الهيئة السعودية للمياه
Saudi Water Authority

أكاديميـــة الميـاه
Water Academy

THE TRANSFORMATIVE ROLE OF THE WATER ACADEMY IN SAUDI ARABIA

The Training Arm of the Saudi Water Authority

In partnership with Metyis

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GLOSSARY

ABB	Asea Brown Boveri
AI	Artificial Intelligence
AMPP	Association for Materials Protection and Performance
ARAMCO	Saudi Arabian Oil Company
AWPT	Alkhorayef Water & Power Technologies
CIWEM	Chartered Institution of Water and Environmental Management
CMI	Chartered Management Institute
COP16	16th Conference of the Parties
CRMP	Certified Risk Management Professional
DAF	Dissolved Air Flotation
DCS	Distributed Control System
DMF	Dual Media Filter
ESG	Environmental, Social, and Governance
GCC	Gulf Cooperation Council
GRI	Global Reporting Initiative
GRCP	Governance, Risk, and Compliance Professional
Hadaf	Human Resources Development Fund
HAZMAT	Hazardous Materials
HR	Human Resources
IDB	Islamic Development Bank
IHE Delft	Delft Institute for Water Education
IoT	Internet of Things
IWA	International Water Association
IX-META	Expertise for Innovation
KSB	Leading international manufacturer of pumps, valves, systems and control valves
LBS	London Business School
MoU	Memorandum of Understanding
NGO	Non-governmental organization
NFPA	National Fire Protection Association
PMP	Project Management Professional
PPP	Public-Private Partnership
RO	Reverse Osmosis
SABIC	Saudi Basic Industries Corporation
SCADA	Supervisory Control and Data Acquisition
SWA	Saudi Water Authority
SWCC	Saline Water Conversion Corporation
SWPC	Saudi Water Partnership Company
TVTC	Technical and Vocational Training Corporation
VFD	Variable Frequency Drive
VR	Virtual Reality
WA	Water Academy
WB	World Bank
WTCO	Water Transmission Company

Executive Summary

The Water Academy experienced a transformative phase in 2024 that reinforcing its position as a leading institution for human capital development and innovation in the water sector. Expanding its scope beyond traditional desalination and water purification training, the Academy now encompasses the whole product line of water from desalination, purification, transmission , storage, distribution systems, sewage and wastewater collection and treatment, and reuse further particularly for the agricultural purpose, in addition to strategic areas such as infrastructure planning, distribution systems, and emerging technologies, ensuring its alignment with the industry's evolving needs and challenges.

A significant milestone in the Academy's expansion will be the establishment of four new branches in Riyadh, Madinah, Khobar and Rabigh, which are currently under construction. These branches are planned to enhance access to high-quality training across Saudi Arabia, the GCC, and globally. Once completed, the Water Academy's state-of-the-art facilities will feature cutting-edge training technologies and World class trainers, including a dedicated testing center, advanced laboratories, and specialized workshops designed to provide a practical and immersive learning environment that supported with more than 40 years of experience in field.

The Academy has strengthened its governance framework by implementing data-driven decision-making and transparent oversight mechanisms and by fostering stakeholder's confidence, and has facilitated the Academy's growing portfolio of collaborations with over 20 entities across public and private sectors resulting in a threefold increase in the number of participants in training programs during 2024. The Academy has established strategic alliances with the other government organizations, the military industries, and international partners, further diversifying its financial base and institutional reach.

On the global stage, the Academy has extended its partnerships with prestigious institutions, including the London Business School, the University of Oxford, the Chartered Management Institute (CMI), Chartered Institution of Water and Environmental Management (CIWEM), and David Paul, Inc. These collaborations ensure the integration of global expertise into training programs, focusing on advanced desalination technologies, renewable energy, sustainability, and leadership development, Health Safety Environment (HSE). The Academy is also partnering with IHE Delft Institute for Water Education (IHE) and Association for Materials Protection and Performance (AMPP) to long-term academic qualifications and development of internal capabilities for serving the industry.

Through these ongoing efforts, the Water Academy is positioning itself into a globally recognized hub of knowledge for water sustainability, innovation, and professional development. As it continues expanding and strengthening its outreach, the Academy remains committed to empower the professionals and establish itself as a leader of water management, operations, and maintenance.

01

REPORT OBJECTIVES

This report aims to highlight the transformative role played by the Water Academy, the training arm of the Saudi Water Authority (SWA), in developing human capital and driving sustainable progress within the Kingdom's water sector. The Academy serves as a strategic foundation for nurturing national talent and empowering professionals with the technical and managerial competencies required across the entire water supply chain, from production to treatment and reuse. This report focuses on SWA's commitment to human capital development as a foundational pillar in building a resilient and efficient water sector.

Through a wide range of training programs, qualification courses, and leadership development initiatives, the Water Academy addresses Human Capital market needs while contributing directly to Saudi Vision 2030, particularly in the areas of workforce localization, private sector participation, and knowledge transfer.

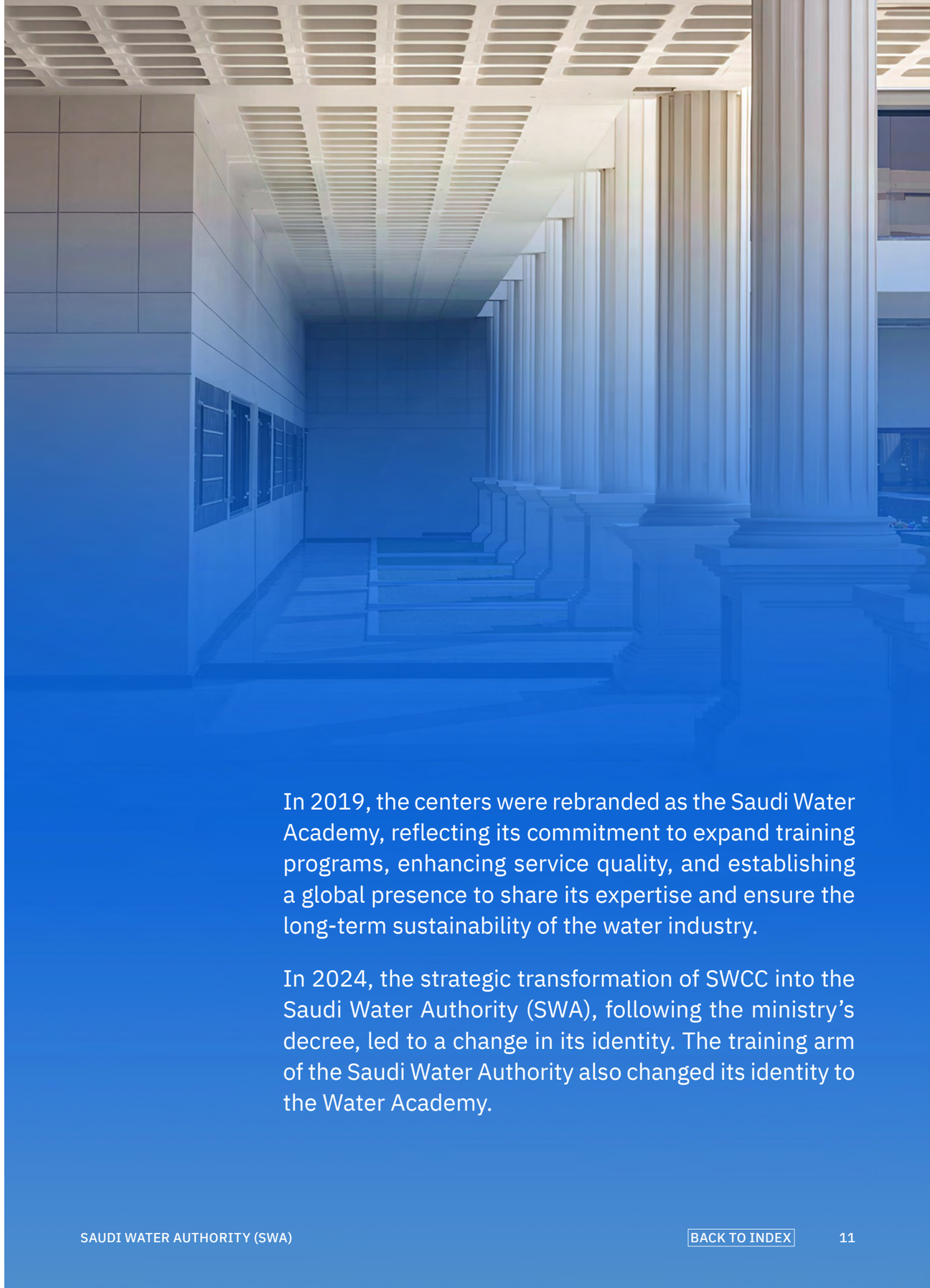
In evaluating the impact of these initiatives, the report highlights measurable outcomes, including higher Saudization rates, improved operational efficiency, and the successful integration of highly qualified professionals into the sector. It also showcases the Academy's expanding regional and global presence, supported by strategic international partnerships and global institutional recognition.

Additionally, the report provides an analytical overview of benchmarking, comparing the Academy's practices with global standards to identify best practices and enhance competitiveness. It also highlights the adoption of advanced learning technologies—such as simulators, virtual reality, and AI tools—to create a future-oriented training environment. The report further underscores the importance of governance, institutional excellence, and continuous improvement in sustaining high-quality programs, positioning the Academy as a national and regional leader in human capital development.

JOURNEY OF DEVELOPMENT AND GROWTH OF THE WATER ACADEMY

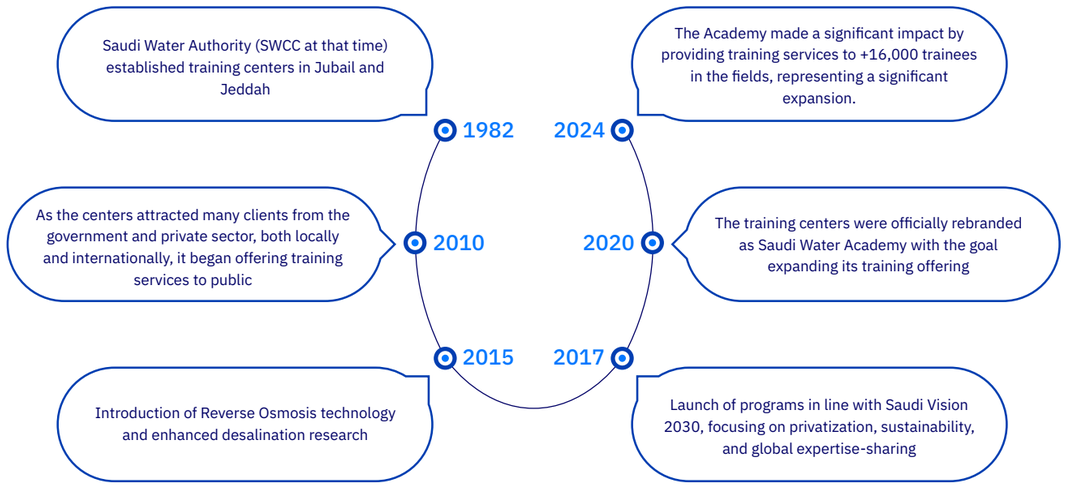
In 1982, the water academy journey started when the Saline Water Conversion Corporation (SWCC) established a training center in Al Jubail and Jeddah. Over time, the centers were notably recognized among public and private sectors as trusted training service provider.

By 2010, following approval for investment operations, the center expanded its services to the public as part of a broader commercial transformation, and began serving both the public and private sectors.



In 2019, the centers were rebranded as the Saudi Water Academy, reflecting its commitment to expand training programs, enhancing service quality, and establishing a global presence to share its expertise and ensure the long-term sustainability of the water industry.

In 2024, the strategic transformation of SWCC into the Saudi Water Authority (SWA), following the ministry's decree, led to a change in its identity. The training arm of the Saudi Water Authority also changed its identity to the Water Academy.



Expanding our training programs to cover global water challenges with international training standards to allow smooth and efficient knowledge sharing globally.

Figure 1. Water Academy's historical data (Water Academy, n.d.).

For over 40 years, The Water Academy has strengthened local expertise, improved operational efficiency, and addressed significant water scarcity and sustainability challenges. Even after rebranding, the Water Academy continues to play a crucial role in developing and training professionals in Saudi Arabia's water sector. Operating under the Saudi Water Authority, the Academy aims to become a global leader in water sector training, aligning with Saudi Arabia's Vision 2030 by focusing on developing human capital through modern learning Methods tailored to meet the evolving needs of the labor market.

JOURNEY OF DEVELOPMENT AND GROWTH OF THE WATER ACADEMY

The Water Academy is dedicated to develop highly skilled workforce, enhancing knowledge, and developing human resource capabilities, while promoting a culture of commitment, sustainability, and the necessity of applying International operational standards in compliance with the industry regulations. Combining classroom instructions and hands-on training equip professionals with the necessary and essential skills across various sectors of the water supply chain, including water production, transmission, storage, treatment, distribution, as well as recycling and reuse of treated wastewater for irrigation. In addition to water resources management, planning, projects, and infrastructure.

By continuously expanding its programs and working with stakeholders and key partners, the Water Academy remains the major contributor to the sector's growth. It has helped to raise industry standards and support Saudi Arabia's vision for sustainable water future. As the sector evolves, the Academy has shifted its focus towards expanding its reach across Saudi Arabia, Gulf region, and internationally ensuring that industry professionals are well-prepared to tackle future challenges with advanced knowledge and expertise.

02

INTRODUCTION

Overview of The Water Academy

The Water Academy has recently undergone a significant transformation, evolving from a traditional training institution into a vibrant center of excellence that serves the entire water supply chain. This evolution builds upon a robust foundation within the water training ecosystem while expanding its focus to encompass vital areas such as innovation, digital transformation, operational excellence, application of artificial intelligence in the water sector, distribution systems, and emerging technologies. By addressing the pressing challenges faced by the sector, this strategic shift underscores a commitment to achieving global excellence in water training.

The Academy's enhanced approach integrates international best practices and innovative methods, thereby elevating the capabilities of Saudi Arabia's water sector. This transformation not only strengthens the operational framework but also reinforces the Academy's pivotal role as a key enabler in realizing national development objectives. By fostering a comprehensive understanding of modern water management, the Water Academy positions itself as a leader in driving sustainable practices and contributing to the overall advancement of the nation's water resources. This initiative is expected to create a long term impact, ensuring that the water sector remains resilient and adaptable to future challenges and opportunities.

At the heart of the Academy's core business, there are values that guide everything it does. Integrity and transparency ensure that trust and accountability are woven into every initiative. A strong focus on professionalism, commitment, and seriousness fosters a culture of excellence. Innovation, development, and sustainability drive continuous progress with long-term impact. The Water Academy prioritize a healthy and safe environment, recognizing that the right learning conditions are key to growth.

02
Overview of The Water Academy

The Water Academy's goal is to be at the forefront of international efforts to provide safe and reliable water supplies for all people at a reasonable cost and with minimal environmental impact by training a new generation of water experts, it aims to contribute to Saudi Arabia's economy and environment, aligning their efforts with Vision 2030.

In recognition of the importance of training and human resource development, the Water Academy designs, develops, and delivers high-quality academic and training programs using the state-of-the-art learning technologies and methodologies in the classrooms, workshops, simulators, and laboratories by nurturing the best minds by the best tutors for managing the competencies of water sector professionals within a safe working environment to ensure delivery of safe water in accordance with global standards.

VISION

To become the leading global source for water industry professionals.

MISSION

To bring water security to the world by developing professional water specialists and enabling them to design, implement, and operate quality water supply solutions that are both sustainable and cost-effective.

VALUES

1. Integrity and Transparency 2. Professionalism and Commitment
3. Innovation and Development 4. A Safe and Secure Environment

GOALS

- Strengthening the quality of institutional training and enhancing confidence in the capabilities of trainees
- Creating an encouraging and professional environment for training in this important and pivotal field in the world
- Providing new and innovative solutions for water supply and keep up with it technically and environmentally
- Promoting water security concepts at the local, regional and international levels
- Establishing strategic partnerships between the Academy and specialized institutions in order to enhance cooperation and exchange of experiences in the field of training
- Existence of an official and accredited institution that accommodates the largest number of trainees in the field of water industry
- Qualifying distinguished Saudi trainees who can take leadership in the field of water desalination industry

OBJECTIVES

01. Build capacity and develop knowledge in the water sector to empower human resources to address future challenges.

02. Educate and train local and international personnel capable of leading the water sector and achieving sustainability across the entire water supply chain.

03. Expand locally by covering all regions of Saudi Arabia, ensuring an innovative and conducive training environment.

04. Assess and develop skills of workers in the water sector, providing certified professional competence for employees and contractor workers.

05. Implement comprehensive training programs covering all water sector specialties and value chain.

06. Offer specialized certifications in all water supply chains to enhance workforce competency.

07. Develop qualification programs for contractor workers in the water sector, ensuring quality execution.

08. Empower women in the water sector through dedicated training programs.

09. Empower local and international leaders in the water sector by providing them with the resources networking and knowledge necessary for success.

10. Expand regionally by offering training programs aimed at the Gulf Cooperation Council (GCC) countries.

11. Become the primary source of information and expertise on water technologies across integrated supply chains.

12. Achieve local and international accreditations to ensure the quality of the academic and training content are delivered.

13. Expand international partnerships to implement specialized training programs in water and environmental fields.

14. Enhance collaboration with companies and organizations involved in training and foster information and knowledge exchange.

15. Raise global awareness of water security issues and contribute effectively to knowledge sharing and innovation.

16. Support environmental sustainability and contribute to achieve Saudi Green Vision through environmental initiatives.

17. Launch the Kids Water Academy initiative to cultivate a generation aware of water issues (Water Academy. 2024).

Training Performance Indicators and Strategic Growth

Table 1. Key Performance Indicators (KPIs) and Annual Targets of the Transformation Journey (2022–2024)

	Statistics of training activities		
	2022	2023	2024
Number of Training Programs	237	327	992
Number of Trainees Enrolled in Programs	6,072	6,139	16,375
Number of International Leadership Programs Conducted	6	6	+8
Trainee Satisfaction Rate	95%	95%	92%
Number of International and Local Accreditations Obtained	5	12	+15

02
Training Performance Indicators and Strategic Growth

The interim key performance indicators (KPIs) and annual targets underscore the Water Academy's ongoing transformation journey and its commitment to enhancing both capacity and quality. Between 2022 and 2024, the Academy achieved substantial growth, increasing the number of training programs from 237 to 992 and the number of participants from 6,072 to over 16,375. It expanded its global reach by delivering eight international leadership programs in 2024, maintained consistently high trainee satisfaction rates exceeding 90% despite more comprehensive evaluations, and strengthened its international standing by securing 15 accreditations, up from five in 2022—demonstrating a clear focus on sustainable growth, global competitiveness, and excellence in training delivery.

Corporate Governance

The Water Academy upholds high standards of corporate governance in alignment with Saudi Arabia's national strategic framework. Its carefully designed governance structure aims to effectively support the development of human capital within the water sector, ensuring sustainability and innovation for future generations. Recent government achievement has significantly enhanced organizational efficiency, integrated centralized information system, and implemented robust governance frameworks.

RECENT GOVERNANCE ACHIEVEMENTS INCLUDE:

Enhancing Organizational Efficiency:	Integrating Centralized Information Systems:	Implementing Robust Governance Frameworks:
Optimized power allocation, ensuring resources are utilized effectively. Implemented strong facility maintenance protocols, maintaining high standards of operational functionality.	Established centralized information systems for data-driven decision-making, enhancing transparency and accountability. Improved access to accurate and timely data, facilitating informed governance and strategic planning.	Developed comprehensive governance policies to ensure compliance with national and international standards. Fostered a culture of integrity, transparency, and accountability across all levels of the organization.

Strategic Alignment with Saudi Vision 2030

The Water Academy plays a crucial role in supporting the implementation of Saudi Vision 2030 by enhancing the water sector through sustainability, innovation, and workforce development. Through specialized training and strategic partnerships, the Academy supports Saudi Arabia's long-term objectives of economic diversification, resource conservation, and leadership in water management. By focusing on these key areas, the Water Academy actively contributes to driving progress towards these goals by:

Table 2. The strategic alignment with Saudi Vision2030, NWS Objectives, SWA and WA

	Saudi Vision 2030	National Water Strategy Objectives	Saudi Water Authority (SWA)	Water Academy (WA)
1	Improving the labor market and empowering citizen.	Ensure continuous access to adequate quantities of safe water in normal and emergency situations.	Provide integrated water management and enable sustainable supply for all consumers.	Build capacity and develop knowledge in the water sector to empower human resources to address future challenges.
2	Enhancing the quality of life through modern infrastructure and services.	Improve water demand management across all users.	Build capabilities to enhance efficiency in the water ecosystem.	Educate and train local and international personnel capable of leading the water sector and achieving sustainability across the entire water supply chain.
3	Enhancing government effectiveness and transparency.	Provide high-quality and cost-effective water and wastewater services to ensure affordable prices.	Monitor the water ecosystem and ensure compliance with regulations.	Become the primary source of information and expertise on water technologies across integrated supply chains.
4	Protecting natural resources and addressing climate change challenges.	Preserve water resources and improve their utilization, while maintaining the local environment for the benefit of the Saudi community both now or in the future.	Support the development of policies, develop, activate regulations and procedures across the water ecosystem.	Support environmental sustainability and contribute to achieving Saudi Green Vision through environmental initiatives.
5	Localizing key industries and advanced technologies.	Ensure the competitiveness of the water sector and its positive contribution to the national economy.	Enable water sector contribution to economic development and local content.	Expand locally by covering all regions of Saudi Arabia, ensuring an innovative and conducive training environment.

Sustainability and Resource Management

The Academy supports Saudi Arabia's commitment to preserving water resources by training professionals in conservation techniques, efficient distribution, and wastewater treatment. Vision 2030 aims to reduce water consumption to 150 liter per capita per day and increase treated wastewater reuse from 26.26% in 2025 to 70% by 2030. The Academy equips specialists with the expertise to achieve these targets. Promoting sustainable water practices ensures Saudi Arabia's long-term water security and resilience public awareness.

Innovation and Technological Advancement

The Academy fosters innovation in the water sector by integrating advanced technologies, including modern and high-tech laboratories, process simulators, virtual training devices, artificial intelligence, data analytics, and renewable energy applications. Vision 2030 prioritizes innovative water solutions, and the Academy meets this demand by training specialists in cutting-edge technologies used across the entire water sector—from production to reuse of the waste water. The Academy also emphasizes the importance of reducing water loss, leak detection, and the use of automation systems. These efforts contribute to improving water efficiency, reduce waste, and support Saudi Arabia's transition toward a knowledge-based economy.

02
Strategic Alignment
with Saudi Vision 2030

Economic Diversification and Private Sector Growth

The Academy plays an effective role in promoting economic diversification and reducing reliance on traditional sources of revenue by developing a skilled and qualified workforce. The Academy offers specialized training programs, such as professional diplomas in partnership with local and international industrial companies, aimed at transferring and localizing knowledge by training Saudi youth and providing new, specialized job opportunities in water sector.

The Academy also offers qualification programs designed to enhance knowledge, skills, and competencies of trainees, transforming them into professional specialists across various stages of the water supply chain. Additionally, the Academy provides professional certification programs for the workforce of contractors, contributing to the improvement and development of water infrastructure, operations, and project management. These efforts also support the active participation of the private sector in the industry and contribute to achieving the privatization goals of the water sector in line with Vision 2030, ensuring the creation of a workforce capable of driving sustainable public-private partnerships and infrastructure investments.

Capacity Building and Human Capital Development

Building a skilled workforce is the cornerstone of the Water Academy's mission and plays a vital role in achieving the Saudi Arabia's long-term objectives, in alignment with Saudi Vision 2030. The Academy focuses on capacity building, enhancing technical expertise, and preparing a highly qualified workforce across all areas related to the water sector to meet the growing demand for specialized professionals in the industry. Through a wide range of specialized programs, the Academy trains professionals to take on leading roles at all levels of the water sector, from operations and maintenance to strategic planning. The Academy also provides a strong training framework that combines theoretical knowledge with practical experience, ensuring graduates and trainees are well-equipped to address both current and future challenges.

By continuously adapting training programs to meet the evolving needs of the water industry and integrating the latest technologies, the Academy ensures that professionals remain at the forefront of industry standards. This approach not only addresses the sector's immediate needs but also contributes to achieving the broader goals of Vision 2030, which focuses on building human capital in critical industries, particularly those related to environmental sustainability, infrastructure, and water security.

The Academy focuses on continuous skill development, capacity-building initiatives, and creating career pathways to foster a dynamic and resilient workforce that will drive sustainable growth, innovation, and leadership in water management for future generations.

02
Strategic Alignment
with Saudi Vision 2030

Regional Leadership in Water Management

The Water Academy has been accredited by the General Secretariat of the Gulf Cooperation Council (GCC) as a center for capacity building in the water sector, which has contributed to enhancing regional cooperation through the delivery of specialized training programs focused on workforce development and sustainability in the member states. This accreditation demonstrates the Academy's commitment to expanding its influence, reflecting Saudi Arabia's position as a leading regional hub for innovation and training in the water sector.

By implementing specialized training programs in GCC countries, such as those held in Oman, the Academy contributes to enhancing skills and qualifications across the region, which helps support workforce development and strengthens the sustainability of the water sector. The Academy also plays a key role in supporting Saudi Arabia's ambition to become a global leader in water sustainability by strengthening international partnerships and solidifying Saudi Arabia's position as a regional center for innovation and training in this vital sector.

In addition to strengthening cooperation with regional institutions, the Academy continues to facilitate knowledge exchange, technology development, and best practices in water efficiency and conservation. This collaboration reinforces Saudi Arabia's leadership role in regional water management. The Academy also focuses on achieving strategic goals that ensure regional and global expansion, enhancing partnerships with GCC member states, such as Oman, and exploring new avenues for cooperation across the region.

Alongside regional cooperation, the Academy works with international institutions such as the World Bank and the Islamic Development Bank to support the training and development of water sector specialists, especially in countries facing water scarcity challenges and intuitive learning experience to strengthen environment and society for water management projects. The Academy aims to become a global leader in desalination and sustainable water management by empowering professionals in these regions and preparing them to tackle global water challenges.

In line with these ambitious strategies, the Water Academy continue to play a pivotal role in achieving Saudi Vision 2030, ensuring the sustainability of Saudi Arabia's water sector and enhancing its ability to innovate and compete globally. This highlights the Academy's significant role in achieving regional leadership in water management.

The Role of Professional Training in the Water Sector

Currently, the local content ratio in water sector stands at 65.13%, surpassing Vision 2030's target of 70% five years ahead of schedule. This remarkable achievement is driven by Saudi expertise, with a 98% localization rate in the workforce. The Water Academy plays a crucial role in implementing these numbers and in training the next generation of global water leaders. Through its comprehensive training programs, the Academy helps ensure the Kingdom's ongoing commitment to accelerating the localization of supply chains, services, and human resources, creating a more resilient and sustainable water sector. This success has not only elevated local expertise but has also paved the way for ground-breaking initiatives.

The Water Academy has significantly contributed to the Monitoring and Compliance initiative, which focuses on overseeing the water ecosystem and ensuring strict adherence to regulations and standards. This initiative is vital for maintaining the integrity and sustainability of the water sector.

As part of this effort, the Academy has trained and certified numerous inspection officers to conduct field inspections, thereby strengthening compliance enforcement. These officers are equipped with the knowledge and skills to ensure that water management practices meet the highest standards of regulatory compliance. Additionally, the Academy has prepared professionals, including water auditors specializing in detecting leaks in urban and residential infrastructure, these professionals are certified in collaboration with the National Center for Water Efficiency and Conservation (MAEE), ensuring they are well-equipped to identify and address issues related to water loss and inefficiency.

02
The Role of Professional Training in the Water Sector

These initiatives are essential for maintaining regulatory compliance, enhancing customer service, and improving water resource management, ultimately driving growth and innovation in the water sector. The core activities of the Water Academy can be summarized as below:

01 All the new entrants to the sector have to receive the underpinning knowledge and practical skills they need to work in the water industry and perform their roles to a high standard. The entry-level programs for the sector employees are understanding the importance of their roles and the impact of their work. Technical training at this stage is vital for developing the competent workforce to address the operational complexities and safety considerations of the water industry.

02 Apprenticeships offer a structured pathway for such new employees to gain knowledge and hands-on experience, while technical diploma, such as those delivered to KSB, provide an excellent entry-level pathway for newcomers to the water industry.

03 Reskilling and upskilling the existing employees become a paramount strategy for water sector employees to unlock untapped potential, minimize skills gaps, increase innovation and boost morale across the workforce. Job specific certification from recognized professional bodies like City & Guilds, IACET, Association of Material Performance and Protection, and freelancers' professions like Water Auditor and inspection officers.

04 Management and Leadership Development program for the existing and upcoming industrial leaders through Chartered Management Institute of the UK, London Business School, University of Oxford, CIWEM etc.

05 Water Academy is focused on future-oriented water technology, considering the local needs and capabilities. Training and job qualification are critical success factors for a future-oriented development of sustainable water management. The Water Academy has significantly contributed to the Monitoring and Compliance initiative, which focuses on overseeing the water ecosystem and ensuring strict adherence to regulations and standards. The new initiative for the Competency Management System is vital for maintaining the integrity and sustainability of the water sector.

06 The Academy is also in the process of offering water industry specific programs with the help of IHE Delft. This will create the internal capability of the Academy, to enhance their capability and the credibility.

07 Water Security Awareness programs through the ongoing project on the Kid's Academy and the upcoming project on the Water Museum with the help of UNESCO.

Therefore, the Academy will transform itself from curriculum-based training to competency-based training program involving more with the industry with 70-20-10 learning model through Learning-by-Doing approach, and enhance eLearning platform so as to achieve the expected strategic results.

Whereas, academic pathway will remain for the international academic qualification towards our Technical Diplomas, and long-term programs by collaborating together with the reputed academic bodies.

Contributions to Water Security and Industry Advancement

" 40% Will face a shortfall between forecast demand and available supply of water by 2030 " (World Bank)

Water scarcity and sustainable management remain critical challenges for Saudi Arabia's long-term goals. A comprehensive understanding of national initiatives—especially those focused on economic diversification and human capital development in the water sector—is essential to tackle these effectively. While the central role of national initiatives is crucial, other efforts, such as those by the Water Academy, are equally impactful in addressing these challenges.

Developing National Expertise in Water Management

Throughout its history, the Water Academy has played a pivotal role in building national capabilities in the water sector. Over 101,500 individuals have been trained through comprehensive local and international programs covering critical areas such as desalination, water purification, wastewater management, and distribution.

Notably, more than 8,290 engineers and technicians have completed structured qualification programs, and over 7,690 professionals have been certified and are now contributing effectively across various roles in the sector.

By continuously investing in the development of its human capital, Saudi Arabia is ensuring a highly skilled and future-ready workforce, capable of managing and safeguarding the Kingdom's water resources in alignment with national sustainability goals.

Evolving with New Technology Trends

In collaboration with global partners, including industry specialists and prestigious training organizations, the Academy provides advanced, internationally recognized training programs aimed at enhancing local knowledge of cutting-edge technologies, including desalination, water transport and distribution, wastewater treatment, and water recycling. These initiatives focus on improving water use efficiency and minimizing waste, ensuring the continued strengthening of Saudi Arabia's water security. Furthermore, partnerships with global institutions help introduce innovative technologies and international best practices to professionals in Saudi Arabia, enhancing its capacity to address future water challenges.

Strengthening Global and Industry Partnerships

Strategic partnerships with leading organizations such as IX-META, IHE Delft Institute for Water Education, Oxford, CMI, LBS, as well as targeted collaborations with AMPP, DARCO Water Technologies, ENVIROCARE, DAYU Irrigation, BEWG, DHI and others, foster knowledge exchange and introduce the latest advancements in water management to professionals in Saudi Arabia. Additionally, collaborations with industry leaders like SIEMENS, ABB, KSB play a crucial role in driving innovation across desalination, water treatment, transmission, and renewable energy solutions, further supporting Saudi Arabia's sustainability objectives.

Fostering Public-Private Collaboration

Encouraging collaboration between stakeholders in both the public and private sectors is one of the Academy's primary objectives. Specialized training programs for contractors and professionals in the private sector focus on equipping them with the skills needed to successfully execute vital water projects.

HIGHLIGHTS OF TRAINING ACHIEVEMENTS OF 2024

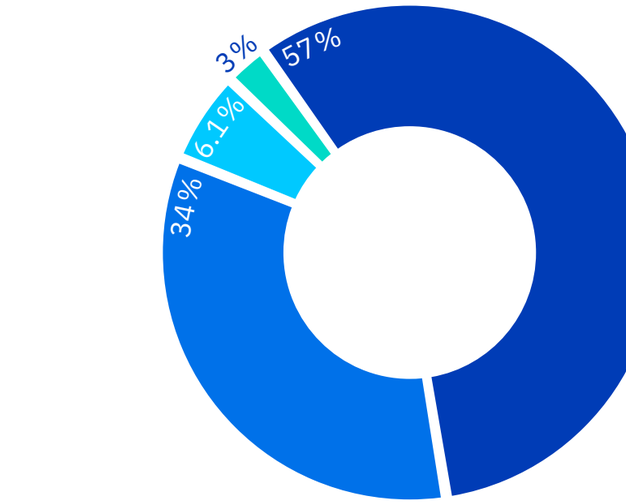


Figure 2. Trainees Rate Per Customers (Water Academy, n.d.).

In 2024, over 16,000 participants benefited from the Academy's training programs, with 57% representing professionals from the private sector. This underscores the Academy's strong commitment to developing a diverse and highly skilled workforce that effectively meets the evolving needs of the water sector. Figure 2 illustrates the distribution of training achievements by customer segments for the year 2024. Furthermore, the Academy's training programs reach other GCC nations fostering regional cooperation and strengthens water security across the Gulf. The GCC's accreditation further establishes the Academy as a leading provider of water sector training in the region.

Promoting Sustainable Water Practices

Sustainability is embedded in every training initiative, focusing on water conservation, management, and reuse. These efforts ensure that Saudi Arabia's water resources remain viable long-term while supporting broader environmental sustainability goals.

Advancing Water Treatment and Reuse Technologies

Training programs help professionals adopt the latest methods by staying ahead of emerging water treatment technologies. Emphasis on treated water reuse for agricultural and industrial applications reduces Saudi Arabia's reliance on natural sources, further boosting its water sustainability efforts.

03

HUMAN CAPITAL DEVELOPMENT IMPACT ON THE WATER SECTOR

The Water Academy is a leader in delivering specialized training, equipping professionals with the expertise required to excel in the evolving water sector. Its programs are strategically designed to address all stages of the water supply chain—Production, Storage, Transmission, Distribution, Treatment, and Reuse for Irrigation—ensuring a holistic approach to water management. By integrating theoretical foundations with real-world applications, the Academy aligns its training with modern industry needs and Vision 2030.

The Academy has made remarkable progress in capacity building, training over 16,000 individuals in 2024 across multiple sectors—almost threefold increase from 6,139 trainees in 2023. Over its 42-year journey, more than 101,500 trainees have participated in over 7,300 different training programs.

This growth is further illustrated by the continuous year-on-year expansion of its activities over the past decade. The number of courses increased from 192 in 2014 to 992 in 2024, while the number of trainees grew from 2,988 in 2014 to 16,375 in 2024, reaching 8,896 trainees by July-2025. These figures clearly reflect the Academy's accelerating trajectory in both training scale and sectoral impact.

Moreover, the Academy's influence extended beyond the Kingdom, particularly between early 2024 until July-2025, as more than 320 trainees from GCC countries participated in its programs. In addition, the Academy obtained over 15 international and local accreditations, underscoring its commitment to global standards, sustainable growth, and excellence in training delivery.

Training Programs Across the Water Supply Chain

Following Cabinet Decision No. 918 dated 7 May 2024, which transformed the Saline Water Conversion Corporation into the Saudi Water Authority and assigned it new national mandates—including capacity building across the water sector—the Water Academy expanded its training scope to cover the entire water supply chain, beyond desalination.

In alignment with the Authority's strategic direction, the Academy conducted a comprehensive sector-wide assessment in collaboration with the water sector key stakeholders. This effort resulted in a detailed capability and training needs profile, developed with input from a specialized technical committee representing key sector entities.

Based on this analysis, the Academy designed integrated training plans covering operational, technical engineering, sustainability, and administrative areas, in addition to internationally accredited executive programs. By July 2025, a total of 536 training programs had been delivered, benefiting over 8,700 participants from the Authority, its strategic partners, licensees, operators, and contractors—positioning the Academy as a key enabler of national talent development in the water sector.

Key Training Programs Across the Water Supply Chains:

01. Production

- Groundwater and Dam Water Resources
- Saline Water Desalination Technologies
- Reverse Osmosis Technology and Troubleshooting
- Pre-treatment Systems in RO Plants
- Advanced Membrane Technologies

02. Storage

- Pipeline SCADA Systems for Monitoring Storage
- Strategic Storage Tank Equipment Maintenance
- Corrosion Protection for Water Storage Systems
- Hydraulics and Water Storage Management

03. Transmission

- Water Transmission and Distribution Systems
- Advanced Pipeline Design and Maintenance
- Automation and Control in Water Transmission
- Pipeline Leak Detection and Repair
- Quality Monitoring in Transmission Networks

03
Key Training Programs Across the Water Supply Chains

04. Distribution

- Operation and Maintenance of Distribution Pumping Stations
- Pipeline Management and Maintenance in Distribution Networks
- Water Loss Analysis and Reduction
- Automation and Control Systems in Water Distribution
- Preventive Maintenance and Inspection in Distribution

05. Treatment

- Introduction to Water Treatment Technologies
- Applied Chemistry in Water Treatment
- Disinfection, Corrosion Control, and Odor Management
- Membrane Technologies in Water Treatment
- Integrated Quality Control and Laboratory Procedures

06. Reuse for Irrigation

- Cost-Benefit Analysis for Water Reuse Projects
- Sustainable Practices in Water Reuse
- Environmental Regulations for Water Reuse
- Reservoir Water Management for Irrigation
- Introduction to Water Reuse

The programs offered by The Water Academy deliver in-depth training designed to equip professionals with the necessary skills to optimize water management throughout the water entire lifecycle. This comprehensive educational approach encompasses a wide range of topics, ensuring that participants gain a thorough understanding of water treatment technologies, applied chemistry, disinfection methods, and sustainable practices in water reuse.

By continually updating and expanding its extensive curriculum, The Water Academy not only enhances the performance of the water sector but also promotes sustainability initiatives that are crucial for the future. This commitment to education and innovation solidifies the Academy's position as a prominent leader, both regionally and globally, in the field of water training. Through these programs, professionals are empowered to tackle the challenges of water management effectively, contributing to improved practices that benefit communities and the environment alike.

Water Academy Programs

The Water Academy provides an integrated training experience that incorporates the latest training and educational methods and aligns with the evolving demands of the labor market. Its programs are specifically designed to support the objectives of Vision 2030 while addressing the needs of the water sector. By combining advanced theoretical knowledge with hands-on training, the Academy ensures participants are fully prepared for their professional roles.

Table 3. The Programs of Water Academy

	Diploma Programs	Qualification Programs	Qualification Courses	Short / Development Courses
Description	An in-depth academic training program that includes specialized core streams and on-the-job training (OJT).	A comprehensive training program designed to qualify trainees for advanced operational or technical roles.	A specialized training program granting a professional/specialized certification in a specific field.	A short training program that provides a certificate of attendance or accreditation, focusing on specific skills.
Target Audience	High school graduates targeted for advanced qualification to work in the water sector.	High school graduates, diplomas holders, bachelor graduates (sponsored or individual).	Skilled workers seeking additional specialized certifications.	All technical and management professionals working in water-related industries.
Duration	From two to three years.	From one year to less than two years.	More than one month and less than one year, exceeding 60 hours.	1 Day – 1 Month, not exceeding 60 hours.

The Academy provides a variety of programs specifically designed to address the unique needs of various individuals and organizations. Among these offerings are developmental courses, qualification courses, qualification programs, training diplomas, and international programs. Each of these is aligned with the classification system established by the Technical and Vocational Training Corporation (TVTC) which is a government agency concerned with technical and vocational training in the Kingdom of Saudi Arabia since 1980.

The training initiatives targeting a wide range of participants, from freelancers and contractors to technicians, engineers, and senior leadership. This comprehensive approach underscores the Academy's commitment to enhancing human resource development within the water sector, which is crucial for promoting sustainability in this vital field.

This framework illustrates the structure of the training program pyramid, as shown in Figure 3. The training programs effectively represent the various levels of our training offerings. This diagram highlights how each program is structured to meet the specific needs of different target groups, ensuring a tailored approach to education and skills development in the water sector. (Water Academy, 2024).

Through these targeted training programs, the Academy aims to empower individuals and organizations alike, fostering a skilled workforce that is equipped to meet the challenges of today and tomorrow. Thus, we play a pivotal role in nurturing talent and facilitating growth within this essential industry. (Water Academy, n.d.).

Figure 3. Training programs pyramid by target audience (Water Academy, n.d.).

Leadership Programs

Leadership development plays a crucial role in fostering organizational growth and ensuring long-term sustainability. The Water Academy's leadership programs are strategically designed to enhance participants' ability to navigate the rapidly changing and dynamic business environment.

These programs focus on cultivating strong, adaptable leaders who are equipped to drive innovation, promote growth, and guide their organizations toward success. By refining essential leadership skills, the Academy ensures that participants are well-prepared to face challenges, seize opportunities, and accomplish their strategic goals. As part of the Academy's 2025 strategic plan, several leadership programs will be conducted, with the target of training 150 leaders across various sectors. (Water Academy, 2024).

The leadership program offerings at the Academy include:

Leadership and the Future Role:

A program aimed at developing middle management leaders, with a focus on preparing them to navigate future business challenges and evolve with the changing landscape.

Leading Change, Creativity, and Organizational Development:

Designed to enhance leadership skills in productivity, creativity, and driving organizational success through innovative strategies and effective management.

Executing Strategy for Results:

A course focused on strengthening participants' ability to think strategically, make data-driven decisions, and plan effectively to meet long-term organizational goals.

Financial Modeling:

This program helps leaders understand the financial dimensions of business decision-making, empowering them to drive sustainable growth through informed financial strategies.

Operational Excellence:

Focused on enhancing efficiency, quality, and overall operational performance, this program enables organizations to improve their processes and outcomes, contributing to their long-term success.

Public-Private Partnership (PPP):

A specialized program aimed at fostering collaboration between public and private sectors, focusing on how these partnerships can drive innovation, efficiency, and impact in water and infrastructure projects.

These leadership programs are designed to develop the next generation of leaders who will lead organizations through change, maximize their potential, and contribute to a sustainable and successful future. (Water Academy, 2024).

International Programs

In alignment with its mission to foster global expertise, the Water Academy offers international programs that focus on desalination technologies, operational excellence, and sustainability. These programs, led by industry experts, are designed to provide leaders with advanced knowledge and practical skills, supporting the continued growth and development of the global water sector.

Expanding its reach beyond Saudi Arabia, the Academy has delivered training programs across the Gulf Cooperation Council (GCC) countries. These programs have included tailored sessions to meet the specific needs of the region. Specialized training held in Oman has contributed to strengthening qualifications and skill development across the Gulf, reinforcing the Academy's commitment to regional collaboration and workforce advancement.

The programs are specifically crafted to support water sector leaders worldwide, cultivating essential skills in water management, environmental stewardship, and technological innovation. In total, eight international programs were delivered, engaging over 200 water sector leaders in 2024. The global program journey continues into 2025, offering a wide variety of programs. Below are some of the key programs that have been delivered:

Leadership programs offered by Water Academy in corporate with its partners

Charted Management Institute (CMI) Program: "Global Water Management"

This program aimed to enhance and build capacities to improve the sustainability and efficiency of global water supplies. It was designed to equip participants with the knowledge and tools necessary to manage water resources effectively, focusing on key aspects of water management to address global water challenges.

The second edition of the program was focused on developing leadership capabilities and refining skills in alignment with the best global practices in water management. It aimed to empower leaders in the water sector with the tools needed to improve their management strategies and contribute to the sustainable governance of water resources.

London Business School Program: "Operational Excellence"

This program targeted water sector leaders in Riyadh, focusing on enhancing operational efficiency and effectiveness. Participants learned how to design and implement professional strategies to optimize administrative and operational functions within the water sector. The goal was to enable leaders to streamline operations in response to the growing demands of the water industry.

David H. Paul Inc. Reverse Osmosis Programs: “Reverse Osmosis Challenges and Solutions”

Focusing on the technical challenges of reverse osmosis technology, this program provided solutions for its application in industrial water treatment. It was tailored for engineers and technicians working in industrial facilities, addressing common challenges in reverse osmosis systems. Building on the first edition, this program tackled advanced challenges related to reverse osmosis technology, emphasizing the development of participants’ skills to manage the evolving needs of the water treatment industry.

University of Oxford Program: “Design Thinking Practitioner”

As part of the Innovation in Water Sustainability Conference, this program aimed to introduce participants to the fundamentals of professional design thinking and innovation practices, with a focus on water sustainability. The goal was to help professionals in the water sector develop innovative, practical solutions to sustainability challenges, contributing to the conference’s broader objective of advancing water sustainability through innovation.

KPMG Program: “Sustainability Reporting According to GRI Standards”

This program equipped participants with the tools and knowledge needed to design and implement effective sustainability reporting frameworks in line with GRI (Global Reporting Initiative) standards. The program emphasized enhancing transparency and accountability in water sector operations, enabling participants to improve environmental, social, and governance (ESG) reporting strategies.

The previous international programs implemented in 2024 reflect the Water Academy’s commitment to fostering professional growth in the global water sector. Whether the focus is on enhancing leadership in water management, improving operational practices, addressing technical challenges in water treatment, or supporting sustainable business practices, each program plays a crucial role in developing the necessary skills for sustainable and effective water resource management. The aim is to equip professionals with the tools to ensure the future of water security, sustainability, and innovation, in alignment with global standards. (Water Academy, 2024).

Financial Modeling Program in the Water Sector

This program aimed to equip professionals in the water sector with essential financial modeling skills to evaluate projects, investments, and long-term strategies. Through hands-on experience, participants learned how to develop comprehensive financial models specifically tailored to the unique challenges of the water industry. Key topics covered included creating financial statements, projecting revenue and costs, and assessing project feasibility using methods like Net Present Value (NPV) and Internal Rate of Return (IRR).

Participants gained practical experience in building models using Excel, conducting scenario and sensitivity analyses, and designing interactive dashboards. The program focused on providing tools to enhance decision-making, improve financial performance, and support sustainable growth within the water sector. Held in February 2025, the program was aimed at professionals seeking to enhance their financial modeling capabilities, particularly for water-related projects, investments, and infrastructure, with the goal of improving financial planning and making informed strategic decisions.

Public-Private Partnerships (PPP) Program

The program aimed to provide participants with a comprehensive understanding of public-private partnerships (PPP) in the water sector. PPP refers to a collaborative relationship between the public and private sectors aimed at implementing a project or delivering a service traditionally handled by the public sector. The strength of PPP lies in leveraging the management skills and financial capabilities of the private sector, which creates greater value when effective cooperation between both sectors is achieved. In the water sector, PPPs can improve the quality, efficiency, and competitiveness of public services. They can also address the limitations in the public sector's capacity and provide additional financing in times of budget constraints. By utilizing the operational efficiencies of the private sector, PPPs can enhance service delivery and accelerate infrastructure development.

The program covered core concepts, strategies, and tools to equip participants with the knowledge needed to initiate and manage successful PPP projects. Topics included PPP negotiations, procurement procedures, preparatory work, and the legal and regulatory frameworks that support PPPs in the water sector. International case studies provided practical insights into how PPPs have been successfully implemented globally. Held on February 24, 2025, the program was aimed at professionals seeking to enhance their understanding and application of PPPs, with the goal of redefining value creation in the water sector through effective public-private collaboration.

Mastering Operational Excellence, KPIs, and OKRs for Strategic Transformation and Innovation

The program aimed to prepare leaders with the skills and knowledge necessary to drive operational excellence and strategic transformation in a rapidly evolving business environment. As advanced technologies such as artificial intelligence, digital transformation, Machine learning, and automation continue to evolve, organizations must align their strategies to ensure sustainable competitiveness.

The program focused on helping leaders address organizational challenges by adopting an operational excellence mindset and implementing frameworks that foster continuous improvement. The program primarily concentrated on performance management through Key Performance Indicators (KPIs) and Objectives and Key Results (OKRs). Participants learned how to select, define, and link KPIs and OKRs across the organization to improve performance, foster innovation, and achieve long-term strategic success.

Key topics covered in the program included understanding operational excellence, building a robust operational excellence program, selecting the right KPIs and OKRs, and monitoring performance using dashboards and visibility tools. The program also addressed best practices and core concepts in managing KPIs and OKRs, providing practical insights for leaders to drive organizational transformation effectively. The program was designed for professionals looking to enhance their leadership capabilities and ensure the success of their organizations through strategic performance management and operational excellence.

These programs are collaboratively developed in partnership with leading institutes and are rigorously reviewed by the Academy's expert technical committee prior to implementation. This ensures alignment with the highest standards of quality, relevance, and impact.

General and administration Programs

These programs are designed to enhance the overall administrative capabilities and leadership qualities within the water sector, addressing both current needs and emerging challenges in the field. The goal is to enhance the individuals knowledge and provide the necessary skills to tackle the complex challenges to improve the overall performance and ensuring resource sustainability.

Developmental Course

This course is a short-term training program lasting no more than one month, with a maximum of 60 training hours. It is designed to develop specific skills or competencies in a brief period, typically aimed at enhancing professional skills or updating knowledge. These show significant growth in both the number of programmes delivered and the number of trainees in 2024 compared to 2023.

This increasing trend reflected the rising demand for training and development within the sector, highlighting the importance of investing in continuous education to meet the evolving market needs. Through these programs, the Academy will build a new generation of effective leaders capable of making positive and sustainable changes in the community and contributing to the overall development of the water sector.

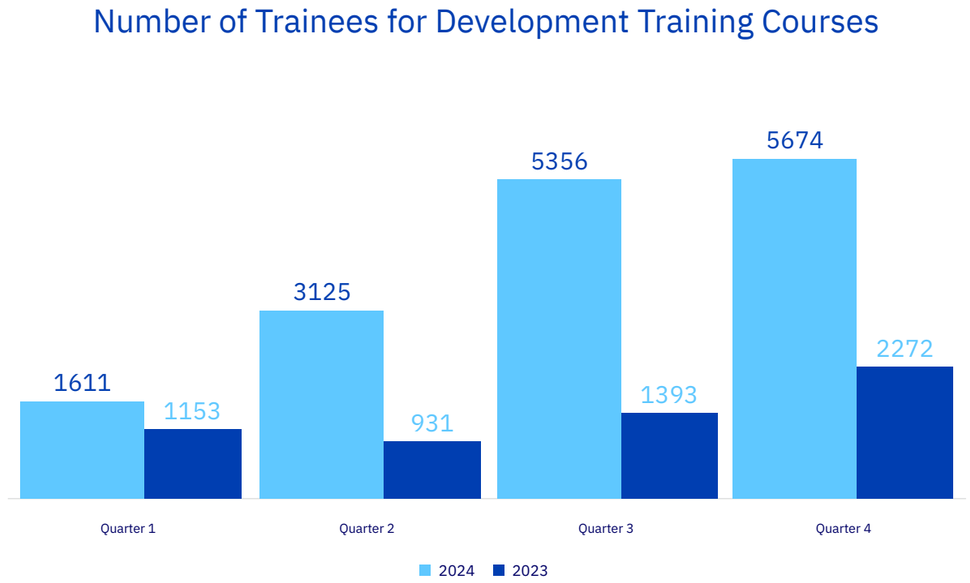


Figure 4. Number of Trainees and Number of training programs conducted in 2023 -2024 (Water Academy).

The Academy has implemented more than 7,430 development training programs, attended by over 92,850 participants between 1992 and July 2025. This achievement is illustrated in the following chart.

03
Developmental Course

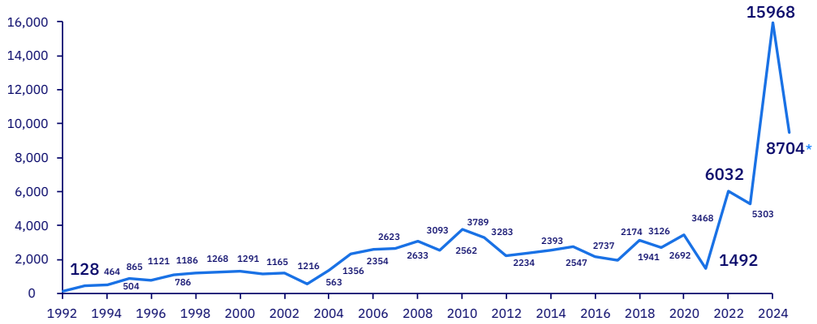


Figure 5. Number of participants in the development courses 1992 – July 2025 (Water Academy, n.d.). * The end of July 2025.

This significant engagement highlights the Academy's commitment to providing educational and developmental opportunities to diverse audience. The impact of these programs is further illustrated in the Line graph, which visually represents the growth and reach of the Academy's initiatives over the the last 22 years. The chart also shows the growth of the Academy's initiatives and the increases efficiency and effectiveness in areas of need over the specified time period.

Qualification Course

This course lasts less than a year and includes more than 60 training hours. It provides foundational knowledge and skills for specific professions or tasks, being more extensive and comprehensive than a developmental course. For these courses, the number of trainees increased from 343 in 2023 to 368 in 2024.

The Water Academy offers a diverse range of qualification courses designed to address both current and future challenges in the water sector. Notable programs include:

Integrated Training Program for Military Sector Participants (Navy), covering RO plant operation and maintenance, disassembly and maintenance of electrical equipment, air conditioning system troubleshooting, plumbing systems installation, and essential occupational safety and health skills.

Summer Field Training for university students focused on the design, installation, operation, and maintenance of solar and photovoltaic systems.

"Water Auditor" program, which prepares specialists to identify and detect water leakage issues, aligned with the goals of the Saudi Water Authority.

"Summer Technical" Training for university and applied sciences students in the field of electrical systems, coordinated with academic institutions to meet job market needs.

"Water System Management and Application" Program, delivered in cooperation with the Regulatory Affairs Sector, training dozens of future inspection officers in the water sector.

"Youth SWA Leadership" Program, developed in partnership with Saudi Universities including Imam Abdulrahman Bin Faisal University, aimed at cultivating leadership skills in high school students interested in the water sector.

These qualification courses reflect the Academy's commitment to developing specialized talent equipped to meet evolving sector demands and contribute meaningfully to national goals.

Engineers, Technicians and Operators Programs

These programs are meticulously tailored to provide professionals with the advanced technical knowledge and practical hands-on experience that are essential for excelling in specialized roles within the water sector. Recognizing the complexities of contemporary water management, the Academy designs its curricula to address a wide range of topics, including sustainability practices, innovative technologies, and regulatory frameworks.

By participating in these programs, individuals not only gain critical insights but also develop the skills necessary to effectively navigate the dynamic challenges posed by modern water management. This comprehensive approach ensures that participants are well-prepared to contribute to the field, enhancing their professional capabilities and fostering a culture of excellence in water resource management.

Qualification Program

The Qualification Program is an advanced training option that offers deeper and more comprehensive training compared to foundational qualification courses. It combines both theoretical and practical learning to prepare individuals for specialized roles and professions. The program targets engineers and technicians, equipping them with the necessary skills to work across a wide range of specializations required in the water sector.

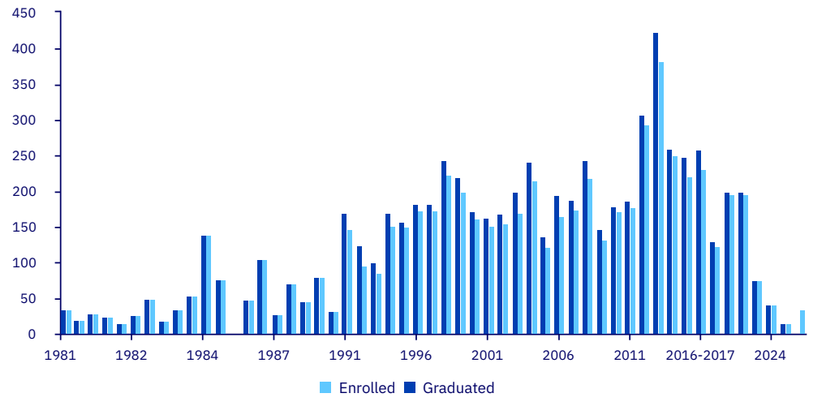
These specialized qualification programs play a crucial role in preparing the workforce to meet the demands of the modern labor market. These programs contribute to driving innovation, research skills, and economic development by empowering individuals with advanced skills.

Over the years, various batches of engineers, technicians, and operators in the water sector, including professionals from major companies like Aramco, SABIC, and Advanced Petrochemical, have been trained. They were provided with the knowledge and skills required for fieldwork, enabling them to become active contributors in their respective fields and sectors, especially in the water sector of Saudi Arabia.

Since its establishment in 1982, the Academy has conducted more than 39 training courses for engineers, benefiting over 1,730 engineers between 1990 and 2024. Additionally, more than 53 specialized programs for technicians and operators have been delivered, benefiting over 6,550 participants. These efforts have resulted in the graduation and employment of over 6,069 technicians and 1,625 engineers in various water plants and facilities across Saudi Arabia. This achievement underscores the Academy's strong commitment to developing human capital within the water sector.

As the water sector continues to evolve, ongoing training and development will be essential. The Qualification Program aims to adapt new technologies and industry trends, ensuring that trainees remain competitive and proficient. By fostering a culture of continuous improvement, the Academy not only enhances individual capabilities but also contributes to the overall advancement of the industry. This commitment to excellence positions the Academy as a leader in workforce development, paving the way for a sustainable future in the water sector.

The number of technician assistants and operators enrolled in and graduated from the qualification courses at the academy



The number of engineers enrolled in and graduated from the engineering qualification programs at the academy

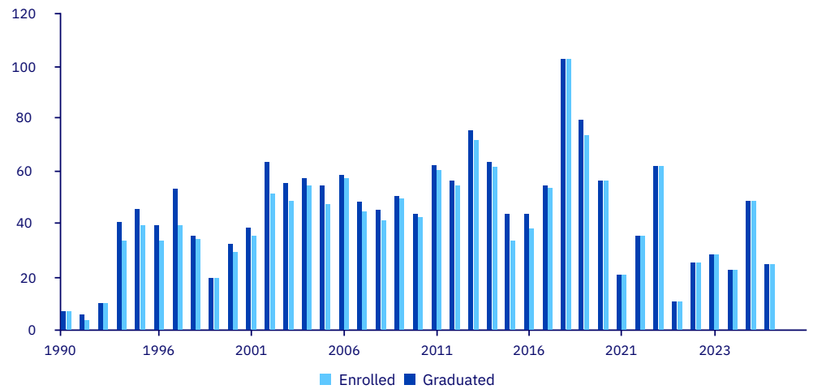


Figure 6. Number of engineers and technicians in the qualification courses

Training Diploma

This technical diploma program lasts between two to three years and provides a comprehensive understanding of a specific vocational field. The program is designed to prepare individuals for Advanced technical role in their professions, requiring an extensive and thorough training period. The Water Academy offers a diverse range of diploma specialties. In 2024, the Academy successfully implemented a two-year Diploma Program in “Water Production Systems Operations”, resulting in the graduation of 16 participants after completing the Water Operator Program. The primary objective of this program is to equip participants with the essential knowledge and skills required to operate and maintain water production systems efficiently. The Water Academy signed an agreement with the Human Resources Development Fund (Hadaf) which is an umbrella for the programs and products that allow the provision and exchange of guidance, training and empowerment services efficiently and effectively to increase the stability and development of the workforce in the Saudi labor market to train 300 trainees with a total financial support of 43 million Saudi Riyals. This agreement strengthens the prospects for future diploma programs and encourages Saudi youth to engage in these programs, preparing them for their future professional careers.

The Water Academy has begun collaborating with manufacturers in the water sector to implement future diploma programs for specialists in this vital field. Among the collaborative partnerships, the launch of the “Pump Manufacturing” diploma program in collaboration with the German company KSB has been announced and commenced at the beginning of 2025. The program is designed to provide intensive training to equip trainees with specialized technical skills in pump manufacturing, while offering employment opportunities upon graduation. The program aims to localize knowledge, enhance technical expertise, and create high quality job opportunities for youth in the water and industrial sectors.

Currently, the Academy is also executing the “Occupational Safety and Health” diploma program in collaboration with ILF Consulting Engineers, which includes direct employment prospects following the training period. Furthermore, coordination is underway with several partners in the water sector to develop additional diploma programs in collaboration with Al-Khorayef Company and Nesma Company.

Professional Individuals Certification

Specialized Program

The Water Academy successfully conducted several professional certification programs aimed at enhancing the skills and qualifications of professionals across various sectors, benefiting over 210 participants in 2024. These programs included the Risk Management Professional certification, offered in two sessions during July and September. The Academy also hosted the Certified Risk Management Professional (CRMP) certification, with sessions held in October and November.

The Governance, Risk, and Compliance Professional (GRCP) certification was conducted in December, further contributing to the development of expertise in compliance and governance. Additionally, the Academy offered programs focused on Solar Cell Design and Solar Cell Installation, addressing the region’s growing demand for renewable energy solutions. These sessions were held throughout the year.

Moreover, the Academy delivered specialized programs such as the Project Management Professional (PMP) certification and the Reverse Osmosis (RO) Specialist – Engineer Training and Certification Exam, and the Certified Wastewater Collection and Treatment System Specialist (CWCTS) training and certification exam. To further enhance its technical training portfolio, the Academy organized a specialized session on Dismantling and Installing Membranes.

These initiatives underscore the Academy’s commitment to providing advanced professional training, thereby equipping individuals with the essential skills required to meet the evolving demands of the water, energy, and renewable sectors.

Environment, Safety and Industrial Security Programs

The Water Academy features fully equipped and specialized facilities in safety and firefighting, designed with the latest technologies and advanced infrastructure to provide comprehensive training that combines both theoretical and practical aspects. This state-of-the-art facility creates a realistic training environment, allowing trainees to experience programs in safety, environment, and industrial security, in addition to training in rescue, firefighting, and rapid response in emergency situations. This ensures that trainees are well-prepared to handle critical situations with efficiency and professionalism.

In safety, environment, and industrial security programs, the Water Academy are fully committed to promoting environmental sustainability while prioritizing the well-being of the workforce. These initiatives are designed to foster sustainable practices, minimize environmental impact, and enhance safety standards across various industrial environments. The Water Academy's strong commitment to safety, environment, and industrial security is demonstrated through the continuous focus on promoting environmental sustainability while ensuring the health and well-being of the workforce. These initiatives are designed to encourage sustainable practices, minimize environmental impacts, and achieve the highest safety standards across various industrial environments.

Safety programs, that include:

Confined Space Rescue Emergency Response, Technical Rescue Level 1, Public Safety Telecommunications Level 1 (according to NFPA 1006)

Professional Qualifications for Fire Investigator (NFPA 1033)

HAZMAT Training Levels 1, 2, and 3

Firefighting Practical Training for Sadara Chemical Company's firefighting and rescue team, with various fire scenarios for hands-on experience.

"Enhancing Security Culture in Safety", in collaboration with the Executive Directorate of Industrial Security, which focuses on improving safety protocols and securing facilities from potential risks.

Specialized firefighting training for 32 trainees from Sadara Chemical Company, enhancing emergency response through simulation scenarios

"Enhancing Sustainability", developed in partnership with Schneider Electric and presented at the COP16 conference. This program emphasizes advanced technologies to combat desertification and ensure the long-term sustainability of water resources.

Environmental programs, that include:

- "Introduction to Renewable Energy"
- "Design of Grid-Connected Solar PV Systems"
- "Installation of Grid-Connected Solar PV Systems"
- "Design of Off-Grid Solar PV Systems"
- "Installation of Off-Grid Solar PV Systems"
- "Economics and Feasibility of Solar Photovoltaic Energy"
- "Occupational Safety and Health for Ground-Mounted Solar PV Installations"
- "Occupational Safety and Health for Rooftop Solar PV Installations"
- "Solar Energy Mathematics and Calculations"
- "Operation and Maintenance of Solar PV Systems"
- "Photovoltaic Design – (PVD K.A.Care Certified)"
- "Photovoltaic Installation – (PVI – K.A.Care Certified)"

The Solar Energy Programs provide essential training on various aspects of solar energy. Participants start with an introduction to renewable and non-renewable energy sources, which helps them understand the benefits and challenges of different energy types. They then learn about the design of off-grid solar energy systems, focusing on creating efficient setups for remote areas. Finally, the program covers the operation and maintenance of solar energy systems, teaching skills needed to ensure these systems work reliably over time. Trainees will gain a solid understanding of solar energy technologies and practical skills for designing, operating, and maintaining solar systems. This training will help the participants become advocates for sustainable energy practices, contributing to environmental conservation.

Freelance Professions in the Water Sector

Freelance professions have become an essential part of the water sector, especially with the increasing demand for specialized skills. Independent professionals offer flexibility and valuable expertise in various critical services that contribute to water conservation, treatment, and distribution projects.

The Water Academy offers specialized training programs for freelance professionals, ensuring they acquire the latest knowledge and skills in areas such as advanced water treatment technologies, environmental standards, and compliance verification. This training enables these professionals to adapt to industry developments and meet project needs efficiently.

Key Roles and Contributions of Freelance Professionals:

Water Efficiency Auditing:

Freelancers in this area conduct comprehensive assessments to identify water losses, leaks, and inefficiencies in urban infrastructure and residential areas.

Technological Development:

Freelancers specialize in modern water technologies such as desalination, filtration techniques, and sustainable irrigation systems. These professionals play a crucial role in driving innovation and applying the latest standards in water projects.

Water Auditors in the Water Sector

The Water Academy offers specialized training programs that equip water auditors with the theoretical and practical skills necessary to accurately assess water systems. The Academy collaborates with the National Water Efficiency and Conservation Centre (MAEE) to ensure auditors are trained according to the latest standards in leak detection techniques, water efficiency, and compliance with regulations. Through certification programs, auditors enhance their capabilities and offer practical solutions in water management.

Roles and Contributions of Water Auditors:

Leak Detection and Water Loss Prevention:

Water auditors assess infrastructure in urban and residential areas to detect leaks or inefficient systems. They use advanced techniques like water balance studies, pressure monitoring, and thermal imaging.

Water Consumption Efficiency:

Auditors play a significant role in improving water consumption efficiency by providing solutions to reduce waste and improve resource management.

Compliance Officers in the Water Sector

Compliance officers in the water sector ensure that organizations adhere to local water-related standards and regulations. These officers play a vital role in maintaining the integrity of the water ecosystem and ensuring that operations are conducted in compliance with legal and environmental standards. The Water Academy plays a crucial role in training compliance officers through specialized programs that cover laws, standards, and best practices in this field. Officers are trained on monitoring systems, which helps enhance their risk management skills and ensures quality assurance, enabling them to uphold the highest water management standards.

Roles and Contributions of Compliance Officers:

Regulatory Compliance Monitoring:

Compliance officers are responsible for monitoring water operations to ensure they align with local and international regulatory standards. This includes conducting audits, inspections, and periodic reviews of water use and quality in plants and networks.

Quality Assurance:

Compliance officers oversee the monitoring of water quality at all stages of treatment, ensuring that processes comply with health and environmental safety standards. They work closely with technical teams to ensure that treatment plants and distribution networks meet the highest quality standards.

These initiatives reflect the unwavering commitment to promoting sustainable energy solutions and advancing environmental responsibility across various industries. (Water Academy, 2024).

Success Stories

Water Academy's Success in Building National Capacities

Based on available estimates and data, the Water Academy has achieved remarkable success in building capacities and supporting the development of human resources in Saudi Arabia's water sector. Since its establishment, more than 101,500 beneficiaries have participated in various training programs offered by the Academy. Among them, a selected group of skilled professionals has been appointed to key leadership positions in the water sector and private companies.

03
Water Academy's Success in Building National Capacities

Additionally, over 1,600 engineers specializing in various fields have graduated and been employed in leading positions across water sector plants and facilities. More than 6,060 operators and technicians have also graduated in diverse specialties and were employed in critical roles within the sector.

These efforts have significantly contributed to increasing the nationalization rate, knowledge transfer, as well as the management, operation, and maintenance of the sector's plants and facilities with qualified Saudi expertise and competencies. Notably, the local content ratio in water sector has reached 65.13%, surpassing Vision 2030's target of 70% five years ahead of schedule. This remarkable achievement is driven by Saudi expertise, with a 98% localization rate in the workforce, a milestone directly supported by the training initiatives of the Academy.

The Academy's success has not only elevated local expertise but also paved the way for groundbreaking initiatives, ensuring the Kingdom's commitment to accelerating the localization of supply chains, services, and human resources. This focus on capacity building has been instrumental in creating a more resilient and sustainable water sector.

Evaluation of Training Program Quality and Effectiveness

The Post Training Feedback of the trainees conducted by the Water Academy from 2012 to 2024 reveals a generally positive trend in the quality and effectiveness of the Academy's training programs. The data shows a slight fluctuation in the ratings over the years, with the highest score recorded in 2022 at 95.29, demonstrating the Academy's ongoing commitment to excellence and continuous improvement.

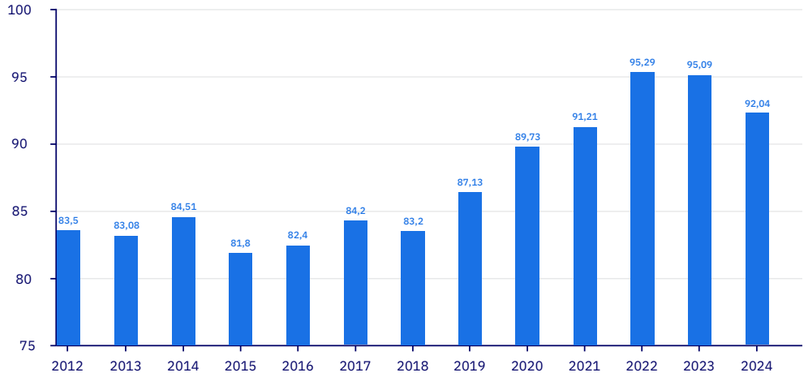


Figure 7. Evaluation of training courses between 2012-2024 (Water Academy).

In 2024, the Water Academy exceeded its satisfaction target of 80%, achieving an overall satisfaction rate of 92%, based on 14,758 surveys with a 93% response rate. This drop is attributed to the update and enhancement of the program evaluation questionnaire assessment tools, as well as the significant expansion in the scope of participants included in the survey. The 2024 evaluations covered a wide range of programs, including developmental programs for the Saudi Water Authority's staff and partners, training programs for private sector companies operating in the water sector, qualification programs for Water Treatment Plant Operators, and participants in diploma programs.

03
Evaluation of Training Program Quality and Effectiveness

Over the course of the evaluation period, the Academy has consistently met its goal of providing high-quality training, adapting to the changing needs of the water sector, preparing professionals to address emerging challenges. The data indicates that the Academy continues to grow in both performance and quality. In order to ensure high satisfaction levels consistently, the Academy has continued investing in upgrading training infrastructure, including advanced technologies in training facilities, workshops. Additionally, the development of the e-learning management system has further supported the delivery of high-quality training while enhancing accessibility and engagement.

Development of the Training Programs Pyramid

One of the Academy's major projects was the development and implementation of the training programs pyramid, a comprehensive framework that guides the Academy's strategy and defines the diverse groups it serves. By aligning its offerings with this structured framework, the Academy has solidified its role as a key contributor to workforce development, ensuring that its programs address the unique needs of every stakeholder.

The Academy successfully delivered training programs addressing the needs of the water sector's supply chain. These programs covered critical areas such as water production, transmission, strategic storage, distribution, collection, treatment, and reusing treated water for irrigation. A significant highlight was the introduction of professional certifications for specialists in Reverse Osmosis systems, as well as training for Water Auditors and Enforcement Compliance Officers to meet emerging sector demands.

Training contract services for the Water Private Sector Companies

As part of its efforts to strengthen partnerships with the private sector and enhance operational efficiency in the water sector, the Water Academy implemented tailored training programs for companies responsible for the operation and maintenance of water and wastewater services. These efforts align with the geographic operational model adopted by the National Water Company (NWC), which divides service areas into six operational zones known as clusters, as follows:

- South Cluster
- North Cluster
- West Cluster
- Northwest Cluster
- Central Cluster
- East Cluster

In this context, the Academy established training partnerships with several private companies operating within these Clusters and delivered specialized training programs aimed at developing the technical and operational competencies of their workforce. Key collaborations include:

ERWAA Water – Central Cluster:

A joint venture between Veolia and Alkhorayef Water & Power Technologies (AWPT). The Academy delivered advanced training programs designed to enhance operational and maintenance capabilities in line with sector requirements.

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Training contract services for the Water Private Sector Companies

International Water Partners (IWP) – Northwest Cluster:

A consortium consisting of Manila Water, Saur, and Miahona. The Academy collaborated with this consortium to implement specialized training programs focused on workforce development and operational excellence.

Aqualia – South Cluster:

Led by the Spanish company Aqualia, in partnership with Acciona and two Saudi companies, Tawzea and HAACO. The Academy provided comprehensive professional training programs to enhance the readiness and technical capabilities of their staff.

Western Region Company for Water Transmission and Distribution (WWC) – West Cluster:

A consortium comprising Suez, Al-Awael Modern Contracting Company, and Civil Works Company (CWC). The Academy supported this consortium with targeted technical and operational training programs aligned with institutional performance requirements.

International Water Distribution Company (TAWZEA):

The Academy also provided training services to personnel of TAWZEA, reinforcing its role in supporting operational entities across Clusters.

Through these strategic partnerships, the Water Academy continues to play a vital role in empowering national talent and building workforce capabilities across the water sector, contributing to the enhancement of the quality and efficiency of services provided to beneficiaries.

Water Academy’s Programs for Future Genertion

The Water Academy’s specialized training programs extend across various age groups, empowering individuals to become part of the water sector, where the future is shaped through sustainable solutions. This is part of the Academy’s ongoing efforts to equip the water sector with knowledge and sustainable development.

Kids Academy

The Kids Academy aims to foster advanced childhood development by providing modern methodologies and programs that build a promising generation with exceptional talents and capabilities.

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Water Academy's Programs for Different Age Groups

SWA Youth Leadership Program

The Academy focuses on the younger generation by offering a leadership program designed to provide the expertise necessary to qualify future leaders and train them for leadership roles in the sector.

Summer Internships

The Academy offers summer programs for university students across various disciplines, aiming to qualify human resources through practical and hands-on experience within the Academy's facilities.

Entry-level Training Programs

The Academy organizes intensive training programs to train and develop engineers and operators according to labour market needs, ensuring the qualification of professional expertise that guarantees the sustainability of the sector.

Upskilling & Reskilling the Employees

Existing employees attend the training programs regularly in the Academy to remain compent throughout their employment life-cycle.

Academy Ambassadors

These are distinguished alumni of the Water Academy (formerly the Training Centre of SWCC) who have risen to senior leadership positions within the water sector, private sector, and industry. As role models, they inspire and motivate younger generations to strive for greater achievements. The Academy provides a clear and supportive pathway from the early stages of training to leadership roles, ensuring that its programs nurture talent and prepare individuals for impactful careers. This commitment ultimately shapes the next generation of leaders in the water sector.

Kids Academy – Planting the Seeds of the Future Today

At the forefront of the Kingdom's vision to build a sustainable knowledge-based economy grounded in training and innovation, KIDS Academy emerged as one of the most distinguished educational and pioneering training initiatives under the umbrella of the Water Academy. The academy aims to empower the next generation with the tools and methodologies of tomorrow by enhancing their skills, focusing on STEM, programming, artificial intelligence, water, and environmental sustainability.

From Vision to reality: A Journey of Transformation

What began as an ambitious idea has evolved into a national model of educational excellence to be emulated. The academy placed children at the center of the learning and training process, leveraging:

- Innovative educational methodologies based on exploration, interaction, and play.
- Global partnerships to provide cutting-edge and advanced learning tools and technologies, such as LEGO robotics, virtual and augmented reality, and advanced scientific sensors.
- A holistic curriculum tied to real-life topics such as water, energy, and the environment.

Innovative Programs That Make a Difference

The academy's programs are designed to cater to various age groups, with a strong emphasis on hands-on, experiential learning، practical training:

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Kids Academy – Planting the Seeds of the Future Today

- Robotics and programming using tools such as KUBO, Sphero, and Spike Prime.
- Interactive learning through VR virtual reality, simulating scenarios addressing water management and sustainability solutions.
- Innovative Scientific experiments like the “solar energy connectivity” and the “green house” to explore energy and sustainable agriculture.
- Sensor-based learning for measuring temperature, CO_2, O_2, and pH levels in real-time environments.

Measurable Results and Broad Impact

Between 2024 and 2025, Kids Academy actively participated in major national events, including Environment Week and National Utilities Day, attracting over 2,100 participants from diverse age groups and regions.

A collaborative summer program was also delivered in partnership with Imam Abdulrahman Bin Faisal University, providing over 25 students with hands-on training in STEM, water and environmental skills—reshaping their perceptions of science and the water sector.

Sustainability at the Core

The academy goes beyond skills development by promoting environmental awareness and social responsibility through:

- Interactive learning modules on water and energy conservation.
- Student-led applied projects fostering real-world problem-solving.
- Laboratory-based experiments exploring environmental factors and their impact on daily life.

Strategic Partnerships That Drive Excellence

Kids Academy’s impact is reinforced through collaborations with leading educational and technological institutions, including:

- KAUST – for advanced scientific content and learning.
- Imam Abdulrahman Bin Faisal University – supporting seasonal and summer programs.
- ATLAB provider – offering cutting-edge tools and educational technology solutions.

A Sustainable Strategic Impact

- Building a generation of innovative thinkers and scientific problem-solvers.
- Encouraging interest in future-focused disciplines like water technologies and environmental science.
- Contributing to the Kingdom’s transition toward a sustainable, knowledge-based economy.

Solid steps creating future leaders:

Kids Academy is more than an educational initiative—it’s a national movement to prepare tomorrow’s leaders with the knowledge, skills, and environmental values they need to thrive in a fast-changing world. By integrating science, technology, and sustainability, the academy is planting the seeds of innovation and responsibility in young minds today—for a better, smarter tomorrow.

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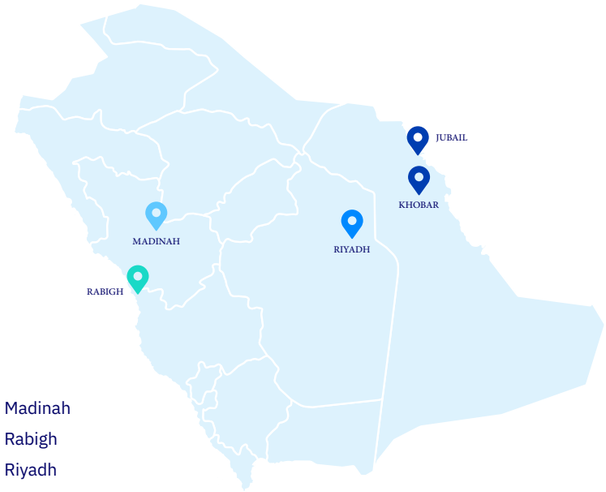
WATER ACADEMY: INFRASTRUCTURE INNOVATION AND NATIONAL REACH

The Water Academy has a rich history in Jubail, encompassing a range of buildings and specialized facilities, including state-of-the-art workshops. In line with its strategic expansion plan, the academy is committed to extending its reach across various regions of the Kingdom, offering high-quality training programs.

The Branches of the Academy:



- Water Academy in Madinah
- Water Academy in Rabigh
- Water Academy in Riyadh
- Water Academy in Khobar
- Kids Academy

Water Academy Headquarters - Jubail

For over four decades, the Water Academy in Jubail has established itself as a premier institution for training in the water sector. Its expertise spans a wide range of disciplines, including water desalination, purification, transportation, storage, distribution, wastewater treatment, firefighting, rescue operations, safety, health, environmental sustainability, and clean energy, in addition to engineering fields such as electrical, mechanical, instrumentation, and operational technologies.

The academy's main campus features a fully integrated infrastructure designed to deliver a world-class training experience that blends theoretical instruction with practical applications. Key elements of this infrastructure include:

Modern buildings equipped with cutting-edge technologies.

Sports facilities, landscaped gardens, and recreational areas.

Advanced testing centers supporting professional certifications.

Restaurants, cafés, and ample parking facilities to ensure convenience and accessibility.

Advanced Learning Spaces and Classrooms

Specialized Training Facilities

The campus is home to multiple purpose-built training buildings, each designed to support diverse instructional needs:

Building 1:

- 17 classrooms (18 trainees each)
- 3 VR-enabled classrooms (10 trainees each)
- 1 seminar room (35 seats)
- 1 Process Simulator Training Facility for Reverse Osmosis and CCGT Plant (10 Trainees)
- 6 hands-on maintenance workshops (12 trainees each)

Building 2:

- 2 seminar classrooms (50 trainees each)
- 1 seminar classroom (35 trainees)
- 2 seminar classrooms with auditorium-style seating (70 trainees each)

Building 3:

- 4 classrooms (22 trainees each)
- 1 classroom (25 trainees)
- 1 seminar classroom with auditorium-style seating (70 trainees)

Academy’s Auditorium

The academy’s auditorium, with a seating capacity of up to 700 people, serves as a central venue for large-scale events such as lectures, seminars, and conferences. Equipped with advanced audiovisual technology, it ensures seamless communication and delivers a high-quality experience for both speakers and attendees.

Smart Learning Environment

All classrooms are outfitted with interactive intelligent screens, eliminating the need for traditional paper-based methods. This paperless system promotes dynamic, real-time interaction between instructors and trainees, enhancing engagement, collaboration, and overall productivity.

Accommodation & Student Services

For trainees requiring on-campus lodging, the academy provides 240 fully serviced rooms, offering a comfortable and supportive environment that enables participants to focus entirely on their learning. A fully equipped canteen delivers nutritious meals to sustain student well-being throughout their training journey.

Through continuous infrastructure enhancements and the integration of the latest educational technologies and industry standards, the Water Academy remains committed to delivering a holistic, innovative, and globally benchmarked training experience designed to meet the evolving demands of the water sector and beyond.

WATER ACADEMY: INFRASTRUCTURE, INNOVATION, AND NATIONAL REACH

Simulators and Innovative Training Technologies

The Water Academy has adopted cutting-edge technologies and simulation-based training tools to enhance the learning experience and build practical competencies for the water sector workforce. These innovations are central to bridging the gap between theoretical knowledge and real-world application, ensuring a future-ready and technically proficient workforce.

Virtual Reality (VR) Training Rooms and 3D Workshops

Two state-of-the-art interactive VR training rooms have been established to offer immersive learning experiences across key specializations, including Electrical, Mechanical, Instrumentation, Operations, and Simulation. These VR modules simulate real plant environments, allowing trainees to perform operational and maintenance tasks in a safe, interactive setting.

Each specialty includes comprehensive training scenarios:

- Electrical: VFD, Circuit Breaker, Capacitor Bank, High Pressure Motor, Soft Starter, Power Transformer.
- Instrumentation: Differential Pressure Transmitter, Pressure Transmitter, Flowmeter, Level Transmitter, Temperature Transmitter, Level Switch, Actuator.
- Mechanical: High Pressure Pump, RO Membrane, Energy Recovery Device, Plug Valve, RO Pump.
- Operations: Start-up and Shutdown Scenarios.

- Simulations: Complete reverse osmosis (RO) process simulation covering Intake, Chemical Dosing, DAF, DMF, Cartridge Filtration, RO Membrane Operation, Post-treatment, and Remineralization

These interactive training tools allow learners to engage with complex systems and develop operational insight under guided scenarios, reinforcing both safety and competence.

Simulation Training Programs

The Water Academy has developed high-fidelity simulators that recreate critical water treatment and operational systems, offering trainees realistic crisis scenarios including system failures, leakages, contamination events, and service interruptions. This method enhances trainees' ability to manage emergencies, make critical decisions, and operate under pressure.

The simulation programs are structured into four progressive levels:

- Basic: Introductory modules covering system components and initial response procedures.
- Advanced: Intermediate-level coordination scenarios simulating multi-station system integration and troubleshooting.
- Expert: High-stress simulations reflecting major system failures or contamination events to build field leadership and technical communication skills.
- Master: Strategic-level simulations targeting leadership roles, including governance, corporate communication, and high-level crisis management.

It was proven that simulation-based training improves emergency response performance by more than 40%, significantly enhancing operational readiness and team effectiveness.

Current simulation workshops include:

- Reverse Osmosis & Combined Cycle Power Plant Simulation: Focused on RO and combined cycle operations to build practical and scientific competence.
- Multiple Effect Desalination Simulation: Designed to train on the operation of multi-effect distillation plants Future simulation expansion is underway in domains such as water transmission lines and water distribution networks.

Immersive Dome Technology

The Water Academy has introduced dome-based immersive learning to present technical content in an engaging and interactive format. Using panoramic projection within a semi-spherical dome, this technology allows trainees and visitors to experience technical and operational processes through dynamic 3D visualizations and interactive storytelling. Dome presentations are used both in training and public awareness settings, particularly during exhibitions and events, offering an innovative fusion of education and entertainment.

Renewable Energy Laboratory

To promote sustainability, the Academy established a Renewable Energy Lab equipped with various systems for solar and wind energy generation. The lab features solar panels with different technologies and a wind turbine unit, allowing trainees to gain hands-on experience in design, installation, and operation of renewable energy systems.

Computer Labs

Modern computer labs are fully equipped with high-spec machines and industry-standard software such as PVSYST, SketchUp, AutoCAD and Revit . These labs are used to train participants on designing RO systems, solar panel configurations, and other technical projects. Training spans from basic computer skills to advanced system modeling and simulation.

Specialized Labs and Technical Workshops (Building 1 & 2)

The Water Academy boasts 26 fully equipped, purpose-built laboratories and workshops across two buildings—an industry-leading infrastructure designed to deliver immersive, hands on training with cutting-edge tools and technologies. These facilities exemplify the Academy's strategic strength in translating academic theory into real-world technical expertise, preparing trainees for high-demand careers in water management, process engineering, instrumentation, and industrial systems.

Core Technical Facilities: (The Academy's facilities span key technical disciplines):

Measurement & Control Systems Workshop

Provides training in precise measurement of pressure, flow, levels, and temperature. Trainees learn to design, operate, and troubleshoot closed-loop control systems.

Mechanical Workshop

Equips trainees with fabrication and machining skills, interpretation of engineering drawings, use of measurement tools, and understanding material properties.

HVAC & Refrigeration Simulation Workshop

Delivers practical experience in air conditioning systems, refrigeration maintenance, and compressor diagnostics through lifelike simulation environments.

Electric Motor Control Workshop (Drive Motor Lab)

Focuses on configuring and controlling various motors via hands-on experiments, reinforcing understanding of motor behavior and control logic.

WATER ACADEMY: INFRASTRUCTURE, INNOVATION, AND NATIONAL REACH

Electrical Protection Lab (Workshop)

Offers experiments in protection systems—overcurrent, voltage fluctuation, and differential protection—for real-world fault preparedness.

Electrical Wiring Installation Workshop

Covers residential and industrial wiring methods, including practical exercises in circuit building and safety compliance.

Electrical Equipment Workshop

Includes training boards and measurement devices to build diagnostic and operational expertise across electrical systems.

Electrical Control Panel Simulation Lab

Simulates generation unit synchronization with grid systems, encompassing protective interlocks and operational control scenarios.

Electrical Equipment Repair Workshop

Teaches motor servicing, circuit breaker troubleshooting, and fault analysis in wiring systems.

Electronics Basics Lab

Covers analog and digital circuit design, soldering, PCB assembly, and circuit diagnostics.

Instruments Calibration & Inspection Lab and workshop

Trains in precision calibration, configuration verification, and communication protocols for smart instrumentation.

Instrumentation & PLC Workshop

Focuses on valve assembly, PLC programming, and resolving control system issues through practical exercises.

Applied Process-Oriented Facilities:

Water Quality & Chemistry Lab

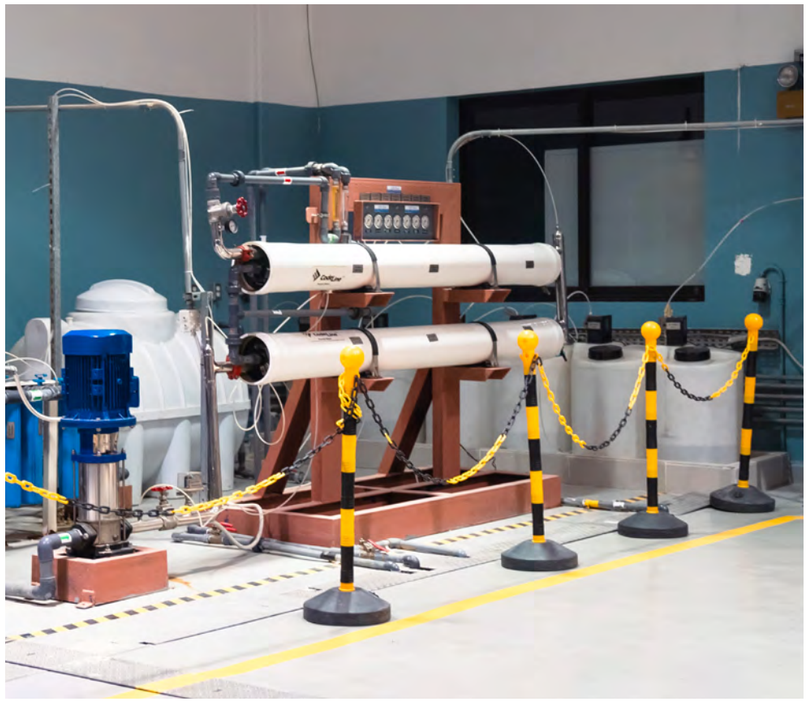
Dedicated to water analysis and quality control testing, using advanced analytical equipment to implement industry-standard methodologies.

Welding Preparation & Operation Workshops

Provide pre-weld setup, joint design, and safety protocol training. Includes cutting and welding (Arc, MIG, TIG), with destructive and non-destructive inspection techniques.

Distributed Control System (DCS) Lab

Enables system-level control strategy programming, signal monitoring, and troubleshooting within a full-scale industrial control environment.

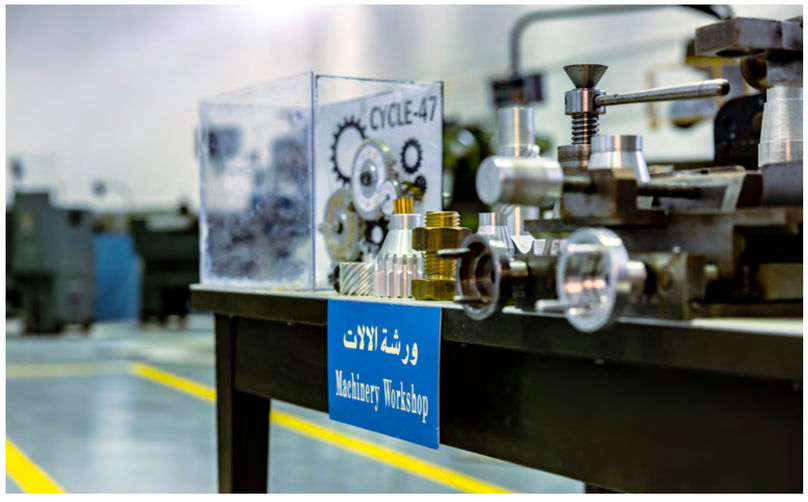


Mechanical Workshop 1

Teaches mechanical equipment maintenance, fault diagnosis, and equipment disassembly/reassembly procedures.

Mechanical Workshop 2

Develops manual skills in metalworking, carpentry, and plumbing; training includes hand and power tool operation with emphasis on safety and precision.



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Specialized Labs and Technical Workshops (Building 1 & 2)

Internal Components Workshop (Industrial Equipment)

Offers hands-on exposure to inner mechanisms of industrial units, facilitating practical comprehension through component-level experimentation.

Desalination Unit Operation Workshop (RO Systems)

Provides experiential training with reverse osmosis processes and integration with power production setups.

Desalination & Mechanical Assembly Workshop

Advanced practice in desalination system operations and mechanical assembly of salt-removal components.

The Academy's strength lies in its ability to deliver immersive, hands-on technical training across a diverse range of disciplines, positioning it as a leader in applied industrial education. By effectively bridging the gap between theoretical knowledge and real-world application, the Academy ensures that trainees gain not only technical proficiency but also the confidence to operate in complex, high-demand environments. Its programs are designed to foster critical thinking, problem-solving, and adaptability—core competencies essential for modern industry. As a result, the Academy consistently produces industry-ready graduates who are well-prepared to take on key roles in water treatment, instrumentation, and operational engineering, contributing directly to the development of a skilled and resilient national workforce.

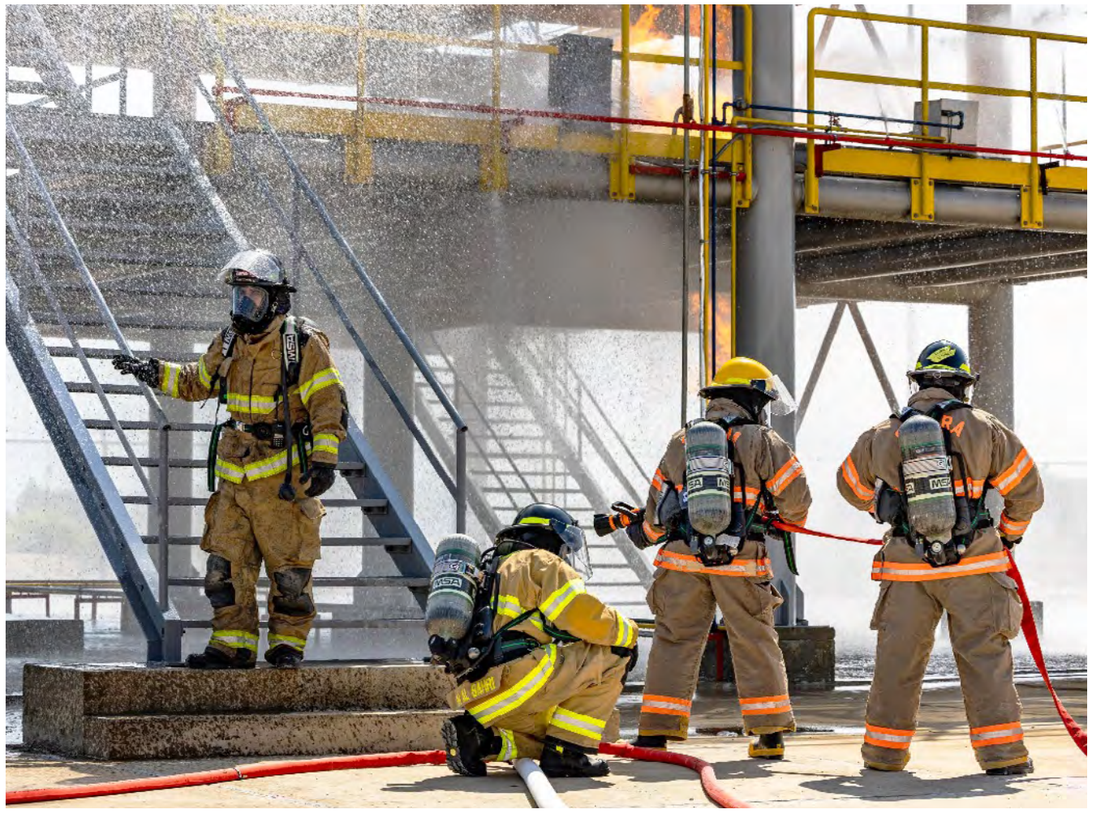
Firefighting & Emergency Response Training Center (Building 3)

The Safety and Firefighting Training center housed in Building 3, stands as a premier facility dedicated to delivering specialized training in safety, firefighting, and emergency preparedness. This fully operational center features nine immersive simulation modules that replicate real-life emergency scenarios. These include controlled fire outbreaks, search-and-rescue operations, and rapid response drills — all designed to enhance trainees' practical skills, decision-making capabilities, and readiness to manage critical incidents with efficiency and confidence.

Fire simulators:

Fire simulations allow trainees to apply diverse events in rescue and firefighting scenarios, enhancing their abilities, and their responsiveness to emergency situations.

1. Fire house simulator:
   - Kitchen fire and smoke generator scenario
   - Sofa fire and smoke generator scenario
   - Flash over fire and smoke generator scenario
   - Bed fire and smoke generator scenario
2. Smoke house simulator: Maze and smoke generator scenario
3. Fuel storage tank simulator.
4. Horizontal tank simulator.
5. Diesel spill fire simulator.
6. Flange gas leak fire simulator.
7. Complex Fire simulator:
   - Valve leak fire scenario
   - Fuel spill fire scenario
   - Flange leak fire scenario
   - Motor and pump fire scenario
   - Heat exchanger fire scenario
   - Cylinder leak fire scenario



Emergency and Rescue Scenario:

The emergency and rescue scenario aim to prepare trainees on how to handle complex emergencies and critical situations in various work environments. These scenarios are designed to enhance the trainees' skills in making quick and effective decisions during incidents, ensuring their optimal response in rescue situations.

Ongoing Development and Sustainability Initiatives

The academy continues to enhance its advanced facilities through ongoing renovation projects at the headquarters library, hall and testing centre, further strengthening its educational environment and promoting the integration of theoretical knowledge with hands-on experience.

Restoration work on the atrium, offices, restaurant, mosque and expansion of the testing center (increasing its capacity from 16 to 80 testing units) in Building 1, as well as the renovation of Building 2, with an installation of a wind and solar power generation unit.

The academy has undertaken extensive rehabilitation projects to improve the trainees experience and enhance sustainability, including:

Several workshops in Building 2 have been equipped with the latest solar energy and renewable energy technologies, enabling the buildings to use eco-friendly energy sources.

An electric bicycle path has also been established, connecting all the academy's buildings, further promoting sustainable transmission within the facilities.

Expanding green spaces and planting trees both inside and outside the buildings, in addition to using energy and water-saving devices.

The Water Academy also adopts the latest artificial intelligence (AI) technologies to enhance the efficiency and quality of its training operations in the water sector. In collaboration with cycles, the team developed AI agents that provide comprehensive professional consultations, enabling trainees to deeply analyse their needs and identify skill gaps. This initiative opens new horizons for developing training operations, contributing to better utilization of training programs and guiding participants toward continuous innovation and development.

WATER ACADEMY: INFRASTRUCTURE, INNOVATION, AND NATIONAL REACH

Digital and Technological Transformation Journey at the Water Academy (2011–2025)

Since 2011, the Water Academy has undertaken a comprehensive digital and technological transformation aligned with its vision to establish a smart, integrated learning environment. This strategic initiative aims to modernize infrastructure, streamline operations, and elevate the quality of training, assessments, and institutional management. The transformation journey has evolved through a series of key milestones, each contributing to the development of a technologically advanced and future-ready educational ecosystem.

The initial phase focused on the deployment of a Learning Management System (LMS) based on Moodle, launched in 2017 as the Academy's core digital training platform. In the following years, this system was migrated to an independent cloud environment to enhance scalability, security, and integration with the Academy's digital identity. Building upon this foundation, a significant milestone was achieved in 2022 with the establishment of a fully integrated internal data center equipped with Cisco infrastructure. The deployment included VLAN segmentation across classrooms, laboratories, and testing centers, supported by a centralized uninterruptible power supply (UPS) system monitored by a technical control center.

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Digital and Technological Transformation Journey at the Water Academy (2011–2025)

To ensure uninterrupted, high-performance connectivity, the Academy developed a dedicated technical network that operates independently from the main Saudi Water Authority infrastructure. This setup enables flexible and secure internet access for trainees. All facilities were equipped with high-density Access Points and UTP network ports, ensuring seamless coverage across classrooms, training halls, and evaluation centers.

In 2024, the Academy implemented a unified Enterprise Resource Planning (ERP) system that integrates core administrative functions such as admissions, contracts, technical support, human resources, and maintenance. This system is fully synchronized with payment gateways and the LMS, ensuring operational coherence. Additionally, the technical support platform was upgraded using ManageEngine Service Desk, facilitating streamlined internal processes and efficient service management.

To enhance the interactive learning experience, classrooms and meeting spaces were equipped with advanced Interactive Flat Panel (IFP) displays measuring up to 110 inches. These panels feature 4K UHD resolution, dual high-precision pen input, 48-megapixel cameras, integrated microphones, NFC capabilities, and wireless content sharing. Shared learning areas also include high-contrast indoor LED screens (TW21 / TW60) with 4K resolution and a 3840Hz refresh rate, supporting professional-quality live presentations and interactive engagement.

The Academy has also modernized its examination ecosystem by equipping testing centers with secure, high-performance computing hardware and CCTV systems linked to the internal data center. This enables the administration of fully automated, proctored electronic examinations. Simultaneously, a comprehensive digital assessment platform is under development to further enhance efficiency and integration with existing systems.

WATER ACADEMY: INFRASTRUCTURE, INNOVATION, AND NATIONAL REACH

In the area of immersive learning, Virtual Reality (VR) technologies have been introduced into specially designated training rooms and are actively used in various instructional programs. A purpose-built dome has also been developed to present technical content to trainees and visitors, enriching the educational experience through visual immersion and interactive engagement.

Cybersecurity has remained a top priority throughout the transformation. As part of the Saudi Water Authority, the Academy strictly adheres to official cybersecurity frameworks. This includes conducting regular penetration testing, updating digital certificates, and implementing advanced access control policies and ADFS-based authentication systems for employees.

To improve the overall learning journey, the Academy has significantly enhanced the trainee experience through optimized user interfaces, real-time attendance tracking, digital payment solutions, instant certification issuance, and post-training feedback mechanisms. The adoption of Power BI has enabled the development of dynamic dashboards to support strategic decision-making, with plans to further expand analytics and data-driven insights across the organization.

Looking ahead, the Academy is actively developing a strategic roadmap to integrate Artificial Intelligence (AI) into its operations. This initiative aims to automate routine tasks, analyze training data more effectively, and ultimately enhance both operational performance and long-term planning. This forward-looking approach reflects the Academy’s commitment to innovation and continuous improvement in service of national development objectives.

e-Learning and Online Transformation Journey at the Water Academy

Since 2013, the Water Academy has embarked on a transformative journey in digital learning, positioning itself as a national leader in the application of e-learning technologies in the training of technical professionals in the water sector. The journey began with the pilot implementation of e-learning during Engineers Cycle 24. Following the successful results of this experimental phase, the Academy officially adopted the e-learning model in 2014, starting with Engineers Cycle 25 as the first fully remote training program for general engineering tracks.

From 2014 to 2017, the e-Learning Division delivered three full engineering training cycles (25, 26, and 27) using advanced e-learning platforms and methodologies. These cycles trained a total of 138 engineers, with incremental improvements in course content delivery, learner support, and feedback mechanisms.

Each cycle consisted of 14 technical modules delivered over 16 weeks, supported by dedicated instructors, local station coordinators, and technical supervisors. The e-learning content was initially available via desktop computers, and by Cycle 26, access was expanded to include smartphones and tablets—enhancing flexibility and learner engagement. The implementation of electronic course and program evaluation tools during Cycle 26 marked a key milestone, enabling real-time performance tracking and iterative development based on participant feedback.

Learner satisfaction and performance remained consistently high across the three cycles:

- In Cycle 25, 79% of participants expressed strong or full agreement with the course effectiveness.
- In Cycle 26 and Cycle 27, this satisfaction rate rose to 81% and 84%, respectively.
- Average academic performance across all modules showed stable outcomes: 80.9% in Cycle 25, 79.3% in Cycle 26, and 80.5% in Cycle 27—reflecting consistent knowledge acquisition across cohorts.

As part of its continuous improvement approach, the e-Learning Division collected suggestions for development after each cycle and utilized them to refine training processes and optimize the remote learning experience.

A significant technological shift occurred in 2018 when the Academy transitioned from Adobe Connect to the more robust and globally recognized Moodle Learning Management System (LMS). This move aligned with international best practices and provided a more flexible, interactive, and user-friendly digital learning environment.

In recognition of its commitment to quality and compliance with national standards, the Academy was awarded the official e-learning license by the National eLearning Center in 2022, affirming its position as a trusted digital education provider in the Kingdom.

In line with ongoing national transformation goals, the Academy is currently working on the development of fully digitized e-learning curricula. This includes converting traditional training materials into interactive, flexible, and modular e-learning content tailored to meet the evolving needs of learners in the water sector.

Key e-Learning Achievements and Reach:

- 2020: The Academy delivered 55 remote training programs across the water sector, reaching 891 participants.
- 2024: A total of 19 programs were conducted for various water sector stakeholders (187 attendees), Arwaa (88 attendees), and individuals (9 attendees).
- 2025 (Agust): 8 remote programs were offered, benefiting 124 participants from private sector companies such as Aqualia (98 attendees), SADEN (8 attendees), and independent learners.

The Water Academy’s continued investment in digital learning infrastructure, content innovation, and national partnerships reflects its strategic vision to build a future-ready workforce capable of meeting the challenges of the water and utility sectors with agility, skill, and confidence.

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COLLABORATION AND STRATEGIC PARTNERSHIP

Strategic partnerships and collaborations lie at the heart of the Water Academy's vision to establish itself as a global leader in water sector capacity building. Through dynamic alliances with national entities, international institutions, private sector leaders, and technology pioneers, the Academy has become a catalyst for transformation and innovation in the water industry.

These collaborations are active efficient collaboration — they represent actionable, high-impact initiatives that actively shape the future of water education, technology adoption, sustainability practices, and workforce development both locally and globally.

Partnerships with Public and Private Sectors

The Water Academy has cultivated a strong and diversified network of over 30 strategic partnerships with leading public and private sector entities, both locally and globally. These alliances are governed by formal Memorandums of Understanding (MoUs) and are instrumental in advancing the Academy's mission to elevate workforce capabilities, localize technology, and drive innovation in the water sector.

These strategic collaborations have resulted in measurable impact across multiple areas, including curriculum development, training delivery, knowledge transfer, and innovation enablement. Through these partnerships, the Academy is empowered to:

- Expand its portfolio of accredited and specialized training programs, tailored to meet water sector and international needs.

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Partnerships with Public and Private Sectors

- Localize and operationalize advanced technologies, such as Distributed Control Systems (DCS), smart irrigation networks, energy-efficient pumping systems, and AI-powered monitoring tools.
- Facilitate professional certification and licensing, particularly in engineering, environmental inspection, operations, and water efficiency.
- Transfer global best practices, embedding international quality standards and performance improvement models into the Academy's operations and teaching methodologies.

Notable Strategic Partnerships:

ABB – A Global Leader in Electrification and Automation

The Academy boasts for its partnership with ABB, a world-renowned leader in electrification, automation, and industrial innovation. This collaboration has resulted in the establishment of a Distributed Control System (DCS) training workshop. Beyond training, the partnership supports localizing electrical simulator manufacturing and delivering specialized technical courses aligned with industry demands. Noteworthy achievements include securing the first regional accreditation for a DCS simulator, launching targeted professional development programs, and hosting two major technical events showcasing ABB's cutting-edge technologies. A comprehensive upgrade of the DCS simulation lab is underway, expected to complete by Q1 2026, significantly enhancing practical training for future specialists in the water and industrial sectors. This collaboration continues to strengthen regional technical capacity by blending rigorous academic instruction with practical application, ensuring alignment with global industry standards.

Siemens

As a global leader in digital transformation and smart infrastructure, Siemens also plays a crucial strategic role in supporting the Water Academy's development of specialized training programs focused on automation and digitalization. The partnership includes technical training in industrial control systems to boost engineers' and technicians' competencies in critical operations. Siemens also co-hosted an event "Technical Day" in 2025 to demonstrate the latest automation and control solutions, advanced simulators and training models to enhance the Academy's facilities for providing immersive hands-on learning environments to the trainees.

Saudi Council of Engineers (SCE)

SCE serves as a vital strategic partner in empowering and qualifying engineering and technical professionals within the water sector. The partnership aims to establish an official accreditation framework for water-related disciplines aligned with the national engineering standards, and recognition of certificates of the Academy. through training, professional development, accreditation processes for engineers working with the Saudi Water Authority, and approval of specialized courses within the national licensing framework. Initiatives such as joint training programs, streamlined accreditation, and technical workshops have also been realized. The MoU is currently under review to include formal recognition of the Academy's diploma programs and strengthen specialized training accreditation.

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Partnerships with Public and Private Sectors

National Water Company (NWC)

NWC is a key partner in advancing the development and upskilling of technical and operational personnel across the Kingdom. The partnership encompasses designing and delivering specialized technical training, professional diplomas, on-the-job training, and advisory services related to training strategy and workforce development. A number of NWC employees have benefited from these programs, enhancing operational readiness and performance. The Academy and NWC are working together for the Competency Management System and supports contractor workforce qualification of the Saudi water sector under regional cluster models, exemplifying a collaborative model aligned with national strategic goals.

Saudi Irrigation Organization (SIO)

This partnership focuses on advancing specialized training in sustainable irrigation and water resource management. It includes delivering technical programs, diploma courses, trainer preparation, and knowledge transfer initiatives. The collaboration also involves evaluating training service providers to ensure quality and relevance. Several training programs for the Organization's staff have been implemented, SIO plays a key role in the water sector's joint technical committee for developing the Competency Management System. An ongoing training agreement facilitates continuous delivery of specialized programs, strengthening institutional competencies and operational readiness.

Imam Abdulrahman Bin Faisal University

The partnership is grounded in shared dedication to academic excellence and bridging academia-industry gaps. Collaboration areas include curriculum development, targeted training delivery, and supervision of graduation projects to align them with professional standards. A major achievement is facilitating the summer training program focused on electricity and renewable energy, specifically for female students, providing hands-on experience in the Academy. Capacity-building workshops and active involvement in academic events further reinforce this collaboration.

King Faisal University

Built on strategic collaboration and knowledge exchange, this partnership organizes academic seminars, specialized training, and professional development tailored to student needs. Notable initiatives include summer internships hosted by the Academy, offering practical training in mechanics, operations, and electrical systems to enhance student readiness. The Academy also participates in university events, such as the Engineering Day Exhibition on Food Security, where Academy has delivered workshops and specialized training on solar power systems for reverse osmosis plants, highlights its active engagement with a formal recognition from the university.

Ministry of National Guard

The Ministry collaborates with the Academy to build core competencies and deliver specialized training focused on water-related disciplines and emergency response, improving operational readiness through comprehensive practical and theoretical programs.

National Center for Environmental Compliance (NCEC)

This partnership emphasizes qualifying freelancers in the environmental sector and aligning the training programs with national standards through specialized programs in technical and administrative fields. The Center granted the Academy an accredited environmental license for three years, underscoring confidence in the Academy's program quality. Jointly implemented intensive training programs have enhanced inspectors' and staff competencies, fostering regulatory compliance and sustainability culture, exemplifying successful integration between educational and regulatory bodies.

National Water Efficiency and Conservation Center (MAEE)

The partnership aims to develop specialized training in water efficiency and conservation, and to promote the share of knowledge and expertise.. Joint initiatives include high-participation awareness workshops and the "Fundamentals of Water Efficiency and Conservation" program, attended by 75 trainees from 22 government entities. Collaborative efforts also target training and accreditation of national cadres for freelance professions through the "Water Auditor" initiative, for leak detection and water system efficiency assessment. Several cohorts have graduated, with certified auditors actively providing services in major cities, enhancing sector efficiency nationwide.

HACH

The partnership with HACH exemplifies advancement in technical and professional capabilities in water quality monitoring and treatment. It features specialized workshops and forums addressing critical topics such as desalination plant monitoring, environmental compliance, and treatment system efficiency. Key events include the Technical Forum on Water Quality Monitoring Technologies, attracting a broader audience of sector professionals.

Water Transmission Company (WTCO)

Built on a framework agreement for training and workforce development, this partnership has implemented targeted programs enhancing WTCO employees' skills and contributes to sector-wide initiatives via active participation in the technical committee. They are also a key member for the Competency Management System for the Water sector.

Saudi Water Partnership Company (SWPC)

Focused on curricula development related to privatization and PPP models, this collaboration supports certification and accreditation of desalination-related courses, involving joint technical committees and workforce qualification efforts aligned with strategic objectives.

Takamul Business Services

Partnering on professional accreditation and licensing frameworks, the Academy's accredited testing center conducts examinations across multiple specialties. Current efforts include launching comprehensive professional assessments and joint programs to enhance accreditation standards within the water sector, bolstering workforce quality.

All these partnerships collectively strengthen the Water Academy's role as a national enabler of human capital development in the water sector and position it as a regional benchmark for excellence and innovation. Through collaborative efforts, the Academy is shaping a highly skilled workforce capable of meeting the evolving demands of sustainable water management and infrastructure development.

Infrastructure and Innovation Enabled by Partnerships:

Smart Electric Systems Laboratory

This cutting-edge facility is being developed in collaboration with Al Fanar for hands-on training in smart grid technologies, energy-efficient electrical systems and state-of-the-art equipment aligned with modern electrical standards. It offers specialized training, knowledge exchange. the Smart Electric System will open up a dynamic environment bridging the academic knowledge and the real-world energy sector applications.

DCS Simulator

In partnership with ABB, the DCS Simulator represents a pioneering achievement in simulation-based training for automation engineers. This initiative launched the Middle East's first accredited DCS training workshop, empowering engineers in design, operation, and troubleshooting of complex control systems. The partnership has also advanced localization of simulator manufacturing and specialized courses, with milestones including regional accreditation and immersive hands-on training programs.

Water Quality Laboratories

The Academy's Water Quality Laboratory is equipped with the advanced instruments for real-time, high-precision testing from HACH to train the laboratory technicians. Joint technical sessions have been conducted nationwide, enhancing professional capacity in water quality monitoring and supporting the Kingdom's vision for efficient and sustainable water infrastructure.

All of these initiatives demonstrate the Academy's dedication to building a world-class technical capacity through innovation-driven partnerships.

Key Partners:

Clients

The Water Academy has reinforced its pivotal role in human capacity development within the water sector by securing over forty-five training contracts and more than twenty-five memoranda of understanding. This extensive network encompasses government entities, private companies, international organizations, and military sectors. These agreements enable the delivery of specialized, high-quality training programs that contribute significantly to achieving sustainability goals in the water sector. Below is a selection of the Water Academy's valued clients:

International Collaborations and Knowledge Exchange

The Water Academy continues to reinforce its role as a premier institution for training and excellence by promoting innovation and embracing both local and international partnerships. These collaborations are central to advancing capacity building in the water sector. Through hosting strategic visits, engaging in knowledge-sharing discussions, and forging strong relationships with stakeholders, the Academy has positioned itself as a vital contributor to national and global efforts in achieving water sustainability.

By forming alliances with leading global institutions, the Academy supports the exchange of best practices and the development of cutting-edge solutions. These efforts reflect the Academy's ongoing commitment to sector growth, knowledge dissemination, and alignment with both national and international sustainability goals.

Key Outcomes from International Collaborations:

University of Oxford

Partnered to deliver the Design Thinking Practitioner Program during the "Innovation in Water Sustainability" conference. This initiative focused on creative problem-solving and sustainable water management solutions.

Al-Sherbini Company

Executed a comprehensive pump maintenance training program to enhance technical knowledge and operational efficiency within the water sector workforce.

Schneider Electric

Delivered the Enhancing Sustainability training program during COP16, emphasizing strategies to combat desertification and promote sustainable water resource conservation through advanced technologies.

Nama Company – Sultanate of Oman

Established a pioneering regional partnership for delivering advanced training programs across Saudi Arabia, Oman, and other GCC countries. This cooperation enhances workforce capabilities and supports sector sustainability in Oman demonstrating the ability of the Academy across the GCC region. The collaboration also aligns with strategic partnerships with global institutions such as the World Bank and the Islamic Development Bank, aimed at increasing the Academy's global impact and accreditation recognition. A significant number of trainees from GCC countries have benefited from these programs, highlighting the Academy's role in fostering water security, innovation, and operational excellence.

KSB Company, Germany.

Launched the Pump Manufacturing Diploma Program in early 2025, focusing on specialized technical training in pump manufacturing, operation, and maintenance. This initiative aims to localize technical expertise, support industry demands, and drive innovation in water infrastructure.

Chartered Management Institute (CMI), UK

Formed a strategic partnership to develop leadership and management competencies in the water sector. Through the CMI-accredited Global Water Management program, multiple training sessions have enhanced decision-making and leadership skills in line with international best practices. This collaboration marks a pivotal milestone in developing a capable national workforce to lead the sector's sustainable future.

Chartered Institution of Water and Environmental Management (CIWEM), UK

Achieved CIWEM accreditation through a strategic partnership dedicated to enhancing professional capabilities in water, environment, and sustainability. The collaboration enables the delivery of globally certified training programs and promotes international knowledge exchange through expert-led sessions, contributing to improved environmental performance and resource management.

International Water Association (IWA)

Engaged in a strategic partnership focused on innovation, leadership, and sustainable water Engaged in a strategic partnership focused on innovation, leadership, and sustainable water solutions. This collaboration supports the delivery of impactful development programs, knowledge exchange, and the integration of advanced technologies to address global water challenges. It reinforces the Academy's position as a regional hub for capacity building and future-focused solutions.

This partnerships underscores the Academy's steadfast commitment to enhancing collaboration with regional and international institutions—such as the World Bank and the Islamic Development Bank—with the aim of broadening its impact and advancing the global recognition of its certifications. Through such strategic cooperation, the Academy continues to strengthen its position as a premier regional and international hub for training professionals in the water sector.

Expertise for Innovation (ix meta)

Entered a strategic EdTech partnership aimed at transforming conventional training into immersive, interactive learning experiences using virtual reality (VR), artificial intelligence (AI), and advanced simulation technologiesfor developing smart training labs and classrooms that enable scenario-based, hands-on learning, supporting the Kingdom's shift toward digital and smart education.

IHE Delft Institute for Water Education (Netherlands, under UNESCO auspices)

Signed a Memorandum of Understanding in December 2024 for cooperation in the areas of capability building, academic and research cooperations. The partnership focuses on delivering advanced training and academic programs, promoting cultural and scientific exchange, and exploring the integration of e-learning platforms. Two specialized training sessions are scheduled for 2026 in Saudi Arabia, with plans to introduce IHE's academic offerings regionally through the Academy.

Beijing Enterprises Water Group (BEWG) and DAYU Irrigation Technology Co., Ltd. – China

Formalized partnerships during the Saudi-Chinese Business Forum (Q1 2025) to enhance knowledge transfer in water reuse, ecological protection, wastewater R&D, and irrigation technologies. Notably, a training program on AI applications in water desalination was conducted in NEOM, attracting international participation. These collaborations aim to build local expertise and promote smart, sustainable solutions, further solidifying the Academy's role as a regional excellence center.

Darco Water Technologies Ltd. and Envirocare Water & Wastewater Engineering Pte. Ltd. – Singapore

Initiated partnerships with both companies to launch specialized training programs in Saudi Arabia focused on global best practices in industrial and municipal water and wastewater treatment. These initiatives aim to localize technical expertise and enhance operational standards across the sector.

DHI – Denmark

Signed a Memorandum of Understanding in Q2 2025 to collaborate on advanced training programs and simulation technologies for water resources planning and management. This partnership supports the localization of expertise and the adoption of innovative tools, in alignment with the Academy's commitment to building a sustainable, future-ready water sector.

The Water Academy continues to strengthen its strategic presence both nationally and internationally, reinforcing its role as a key enabler in advancing the water sector and developing human capital. Domestically, the Academy is actively expanding its footprint across major national projects such as NEOM, the Red Sea Global Project, Qiddiya, King Salman Energy Park, Roshn, and Saudi Downtown. It also seeks to deepen collaboration with leading national companies, including Saudi Aramco, SABIC, Ma'aden, and ACWA Power, with the aim of localizing expertise and delivering high-impact training programs aligned with evolving market demands.

Internationally, the Academy maintains robust partnerships with globally recognized organizations such as the International Water Association (IWA), the International Organization for Standardization (ISO), the World Bank, and UNESCO, in addition to esteemed educational institutions like City & Guilds and Pearson.

These efforts are closely aligned with the Kingdom's Human Capability Development Program, underscoring the Academy's commitment to sustainability, innovation, and global leadership in water sector capacity building.

By fostering innovation, promoting sustainable practices, and empowering a future-ready workforce, the Academy continues to contribute meaningfully to national transformation and global water resilience.

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BENCHMARK ANALYSIS

To support the strategic positioning of the Water Academy as a leader in corporate training, a comprehensive benchmarking study was conducted by Metyis, an independent global strategy and analytics firm. Serving as a neutral third party, Metyis ensured objectivity and adherence to global best practices, minimizing any potential conflicts of interest.

The study evaluated how the Water Academy compares to top institutions in the water and sustainability sectors, using a blend of internal research, expert interviews, and external data. Findings reaffirm the Academy's position as a forward-looking, high-impact institution aligned with national priorities such as the saudi Vision 2030 and National Water Strategy.

acciona

Acciona uses its Academy to build credibility and visibility as a progressive employer committed to development and as a sustainability and innovation leader through cutting-edge employee training (ACCIONA. (n.d.). Real and virtual partners in water management processes).

+300,000 employees trained worldwide.

Best practices:

1. Curriculum Co-Creation and continuous refreshment: Develop learning programs through a dynamic model that balances market signals—such as emerging technologies and evolving business needs—with academic research and internal competency frameworks.

2. Strategic Partnerships: builds alliances with technology partners to explore innovative learning methodologies such as virtual reality, as demonstrated by its collaboration with Deakin University's CADET Virtual Reality Training and Simulation Research Lab.

3. Multi-Modal learning delivery: Offer a blend of classroom sessions for technical and soft skills, live workshops and real-world projects for experiential learning, flexible e-learning modules, and social learning platforms for ongoing collaboration.

4. Co-Created Academic Programs: Partner with leading educational institutions—such as IE Business School, Escuela de Organización Industrial, UC Berkeley, ESADE, Tec de Monterrey, and Sao Paulo University to design in-house programs like MBAs in Sustainable Business and custom leadership tracks aligned with organizational goals.

5. Tiered Learning Pathways: Structure programs for different career stages—from graduates to executives—offering academic certifications, hybrid learning formats, and access to a network of internal experts including technical leaders and specialists (ACCIONA. (n.d.).

Partnerships:

SIEMENS

Siemens has built a world-class corporate learning ecosystem that combines immersive technologies, academic excellence, and agile content curation (Siemens. (n.d.). SITRAIN – Digital enterprise services training).

+40,000 employees trained worldwide.

Best practices:

1. Immersive Learning Technologies: Leverages VR and AR for factory simulations, safety training, and system troubleshooting, providing safe, cost-effective, and realistic experiential learning.

2. Executive Education Partnerships: Offers high-level leadership programs in collaboration with prestigious institutions like INSEAD, and the Feldafing Leadership Center, ensuring executive development is globally benchmarked.

3. Strategic Content Collaborations: Expands its curriculum by partnering with e-learning aggregators like OpenSesame and LinkedIn Learning, enabling rapid inclusion of high-quality, up-to-date content on emerging topics such as AI, IoT, and cybersecurity.

4. Agile Curriculum Management: Maintains a continuous and analytics-driven approach to curriculum updates, using learner data, skills assessments, vendor support, and internal expert councils to ensure relevance and future-readiness.

5. Global Thought Leadership & Advocacy: Actively contributes to the World Economic Forum and the Global Apprenticeship Network, playing a leading role in global workforce innovation and skills development agendas.

Partnerships:

Veolia is dedicated to employee development through mentorship and a strong focus on ecological transformation. Its global network of campuses offers certified, hands-on training in water, waste, and energy (Veolia Water Technologies & Solutions. (n.d.). Elevate early careers program).

+220,000 employees trained worldwide.

Best practices:

1. Specialized Learning Ecosystem: Launch a dedicated school for ecological transformation, Terra Academia, focusing on green skills and future-ready workforce development and operates a network of dedicated training institutions, including Campus Veolia centres and Escuela del Agua.

2. Integrated with HR Processes: Training is embedded into HR systems, aligned to competency models, supported by a maturity assessment tool that helps map each employee's development path and integrated mentorship throughout the learning journey.

3. Partnership-Driven Model: Collaborates through public-private partnerships, academic alliances and global initiatives like the World Economic Forum and the Ellen MacArthur Foundation to drive both credibility and innovation in learning content.

4. Future-Focused & Certified Learning: Emphasizes both operational excellence and forward-looking topics like climate change and circular economy, with a strong focus on certified programs for employability and career growth.

5. Academy Structure: Reorganized its offerings into five global academies: Leadership & Culture, Digital & Innovation, Health & Safety, Business & Operations, and Transversal Functions—each aligned with strategic capability areas.

Partnerships:

The Australian Water School is an online platform offering flexible courses in water management, focusing on emerging technologies like AI and automation. Provides practical, industry-relevant training for professionals globally (Australian Water School. (n.d.). Australian Water School).

+30,000 employees trained worldwide.

Best practices:

1. Leveraging a Digital-First Curriculum: By continually adapting to emerging technologies like AI, automation, and IoT, the school provides a cutting-edge curriculum that empowers learners to apply digital tools to real-world water management challenges, preparing them for the future of the industry.

2. Webinars for Thought Leadership and Engagement: Weekly expert webinars bring together global thought leaders to share their insights, test innovative ideas, and foster engagement among learners.

3. Partnership and Collaboration for Global Reach: Through strategic partnerships with renowned global institutions like the IWA and Ozwater, along with collaboration with private and public organizations, AWS extends its reach, ensuring that courses are informed by the latest research and global best practices in water management.

06
The ustralian Water School

4. Responsive and Agile Curriculum Development: Australian Water School's curriculum is designed to be agile and market-responsive, with a continuous feedback loop from industry forums and learners.

5. Promote Innovation and Thought Leadership: Fosters innovation by collaborating with global experts, industry associations and academic institutions, such as IWA and Ozwater to develop forward-thinking courses and resources (international Water Association, n.d.).

Partnerships:

WORLD WATER ACADEMY

With a focus on role-specific training, WWA combines classroom, field visits, and labs, while collaborating with global partners to develop relevant, demand-driven curricula. Their model ensures practical, accessible water management training worldwide (World Water Academy. (n.d.). World Water Academy).

+3,600 employees trained per year worldwide.

Best practices:

1. Blended Delivery for Diverse Learning: Combines classroom sessions, field visits, labs, and real-world role play to provide a comprehensive learning experience that balances theory and practical application.

2. Role-Specific Paths: Offering specialized tracks for operators, engineers, and policy advisors ensures that each participant receives targeted training relevant to their role and expertise.

3. Extensive Partnerships: Partners with research institutes, universities, NGOs, and global organizations like the World Bank to enhance its reach and impact, creating sector-wide collaborations that support local water development.

4. Curriculum Driven by Local and Sector Needs: Courses are developed on demand, responding to local regulations, needs, and donor-driven programs, ensuring the curriculum remains relevant and impactful.

5. Influence on Global Capacity Building: Through strategic partnerships with organizations like UNESCO-IHE and World Water net, WWA plays a significant role in influencing global water capacity-building efforts. (IHE Delft Institute, n.d.)

Partnerships:

Comprehensive analytical overview of benchmarking

This benchmark allows us to reference peer institutions while highlighting that the Water Academy reflects the defining strengths and best practices of leading organizations in the field.

Its expansive curriculum — covering technical, managerial, and soft skills — reflects a commitment to holistic professional development. The Academy's state-of-the-art facilities, including immersive VR classrooms, a robust network of over 20 esteemed industry partners, and a portfolio of more than 10 recognized accreditations, underscore the quality and depth of its offerings.

Moreover, its forward-looking expansion into the energy sector highlights a strategic vision that extends beyond traditional boundaries. In every dimension evaluated, the Water Academy exemplifies what it means to deliver truly best-in-class corporate training experience.

This highlights several strengths of the water academy in comparison to other training centers. with 992 training programs the academy demonstrates a robust variety of offerings that cater to evolving needs of the market.

The academy ability to train 16,375 trainees reflects its significant role in the sector, showing a capacity to attract a diverse group of professionals. While centers like ACCIONA and Veolia also have considerable training efforts, the Water Academy's impact within its local context is noteworthy. The training hours in the Water Academy is 21,452 hours which indicate a strong commitment to thorough and engaging educational experience. An 92% trainee satisfaction rate underscores the effectiveness of its training initiatives in meeting participant expectations. Various training institutions are making significant strides in skill development.

ACCIONA focuses on comprehensive programs and strategic partnerships to meet market needs. Siemens combines immersive technologies like virtual reality for realistic training experiences. Veolia's "Terra Academia" emphasizes green skills through public-private partnerships. The Australian Water School offers flexible programs centered on emerging technologies, while World Water Academy uses a blended learning model for specialized training paths.

Overall, these efforts enhance competencies in sectors such as water management and sustainability, the Water Academy has formed strategic partnerships, evidenced by 5 agreements with international entities, which enhance its credibility and facilitate valuable global knowledge exchange. More than 15 local and international accreditations, the academy's commitment to high-quality educational standards is clearly established, aligning with global best practices. These points illustrate that the Water Academy operates as a dynamic institution that effectively integrates knowledge and innovation. Its strategies resonate with Saudi Vision 2030 and National Water Strategy, positioning it as a crucial player in advancing water resource management and promoting sustainability.

Taxonomy

In the water sector, various organizations play pivotal roles in addressing the challenges of water management and sustainability. This comparison examines several key entities, including Acciona, SIEMENS, Veolia Water, the Australian Water School (AWS), World Water Academy, and Water Academy. The analysis focuses on four main variables: the delivery method (digital, physical or blended), the scope of services (local or global), the target audience (internal or external), and the portfolio emphasis (industry-related or soft skills).

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Taxonomy

By evaluating these factors, we aim to gain insights into how each organization approaches its initiatives and identifies their strengths and best practises in the water sector. This comparison will help stakeholders understand the diverse strategies employed by these entities and their approach for future collaboration and development in water management.

01. Delivery Method : This category evaluates how the courses are delivered — whether they are offered online, require physical attendance, or use a blended format.

Low - Online only: Courses are available exclusively through digital platforms.

Medium - Physical only: Participation requires in-person attendance.

High - Blended: Combines online and in-person learning to adapt to trainees' needs.

02. Scope: Assesses the geographic reach of the training programs and the extent of their accessibility across regions.

Low - Local: Courses are offered in a single country or limited geography.

Medium - Multi-region: Programs are accessible in more than one country/region but not on a truly global scale.

High - Global: Courses are widely recognized internationally, without geographic restriction.

03. Target: This reflects who the courses are intended for — whether they're for internal employees only or available to external participants.

Low - Internal only: Courses are exclusively for company employees.

Medium - Internal plus selected external participants: Some programs may include partners or invited participants.

High - Fully open: Courses are publicly available to anyone interested, broadening reach and impact

04. Portfolio: Evaluates the diversity and depth of training content, from technical to leadership development.

Low - Industry-focused only: Curriculum is purely technical, focused on water or related industry operations.

Medium - Includes management/leadership: Offers some managerial or strategic leadership training.

High - Includes soft skills: Includes not only technical skills, but also broader development like communication, leadership, and teamwork, preparing trainees for cross-functional and leadership roles.

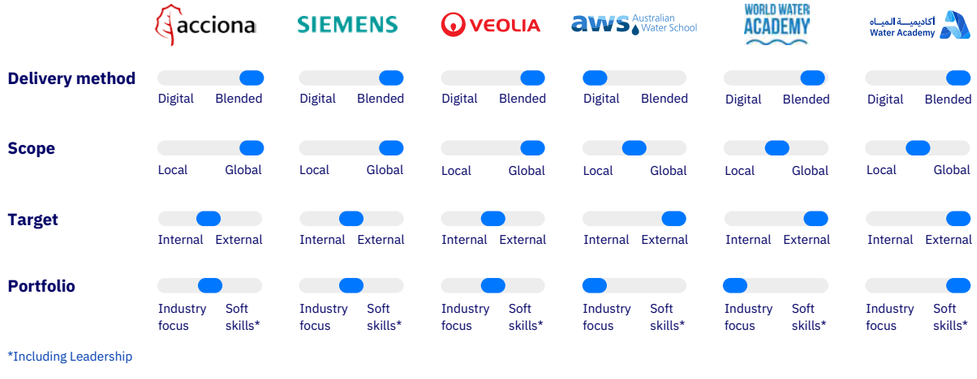
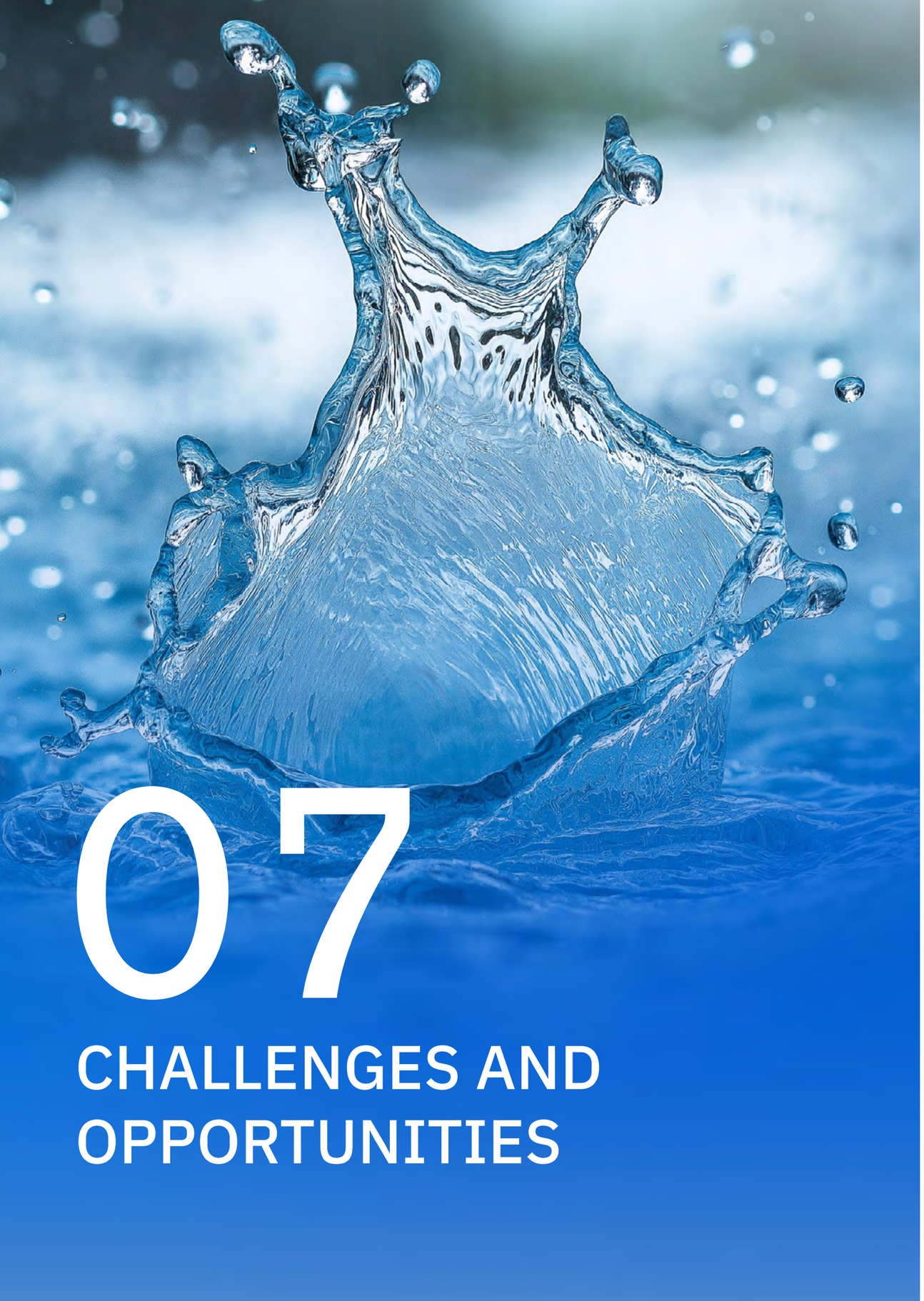


Figure 8. Comprehensive analytical overview of benchmarking (Metyis team analysis).



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CHALLENGES AND OPPORTUNITIES

The Water Academy has undergone a significant transformation, evolving from a traditional training institution into a comprehensive center of excellence that serves the entire water supply chain. This remarkable shift aligns seamlessly with Saudi Arabia's Vision 2030, which emphasizes the necessity for innovative solutions and sustainable practices in various sectors, including water management. The Academy's renewed mission now focuses on equipping professionals with the skills needed to develop sustainable, cost-effective water supply solutions that can address both national and global water challenges.

Despite these advancements, the water sector faces some challenges that require urgent attention. Water scarcity remains a critical issue, exacerbated by the region's arid climate and increasing population demands. Additionally, there is a heavy reliance on energy-intensive desalination processes, which not only strain resources but also raise concerns about environmental sustainability. Furthermore, the need for a highly skilled workforce in the water sector is more pressing than ever, as the complexities of modern water management require expertise that is currently in short supply.

However, these challenges also present substantial growth opportunities for the Academy. By integrating advanced methodologies, cutting-edge technologies, and global best practices into its training programs, the Academy can significantly enhance the skill sets of its participants. This proactive approach will better prepare professionals to tackle pressing issues with innovative and effective solutions. Moreover, the Academy's strong emphasis on integrity, professionalism, and sustainability ensures that its graduates are well-equipped to drive impactful change in their communities and beyond.

Saudi Arabia's ambitious plans for water sector transformation provide rich Environment for the Academy's expansion. The government's increased investments in water infrastructure, coupled with rapid technological advancements, create a dynamic environment for new training initiatives. Furthermore, international collaborations and partnerships can facilitate knowledge exchange and innovation, enabling the Academy to broaden its reach and impact.

By expanding its global partnerships and developing comprehensive certification programs, the Water Academy can can be repositioning as the leading itself as the leading institution for water industry professionals worldwide. This commitment to excellence not only strengthens the water sector in Saudi Arabia but also contributes significantly to global efforts aimed at ensuring water security and sustainability. As the Academy continues to evolve, its role as a key enabler in addressing water challenges will be pivotal in shaping the future of the industry.

In conclusion, while the water sector faces numerous challenges, the opportunities for growth and innovation are substantial. The Water Academy is poised to play a crucial role in this transformation, fostering a new generation of skilled professionals who will lead the charge in creating sustainable and secure water management solutions for a better future.

Current Industry Challenges

Water scarcity remains one of the most critical challenge facing Saudi Arabia's today. With groundwater reserves depleting at an alarming rate the country must urgently prioritize alternative water sources. Desalination has emerged as the primary solution to this pressing issue.

To address these serious issues, the Water Academy must take proactive steps in preparing professionals who are equipped to implement efficient water management practices. This includes exploring alternative technologies, rainwater harvesting, and other innovative methods that can help diversify water sources.

Another major challenge in the water sector is the heavy reliance on conventional energy sources. The energy demands of desalination and water distribution are vast, leading to increased carbon emissions and significant financial strain on the national budget. Transitioning to renewable energy solutions, such as solar-powered desalination and energy-efficient water treatment systems, is not just essential but imperative for sustainable development. However, this transition requires a skilled workforce capable of managing and maintaining these advanced technologies effectively.

The Academy plays a crucial role in developing comprehensive training programs that equip professionals with the necessary knowledge and skills to implement and maintain these sustainable energy solutions in in the water sector supply chain. By fostering expertise in renewable energy applications, the Academy can help mitigate the environmental impact of water supply processes. The fast pace of technological advancements in the water sector necessitates continuous professional development. Emerging trends, such as AI-driven water management systems, IoT-enabled smart water grids, and advanced digital monitoring systems, require specialized expertise that is currently in high demand. Without proper training and education, the industry risks falling behind in adopting these critical innovations.

Therefore, it is essential for the Academy to stay ahead of the curve by incorporating these cutting-edge technologies into its curriculum. This will ensure that industry professionals are well-prepared to meet the challenges of the future and drive the sector forward proactively. Addressing water scarcity and transitioning to sustainable energy solutions are imperative for Saudi Arabia's water sector. The Water Academy's role in training and equipping the next generation of water management professionals is vital to achieving these goals and ensuring a secure water future for the nation and the region.

Potential for Expansion and Improvement

The Water Academy is well-positioned to expand its training offerings to address the evolving needs of the water sector. One key area for growth is the development of specialized programs in renewable energy-powered water management.

With Saudi Arabia increasingly integrating solar and wind energy into its water infrastructure, the Academy can provide specialized training in the design, implementation, operation, maintenance, and manufacturing of energy-efficient solutions in the areas of desalination, purification, storage, transmission, distribution, water treatment, reuse, and irrigation.

Additionally, the Academy's regional and global expansion presents a significant opportunity. Strengthening partnerships with GCC countries—such as Oman—and collaborating with international institutions like the World Bank and the Islamic Development Bank will enhance the Academy's impact. By offering internationally recognized certifications in the water sector supply chain, the Academy can attract professionals worldwide, solidifying its status as the leading global training hub for water industry specialists.

The Academy aims to place technological innovations and digital transformation at the core of its future development strategies. By utilizing AI agents to provide comprehensive professional consultations, the Academy will enable trainees to gain a deeper understanding of their needs and address skill gaps, opening new avenues for development and innovation in training processes. Additionally, by keeping pace with modern technologies, through the implementation of AI-driven training modules, virtual reality (VR) simulations for water plant operations, and online learning platforms, the Academy will enhance accessibility and effectiveness.

Collaboration with leading global universities in the fields of learning and training, such as the University of Oxford in water innovation and sustainability, will strengthen the Academy's credibility. These technological advancements will ensure that the Academy remains at the forefront of education and training in the water sector, empowering professionals to create sustainable and cost-effective water solutions for future generations.

08

CONCLUSION

The Water Academy has firmly positioned itself as a key driver of excellence in water sector training, workforce development, and sustainability. Over four decades, it has evolved into a dynamic institution that equips professionals with the skills to address pressing industry challenges and contribute to national and global water security.

Despite significant progress, water scarcity, reliance on energy-intensive desalination, and the need for a highly skilled workforce remain critical. The Academy addresses these challenges by integrating innovative training methodologies, expanding specialized programs, and fostering international collaborations. Its commitment to sustainability, technological advancement, and capacity building ensures it remains a cornerstone of Saudi Arabia's water sector transformation.

Looking ahead, the Academy aims to deepen its impact by expanding training initiatives, strengthening partnerships, and embracing digital transformation. By leveraging artificial intelligence, virtual reality, and advanced simulation technologies, it will continue to enhance learning experiences and industry preparedness. Additionally, regional and international outreach will solidify the Academy's reputation as a global leader in water sector education.

As Saudi Arabia advances toward Vision 2030, the Water Academy stands ready to support the nation's ambitious water sustainability goals. Through its unwavering dedication to excellence, innovation, and collaboration, the Academy is poised to shape the future of water management, ensuring a more sustainable and resilient water sector for generations to come.

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