and Italian Space Agency (ASI)
6	KACST–stc MoU on Satellite Products, Remote Sensing and Earth Observation	Saudi Arabia	Undisclosed	KACST and stc Group
7	KAUST–Spire “KAUST CubeSat” Ecosystem Monitoring Nanosatellite Mission	Saudi Arabia	Undisclosed	KAUST (mission owner) with Spire Global as satellite & data services partner
8	NSG–Esri Global MoU on Geospatial & EO-based Environmental Monitoring	Saudi Arabia	Undisclosed	Neo Space Group (NSG) and Esri Global Inc.

Top Ecosystem Monitoring Global and Local Strategic investments

insights

Common technology themes

Space-first monitoring: Most deals are tied to satellites, payloads and EO platforms (CO₂ monitoring satellites, LST missions, CubeSats, marine observation payloads).

Country dominance

- United States is leading in value and deal scale (largest acquisitions and several corporate strategic deals). US actors dominate vertically integrated solutions (hardware and analytics).
- Europe (Germany, Italy, and Spain) appear repeatedly for Copernicus/mission contracts and satellite builds.

Prominent investors and diversified investor types

- **The majority of high-value global transactions** are executed by government-linked space and intelligence agencies (e.g., the U.S. National Reconnaissance Office). Investments mostly takes the form of mission contracts, satellite procurement agreements, and long-term service partnerships.
- **Saudi investors** such as Saudi Space Agency, KACST, KAUST, STC, Aramco program sponsors, participate primarily through MoUs, strategic partnerships, and co-development agreements. This highlights the importance of a focusing on technology transfer, capability acquisition, and data access.



Funding stages and technology maturity

- **Globally** the predominant funding types includes strategic, and mission contracts.
- In **Saudi Arabia**, MoU approach indicates capability acquisition and technology transfer, with reliance on foreign prime contractors for manufacturing and systems integration

Additional Observations

Strategic investments in ecosystem monitoring are actively occurring in Saudi Arabia; however, the associated investment volumes are not publicly disclosed. Nonetheless, the presence of these transactions signals tangible market activity and growing strategic interest within this technology domain.



Top Ecosystem Monitoring Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to environmental technologies that address these challenges.

	Investment title	country	Amount (USD)	Investor
1	HawkEye 360 – Series D	USA	145,000,000	Insight Partners (lead), Seraphim Space, NightDragon, Strategic Development Fund, others
2	ICEYE – Series D	Finland	136,000,000	Seraphim Space (lead), Tesi, DNX Ventures, Molten Ventures, OTB Ventures, True Ventures, Promus Ventures, others
3	Orbital Insight – Series D (128.7\$M Geospatial Analytics Investment)	USA	128,700,000	Multiple VCs
4	Synspective – Series B (equity + loans)	Japan	100,000,000	JIC Venture Growth Investments, Sparx Innovation for Future, Mirae Asset, Pavilion Capital, others
5	Capella Space – Series C	USA	97,000,000	NightDragon (lead), DCVC, Cota Capital, Sequoia, Lux Capital, others
6	Tomorrow.io (ClimaCell) – Series D	USA	77,000,000	Stonecourt Capital (lead), Highline Capital, others
7	Pachama – Increases Series B to 64\$M with 9\$M Extension	USA	64,000,000	Multiple VCs
8	Pixxel – Series B (incl. 2024 extension)	India	60,000,000	Radical Ventures, Lightspeed, Blume Ventures, Athera, Google, others
9	AiDash – Series C	USA	58,500,000	Lightrock (lead), Lightsmith Group, Duke Energy, National Grid, Edison International, SE Ventures, G2 Venture Partners, BGV, Shell Ventures, Sabanci Ventures, Marubeni
10	Pachama – Series B	USA	55,000,000	Future Positive, Breakthrough Energy Ventures, Lowercarbon Capital, Amazon Climate Pledge Fund, others



Top Ecosystem Monitoring Global and Local Financial investments

insights

Common technology themes

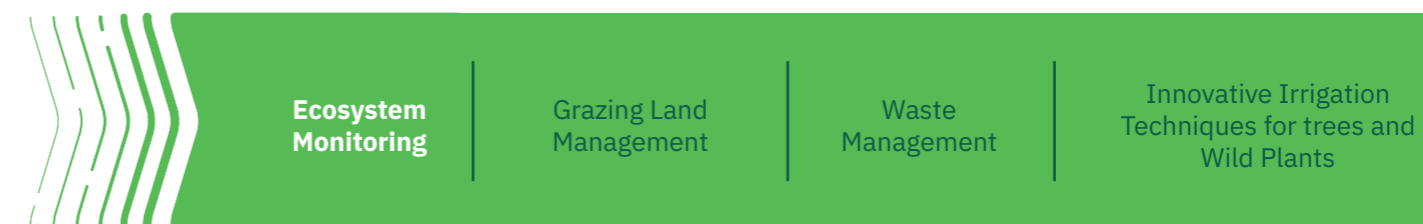
Several investments target climate and natural-asset monitoring, including forest and carbon accounting platforms (Pachama, AiDash) and weather/intelligence services (Tomorrow.io), highlighting strong demand for data-driven ecosystem monitoring solutions.

Country dominance

- US-based companies account for 7 of the 10 largest deals and roughly two-thirds of total disclosed capital, indicating that ecosystem-monitoring innovation and scaling are currently led from the United States.
- The remaining activity is distributed across Finland, Japan, and India, reflecting emerging regional hubs in Europe and Asia for Earth-observation and geospatial analytics.

Prominent investors and diversified investor types

- Climate-focused and strategic investors, such as Breakthrough Energy Ventures, Lower carbon Capital, Amazon Climate Pledge Fund, Shell Ventures, Google, Duke Energy, National Grid and other utilities play a key role, signaling strong industrial and decarbonization use-cases.
- The diversity of investor types suggests robust confidence in the business models: not just pure space-tech venture environmental compliance, or resource-management strategies.

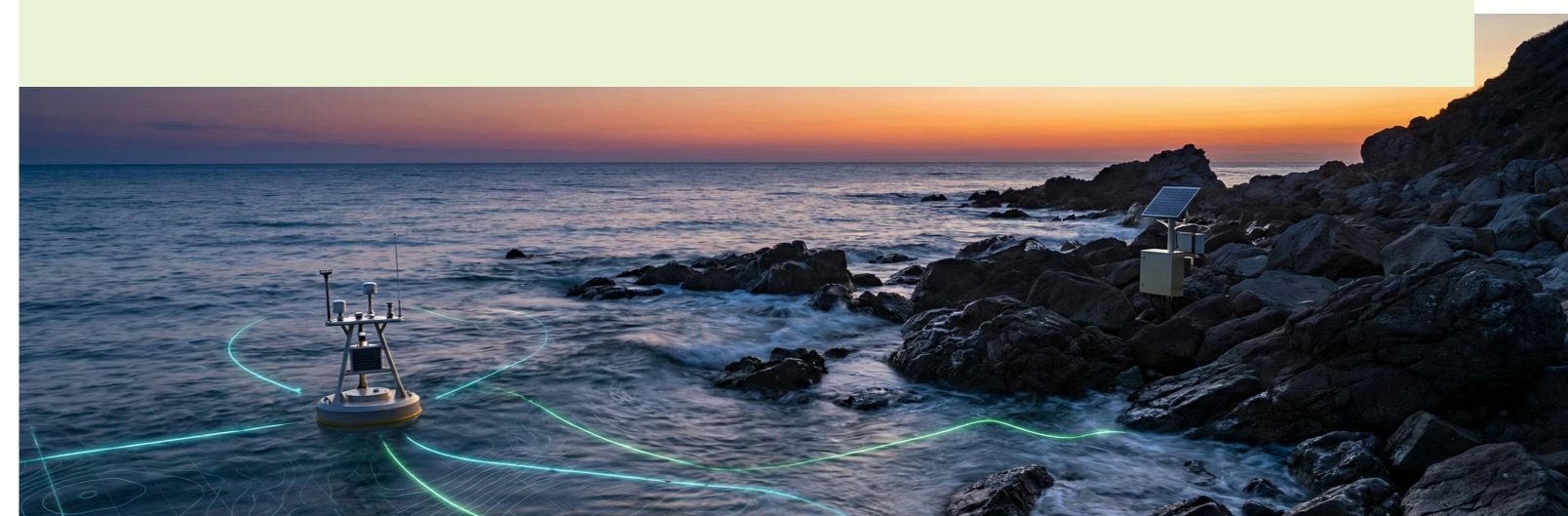


Funding stages and technology maturity

All investments are growth-stage rounds (Series B–D), with no seed or Series A deals among the top 10, indicating that the leading solutions are already commercial and scaling rather than experimental. This suggests the technologies (satellite imaging, data analytics platforms, climate-risk monitoring) are maturing, achieving product-market fit, and expanding operations a positive signal for downstream adoption, including public-sector or national-level uptake.

Additional Observations

Leverage private investment momentum for public-good goals. In Saudi Arabia, where many leading companies already operate at the growth stage, public-sector actors (such as MEWA) can accelerate adoption by issuing tenders or partnering with global firms, rather than prioritizing early-stage R&D funding.



Top Grazing Land Management Global and Local strategic investments

Objective

To reveal how investment capital both global and domestic is responding to environmental technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Halter US100\$m for smart cow collars	New Zealand/ USA	100,000,000	None – financial investors (Bond, NewView, Bessemer, DCVC, Blackbird, Icehouse, Promus)
2	Wyuna Regenerative Agriculture Investment Fund – CEFC & Goodman commitments	Australia	65,000,000	Goodman Group, CEFC as public green bank, Wyuna founders
3	Gallagher acquisition of Agersens (eShepherd virtual fencing)	Australia/ New Zealand	40,000,000	Gallagher Group
4	Nofence 26€m+ Series B for virtual fencing	Norway/UK	33,000,000	European Circular Bioeconomy Fund, Capagro, Nysnø Climate Investments, Climate Innovation Capital, SpeedInvest, others
5	AgriWebb A11\$m funding for livestock & grazing management software	Australia/ UK	7,200,000	TELUS Ventures, Munters Group, Grosvenor Food & AgTech, Germin8 Ventures
6	National Soil Carbon Innovation Challenge – AgriProve satellite soil-carbon project	Australia	6,500,000	Australian Government (grant) with AgriProve as private project developer
7	Rangelands Carbon collaboration (Food Agility CRC + AACo, Cibo Labs, Carbon Link, FLINTpro, universities)	Australia	5,000,000	Food Agility CRC, Australian Agricultural Company, Cibo Labs, Carbon Link, FLINTpro, UTs, Federation University, Charles Sturt University
8	National Soil Carbon Innovation Challenge – Carbon Link / MaiaGrazing consortium	Australia	1,500,000	Australian Government (grant) with Carbon Link, Cibo Labs, MaiaGrazing as commercial partners
9	Herdwatch acquisition of Kingswood Computing (Kingswood Herd) farm software	Ireland/ UK	Undisclosed	Herdwatch
10	Legacy Landscapes Program (NatGLC + Nestlé Purina, AgriWebb, Regrow)	USA	Undisclosed	Nestlé Purina Petcare, AgriWebb, Regrow, National Grazing Lands Coalition

	Investment title	country	Amount (USD)	Investor
1	NCVC–Saudi Aramco Collaboration to Disperse 50 Million Pastoral Seeds	Saudi Arabia	Undisclosed	National Center for Vegetation Cover (NCVC), Saudi Aramco
2	Gallagher–Al Taiweed Strategic Distribution Agreement (Virtual & Electric Fencing)	Saudi Arabia / New Zealand	Undisclosed	Gallagher Animal Management, Al Tajweed Trading & Contracting Co
3	Grazing Management Plan at Mu'ayla Reserve 3 (Northern Borders Region) – NCVC	Saudi Arabia	Undisclosed	National Center for Vegetation Cover (NCVC)
4	NEOM Regreening Initiative with NCVC (100 Million Native Trees, Shrubs and Grasses; 1.5M ha)	Saudi Arabia	Undisclosed	NEOM Company, National Center for Vegetation Cover (NCVC)
5	NCVC–Nova MoU for Vegetation Cover & Saad National Park	Saudi Arabia	Undisclosed	National Center for Vegetation Cover (NCVC), Nova (Saudi bottled water company)
6	Digital Grazing Permit Service via Nabati Platform – NCVC	Saudi Arabia	Undisclosed	National Center for Vegetation Cover (NCVC)
7	NCVC Seed-Based Rangeland and Desert Restoration Programme (Native Seed Collection & Seeding)	Saudi Arabia	Undisclosed	National Center for Vegetation Cover (NCVC)
8	Conserve and Restore Vegetation Cover in Rangelands (Phase 1) – NCVC	Saudi Arabia	Undisclosed	National Center for Vegetation Cover (NCVC), Government of Saudi Arabia

Top Grazing Land Management Global and Local strategic investments

insights

Common technology themes

- Virtual fencing and precision livestock management dominate **global** investments, with multiple large rounds for smart collars, virtual fencing, and livestock management software (Halter, Gallagher/Agersens, Nofence, AgriWebb).
- Rangeland restoration, seed dispersal, and vegetation cover enhancement dominate **Saudi Arabia** investments activities, signaling a focus on ecosystem rehabilitation

Country dominance

- Australia is the **global** hotspot for grazing, soil-carbon, and rangeland innovation. It hosts more than half of the top global investments.

Prominent investors and diversified investor types

- The main investor in **Saudi Arabia** is NCVC, occasionally joined by national champions (Saudi Aramco, NEOM).
- Private-sector participation in **Saudi Arabia** is limited compared to global investment activities.



Funding stages and technology maturity

- **Globally**, acquisitions signal consolidation in farm management platforms and fencing companies a sign of market maturation
- Most investments in **Saudi Arabia** are public strategic funding, MoUs, or national programs with no disclosed investments volume.

Additional Observations

Most **Saudi Arabia** deals are tied to a single institution (NCVC), meaning the sector is public-led rather than private-market-driven.

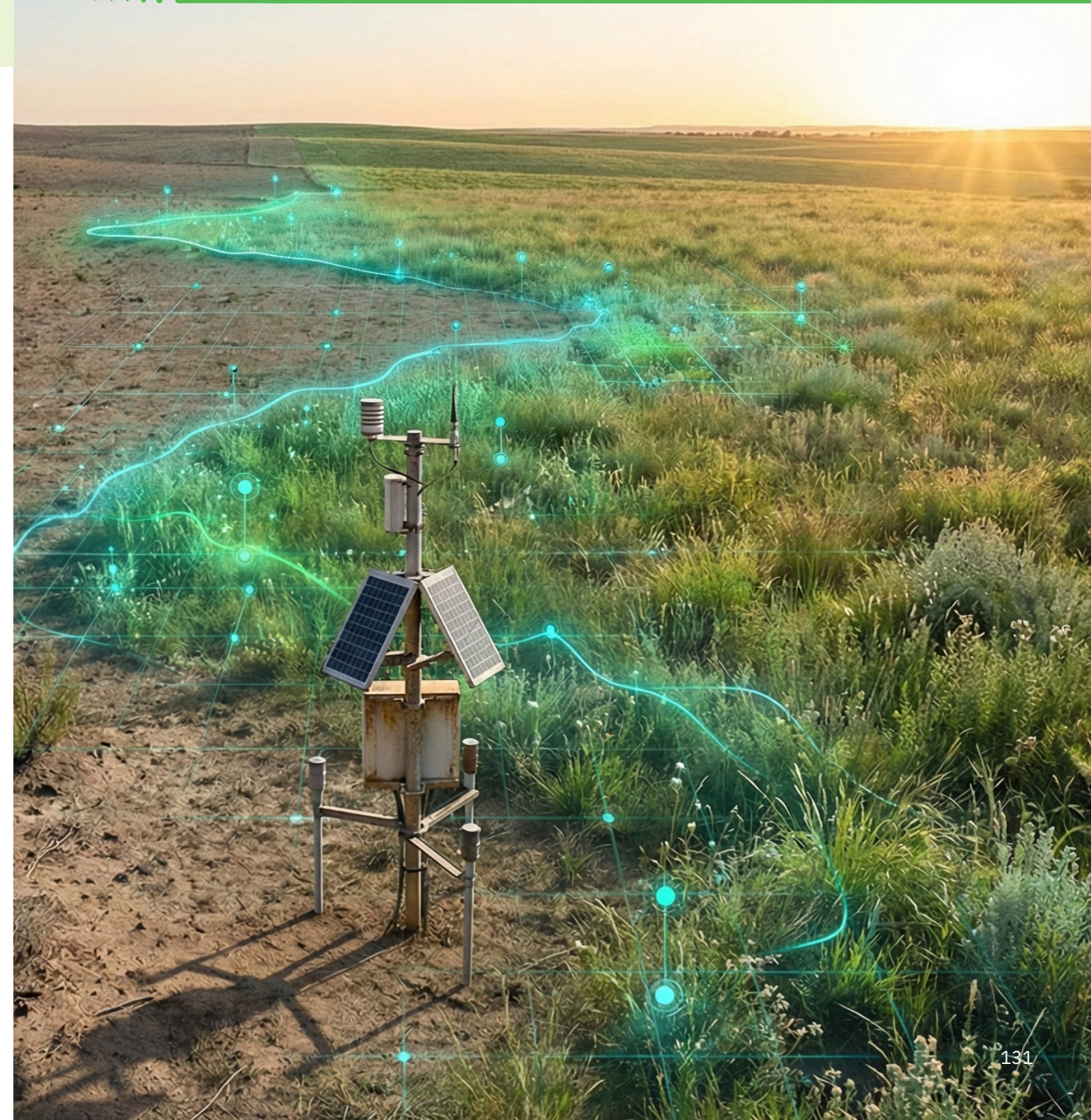


Top Grazing Land Management Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to environmental technologies that address these challenges.

	Investment title	country	Amount (USD)	Investor
1	Halter – Series D	New Zealand	100,000,000	Bond (lead), NewView, Bessemer Venture Partners, DCVC, Blackbird, Icehouse Ventures, Prodigy Ventures
2	Halter – Series C	New Zealand	55,000,000	Bessemer Venture Partners (lead), Blackbird, DCVC, Rocket Lab founder Peter Beck, Icehouse Ventures
3	Nofence – Series B	Norway	35,000,000	European Circular Bioeconomy Fund (ECBF), Nysnø Climate Investments, Capagro, Climate Innovation Capital, Sandwater, Ferd
4	Halter – Series B	New Zealand	29,000,000	Blackbird, DCVC, Possible Ventures and others
5	AgriWebb – Series B (expanded)	Australia	27,000,000	TELUS Ventures, Clean Energy Finance Corporation (CEFC), Grosvenor Food & AgTech, Germin8 Ventures, iSelect Fund, Munters Group and others
6	Nofence – Series A	Norway	13,000,000	Ferd Capital, Pelican AB, Sandwater
7	Vence – Series A	USA	12,000,000	Tyche Partners (lead), Eniac Ventures, Trailhead Capital, KKR's Neglected Climate Opportunities, later Merck Animal Health Ventures and Shell Ventures
8	AgriWebb – 2024 growth round	Australia	7,200,000	Munters Group (lead), Germin8 Ventures, Grosvenor Food & AgTech, iSelect Fund, TELUS Ventures
9	Collie – Seed round	Netherlands	3,500,000	Freigeist Capital
10	Aimer Development – Seed investment	New Zealand	600,000	Sprout Agritech (via its tech-incubator investment vehicle)



Top Grazing Land Management Global and Local Financial investments

insights

Common technology themes

The majority of capital is flowing into precision livestock management technologies, especially: Virtual fencing and autonomous livestock control (Halter, Nofence), Digital farm management platforms (AgriWebb), and Livestock behavior and movement analytics (Vence). These technologies are converging around data-driven grazing optimization, labor reduction, and environmental compliance, indicating investor confidence in digital and automation-enabled solutions for rangeland and herd management.

Country dominance

- New Zealand is the dominant player, capturing 3 of the top 4 largest rounds, all driven by Halter's significant Series D, C, and B raises.
- The USA appears only once (Vence Series A), highlighting that innovation leadership in this domain is shifting toward non-US agricultural tech hubs.

Prominent investors and diversified investor types

Investors are mainly climate-aligned, agritech-focused, or strategic corporates with interest in digital livestock solutions and sustainability outcomes.



Funding stages and technology maturity

- Halter's scale-up rounds indicates that virtual fencing and precision livestock management technologies are entering commercial maturity.
- Overall, the TPG exhibits a balanced maturity curve in **Late-stage** scaling is Halter, Nofence, AgriWebb. In **Mid-stage** growth is Vence. In **Early innovation** is Collie, Aimer Development. This suggests a healthy innovation pipeline, with clear pathways from prototype to commercial deployment.

Additional Observations

Europe (Norway) and Oceania (New Zealand, Australia) are becoming global centers for livestock digitization, which may reflect their large grazing-based livestock sectors and higher sustainability pressures.



Top Waste Management Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to environmental technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Veolia acquisition of Suez	France	15,440,000,000	Veolia Environnement
2	WM acquisition of Stericycle	USA	7,200,000,000	Waste Management, Inc. (WM)
3	EQT Infrastructure Acquisition of Covanta - 5.3\$B Waste-to-Energy Deal	USA	5,300,000,000	EQT Infrastructure
4	Waste Management Inc Acquisition of Advanced Disposal - 4.9\$B Market Consolidation	USA	4,900,000,000	Waste Management Inc
5	WM acquisition of Advanced Disposal Services	USA	4,600,000,000	Waste Management, Inc.
6	WM Sustainability Growth Strategy – Recycling & RNG Infrastructure	USA	3,000,000,000	Waste Management, Inc. (WM)
7	Veolia acquisition of Clean Earth (hazardous-waste specialist)	France	3,000,000,000	Veolia Environnement
8	Waste Connections Acquisition of Secure Energy – 2.86\$B CAD Canadian Market Expansion	Canada	2,069,782,000	Waste Connections
9	Cinven and GTCR Acquisition of Stericycle - 2.3\$B Medical Waste Buyout	USA	2,300,000,000	Cinven, GTCR
10	Fortum sale of %50 of Fortum Oslo Varme (waste-to-energy & district heating)	Norway	2,328,400,000	Hafslund Eco, Infranode, HitecVision (consortium)

	Investment title	country	Amount (USD)	Investor
1	Acquisition of majority stake in Environment Development Company (EDCO)	Saudi Arabia	27,000,000	SUEZ, Five Capital Fund, Itochu Corporation
2	Edama – SIRC growth investment	Saudi Arabia	5,600,000	Saudi Investment Recycling Company (SIRC – PIF)
3	Innovative Alternatives Company for Environmental Services (alternative fuels JV)	Saudi Arabia	2,300,000	Tadweer Environmental Services, Green Solutions for Environmental Services, Lechtenberg Middle East
4	SIRC contract with Edama to design-build-operate organic-waste recycling facility	Saudi Arabia	Undisclosed	Saudi Investment Recycling Company (SIRC), Edama Organic Solutions
5	Aramco–TotalEnergies–SIRC JDCSA for sustainable aviation fuel (SAF) unit	Saudi Arabia	Undisclosed	Saudi Aramco, TotalEnergies, Saudi Investment Recycling Company (SIRC)
6	SIRC acquisition of %35 stake in Arab Paper Manufacturing Co. (WARAQ)	Saudi Arabia	Undisclosed	Saudi Investment Recycling Company (SIRC)
7	National waste-to-fuel (RDF) project – SIRC / MVW Lechtenberg / Empower	Saudi Arabia	Undisclosed	Saudi Investment Recycling Company (SIRC), MVW Lechtenberg, Empower
8	Veolia–SIRC MoU to create a regional waste-treatment champion	Saudi Arabia	Undisclosed	Veolia Environnement, Saudi Investment Recycling Company (SIRC)

Top Waste Management Global and Local Strategic investments

insights

Common technology themes

- Market consolidation is the dominant theme globally, with the largest transactions centered on acquisitions of major waste-management companies (Suez, Stericycle, Covanta, Advanced Disposal).
- Waste-to-energy (WtE) emerges as a high-value strategic technology, highlighted by multi-billion-dollar transactions (Covanta, Fortum Oslo Varme), signaling global confidence in thermal energy recovery and district heating assets.
- **Saudi Arabia's** portfolio is heavily concentrated in recycling infrastructure and circular economy solutions, particularly organic waste recycling, RDF/fuels, paper recycling, and SAF (sustainable aviation fuel).

Country dominance

- **USA** dominates global strategic activity, accounting for most of the top 10 largest deals primarily large-scale acquisitions and infrastructure expansions in waste management, hazardous waste, and WtE.
- **France** shows strong leadership in multinational consolidation, driven by Veolia's takeover of Suez and Clean Earth.

Prominent investors and diversified investor types

- **Globally**, Waste Management Inc. (WM) and Veolia Environnement stand out globally as the two biggest consolidators, each driving multi-billion-dollar deals to expand market share and technology capabilities.
- **Saudi Investment Recycling Company (SIRC)** is the central investor in Saudi Arabia, appearing in nearly every major domestic transaction signaling a state-led approach to building a national circular economy ecosystem.



Funding stages and technology maturity

- Majority of Global investment activities are acquisitions indicating high maturity of waste-management players and market consolidation in saturated sectors.
- In **Saudi Arabia**, investment type is predominantly strategic partnerships, JVs, and minority stake acquisitions, indicating technologies and markets are still in build-out phasedeployment.

Additional Observations

Strategic investments have been taking place in Saudi Arabia, however most of the investment volumes are undisclosed. This indicates that there are investment activities happening within the country.



Top Waste Management Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to environmental technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Redwood Materials – Series D	USA	1,000,000,000	Goldman Sachs Asset Management, Capricorn's Technology Impact Fund, T. Rowe Price, OMERS, Capricorn Venture Capital, Microsoft Climate Innovation Fund, Deepwater Asset Management, others
2	Redwood Materials – Series C	USA	700,000,000	T. Rowe Price, Goldman Sachs Asset Management, Baillie Gifford, CPP Investments, Fidelity, Capricorn's Technology Impact Fund, Breakthrough Energy Ventures, Amazon's Climate Pledge Fund, Valor Equity Partners, Emerson Collective, Franklin Templeton, others
3	Ascend Elements – Series D & associated equity	USA	542,000,000	Decarbonization Partners (BlackRock + Temasek), Temasek, Qatar Investment Authority, other institutional investors
4	Solugen – 474.1\$M Multi-Series Investment for Chemical Recycling	USA	474,100,000	Multiple Investors
5	Redwood Materials – Series E (Redwood Energy)	USA	350,000,000	Not fully disclosed; described as US\$350m Series E round for energy-storage expansion
6	Brightmark Plastics - 172.5\$M Debt/Equity Financing for Plastic-to-Fuel Technology	USA	172,500,000	Municipal bonds; private equity
7	AMP Robotics – Series C	USA	91,000,000	Congruent Ventures, Wellington Management, Blue Earth Capital, Sidley Park Infrastructure Partners, Tao Capital Partners, XN, Sequoia Capital, GV, Range Ventures, Valor Equity Partners
8	RoadRunner Recycling – Series D	USA	70,000,000	BeyondNetZero (General Atlantic), Adams Capital Management, Valo Ventures, FJ Labs, Third Prime, others
9	Samsara Eco – Series A extension / A+	Australia	65,000,000	Temasek, Main Sequence, Wollemi Capital, Hitachi Ventures, Titanium Ventures, DCVC, Lululemon, others
10	Reverion – 62\$M Series A for Biogas-to-Energy Conversion Technology	Germany	62,000,000	Energy Impact Partners, Honda, EU Fund

	Investment title	country	Amount (USD)	Investor
1	Barakah – Seed round	Saudi Arabia	1,500,000	Salica Investments, 500 Global, Plus VC, KAUST Innovation Fund, Annex Investments Angels
2	Edama – KAUST seed round	Saudi Arabia	780,000	KAUST Innovation Fund
3	Barakah – Pre-seed round	Saudi Arabia	300,000	Alriyadah Investments
4	Uvera – Pre-seed round	Saudi Arabia	150,000	Draper University Ventures, Saudi angel investors
5	Uvera – Core Vision investment	Saudi Arabia	Undisclosed	Core Vision Investments; earlier investors include Draper University Ventures and others
6	Barakah – FoodLabs follow-on round	Saudi Arabia	Undisclosed	FoodLabs existing investors (not fully disclosed)

Top Waste Management Global and Local Financial investments

insights

Common technology themes

- **Global:** Investment activity is heavily concentrated around advanced recycling technologies, particularly: Battery and e-waste recycling (Redwood Materials, Ascend Elements) Chemical recycling and bio-based alternatives (Solugen, Brightmark Plastics) AI-driven waste sorting and robotics (AMP Robotics) Biogas-to-energy and circular conversion technologies (Reverion).
- **Saudi** investments are concentrated in early-stage, innovation-driven waste solutions, including: Food waste valorization and circular food systems (Barakah, Uvera) Organic waste processing and composting technologies (Edama).

Country dominance

- **Global:** The United States overwhelmingly dominates global waste management investments, representing 9 of the 10 largest funding rounds. Only Germany and Australia appear once each, and with comparatively smaller funding volumes, reinforcing the central role of U.S. industrial and climate-tech ecosystems in scaling next-generation waste solutions.
- In **Saudi Arabia**, the relatively low investment volume compared to global peers show a substantial scaling opportunity for local waste startups if supported by national deployment programs and investments.

Prominent investors and diversified investor types

- The top investors include some of the most influential global climate and deep-tech funds: Goldman Sachs Asset Management, T. Rowe Price, Baillie Gifford, Breakthrough Energy Ventures, OMERS, Temasek, BlackRock, and Qatar Investment Authority.
- The diversity of investors underscores strong cross-industry confidence in circular-economy technologies.
- In **Saudi**, The presence of university and seed-stage vehicles highlights strong institutional support for early-stage innovation.



Funding stages and technology maturity

- The majority of investments fall within late-stage Venture rounds (Series C–E), with several mega-rounds.
- In **Saudi Arabia**, all investments are pre-seed or seed stage, indicating a waste management ecosystem that is emerging.



Top Innovative Irrigation Techniques for trees and Wild Plants Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to environmental technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Morocco: 7.5 bn MAD Date Palm Sector Irrigation & Sustainability Program	Morocco	750,000,000	Government of Morocco + sector partners (PPP-style program)
2	Netafim Large-Scale Drip Irrigation Program in China & India	China and India	500,000,000	Netafim (Orbia Precision Agriculture) and financing partners
3	Valmont US240\$ m Multi-Year Order for Irrigation Products & Services	Latin America	240,000,000	Valmont Industries (Valley Irrigation)
4	Jain Irrigation Systems Strategic Restructuring Investment	India	200,000,000	Kotak Investment Advisors, AION Capital Partners
5	Jain Irrigation Systems – US120\$ m Drip Irrigation Expansion	India	120,000,000	Jain Irrigation Systems Ltd.
6	Netafim – US85\$ m Community Drip Irrigation Contract in Karnataka, India	India	85,000,000	Netafim Ltd / Netafim India
7	Valmont / Valley Irrigation – US85\$ m Supply Agreement for African Projects	Africa (Multiple)	85,000,000	Valmont Industries (Valley Irrigation)
8	Valmont Industries Strategic Acquisition of HR Products	Australia	45,000,000	Valmont Industries
9	Google – US4\$ m Smart Irrigation Investment with Arable Labs	USA	4,000,000	Google and Arable Labs (technology partner)
10	Mahindra Irrigation – micro-irrigation contracts for 2,700 hectares	India	1,590,000	Mahindra Irrigation (India)

	Investment title	country	Amount (USD)	Investor
1	King Salman Park – Water & Sewage Treatment Complex + Smart Irrigation	Saudi Arabia	Undisclosed	King Salman Park Foundation with engineering and technology partners
2	National Water Company – ‘Let’s Make It Green’ Treated Greywater Irrigation	Saudi Arabia	Undisclosed	National Water Company (state-owned utility)
3	NEOM Regreening Initiative – 100 Million Native Trees, Shrubs and Grasses	Saudi Arabia	Undisclosed	NEOM Company and National Center for Vegetation Cover (NCVC)
4	Saudi National Bank – Green Mosques Greywater Irrigation Initiative	Saudi Arabia	Undisclosed	Saudi National Bank (SNB)
5	Al Khobar Tree Digitization – Smart Green City Tree Management	Saudi Arabia	Undisclosed	Eastern Province Municipality (with technology partners)
6	Nova Water – NCVC MoU to Plant 200,000 Trees	Saudi Arabia	Undisclosed	Nova Water (Abunayyan Group) and NCVC
7	Green Riyadh – Urban Greening & Treated-Water Irrigation Network	Saudi Arabia	Undisclosed	Royal Commission for Riyadh City (RCRC) / Government of Saudi Arabia

Top Innovative Irrigation Techniques for trees and Wild Plants Global and Local Strategic investments

insights

Common technology themes

- Drip and micro-irrigation dominate **globally**, with Netafim, Jain, and Mahindra driving most major investments across India, China, Africa, and Latin America.
- Large-scale urban greening and treated-water irrigation dominate in **Saudi Arabia**, reflecting the Kingdom's strategy to reduce freshwater use and scale sustainable landscaping.

Country dominance

- Morocco's 750\$M date-palm irrigation program stands out as the largest agriculture-focused sustainability investment in the list, highlighting North Africa's strategic priority around water scarcity and food resilience.
- India is a major global player for irrigation investment, appearing in five of the top ten deals.

Prominent investors and diversified investor types

- Governments (China, India, Morocco) play a major role in project financing, indicating drip irrigation remains infrastructure-driven.
- Government-backed entities in **Saudi Arabia** dominate: King Salman Park Foundation, National Water Company, NCV, NEOM, RCRC.
- Unlike global markets dominated by private manufacturers, Saudi Arabia's model is state-led infrastructure investment focused on sustainability outcome.



Funding stages and technology maturity

- Mostly large-scale project financing shows that Drip & Micro irrigation has reached a mature stage.
- Predominantly in **Saudi Arabia** public megaproject funding and state-led initiatives, indicating early- to mid-maturity market development.

Additional Observations

Africa and Latin America show rising demand for mechanized large-scale irrigation systems, likely driven by climate stress and agricultural expansion.



Top Innovative Irrigation Techniques for trees and Wild Plants Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to environmental technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Rain Technologies Inc. Strategic Funding Round	USA	75,000,000	Prous N.V., Nexus Venture Partners
2	SunCulture – Series B	Kenya	27,500,000	Emerald Energy, Reed Hastings, Eric Schmidt, InfraCo Africa, Acumen, and others
3	Hydrostat – Series A+ climate financing	USA/ Luxembourg	20,000,000	Statkraft Ventures (lead), Blue Bear Capital, Hartree Partners, OTB Ventures and others.
4	Hydrostat – 'Seed Round'	USA	10,000,000	Cultivation Capital, Freeflow Ventures, Space Capital, OCA Ventures and others.
5	Weenat Series C Water Scarcity Technology Funding	France	9,972,200	ECBF (lead), Pymwymic, LIBERSET, IDIA Capital Investissement
6	Kilimo – AI Water Stewardship & Irrigation Management	Argentina	7,500,000	Emerald Technology Ventures (lead), The Yield Lab Latam, Salkantay Ventures, Kamay Ventures, iThink VC.
7	Lumo – Smart Valve Irrigation Automation Round	USA	7,000,000	Active Impact Investments, Fall Line Capital.
8	FarmHQ – Irrigation Automation Equity Round	USA	5,000,000	Fortson VC, Lowercarbon Capital, Tacoma Venture Fund and others.
9	Verdi – Retrofit Irrigation Automation for Specialty Crops	Canada	4,875,000	BDC Capital's Industrial Innovation VC Fund (lead), Garage Capital, Mistral and others.
10	Gardin Agritech Seed 2 Precision Agriculture Funding	UK	4,500,000	Navus Ventures (lead), Oxford Innovation Finance, LDV Capital, MMC Ventures, Seedcamp, Alchimia Investments, and angel investors

	Investment title	country	Amount (USD)	Investor
1	Natufia Labs – KAUST-led Round	Saudi Arabia	3,500,000	KAUST Innovation Fund (lead), Butterfly Ventures and others.
2	Durra.ai – AI-Powered Precision Irrigation Seed Co-Investment	Saudi Arabia	300,000	Seed co-investors alongside founders, plus Saudi national grant programme support.

Top Innovative Irrigation Techniques for trees and Wild Plants Global and Local Financial investments

insights

Common technology themes

- **Global** Investments are concentrated in climate-smart, data-driven irrigation technologies. A clear trend emerges toward technologies that combine sensor networks, satellite data, AI models, and automation to reduce water consumption and improve irrigation accuracy in stressed ecosystems.
- In **Saudi Arabia**, investments focus on precision irrigation and controlled-environment technologies. These solutions directly support Saudi Arabia's goals for water-use efficiency, desert agriculture, and resource optimization

Country dominance

The **United States** leads global investment activity, capturing 4 of the top 10 deals, including the largest one (Rain Technologies — Strategic Funding, USD 75M). **European** participation is notable, with France, the UK, and a US–Luxembourg partnership represented. Additionally, **Kenya and Argentina** appear through SunCulture and Kilimo, highlighting growing investor appetite for irrigation innovations targeting emerging markets with severe water scarcity.

Prominent investors and diversified investor types

- Climate- and agtech-focused funds (e.g., Emerald Technology Ventures, IDIA Capital, Blue Bear Capital) feature prominently, indicating that this domain aligns strongly with global climate-adaptation financing priorities.
- In **Saudi Arabia**, KAUST Innovation Fund appears as the primary institutional investor and anchor backer for Natufia Labs.



Funding stages and technology maturity

- **Globally** The majority of the top investments fall under Series A, B, and strategic financing rounds, signaling that technologies in this TPG are transitioning from prototype to commercial rollout.
- In **Saudi Arabia**, the early-stage nature highlights a need for follow-on capital, pilot opportunities, and public procurement pathways to accelerate growth into Series A and B maturity levels.

Additional Observations

Despite the strategic importance of irrigation, most leading companies are headquartered outside MENA, highlighting opportunities for Saudi Arabia to localize or partner with global leaders by leveraging desert agriculture as a competitive advantage to attract them.



Recommendation & Strategic Implication for KSA

1 Ecosystem Monitoring Technologies

The global investment landscape for ecosystem monitoring reveals significant opportunities for Saudi Arabia to leverage advanced geospatial analytics and biodiversity finance solutions. **Mobilizing investments for protecting and restoring biodiversity by harnessing innovative financial solutions and advanced geospatial analytics** demonstrates the growing integration of financial mechanisms with environmental monitoring technologies.

Strategic private capital is increasingly flowing into **Data Analytics in Wildlife Management Business Insights and Technological Solutions**, indicating strong commercial viability for ecosystem monitoring platforms.

For Saudi Arabia, this presents an opportunity to attract venture capital and strategic corporate investments by positioning the Kingdom as a testbed for advanced monitoring systems across its diverse ecosystems, from desert environments to coastal areas.

The emergence of **GIS Regional Planning Landscape Ecology Green Development Pattern Planning** technologies aligns with Saudi Arabia's Vision 2030 urban development goals, creating synergies between environmental monitoring and smart city initiatives that could attract strategic infrastructure investments.

2 Grazing Land Management Systems

The strategic investment implications for grazing land management are particularly relevant given Saudi Arabia's extensive pastoral lands and the NCVC-Saudi Aramco collaboration for seed dispersal. **Grazing systems and natural capital: influence of grazing management on natural capital in extensive livestock production systems** highlights the growing recognition of grazing management as a natural capital investment opportunity.

The development of **REDEFINING PASTURES: INNOVATING GRAZING SYSTEMS WITH AFFORDABLE VIRTUAL FENCING SOLUTIONS** represents a significant opportunity for Saudi Arabia to attract Agri-tech venture capital. These technologies offer scalable solutions for managing the Kingdom's vast rangelands while reducing operational costs and improving sustainability metrics that appeal to ESG-focused investors.

Strategic implications indicate that Saudi Arabia is positioned to emerge as a regional hub for pastoral technology innovation, leveraging its extensive grazing lands as a competitive advantage to attract private equity investments in rangeland management technologies.



3 Waste Management

The waste management sector shows robust private capital interest, particularly in waste-to-energy and circular economy solutions. **Entrepreneurship, Business Strategies and Innovative Concepts towards Wastes Management, Resource Recovery and Circular Economy** demonstrates strong entrepreneurial activity and business model innovation in this space.

The strategic focus on **Sustainable Waste Management & Renewable Energy Generation** aligns with Saudi Arabia's renewable energy transition goals, creating opportunities for strategic partnerships with international waste-to-energy companies. The **Techno-Economic Analysis of a Biogas Power Plant** signals strong commercial viability for biogas infrastructure investments.

WM's sustainability growth strategy, investing \$3 billion in advanced recycling and renewable natural gas infrastructure, provides a benchmark for the scale of strategic investments required. Saudi Arabia is encouraged to pursue similar strategic corporate partnerships and private equity investments to develop an integrated waste management infrastructure that supports both environmental goals and energy security objectives.

4 Innovative Irrigation Techniques for Trees and Wild Plants

The strategic investment landscape for innovative irrigation technologies targeting trees and wild plants shows significant private capital interest, particularly in precision irrigation and smart water management systems. **SMART IRRIGATION AND ASPIRATION SYSTEM AND METHOD** represents cutting-edge patent activity in automated irrigation systems, indicating strong intellectual property development and potential licensing opportunities.

The strategic implication for Saudi Arabia is to leverage its unique environmental challenges: extreme heat, water scarcity, and diverse native flora, as competitive advantages to attract private equity and venture capital investments in irrigation technology companies seeking to develop and validate solutions for similar global markets.

5 Investment Recommendations

The analysis shows that environmental technologies are attracting strong strategic and private investment due to their combined environmental impact and commercial viability. Saudi Arabia can capitalize on its extensive land availability, strong public-sector support, and strategic location to attract global strategic investors and venture capital targeting scalable environmental solutions.

A focused public-private partnership approach linking corporate investment with venture capital can accelerate deployment while strengthening domestic capabilities in high-growth environmental technology domains.

3.2

National EWA Technology Priority Groups

3.2.1 Purpose and Goal of the section

3.2.2 Environment Sector Investment Flow

3.2.3 Water Sector Investment Flow

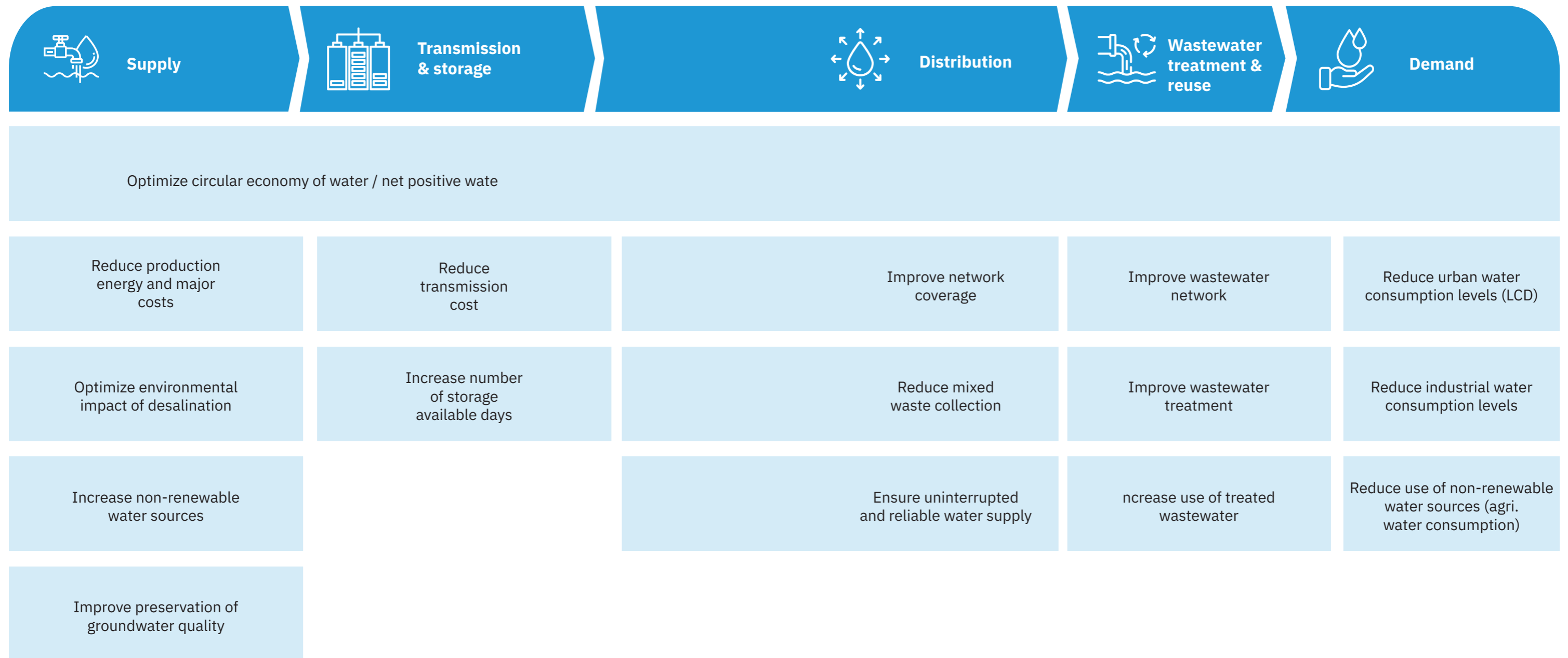
3.2.4 Agriculture Sector Investment Flow

Water Sector Key Challenges

The figure below provides an analytical overview of the primary water-sector challenges and opportunities across the supply, transmission & storage, distribution, wastewater treatment and reuse, and demand area of the water value chain, mapped against the Technology

Priority Groups identified in the Innovation in the Water Sector in Saudi Arabia – Technology Adoption Roadmap. These technology priority groups: advanced reverse osmosis, smart leakage management, wastewater treatment and reuse, innovative irrigation, and innovative

water consumption in homes are strategically aligned with national goals to reduce production costs, expand the use of renewable water sources, enhance distribution efficiency, and promote sustainable consumption across urban, industrial, and agricultural users.



Water Technology Priority Groups

These technologies directly address KSA's water sustainability missions and mirror the global push for low-carbon innovation.



Advance Reverse Osmosis

Advanced reverse osmosis (RO) systems enhance the performance of desalination plants by utilizing thin, semi-permeable membranes with narrow pores to filter pure water while capturing larger particles like dissolved salts and impurities such as bacteria. This technology is considered cutting-edge in water desalination. Reducing the cost of seawater desalination is crucial because it serves as a vital source for meeting residential, industrial, and potentially agricultural water needs. These advanced technologies fall into two categories:

- Desalination system technologies
- Plant balance technologies



Smart Leakage Management

Smart Leakage Management focuses on utilizing advanced technologies and strategies to detect, locate, and mitigate leakages within the transportation and distribution stages of the water value chain. It includes the following components:

- Direct leak detection
- Remote leak detection
- Leak mitigation techniques



Wastewater Treatment and Reuse

Wastewater treatment and reuse comprise two technology families aimed at treating and recycling wastewater for additional purposes. Given water scarcity, wastewater reuse is vital for the Kingdom, necessitating the use of appropriate technologies. These include:

- Innovative processing
- Adaptive technologies for wastewater reuse



Innovative Irrigation

Innovative irrigation techniques encompass a range of systems designed to optimizing water usage and increase efficiency in managing water resources. These techniques allow for the efficient allocation of irrigation water tailored to specific plant needs and land characteristics, without compromising plant growth. These technologies include:

- Linear irrigation
- Center pivot irrigation
- Micro/drip irrigation
- Smart irrigation



Innovative Water Consumption in Homes

Innovative water consumption in homes focuses on adopting advanced practices and technologies to rationalize water use. This is necessary within a context in which per capita urban consumption in the Kingdom remains high, and results in an increased need for water infrastructure along the value chain (including desalination, transportation, strategic storage and distribution). Innovative water consumption technologies can generally be classified into two main technologies: Automated control and management systems, and efficient gardening techniques. Automated control and management systems provide processes and technologies to enhance the effectiveness and efficiency of water use in homes (such as faucet accessories that include a screen to display the amount of water flowing, smart toilet accessories that rely on low water flow, smart control of water used outdoors, smart toilets, and detection systems Leakage and monitoring, and high-water efficiency home appliances). Efficient gardening techniques enable water-efficient landscaping practices in home environments (such as water-retaining soils, dry gardens, rainwater harvesting, micro-irrigation, drip systems, and greywater recycling systems).

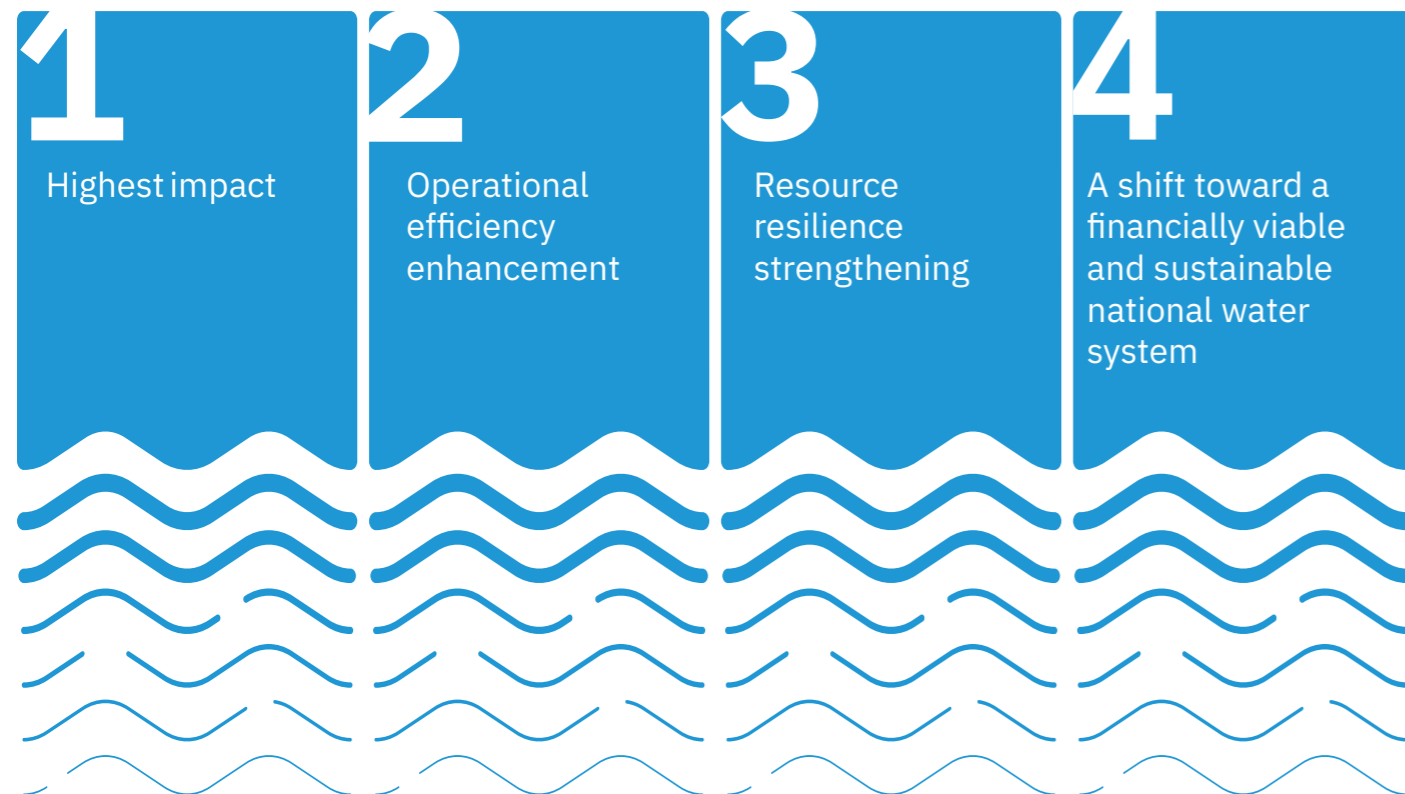


Source: Innovation in the Water Sector in Saudi Arabia – Technology Adoption Roadmap

Aligning Technology Priority Group Investments with National Missions

Investments in these technology priority groups are crucial for enabling the Kingdom to achieve its Vision 2030 targets for water security, cost-efficient supply, and long-term environmental sustainability.

By directly linking the sector's most critical challenges including high desalination energy consumption, transmission and distribution losses, limited storage capacity, and low water reuse rates with investment-ready technological solutions, the framework establishes a solid basis for evidence-driven capital allocation. It provides policymakers, investors, and water-sector planners with a clear view of where targeted investments can generate:



Top Advance Reverse Osmosis Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	ECP Energy Capital Partners – Atlantica Sustainable Infrastructure Acquisition	Multiple (US, Europe, South America, Africa)	2,600,000,000	Energy Capital Partners (ECP) and co-investors
2	Alkimos Seawater Desalination Plant (ASDP)	Australia	2,300,000,000	Water Corporation of Western Australia; Northern Water Partnership (Acciona Agua, Acciona Construction, Jacobs)
3	Korea Water Resources Corporation – LG Chem Water Solutions Acquisition	South Korea	1,050,000,000	Korea Water Resources Corporation (K-water)
4	Casablanca–Settat SWRO Desalination Plant (Sidi Rahal)	Morocco	660,000,000	ACCIONA-led PPP consortium with Moroccan partners
5	Mirfa 2 Reverse Osmosis (M2 RO) IWP	United Arab Emirates	620,000,000	TAQA and ENGIE consortium (with local/international lenders)
6	Dessal do Ceará – Fortaleza Seawater Desalination Plant	Brazil	550,000,000	Cagece with private Consórcio Águas de Fortaleza (PPP concessionaire)
7	Manori Desalination Plant (Mumbai)	India	520,000,000	Brihanmumbai Municipal Corporation (BMC) as public investor, EPC + O&M to be awarded to private consortium
8	Shuweihat4- (S4) Low-carbon SWRO Desalination Plant	United Arab Emirates	440,000,000	TAQA and international utility partners (EWEC as off-taker)
9	Hassyan Sea Water RO (IWP) – Dubai	United Arab Emirates	415,000,000	DEWA with private IWP consortium (PPP developer)
10	Ghubrah3- Independent Water Project (IWP)	Oman	325,000,000	Consortium including GS Inima, AlJomaih Energy & Water, Sogex; off-taker: Nama PWP

	Investment title	country	Amount (USD)	Investor
1	Yanbu4- Independent Water Project (IWP)	Saudi Arabia	880,000,000	ENGIE (lead), Nesma, Mowah, off-taker: SWPC
2	Shuaibah3- Independent Water Project (conversion to RO)	Saudi Arabia	821,000,000	ACWA Power (majority), Badeel, EPC by Doosan Enerbility
3	Rabigh3- Independent Water Project (IWP)	Saudi Arabia	700,000,000	ACWA Power–led consortium with Saudi partners, off-taker: SWPC
4	Ras Mohaisen Independent Water Plant (IWP) – SWPC PPP	Saudi Arabia	693,000,000	ACWA Power (Saudi), with Haji Abdullah Alireza & Partners and AlKifah Holding, procuring authority SWPC
5	Jubail3-B Independent Water Plant (IWP) – SWRO Desalination	Saudi Arabia	690,000,000	ENGIE (with Nesma & Partners, Alajlan & Bros, SWPC as off-taker)
6	Rabigh4- Independent Water Project (IWP) – SWRO	Saudi Arabia	680,000,000	ACWA Power (lead sponsor with local/international lenders, SWPC as off-taker)
7	Jubail3-A IWP (Jazlah) – Solar-integrated SWRO	Saudi Arabia	650,000,000	ACWA Power (with GIC and Al Bawani, Jazlah Water Desalination Co. SPV)
8	Abunayyan Group & Toray – Saudi RO Membrane Manufacturing Plant	Saudi Arabia	Undisclosed	Abunayyan Holding (Saudi Arabia) and Toray Industries (Japan)

Top Advance Reverse Osmosis Global and Local Strategic investments

insights

Common technology themes

- Dominant focus on large-scale seawater reverse osmosis (SWRO) desalination plants, reflecting global demand for reliable, climate-resilient water supply.
- **Globally**, the use of PPP and IWP models across nearly all major projects indicates a mature, infrastructure-heavy technology sector.
- Geographic spread includes both water-scarce regions (UAE, Morocco, Oman, India, Brazil) and regions modernizing aging infrastructure (Australia).
- **Saudi Arabia** is leading one of the largest SWRO project pipelines globally.

Country dominance

- **United Arab Emirates** confirms its status as a global hub for desalination innovation and deployment through its multiple investments.
- Morocco, Brazil, India, and Oman demonstrate strong uptake of modern SWRO through PPPs, but with smaller investment volumes.

Prominent investors and diversified investor types

- Main **global** investors include strategic investors, global utilities, private infrastructure funds, and government agencies. This shows a sector led by large corporates and public sector buyers.
- In **Saudi Arabia** projects are in collaboration with international partners such as ENGIE, Doosan, and GIC.

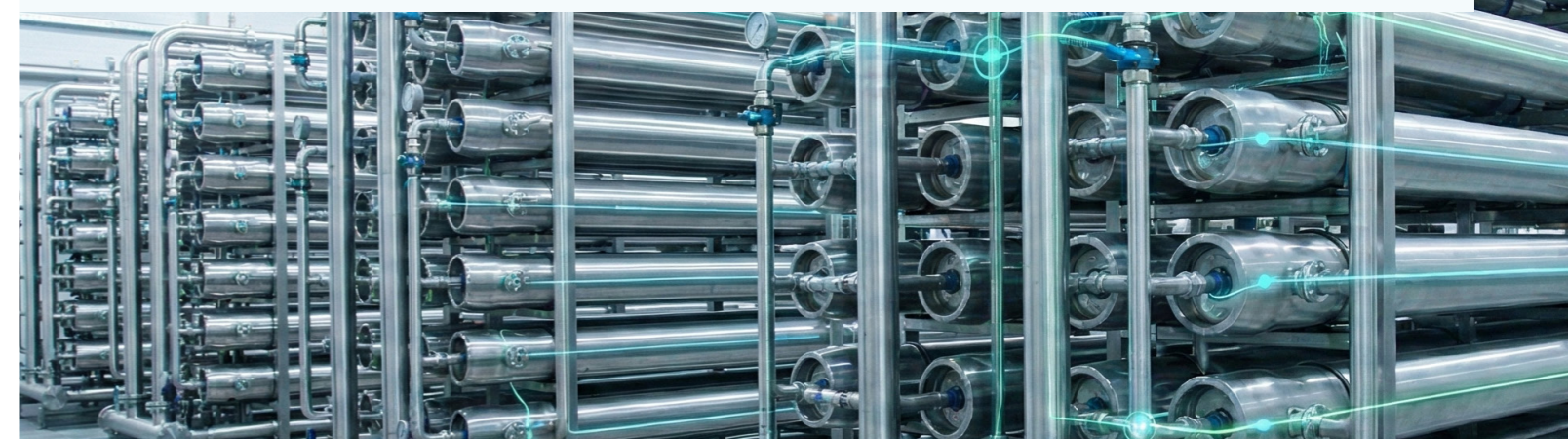


Funding stages and technology maturity

- Major **global** funding types are PPP, IWP, strategic acquisitions, and utility-led infrastructure projects.
- All listed **Saudi Arabia** projects are IWP, PPP, and hybrid solar-integrated SWRO.

Additional Observations

- **Middle East** remains the global center of SWRO deployment.
- Countries like **Brazil** and **India** entry into top-tier desalination markets is a notable shift indicating widening global acceptance of RO.
- The scale of investments (650\$M–880\$M per plant) positions **Saudi Arabia** among the top global markets for desalination investment.
- **Saudi Arabia** projects show a high proportion of international partnerships.



Top Advance Reverse Osmosis Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.

	Investment title	country	Amount (USD)	Investor
1	Gradiant Corporation - Unicorn Water Treatment Investment	USA	228,000,000	Warburg Pincus, M&G Investments, Formation 8, Clearvision Ventures, GRC, General Innovation Capital Partners
2	Gradiant – Series D	USA/ Singapore	225,000,000	BoltRock Holdings, Centaurus Capital, Wellington Management, others
3	Gradiant – Series C	USA/ Singapore	100,000,000	Warburg Pincus, Schlumberger New Energy, Syncona, others
4	ZwitterCo – Series B	USA	58,400,000	Evok Innovations, DCVC, BHP Ventures, ZomaLab, others
5	ZwitterCo – Series A	USA	33,000,000	DCVC, Breakthrough Energy Ventures, Blue Horizon, others
6	Flocean – Series A (extended)	Norway	22,500,000	Xylem, Burnt Island Ventures, Nysnø Climate Investments, Freebird Partners, Katapult Ocean, others
7	Membrion Series B1 - Ceramic Membrane Technology Funding	Portugal	20,000,000	Pangaea Ventures, Pureterra Ventures, Ecolab Inc., W.L. Gore & Associates
8	Membrion – Series B	USA	12,500,000	PureTerra Ventures, Safar Partners, GiantLeap Capital, others
9	Osmoses Seed Round - Novel Membrane Technology for Gas Separation	USA	11,000,000	Energy Capital Ventures, Engine Ventures, Fine Structure Ventures, New Climate Ventures, Collaborative Fund
10	OceanWell – Series A	USA	11,000,000	Kubota Corporation, Jon Hemingway family office, Charles McGarraugh, others



Top Advance Reverse Osmosis Global and Local Financial investments

insights

Common technology themes

Investment activity is concentrated in advanced membrane engineering, next-generation filtration materials, and industrial water-treatment platforms, including: Novel membrane materials and ceramic membranes (Membrion, Osmoses). High-efficiency RO systems and water desalination technologies (Gradiant, OceanWell). Electrochemical and osmotically driven purification technologies (ZwitterCo). Industrial water reuse and zero-liquid-discharge (ZLD) systems, a hallmark of Gradiant's offering.

Country dominance

- The United States overwhelmingly dominates the top global deals, representing 7 of the 10 largest investments. Singapore appears jointly with the U.S. through Gradiant's international footprint, reflecting its strength in industrial water technologies. Norway and Portugal each appear once, signalling emerging hubs for niche membrane innovation but not yet reaching U.S. scale.

Prominent investors and diversified investor types

- Large institutional and global growth funds: Warburg Pincus, Wellington Management, GRC, General Innovation Capital Partners.
- Climate and industrial-tech funds: DCVC, Evok Innovations, Nysnø Climate Investments.
- These investors share a focus on climate resilience, industrial decarbonization, and water circularity, underscoring the strategic importance of next-gen RO technologies.



Funding stages and technology maturity

- The presence of Series A rounds (Floccean, OceanWell) alongside late-stage rounds shows a healthy innovation pipeline, but the TPG is becoming dominated by scale-up technologies with proven industrial applications.
- High round sizes (USD 100M–228M) indicate that advanced RO is capital-intensive and infrastructure-linked, requiring large-scale deployment facilities, industrial partnerships, and regulatory frameworks.

Additional Observations

- Investors are increasingly funnelling capital into companies capable of reducing desalination energy costs, improving membrane durability, and enabling circular water loops all critical to national water strategies such as those in Saudi Arabia.
- The presence of European climate funds (Nysnø, ECBF), alongside large U.S. institutional investors, suggests that water treatment technologies are becoming a core pillar of climate infrastructure investing, not just traditional water utilities.
- Additionally, absence of Middle Eastern investments in the top 10 presents an opportunity for strategic regional participation, given that the region is among the world's largest consumers of desalination and RO technologies.



Top Smart Leakage Management Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	EU/Italy smart water-meter tenders (2.7m meters)	Italy	284,000,000	Multiple Italian water utilities
2	Severn Trent – Netmore 1m smart water meter rollout	United Kingdom	230,000,000	Severn Trent plc
3	Badger Meter SmartCover Strategic Acquisition - 185\$M	USA	185,000,000	Badger Meter Inc.
4	Affinity Water AMP8 leakage-driven smart metering tender	United Kingdom	165,000,000	Affinity Water Ltd
5	IDEX Nexsight Strategic Acquisition - 120\$M	USA	120,000,000	IDEX Corporation
6	Thames Water NB-IoT smart metering framework (Honeywell & Sensus)	United Kingdom	68,000,000	Thames Water Utilities Ltd
7	Yorkshire Water – Netmore LoRaWAN smart metering framework	United Kingdom	51,000,000	Yorkshire Water Services Ltd
8	Xylem Water Technology Venture Capital Fund - 20\$M	USA	20,000,000	Xylem Inc., Burnt Island Ventures, The Westly Group
9	Mueller Water Products acquisition of i2O Water	United Kingdom	20,000,000	Mueller Water Products, Inc.
10	Badger Meter acquisition of Syrinix	United Kingdom	18,000,000	Badger Meter, Inc.

	Investment title	country	Amount (USD)	Investor
1	Riyadh (Central) Cluster -7year MOM Contract – Alkhorayef & Veolia	Saudi Arabia	95,400,000	National Water Company (client),Alkhorayef Water & Power Technologies,Veolia Middle East
2	SUEZ – NWC NRW Management Consultancy Contract	Saudi Arabia	5,000,000	National Water Company (client),SUEZ (consultant)
3	Jeddah Non-Revenue Water Reduction Project – Phase I	Saudi Arabia	Undisclosed	National Water Company (client),Water Loss Ltd and partners (implementation)
4	North Cluster MOM Contract – Aqualia / Tawzea / HAACO	Saudi Arabia	Undisclosed	National Water Company (client),Aqualia,Tawzea,HAACO
5	South Cluster MOM Contract – Aqualia / ACCIONA / partners	Saudi Arabia	Undisclosed	National Water Company (client),Aqualia, ACCIONA,HAACO,Tawzea
6	National rollout of ~2 million smart water meters (NWC)	Saudi Arabia	Undisclosed	National Water Company (NWC)
7	Western Cluster DMA Implementation – SUEZ & NWC	Saudi Arabia	Undisclosed	National Water Company (client),SUEZ Near & Middle East,Alawael
8	Buraydah Smart Leak Detection Pilot – WI.Plat & International Aramoon	Saudi Arabia	Undisclosed	WI.Plat Co. Ltd.,International Aramoon Co. Ltd.,local utility stakeholders

Top Smart Leakage Management Global and Local Strategic investments

insights

Common technology themes

- Smart metering dominates nearly all investments large-scale rollouts (Italy, UK) and sensor-driven leakage management solutions.
- Strong focus on digital water infrastructure: NB-IoT, LoRaWAN, AMI, remote monitoring, and AI-based leakage detection.

Country dominance

- **United Kingdom** is the global leader in smart leakage management with 6 out of the top 10 strategic investment.
- **United States** leads in corporate acquisitions.
- **Saudi Arabia** remains a market leader, with France and Spain as strategic partners.

Prominent investors and diversified investor types

- **Global** main investors in Smart leakage management include utilities companies and corporate acquirers.
- **In Saudi Arabia**, the National Water Company (NWC) stands out as a prominent investor with its multiple investments.
- **In Saudi Arabia**, many international partners plays a role in the investment activity.



Funding stages and technology maturity

Smart metering and leakage analytics are a globally mature market, dominated by adoption and integration.

Additional Observations

- Market consolidation suggests the sector is entering “platform phase” where integrated digital networks replace standalone sensor.
- **Saudi Arabia** is building the largest unified digital water network in the Middle East, through clustered MOM and DMA programs.
- **Saudi Arabia’s** maturity is demonstrated by massive-scale rollouts rather than pilots.



Top Smart Leakage Management Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Finapp – Series A	Italy	10,150,000	Linfa – Riello Investimenti SGR (lead), MITO Technology / Tech Transfer Fund, Crédit Agricole Italia, Tech4Planet (Cdp Venture Capital)
2	VODA.ai – Series A	USA	10,000,000	CRH Ventures (lead), L-Stone Capital
3	StormHarvester – Series A	UK	9,700,000	YFM Equity Partners, Emerald Technology Ventures
4	Distil Series A - 7.7\$M Smart Water Leak Detection	USA	7,700,000	CE-Ventures (lead), other investors
5	Subeca – Series A	USA	6,000,000	SUEZ (lead), Amazon Climate Pledge Fund, Burnt Island Ventures
6	LAIIER – Seed extension	UK	4,000,000	Closed Loop Partners' Ventures Group (lead), Burnt Island Ventures, Mundi Ventures, Bonaventure Capital, Carlisle Ventures, One Small Planet, Virta Ventures
7	Kumulus Water Seed - 3.5\$M Atmospheric Water Generation	Tunisa	3,500,000	Undisclosed investors
8	Sensor Global – Seed Round	Australia	2,650,000	Mix of angels investors (including Shane Oswin, David Lynas, David Welsh) and institutions such as Causeway Equities LLC and Second Century Ventures
9	TeamSolve – Seed Round	Singapore	2,500,000	SGInnovate, Burnt Island Ventures
10	HULO.ai – Seed	Netherlands	2,300,000	VP Capital, LUMO Labs (co-leads), Vanagon, Rabobank, Frisian Development Fund (FOM), Netherlands Enabling Water Technology / NEW-ttt

	Investment title	country	Amount (USD)	Investor
1	Hydrojeen – Pre-Seed Round	Saudi Arabia	Undisclosed	Muhammad Abdul Aziz Al-Arifi (angel investor)

Top Smart Leakage Management Global and Local Financial investments

insights

Common technology themes

Investment activity in this Smart Leakage Management is concentrated around AI-driven water leak detection, smart infrastructure monitoring, and sensor-based early-warning systems. The common objective across all investments is reducing water loss, improving utilities' operational efficiency, and supporting climate-resilient water networks.

Country dominance

- The UK shows strong representation with two deals (StormHarvester and LAIIER), indicating an active ecosystem in utility tech and smart infrastructure.
- Tunisia's Kumulus Water underscores growing innovation activity in MENA-adjacent regions, especially in atmospheric water generation.

Prominent investors and diversified investor types

European and global climate investors such as Burnt Island Ventures, One Small Planet, Tech4Planet, and Causeway Equities.



Funding stages and technology maturity

- The majority of deals are Series A rounds, showing that smart leakage management solutions are entering commercial readiness and early-scale deployment, especially through utility partnerships.
- Seed-stage investments (TeamSolve, Sensor Global, LAIIER, HULO.ai) show healthy innovation at the early stage, feeding the pipeline for future scale-ups.

Additional Observations

The rise of predictive platforms (AI-driven) over pure hardware reflects the sector's shift toward digital-first water management.



Top Wastewater Treatment and Reuse Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Xylem acquisition of Evoqua Water Technologies	USA	7,500,000,000	Xylem Inc.
2	Umm Al-Hayman Wastewater Treatment Plant PPP, Kuwait	Kuwait	1,877,440,000	WTE Wassertechnik-led consortium
3	Veolia acquisition of CDPQ's %30 stake in Water Technologies & Solutions (WTS)	France	1,750,000,000	Veolia Environnement S.A.
4	TAQA acquisition of GS Inima	Spain	1,200,000,000	Abu Dhabi National Energy Company PJSC (TAQA)
5	ADS acquisition of NORMA Group Water Management business (NDS)	USA	1,000,000,000	Advanced Drainage Systems, Inc. (ADS)
6	Suez-Veolia Water Assets Strategic Merger - 950\$M	France	950,000,000	Veolia Environnement SA
7	H2O America acquisition of Quadvest	USA	540,000,000	H2O America (via The Texas Water Company & Texas Water Operation Services)
8	South Al-Mutlaa Wastewater Treatment Plant, Kuwait	Kuwait	488,900,000	Kuzu Group
9	TAQA acquisition of Sustainable Water Solutions Holding (SWS Holding)	UAE	463,000,000	Abu Dhabi National Energy Company PJSC (TAQA)
10	Danaher Pall Corporation Water Division Acquisition - 300\$M	USA	300,000,000	Danaher Corporation

	Investment title	country	Amount (USD)	Investor
1	Al Haer Independent Sewage Treatment Plant (ISTP), Riyadh	Saudi Arabia	479,000,000	Miahona – BESIX – Marafiq consortium
2	Jeddah Airport2- Independent Sewage Treatment Plant (ISTP)	Saudi Arabia	280,000,000	Marafiq – Veolia – Amwal AlKhaleejiah consortium (Jeddah Althaniya Water Company)
3	Madinah3- Independent Sewage Treatment Plant (Madinah3- ISTP)	Saudi Arabia	256,000,000	Acciona – Tawzea – Tamasuk consortium
4	Dammam West Independent Sewage Treatment Plant (ISTP)	Saudi Arabia	245,000,000	Metito – Mowah – Orascom Construction consortium
5	Buraydah2- Independent Sewage Treatment Plant (Buraydah2- ISTP)	Saudi Arabia	225,000,000	Acciona – Tawzea – Tamasuk consortium
6	Tabuk2- Independent Sewage Treatment Plant (Tabuk2- ISTP)	Saudi Arabia	146,000,000	Acciona – Tawzea – Tamasuk consortium
7	Taif Independent Sewage Treatment Plant (Taif ISTP)	Saudi Arabia	85,000,000	Cobra Instalaciones y Servicios – Tawzea consortium

Top Wastewater Treatment and Reuse Global and Local Strategic investments

insights

Common technology themes

- Acquisitions is a major theme **globally** for water technology companies, showing a trend of large players acquiring specialized assets to expand their technology portfolios
- All 7 **Saudi Arabia** investments are Independent Sewage Treatment Plants (ISTPs), reflecting a national focus on water reuse, circularity, and meeting rising urban/industrial demand.

Country dominance

- USA dominates high-value acquisitions.
- **Kuwait and UAE** dominate wastewater PPP megaprojects.

Prominent investors and diversified investor types

Global partners such as Veolia, BESIX, Acciona, Metito, Orascom support project delivery reflecting Saudi Arabia's hybrid model of local and international joint venture.



Funding stages and technology maturity

- **Global** main investments in Wastewater Treatment and reuse include M&A and PPP wastewater projects.
- In **Saudi Arabia**, all deals are PPP/ISTP contracts.

Additional Observations

- Countries with the **region** are positioning themselves as global players.
- **Global** acquisitions target IP, technology, and high-margin services. While **Saudi Arabia** investments target infrastructure capacity, global investments prioritize technology ownership, reflecting different maturity and strategic goals.



Top Wastewater Treatment and Reuse Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Gradiant Corporation Series C - 225\$M Zero Liquid Discharge Technology	USA	225,000,000	Warburg Pincus (Lead), Formation 8, Clearvision Ventures, M&G Investments
2	Cambrian Innovation – Growth equity commitment by Pennybacker	USA	200,000,000	Pennybacker Capital (PE) plus co-investors
3	Aquatech International Series C - 85\$M Advanced Water Treatment	Netherlands	85,000,000	KKR Infrastructure (Lead), Warburg Pincus, Energy Impact Partners
4	Bionomic Industries Growth Investment - 65\$M	USA	65,000,000	Riverside Partners (Lead), Energy Impact Partners
5	Membrane Group (India) – GEF Capital growth investment	India	50,000,000	GEF Capital Partners (South Asia Growth Fund III)
6	Cambrian Innovation Series C - 50\$M Bioelectrochemical Systems	USA	50,000,000	Evoqua Water Technologies (Lead), Aster Capital, Energy Impact Partners
7	Aqua-Aerobic Systems Growth Investment - 45\$M	USA	45,000,000	Riverside Partners (Lead), Water Asset Management
8	Moleaer – Series C	USA	40,000,000	Apollo funds (lead), Husqvarna, existing investors
9	BioFiltro – Jordanelle Capital strategic investment	USA	35,000,000	Jordanelle Capital (PE)
10	Aquaporin Series B - 33\$M Biomimetic Membrane Technology	Denmark	33,000,000	Novo Holdings (Lead), Grundfos, Danfoss, ATP

	Investment title	country	Amount (USD)	Investor
1	GI Water as a Service (GI WaaS) – Series A	Saudi Arabia	10,000,000	Al Zamil Industry, Trade & Transport Company, Al Qunaibet Investment Fund (lead/anchor investors)
2	Al-Miyah / NuRain – KAUST Near Term Grand Challenge Impact Funding	Saudi Arabia	1,700,000	KAUST Near Term Grand Challenge program, with additional support from TAQADAM accelerator and KAUST Innovation
3	NuRain (formerly Al-Miyah) – Seed Round	Saudi Arabia	555,000	Lead: KAUST Innovation Ventures, other seed-stage investors not publicly named

Top Wastewater Treatment and Reuse Global and Local Financial investments

insights

Common technology themes

- **Globally**, one of the technology funding focus is concentrated in next-generation industrial wastewater treatment such as Zero Liquid Discharge (ZLD). The technology focus reflects a shift toward high-efficiency, low-waste, and circular water-processing technologies aligned with global industrial decarbonization and regulatory pressures.
- **Saudi investments** focus on digitalized service-oriented wastewater solutions.

Country dominance

Despite the clear investment dominance by USA, Europe contributes through Denmark and the Netherlands, indicating innovation strength in biomimetic membranes and advanced water treatment.

Prominent investors and diversified investor types

- Global key investors include Large private equity & infrastructure funds, Industrial strategic investors, and Climate and engineering-focused venture investors. These investors signal strong market confidence in industrial-scale, commercially mature water-treatment technologies.
- In **Saudi Arabia**, the ecosystem demonstrates a public-academic-private innovation triangle, essential for early-stage technology development.

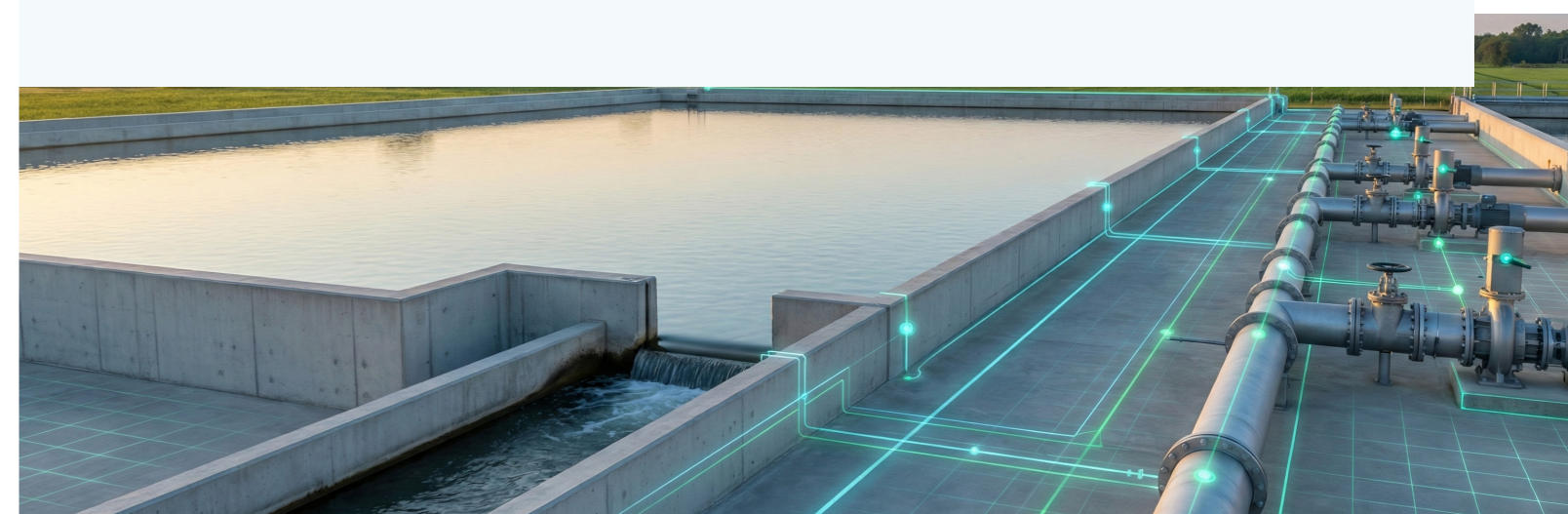


Funding stages and technology maturity

- The presence of multiple Series C and large growth-equity rounds indicates that most technologies in this TPG are late-stage, commercially validated, and scaling globally.
- Early-stage investments are limited, suggesting that the market is shifting from “innovation” to industrial deployment and global expansion.
- The Saudi market is still early-stage, meaning that technologies are in pilot or pre-commercial stages, requiring follow-on funding, deployment partnerships, and regulatory enablers to reach maturity.

Additional Observations

The strong participation of infrastructure investors reflects growing market opportunities and policy signals around water reuse, industrial efficiency, and circular resource systems, areas that are highly relevant to Saudi Arabia’s Vision 2030 water objective



Top Innovative Irrigation Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Lindsay Corporation – multi-year MENA smart-irrigation supply agreement (>US100\$m)	MENA	100,000,000	Lindsay Corporation (NYSE: LNN)
2	Netafim – US\$85m community irrigation projects in Karnataka, India	India (Karnataka)	85,000,000	Netafim Ltd. (an Orbia company)
3	IFC / Netafim India – US\$75m working-capital facility expansion	India	75,000,000	International Finance Corporation (IFC, World Bank Group) financing Netafim India
4	Water Ways Technologies – CAD 6.7m+ smart drip irrigation projects in Uzbekistan	Uzbekistan (projects) / Canada (investor)	6,000,000	Water Ways Technologies Inc.
5	Lindsay Corporation acquisition of Net Irrigate LLC	USA	4,500,000	Lindsay Corporation (NYSE: LNN)
6	Mahindra Irrigation – micro-irrigation supply contract (2,700 ha)	India	1,590,000	Mahindra Irrigation (Mahindra Group)
7	Rain Bird acquisition of OtO Inc. (smart home irrigation)	US / Canada (home irrigation)	Undisclosed	Rain Bird Corporation
8	Horizon Distributors acquisition of Wingate Supply	USA (Florida)	Undisclosed	Horizon Distributors, Inc.
9	OHB Venture Capital strategic investment in ConstellIR (thermal IR satellite constellation)	Germany (investor) / Germany	Undisclosed	OHB Venture Capital GmbH (corporate VC of OHB SE)
10	Rain Bird acquisition of Adritec Group's Jordanian & Mexican assets	US / Jordan / Mexico (global agri markets)	Undisclosed	Rain Bird Corporation

	Investment title	country	Amount (USD)	Investor
1	Agricultural Development Fund SAR 1.45 b High-Tech Greenhouse & Vertical Farming Program (2025–2021)*	Saudi Arabia	387,000,000	Agricultural Development Fund (ADF), Saudi Arabia
2	Jubail Industrial City – World's Largest Integrated Smart Irrigation Network (RCJY)	Saudi Arabia	Undisclosed	Royal Commission for Jubail and Yanbu (RCJY)
3	Saudi Irrigation Organization “Modern Agricultural Irrigation Projects” (Smart Irrigation Program)	Saudi Arabia	Undisclosed	Saudi Irrigation Organization (SIO)
4	Namaa AI” & SCAI–MEWA MoU on AI for Environment, Water & Agriculture	Saudi Arabia	Undisclosed	Saudi Company for Artificial Intelligence (SCAI, owned by PIF) and MEWA
5	“Promoting Efficient Irrigation and Water Productivity Amongst Farmers” – SIO & FAO Smart Irrigation Project	Saudi Arabia	Undisclosed	Saudi Irrigation Organization (SIO) in partnership with FAO

*Source: ADF

Top Innovative Irrigation Global and Local Strategic investments

insights

Common technology themes

Drip irrigation, micro-irrigation, and automated smart-irrigation systems dominate both global and Saudi Arabia investments.

Country dominance

- **India** emerges as the dominant market for micro-irrigation expansion.
- **USA** leads in corporate acquisitions and consolidation.
- **Saudi Arabia** is heavily focused on smart irrigation modernization at scale.

Prominent investors and diversified investor types

- **Global** irrigation technology leaders are driving most acquisitions and large-scale supply agreement.
- In **Saudi Arabia**, government financing institutions remain the dominant investors with public authorities and national utilities leading smart irrigation network deployments



Funding stages and technology maturity

- **Global** major funding types include large-scale supply contracts and acquisition deals.
- While in **Saudi Arabia** government-backed strategic funding is dominant.

Additional Observations

- **Global** investments reflect a dual trend, where emerging markets such as India, Uzbekistan, and Mexico are receiving large-scale irrigation rollouts. While, developed markets such as USA, Germany, and Canada are witnessing consolidation through acquisitions.



Top Innovative Irrigation Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Ecozen – 2024 growth round	India	30,000,000	Nuveen Global Fund (lead), Dare Ventures, Caspian, Hivos-Triodos, InCred Credit Fund, US International Development Finance Corporation (DFC)
2	SunCulture – 2024 Series B (Africa expansion)	Kenya	27,500,000	InfraCo Africa (PIDG), Savant Group, Reed Hastings, Equator, Acumen, EDF Group, The Schmidt Family Foundation, British International Investment and others
3	SunCulture – Series B (solar irrigation)	Kenya	25,000,000	InfraCo Africa, EDF, Acumen and other impact and climate investors (exact Series B cap table not fully disclosed)
4	Ecozen – Series C (earlier tranche)	India	25,000,000	Nuveen Global Fund, Dare Ventures (Coromandel), India EXIM Bank, Caspian, Hivos-Triodos Fonds, other lenders
5	Irrigreen – Series A	USA	19,000,000	Natural Ventures, Burnt Island Ventures, Ulu Ventures, MFV Partners, Tamiami, Sum Ventures
6	Sencrop – Series B	France	18,000,000	Jerusalem Venture Partners (JVP – lead), EIT Food, Stellar Impact (Telos Impact), IRD Management, BPIfrance, Demeter IM, NCI Waterstart
7	Source.ag – Series B	Netherlands	17,500,000	Astanor Ventures (lead), Enza Zaden, Harvest House
8	Irrigreen – Seed round	USA	15,000,000	Ulu Ventures (lead), Sage Hill Investors, Burnt Island Ventures, MFV Partners, Anorak Ventures, Echo River Capital and others
9	SunCulture – 2020 equity round	Kenya	14,000,000	Impact and climate investors, specific equity investors for this tranche not clearly detailed in public sources
10	Lumo – 2024 growth round	USA	7,000,000	Active Impact Investments, Fall Line Capital (co-leads)

	Investment title	country	Amount (USD)	Investor
1	Red Sea Farms – 18.5\$m strategic raise	Saudi Arabia	18,500,000	Wa’ed (Saudi Aramco VC arm), Savola Group, KAUST Innovation Fund, OlsonUbben LLC
2	iyris (formerly RedSea) – Series A	Saudi Arabia	16,000,000	Ecosystem Integrity Fund (lead), Global Ventures, Dubai Future District Fund, Kanoo Ventures, Globinvest, Bonaventure Capital
3	Red Sea Farms – 16\$m pre-Series A	Saudi Arabia	16,000,000	Wa’ed (Aramco VC), Future Investment Initiative Institute, KAUST Innovation Fund, Global Ventures, AppHarvest, Bonaventure Capital
4	Red Sea Farms – 10\$m VC investment	Saudi Arabia	10,000,000	Wa’ed (Aramco entrepreneurship arm), Future Investment Initiative Institute (FII), KAUST Innovation Fund, Global Ventures
5	Arable – Seed round for hydroponic infrastructure	Saudi Arabia	2,550,000	Seed round led by a mix of institutional and private investors (%90 foreign capital deployed inside KSA, names not fully disclosed)

Top Innovative Irrigation Global and Local Financial investments

insights

Common technology themes

- **Globally**, most investments target precision irrigation technologies designed to increase water efficiency.
- **Saudi investments** emphasize high-tech, controlled-environment irrigation and climate-resilient greenhouse systems. The focus is aligned with national priorities: reducing water consumption in agriculture, increasing domestic production capacity, and adapting to harsh climatic conditions.

Country dominance

- **India and Kenya** dominate globally, together accounting for 5 of the top 10 deals, reflecting their leadership in smallholder irrigation innovation and climate-resilient agri-tech deployment.
- All highlighted investments are **Saudi-based** companies, with several having deep academic or industrial roots (KAUST spinouts, Aramco-affiliated Wa'ed). This indicates a strong national trend toward localizing irrigation innovation rather than importing foreign irrigation technologies.

Prominent investors and diversified investor types

- The variety of **global investors** illustrates high investor confidence in technologies that directly improve water efficiency, crop resilience, and farmer economics, especially in emerging markets.



Funding stages and technology maturity

- The majority of the top **global** deals fall under series A to series C rounds, showing that innovative irrigation technologies are shifting from pilot deployment to regional scaling.
- The majority of **Saudi Arabia** investments are series A or pre-series A, indicating technologies transitioning from prototype validation to commercial deployment.

Additional Observations

Across all Innovative Irrigation Global and Local Financial investments deals, solutions that combine IoT, AI, and renewable energy attract the most investor interest.



Top Innovative Water Consumption in Homes Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Whirlpool acquisition of InSinkErator from Emerson	USA	3,000,000,000	Whirlpool Corporation
2	Fortune Brands acquisition of Aqualisa (smart digital showers)	United Kingdom	156,000,000	Fortune Brands Innovations, Inc. (Moen / Water Innovations)
3	A.O. Smith acquisition of Pureit (from Unilever/HUL)	India / multi-country	120,000,000	A.O. Smith Corporation
4	Strix Group acquisition of Billi (instant boiling/chilled tap systems)	Australia (Billi Australia Pty Ltd)	45,000,000	Strix Group plc
5	Watts Water Technologies I-CON Systems Acquisition	USA	25,000,000	Watts Water Technologies Inc.
6	Uponor & Belkin additional US\$12m investment into Phyn JV (smart home water monitoring)	USA / Finland	12,000,000	Uponor Corporation & Belkin International
7	A.O. Smith acquisition of Impact Water Products	USA	Undisclosed	A.O. Smith Corporation
8	Franklin Water Treatment (Franklin Electric) acquisition of Action Manufacturing & Supply	USA	Undisclosed	Franklin Electric Co., Inc. (Franklin Water Treatment LLC)
9	A.O. Smith acquisition of Atlantic Filter Corporation	USA	Undisclosed	A.O. Smith Corporation
10	Fortune Brands / Moen acquisition of Flo Technologies (Flo by Moen smart water security)	USA	Undisclosed	Fortune Brands Innovations, Inc. (Moen)

	Investment title	country	Amount (USD)	Investor
1	ASEEB sustainable residential community (Tharwa Town, Khobar) – greywater & rainwater systems	Saudi Arabia	Undisclosed	Thabat Real Estate Development (Al-Muhaidib Group)
2	Central water-treatment & greywater systems for upscale residential compounds in Riyadh	Saudi Arabia	Undisclosed	Carewater Solutions (technology provider) plus various compound owners (Al Hamra Oasis Village, Al Nakheel Residential Resort, etc.)
3	AI-driven smart leak detection deployment – Saudi Water Partnership Company	Saudi Arabia	Undisclosed	Saudi Water Partnership Company (state-backed PPP offtaker)
4	National smart water meter rollout – >2 million residential meters	Saudi Arabia	Undisclosed	National Water Company (state-owned utility)
5	NWC–Giza Systems Smart Leak Detection Project (household connections in major cities)	Saudi Arabia	Undisclosed	National Water Company (client), Giza Systems (technology and implementation partner)
6	Fibre-optic-based leak detection pilot – Buraydah distribution network	Saudi Arabia	Undisclosed	National Water Company

Top Innovative Water Consumption in Homes Global and Local Strategic investments

insights

Common technology themes

Strong focus on household water efficiency solutions, especially in smart leak detection and water-security systems and smart water meters.

Country dominance

- **USA** clearly dominates strategic acquisitions in smart water devices, treatment, and leak-detection technologies.
- **United Kingdom** shows targeted activity in smart digital showers.

Prominent investors and diversified investor types

- **Globally**, Large multinational manufacturers of home appliances and water-treatment systems and specialized water-technology companies.
- In **Saudi Arabia** Investments reflect the government-led modernization of residential water systems and Large real-estate developers integrating water sustainability into premium residential communities.



Funding stages and technology maturity

- **Globally**, strategic investments such as M&A and joint ventures are dominant, indicating high maturity of household water technologies, and technologies like filtration, digital showers, water softeners, and leak detection are mature enough for large-scale acquisition.
- In **Saudi Arabia**, investment is primarily driven by government capital expenditure and PPP-style deployment models

Additional Observations

Both global and Saudi Arabia investments reflect the shift towards smart leak detection, remote monitoring, and automated water shutoff. This area is moving towards becoming the growing segment within residential water technologies.



Top Innovative Water Consumption in Homes Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to water technologies that address these challenges.



	Investment title	country	Amount (USD)	Investor
1	Solugen - 577\$M Multi-Round Plant-Based Chemical Manufacturing	USA	557,000,000	Multiple investors
2	Orbital Systems – Growth round	Sweden	24,000,000	Öresund, Formica Ventures, NREP and others
3	Aquacycl - 17.26\$M Bioelectrochemical Water Treatment Technology	USA	17,260,000	Multiple investors
4	Hydraloop – Series B	Netherlands	13,000,000	Invest-NL, NOM, Lucia Holding, others
5	Conservation Labs – Series A	USA	7,500,000	RET Ventures' Housing Impact Fund (lead), SustainVC, Serra Ventures and others
6	Hai (gethai) – Seed	USA	6,000,000	Trousdale Ventures (lead), Dreamers VC, A-Rod Corp, The Najafi Companies, LocalGlobe, Animal Capital, others
7	Kumulus Water - 3.5\$M Seed Atmospheric Water Generation	Tunisia	3,500,000	Not specified
8	RainStick Shower – 2022 round	Canada	3,000,000	Red Thread Ventures, HCM Ventures, Women's Equity Lab, individual angels, SDTC grant support
9	HULO – Seed	Netherlands	2,700,000	Undisclosed syndicate of impact and climate-tech investors
10	Buoy Labs	USA	2,310,000	Undisclosed investors

	Investment title	country	Amount (USD)	Investor
1	Moya – Seed	Saudi Arabia	2,000,000	MLM Investment Company

Top Innovative Water Consumption in Homes Global and Local Financial investments

insights

Common technology themes

The common themes are digitization, decentralization, and sustainability, driven by growing consumer awareness and tightening water-efficiency expectations worldwide.

Country dominance

The USA dominates the TPG, appearing in 5 of the top 10 investments, including the massive USD 577M Solugen round (though Solugen itself is more chemical/water-tech adjacent, it demonstrates the investor appetite for bio-based water treatment solutions applicable in home-use systems).

Prominent investors and diversified investor types

Many investments are supported by undisclosed or diversified investor syndicates, reflecting deal structuring, confidentiality considerations, and risk-sharing arrangements commonly observed in the water sector.



Funding stages and technology maturity

Most of the investments fall under seed and series A/B rounds, reflecting a sector that is highly innovative, rapidly evolving, and still moving toward mature commercialization.

Additional Observations

Strong emphasis on decentralized water recycling and atmospheric water generation highlights global concern around water scarcity and the shift toward household-level resilience.



Recommendation & Strategic Implication for KSA

1 Advanced Reverse Osmosis Technology

Saudi Arabia's position as a global leader in desalination creates significant strategic advantages for advanced reverse osmosis investments. The Kingdom can leverage its operational expertise to attract strategic partnerships with membrane technology innovators and energy-efficient system developers. Private capital flows in cleantech, as evidenced by **Venture Capital Investments in Cleantech Startups**, indicate strong investor appetite for breakthrough desalination technologies that can reduce energy consumption and operational costs.

2 Smart Leakage Management Systems

The emergence of IoT-based water monitoring represents a high-growth opportunity for Saudi Arabia's smart city initiatives. Research on **IoT-based smart city monitoring system for water, fire & gas leakage** and **Smart Water Monitoring System** demonstrates the technology's maturity. Given Saudi Arabia's extensive water infrastructure and Vision 2030's smart city goals, strategic investments shall focus on scalable sensor networks and AI-driven analytics platforms. The relatively low capital requirements make this sector attractive for venture capital partnerships, particularly with companies developing integrated water management solutions for urban environments.

3 Wastewater Treatment and Reuse

Advanced wastewater treatment technologies present critical strategic value for Saudi Arabia's water security objectives. The **Advanced membrane materials/structures and technologies for new energy production wastewater treatment and resource recovery** and **MEMBRANE BIOREACTOR SYSTEM FOR TREATING WASTEWATER USING OXYGEN** patent indicate significant innovation momentum.

Strategic investments are recommended to target membrane bioreactor technologies and advanced oxidation processes that can achieve high-quality water recovery rates. The Kingdom's large-scale infrastructure projects create ideal testing grounds for innovative treatment technologies, making it attractive for strategic corporate partnerships with global water technology leaders.



4 Innovative Irrigation Technologies

The intersection of water conservation and agricultural productivity makes innovative irrigation a priority investment area. Saudi Arabia's harsh climate conditions and limited freshwater resources create unique market demands that can drive technology development. Priority investment areas include precision irrigation systems, soil moisture sensors, and automated water management platforms. The agricultural sector's transformation under Vision 2030 provides opportunities for strategic partnerships with Agtech companies developing water-efficient cultivation methods.

5 Innovative Water Consumption in Homes

Smart home water management represents an emerging market with significant potential for private capital investment. The Kingdom's rapid urbanization and growing environmental consciousness create favorable conditions for residential water efficiency technologies. High-impact investment opportunities lie in smart metering technologies, leak-detection systems, and platforms that optimize water usage. The relatively fragmented nature of this market makes it suitable for venture capital investments in startups developing consumer-focused water management solutions.

6 Investment Recommendations

Saudi Arabia can establish strategic investment vehicles that combine public sector capital with private equity to accelerate technology adoption across these five water technologies. The Kingdom's operational scale provides unique advantages for piloting and scaling innovative water technologies, making it an attractive partner for international strategic investors seeking market validation and deployment opportunities.

Analyzed strategic and private capital investment patterns across five water sector technologies. Research revealed strong innovation momentum in membrane technologies, IoT-based monitoring systems, and advanced treatment processes. Identified opportunities for Saudi Arabia to leverage its operational expertise and infrastructure scale to attract strategic partnerships and venture capital investments.

3.2

National EWA Technology Priority Groups

3.2.1 Purpose and Goal of the section

3.2.2 Environment Sector Investment Flow

3.2.3 Water Sector Investment Flow

3.2.4 Agriculture Sector Investment Flow

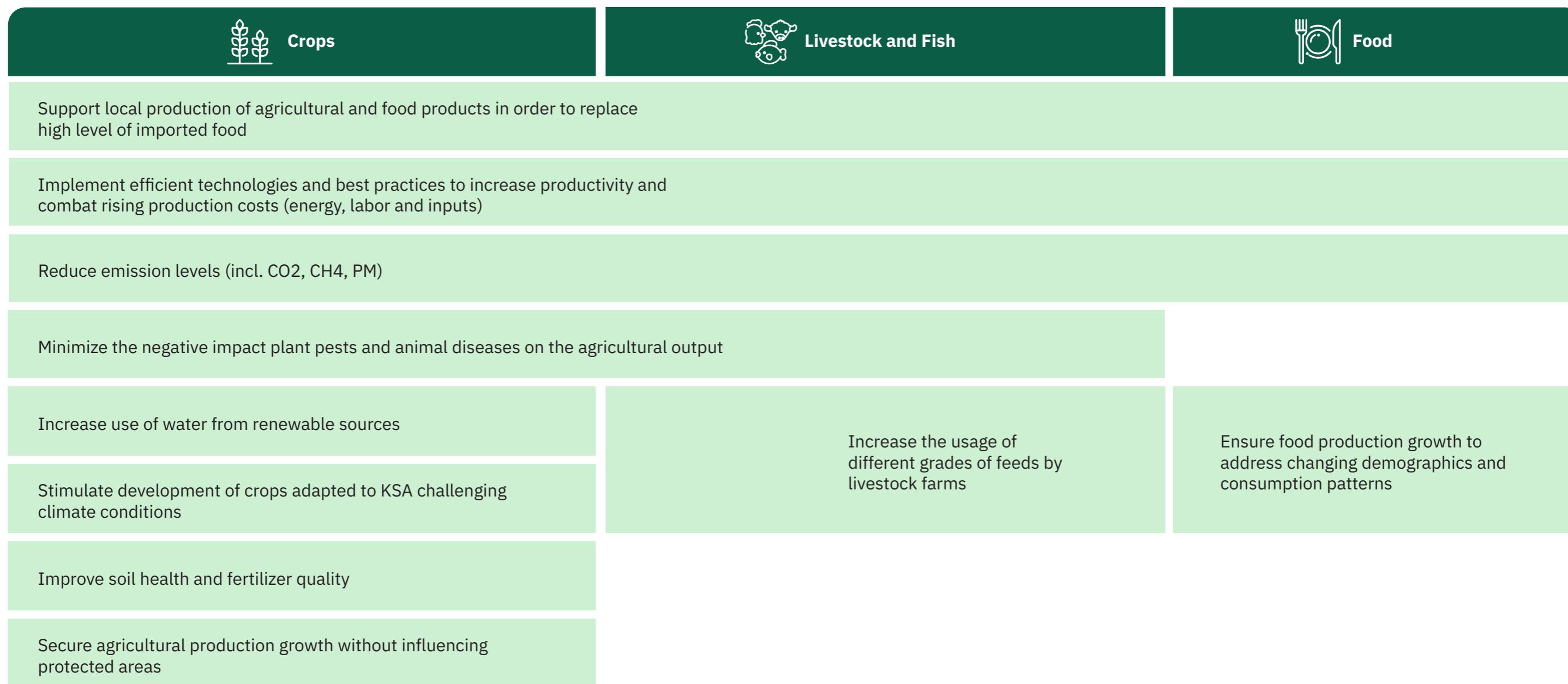
Agriculture Sector

Key Challenges

The figure below outlines the key agricultural challenges and corresponding opportunities across the crops, livestock and fish, and food areas of the agriculture value chain, mapped against the five Technology Priority Groups identified in the Innovation in the Agriculture

Sector in Saudi Arabia – Technology Adoption Roadmap. These technology priority groups, ranging from irrigation and water management, protected agriculture to food preservation, Integrated aquaculture farm management, and drones, representing strategic investment

pathways for addressing sectoral constraints such as water scarcity, rising production costs, limited arable land, and climate variability.



Agriculture Technology Priority Groups

These technologies directly address KSA's agriculture sustainability missions and mirror the global push for low-carbon innovation.



Irrigation and Water Management

Irrigation and water management technologies comprise a range of technologies aimed at improving water use efficiency, increasing irrigation efficiency, and effectively managing water resources. They target reducing wasteful water use in irrigation and identifying optimal technologies for each plant and soil type. These include linear move irrigation (a mechanical irrigation system that waters crops in a straight line using sprinkler mechanisms), center pivot irrigation (a mechanical irrigation system for large fields or circularly patterned crops using sprinklers, which is suitable for flat lands), drip/ partial irrigation (an irrigation system delivering water directly to plant roots in small, controlled quantities using a network of pipes dripping or trickling water), and smart irrigation (systems with sensors, weather data, and internet connectivity to monitor and adjust irrigation schedules based on real-time conditions).



Integrated Aquaculture Farm Management

Integrated aquaculture farm management involves a set of technologies and practices for managing aquaculture operations that integrate components like site selection, species integration, nutrient cycling, water management, and biosecurity. It works to promote sustainable and efficient aquaculture production while minimizing environmental impacts. These technologies include cages (fish or shellfish raised in mesh enclosures suspended in natural waters like lakes, rivers or coastal areas), flowthrough systems (continuous flow of water to farmed fish or other aquatic organisms where water is sourced from natural or artificial water bodies, then flows through culture tanks), and aquaponics (an integrated system of aquaculture and hydroponics, where fish and plants are raised together in a symbiotic environment; fish waste provides nutrients for plant growth, plants help purify the water).



Protected Agriculture and Controlled Environment

Protected agriculture and controlled environment encompasses technologies that enable growing plants in a defined space with control over conditions like temperature and humidity. This allows increased food production, water conservation, and adapting to unfavorable environmental conditions like the Kingdom's hot climate. It is suitable for vegetable crops and includes all types of artificial protection such as greenhouses (with direct climate and humidity control like HVAC systems or indirect control like fabric and plastic coverings), hydroponics or soilless agriculture (protected agriculture technology bypassing soil structure to support roots and grow crops directly in nutrient-rich water), aeroponics (growing plants in air or mist environment without using soil or aggregate medium), and vertical farming that enables agriculture in urban areas (growing crops in completely enclosed environments on vertical racks using artificial lighting and full control over environmental conditions).



Food preservation and Valorization of Waste

Food loss and waste is a major issue in the food sector, and technologies addressing it provide solutions like converting it into useful applications, delaying food spoilage, deterioration or contamination, and extending food shelf life. They enable reducing food losses and greenhouse gas emissions, especially methane. For instance, these technologies can increase the shelf life of food products from seven to 14 days.¹⁹ These technologies can be broadly classified between innovative food preservation and food loss and waste valorisation. Innovative food preservation methods include high pressure processing, edible coatings, smart packaging, pulsed electric fields (using high voltage electric pulses to kill bacteria), and plasma technology (exposing food to ionized gases at low temperatures). Food loss and waste valorisation includes composting (treating food waste into nutrient-rich fertilizer), anaerobic digestion (breakdown of organic waste in the absence of oxygen by bacteria decomposing the organic matter), and insect bioconversion (using insects like black soldier fly larvae to consume and transform food waste into valuable insect biomass).



Unmanned Aerial Vehicles and Satellite Imagery

Unmanned aerial vehicles (UAVs or drones) bring several advantages to the agriculture sector, especially since they can be remotely controlled or pre-programmed to fly autonomously. Drones provide a wide range of services in agriculture, from improving water usage, increasing irrigation efficiency, to more effectively managing water resources. They also enable other advanced applications like crop health monitoring (using aerial imagery to assess crop health and identify potential issues), soil monitoring (analysing soil conditions for nutrient levels, moisture content, overall health) or application accuracy (such as for spraying fertilizers, improving resource usage). Satellites offer additional applications like remote sensing (gathering data about the earth's surface without direct physical contact), advanced imagery (using sophisticated imaging techniques to enhance monitoring) or communications (facilitating data transfer between different components of an agricultural system).



Aligning Technology Priority Group Investments with National Missions

Targeted investments in these technology priority groups are critical for enhancing national food security, improving agricultural productivity, and reducing dependence on imports, while advancing the Kingdom's Vision 2030 goals for sustainable and resource-efficient agricultural development.

By systematically connecting the sector's key challenges and emerging opportunities with investment-ready technological solutions, the framework establishes a solid basis for evidence-driven capital allocation. This approach enables policymakers, investors, and agricultural planners to align national priorities with practical, high-impact innovations that accelerate sector transformation and deliver measurable economic and agricultural gains.



Top Irrigation and Water Management Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to agricultural technologies that address these challenges.

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	Investment title	country	Amount (USD)	Investor
1	Xylem-Evoqua Water Technologies Merger	USA	7,500,000,000	Xylem Inc.
2	SALIC proposed acquisition of additional %44.58 stake in Olam Agri (Tranche 1 of full takeover)	Singapore	1,780,000,000	SALIC
3	Veolia acquisition of remaining %30 of Water Technologies & Solutions (WT&S)	France	1,750,000,000	Veolia Environnement SA
4	SALIC acquisition of %35.43 stake in Olam Agri	Singapore	1,240,000,000	SALIC
5	ADS acquisition of NDS (NORMA Group's Water Management business)	USA	1,000,000,000	Advanced Drainage Systems Inc. (ADS)
6	Husqvarna acquisition of Orbit Irrigation	Sweden	480,000,000	Husqvarna Group
7	Veralto acquisition of In-Situ	USA	435,000,000	Veralto Corporation
8	Temasek majority stake in Rivulis (micro-irrigation)	Singapore	365,000,000	Temasek
9	Rain Bird Corporation Strategic Expansion	USA	300,000,000	Rain Bird Corporation
10	Valmont acquisition of Prospera Technologies	USA	300,000,000	Valmont Industries Inc.

	Investment title	country	Amount (USD)	Investor
1	Agricultural Development Fund (ADF) SAR 1.45b high-tech greenhouse program (2025–2021)*	Saudi Arabia	387,000,000	ADF
2	Saudi Irrigation Organization contracts with Alkhorayef Water for treated water reuse systems	Saudi Arabia	94,000,000	Saudi Irrigation Organization (public agency) awarding contracts to Alkhorayef Water & Power Technologies (Saudi company)
3	Al Bawani Water & Power acquisition of A.Hak Pijpleidingen Saudi unit	Saudi Arabia	Undisclosed	Al Bawani Water & Power Company (AWP), part of Al Bawani Group

*Source: ADF

Top Irrigation and Water Management Global and Local Strategic investments

insights

Common technology themes

- Global markets are dominated by advanced water treatment, monitoring systems, and irrigation management infrastructure. The largest deals (Xylem–Evoqua, Veolia WT&S, ADS–NDS) all revolve around industrial-scale water purification, utility infrastructure, and stormwater/wastewater management.
- Saudi Arabia's portfolio centers on large-scale water production and reuse.

Country dominance

- USA leads global water-tech investments, contributing half of the top 10 deals, primarily in water treatment, drainage infrastructure, and irrigation automation.
- Singapore is emerging as a strategic hub, driven by Temasek and SALIC's major cross-border agriculture-water acquisitions of Olam Agri.

Prominent investors and diversified investor types

Global industrial water giants such as Xylem, Veolia, ADS, Veralto, and Husqvarna are driving consolidation acquiring treatment technologies, sensors, and irrigation.

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Funding stages and technology maturity

- High-value M&A (Xylem–Evoqua, ADS–NDS, Veolia WT&S) indicates a high-maturity market defined by consolidation.
- PPP megaproject financing indicates Saudi Arabia is in a national build-out phase, deploying mature technologies.

Additional Observations

Saudi Arabia's water investment landscape is almost entirely public-led, unlike global markets where corporate acquisitions dominate.



Top Irrigation and Water Management Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to agricultural technologies that address these challenges.

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	Investment title	country	Amount (USD)	Investor
1	SunCulture – Series B	Kenya	27,500,000	InfraCo Africa, Acumen Fund, Equator
2	Ecozen – Series C	India	25,000,000	Nuveen, Dare Ventures
3	Irrigreen – Series A	USA	19,000,000	Natural Ventures, Burnt Island Ventures
4	Sencrop – Series B	France	18,000,000	JVP (Jerusalem Venture Partners – lead), EIT Food, Stellar Impact (Telos Impact), IRD Management, Bpifrance, Demeter IM, NCI Waterstart
5	Hydrosat – Series A	USA	15,000,000	Statkraft Ventures, Crosslink Capital, Radicle Growth
6	Irrigreen – Seed	USA	15,000,000	Ulu Ventures, Burnt Island Ventures, Radicle Growth
7	SunCulture – Series A	Kenya	14,000,000	Energy Access Ventures, EDF, Oikocredit
8	Lumo – smart-valve irrigation funding	USA	7,000,000	Active Impact Investments (lead), Fall Line Capital
9	SunCulture – WaterEquity climate resilience investment	Kenya	5,000,000	WaterEquity, Microsoft Climate Innovation Fund, Starbucks, Xylem
10	Verdi – Seed	Canada	4,700,000	SVG Ventures, NEC X, Ponderosa Ventures

	Investment title	Saudi	Amount (USD)	Investor
1	Green Desert Technologies – Flat6Labs Seed Investment	KSA	Undisclosed	Flat6Labs' Startup Seed Fund (exact ticket size undisclosed)

Top Irrigation and Water Management Global and Local Financial investments

insights

Common technology themes

Investments are concentrated in precision irrigation and climate-smart water management across all investments, the theme is data, automation, and energy-efficient irrigation, aligned with food-security and climate adaptation priorities.

Country dominance

- Kenya and the USA dominate the investment landscape, jointly representing five out of ten of the top investments in the Irrigation and Water Management TPG.
- Canada appears through a seed investment in Verdi, highlighting early-stage innovation in plant-level irrigation modulation.

Prominent investors and diversified investor types

The presence of both climate impact-driven and venture funds indicates strong market pull for water-efficient irrigation technologies across low- and high-income markets.

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Funding stages and technology maturity

Most deals are concentrated in Series A and Series B rounds, indicating a transition from proof-of-concept to commercial scale and regional expansion. At the same time, the Irrigation and Water Management TPG also includes selective pre-seed and later-stage investments, reflecting activity across the innovation lifecycle rather than an even stage distribution

Additional Observations

- Kenya's strong presence through SunCulture highlights emerging-market leadership in off-grid, solar-integrated irrigation solutions, a model highly relevant to arid regions such as Saudi Arabia.
- Technologies in this category strongly align with Saudi Arabia's national water priorities, particularly in reducing agricultural water consumption, improving irrigation efficiency, and supporting climate-resilient agriculture.



Top Integrated Aquaculture Farm Management Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to agricultural technologies that address these challenges.

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	Investment title	country	Amount (USD)	Investor
1	Lighthouse & Municipality of Sotenäs – Europe's largest land-based RAS salmon complex	Sweden	1,700,000,000	Lighthouse Finance A/S (aquaculture project developer) and Municipality of Sotenäs
2	Global Sustainability Infrastructure Strategic Investment in Aquaculture Systems	Multiple countries	1,700,000,000	Multiple institutional investors
3	Cermaq Group Strategic Acquisition of Grieg Seafood Operations	Norway/Canada	976,000,000	Cermaq Group (Mitsubishi Corporation)
4	Mowi ASA Strategic Acquisition of Nova Sea Salmon Farming Assets	Norway	625,000,000	Mowi ASA
5	JBS acquisition of Huon Aquaculture Group Ltd	Australia	400,000,000	JBS S.A. (via JBS Australia)
6	Asset Buyout Partners – Averøy Industripark land-based fish breeding facility	Norway	350,000,000	Asset Buyout Partners (industrial real-estate / infrastructure owner)
7	Pure Salmon Cedar Bluff land-based salmon farm, Virginia	USA	300,000,000	Pure Salmon (8F Asset Management portfolio platform) and local public-sector infrastructure support
8	Samherji “Salmon Garden” land-based salmon complex, Reykjanes	Iceland	260,000,000	Samherji Fish Farming (Samherji hf. subsidiary) with Icelandic & international banks and co-investors
9	Hima Seafood land-based RAS trout facility, Rjukan	Norway	250,000,000	Hima Seafood (project sponsor) and Villa Seafood (processing/distribution partner)
10	Atlantic Sapphire – Phase 2 Miami Bluehouse RAS bond & equity package	USA	250,000,000	Atlantic Sapphire ASA and bond investors via Miami-Dade County Industrial Development Authority

	Investment title	country	Amount (USD)	Investor
1	Pure Salmon KSA – National RAS Salmon Program	Saudi Arabia	520,000,000	Pure Salmon KSA (Pure Salmon Group) in partnership with Government of Saudi Arabia
2	Topian Aquaculture – NEOM & Tabuk Fisheries JV	Saudi Arabia	Undisclosed	NEOM (Topian – NEOM Food Company) and Tabuk Fisheries Company
3	Aqua Bridge Al-Lith Marine Finfish Hatchery & Integrated Project	Saudi Arabia	Undisclosed	Aqua Bridge Farms Co. (Aqua Bridge Holding)
4	SALIC Strategic Investment in National Aquaculture Group (NAQUA)	Saudi Arabia	Undisclosed	SALIC
5	Saudi Fisheries Company – new aquaculture affiliate	Saudi Arabia	Undisclosed	Saudi Fisheries Company (SFC)
6	PIF transfer of Saudi Fisheries Company stake to SALIC	Saudi Arabia	Undisclosed	Public Investment Fund (seller), SALIC (acquirer)
7	Topian multi-partner aquaculture development & RAS salmon MoUs	Saudi Arabia	Undisclosed	Topian (NEOM) with NLFDP, National Aquaculture Group (NAQUA), Pure Salmon

Top Integrated Aquaculture Farm Management Global and Local Strategic investments

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Common technology themes

Strong concentration in land-based RAS (Recirculating Aquaculture Systems) as the dominant technology nearly all top global deals focus on RAS salmon or trout facilities.

Country dominance

Norway shows as the global leader in aquaculture investments dominant in salmon farming acquisitions and land-based RAS facilities and home to several of the largest RAS, breeding, and processing expansions.

Prominent investors and diversified investor types

- Global key investor profiles are Aquaculture multinationals, Project and infrastructure developers, RAS-specialized private equity and platforms, Institutional investors / infrastructure funds, Government & municipal investors.
- However, in Saudi Arabia the government is playing a vital role in Integrated Aquaculture Farm Management investment activities.

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Funding stages and technology maturity

- Strategic acquisitions by major protein companies proves that aquaculture is an established, profitable industry M&A signals consolidation and scaling.
- In Saudi Arabia sovereign-backed strategic investment shows that aquaculture is considered a strategic national priority, still in capability-building phase.

Additional Observations

Clear Differences are shown between Global and Saudi Arabia investment models, where global models include commercial consolidation, RAS scaling, and multinational expansions. In contrast, Saudi Arabia models include ecosystem building, sovereign-led development, and national production capacity expansion.



Top Integrated Aquaculture Farm Management Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to agricultural technologies that address these challenges.

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	Investment title	country	Amount (USD)	Investor
1	eFishery – Series D	Indonesia	200,000,000	42XFund (lead), KWAP, responsAbility, 500 Global, Northstar, Temasek, SoftBank Vision Fund 2 and others
2	eFishery – Series C	Indonesia	90,000,000	SoftBank Vision Fund 2, Temasek, Sequoia Capital India / Peak XV, Go-Ventures, Northstar Group, Aqua-Spark, Wavemaker Partners
3	Victory Farms – Series B	Kenya	35,000,000	Creadev (lead), Acumen Resilient Agriculture Fund (ARAF), DOB Equity, Endeavor Catalyst, Hesabu Capital and others
4	Poseidon Ocean Systems Series B Funding	Canada	28,000,000	Ecosystem Integrity Fund (lead), InBC Investment Corp, Export Development Canada
5	Aquabyte – Series B	USA and Norway	25,000,000	SoftBank Ventures Asia (lead), The Nature Conservancy (Investments), Westerly Winds, NEA, Costanoa, ArcTern, Struck Capital, Alliance Venture
6	Poseidon Ocean Systems – Series B	Canada	20,750,000	Ecosystem Integrity Fund (lead), InBC Investment Corp, Export Development Canada, Ag Capital Canada and others
7	XpertSea – Series B	Canada	20,000,000	QED Investors and Atlantico (co-leads), Investissement Québec, Obvious Ventures, Aqua-Spark, Future Shape, Real Ventures, edō Capital
8	eFishery – Series B	Indonesia	17,000,000	Go-Ventures and Northstar Group (co-leads), Aqua-Spark, Wavemaker Partners
9	Aquaconnect – Series A	India	15,000,000	Lok Capital (lead), Louis Dreyfus Company Ventures, Suneight Investment, AgFunder, Omnivore, Rebright Partners, Flourish Ventures, HATCH and others
10	Bluegrove – Series B (first close)	Norway	14,000,000	Aqua-Spark (anchor investor), other investors not fully disclosed

	Investment title	country	Amount (USD)	Investor
1	Sale of %40 Stake in Saudi Fisheries Company (SFC) to Abdulaziz Al-Humaid	Saudi Arabia	32,500,000	Buyer: Abdulaziz bin Abdullah Al-Humaid, Seller: SALIC (Saudi Agricultural and Livestock Investment Co.)
2	Red Sea Aquaculture Co. (RSACO) – Private Capital in Biofloc-Based Integrated Farm	Saudi Arabia	8,000,000	Undisclosed Saudi private investors (company is %100 Saudi-owned, no individual investors named publicly)

Top Integrated Aquaculture Farm Management Global and Local Financial investments

insights

Common technology themes

- The top investment (200\$m) reflects global private equity and VC interest in next-generation protein systems, including aquaculture automation, feed optimization, and climate-resilient farming technologies, this confirms that aquaculture is transitioning from a traditional food sector to a core pillar of global food-tech and climate-tech investment.
- Globally most funded companies (eFishery, Aquabyte, XpertSea) work on IoT-driven feeding, biomass monitoring, smart sensors, and farm automation, reflecting a global shift to precision aquaculture.

Country dominance

- Indonesia clearly dominates global aquaculture tech funding due to eFishery's multiple mega rounds (Series B, C, and D), totaling ~307\$ M.
- Canada appears repeatedly through Series B investments for Poseidon Ocean Systems and XpertSea—indicating a strong ecosystem for cold-water aquaculture innovation.

Prominent investors and diversified investor types

- Global investments show major sovereign funds (Temasek), climate-tech VCs (Aqua-Spark), private equity, and technology-forward institutional investors.
- Saudi Arabia investments are primarily strategic, government-aligned, and infrastructure-heavy, unlike global VC-led innovation tech rounds.

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Funding stages and technology maturity

Globally Series D & Series C dominate at the high end, led by eFishery (200\$M + 90\$M) this indicates high TRL, mature commercialization, and market expansion.

Additional Observations

Saudi investments differ fundamentally from global trends. Saudi Arabia is investing in infrastructure, while global markets invest in software, sensors, AI, and automation.



Top Protected Agriculture and Controlled Environment Global and Local Strategic investments

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	Investment title	country	Amount (USD)	Investor
1	Plenty – Mawarid Middle East Vertical Farming JV	UAE	680,000,000	Mawarid (Alpha Dhabi Holding), Plenty, regional bank lenders
2	Tado SPAC Merger - Germany	Germany	499,000,000	GFJ ESG Acquisition I
3	AppHarvest SPAC Merger - USA	USA	475,000,000	Novus Capital Corporation, Fidelity Management, Inclusive Capital Partners
4	Plenty Series E – Walmart Strategic Investment	USA	400,000,000	One Madison Group, JS Capital, Walmart, SoftBank Vision Fund 1
5	AeroFarms SPAC Merger - USA	USA	358,000,000	Spring Valley Acquisition Corp
6	Agriculture Technology Campus – Hampton County CEA Cluster	USA	314,000,000	Mastronardi Produce, Clear Water Farms, LiDestri Food & Drink, GEM Opportunity Zone Fund
7	AeroFarms Bankruptcy Restructuring - USA	USA	300,000,000	Bankruptcy court proceedings/creditors
8	Little Leaf Farms – US\$300m CEA Expansion Financing	USA	300,000,000	The Rise Fund (TPG), Bank of America
9	Planet Farms – Swiss Life Asset Managers Vertical Farming Platform	Italy	210,000,000	Swiss Life Asset Managers, Planet Farms
10	Kalera SPAC Merger - USA	USA	200,000,000	SPAC investors

	Investment title	country	Amount (USD)	Investor
1	National Greenhouse Expansion Plan – Plant Wealth & Greenhouses Sector	Saudi Arabia	1,000,000,000	Ministry of Environment, Water and Agriculture (MEWA), Agricultural Development Fund (ADF)
2	Agricultural Development Fund High-Tech Greenhouse Financing Program (2025–2021)	Saudi Arabia	220,000,000	Agricultural Development Fund (Government of Saudi Arabia)
3	Vertical Farms Company – Saudi Arabia's Largest Indoor Vertical Farm	Saudi Arabia	28,000,000	Mowreq Specialized Agriculture, YesHealth Group
4	PIF–AeroFarms Joint Venture for Indoor Vertical Farms in Saudi Arabia & MENA	Saudi Arabia	Undisclosed	Public Investment Fund (PIF), AeroFarms
5	NADEC–Pure Harvest High-Tech Greenhouse Project (Haradh)	Saudi Arabia	Undisclosed	National Agricultural Development Company (NADEC), Pure Harvest Smart Farms
6	Pure Harvest Acquisition of RedSea's CEA Facility near Riyadh	Saudi Arabia	Undisclosed	Pure Harvest Smart Farms (acquirer), RedSea (seller)
7	Topian–SGH Horticulture Innovation Center (HIC) – University of Tabuk	Saudi Arabia	Undisclosed	Saudi Greenhouse Management & Agri Marketing (SGH), Topian (NEOM), University of Tabuk
8	Red Sea Global – RedSea Indoor Farm at The Red Sea Destination	Saudi Arabia	Undisclosed	Red Sea Global, RedSea (Red Sea Farms)
9	Topian Climate-Resilient Greenhouse in Oxagon (NEOM)	Saudi Arabia	Undisclosed	Topian (NEOM food company), Van der Hoeven Horticultural Projects

Top Protected Agriculture and Controlled Environment Global and Local Strategic investments

insights

Common technology themes

- Both global and Saudi Arabian investments are heavily focused on Controlled Environment Agriculture (CEA), Vertical Farming, and Smart Greenhouses.
- Many investments aim to increase production efficiency, climate resilience, and resource optimization, particularly water use and energy efficiency.

Country dominance

- UAE shows significant activity through regional partnerships.
- USA dominates, with 7 out of 10 top strategic investments.
- Saudi Arabia's strong domestic push for high-tech agriculture aligned with Vision 2030 priorities.

Prominent investors and diversified investor types

- Global investors mainly venture capital, SPAC investors, and corporate strategic investors.
- In Saudi Arabia academic and research partnerships play a role in contributing to strategic investments activities.

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Funding stages and technology maturity

- Many global investments are mergers, indicating scalable, growth-stage technologies which focuses on expansion and commercialization, not early-stage research.
- While, in Saudi Arabia they are government-led strategic funding (MEWA, ADF) with some corporate co-investment, showing strategic priority and long-term development focus.

Additional Observations

- Saudi Arabia is building domestic capacity but also collaborating with global tech providers (AeroFarms, Pure Harvest).
- Both global and Saudi Arabia examples show joint ventures and partnerships as a common approach.



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	Investment title	country	Amount (USD)	Investor
1	Bowery Farming - Series C/D	USA	700,000,000	First Round Capital, General Catalyst, GV (Google Ventures)
2	Gotham Greens - Series B/C	USA	440,000,000	BMO Impact Investment Fund (IIF), Bank of Montreal (BMO) (NYSE: BMO), and Ares Management funds (Ares), Commonfund, RockCreek and Kimco Realty Corporation (NYSE: KIM), along with key existing investors, including Manna Tree Partners and The Silverman Group.
3	Plenty Unlimited - Series E	USA	400,000,000	One Madison Group, JS Capital, SoftBank Vision Fund
4	AeroFarms - Series C/D	USA	300,000,000	Multiple VC
5	Local Bounti – Cargill debt facility	USA	200,000,000	Cargill (lender)
6	Infarm – Series D	Germany	200,000,000	Qatar Investment Authority (QIA), Partners in Equity, Hanaco, Atomico, Lightrock, and Bonnier
7	Pure Harvest Smart Farms – 2022 growth round	UAE	180,500,000	Metric Capital Partners, IMM Investment Corp, The Olayan Group, others
8	Infarm – Series C (first close)	Germany	170,000,000	LGT Lightstone, Hanaco, Bonnier, Haniel, Latitude, Atomico, TriplePoint Capital, Mons Capital, Astanor Ventures
9	80 Acres Farms – Series B	USA	160,000,000	General Atlantic, Siemens Financial Services, others
10	Local Bounti – SPAC PIPE	USA	150,000,000	Fidelity Management, BNP Paribas Asset Management, Cargill, others

	Investment title	country	Amount (USD)	Investor
1	Vertical Farms Company (VFCo) – Mowreq x YesHealth JV	Saudi Arabia	28,000,000	Mowreq Specialized Agriculture, YesHealth Group, backed by Saudi venture capital and funds
2	Red Sea Farms – Strategic / bridge growth round	Saudi Arabia	18,500,000	Wa’ed (Saudi Aramco VC arm), Savola Group, KAUST Innovation Fund, OlsonUbben
3	iyris (formerly Red Sea) – Series A	Saudi Arabia	16,000,000	Ecosystem Integrity Fund (lead), Global Ventures, Dubai Future District Fund, Kanoo Ventures, Globinvest, Bonaventure Capital
4	Red Sea Farms – Pre-Series A round	Saudi Arabia	16,000,000	Wa’ed (Aramco VC), Future Investment Initiative (FII) Institute, KAUST Innovation Fund, Global Ventures, AppHarvest, Bonaventure Capital
5	Arable – Seed round	Saudi Arabia	2,550,000	Undisclosed mix of private and institutional investors (≈%90 foreign capital)

Top Protected Agriculture and Controlled Environment Global and Local Financial investments

insights

Common technology themes

- Global investments target indoor vertical farming, controlled-environment agriculture (CEA), and data-driven farm automation, reflecting a market-wide shift toward year-round production, resource-efficient growing systems, and urban agriculture models. A strong emphasis is seen on technologies that enhance yield predictability, climate resilience, and energy efficiency, such as LED optimization, AI-powered crop analytics, and closed-loop climate control systems.
- In Saudi Arabia, investment is concentrated in vertical farming and climate-resilient controlled-environment models, with investments in VFCo, Red Sea Farms, and Iyris positioning KSA as an emerging GCC leader in commercial CEA deployment.

Country dominance

The United States is the clear global leader, accounting for 7 of the top 10 global transactions. This includes the highest-value deals such as Bowery Farming (700\$M) and Gotham Greens (440\$M), establishing the US as the epicenter of scale-up capital for controlled-environment agriculture.

Prominent investors and diversified investor types

- Globally, major investors include First Round Capital, General Catalyst, SoftBank Vision Fund, GV (Google Ventures), One Madison Group, and sovereign wealth or strategic funds such as Qatar Investment Authority.
- The presence of both corporate VCs and sovereign-backed institutions indicates a strategic national interest in high-tech agricultural self-sufficiency.

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Protected
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Food preservation
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Funding stages and technology maturity

- The majority of top global investments fall within Series C–E and growth rounds, confirming that CEA is a maturing sector with many operators moving into industrial-scale production.
- In Saudi Arabia, the funding stages skew earlier seed, Series A, and bridge rounds reflecting growing domestic interest, early positioning of national companies, and a need for continued scale-up funding to reach commercial maturity.

Additional Observations

It is worth noting that within the gulf region, UAE emerges as a regional agricultural innovation center, represented by Pure Harvest Smart Farms' 180.5\$M growth round, emphasizing the Gulf's interest in food security-driven, climate-resilient agriculture.



Top Food preservation and Valorization of Waste Global and Local Strategic investments

Objective

To reveal how investment capital both global and domestic is responding to agricultural technologies that address these challenges.

Irrigation and Water Management

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	Investment title	country	Amount (USD)	Investor
1	Sealed Air Corporation Private Equity Acquisition	USA	10,300,000,000	CD&R (Clayton, Dubilier & Rice)
2	Amcor-Berry Global Strategic Merger	Global	8,430,000,000	Amcor plc
3	Coca-Cola BodyArmor Strategic Acquisition	USA	5,600,000,000	The Coca-Cola Company
4	BP acquisition of Archaea Energy (RNG from waste)	USA	4,100,000,000	BP plc
5	Ferrero-WK Kellogg Strategic Acquisition	USA	3,100,000,000	Ferrero Group
6	KPS Capital Partners acquisition of Crown EMEA Food & Consumer Packaging (Evisosys)	Multiple Country	2,700,000,000	KPS Capital Partners (Crown retains %20)
7	Shell acquisition of Nature Energy Biogas	Denmark	2,000,000,000	Shell plc
8	Americold acquisition of Agro Merchants Group	USA/ Netherlands	1,740,000,000	Americold Realty Trust
9	Sonoco-Ball Metalpack Strategic Acquisition	USA	1,350,000,000	Sonoco Products Company
10	Huhtamaki acquisition of Elif (sustainable flexible packaging)	Turkey / Egypt	480,000,000	Huhtamäki Oyj

	Investment title	country	Amount (USD)	Investor
1	Tadweer – Ithraa (King Abdulaziz Center) Food Waste Recycling Agreement	Saudi Arabia	Undisclosed	Tadweer Food Recycling Company,Ithraa (King Abdulaziz Center for World Culture),Al Yamama Co.
2	Edama – KAUST Organic Waste Recycling Facility	Saudi Arabia	Undisclosed	Edama Organic Solutions (with KAUST as host customer)
3	Tadweer – Floward Damaged Flowers to Fertilizer Initiative	Saudi Arabia	Undisclosed	Tadweer Food Recycling Company,Floward
4	MEWA – Tadweer Memorandum of Understanding on Food-Waste Circularity	Saudi Arabia	Undisclosed	Tadweer Food Recycling Company,Ministry of Environment, Water and Agriculture (MEWA)
5	Yadoum (SIRC) – EDAMA – NADEC Agricultural Waste Compost Initiative	Saudi Arabia	Undisclosed	Yadoum (SIRC subsidiary),EDAMA,NADEC
6	NEOM – Oklin Largest Organic Resources Recycling Project (Community 1)	Saudi Arabia	Undisclosed	NEOM,Oklin International
7	SIRC – Edama Organic Waste Management Partnership	Saudi Arabia	Undisclosed	Saudi Investment Recycling Company (SIRC),Edama Organic Solutions
8	LuLu Hypermarket – Tadweer National Food Waste Recycling Initiative	Saudi Arabia	Undisclosed	LuLu Hypermarket,Tadweer Food Recycling Company

Top Food preservation and Valorization of Waste Global and Local Strategic investments

insights

Common technology themes

- Global investment focused on large-scale strategic acquisitions and mergers in the food, beverage, packaging, and renewable energy from waste sectors.
- Common themes: food production consolidation, packaging efficiency, waste-to-energy technology, and supply chain optimization.
- Saudi Arabia investments focused on organic and food waste recycling, composting, and circular economy initiatives.

Country dominance

USA dominates with 6 out of 10 investments.

Prominent investors and diversified investor types

- Global investors mainly corporate strategic investors and merger & acquisition activity.
- In Saudi Arabia, collaboration between public sector, research centers, and private sector, emphasizing capacity-building.

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Funding stages and technology maturity

- Predominantly global investments include strategic acquisitions and private equity, signaling mature, revenue-generating technologies.
- While Saudi Arabia includes MoUs, partnerships, and pilot program funding.
- Additionally, in Saudi Arabia undisclosed funding amounts suggest project-level or government-supported initiatives rather than commercial-scale strategic investments.

Additional Observations

- Global investments reflect scale and market consolidation, whereas Saudi investments reflect policy-driven experimentation and capacity building in circular economy and waste management.
- Saudi Arabia projects show strong multi-stakeholder partnerships, including universities, municipalities, and corporations, highlighting ecosystem-building.



Top Food preservation and Valorization of Waste Global and Local Financial investments

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	Investment title	country	Amount (USD)	Investor
1	BlackRock acquisition of Vanguard Renewables	USA	700,000,000	BlackRock Real Assets (buyer), Vision Ridge Partners (seller)
2	GrubMarket Food Waste Management Investment	USA	566,960,000	Multiple Venture Capital Firms
3	Ÿnsect – Series C	France	372,000,000	Astanor Ventures (lead), Upfront Ventures, Bpifrance, FootPrint Coalition and others
4	Apeel Sciences – Series D	USA	250,000,000	GIC (lead), Viking Global Investors, Upfront Ventures, Tao Capital Partners, Rock Creek Group, others including Oprah Winfrey and Katy Perry
5	Innovafeed – Series D	France	250,000,000	Qatar Investment Authority (lead), Creadev, Temasek, ADM, Cargill, ABC Impact, IDIA Capital Investissement, Grow Forward and others
6	Apeel Sciences – Series E	USA	250,000,000	Temasek (lead), Andreessen Horowitz, GIC, K3 Ventures, Mirae Asset, Sweetwater Private Equity, Tao Capital Partners, Viking Global Investors and others
7	Misfits Market – Series C1-	USA	225,000,000	SoftBank Vision Fund 2 (lead), Accel
8	Misfits Market – Series C	USA	200,000,000	Accel and D1 Capital Partners (co-leads), Valor Equity Partners, Greenoaks Capital, Sound Ventures, Third Kind Venture Capital
9	Afresh – Series B	USA	115,000,000	Spark Capital (lead), Insight Partners, VMG Partners, Bright Pixel Capital and others
10	Choco – Series B2	Germany	111,000,000	G Squared and Insight Partners (leads), with other existing investors

	Investment title	country	Amount (USD)	Investor
1	KASO – Seed Round	KSA	10,500,000	Spade Ventures, Hala Ventures, Seedra Ventures, Cyfr Capital, BY Venture Partners, Pioneer Fund, Vulpes Ventures and others
2	Barakah – Seed Round	KSA	1,500,000	Hambro Perks Oryx Fund (lead), 500 Global, +VC, KAUST Innovation Ventures, Annex Investments and strategic angels
3	Edama Organic Solutions – Seed Round	KSA	780,000	KAUST Innovation Fund
4	Barakah – Pre-Seed Round	KSA	300,000	Alriyadah Investments

Top Food preservation and Valorization of Waste Global and Local Financial investments

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Common technology themes

- Most global investments focus on food waste reduction, food-grade preservation technologies, and alternative protein inputs, particularly insect-based valorization and bio-preservation coatings.
- Saudi Arabia investments covers early-stage series and focused on local food waste solutions and organic waste valorization.

Country dominance

- USA dominates the global investment landscape, accounting for 7 out of the top 10 largest deals, particularly in shelf-life extension (Apeel Sciences), food waste platforms (GrubMarket), and circular food systems.
- France is the second major hub, driven by insect-based waste valorization (Ynsect, Innovafeed)

Prominent investors and diversified investor types

- Global Investors highlight large climate-tech and impact funds (e.g., GIC), strategic agri-food corporates and retail-linked funds (e.g., ADM), and venture capitals specializing in sustainability and circularity (e.g., Andreessen Horowitz).
- Saudi Arabia Investors for instance KAUST Innovation Fund is the most consistent investor, backing early-stage circular food technologies.

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Funding stages and technology maturity

- The global market is mature, with several Series C, D, and E investments.
- All Saudi Arabia deals are early-stage, including three Seed Rounds and one Pre-Seed Round. This indicates the technology theme is in the nascent stage domestically, with high reliance on RDI funding and incubation programs.

Additional Observations

Saudi Arabia focuses on early-stage startups, while leading global markets are funding large-scale, commercially proven ventures. This highlights an opportunity for Saudi Arabia to attract growth-stage international companies to localize operations.



Top Unmanned Aerial Vehicles and Satellite Imagery Global and Local Strategic investments

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	Investment title	country	Amount (USD)	Investor
1	BAE Systems Strategic Acquisition of Ball Aerospace	USA	5,500,000,000	BAE Systems
2	Karman Holdings Strategic IPO	USA	4,000,000,000	Trive Capital, Public Market Investors
3	Voyager Technologies Strategic IPO	USA	3,800,000,000	Public Market Investors
4	National Reconnaissance Office EOCL Strategic Partnership Program	USA	3,240,000,000	National Reconnaissance Office
5	Planet Labs Strategic SPAC Merger	USA	590,000,000	dMY Technology Group IV, BlackRock, Google, Koch Strategic Platforms
6	Innovative Rocket Technologies Strategic SPAC Merger	USA	400,000,000	BPGC Acquisition, Wilbur Ross
7	ICEYE Growth Capital Investment	Finland	93,000,000	Solidium Oy (lead), Move Capital Fund I, Blackwells Capital, Christo Georgiev
8	Google-led 36\$m Series B in Pixxel (hyperspectral EO)	India	36,000,000	Alphabet Inc. (Google)
9	Hydrosat 20\$m funding for thermal-IR water stress satellites	USA	20,000,000	Statkraft Ventures plus Blue Bear Capital, Hartree Partners and others
10	METOS Magyarország – SpaceCrop AI & satellite partnership	Hungary	Undisclosed	METOS Magyarország Kft. with SpaceCrop

	Investment title	country	Amount (USD)	Investor
1	Mangrove reforestation and coastal vegetation monitoring using GIS, drones and satellite imagery	Saudi Arabia	Undisclosed	NCVC and relevant Saudi environmental agencies
2	NCVC–Hexagon remote sensing programme for vegetation monitoring	Saudi Arabia	Undisclosed	NCVC with Hexagon, Geosystems Middle East, Planetek Italia, GeoSpace International
3	Neo Space Group acquisition of UP42 Earth Observation platform	Saudi Arabia /Germany	Undisclosed	Neo Space Group (PIF company)
4	Abdulrahman Alshareef Group–DJI Enterprise strategic drone partnership	Saudi Arabia /China	Undisclosed	Abdulrahman Alshareef Group with DJI Enterprise
5	NCVC high-resolution drone imaging of 24 national parks (PoC)	Saudi Arabia	Undisclosed	NCVC (National Center for Vegetation Cover Development & Combating Desertification)
6	MEWA Remote Sensing and Drone Technology programme	Saudi Arabia	Undisclosed	MEWA (Ministry of Environment, Water and Agriculture)

Top Unmanned Aerial Vehicles and Satellite Imagery Global and Local Strategic investments

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Common technology themes

- Heavy focus on Earth Observation (EO), satellite imaging, and space technologies.
- Saudi Arabia focused on remote sensing, drones, and satellite-based vegetation monitoring. Primarily related to environmental monitoring, ecosystem management, and conservation (mangroves, national parks).

Country dominance

- USA dominates the sector with 7 out of the top 10 investments.
- Europe (Finland, Hungary) and India have a smaller but targeted presence, especially in EO and hyperspectral imaging.
- Saudi Arabia collaborates with Germany and China, reflecting global partnerships in EO and drone technologies.

Prominent investors and diversified investor types

- Global investors mainly include corporate investors, strategic buyers, government strategic programs, and financial growth capital.
- In Saudi Arabia international strategic partnerships are playing a role in the investment activities.

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Funding stages and technology maturity

- Globally strategic acquisitions and partnerships dominate, signaling high maturity technologies and a focus on scaling and market consolidation.
- While in Saudi Arabia, most investments are government-led or public-private partnerships, indicating early- to mid-stage technology adoption.
- Investment amounts are largely undisclosed in Saudi Arabia, typical for public-sector programs prioritizing strategic impact over immediate ROI.

Additional Observations

- Environmental monitoring is increasingly linked with defense and security applications.
- Projects are heavily aligned with environmental objectives, such as desertification control and ecosystem monitoring.



Top Unmanned Aerial Vehicles and Satellite Imagery Global and Local Financial investments

Objective

To reveal how investment capital both global and domestic is responding to agricultural technologies that address these challenges.

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	Investment title	country	Amount (USD)	Investor
1	Skydio Series E - 851.4\$M Autonomous Drone Investment	USA	851,400,000	Multiple Venture Capital Firms
2	Zipline Series E - 704.5\$M Medical Delivery Drone Investment	USA	704,500,000	Sequoia Capital, Baillie Gifford
3	Shield AI Series E - 588.1\$M Defense UAV Investment	USA	588,100,000	Andreessen Horowitz, Point72 Ventures
4	Saildrone Series C - 308.5\$M Ocean Monitoring Platform Investment	USA	308,500,000	Capricorn Investment Group, Lux Capital
5	ICEYE Series D - 281\$M SAR Satellite Constellation Investment	Finland	281,000,000	BAE Systems, Seraphim Capital
6	Echodyne Series D - 228\$M Radar Technology Investment	USA	228,000,000	Bill Gates, Madrona Venture Group
7	Agri-Tech UAV Series D - 201.6\$M Agricultural Drone Investment	China	201,600,000	Tencent Holdings, IDG Capital
8	Gro Intelligence Series B - 198.8\$M Agricultural Analytics Investment	USA	198,800,000	Intel Capital, Africa Internet Ventures
9	Wingcopter Series C - 194\$M Delivery Drone Investment	Germany	194,000,000	Xplorer Capital, REWE Group
10	XAG - Late-stage Series C/C+	China	182,000,000	Baidu Capital, SoftBank Vision Fund 2, Sinovation Ventures, IDG Capital and others

	Investment title	country	Amount (USD)	Investor
1	SARsatX - Seed Round	KSA	2,600,000	TONOMUS (NEOM), Wa'ed Ventures (Aramco VC arm), Access Bridge Ventures, KAUST Innovation Ventures
2	SARsatX - Pre-Seed Round	KSA	1,800,000	Not publicly disclosed, reported generically as pre-seed investors in public sources
3	FalconViz - Follow-On Seed from Wa'ed	KSA	500,000	Wa'ed (entrepreneurship arm and VC arm of Saudi Aramco)

Top Unmanned Aerial Vehicles and Satellite Imagery Global and Local Financial investments

insights

Common technology themes

- The global investment theme that does align with usage in the EWA sectors is agricultural drones and precision farming analytics.
- As for Saudi Arabia Investments, the communalities are for Satellite imaging and geospatial data solutions, and Autonomous UAV systems for surveillance/operations.

Country dominance

- For global investments, USA dominates, contributing 6 out of the top 10 investments (Skydio, Zipline, Shield AI, Sairdrone, Echodyne, Gro Intelligence).
- Saudi Arabia is investing exclusively in seed and early-stage companies, indicating strong interest in building domestic capacity.

Prominent investors and diversified investor types

- Global investment in UAVs and satellite-imagery technologies is driven by a concentrated group of powerful venture capital firms.
- Saudi Arabia Investors like TONOMUS (NEOM), Wa'ed Ventures (Aramco VC) are leading the emerging UAV & satellite investment landscape. While other Saudi investors are in the early stages or undisclosed.

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Funding stages and technology maturity

- Global funding shows late-stage, high-capital rounds, indicating that UAV and satellite systems are commercially mature, with proven large-scale use cases.
- Saudi Arabia is in the foundational phase of ecosystem building. Investments are focused on early-stage R&D.



Recommendation & Strategic Implication for KSA

1 Irrigation and Water Management

The precision irrigation sector has attracted significant strategic investments, with **Smart Precision Farming: A Water Efficient Irrigation System** demonstrating water efficiency gains of up to 30%. Strategic implications for Saudi Arabia include leveraging the Kingdom's water scarcity challenges as a competitive advantage in developing and deploying precision irrigation technologies. The **Precision Methods for Water Management and Crop Yield Optimization: The Future of Irrigation** research indicates strong integration potential with AI and ML technologies, positioning Saudi Arabia to become a regional hub for smart irrigation solutions through strategic partnerships with global technology providers. The Rain Bird Corporation's \$300 million strategic expansion program from 2020-2024 demonstrates the scale of private capital flowing into irrigation infrastructure. Saudi Arabia is encouraged to consider establishing strategic partnerships with such established players while simultaneously developing domestic capabilities through targeted venture capital initiatives.

2 Integrated Aquaculture Farm Management

The aquaculture sector presents significant strategic opportunities, particularly in **Recirculating Aquaculture Systems in Aquaculture** and integrated multi-trophic systems. The **Transforming Aquatic Food Systems: Advances in Sustainable Aquaculture and Fisheries** research highlights precision aquaculture and biofloc technology as key investment areas. Saudi Arabia's strategic position can focus on developing integrated aquaponics systems that combine fish farming with hydroponic crop production, maximizing water efficiency. The **Aquaponics: A Case of Integrated Aquaculture with Total Water Reuse** demonstrates total water reuse potential, aligning with the Kingdom's water conservation objectives.

3 Protected Agriculture and Controlled Environments

The controlled environment agriculture (CEA) sector has experienced substantial private investment growth, with **Trends, insights, and future prospects for production in controlled environment agriculture and agrivoltaics systems** indicating increasing public and private investments in alternative food production systems. The **Agriculture Reaches for the Skies: Climate-Controlled Agriculture and Vertical Farming** research shows strong market momentum. Saudi Arabia's strategic trajectory points toward regional leadership in CEA technologies, supported by its abundant solar energy resources for powering climate-controlled facilities. The Kingdom's harsh climate conditions create natural demand for protected agriculture solutions, making it an attractive market for strategic investors and technology providers.



4 Food Preservation and Valorization of Waste

While specific investment data for food preservation technologies was limited in the search results, the strategic implication for Saudi Arabia lies in developing integrated waste-to-value systems that complement the other agriculture technologies. This sector requires strategic partnerships with established food technology companies and venture capital investment in innovative preservation methods suitable for arid climates.

5 Unmanned Aerial Vehicles and Satellite Imagery

The precision agriculture monitoring sector represents a high-growth investment opportunity, with **Precision Agriculture for Water Conservation and Management** demonstrating strong integration potential with UAV and satellite technologies. Saudi Arabia's strategic advantage lies in its advanced space program capabilities and the NCVC-Saudi Aramco collaboration for pastoral seed dispersal using drilling sites, indicating existing infrastructure for large-scale agricultural monitoring.

6 Investment Recommendations

The analysis suggests that pursuing a mixed investment approach, combining strategic corporate partnerships with targeted venture capital initiatives, represents a high-impact path for Saudi Arabia. The **Financing agricultural innovation: Challenges and alternatives to venture capital in the AgTech sector** research indicates the need for alternative financing models beyond traditional venture capital, suggesting Saudi Arabia could develop innovative funding mechanisms that address the unique capital requirements of agriculture technologies. The Kingdom's strategic position stands to benefit from leveraging its natural resource constraints as innovation drivers, positioning Saudi Arabia as a global testbed for water-efficient and climate-resilient agriculture technologies while attracting strategic investments from established players and emerging technology companies.

3.3

EWA RDI Investment Outcomes (Country Level)

3.3.1 Purpose and Goal of the Section

3.3.2 Outcomes (Startups, Projects & Initiatives, and Capital Inflow)

Purpose and Goal of the Section

This section aims to demonstrate the tangible outcomes of investment flows across the environment, water, and agriculture (EWA) sectors by translating capital allocation into real-world impact within the Kingdom of Saudi Arabia. Rather than focusing solely on funding volumes, the section highlights how investments translate into startups, large-scale projects, strategic initiatives, and inbound capital, providing a clear picture of how financial activity is shaping the national innovation and implementation landscape.

Specifically, the section showcases the Top 10 startups operating across priority EWA technology areas, illustrating how venture and growth capital are supporting scalable, market-ready solutions. It also highlights the Top 10 projects and initiatives, demonstrating how government-led and strategic investments are enabling large-scale deployment, infrastructure development, and mission-driven outcomes. In addition, the section presents a curated list of global investors, offering visibility into the types of institutions actively deploying capital into Saudi Arabia's EWA ecosystem.

Together, these elements provide policymakers, investors, and RDI stakeholders with clear evidence of investment effectiveness, ecosystem maturity, and Saudi Arabia's attractiveness as a destination for capital in high-impact EWA technologies.



3.3

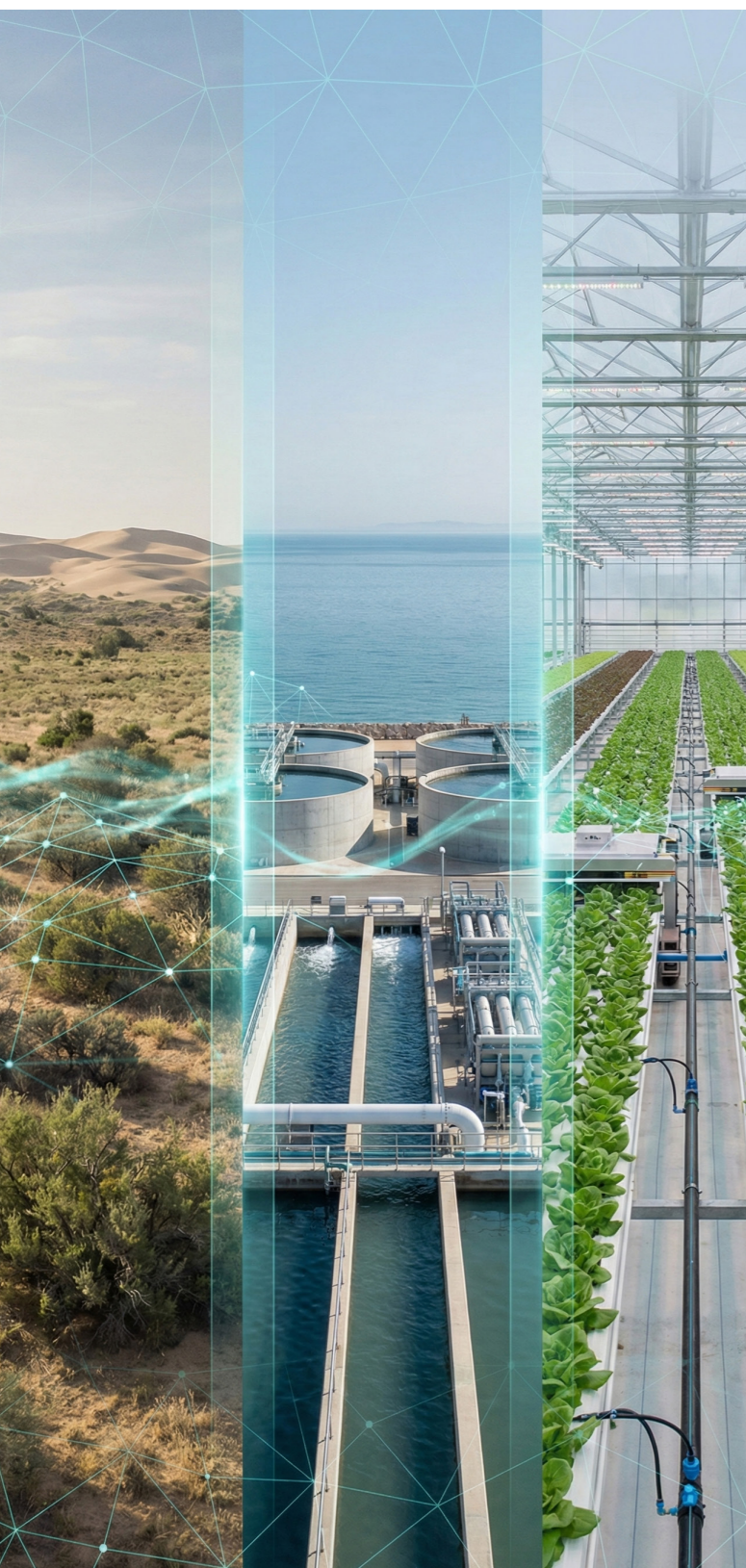
EWA RDI Investment Outcomes (Country Level)

3.3.1 Purpose and Goal of the Section

3.3.2 Outcomes (Startups, Projects & Initiatives, and Capital Inflow)



Top 10 most promising startups across the EWA sectors



The top 10 startups across the Environment, Water, and Agriculture (EWA) sectors are highlighted below to illustrate the tangible impact and outcomes of recent investments in these areas. These startups have been selected from a larger pool of 35 startups within Saudi Arabia, representing the most innovative and high-potential ventures that are driving technological advancement, sustainability, and sectoral transformation. Their inclusion underscores the effectiveness of targeted funding in fostering growth, scaling solutions, and addressing critical challenges within the EWA ecosystem.

	Startup	Investment	Sector	Amount (USD)	Investor
1	Iyris (formerly Red Sea)	Series A	Water and Agriculture	16,000,000	Ecosystem Integrity Fund (lead), Global Ventures, Dubai Future District Fund, Kanoo Ventures, Globinvest, Bonaventure Capital
2	KASO	Seed Round	Agriculture	10,500,000	Spade Ventures, Hala Ventures, Seedra Ventures, Cyfr Capital, BY Venture Partners, Pioneer Fund, Vulpes Ventures and others
3	GI Water as a Service (GI WaaS)	Series A	Water	10,000,000	Al Zamil Industry, Trade & Transport Company, Al Qunaibet Investment Fund (lead/anchor investors)
4	Edama	SIRC growth investment	Environment	5,600,000	Saudi Investment Recycling Company (SIRC – PIF)
5	Natufia Labs	KAUST-led Round	Water and Environment	3,500,000	KAUST Innovation Fund (lead), Butterfly Ventures and others.
6	SARsatX	Seed Round	Agriculture	2,600,000	TONOMUS (NEOM), Wa'ed Ventures (Aramco VC arm), Access Bridge Ventures, KAUST Innovation Ventures
7	Arable	Seed round	Water and Agriculture	2,550,000	Seed round led by a mix of institutional and private investors (%90 foreign capital deployed inside KSA, names not fully disclosed)
8	NuRain (formerly Al-Miyah)	Seed Round	Water	555,000	KAUST Innovation Ventures, other seed-stage investors not publicly named
9	FalconViz	Follow-On Seed from Wa'ed	Agriculture	500,000	Wa'ed (entrepreneurship arm and VC arm of Saudi Aramco)
10	Durra.ai	AI-Powered Precision Irrigation Seed Co-Investment	Environment, Water, and Agriculture	300,000	Seed co-investors alongside founders, plus Saudi national grant programme support.

Case study

iyris (formerly Red Sea): Revolutionizing Agriculture in Harsh Climates

Company Overview

iyris is a Saudi Arabian agritech company pioneering solutions for protected cultivation in hot, arid regions. The company develops innovative greenhouse covers and nets under their SecondSky product line, alongside heat- and drought-tolerant crop genetics specifically designed to thrive in challenging climatic conditions.

The Challenge

Traditional greenhouse technologies often fail in extreme heat environments, limiting agricultural productivity in regions like Saudi Arabia and other MENA countries. This creates food security challenges and increases dependency on imports in areas where water scarcity and high temperatures make conventional farming difficult.

The Innovation

iyris's SecondSky technology represents a breakthrough in climate-smart agricultural materials. These specialized greenhouse covers and nets are engineered to:

- Reduce interior temperatures in greenhouses
- Optimize light transmission for plant growth
- Minimize water consumption
- Extend growing seasons in harsh environments

Additionally, the company's development of heat- and drought-tolerant crop genetics complements their physical infrastructure solutions, creating a comprehensive system for successful desert agriculture.

Series A Funding:

Catalyst for Global Expansion

In May 2024, **iyris** secured a significant **16\$ million Series A funding** round led by Ecosystem Integrity Fund, with participation from Global Ventures, Dubai Future District Fund, Kanoo Ventures, Globinvest, and Bonaventure Capital. This **diverse investor coalition** demonstrates **strong regional and international confidence in iyris's technology and market potential**.

Impact and Future Trajectory

The Series A investment positions iyris to:

- **Scale operations:** Expand manufacturing and distribution of SecondSky products
- **Accelerate R&D:** Further develop climate-resilient agricultural technologies
- **Enter new markets:** Extend beyond Saudi Arabia to other regions facing similar agricultural challenges
- **Strengthen food security:** Enable local food production in previously unsuitable environments
- **Reduce environmental impact:** Decrease water usage and carbon footprint associated with food imports

Broader Significance

iyris exemplifies **Saudi Arabia's growing innovation ecosystem** and commitment to addressing climate challenges through technology. As climate change intensifies globally, iyris's solutions have potential applications far beyond the Middle East, offering sustainable agricultural approaches for hot, arid regions worldwide.

The company's work aligns with multiple UN Sustainable Development Goals, including Zero Hunger, Clean Water and Sanitation, and Climate Action, positioning iyris as not just a commercial venture but a contributor to global sustainability efforts.



Top 10 most promising Projects & Initiatives across the EWA sectors



The top 10 Projects & Initiatives across the Environment, Water, and Agriculture (EWA) sectors are highlighted below to demonstrate the tangible impact, scale, and strategic outcomes of recent investments in these priority areas. Selected from a comprehensive pool of 105 projects and initiatives implemented across Saudi Arabia, these leading efforts represent the most impactful, innovative, and scalable interventions within the national EWA landscape. Collectively, these projects showcase how targeted investments are translating into actionable solutions and long-term sectoral transformation.

	Projects and Initiatives	Sector	Amount (USD)	Investor
1	National Greenhouse Expansion Plan – Plant Wealth & Greenhouses Sector	Agriculture	1,000,000,000	Ministry of Environment, Water and Agriculture (MEWA) and Agricultural Development Fund
2	Yanbu4- Independent Water Project (IWP)	Water	880,000,000	ENGIE (lead), Nesma, Mowah, off-taker: SWPC
3	Shuaibah3- Independent Water Project (conversion to RO)	Water	821,000,000	ACWA Power (majority), Badeel, EPC by Doosan Enerbility
4	Rabigh3- Independent Water Project (IWP)	Water	700,000,000	ACWA Power–led consortium with Saudi partners, off-taker: SWPC
5	Ras Mohaisen Independent Water Plant (IWP) – SWPC PPP	Water	693,000,000	ACWA Power (Saudi), with Haji Abdullah Alireza & Partners and AlKifah Holding, procuring authority SWPC
6	Jubail3-B Independent Water Plant (IWP) – SWRO Desalination	Water	690,000,000	ENGIE (with Nesma & Partners, Alajlan & Bros, SWPC as off-taker)
7	Rabigh4- Independent Water Project (IWP) – SWRO	Water	680,000,000	ACWA Power (lead sponsor with local/ international lenders, SWPC as off-taker)
8	Jubail3-A IWP (Jazlah) – Solar-integrated SWRO	Water	650,000,000	ACWA Power (with GIC and Al Bawani, Jazlah Water Desalination Co. SPV)
9	SWPC Tabuk2-, Buraydah2- and Madinah3- Independent Sewage Treatment Plants (ISTPs)	Water	627,000,000	Acciona – Tawzea – Tamasuk consortium
10	King Salman Park – Water & Sewage Treatment Complex + Smart Irrigation	Environment	undisclosed	King Salman Park Foundation with engineering and technology partners

Case study

National Greenhouse Expansion Plan – Plant Wealth & Greenhouses Sector

Investment Overview

The National Greenhouse Expansion Plan represents a **significant 1\$ billion (SAR 4 billion) investment initiative** approved by Saudi Arabia's Ministry of Environment, Water and Agriculture (MEWA) and the Agricultural Development Fund. Launched in 2023, this corporate project investment targets **comprehensive development of the plant wealth and greenhouse sector through 2025**.

Key Investment Components

Total investment

**1\$ billion
(SAR 4 billion)**

Implementation period

2023-2025

Primary investors

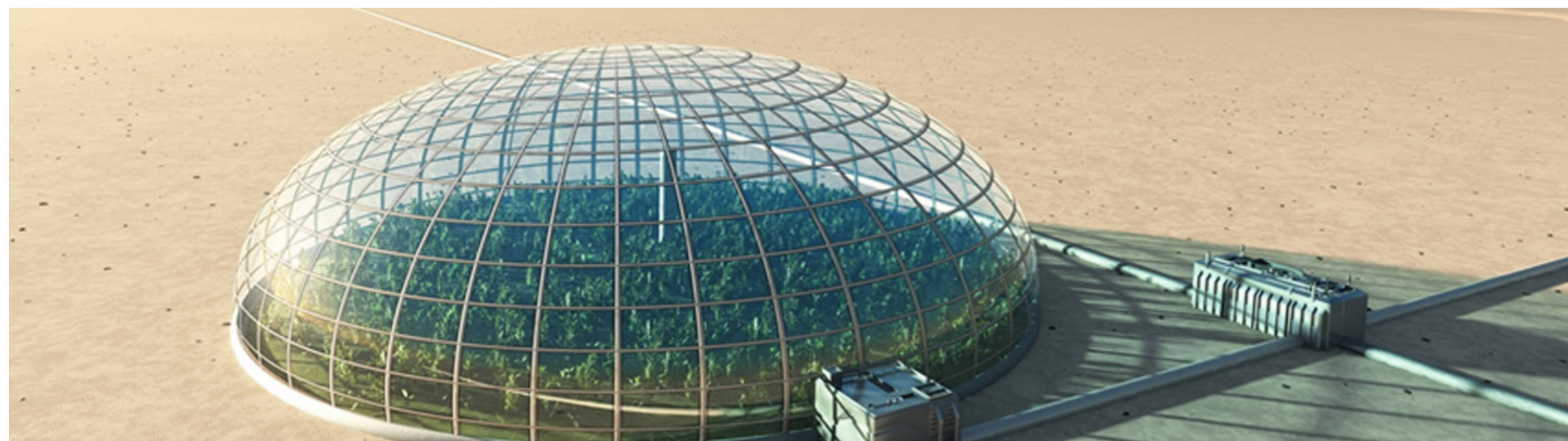
MEWA and Agricultural Development Fund

Focus

Modern agricultural technology adoption and greenhouse capacity expansion

Impact Analysis

- **Production Capacity Growth:** The investment is projected to increase greenhouse production capacity by approximately 430,000 tons, pushing total greenhouse output above one million tons annually.
- **Technological Advancement:** Implementation of modern agricultural technologies will enhance efficiency, resource utilization, and crop yields across Saudi Arabia's greenhouse sector.
- **Food Security:** The expanded production capacity directly supports Saudi Arabia's food security objectives by reducing dependence on imports and increasing domestic production of fresh produce.
- **Economic Diversification:** This investment aligns with Saudi Vision 2030 goals by strengthening non-oil sectors and creating agricultural value chains.
- **Employment Generation:** The expansion will create jobs across the agricultural value chain, from construction to operations and distribution.
- **Sustainability Benefits:** Modern greenhouse technologies typically optimize water usage and reduce environmental impact compared to traditional farming methods, particularly valuable in Saudi Arabia's arid climate.



Strategic Significance

This investment demonstrates **Saudi Arabia's commitment to agricultural self-sufficiency and technological innovation in food production**. By modernizing the greenhouse sector, **Saudi Arabia positions itself to address climate challenges** while building resilience in its agricultural infrastructure.

Source: Saudi Arabia to raise output of greenhouses with SAR 4 bln investments until 2025

Global investors Capital Inflow to Saudi Arabia's EWA Ecosystem

Global investors investing in Saudi Arabia from 2020-2025 across the EWA sectors:

	Investor	Investment Title	Sector
1	ENGIE	Yanbu4- Independent Water Project (IWP) Jubail 3B Independent Water Project (IWP) – SWPC PPP	Water
2	Acciona	SWPC Tabuk2-, Buraydah2- and Madinah3- Independent Sewage Treatment Plants (ISTPs) Madinah3- Independent Sewage Treatment Plant (Madinah3- ISTP) Buraydah2- Independent Sewage Treatment Plant (Buraydah2- ISTP) Tabuk2- Independent Sewage Treatment Plant (Tabuk2- ISTP)	Water
3	Pure Salmon Group	Pure Salmon KSA – National RAS Salmon Program	Agriculture
4	BESIX	Al Haer Independent Sewage Treatment Plant (ISTP), Riyadh	Water
5	Veolia	Jeddah Airport2- Independent Sewage Treatment Plant (ISTP)	Water
6	Metito	Dammam West Independent Sewage Treatment Plant (ISTP)	Water
7	Orascom Construction	Dammam West Independent Sewage Treatment Plant (ISTP)	Water
8	Cobra Instalaciones y Servicios	Taif Independent Sewage Treatment Plant (Taif ISTP)	Water
9	YesHealth Group	Vertical Farms Company – Mowreq & YesHealth Group JV (Riyadh Vertical Farm)	Agriculture
10	SUEZ	Acquisition of majority stake in Environment Development Company (EDCO)	Environment
11	Five Capital Fund I	Acquisition of majority stake in Environment Development Company (EDCO)	Environment
12	Itochu Corporation	Acquisition of majority stake in Environment Development Company (EDCO)	Environment
13	Gallagher Animal Management	Gallagher–Al Tajweed Strategic Distribution Agreement (Virtual & Electric Fencing)	Environment
14	Toray Industries (Japan)	Abunayyan Group & Toray – Saudi RO Membrane Manufacturing Plant	Water
15	Qualcomm Technologies International	Orbital Universe “Design in Saudi Arabia with AI (DISAI)” Mangrove Monitoring Project	Environment
16	AeroFarms	PIF–AeroFarms Joint Venture for Indoor Vertical Farms in Saudi Arabia & MENA	Agriculture
17	Aqua Bridge Farms Co. (Aqua Bridge Holding)	Aqua Bridge Al-Lith Marine Finfish Hatchery & Integrated Project	Agriculture
18	CNES	Saudi Space Commission–CNES Cooperation Agreement incl. Space-based Climate Monitoring	Environment
19	Pure Harvest Smart Farms	Pure Harvest Acquisition of RedSea's CEA Facility near Riyadh	Agriculture
20	Hexagon	NCVC–Hexagon remote sensing programme for vegetation monitoring	Environment

	Investor	Investment Title	Sector
21	Geosystems Middle East	NCVC–Hexagon remote sensing programme for vegetation monitoring	Environment
22	Planetek Italia	NCVC–Hexagon remote sensing programme for vegetation monitoring	Environment
23	GeoSpace International	NCVC–Hexagon remote sensing programme for vegetation monitoring	Environment
24	NASA	US–Saudi Civil Space Framework (incl. Earth Science & EO)	Environment
25	DJI Enterprise	Abdulrahman Alshareef Group–DJI Enterprise strategic drone partnership	Agriculture
26	Ecosystem Integrity Fund	iyris (formerly Red Sea) – Series A	Agriculture
27	Dubai Future District Fund	iyris (formerly Red Sea) – Series A	Agriculture
28	Kanoo Ventures	iyris (formerly Red Sea) – Series A	Agriculture
29	Globinvest	iyris (formerly Red Sea) – Series A	Agriculture
30	Bonaventure Capital	iyris (formerly Red Sea) – Series A Red Sea Farms – Pre-Series A round	Agriculture
31	Spade Ventures	KASO – Seed Round	Agriculture
32	Cyfr Capital	KASO – Seed Round	Agriculture
33	BY Venture Partners	KASO – Seed Round	Agriculture
34	Pioneer Fund	KASO – Seed Round	Agriculture
35	Vulpes Ventures	KASO – Seed Round	Agriculture
36	AppHarvest	Red Sea Farms – Pre-Series A round	Agriculture
37	Butterfly Venture	Natufia Labs – KAUST-led Round	Environment
38	Access Bridge Ventures	SARsatX – Seed Round	Agriculture
39	MLM Investment Company	Moya – Seed	Water
40	Hambro Perks Oryx Fund	Barakah – Seed round	Environment
41	Annex Investments	Barakah – Seed round	Environment
42	Draper University Ventures	Uvera – Pre-seed round	Environment
43	FoodLabs	Barakah – FoodLabs follow-on round	Agriculture

Leadership insights



Investment insights for a sustainable future: Agricultural Development Fund (ADF) and Environment Fund (EF)

Globally, investment in environment, water, and agriculture is rapidly shifting toward sustainability-driven, mission-oriented solutions that enhance resource efficiency, climate resilience, and environmental protection. These trends are accelerating the adoption of advanced technologies and applied innovation models, positioning innovation not as an option, but as a prerequisite for long-term economic resilience.

In Saudi Arabia, this global shift has translated into a decisive move toward mission-oriented R&D aligned with national priorities. Investors are increasingly drawn to technologies that enable adaptation to extreme climates, with artificial intelligence emerging as a core enabler, powering predictive leak detection, smart irrigation, satellite-based monitoring, and data-driven resource management. Institutions such as the Research, Development, and Innovation Authority have embedded these priorities within the national RDI agenda, while entities across the ecosystem are operationalizing them through AI governance frameworks, strategic investments, and innovation-focused financial instruments.

Investment decisions in EWA today are shaped by regulatory clarity, bankable project pipelines, ESG alignment, and access to effective risk-mitigation mechanisms. Saudi Arabia has strengthened its investment appeal through regulatory reforms, foreign ownership liberalization, long-term incentives, and the use of giga-projects as living laboratories for advanced water and agricultural technologies. Public-sector funding plays a catalytic role by absorbing early-stage risk and anchoring high-impact missions, while private capital accelerates scale, commercialization, and operational efficiency.

Priority technologies with the highest investment and impact potential include advanced reverse osmosis, smart water loss management, controlled-environment agriculture, innovative irrigation systems, ecosystem monitoring, waste management, and AI-enabled environmental and agricultural platforms. These technologies directly support national objectives to reduce non-renewable water use, lower production costs, strengthen food security, and advance the circular economy.

Unlocking greater capital flows will require translating regulatory mandates into investment-ready opportunities, expanding financial enablement tools, and strengthening coordination between regulatory and financial institutions. Through targeted incentives, loan guarantees, and tailored financing mechanisms, Saudi Arabia is progressively enhancing project bankability, creating a stable, investable landscape where innovation, sustainability, and private capital converge to drive long-term growth across the EWA sectors.

Muneer Alsahali

CEO - Agricultural Development Fund (ADF) and Environment Fund (EF)



Investment insights for a sustainable future: Ministry of Environment, Water, and Agriculture (MEWA)

Globally, investment in the environment, water, and agriculture sectors is accelerating as water security, food security, and environmental sustainability become strategic imperatives rather than optional priorities. This global shift presents a critical opportunity for Saudi Arabia to align its innovation and R&D agenda with areas of highest national impact.

Investment decisions in EWA technologies today are increasingly driven by the opportunity cost of production. In the Saudi context, constraints such as scarce non-renewable groundwater and limited soil fertility require a decisive shift toward advanced technologies and innovation to overcome structural limitations. The Kingdom can position itself as an attractive investment destination by prioritizing production systems that are resource-efficient such as poultry, fisheries, dates, and dairy, while avoiding water-intensive activities that strain strategic resources.

Public-sector funding plays a pivotal role in catalyzing this transition. Government and sovereign investments are essential not only to de-risk early-stage innovation, but also to signal national commitment to sustainable water and food security. Localizing EWA investment reduces dependency on imports, lowers long-term fiscal burdens, and strengthens national resilience.

Technology priorities should focus on water-efficient irrigation and production solutions that enable higher yields with lower water consumption, leveraging global best practices adapted to Saudi Arabia's environmental conditions.

However, unlocking greater investment requires addressing key challenges, including water sustainability concerns, policy volatility, and high taxation. Long-term, transparent policies, coordinated regulatory frameworks, and competitive tax and incentive structures, supported by both technical and financial government backing, are critical to attracting and retaining domestic and international investors and building a resilient EWA innovation ecosystem.

Dr. Saad Esa

Economic Advisor – Ministry of Environment, Water and Agriculture



Investment insights for a sustainable future: Research, Development, and Innovation Authority (RDIA)

Globally, investment across the Environment, Water, and Agriculture sectors is increasingly focused on solutions that are climate-resilient, resource-efficient, and scalable, with measurable performance under real operating conditions. Investors are prioritizing technologies that can demonstrably reduce water and energy costs, improve system efficiency, and enable reliable monitoring and decision-making at scale. This reflects a broader shift away from conceptual innovation toward deployment-ready solutions that can deliver bankable outcomes across diverse geographies.

For Saudi Arabia, these trends underscore the importance of mission-driven, deployment-oriented R&D. Innovation priorities are evolving beyond invention alone to include validation, piloting, and adoption pathways. Strengthening translational research, field demonstration infrastructure, and market-pull mechanisms will be critical to accelerating the movement of promising technologies from laboratories into operational environments. Investment decisions today are shaped by clear unit economics, regulatory and procurement certainty, access to high-quality data and measurement frameworks, and the presence of anchor customers capable of scaling demand.

Public-sector funding plays a catalytic role in this landscape by de-risking early-stage research, applied R&D, and first-of-a-kind demonstrations where private capital is least likely to enter. As technologies mature, private and strategic corporate investors bring discipline around business models, operational readiness, and scale. A staged, blended-finance approach—where public capital reduces early risk and private capital accelerates commercialization—offers the most effective pathway to impact.

Priority investment areas with strong alignment to national missions include smart water-network analytics and leakage management, wastewater treatment and reuse, advanced desalination efficiency, AI-enabled monitoring systems, protected agriculture, precision irrigation, and waste valorization. Unlocking capital at scale will depend on closing the last-mile gap between innovation and adoption through national testbeds, outcome-based procurement, regulatory clarity, and stronger commercialization and IP pathways—ensuring that innovation translates into measurable, scalable impact.”

Yazeed Alaskar
Vice Governor - RDIA



Investment insights for a sustainable future: Ministry of Investment (MISA)

“Investment across the Environment, Water, and Agriculture sectors is shifting from treating sustainability as an add-on toward recognizing it as a core determinant of risk, competitiveness, and national security. Net-zero commitments, regulatory pressure, and changing consumer behavior are redirecting capital toward resource-efficient food and water systems, while food security and supply-chain resilience have emerged as explicit investment drivers following recent geopolitical shocks. In water, the investment thesis is moving away from supply expansion alone toward efficiency, reuse, leakage reduction, and climate resilience—areas that often deliver faster and lower-cost impact, yet remain significantly underfunded at the global level.

For Saudi Arabia, these trends reinforce the need to align innovation and R&D priorities with water-smart food production and resilience outcomes. This includes reducing reliance on non-renewable water through precision irrigation, reuse integration, controlled-environment agriculture, and crop and livestock genetics that improve productivity under heat and salinity stress. Strengthening capabilities in food-security analytics, strategic storage, and alternative sourcing is equally critical to managing recurring global shocks.

Investment decisions in EWA technologies today are driven less by novelty and more by bankability, policy certainty, and speed to deployment. Clear revenue models, predictable regulation, and defined pathways from innovation to procurement significantly improve investability. Public-sector funding therefore plays a catalytic role—de-risking first-of-a-kind deployments, supporting demonstration and commercialization, and crowding in private capital—while private and corporate investors scale proven solutions.

Unlocking greater capital flow will depend on closing persistent gaps between research and adoption. Clear environmental standards, innovation sandboxes, blended finance, outcome-based procurement, national testbeds, open data platforms, and stronger university–industry partnerships are essential enablers to translate innovation into bankable, scalable projects that deliver measurable national impact.”

Mohammed AlOhalay
Agriculture and Food Processing General Manager – Ministry of Investment



Investment insights for a sustainable future: King Abdullah University of Science and Technology (KAUST)

Globally, investment across the Environment, Water, and Agriculture sectors is undergoing a fundamental shift from sustainability as a compliance cost to sustainability as a core value and performance driver. This transition is accelerating capital flows into scalable, low-capex technologies such as AI-enabled solutions and blockchain-backed carbon economies, while also driving experimentation in vertical farming, controlled-environment agriculture, and resource-efficiency platforms. At the same time, ESG compliance and resource resilience particularly food and water security have become decisive investment drivers, reshaping how capital is deployed following recent geopolitical and supply-chain disruptions.

For Saudi Arabia, these global shifts present a unique opportunity. The Kingdom can leverage its scale in desalination, its growing innovation ecosystem, and its national RDI missions to position itself as a global testbed for water efficiency, smart infrastructure, carbon credit markets, and marine-based food and biotech innovation. Unlocking this potential, however, requires bridging the gap between early-stage innovation and commercialization. Public-sector capital must continue to act as patient, impact-oriented funding de-risking technologies, enabling demonstration sandboxes, and anchoring ecosystems while private capital brings market discipline, commercialization expertise, and co-development pathways.

To accelerate investment, Saudi Arabia must expand translational funding, streamline IP commercialization, and enable regulatory flexibility for real-world testing. By aligning policy, capital, and innovation infrastructure, the Kingdom can attract global investment, scale breakthrough EWA technologies, and convert sustainability challenges into long-term economic and environmental value.

Haitham Alhums

Director of Innovation Ecosystem Development – KAUST



Appendix

Interviews – Questions for Private Sector Leader

Muneer Alsaahli

CEO - Agricultural Development Fund (ADF) and Environment Fund (EF)

1. How do you see investment in environment, water, and agriculture evolving globally, and what implications do these shifts have for Saudi Arabia's innovation and R&D priorities?

Globally, investment across environment, water, and agriculture is increasingly shifting toward sustainability-driven and mission-oriented solutions that enhance resource efficiency, environmental protection, and climate resilience. These trends are accelerating the adoption of advanced technologies and applied innovation models.

For Saudi Arabia, these shifts have catalyzed a move toward “Mission-Oriented” R&D, where innovation is no longer a luxury but a strategic necessity for national prosperity and economic diversification. Investors are now prioritizing technologies that help societies adapt to extreme weather. AI is identified as the primary driver for sector transformation due to its essential roles in crucial enablers such as predictive leak detection and smart irrigation systems.

The Research, Development, and Innovation Authority (RDIA) has institutionalized these global shifts by making “Sustainable Environment & Essential Needs” a top national priority. The Ministry of Environment, Water and Agriculture (MEWA) has pioneered AI governance (ISO 42001:2025) to manage agricultural resources via satellite imagery and predictive models. Through the Saudi Agricultural and Livestock Investment Company (SALIC), PIF is investing in global and local Agri Tech to secure supply chains, as seen in the SAR 3.5 billion in deals signed at the 2025 Saudi Agricultural Exhibition. The Agricultural Development Fund in corporate with MEWA has launched financial product for innovative startup to encourage and support agricultural and environmental innovations in localizing technologies and the contribution of entrepreneurs in bridging gaps in the agricultural sector. Furthermore, in 2017, ADF launched an initiative aimed to encourage the investors to adopt high-tech to contribution to enhance production efficiency and rationalization of water and energy consumption. In additional, the Environment Fund is now a primary vehicle for funding environmental initiatives, ensuring that R&D projects meet rigorous ESG standards to attract private capital.

2. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

The most critical drivers shaping investment decisions include clarity of regulations, availability of bankable project pipelines, growing demand for financial flexibility, ESG considerations, alignment with climate ambitions, and access to risk-mitigation mechanisms.

As for Saudi Arabia, it has taken steps that have strengthened its position to attract local and international capital. In terms of Regulatory & Sandbox Ecosystems: By allowing 100% foreign ownership in most Environment, Water and Agriculture sub-sectors and offering 30-year tax breaks for regional headquarters, the Kingdom is lowering the barrier to entry. Giga-projects like NEOM serve as “living labs” for the world’s most advanced desalination and vertical farming technologies. The Agricultural Development Fund (ADF) incorporates with R&D entities such as universities to boost-up the amount of the innovators, inventors and the companies to enhancing the agricultural, environmental and water sectors.

The Environment Fund (EF) provides incentives and grants that cover up to 100% of research costs for NPOs and universities, de-risking early-stage innovation. The Research, Development, and Innovation Authority (RDIA) has set clear, high-stakes targets that provide certainty for investors, such as reducing water production costs by 50% by 2035 and achieving 50% food self-sufficiency by 2040.

The 2023 Agricultural Development Fund statute attracts foreign investment by offering loans and credit facilities across the entire agricultural supply chain. By providing extended terms for strategic projects and financing mergers and acquisitions, the law aims to bolster food security, improve operational efficiency, and drive sector-wide integration.

The bank partnership program drives sustainable agricultural development by aligning public and private financing. By providing diverse financial solutions for businesses of all sizes, the program bridges the sector’s financing gap and offers investors flexible new credit options.

3. What role do you believe public-sector funding (government, sovereign funds) should play compared to private-sector and strategic corporate investment in accelerating innovation across EWA sectors?

Accelerating innovation in Environment, Water, and Agriculture (EWA) requires a complementary ecosystem rather than a choice between public and private funding. In 2025, the most successful models—like the one being built in Saudi Arabia use public funds to absorb high-risk “frontier” research, while private capital drives speed and market scale. In Saudi Arabia, the acceleration of innovation in environment, water, and agriculture (EWA) is driven by a strategic “discovery-to-scale” loop. The Research, Development, and Innovation Authority (RDIA) acts as the primary de-risker by funding high-stakes, early-stage research missions, while the Public Investment Fund (PIF) provides the “anchor” capital and scale needed to bridge the gap between laboratory proof-of-concept and national infrastructure.

The Agricultural Development Fund (ADF), as serves a vital governmental fund has launched package of credit facilities designed to encourage the investors to adopt high-tech and foster innovation across the agricultural and environmental sectors. Similarly, Environment Fund (EF), which serves as a vital financial enabler by providing targeted incentives, loan guarantees (such as Kafalah Program), and innovative financing mechanisms. These tools are specifically designed to enhance project bankability, making “green” initiatives more attractive to commercial lenders and private equity. By lowering the financial risk profile of environmental projects, the EF directly facilitates privatization opportunities across the environment and meteorology sectors, ensuring that the private sector can lead the long-term management of the Kingdom’s natural capital.

The Agricultural Development Fund (ADF) actively supports innovation and entrepreneurship through business incubators and events like the “Agricultural Innovation Hackathon.” These initiatives aim to develop tech-driven solutions that enhance agricultural sustainability, boost GDP, and localize modern technologies. By financing innovative startups and business models, the ADF strengthens the competitiveness of local products and ensures sector growth.

The ADF also sponsored the “Entrepreneurship Forum in the Environment, Water, and Agriculture System” to support sector partners and promote the localization of innovative, sustainable solutions.

4. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

Advanced Reverse Osmosis (RO), Smart Leakage Management, and Controlled Environment Agriculture (CEA) technologies are the linchpins for the RDIA’s national missions to decrease non-renewable water withdrawal by 90% and reduce production costs by 50% by 2035.

Strategic investments in Waste Management and Ecosystem Monitoring are transforming environmental challenges into circular economy assets. Furthermore, the deployment of Innovative Irrigation Techniques for trees and Wild Plants—combined with advanced Grazing Land Management—is critical for the Saudi Green Initiative’s goal of planting 10 billion trees. These sectors offer significant long-term ROI as the Kingdom builds its environmental compliance infrastructure, moving away from purely regulatory oversight toward a model where ecosystem restoration and waste recovery become profitable private-sector ventures.

From the Agricultural Development Fund and Environment Fund perspective, the technologies with the highest investment and impact potential are those aligned with national environmental strategy and national agricultural strategy. This includes ecosystem and agricultural monitoring, waste management, climate change, wildlife, Vegetation cover, and environmental compliance technologies.

In addition, AI-enabled and data-driven solutions such as predictive analytics, smart monitoring systems, food security and digital environmental platforms are increasingly attractive to investors, as they enhance operational efficiency, regulatory enforcement, and decision-making across environmental value chains.

5. What are the key challenges in Saudi Arabia that are currently limiting investment activities in EWA RDI domains, and what policy, regulatory, or ecosystem enablers are suggested to unlock greater capital flow that drives innovation?

The key challenges include translating regulatory and agricultural mandates into clear, investment-ready opportunities, as well as limited availability of risk-mitigation mechanisms during early project stages,

These challenges can be addressed by:

- Structuring and prioritizing investment opportunities aligned with the national agricultural and environmental strategies.
- Expanding financial enablement tools, such as incentives, loan guarantees, and green loans, to enhance project attractiveness.
- Strengthening institutional coordination between regulatory and financial entities to accelerate project readiness.

The Agricultural Development Fund (ADF) and Environment Fund (EF) plays a pivotal role as a financial enabler by deploying targeted incentives, loan guarantees, and tailored financing mechanisms that significantly enhance the bankability of EWA projects. By absorbing a portion of the credit risk through programs like the Loan Guarantee Program, the ADF and EF makes “green” RDI more attractive to traditional commercial lenders and international institutional investors who might otherwise find these sectors too high-risk. Beyond simple funding, the ADF’s strategic focus on facilitating credit opportunities in agricultural and environmental sectors creates a stable, revenue-generating landscape for private capital.

Interviews – Questions for Private Sector Leader

Dr. Saad Esa

Economic Advisor - MEWA

1. How do you see investment in environment, water, and agriculture evolving globally, and what implications do these shifts have for Saudi Arabia's innovation and R&D priorities?

Investment in EWA is related to Water & Food Security and a sustainable environment. Accordingly, the expansion of investment in these fields is growing rapidly globally to meet the high demand for water and food.

2. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

From my point of view, the most critical drivers shaping investment decisions in EWA technology today are the opportunity cost of production. Saudi Arabia, for example, has limiting factors of production, especially scarce ground nonrenewable water, and the soil is not as fertile as compared with the specifications of soil for agricultural production. Here we jump to the modern technologies and innovations to avoid such limiting factors if we can. Saudi Arabia can attract local and global investment by concentrating on the opportunity cost of production, such as poultry, fishery, dates, dairy, and avoiding any investment that consumes high-quality water. In addition, we have to ask the question: what incentives do we have to convince local and global investors to come and invest in Saudi Arabia rather than in any other country in the world?

3. What role do you believe public-sector funding (government, sovereign funds) should play compared to private-sector and strategic corporate investment in accelerating innovation across EWA sectors?

It is very important for them to know that by investing in EWA locally, they are contributing to sustainable Water and Food security of Saudi Arabia. They must know that localizing investment will contribute to reducing the Bills of import, which costs billions of Saudi riyals annually.

4. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

The priority must be given to technology related to water irrigation. How we can increase production without consuming a high quantity of water, and what modern technologies in the world can be utilized in the environment of Saudi Arabia.

5. What are the key challenges in Saudi Arabia that are currently limiting investment activities in EWA RDI domains, and what policy, regulatory, or ecosystem enablers are suggested to unlock greater capital flow that drives innovation?

Good question, from my point of view, is a lack of sustainability of water, changing policies overnight, and high-value-added taxes. Enablers of capital flow are both technical and financial support from the government to the local and global investors. Our policies and strategies must be for a long period of time, and if we decide to update them, we have to share them with the private sector to avoid investment losses as a result of updating or changing policies. For investment incentives, we have to look at our neighbors in the GCC region and ask ourselves why global big companies invest for a long time, and we fail to attract them to invest in Saudi Arabia. Taxes are the main factor behind successful investments; high taxes added to the cost of the projects, waiving taxes will give incentives to the investors.

Interviews – Questions for Private Sector Leader

Yazeed Alaskar
Vice Governor - RDIA

1. How do you see investment in environment, water, and agriculture evolving globally, and what implications do these shifts have for Saudi Arabia's innovation and R&D priorities?

Globally, investment is increasingly concentrating on solutions that are, resilient to climate and resource constraints, measurable in outcomes, and scalable across diverse geographies. In EWA, we see stronger interest in technologies that can prove performance under real operating conditions especially those that reduce cost of water/energy use, improve resource efficiency, or enable reliable monitoring and decision making at scale.

For Saudi Arabia, these shifts reinforce the importance of prioritizing R&D that is mission driven and deployment breadly focusing not only on invention, but also on validation, piloting, and adoption pathways. This includes strengthening translational research, field demonstration infrastructure, and market pull mechanisms so that promising solutions can move from labs to operating environments quickly and credibly.

2. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

The most critical drivers I see today include:

- Clear unit economics and bankability (e.g., cost per m³ treated/desalinated, cost per hectare saved, payback period, and operational reliability).
- Regulatory clarity and procurement certainty, which reduce risk and improve investor confidence.
- Availability of high-quality data and MRV (measurement, reporting, and verification), especially for monitoring, leakage, ecosystem services, and resource efficiency.
- Scalable demand signals from anchor customers (utilities, municipalities, large farms, industrial offtakers).
- Technology validation in relevant environments, which is particularly important for arid and high-stress conditions.

Saudi Arabia can strengthen its position by pairing its national missions with practical de-risking mechanisms, structured pilots, testbeds, outcome-based procurement, and clearer pathways for licensing, commercialization, and scale-up. International capital follows credible projects so the ability to demonstrate performance locally and replicate across the region can be a strong advantage.

3. What role do you believe public-sector funding (government, sovereign funds) should play compared to private-sector and strategic corporate investment in accelerating innovation across EWA sectors?

Public sector funding should primarily play a catalytic role targeting the areas where private capital is least likely to enter early due to technical, regulatory, or adoption risk. This includes fundamental research, applied R&D, infrastructure for validation/testing, and first of a kind demonstration.

Private sector and strategic corporate investment become most effective when technologies approach deployment bringing discipline on business models, operational readiness, and scale. The most productive model is a staged approach: public funding to de-risk early phases, followed by blended finance and corporate partnerships to accelerate commercialization, with clear handover points into private capital once risk is reduced.

4. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

From an impact and investment standpoint, priorities that combine urgent national need with scalable market demand are likely to attract the most investment. In the EWA scope, I would highlight:

- Smart leakage management and network analytics: strong ROI potential through loss reduction and improved resilience.
- Wastewater treatment and reuse: a critical lever for circular water systems, with direct municipal and industrial demand.
- Advanced reverse osmosis and efficiency improvements: especially where energy intensity and operational reliability can be improved.
- Monitoring technologies (ecosystem and water systems) using sensors, AI, and satellite imagery: essential for decision-making, compliance, and performance tracking.
- Protected agriculture / controlled environment solutions and precision irrigation & water management: aligned with productivity and resource efficiency in arid conditions.
- Waste management and valorization (including food preservation and waste-to-value): increasing attractiveness where offtake and processing economics are clear.

These areas lend themselves to large-scale piloting with national stakeholders and can produce measurable outcomes aligned with national missions.

5. What are the key challenges in Saudi Arabia that are currently limiting investment activities in EWA RDI domains, and what policy, regulatory, or ecosystem enablers are suggested to unlock greater capital flow that drives innovation?

Key challenges typically relate to the “last mile” between innovation and adoption:

- Demonstration and bankability gap: limited pathways to validate performance at operational scale under real conditions.
- Fragmentation of demand across multiple stakeholders and procurement channels, which can slow scale-up.
- Long sales cycles and procurement complexity for emerging technologies.
- Commercialization and IP pathways that can be strengthened to reduce friction between research entities, startups, and industry.
- Access to operational datasets and test environments, which is necessary for AI-enabled and monitoring solutions.

Potential enablers include:

- National testbeds and structured pilot programs with clear KPIs, timelines, and pathways to scale procurement if performance is proven.
- Outcome based procurement frameworks (pay for performance where appropriate), which reduce adoption risk.
- Regulatory clarity for reuse standards, monitoring requirements, and innovative deployment models.
- Blended finance and risk sharing mechanisms that crowd in private capital for first-of-a-kind deployments.
- Stronger commercialization support (technology transfer, licensing templates, co-development models, and investor-ready project packaging).

Interviews – Questions for Private Sector Leader

Mohammed AlOhalay

Agriculture and Food Processing General Manager – Ministry of Investment

1. How do you see investment in environment, water, and agriculture evolving globally, and what implications do these shifts have for Saudi Arabia's innovation and R&D priorities?

Globally, capital is shifting from viewing sustainability as an “add-on” to treating it as a core determinant of risk, competitiveness, and national security. Net-zero commitments, regulatory pressure, and changing consumer preferences are pulling more investment toward lower-impact, resource-efficient production systems across food, water, and the environment.

At the same time, food security and supply-chain resilience have become explicit investment drivers. The war in Ukraine is a clear example of how shocks translate into capital reallocation: the EU Council notes roughly a 29% drop in Ukraine's grain production (2022/2023), contributing to export disruptions and global price pressures.

In water, the investment thesis is also changing: away from “build more supply” alone and toward efficiency, reuse, leakage reduction, climate resilience, and better governance—because these often deliver faster, cheaper “new water” than greenfield supply. Yet the funding gap remains large. A World Bank-affiliated global water partnership report highlights that global water-sector investment needs exceed ~\$1.37T, and that meeting SDG 6 by 2030 requires investment to increase about sixfold from current levels.

Implications for Saudi Arabia's innovation and R&D priorities

- Water-smart food production first: Prioritize R&D that reduces agricultural reliance on non-renewable water (e.g., precision irrigation, reuse integration, salinity/heat-tolerant crops, and controlled-environment agriculture), aligned with Vision 2030 water-efficiency direction.
- Food-security resilience tools: Build capabilities in import-risk analytics, strategic storage optimization, alternative sourcing, and scalable local production to manage recurring shocks and trade constraints.
- Novel farming + genetics as national capability: Invest in plant/animal genetics and productivity technologies to raise output per unit of water and improve heat/salinity tolerance.

2. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

Investment decisions in EWA technologies today are shaped by a few practical factors more than “breakthrough” tech alone:

- Bankability and clarity on who pays: Investors back EWA solutions fastest when the revenue model is clear (who the customer is, how cash is collected, and what the unit economics look like), with contracts that are financeable and performance risks clearly allocated.
- Policy certainty and speed to deploy: Predictable regulation, faster permitting, reduce project risk and timelines, often having a bigger impact on investability than the underlying technology performance.

To attract greater domestic and international capital, Saudi Arabia can position itself by making EWA investable at scale:

- Build a bankable pipeline of EWA projects: Create a visible, steady flow of projects with clear demand signals, standardized documentation, and credible offtake so investors can deploy capital repeatedly, not just on one-off pilots.
- Create clear “innovation-to-procurement” pathways: Link R&D → pilots → industry procurement through defined tracks and decision gates, so successful pilots have a clear route to commercial adoption.
- De-risk first of a kind deployments: For the first few projects, the government can share the cost or risk (e.g., co-invest, offer guarantees, or cover part of performance risk). This helps attract private investors. As the technology proves it works and becomes cheaper, the government support can be reduced.

3. What role do you believe public-sector funding (government, sovereign funds) should play compared to private-sector and strategic corporate investment in accelerating innovation across EWA sectors?

Public-sector funding should act as the catalyst and risk-reducer, while private and corporate capital should be the scaler and operator.

4. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

Key challenges limiting investment in Environment–Water–Agriculture (EWA) RDI in Saudi Arabia

1. Hard to monetize environmental value
Few mature markets for biodiversity, restoration, circular economy, or ecosystem services — returns look unclear.
2. Regulatory uncertainty
Multiple regulators and evolving rules → higher perceived risk.
3. Weak commercialization paths from research
Strong labs, but limited tech transfer, pilots, and industry partnerships.
4. Distorted incentives (especially water)
Subsidies and low tariffs reduce demand for efficiency and reuse innovation.
5. Fragmented agriculture and limited data
Small producers, scarce field data, difficult to scale solutions.
6. Shortage of specialized capital & expertise
Few investors comfortable with deep environmental/agri technologies.

What would unlock more capital & innovation?

1. Policy / regulatory enablers
 - Clear, enforced environmental standards and targets that create demand
 - Innovation sandboxes and fast permitting for pilots
 - Transparent IP and tech-transfer rules
2. Financing enablers
 - Blended finance (grants + guarantees + private capital)
 - Outcome-based procurement (pay for water saved, waste reduced, land restored)
 - Dedicated EWA innovation funds
3. Ecosystem enablers
 - National testbeds and demonstration sites
 - Open environmental & ag data platforms
 - Stronger university–industry partnerships and talent programs

Interviews – Questions for Private Sector Leader

Haitham Alhumsy

Director of Innovation Ecosystem Development – KAUST

1. How do you see investment in environment, water, and agriculture evolving globally, and what implications do these shifts have for Saudi Arabia's innovation and R&D priorities?

The global shift from our perspective is moving on a few different fronts:

- On the environmental side there is a great push towards the carbon economy allowing global emitters to purchase credits and offset as a short-term solution while they research and identify lower emitting operations. This has driven many startups into the carbon credit creation, validation, and exchange as a line of business with great investment on blockchain backed companies looking to serve global emitters like Shell, BP, Aramco ...etc.
- On the agricultural side we see many startups applying to KAUST either trying to shorten the distance between the farm and the table (with growing it at home kits for vegetables and herbs) as well as general trends towards vertical farming in controlled environments with hydroponics and aeroponics. Barrier to entry here is low so there are too many companies competing in this space.
- Finally, there is a global shift from sustainability as an added cost to sustainability as a value driver, but it requires deep tech innovation and breakthrough technologies that are able to create sustainable solutions at a lower operating cost.
- Locally, a clearer adoption, investment and possibly regulation in carbon credits, ESG compliance as a driver of technology and innovation in the water footprint and carbon credits of innovative agriculture could be a path towards higher water and environmental sustainability with credit backed business models attracting global capital into the Kingdom.

2. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

Internationally, the two most critical drivers are probably ESG compliance and resource resilience. Especially after the Russia / Ukraine conflict, where Ukraine was “the world’s food basket” many countries decided to look inwards or into their neighboring countries to identify resilient food supply chains for food sovereignty.

One of the critical drivers for investment in R&D is the availability of follow-on capital and co-investors. This becomes more critical in EWA where water innovation and processing projects can be very high capex and where environmental projects might be driven more by national mandates and government demand rather than B2B business cases making technology adoption harder.

One of the best things Saudi Arabia has done is the establishment of the Saudi AgriTech Food Alliance. Bringing later stage funding (through private sector capital) closer to innovation is one good step towards unlocking appetite and funding to help commercialization.

However, private sector is typically looking at more mature and already demonstrated technologies. To support higher investment and commercialization, two suggestions come to mind:

- Encouraging a more diverse pool of translational funding or pre-seed venture capital or venture debt funding to support technology demonstration
- Opening demonstration sandboxes with different entities for infrastructure like water management, field agricultural trials ...etc.

The combination of both should provide an acceleration of EWA technology development.

3. What role do you believe public-sector funding (government, sovereign funds) should play compared to private-sector and strategic corporate investment in accelerating innovation across EWA sectors?

Impact has many flavors, direct and indirect.

For example, youth education has a very high long-term impact on a society but it is very hard to demonstrate that value and quantify that impact in a way that attracts private capital.

Similarly, many environmental innovations can bring long term impact on our health, on our quality of life and the livability of our cities. However, those impacts are hard to quantify in a way that attracts private capital.

So traditionally, public sector capital has ideally been used as “patient capital” and “impact capital” to architect the ecosystem, to build infrastructure, to anchor impact venture funds, to incentivize offset investment by the private sector, and to take earlier risk on research and technology development where there still isn’t a potential business case for private capital to be interested.

On the other hand, private sector capital usually follows a more structured approach that is mandated by shareholder returns and a balance between impact and profit. So looking at technologies, solutions, investments that either bring business continuity, reduced operating costs, improved margin and performance or new revenue streams; all of which translates into a positive return on invested capital (ROIC).

The other value that private sector brings in beyond capital is commercial expertise and strong understanding of market and competitive dynamics. This means private sector can be co-developers of solutions to get buy-in for adoption long before technology is mature. In these cases, as well you may get private sector matched funding in PPP.

4. In your view, what are the most critical drivers shaping investment decisions in EWA technologies today, and how can Saudi Arabia position itself to attract greater domestic and international capital?

At present the hype in investment is primarily driven towards AI and Blockchain. AI solutions in EWA and blockchain backed carbon economies are probably the two most investable areas of EWA globally because of the lower capex requirement and the scalability of the potential solutions.

Saudi Arabia is uniquely positioned to address 3 key challenges:

1. We produce more desalinated water than any other country in the world. So “upstream” making the desalination more efficient and environmentally friendly is a key driver of innovation. “Downstream” making sure the water network is smart, doesn’t leak, and water is not misused / wasted without being rationed leveraging AI, smart sensing, and anomaly detection would be an area of interest.
2. There is great potential for food, medicine and biotech from the sea. In the past countries looked for protein sources on land. The sea is an untapped resource for alternative foods, proteins, and medicines.
3. In the short term, transitional fuels will probably have a better net impact on the environment than electrification because of the mining footprint of rare earth minerals required for electrification.

5. What are the key challenges in Saudi Arabia that are currently limiting investment activities in EWA RDI domains, and what policy, regulatory, or ecosystem enablers are suggested to unlock greater capital flow that drives innovation?

- Technology Demonstration & Regulatory Sandboxes: Allowing startups to test water or ag-tech solutions without traditional bureaucratic hurdles.
- Co-sponsored research: Incentivizing private capital to co-invest and co-develop target technologies.
- IP Commercialization Reform: Simplifying how university-born IP is licensed to private companies to speed up “spin-outs.”
- Impact Investment Funds: Attract more patient capital to enter the market such as funds that have a balanced impact and return mandate or funds that operate as venture builders that improve returns by helping build early stage companies for a greater equity stake.

Top 10 Government and Sovereign Investments In The Environment Sector

#	Project	Country	Amount	Summary
1	Master Plan for National Key Ecosystem Protection and Restoration Major Projects (2021–2035)	China	\$420 billion	China's 15-year master plan for nine major ecosystem projects covering forests, grasslands, wetlands, rivers and coasts. It aims to build ecological security barriers and restore degraded ecosystems. Total investment is estimated at around 3 trillion RMB, with strong implications for rangeland restoration, biodiversity and long-term ecosystem monitoring.
2	EU Common Agricultural Policy (CAP) 2021–2027 – Green Architecture & Eco-schemes	Europe	\$410 billion	EU farm policy for 2021–2027 with a €348bn envelope. A significant share is directed to eco-schemes, climate and biodiversity measures, including sustainable grassland management, carbon-rich soils and environmental conditionality tied to payments. It indirectly finances grazing land management, habitat protection and monitoring across member states.
3	Saudi Green Initiative (SGI) – First Wave of Projects	Saudi Arabia	\$180 billion	Saudi Green Initiative's first wave aggregates more than 60–80 public and private projects, including afforestation, land restoration, protected areas and clean energy. Together they represent over SAR 705 billion in green investments aimed at reducing emissions, enhancing biodiversity and improving land and marine ecosystems.
4	2023 National Water Conservancy Investment Drive	China	\$170 billion	Record water-conservancy spending in 2023, with nearly 1.2 trillion RMB invested in tens of thousands of projects. Funds support river-basin flood control, the national water network, hydrological infrastructure and ecological restoration of rivers and lakes, including irrigation and water security for ecosystems and agriculture.
5	Bipartisan Infrastructure Law – Water Infrastructure Investments	USA	\$50 billion	The US Infrastructure Investment and Jobs Act directs more than US\$50 billion to EPA water infrastructure programmes for 2022–2026. Funding upgrades drinking water, wastewater and stormwater systems, including lead pipe replacement, climate resilience and green stormwater infrastructure that benefits aquatic ecosystems and communities.
6	Jal Jeevan Mission – Har Ghar Jal (Rural Water Programme)	India	\$45 billion	Nationwide mission to provide functional tap water connections to every rural household. It has an approved outlay of INR 3.6 trillion for 2019–2024, financing water supply schemes, groundwater management, quality monitoring and greywater handling, reducing pressure on ecosystems and strengthening climate resilience in rural India.

#	Project	Country	Amount	Summary
7	National Water Plan (PNE) 2020–2050	Morocco	\$40 billion	Morocco's 30-year National Water Plan foresees around MAD 383 billion of investments through 2050. It covers dams, desalination, inter-basin transfers, aquifer recharge, ecosystem and watershed protection and drought-resilience measures, with strong links to irrigation efficiency and protection of aquatic biodiversity.
8	Italy Recovery and Resilience Plan – Renewable Energy, Circular Economy, Waste and Water Pillar	China	\$28.7 billion	Under Italy's EU-backed Recovery and Resilience Plan, €24.7 billion is earmarked for renewable energy, circular economy and improvements in waste and water management. The pillar supports recycling infrastructure, modern landfills, wastewater systems and resource-efficiency projects reducing pollution and environmental pressure on ecosystems.
9	National Circular Waste and Plastics Program (NCWM and SIRC Pledge)	USA	\$28 billion	Saudi's National Center for Waste Management and Saudi Investment Recycling Company plan to invest about SAR 100 billion by 2035 to divert more than 90 percent of waste from landfills. The programme underpins large-scale recycling, waste-to-energy and digital tracking systems, enabling a national circular economy.
10	EU Just Transition Fund (JTF)	Europe	\$23 billion	The Just Transition Fund supports EU regions phasing out coal and other high-carbon activities. It provides around €17.5–19.2 billion from the EU budget, rising to roughly €19.7 billion with national co-financing, funding land restoration, circular economy, waste management and nature-based regeneration in affected regions.

Top 10 Government and Sovereign Investments In The Water Sector

#	Project	Country	Amount	Summary
1	14th Five-Year Water Conservancy Investment Programme	China	\$757 billion	China's 14th Five-Year Plan (2021–2025) allocates over CNY 5.4 trillion to water-conservancy construction – dams, reservoirs, national water network, irrigation and rural water supply. The programme accelerates digital monitoring, flood and drought early-warning systems and large irrigation upgrades, with 172 major projects launched nationwide to boost water security and resilience.
2	National Water Strategy 2030 – Water Projects Capital Portfolio	Saudi Arabia	\$80 billion	Saudi Arabia's National Water Strategy 2030 foresees more than US\$80 billion for hundreds of water projects, including desalination, wastewater treatment, reuse, transmission networks and service expansion. Announced at the 2023 UN Water Conference, it leverages PPPs and private operators to deliver modern technology and expand secure, sustainable water services.
3	U.S. Bipartisan Infrastructure Law – Water Infrastructure Package	USA	\$50 billion	The 2021 Infrastructure Investment and Jobs Act commits over USD 50 billion across five years to drinking water and wastewater infrastructure. Funding flows mainly through State Revolving Funds and WIFIA, backing lead-pipe removal, PFAS treatment, advanced treatment plants, climate resilience upgrades and smart asset management for utilities across the United States.
4	Jal Jeevan Mission – Har Ghar Jal (Rural Drinking Water)	India	\$43 billion	Flagship programme to provide functional tap connections to every rural household. The government set a ₹3.6 lakh crore (~USD 43 bn) outlay for 2019–2024, with most expenditure in 2020–2025. Funds support network expansion, treatment plants, water-quality monitoring and IoT-enabled service monitoring, transforming rural water access and operational performance nationwide.
5	AMRUT 2.0 – Urban Water & Sewerage Mission	India	\$36 billion	The second phase of Atal Mission for Rejuvenation and Urban Transformation focuses on universal 24x7 urban water supply, sewage and septage management, and green, ICT-enabled infrastructure in 4,800+ urban local bodies. With an outlay of ₹2.99 lakh crore for 2021–2026, it uses performance-linked funding and PPPs to modernise services.
6	Jal Jeevan Mission (Urban)	India	\$34.6 billion	Jal Jeevan Mission (Urban) is a sister programme to the rural JJM with a ₹2.87 lakh crore (~US\$35 bn) outlay to provide universal urban tap water, 100% sewerage and septage management and 20% treated wastewater reuse by 2026, with strong PPP requirements and a focus on non-revenue-water reduction.

#	Project	Country	Amount	Summary
7	Delta Fund – National Delta Programme (Water Safety & Freshwater)	Netherlands	\$24 billion	The Netherlands' Delta Programme secures long-term flood protection and freshwater supply. The Delta Fund allocates about €21 billion for 2023–2036, financing dike upgrades, nature-based solutions, freshwater systems and climate-resilient spatial planning. It includes strong use of modelling, monitoring and smart infrastructure to manage sea-level rise and riverine flood risks.
8	EIB Water Resilience Programme (EU Water Resilience Strategy)	Europe	\$17 billion	As part of the EU Water Resilience Strategy, the European Investment Bank will allocate €15 billion in loans from 2025 to 2027 to projects that reduce water pollution, prevent wastage and support innovative water technologies and nature-based solutions, aiming to mobilise about €40 billion in total water-related investments.
9	Water-related Investments under the EU Recovery and Resilience Facility (RRF)	Europe	\$15 billion	National Recovery and Resilience Plans include at least €12.92 billion explicitly for sustainable water management – wastewater treatment, leakage reduction, water reuse and digitalisation – plus further water-relevant green investments. Funding flows mainly as EU grants to Member States' water and wastewater projects, supporting climate adaptation and circular-economy objectives.
10	Plan Eau 2023 & Water Agencies' 12th Multiannual Programmes (2025–2030)	France	\$14 billion	France's Plan Eau, launched in 2023, sets measures to cut abstractions 10% by 2030 and boost investment in leakage reduction, wastewater reuse, nature-based solutions and digital management. The six water agencies' 12th intervention programmes mobilise more than €2 billion per year (~€12 billion over 2025–2030) aligned with Plan Eau objectives.



Top 10 Government and Sovereign Investments In The Agriculture Sector

#	Project	Country	Amount	Summary
1	Plano Safra 2024/2025 – Rural Credit Plan	Brazil	\$80 billion	Brazil's 2024/25 rural credit plan allocates R\$400.59 billion (~US\$80 billion) in subsidised loans for commercial agriculture, including investment credit for irrigation, mechanisation, storage, digital tools and low-carbon technologies, with incentives for sustainable, tech-enabled production and farm modernisation.
2	Agriculture Innovation Mission for Climate (AIM for Climate)	USA/UAE	\$29.2 billion	Global initiative co-led by the US and UAE mobilising US\$29.2 billion (around US\$16.7b public, US\$12.5b partner commitments) for climate-smart agriculture and food systems innovation. Funds R&D, pilots and emerging ag-tech via 100+ 'Innovation Sprints' and country-led programmes targeting productivity, resilience and methane reduction.
3	Inflation Reduction Act – Climate-Smart Agriculture & Forestry Conservation Funding	USA	\$19.5 billion	The 2022 Inflation Reduction Act provides US\$19.5 billion over 2023–2031 for climate-smart agriculture and forestry via USDA NRCS conservation programmes (EQIP, CSP, RCPP, ACEP, CTA). It funds on-farm conservation, precision practices and technologies that reduce emissions and enhance resilience.
4	Agriculture Infrastructure Fund (AIF)	India	\$12 billion	Central Sector Scheme providing a ₹1 lakh crore (~US\$12–13 billion) financing facility for medium- to long-term loans to post-harvest infrastructure, warehouses, primary processing, cold chains and agri-tech projects. Loans carry 3% interest subvention and credit guarantees to crowd in private investment.
5	Horizon Europe – Cluster 6 'Food, Bioeconomy, Natural Resources, Agriculture & Environment	Europe	\$10.4 billion	Part of the EU's Horizon Europe framework, Cluster 6 has a budget of about €8.952 billion (2021–2027) to fund research and innovation on sustainable agriculture, digital farming, agro-ecology, soil and water, circular bioeconomy and rural resilience, including many ag-tech and precision farming projects.
6	Green Agricultural and Rural Revitalization Program for Results – Phase I (Guangxi & Guizhou)	China	\$5.1 billion	Programme-for-Results operation backing a government programme of about US\$4.78bn in Guangxi and Guizhou to support green, low-carbon agriculture, pollution reduction, digital services and rural revitalisation. The World Bank finances US\$320m within this larger public investment envelope

#	Project	Country	Amount	Summary
7	China Green Agricultural and Rural Revitalization Program for Results (Hubei & Hunan)	China	\$4.4 billion	Results-based programme combining a US\$345m World Bank loan with about US\$4.1bn Chinese government co-financing to 'green' agriculture and rural development. It scales low-carbon farming, nutrient management, biodiversity protection and institutional capacity for environmentally aligned rural investment in Hubei and Hunan.
8	Future Drought Fund (FDF)	Australia	\$4 billion	Australia's A\$5 billion investment fund provides A\$100 million per year from July 2020 to build drought and climate resilience in agriculture. It finances innovation hubs, digital climate information tools, water-management technologies and farm-business resilience programmes that heavily leverage ag-tech and data.
9	Sustainable Canadian Agricultural Partnership (Sustainable CAP)	Canada	\$3.3 billion	Five-year (2023–2028) federal-provincial-territorial framework worth C\$3.5 billion (C\$1 billion federal, C\$2.5 billion cost-shared). It funds innovation, climate adaptation, precision agriculture, digital tools and competitiveness programmes, including technology adoption and on-farm R&D.
10	Sustainable Rural Agricultural Development Program (Saudi Reef) – Phase 1	Saudi Arabia	\$3.1 billion	National 'Saudi Reef' programme supporting rural farmers in coffee, honey, fruits, livestock and fisheries. Phase 1 to 2025 carries SAR 8.75bn in government budget plus SAR 3bn from the Agricultural Development Fund for concessional loans, including modern irrigation and production technologies.

Top 10 Strategic Investments In The Environment Sector

#	Project	Country	Amount	Summary
1	Veolia acquisition of Suez	France	\$15.4 billion	Veolia acquired Suez after a protracted takeover process, creating the world's largest water and waste-management group. The transaction consolidated water, solid waste, recycling and hazardous-waste activities across multiple geographies and was positioned as a platform for circular-economy solutions, climate mitigation and operational efficiencies in regulated environmental services markets.
2	Teledyne Technologies acquisition of FLIR Systems	USA	\$8 billion	Teledyne acquired FLIR Systems to combine its high-performance digital imaging and sensor portfolio with FLIR's thermal, visible and other imaging systems. The combined platform is used in remote sensing, environmental surveillance, industrial leak detection, wildfire and habitat monitoring, and precision agriculture, creating a vertically integrated sensing stack for ecosystem and climate applications.
3	WM acquisition of Stericycle	USA	\$7.2 billion	WM (Waste Management, Inc.) agreed to acquire Stericycle, a global leader in regulated medical and hazardous waste, significantly expanding WM's presence in healthcare and hazardous-waste handling. The combination adds specialised treatment, incineration and compliance services on top of WM's solid-waste platform and supports higher-margin regulated waste and ESG-focused growth.
4	EQT Infrastructure Acquisition of Covanta - \$5.3B Waste-to-Energy Deal	USA	\$5.3 billion	EQT Infrastructure completed a \$5.3 billion private equity buyout of Covanta, one of the largest waste-to-energy companies in North America. This transaction represents the largest strategic investment in waste management infrastructure during 2020-2025, highlighting institutional investor appetite for energy-from-waste technologies. The acquisition strengthened EQT's position in sustainable infrastructure while providing Covanta with capital for facility modernization and expansion across its 41 energy-from-waste facilities.
5	Waste Management Inc Acquisition of Advanced Disposal - \$4.9B Market Consolidation	USA	\$4.9 billion	Waste Management Inc executed a \$4.9 billion strategic acquisition of Advanced Disposal Services, creating the largest waste management company in North America. This deal consolidated market leadership in solid waste collection and disposal services across 16 states. The acquisition enhanced Waste Management's geographic footprint, operational efficiency, and recycling capabilities, demonstrating the strategic value of scale in traditional waste management operations during the COVID-19 recovery period.
6	NRO EOCL Strategic Partnership - Ecosystem Monitoring	USA	\$3.2 billion	The National Reconnaissance Office (NRO) awarded a strategic \$3.24 billion contract to Maxar Technologies as part of the Enhanced Commercial Operations (EOCL) program in May 2022. This partnership represents the largest disclosed strategic investment in ecosystem monitoring technology, focusing on satellite-based Earth observation capabilities. The contract includes Planet Labs and BlackSky as additional partners, creating a comprehensive ecosystem monitoring infrastructure for government applications. This investment demonstrates the critical role of government funding in advancing ecosystem monitoring technologies, particularly for national security and environmental surveillance applications. The partnership establishes a foundation for large-scale environmental data collection and analysis capabilities.

#	Project	Country	Amount	Summary
7	WM Sustainability Growth Strategy – Recycling & RNG Infrastructure	USA	\$3 billion	WM announced a multi-year sustainability growth strategy, investing about US\$3 billion from 2022 to 2026 to expand advanced recycling and renewable natural gas production. The programme funds upgrades and new builds at materials recovery facilities and WM-owned RNG plants, decarbonising the collection fleet and increasing landfill-gas utilisation.
8	Veolia Acquisition of Clean Earth from Enviri - \$3.0B Environmental Services Expansion	France	\$3 billion	Veolia completed a \$3.0 billion strategic acquisition of Clean Earth from Enviri in November 2025, significantly expanding its North American environmental services capabilities. Clean Earth specializes in contaminated soil treatment, dredged material management, and hazardous waste processing across 60+ facilities. This acquisition aligns with Veolia's global strategy to strengthen its position in specialized waste treatment and environmental remediation services, particularly in industrial and infrastructure markets.
9	Cinven and GTCR Acquisition of Stericycle - \$2.3B Medical Waste Buyout	USA	\$2.3 billion	Private equity firms Cinven and GTCR completed a \$2.3 billion buyout of Stericycle in May 2022, taking the medical waste management leader private. Stericycle operates across 21 countries providing regulated medical waste collection, treatment, and disposal services to healthcare facilities. This transaction highlighted private equity interest in specialized waste management sectors with regulatory barriers and recurring revenue models, particularly following increased medical waste volumes during the COVID-19 pandemic.
10	Fortum sale of 50% of Fortum Oslo Varme (waste-to-energy & district heating)	Norway	\$2.2 billion	Fortum divested its 50% share in Fortum Oslo Varme, Norway's largest district-heating company whose core asset is the Klemetsrud waste-to-energy plant. A Norwegian investor consortium acquired the stake and committed to develop carbon-capture at the WtE plant, positioning it as a low-carbon urban waste and heat infrastructure asset.



Top 10 Strategic Investments In The Water Sector

#	Project	Country	Amount	Summary
1	Xylem acquisition of Evoqua Water Technologies	USA	\$7.5 billion	Xylem agreed to acquire Evoqua, a leading industrial and municipal water and wastewater treatment company, in an all-stock deal valuing Evoqua at about USD 7.5bn. The acquisition strengthens Xylem's portfolio in advanced treatment, recycled water and industrial wastewater services, creating a scaled global water-technology leader.
2	Whirlpool acquisition of InSinkErator from Emerson	USA	\$3 billion	Whirlpool agreed to acquire InSinkErator, the leading maker of food waste disposers and instant hot water dispensers used under kitchen sinks, from Emerson. The deal expands Whirlpool's presence in water-using kitchen appliances and gives it a platform for more efficient, integrated water and waste solutions in homes.
3	ECP Energy Capital Partners - Atlantica Sustainable Infrastructure Acquisition	USA	\$2.6 billion	Energy Capital Partners (ECP) completed a strategic take-private acquisition of Atlantica Sustainable Infrastructure for \$2.6 billion in 2024. The transaction, announced on May 29, 2024 and closed in the second half of 2024, represents a significant consolidation in the renewable energy and water infrastructure sector. ECP, a US-based private equity firm specializing in energy infrastructure, acquired the UK-headquartered company that operates renewable energy assets and water desalination facilities across multiple continents. This strategic investment demonstrates the growing institutional capital interest in sustainable infrastructure assets, particularly those combining renewable energy generation with water treatment technologies. The acquisition provides ECP with a diversified portfolio of operational assets in the clean energy transition space, while offering Atlantica's stakeholders liquidity and access to additional growth capital for infrastructure expansion.
4	Alkimos Seawater Desalination Plant (ASDP)	Australia	\$2.3 billion	Perth's next major water source: a coastal SWRO plant at Alkimos, initially 50 billion litres/year (expandable to 100 billion), plus a 33 km transmission pipeline. The Western Australian Government commits A\$2.8 bn and appoints the Northern Water Partnership to deliver the project for Water Corporation.
5	Veolia acquisition of CD-PQ's 30% stake in Water Technologies & Solutions (WTS)	France	\$1.75 billion	Veolia acquired Caisse de dépôt et placement du Québec's 30% stake in the former Suez Water Technologies & Solutions business, taking full ownership. WTS provides industrial water and wastewater treatment, reuse and zero-liquid-discharge technologies globally, reinforcing Veolia's position in advanced industrial water and reuse markets.
6	Umm Al-Hayman Wastewater Treatment Plant PPP	Kuwait	\$1.6 billion	One of the world's largest wastewater treatment PPPs, Umm Al-Hayman develops a greenfield plant of initially 500,000 m ³ /day (expandable to 700,000 m ³ /day) plus transmission infrastructure. The WTE Wassertechnik-led consortium designs, finances, builds and operates the facility, providing treated effluent for agriculture and industry under a long-term concession.
7	TAQA acquisition of GS Inima	Spain	\$1.2 billion	Abu Dhabi National Energy Company (TAQA) agreed to acquire 100% of Spain-headquartered GS Inima, a global water company active in desalination and municipal and industrial wastewater concessions across multiple countries. The roughly USD 1.2bn transaction significantly expands TAQA's international water and wastewater platform.

#	Project	Country	Amount	Summary
8	Korea Water Resources Corporation - LG Chem Water Solutions Acquisition	South Korea	\$1.05 billion	Korea Water Resources Corporation (K-water) completed a landmark \$1.05 billion acquisition of LG Chem's Water Solutions business unit on June 13, 2025, representing the largest public sector investment in reverse osmosis membrane technology. The KRW 1.4 trillion transaction transferred ownership of the world's second-largest reverse osmosis membrane manufacturing operation from the private chemical conglomerate to South Korea's state-owned water utility. This strategic acquisition positions K-water as a vertically integrated water infrastructure provider, combining its existing water treatment and distribution capabilities with advanced membrane manufacturing technology. The investment aligns with South Korea's national water security strategy and demonstrates the government's commitment to controlling critical water treatment technologies. The acquisition includes LG Chem's membrane production facilities, intellectual property portfolio, and global customer relationships, significantly expanding K-water's technological capabilities and international market presence in the water treatment sector.
9	ADS acquisition of NORMA Group Water Management business (NDS)	USA	\$1 billion	Advanced Drainage Systems (ADS) signed an all-cash deal to acquire NORMA Group's Water Management business, including National Diversified Sales (NDS), for an enterprise value of USD 1.0bn. NDS provides irrigation, drainage, stormwater and onsite wastewater management solutions, strengthening ADS's position in water and wastewater infrastructure.
10	Suez-Veolia Water Assets Strategic Merger	France	\$950 million	Veolia Environnement SA completed a strategic merger involving Suez water assets valued at \$950 million in October 2021. This transaction was part of the broader Veolia-Suez merger remedy process, involving the divestiture of specific water utility and industrial water treatment assets across European markets. The merger consolidated water infrastructure capabilities and environmental services operations, creating enhanced market positioning in municipal water systems and industrial treatment solutions. The deal represented a significant consolidation move in the European water sector, combining operational expertise and technological capabilities to serve both public and private sector clients more effectively.

Top 10 Strategic Investments In The Agriculture Sector

#	Project	Country	Amount	Summary
1	Sealed Air Corporation Private Equity Acquisition	USA	\$10.3 billion	A private equity consortium completed a \$10.3 billion acquisition of Sealed Air Corporation in November 2025, marking one of the largest packaging industry buyouts. Sealed Air, known for its protective packaging solutions including Bubble Wrap and food packaging technologies, represents a strategic investment in sustainable packaging innovation. The acquisition positions the company to capitalize on growing demand for food preservation technologies and environmentally conscious packaging solutions across global supply chains.
2	Amcor-Berry Global Strategic Merger	Europe	\$8.43 billion	Amcor plc and Berry Global Group announced an \$8.43 billion strategic merger in May 2025, creating a global packaging powerhouse. This transformative deal combines Amcor's flexible packaging expertise with Berry Global's rigid packaging capabilities, establishing comprehensive coverage across food preservation, consumer goods, and industrial packaging markets. The merger aims to drive innovation in sustainable packaging solutions and enhance operational efficiency through complementary geographic footprints and technology platforms.
3	Xylem-Evoqua Water Technologies Merger	USA	\$7.5 billion	Xylem Inc. completed the acquisition of Evoqua Water Technologies for \$7.5 billion in 2023, creating the world's largest water technology company. This strategic merger combines Xylem's water infrastructure expertise with Evoqua's industrial water treatment capabilities, establishing a comprehensive platform for water and wastewater solutions. The transaction represents the largest strategic investment in water technology history, positioning the combined entity to address global water challenges through integrated treatment, monitoring, and infrastructure solutions. The merger creates significant synergies in research and development, manufacturing, and market reach across municipal and industrial water markets globally.
4	Coca-Cola BodyArmor Strategic Acquisition	USA	\$5.6 billion	The Coca-Cola Company completed a \$5.6 billion strategic acquisition of BodyArmor in November 2021, significantly expanding its presence in the premium sports drink market. This acquisition represents Coca-Cola's largest brand purchase since acquiring Costa Coffee, positioning the company to compete directly with PepsiCo's Gatorade franchise. BodyArmor's natural ingredients and athlete endorsements align with consumer trends toward healthier beverage options and premium positioning in the growing sports nutrition segment.
5	BAE Systems Strategic Acquisition of Ball Aerospace	USA	\$5.5 billion	BAE Systems completed a \$5.5 billion strategic acquisition of Ball Aerospace from Ball Corporation in February 2024, representing the largest single transaction in the UAV and satellite imagery sector during 2020-2025. Ball Aerospace is a leading provider of spacecraft, instruments, and sensors for civil, commercial, and national security space missions. The acquisition strengthens BAE Systems' position in space and defense technologies, particularly in satellite systems, Earth observation capabilities, and space-based intelligence gathering. This strategic investment demonstrates the consolidation trend in the aerospace and defense industry, with established defense contractors acquiring specialized space technology companies to enhance their capabilities in satellite imagery, unmanned systems, and space-based surveillance technologies.

#	Project	Country	Amount	Summary
6	BP acquisition of Archaea Energy (RNG from waste)	USA	\$4.1 billion	BP agreed to acquire Archaea Energy, a leading US producer of renewable natural gas from landfill and organic waste, for about \$4.1 billion including debt. The deal significantly expands BP's bioenergy platform, monetizing municipal and organic waste streams into transport fuel and grid gas while reducing methane emissions.
7	Karman Holdings Strategic IPO	USA	\$4 billion	Karman Holdings, backed by Trive Capital, completed a strategic IPO in February 2025 with a valuation of nearly \$4 billion, marking a significant return to traditional public offerings in the space sector. The defense and space systems manufacturer's shares soared during their debut, demonstrating renewed investor confidence in space technology companies. Karman Holdings specializes in defense and space systems, including satellite technologies and unmanned aerial vehicle components. This IPO represents a shift away from SPAC transactions toward traditional public offerings in the space industry, indicating market maturation and improved investor sentiment for established space technology companies with proven business models and revenue streams.
8	Voyager Technologies Strategic IPO	USA	\$3.8 billion	Voyager Technologies achieved a \$3.8 billion valuation through a strategic IPO in June 2025, with shares opening 125% higher at \$69.75, well above the \$31 offer price. The defense and space company's successful public debut demonstrates strong institutional and retail investor demand for established space technology companies. Voyager Technologies operates in the defense and space sectors, focusing on satellite systems, unmanned aerial vehicles, and space-based intelligence capabilities. The company's IPO success reflects the growing recognition of space technology as a critical infrastructure investment, particularly for national security applications and commercial satellite imagery services. This transaction represents the continued evolution of the space industry toward mature public market participation.
9	National Reconnaissance Office EOCL Strategic Partnership Program	USA	\$3.24 billion	The National Reconnaissance Office launched the Enhanced Commercial Imagery (EOCL) program in May 2022, representing a \$3.24 billion strategic partnership initiative over 10 years with satellite imagery providers including Maxar, BlackSky, and Planet Labs. This government strategic partnership program aims to provide comprehensive commercial satellite imagery capabilities for national security applications. The EOCL contracts distribute funding across multiple commercial satellite operators to ensure diverse imagery sources and technological capabilities for intelligence gathering and defense applications.
10	Shell acquisition of Nature Energy Biogas	Denmark	\$2 billion	Shell agreed to acquire Nature Energy Biogas A/S, Europe's largest producer of biomethane from organic waste, for about \$2.0 billion (around €1.9 billion). Nature Energy operates multiple large-scale plants processing agricultural, industrial and household organic and food waste into grid-quality biomethane and biofertiliser across Denmark and other European countries.

Top 10 Financial Investments In The Environment Sector

#	Project	Country	Amount	Summary
1	Redwood Materials – Series D	USA	\$1 Billion	US battery materials and recycling company building a closed-loop supply chain for EV and stationary batteries. Series D funds expansion of end-of-life battery collection and refining capacity, turning waste batteries into new cathode and anode materials and reducing dependence on virgin mining.
2	Redwood Materials – Series C	USA	\$700 Million	Growth round to expand Redwood’s US battery recycling and materials production. Capital scales processing of production scrap and end-of-life lithium-ion batteries and supports building new facilities in Nevada, underpinning a circular EV battery materials supply chain.
3	Ascend Elements – Series D & associated equity	USA	\$542 Million	US company that recycles black mass from spent EV batteries and manufacturing scrap and converts it into engineered cathode precursor and cathode active material. The large Series D plus additional equity fund a commercial-scale recycling and cathode materials facility in Kentucky.
4	Solugen - \$474.1M Multi-Series Investment for Chemical Recycling	USA	\$474.1 Million	Solugen raised \$474.1 million across multiple funding rounds from 2020-2025, establishing itself as a leader in chemi enzymatic conversion technology for organic waste processing. The Houston-based company developed proprietary enzyme-based processes that convert organic waste streams into high-value chemicals and materials, including hydrogen peroxide, gluconic acid, and bio-based polymers. Their technology platform combines synthetic biology with advanced chemistry to create sustainable alternatives to petroleum-derived chemicals. Solugen’s approach addresses both waste management challenges and chemical industry decarbonization by transforming agricultural residues, food waste, and other organic materials into commercially viable products. The company operates multiple production facilities and has secured partnerships with major chemical manufacturers, positioning it at the forefront of the circular bioeconomy.
5	Redwood Materials – Series E (Redwood Energy)	USA	\$350 Million	Funding to accelerate Redwood Energy, which leverages Redwood’s recycled and sustainably produced battery materials for grid-scale energy storage. The round supports deployment of energy storage systems based on circular battery-materials sourcing and associated recycling infrastructure.
6	Brightmark Plastics - \$172.5M Debt/Equity Financing for Plastic-to-Fuel Technology	USA	\$172.5 Million	Brightmark Plastics secured \$172.5 million in combined debt and equity financing from municipal bonds and private equity investors between 2019-2025 to develop advanced plastic-to-fuel recycling facilities. The company operates proprietary pyrolysis technology that converts post-consumer plastic waste into ultra-low sulfur diesel, naphtha, and wax products. Brightmark’s flagship facility in Ashley, Indiana, processes 100,000 tons of plastic waste annually, diverting materials that would otherwise end up in landfills or incineration. The company’s approach addresses the growing plastic waste crisis while creating valuable energy products, demonstrating the commercial viability of chemical recycling at industrial scale. This investment represents significant institutional confidence in advanced recycling technologies and their potential to transform waste management economics.

#	Project	Country	Amount	Summary
7	HawkEye 360 – Series D	USA	\$145 Million	HawkEye 360 operates a commercial constellation that geolocates radio-frequency (RF) signals from space. Its analytics help monitor maritime activity, illegal fishing, interference with protected areas, and environmental risks such as spills and unreported shipping. The Series D round finances additional satellites and analytics for global ecosystem-protection use cases.
8	ICEYE – Series D	Finland	\$136 Million	ICEYE operates a constellation of synthetic-aperture radar (SAR) satellites that image Earth day and night, through clouds. Its data is used for flood, sea-ice, land-subsidence and infrastructure-risk monitoring. The Series D expands the constellation and analytics, strengthening global capabilities for disaster response and climate-driven ecosystem monitoring.
9	Orbital Insight Series D - \$128.7M Geospatial Analytics Investment	USA	\$128.7 Million	Orbital Insight, a US-based geospatial analytics company, raised \$128.7 million across multiple funding rounds from 2020-2023. The company uses satellite imagery and AI to provide insights for government and commercial clients, including environmental monitoring, supply chain tracking, and economic analysis. Their platform processes vast amounts of satellite data to detect changes in land use, infrastructure development, and environmental conditions. The investment supports expansion of their geospatial intelligence capabilities and market reach in ecosystem monitoring applications.
10	Synspective – Series B (equity + loans)	Japan	\$100 Million	Synspective is a Japanese SAR satellite operator developing a constellation and analytics platform for urban flood monitoring, land-displacement, disaster impact and environmental-risk analysis. The Series B and loan package finance multiple satellites and global expansion, supporting climate-resilient urban and land-use planning across Asia and beyond.



Top 10 Financial Investments In The Water Sector



#	Project	Country	Amount	Summary
1	Solugen - \$577M Multi-Round Plant-Based Chemical Manufacturing	USA	\$577 Million	Solugen, a specialty chemical manufacturing company, raised \$557 million across multiple funding rounds from 2020-2025. The company develops plant-based alternatives to petroleum-based chemicals, focusing on sustainable manufacturing processes that align with innovative water consumption technologies. Their bioengineered approach to chemical production supports water treatment applications and residential water management systems. The substantial investment reflects growing investor confidence in sustainable chemical solutions that reduce environmental impact while addressing water scarcity challenges. Solugen's technology platform enables the production of eco-friendly chemicals used in water treatment, agriculture, and industrial applications, positioning the company as a leader in the transition toward sustainable manufacturing practices.
2	Gradiant Corporation - Unicorn Water Treatment Investment	USA	\$228 Million	Gradiant Corporation achieved unicorn status with a \$1 billion valuation and raised over \$228 million in private capital from leading investors including Warburg Pincus, M&G Investments, Formation 8, Clearvision Ventures, GRC, and General Innovation Capital Partners. Founded in 2013 as an MIT spinout, Gradiant developed proprietary water treatment technology that mimics natural rain formation, achieving 99% water recovery compared to traditional 50-60% recovery rates. The company serves major industrial clients including Coca-Cola, BMW, Pfizer, and Adnoc, claiming to save 1.7 billion gallons of water daily. Gradiant closed over \$500 million in new orders in the first half of 2024, demonstrating strong commercial traction in the industrial water treatment market.
3	Gradiant – Series D	USA / Singapore	\$225 Million	Growth round into Gradiant, a water technology company with proprietary Counterflow Reverse Osmosis (CFRO) and RO Infinity brine-concentration systems that significantly increase recovery and lower energy and operating costs for industrial desalination and reuse applications.
4	Gradiant Corporation Series C - \$225M Zero Liquid Discharge Technology	USA	\$225 Million	Gradiant Corporation secured \$225 million in Series C funding in March 2022, led by Warburg Pincus with participation from Formation 8, Clearvision Ventures, and M&G Investments. The Boston-based company specializes in zero liquid discharge technology and advanced wastewater treatment solutions for industrial applications. This significant investment round positions Gradiant as a leader in the water treatment sector, enabling expansion of their proprietary membrane distillation and electrodialysis technologies. The funding supports scaling operations to meet growing demand for sustainable water treatment solutions across energy, chemical, and pharmaceutical industries globally.
5	Cambrian Innovation – Growth equity commitment by Pennybacker	USA	\$200 Million	Cambrian Innovation designs, builds and operates modular anaerobic treatment and water reuse systems for food and beverage and other industrial customers. Its “water-energy purchase agreements” turn wastewater into a service model, often generating renewable energy on-site. Pennybacker's growth equity commitment supports scaling these reuse solutions and expanding Cambrian's project portfolio.

#	Project	Country	Amount	Summary
6	Gradiant – Series C	USA / Singapore	\$100 Million	Series C funding for Gradiant to scale its portfolio of advanced RO-based solutions, including CFRO and SmartOps, targeting high-recovery desalination and wastewater reuse for semiconductors, energy, pharmaceuticals and other water-intensive industries.
7	Aquatech International Series C - \$85M Advanced Water Treatment	Netherlands	\$85 Million	Aquatech International raised \$85 million in Series C funding in November 2023, with KKR Infrastructure leading the round alongside Warburg Pincus and Energy Impact Partners. The Netherlands-based company develops advanced water treatment technologies including reverse osmosis, ion exchange, and membrane bioreactor systems. This investment enables Aquatech to expand their global footprint and accelerate development of next-generation water purification technologies. The company serves municipal, industrial, and power generation sectors with comprehensive water treatment solutions designed to address water scarcity and quality challenges worldwide.
8	Fluence Corporation Private Equity Buyout - \$75M	USA	\$75 Million	Fluence Corporation completed a \$75 million private equity buyout in August 2022, led by Charlesbank Capital Partners with participation from Energy Impact Partners. The USA-based company specializes in decentralized water treatment solutions including membrane bioreactors and smart packaged treatment systems. This growth equity investment supports Fluence's expansion into emerging markets and development of IoT-enabled water treatment platforms. The company's modular approach to water treatment enables rapid deployment in remote locations and developing regions where traditional centralized infrastructure is not feasible.
9	Bionomic Industries Growth Investment - \$65M	USA	\$65 Million	Bionomic Industries secured \$65 million in growth equity funding in October 2023, led by Riverside Partners with participation from Energy Impact Partners. The United States-based company develops integrated air and water treatment systems for industrial applications, combining pollution control technologies with water treatment solutions. This investment enables expansion of their manufacturing capabilities and development of next-generation environmental control systems. Bionomic's integrated approach addresses multiple environmental challenges simultaneously, providing cost-effective solutions for industries requiring both air quality management and water treatment compliance.
10	ZwitterCo – Series B	USA	\$58.4 Million	Series B to expand ZwitterCo's fouling-resistant zwitterionic membranes, used as pretreatment and in high-strength wastewater reuse. These membranes protect and extend downstream RO performance, enabling high-recovery treatment of challenging industrial streams.

Top 10 Financial Investments In The Agriculture Sector

#	Project	Country	Amount	Summary
1	Skydio Series E - \$851.4M Autonomous Drone Investment	USA	\$851.4 Million	Source: TechCrunch, Crunchbase, company announcements. Funding Round: Series E completed in 2023. Main Investors: Andreessen Horowitz (a16z), Linse Capital, Next47, IVP. Volume: \$851.4 million. Region: North America. Country: United States. Technology Priority Area: Unmanned Aerial Vehicles and Satellite Imagery. Skydio raised this funding to advance autonomous drone technology for enterprise, defense, and consumer applications, focusing on AI-powered flight systems and obstacle avoidance capabilities.
2	Zipline Series E - \$704.5M Medical Delivery Drone Investment	USA	\$704.5 Million	Source: Reuters, Bloomberg, Zipline press releases. Funding Round: Series E completed in 2022. Main Investors: Baillie Gifford, Temasek, Catalyst Ventures, Trinity Ventures. Volume: \$704.5 million. Region: North America. Country: United States. Technology Priority Area: Unmanned Aerial Vehicles and Satellite Imagery. Zipline secured this funding to expand its autonomous drone delivery network for medical supplies and pharmaceuticals, particularly in remote and underserved areas globally.
3	BlackRock acquisition of Vanguard Renewables	USA	\$700 Million	Vanguard Renewables develops and operates anaerobic digesters on U.S. dairy farms, converting inedible food waste and manure into renewable natural gas and fertilizer. The company partners with food manufacturers and farms to divert organic waste from landfill and avoid methane emissions. BlackRock acquired Vanguard to scale more than 100 RNG projects across the U.S.
4	Bowery Farming - Series C/D	USA	\$700 Million	Bowery Farming raised over \$700 million across multiple Series C and D funding rounds to scale its vertical farming operations. The company operates indoor farms that use proprietary technology to grow leafy greens and herbs without soil, pesticides, or weather dependency. Key investors include First Round Capital, General Catalyst, and GV (Google Ventures), demonstrating strong institutional confidence in controlled environment agriculture. The funding supports expansion of Bowery's network of vertical farms across major metropolitan areas, technology development, and operational scaling. This represents one of the largest private capital investments in the protected agriculture sector, highlighting the significant investor interest in sustainable food production technologies.
5	Shield AI Series E - \$588.1M Defense UAV Investment	USA	\$588.1 Million	Source: Defense News, PitchBook, Shield AI announcements. Funding Round: Series E completed in 2023. Main Investors: Disruptive Technologies, Point72 Ventures, Riot Ventures, US Innovative Technology Fund. Volume: \$588.1 million. Region: North America. Country: United States. Technology Priority Area: Unmanned Aerial Vehicles and Satellite Imagery. Shield AI raised this funding to develop AI-powered autonomous aircraft systems for defense and security applications, focusing on swarm intelligence and edge AI capabilities.



#	Project	Country	Amount	Summary
6	GrubMarket Food Waste Management Investment - \$566.96M	USA	\$566.96 Million	GrubMarket, a US-based food supply chain technology company, raised \$566.96 million across 19 funding rounds from 2020-2025. The company focuses on reducing food waste through AI-powered supply chain optimization, connecting farmers directly with retailers and restaurants. Their technology platform addresses food preservation and valorization of waste by improving inventory management, reducing spoilage, and optimizing distribution networks. The investment represents one of the largest private capital commitments in food waste management technology, demonstrating strong investor confidence in scalable solutions for agricultural waste reduction.
7	Gotham Greens - Series B/C	USA	\$440 Million	Gotham Greens secured \$440 million across Series B and C funding rounds to expand its network of high-tech greenhouses across North America. The company specializes in hydroponic greenhouse farming, producing premium leafy greens and herbs year-round in urban and peri-urban locations. The investment enables Gotham Greens to scale its operations from coast to coast, establishing new greenhouse facilities and enhancing its proprietary growing systems. Multiple venture capital rounds have supported the company's growth trajectory, positioning it as a leader in controlled environment agriculture. This substantial funding reflects investor confidence in the scalability and sustainability of greenhouse-based food production systems.
8	Plenty Unlimited - Series E	USA	\$400 Million	Plenty Unlimited raised \$400 million in Series E funding led by prominent investors including One Madison Group, JS Capital, and SoftBank Vision Fund. The company develops vertical farming technology that uses LED lighting, sensors, and machine learning to optimize crop growth in controlled indoor environments. Plenty's approach focuses on producing fresh produce with significantly less water and land compared to traditional farming methods. The funding supports the construction of new vertical farms, technology advancement, and market expansion across multiple geographic regions. This investment represents significant institutional backing for next-generation agricultural technology and sustainable food production systems.
9	Ÿnsect – Series C	France	\$372 Million	Plenty Unlimited raised \$400 million in Series E funding led by prominent investors including One Madison Group, JS Capital, and SoftBank Vision Fund. The company develops vertical farming technology that uses LED lighting, sensors, and machine learning to optimize crop growth in controlled indoor environments. Plenty's approach focuses on producing fresh produce with significantly less water and land compared to traditional farming methods. The funding supports the construction of new vertical farms, technology advancement, and market expansion across multiple geographic regions. This investment represents significant institutional backing for next-generation agricultural technology and sustainable food production systems.
10	Saildrone Series C - \$308.5M Ocean Monitoring Platform Investment	USA	\$308.5 Million	Saildrone raised this funding to expand its autonomous sailing drone fleet for ocean data collection, weather monitoring, and maritime security applications using advanced sensor technology.

Top 10 Corporate RDI Investments In The Environment Sector

#	Project	Country	Amount	Summary
1	Siemens AG	Germany	\$6.6 Billion	Ecosystem monitoring and environmental digital twins; smart grids and infrastructure for climate-resilient water and energy systems; analytics for climate and resource planning.
2	Deere & Company - Environment	USA	\$2.177 Billion	Heavy R&D in precision agriculture, autonomy, computer vision and connected machinery. Focus on variable-rate seeding, spraying and tillage, plus agronomic decision tools. Directly relevant to grazing land management, sustainable crop production, and efficient irrigation in arid environments like Saudi rangelands.
3	Schneider Electric	France	\$2.01 Billion	R&D centered on energy management, automation, microgrids, data centers and building management systems. Investments target efficiency, electrification and digital control of infrastructure, including water and waste assets. Strong fit with environmental monitoring, climate-resilient infrastructure and sustainable urban services.
4	CNH Industrial	UK / Netherlands	\$1.04 Billion	R&D focuses on agricultural and construction equipment, precision farming, alternative powertrains and digital solutions. Strong emphasis on guidance, automation and connectivity for tractors, combines and sprayers. Well aligned with sustainable grazing and water-smart agriculture in drylands.
5	Hexagon AB	Sweden	\$700 Million	R&D centered on geospatial technologies, sensors, GIS, digital twins and industrial metrology. Environmental applications include land-use monitoring, infrastructure mapping and asset management. Core capabilities in high-precision positioning and geospatial analytics are directly relevant for ecosystem and grazing-land monitoring and climate-resilient planning.
6	Trimble Inc. - Environment	USA	\$664.3 Billion	R&D focus on GNSS/GPS, positioning, sensors, software and cloud services for agriculture, construction, utilities and transport. Strong in precision agriculture, water infrastructure mapping and asset management – directly supporting grazing land optimization, irrigation control and ecosystem monitoring.

#	Project	Country	Amount	Summary
7	AGCO Corporation - Environment	USA	\$420.9 Million	Precision agriculture, variable-rate inputs, autonomous and connected farm equipment; decision-support tools for soil, water and grazing management; integration with irrigation and fertigation.
8	Teledyne Technologies	USA	\$412.6 Million	R&D invests heavily in sensing, imaging, instrumentation, digital imaging and aerospace/defence electronics. Environmental relevance comes from marine, atmospheric, and industrial sensor portfolios, including oceanographic instruments, environmental monitoring cameras and satellite imaging components.
9	Xylem Inc. - Environment	USA	\$232 Million	Smart water networks for irrigation and ecosystem monitoring; leak detection and pressure optimization; water-treatment systems supporting healthy ecosystems and communities.
10	Itron Inc.	USA	\$208.7 Million	R&D centers on smart metering, grid edge intelligence and IoT platforms for electricity, gas and water utilities. Strong fit with efficient irrigation, water-loss control and demand-side management in cities and farms, supporting sustainable resource use and better forecasting.



Top 10 Corporate RDI Investments In The Water Sector

#	Project	Country	Amount	Summary
1	DuPont de Nemours (incl. DuPont Water Solutions)	USA	\$508 Million	Diversified materials and specialty chemicals player with a major water technologies segment (RO membranes, ion exchange, ultra-filtration). Invests heavily in membrane science, fouling resistance, PFAS removal and energy-efficient desalination. Water R&D is a significant slice of group R&D.
2	Toray Industries	Japan	\$500 Million	Advanced materials giant (membranes, fibers, composites) and one of the world's largest RO and UF membrane suppliers. R&D focused on membrane performance, durability, low-pressure RO, and specialty separation for wastewater and brine concentration.
3	Veolia Environnement (incl. Veolia Water Technologies)	France	\$270 Million	Global environmental services major with water as a core business. R&D spans membranes, smart networks, sludge/biogas valorisation, industrial reuse and digital twins for utilities, with focus on circularity and energy-positive wastewater plants.
4	Xylem Inc. - Water	USA	\$232 Million	Pure-play water technology major with strong focus on digital networks, smart metering, pumps, leakage analytics and wastewater treatment equipment. R&D tied to digital twins, AI-based NRW reduction and energy-efficient treatment.
5	Itron	USA	\$209 Million	Leading provider of smart meters, networked sensors and analytics for water, gas and electricity. R&D focused on AMI/AMR, pressure/flow analytics and edge intelligence to reduce losses and manage demand.
6	Ecolab	USA	\$195 Million	Global leader in water, hygiene and process chemistries with strong data/monitoring layer. R&D covers smart chemical dosing, cooling-water and boiler optimization, membrane chemistries and wastewater reuse, tied to industrial water efficiency.
7	Kurita Water Industries	Japan	\$170 Million	Specialist in water treatment chemicals, equipment and services. R&D concentrated on industrial reuse, zero-liquid-discharge, ultrapure water and smart optimization of cooling/process water using digital tools.

#	Project	Country	Amount	Summary
8	Pentair plc - Water	USA / Ireland	\$99.8 Million	Focused on water treatment equipment and solutions for residential, commercial and some industrial markets. R&D concentrated on filtration, softening, residential RO, smart control valves and efficient circulation/pumping.
9	A. O. Smith	USA	\$98 Million	Global leader in water heaters and residential/commercial water treatment. R&D focuses on high-efficiency heaters, residential RO, softening and smart controls, with water treatment a fast-growing innovation area.
10	Valmont Industries (Valley Irrigation) - Water	USA	\$55 Million	Diversified infrastructure firm with a major precision irrigation segment. R&D focuses on center-pivot technology, variable-rate irrigation, remote management and integration of soil/plant sensors to reduce on-farm water use.



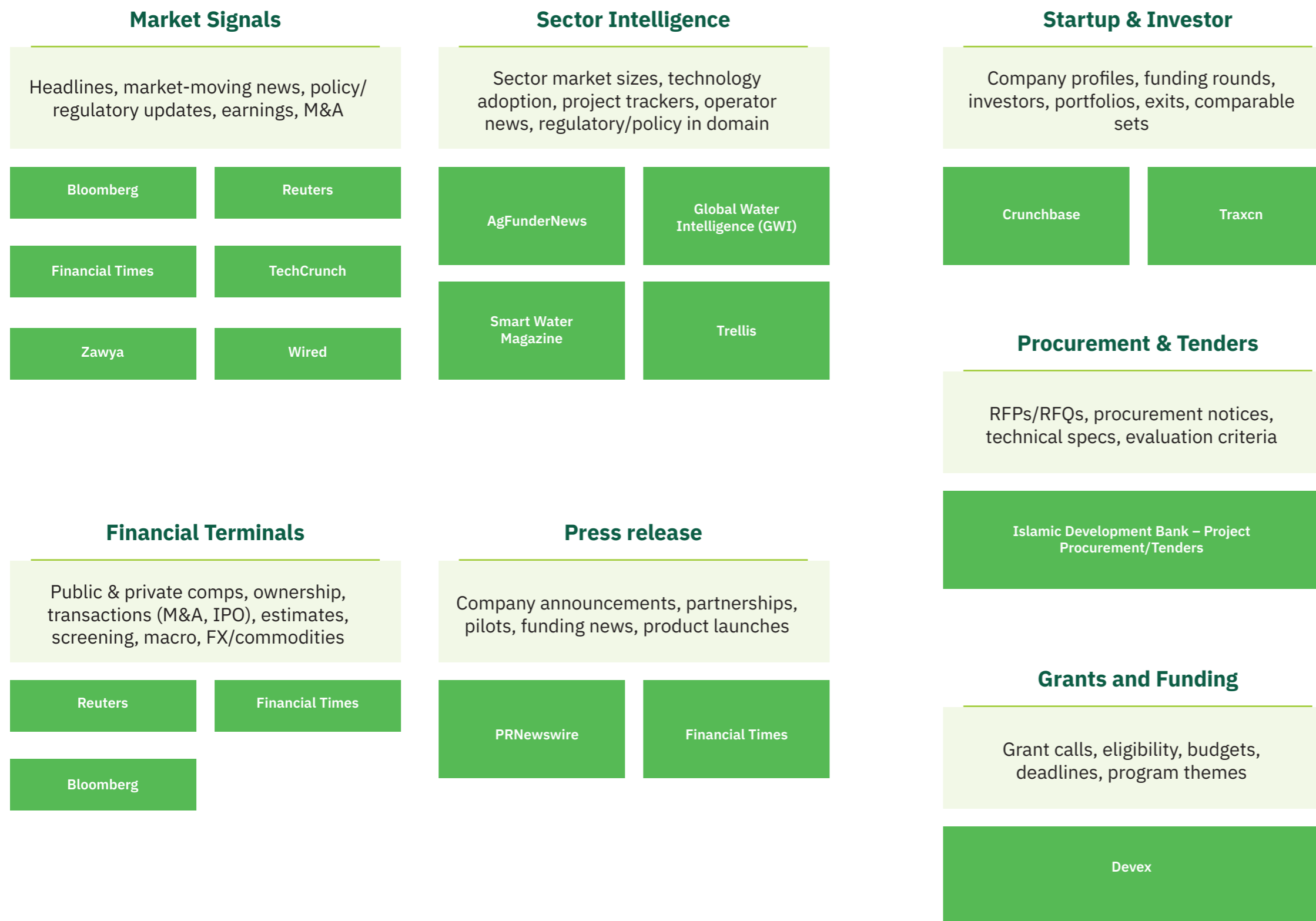
Top 10 Corporate RDI Investments In The Agriculture Sector

#	Project	Country	Amount	Summary
1	Bayer AG (Crop Science)	Germany	\$5.7 Billion	Global life-science group with major R&D in seeds, traits, crop protection and digital farming. Focus on drought-tolerant varieties, precision application and digital tools for arid environments, supporting yield stability, plant health and food security, including in desert and semi-desert climates similar to Saudi Arabia.
2	BASF SE (Agricultural Solutions)	Germany	\$2.3 Billion	Chemicals and biologicals giant with strong ag-R&D in crop protection, biologicals and digital agronomy. Focus on stress-tolerant crops, water-efficient production, integrated pest management and new formulations suited to hot, arid climates, supporting yield stability and environmental performance in intensive and protected agriculture systems.
3	Deere & Company - Agriculture	USA	\$2.177 Billion	Invests heavily in precision agriculture, autonomy and digital operations. R&D targets yield, water-use efficiency and labour productivity using advanced sensors, computer vision and automation. Highly relevant for large-scale mechanised farming and water-efficient irrigation systems deployed on Saudi mega-farms and in integrated farm-management platforms.
4	Nestlé S.A.	Switzerland	\$1.9 Billion	Global food company with a very large R&D network focused on nutrition, shelf-life, safety and process efficiency. Technologies for ambient-stable foods, dairy, coffee and plant-based products underpin food security, resilience to heat and reduction of food loss in hot climates such as Saudi Arabia.
5	Corteva Agriscience	USA	\$1.3 Billion	Pure-play agricultural company with major R&D in seeds, traits, crop protection and biologicals. Strong in drought-tolerant hybrids, nitrogen-use efficiency and biological pest control. Well aligned with Saudi grain, forage and horticultural systems under water constraints and rising temperature stress.
6	CNH Industrial (Case IH / New Holland)	UK / Netherlands	\$940 Million	Invests in agricultural machinery, precision farming, autonomy and alternative powertrains. R&D supports efficient, data-driven field operations and smart integration with irrigation and input management, enhancing productivity and water-use efficiency on large mechanised farms and irrigated systems relevant to Saudi Arabia.
7	Trimble Inc. - Agriculture	USA	\$664 Million	Focused R&D on positioning, guidance, farm-management software and water-management tools. Its technology stack is central to precision irrigation, variable-rate applications and satellite/UAV data integration, directly aligned with Saudi needs for efficient water and fertilizer use and labour-saving precision operations.

#	Project	Country	Amount	Summary
8	Hexagon AB (Agriculture & geospatial solutions)	Sweden	\$640 Million	Digital-reality and positioning company investing heavily in sensors, GNSS, autonomy and mapping. Its technologies underpin precision farming, yield mapping and autonomous operations, enabling water-efficient, data-driven agriculture and UAV/satellite-enabled monitoring across large agricultural and rangeland areas in Saudi Arabia.
9	Zoetis Inc.	USA	\$614 Million	Animal-health specialist with substantial R&D in vaccines, parasiticides, therapeutics and diagnostics for livestock and aquaculture. Strong relevance for Saudi poultry, dairy, small ruminants and fish for disease control, biosecurity and productivity, especially under heat stress and intensifying production systems.
10	AGCO Corporation - Agriculture	USA	\$421 Million	Major agricultural machinery manufacturer (Fendt, Massey Ferguson, Valtra) with focused R&D in precision agriculture, connected machinery and smart implements. Supports Saudi mechanised and pivot-irrigated operations seeking higher labour productivity and more precise water and input use across large arable areas.



Data Sources availability from 2020 to 2025



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Our Partners

 <p>وزارة البيئة والمياه والزراعة Ministry of Environment Water & Agriculture</p>	 <p>المركز الوطني للرقابة على الالتزام البيئي National Center for Environmental Compliance المملكة العربية السعودية</p>	 <p>الهيئة العامة للأرصاد وحماية البيئة The General Authority Of Meteorology and Environment Protection</p>	 <p>موان MWAN المركز الوطني لإدارة النفايات National Center for Waste Management</p>	 <p>صندوق البيئة ENVIRONMENT FUND</p>	 <p>المركز الوطني لتنمية الحياة الفطرية National Center for Wildlife المملكة العربية السعودية</p>
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المنصة الوطنية لاستشراف البحث والابتكار للاستدامة
National Platform of R&I Analytics for Sustainability

وزارة البيئة والمياه والزراعة
Ministry of Environment Water & Agriculture

