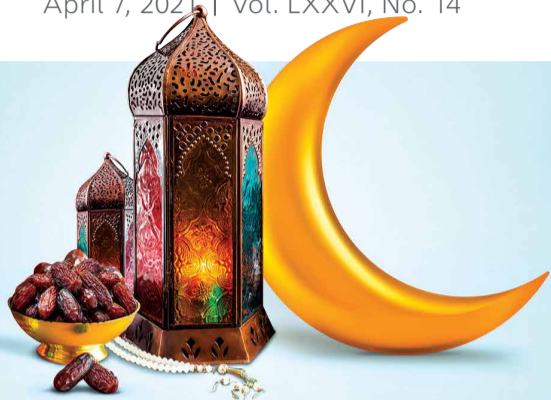


the arabian sun

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a weekly Aramco publication for employees



What's Your Ramadan Like?

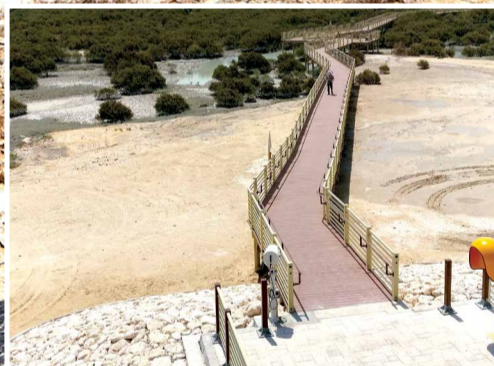
As we begin preparing for the holy month of Ramadan, aramcoLIFE would like to invite you to share your own content:
Ramadan Hacks | Delicious Recipes | Memories

Send your contributions to publishing@aramco.com and don't forget to add photos!



NEX

An ACI Center of Excellence for Nonmetallic Building Materials



Aramco has been using nonmetallic materials in a variety of applications, including traffic signs, tire recycling to build roads, and wood polymer composite.



On the road ... to nonmetallic excellence

see page 3

Download aramco LIFE today to stay informed, and more.



Walking the talk in diversity

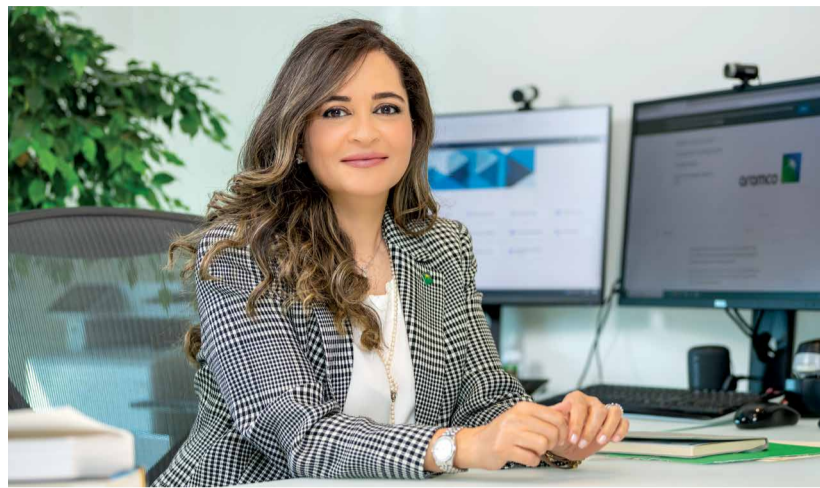
Sheila O. Al-Rowaily, CEO of Wisayah Global Investment Management Company, an Aramco subsidiary, has been recognized as one of Hart Energy's 25 Influential Women in Energy for 2021, a program highlighting accomplishments of women who have made their mark globally in the energy industry.

Leadership development

Since joining Aramco in 1998, Al-Rowaily has led a number of high-level projects, including the creation of Wisayah, which is responsible for investing the company's pension funds. Before that, she held roles in trading, investment management, and project finance.

Al-Rowaily credited her experiences at Aramco for her leadership development, including roles in finance, investment, and risk management, as well as planning and energy economics.

"Not many people have the fortune to see the outcome of their effort while still on the job," she said, noting she



Sheila O. Al-Rowaily, CEO of Wisayah Global Investment Management Co., an Aramco subsidiary.

Supporting diversity and inclusion

Al-Rowaily, a passionate advocate of female development and empowerment who has been active in supporting diversity and inclusion industrywide, sits on Aramco's Diversity and Inclusion Steering Committee where she helps shape company policies while advocating for more women in leadership roles.

"At Aramco, we are so proud of the women employed globally across our business," said Nabil K. Al Dabal, Aramco's vice president of Human Resources. "Sheila Al-Rowaily is an inspiration and role model for our women and men alike."

Al Dabal added that Al-Rowaily isn't alone and is one in a long chain of female leaders at Aramco.

"Our commitment to supporting female education and the professional development of women spans every phase of their career journey," he said.

was proud to serve as Wisayah CEO, "which evolved from a small startup into a highly reputable investment firm that employs an exceptional team, delivers stellar financial performance, and is governed by a strong board."

Born and raised in Saudi Arabia, Al-Rowaily holds a bachelor's degree from King Faisal University and two MBAs, one from the American University of Beirut and one from the MIT Sloan

School of Management.

Her milestones with the company include becoming treasurer of Aramco Services Co. and leading Idikhar, a first-of-its-kind saving scheme in the region. The program was offered to more than 50,000 company employees, and won the Award of Excellence and Innovation in 2016, sponsored by *Pensions & Investments* and the Defined Contribution Institutional Investment Association.

Your voice

Making Ramadan more effective in the workplace



Ahmed S. Abdelmoeti
Dhahran

Ahmed.Abdelmoeti.2@aramco.com

Does fasting during the month of Ramadan impact our stamina and productivity in the workplace? How can we practice fasting, enjoy social activities associated with Ramadan, and achieve our business goals at the same time? These questions are repeated every year at the beginning of Ramadan.

I believe that Ramadan is a month of remarkable challenges when it comes to work and business productivity, but these can be transformed into great opportunities of self-improvement and more work productivity with rational thinking, genuine determination, and doable preparations.

The *Saudi Gazette* in 2017 reported that 80% of workers believe Ramadan leads to a boost in their morale in the workplace, 44.5% said that their productivity was unaffected in the holy month, while 55% thought that Ramadan did not lead to any important decisions or meetings being canceled or postponed. History is full of stories about major events and great achievements accomplished by Muslims during Ramadan.

The work challenges we face during

Ramadan come under three main inter-linked categories: energy preservation, time management, and habit modification. Transforming these challenges into opportunities to get the best out of Ramadan is not as hard as most of us think. It all depends on having a true desire, clear objectives, and feasible planning.

The tips below can have positive impacts on your performance and productivity during Ramadan, making it a turning point in the year, and your life.

- **Plan your daily activities** with a clear goal in mind to give your work priority. Plan your other social and spiritual activities in a way that helps you be fully energetic in the workplace.

- **Start your day with the most important task** — first things first. This should be common sense, however, common sense is not always common practice. It is crucial to do this during Ramadan as you may lose your energy during working hours.

- **Make use of the time saved in your daily schedule** due to stopping some daily practices such as having coffee

breaks, leaving the office to smoke, having snacks, etc. This time can add value to your work schedule and increase your productivity.

- **Eliminate time wasters** such as using social media applications and having nonbusiness chats. A study from the University of California at Irvine revealed that, on average, office workers are interrupted every 11 minutes. It takes time to get back on track.

- **Minimize meetings as much as possible.** Remember that meetings should not be held in the first place unless there is a real need.

- **Limit your personal social gatherings to the weekends** and make sure you follow a healthy diet that provides your body with its daily nutritional needs between *Iftar* (the sunset meal) and *Suhoor* (the pre-sunrise meal).

Ramadan teaches us great lessons in endurance, empathy, tolerance, and charity; and can transform our personal, professional, and business habits, helping us lead more successful and productive lives.

Your Voice reflects the thoughts and opinions of the writer, and not necessarily those of the publication.

JHAH COVID-19 Vaccination Program

The COVID-19 vaccine is available to all Saudi Aramco employees, retirees, and their eligible dependents aged 18 years and over.

English



العربية



Scan the QR code to visit our COVID-19 Vaccination page. You can register online, or use the quick link to access and register on your MyChart account.

Please continue to follow infection prevention measures to keep everyone safe and well.



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مركز جونز هوبكنز
أرامكو الطبي
Johns Hopkins
Aramco Healthcare

Aramco takes “NEx” step in promoting nonmetallic construction materials

By Susan V. Gonzalez

Aramco has become a founding member of the American Concrete Institute’s (ACI) new nonmetallic materials center of excellence, delivering on the company’s strategy to play a leading role in accelerating the deployment of the materials globally.

NEx: An ACI Center of Excellence for Nonmetallic Building Materials was launched during the opening session of the institute’s virtual Concrete Convention on March 28.

Jeffrey W. Coleman, the president of ACI, welcomed Aramco’s founding membership and the company’s experience in the area of nonmetallic materials.

“ACI is pleased to have Aramco’s support in leading this dialogue with industry stakeholders around the world,” Coleman said.

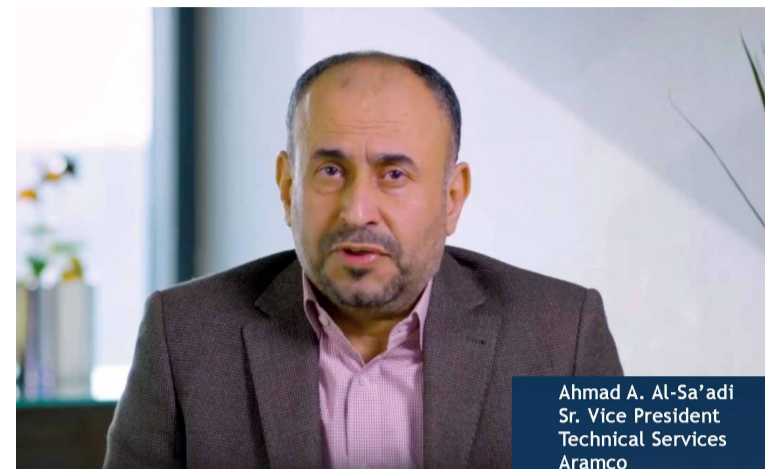
“The center’s mission will be to collaborate globally on using nonmetallic materials in the built environment by driving research, education, awareness, and technology adoption,” he said.

Potential beyond oil and gas

Based at ACI world headquarters in



Jeffrey W. Coleman
ACI President



Ahmad A. Al-Sa'adi
Sr. Vice President
Technical Services
Aramco

ACI president Jeffrey W. Coleman welcomes Aramco as the founding member of NEx: An ACI Center of Excellence for Nonmetallic Building Materials announced during the opening session of ACI’s Virtual Concrete Convention. Ahmad A. Al-Sa’adi, Aramco’s senior vice president of Technical Services, emphasized the potential of nonmetallic materials to solve complex challenges across a range of industries.

Farmington Hills, MI, NEx will leverage the institute’s role as a world leading authority and resource for the development, dissemination, and adoption of consensus-based standards for concrete design, construction, and materials.

Ahmad A. Al Sa’adi, senior vice president of Technical Services, told the convention via video that Aramco had been developing and deploying non-metallic solutions for more than two decades.

“Nonmetallics offer advantages over

metal alternatives, while addressing environmental and sustainability challenges,” Al Sa’adi said.

“The potential goes way beyond the oil and gas sector,” he said.

Aramco is a leader in the use of non-metallic materials in oil and gas facilities to reduce corrosion, weight, and the cost of construction and operation.

In collaboration with The Welding Institute and Abu Dhabi National Oil Company, Aramco opened the Nonmetallic Innovation Centre in Cambridge, U.K., in 2019, to focus on technologies for non-metallic pipeline solutions.

Realization of non-metallic strategy

The initiative with ACI advances the company’s broader strategy to enter new markets as it strives to be a leading producer of advanced polymeric materials solutions across industries, such as construction, packaging, and automotive.

ACI has published guides, reports, and specifications on nonmetallics in concrete, including fiber reinforced polymers and fiber reinforced concrete for more than 40 years.

NEx will serve as a catalyst to accelerate knowledge and standards, and expand its scope to include the use of nonmetallics in other construction materials, such as composite cladding, asphalt, and soil.

The center looks to draw additional partners from leading academic institutions, industry, technical societies, standard bodies, manufacturers, and professionals.

“Our founding member, Aramco Americas, aligns with our vision to effectively meet the demands of a changing world by setting standards for the development and adoption of nonmetallic materials in building and construction,” Coleman said.

One more chapter is being written in Aramco’s Downstream growth strategy by partnering with ACI to develop global standards, more sustainable materials, and new markets for nonmetallic materials.

Pioneering nonmetallic materials

Aramco has been using nonmetallic materials in a variety of applications. Some may surprise you.

• Polymers for soil stabilization.

Successful piloting of the application of polymers to stabilize soil and control dust on temporary roads. This solution stabilizes the road surface, improves the road conditions, and enhances cleanliness. It also saves water and other resources that are usually required for dust control.

• Tire recycling to build roads.

The concept is to turn crumb rubber from tires into a form of asphalt — asphalt rubber (AR) — for use in laying and maintaining roads. Using recycled tires in asphalt pavement has significant environmental benefits, as well as improved safety and reduced maintenance costs. A piloted AR road section is being monitored throughout the summer to ensure performance and durability under extreme weather conditions.

• Traffic signs.

Aramco has piloted glass fiber reinforced polymer (GFRP) traffic signs and signal poles within company facilities. GFRP poles reduce ongoing maintenance and increase the safety of vehicle occupants — in case of a collision — in comparison to steel posts. The GFRP poles are lightweight, easier to construct and install, and do not suffer from corrosion.

• Wood polymer composite and fiber reinforced polymers.

The recently opened Mangrove Eco-Park at Ras Tanura uses wood polymer composite for decking and fiber reinforced polymer for fences, guardrails, and handrails along its 400-meter elevated boardwalk. These alternative products reduce the problem of corrosion and increase infrastructure longevity.

Saudi landmark a concrete achievement



Glass fiber reinforced concrete (GFRC) was used as an architectural material in various elements in the King Abdulaziz Center for World Culture. The main entrance is an organic shaped space that posed a significant challenge to build due to technical considerations and interfaces. Prefabricated GFRC panels were utilized instead to achieve a natural form.

The King Abdulaziz Center for World Culture — Ithra won two awards at ACI’s 2019 Excellence in Concrete Construction Awards Gala.

It was the first time that a Saudi structure had been nominated for the prestigious global awards program.

Aramco won ACI’s most coveted “Best Overall Excellence Award,” and first place in the “Mid-Rise Building” category for structures between four and 15 stories.

The awards honor the visions of creative projects throughout the global concrete design and construction community.

George Seegebrecht, the gala’s master of ceremonies and a leading concrete engineer, noted that Ithra’s award topped “the most innovative and inspiring projects.”

The construction took a decade to complete and is among the region’s most complex and challenging engineering accomplishments.

Ithra is recognized worldwide for its physical structure and design.

Since its opening, it has been recognized by *Time* magazine as one of the best 100 places to visit in the world and received awards for its excellence in branding at the Transform MENA Awards in 2019.

Ushering in a Digital Workforce

Aramco embracing robotics process automation (RPA)

By Khalid Moashee

Aramco strives to enhance the working environment for employees and boost productivity by deploying robotics process automation (RPA). Aramco's Information Technology (IT) has already deployed many digital robots that are handling a variety of processes in our operation; starting from updating employees' HR profiles with new assignments, up to assigning oil tankers to proper berths as part of the Oil Supply Planning and Scheduling operation.

In Aramco, the deployed RPA robots have saved more than 120,000 man-hours annually. Analysts have identified more than 60 RPA use cases to be implemented during 2021-2023, covering different organizations within the company.

By 2024, the program plans to scale up the deployment of RPA technology in Aramco to cover a majority of our business processes by introducing more efficiency and cost saving in our operation, striving to save 1,000,000 man-hours annually. These productivity gains will contribute to the company creating value in the most effi-



Aramco IT has already deployed many digital robots to automate business processes for different Aramco organizations. With employees freed from the repetitive tasks due to RPA deployment, they are empowered to focus on more valuable and meaningful work.

cient manner, which is in line with best practices being adopting by leading corporations.

More time to contribute and learn

With employees relieved from the repetitive tasks due to RPA deployment, they are empowered to focus on more

valuable and meaningful work. Personnel can also use the extra time to take more training, mentor or be mentored, and maintain a life-work balance while achieving set targets. This will enhance the working environment while allowing employees to realize their full potential, ensuring that the company continues to attract and retain the best talent in the world.

What is Robotics Process Automation (RPA)?

RPA is a technology that mimics the actions of a human performing a rule-based process. It interacts at the application/interface layer of any application and performs the exact steps, just like anyone working across multiple applications.

It is capable of mimicking many human user actions. RPA can log into applications, move files and folders, copy and paste data, fill in forms, open emails and attachments, extract structured and semi-structured data from documents, web scrape

(collect data from the web), and so on.

IT deployed the RPA for the Marine Department to automate daily marine vessel logging activities where the deployed robot automated the daily manual vessel's activity logging process for approximately 300 vessels into the Marine Operation Management system. The RPA solution will reduce operational cost, and improve the quality and accuracy of daily reports, with an estimated 46,800 man-hours saved annually.

RPA benefits

Cost-effective, scalable, and easy to implement. This is the biggest difference and advantage that RPA has over traditional automation techniques that rely on back-end automation, requiring massive IT transformation, huge investments, and complex decision making/approval cycles.

RPA Center of Excellence

To accelerate the achievement of the set goal for productive gains, IT is establishing the RPA Center of Excellence to support the rapid transformation and scaling of RPA at the enterprise level while controlling associated risks, managing automation investments, and monitoring the automation program.

لجنة السلامة المرورية بالمنطقة الشرقية
Eastern Province Traffic Safety Council



Announcing Virtual Traffic Safety Awareness Programs

We are pleased to announce the availability via Skype of the Virtual Traffic Safety Awareness Programs in Arabic and English. The programs are designed to continue fostering a safe driving culture among Aramco and contractor employees.

The Virtual Traffic Safety Awareness Programs include:

- Traffic Safety Presentations
- Qyadati Workshop
- Traffic Safety Café

To request Virtual Traffic Safety Awareness programs and services, please submit a CRM request through the Service Catalog:

Myhome > Service Catalog > Safety & Industrial Security > Traffic Safety Service > Traffic Safety Request

Traffic Safety Signature Program

Executive Management Safety Review

CEO: Relentless focus on safety is key to global supply reliability

Aramco's oil and gas production in the northern Arabian Gulf region have become ever more important, making safety measures a top corporate priority as the world looks to the company for a reliable supply of energy.

At this week's Executive Management Safety Review at the Safaniyah and Tanajib plants, Aramco personnel exhibited the safety measures implemented at our facilities, keeping our people and our communities safe, and the fragile marine environment safe.

During the visit, Saudi Aramco president and CEO Amin Nasser commended the efforts of the company employees' safety efforts at the Safaniyah and Tanajib areas. "In spite of all the challenges we have faced, caused by the COVID-19 pandemic, we have executed projects, such as the Tanajib Marine Facility upgrade, and we have the capability to execute more projects. I appreciate the Aramco workforce for their awareness and preparedness, which allows us to take this leadership role."

He also highlighted the recent launch of Shareek for the Kingdom's private sector companies in which Aramco will play a leading role, and then spoke about the opportunities it will create.

Safaniyah and Tanajib Tour

Nasser was joined on a tour of the Safaniyah Plants by Northern Area Oil Operations (NAOO) vice president Dawood M. Al Dawood, vice president of Safety & Industrial Security Aali M. Al



(Photo: Hasan Al-Mubarak/MPD)

Zahrani, and Engineering Services executive director Motaz A. Al Mashouk. Industrial Services executive director Fahad M. AbdulKareem and Marine Department manager Abdullah O. Tewairqi also accompanied the CEO's team during the tour.

The tour began at the Safaniyah Crude Control Center, where Almothanna A. Al Serhani, a maintenance engineer with Safaniyah Onshore Producing gave a presentation on NAOO's Excellence in Operations. Then, Abdulrahman A. Al Amer, a LP engineer, gave a presentation on the new Portable Gas Monitoring Enhancement Program being utilized at Safaniyah. After that, the NAOO vice president briefed the team with an overview of NAOO's contribution to the environmental corporate strategic objectives.

Later, the team had a walk-through at the Zuluf Onshore Plant followed by a bus tour of the Safaniyah plants.

Nasser's group then toured the newly expanded and renovated facilities of the Tanajib Marine Pier, where they received an overview of marine jack-up barge JANA 501 by Capt. Mubarak F. Al Qahtani, and an update on the recent completion of the Tanajib Marine expansion and upgrade project by Capt. Mohammad S. Al Hittah. The tour finished with a demonstration on the added capabilities and capacity of Marine's oil spill response, given by Muhammad A. Saber, global oil spill response director, and Qassim A. Aldayel, coordinator for the Marine Pollution Control Center. Muhannad A. Ashy, Marine chief technical officer, gave a brief on the Marine Department

emergency response readiness through training, asset selection, capabilities, and the reliability controls.

The CEO also praised the emergency response efforts carried out by Marine.

Offshore tour

The second tour group, led by Upstream senior vice president Nasir K. Al-Naimi, Drilling & Workover executive director Omar S. Al Husaini, Environmental Protection general manager Omar S. Abdul Hamid, and Loss Prevention manager Ghassan G. Abulfaraj, boarded helicopters to get an up-close look at the safety procedures for the Safaniyah Offshore Producing operations.

The team was received at Marjan Gas Oil Separation Plant (GOSP-2) by Safaniyah Area Producing General Manager Ali A. Al Ajmi and Safaniyah Offshore Manager Naif A. Al Sulami.

Al-Naimi thanked NAOO for a perfect safety record and commendable safety and environmental initiatives.

From here, the executives flew to Hasbah TP-3, where they were received by Abdulrahman M. Al-Qahtani, Northern Area Gas Production Department (NAGPD) manager, and Northern Area Production Engineering Department manager, Abdulrahman S. Al-Ahmari. A safety orientation was given by NA operations coordinator Manae M. Al Yami, and a walk-through on the NAGPD's accomplishments by Oil and Gas Operations superintendent Hasan A. Bawahab.

Industry strength continues to shine through

By Nouf H. Alhudhaif

When the history of 2020 is written, it will stand out as a year that brought historic challenges for the global energy industry, but also a year that focused on the industry's strengths and the value it provides to societies and the global economy.

The lockdowns enacted during the fight against the COVID-19 pandemic resulted in an unprecedented shock to the market, with oil demand collapsing to levels not seen in decades. Supply discipline managed to kick in with a slight delay to enable balanced markets as the world grappled with the shock.

The oil industry was critical in our fight against the COVID-19 pandemic, from hygiene products such as personal protective equipment and sanitizers, to fuel needed to reestablish supply chains. One major lesson we learned in 2020 is the need to have resilient energy systems that can underpin economic activity. Oil has a proven record, and with its myriad applications in the fight against pandemics, will remain a pillar of future energy systems.

Industry's resilience

The oil industry is in a state of constant evolution, and while events in 2020 test-



(Photo: Hasan Al-Mubarak/MPD)

ed the industry to unprecedented levels, it also has proven that the industry remains agile. Consider the journey of oil prices from April, when West Texas Intermediate hit negative, to the prices seen today. No one would have believed prices would score such a remarkable rebound.

The International Maritime Organization's 2020 change in fuel specifications to reduce emissions, the demand destruction from COVID-19 lockdowns, and the abundance of supply, have between them been pegged as a game changer for the oil industry. Yet in 2020, a year which had them all, the oil industry is still chugging along. Of course, there have been some challenges to address along the way, but the overall frame-

work of the industry is still intact, which speaks to the high resilience built into it.

The company's response

The company's resilience, thanks to its people's motivation, skills, and ability to power through challenging times, enabled us to weather the extremes of 2020. Aramco was able to take immediate action and implement a series of measures to lessen the impact of the pandemic on its operations.

Utilizing digital information and communication channels allowed for limitless and prompt collaborations while abiding with social distancing measures. New technologies were also implemented to help combat the spread of the vi-

rus. This includes the use of smart helmets that use thermal imaging and are capable of examining up to 200 people per minute, identifying those with high temperatures in public spaces.

Thermal camera screening has also been implemented in more than 80 locations to measure the temperatures of people passing in large crowds without the need for an operator. In addition, the first phase of facial recognition technology has been deployed in 30 critical Aramco facilities around the Kingdom to ensure seamless accessibility with the least physical contact.

The company also introduced prevention programs, contingency plans, medical support services, and a companywide health awareness campaign in collaboration with Johns Hopkins Aramco Healthcare in efforts to provide the best possible care while ensuring the safety of its community.

During those times, Aramco was able to achieve its highest single-day crude oil production and record natural gas production, exceeding expectations and performing much better than anticipated. Consequently, accomplishing this production capacity came at the price of cutting company expenditures by sizable amounts to achieve capital and operational efficiencies.

CINNAMON ROLLING through the centuries

Written by Jeff Koehler | Art by Linda Dalal Sawaya

From the January/February 2021 edition of AramcoWorld



To read more AramcoWorld stories, download the newest version of the AramcoWorld App at the Apple App Store and Google Play.

"The prince named Vijaya, the valiant, landed in Lanka," recounts the *Mahavamsa*, the epic-poem history of Sri Lanka composed in the fifth century CE. Vijaya was, the account goes, expelled some 2,600 years ago from the Sinhalese royal court in India, and he sailed south from the Ganges Delta with some 700 soldiers. When he and the troops landed on the north-west coast of the island country, they "sat down wearied," and their hands "were reddened by touching the dust."

Vijaya called the kingdom he founded Thambapanni, "Copper hands." According to Sri Lankan historian Dilhani Dissanayake of La Trobe University in Australia, "pani" can refer also to leaves — specifically young leaves of the *Cinnamomum verum* ("true cinnamon") tree native to that part of Sri Lanka.

An unassuming evergreen that, when cultivated, is a bush as much as it is a tree, says Marryam H. Reshii, author of *The Flavour of Spice* (Hachette India, 2017). Cinnamon's value lies not in its leaves, but in its inner layer of bark, Reshii says.

Together with its close but coarser relative cassia (*Cinnamomum cassia* and several other species), which originated in southern China, cinnamon was carried to Egypt as early as 2000 BCE by merchants who, while trading throughout the Middle East and Arabia, kept their Sri Lankan source a secret. It isn't surprising, therefore, that Greek historian Herodotus wrote around 430 BCE in *The Histories* that cinnamon grew in the land where Dionysus, the Greek god of harvest, was brought up — that is, somewhere to the east — and that it was gathered in Arabia.

A fabulous story

Arab traders, he wrote, say that great birds carry these dry sticks, which we have learned from the Phoenicians to call cinnamon, and that the birds carry the sticks to their nests, which are plastered with mud and are placed on sheer crags where no man can climb up.

The merchants, he continued, set large chunks of raw meat near the nests of this *cinnamologus*, or cinnamon bird. "The birds swoop down and carry off the limbs of the beasts to their nests, and the nests, being unable to bear the weight, break and fall down, and the Arabians approach and collect what they want."

A "fabulous story," scoffed Roman naturalist and philosopher Pliny the

Elder nearly 500 years later, told by traders to keep prices high and sources shrouded. And while Pliny was right — the world did value cinnamon for both rarity and mystery — scarcely anyone in the Mediterranean or Europe could answer where it came from for nearly another 1,000 years.

While today cinnamon is on nearly every spice rack, and it is used mostly to flavor food and drinks, its

history shows it has had a range of other, mostly health-related roles, as Jack Turner noted in his 2005 *Spice: The History of a Temptation*. In addition to Egyptians who used it as a perfume in embalming, the Bible's Old Testament mentions it as an ingredient in anointing oil. From India to Rome people burned it in cremation. The voluminous 10th century *Kitab al-Hawi fi al-tibb*



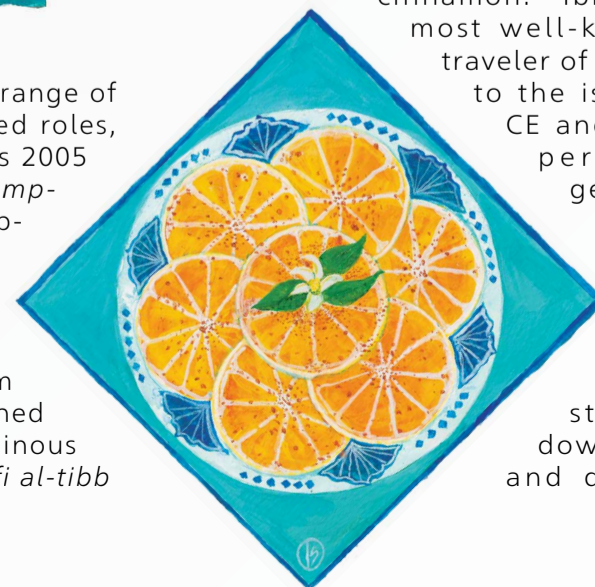
(Comprehensive Book on Medicine) by polymath Muhammad ibn Zakariya al-Razi recommends cinnamon to help "prevent sweat from armpit and feet, so there will be no stink."



Cinnamon sticks

Medieval Islamic physicians used cinnamon to treat wounds, tumors, and ulcers. They influenced European physicians such as Italian Matthaeus Platearius, whose 12th century *The Book of Simple Medicines* recommended cinnamon to help form scars on wounds and relieve ailments of the stomach, liver, heart, and more. Dissanayake points out that in Sri Lanka, the fourth century CE medical books of King Buddhadasa introduced the cinnamon tree as a medicinal tree or herb, and that, still today, Ayurvedic medicine prescribes cinnamon to aid digestion and oral hygiene.

It was not until the 10th century that glimmers of the connections between Sri Lanka and cinnamon began to appear. In *Aja'ib al-Hind* (Marvels of India), traveler al-Ramhormuzi wrote, "Among remarkable islands, in all the sea there is none like the Island of Serendib, also called Sehilan [Ceylon]. ... Its trees yield excellent cinnamon bark, the famous Singalese cinnamon." Ibn Battuta, the most well-known global traveler of his time, came to the island in 1344 CE and wrote — or perhaps exaggerated — that "the entire coast of the country is covered with cinnamon sticks washed down by torrents and deposited on



the coast looking like hills."

Hieronimo di Santo Stefano of Genoa, traveling in the late 15th century, noted that "after a navigation of 26 days we arrived at a large island called Ceylon, which grow the Cinnamon trees." Still, the origins of cinnamon did not become widely known until after 1505, the year a storm blew a Portuguese fleet to the shore of Sri Lanka. The Portuguese departed with nearly six metric tons of the spice that whetted their appetite for more. Over the next 100 years, variously through force and local alliances, they gradually took control of the centuries-long Arab and Muslim trade monopoly. A century later Ceylon's king allied with the Dutch to evict the Portuguese, only to have the British wrest control near the end of the 18th century. However, by 1800, *Cinnamomum verum* transplants were thriving commercially in India, Java (now in Indonesia), and the Seychelles off East Africa. No longer as scarce, cinnamon's value declined, on its way to becoming a worldwide grocery store spice staple.

Quills and powder

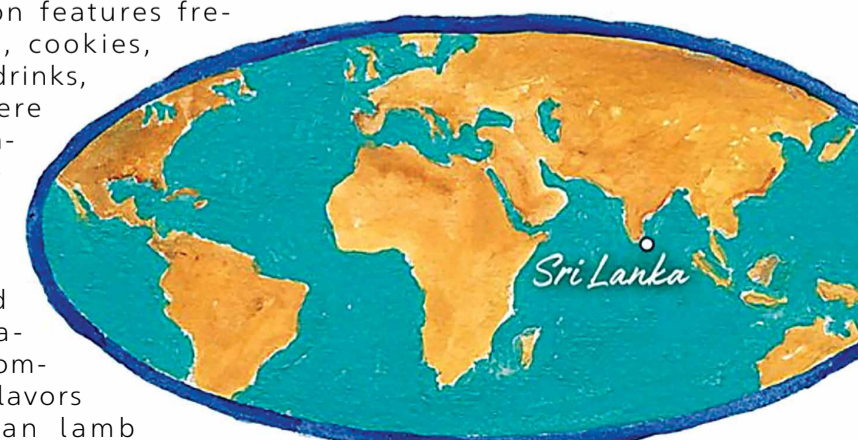
Now twice a year, after Sri Lanka's big and then small monsoon seasons, when high hu-

midity makes production easier, wrist-sized cinnamon trees are cut, and skilled cinnamon peelers trim the branches and scrape off the outer bark. With sharp knives they loosen and then remove the delicate inner bark, often only about a half-millimeter thick. They pack the paper-thin curls inside one another to form dense, cigar-like quills that are dried, graded, and cut into lengths.

Both in quills (cinnamon sticks) or ground to powder, true cinnamon has a highly fragrant aroma with a warm, woody flavor that is simultaneously delicate and intense, and its aftertaste is sweet. While in European and American cultures cinnamon features frequently in cakes, cookies, candies, and hot drinks, in Sri Lanka, where cinnamon is pervasive in the national cuisine, cooks often add a quill to fish curries, for instance, and elsewhere, cinnamon frequently compliments savory flavors such as Moroccan lamb

tagines (slow-cooked stews), Turkish pilafs, and Middle Eastern meat dishes, as well as curry powders, masala spice mixes, and the essential Chinese five spice mix.

Often what is on the shelf today is not *Cinnamomum verum*, true cinnamon, but its cousin cassia, which now grows both in southern China and in other parts of South Asia, like Laos and Vietnam. Easier and cheaper to produce, cassia's inner bark is darker, coarser, and thicker — often too hard and thick to pulverize or grind by hand using a mortar and pestle. Cinnamon has long been a key part of Sri Lanka's cultural identity, and today it is one of the world's most popular spices, a key to every cook's pantry.



Facial recognition technology launched

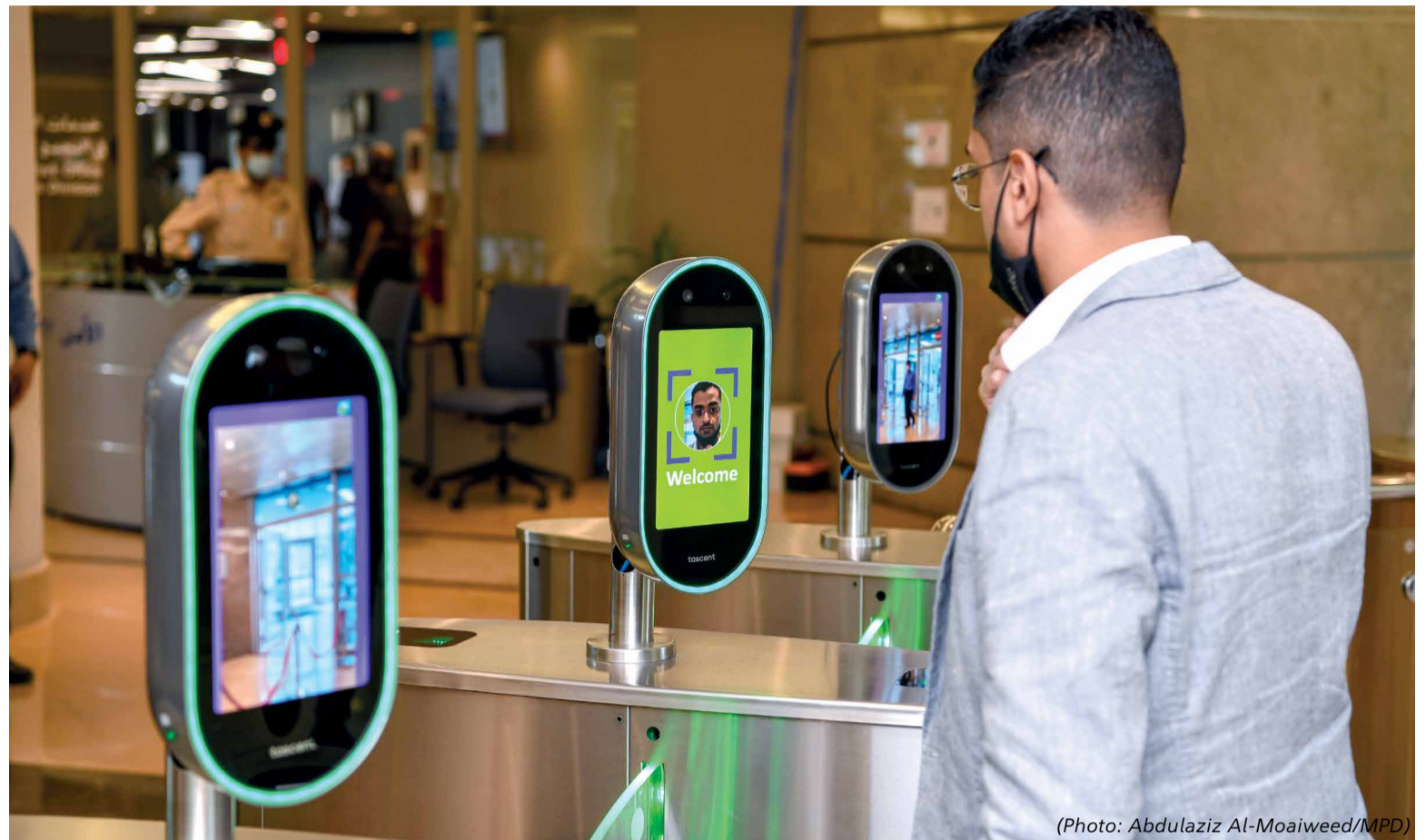
Aramco's facial recognition technology was officially inaugurated by Nabeel A. Al-Jama', senior vice president of HR and Corporate Services.

Al-Jama' was joined by other members of senior management as they visited the facial recognition system used at Al Midra. It is also deployed in the Core Area.

The technology uses artificial intelligence algorithms to match a human face on-site with an image stored in a database for authentication and verification.

The objective of the system is to enhance security measures by using your face as an unforged identity, which eliminates the possibility of misused ID cards to restricted facilities and enables seamless accessibility. The system also adds a video analytics capability to security CCTVs, allowing analysis of behavioral patterns, the identification of objects, and the conduction of forensics analysis when needed.

The project was the result of close coordination between the Industrial Security Organization and Informa-



(Photo: Abdulaziz Al-Moiweed/MPD)

tion Technology, with the project being completed in six months.

The system database hosts 270,000 employees and contractors and opens the path to multiple digital transfor-

mation technologies such as Visitor Center digitalization and Contractor ID digitalization.

Engineers bridge gulf between 3-D printing, nonmetals to solve seawater corrosion

By Mirza M. Baig, Abdulaziz Y. Asiri, and Rakan W. Banna

After years of scratching their heads, engineers with the Consulting Services Department (CSD) have finally solved a longstanding seawater corrosion problem by combining nonmetal materials and 3-D printing, potentially saving the company an estimated millions of dollars over 20 years.

The problem lay in the filtration system at the Qurayyah Sea Water Treatment Plant, where corrosion in the internal piping of sand filters and laterals — tiny horizontal side pipes in the system — meant sand was getting into the seawater injection network.

This sand intrusion affected the operation of the filter and the corrosion inhibition system, leading to frequent shut-downs to repair the leaks.

Conventional nonmetallic production technologies were unable to produce the required lateral, or side slit spacing, which is measured in micrometers, a millionth of a meter and tiny in scale.

Lateral thinking

Nonmetallic materials with their corrosion resistant properties, functionality, and versatility are becoming the material of choice for different applications. 3-D printing utilizing nonmetallic materials allow unique designs and offer a flexibility that is impractical or impossible with traditional methods.



3-D printing the nonmetallic laterals using multiple printers.

The solution was a blend of polycarbonate and acrylonitrile butadiene styrene polymeric material suitable for 3-D printing and mechanically compatible with the corrosive service conditions of the seawater filtration system.

The engineers were able to 3-D print nonmetallic laterals with micro slot holes of 150 microns. In comparison, a human hair has a diameter of between 40 to 90 microns.

After precisely reverse engineering the steel laterals, a 3-D model was created and analyzed using finite element

analysis for structural stability verification.

Huge savings

The prototype was dimensionally checked and fluid flow parameters were compared with the metallic laterals by performing flow assurance testing.

Upon successful completion of the engineering phase, 90 laterals were 3-D printed using 20 printers at a local vendor facility.

The excellent corrosion resistance

capability of the nonmetallic material coupled with 3-D printing technology is expected to give the most cost-effective method of producing laterals.

Mass deployment of this technology in the remaining sand filters will provide at least 20 years of service life with an expected cost saving of more than \$16 million.

Patently clear

This collaborative effort between the Sea Water Injection Department and CSD also resulted in intellectual property protection in the form of a patent in the United States Patent and Trademark Office.

Aramco's in-house 3-D printing capabilities are being enhanced to enable printing of the remaining required laterals for the plant. This initiative will pave the way for more deployment opportunities of this patented design and commercialization of the technology internationally.

The plant at Qurayyah, on the Arabian Gulf, treats seawater, which is then piped to the southern fields where it is injected into the ground to help force oil to the surface. The injected seawater replaces the oil extracted from the reservoir.

This innovative idea of combining the state-of-the-art additive manufacturing 3-D printing technology with nonmetallic materials has addressed a chronic field corrosion challenge and yielded substantial life cycle cost savings.

Well-being

Caring for your health and wellness



Reset and renew in Ramadan

How can you be your best self during Ramadan this year? How can you connect with others while continuing to protect yourself and your community?

Read Johns Hopkins Aramco Healthcare's (JHAH) expert advice to your frequently asked Ramadan questions.

• **How should I protect my health during Ramadan?**

COVID-19 still poses a threat to our society, and so it is important to still continue to abide by the precautionary measures to prevent infection and stop the spread, and that is by following JHAH's 3 Ws to stop COVID-19: Wash or sanitize your hands, wear a mask, and watch your distance.

Ramadan is a time for gatherings over *Iftar* or *Suhoor*, and if you gather safely you can protect yourself and those around you. Avoid sharing food and utensils, gather in a well ventilated venue or outdoors, keep your distance, wear your mask, and avoid touching your face.

• **I am scheduled to take the COVID-19 vaccine while I am fasting, will it break my fast?**

You can still take the COVID-19 vaccination while you are fasting as it will not break your fast. For more information on JHAH's COVID-19 Vaccination

program, visit: <https://www.jhah.com/en/new-coronavirus/covid-19-vaccination>.

• **What are some of the health benefits of fasting?**

Fasting can support adopting healthy eating habits, as the reduction in food consumed during fasting hours causes the stomach to gradually shrink. This means eating less and feeling full faster. Due to the lack of water intake during the day — thereby reducing fluids in the body — fasting provides a respite for the kidneys to eliminate waste. Fasting reduces the proportion of fat in the body, including liver fat, which activates the liver cells and helps to remove toxins from the body, lowers blood sugar, and reduces the risks of diabetes.

• **How can I safely fast if I am diabetic?**

If you are diabetic and are on a controlled diet, you need to speak to your doctor before fasting. If you are allowed to fast, you should follow the

same meal plan, which includes three meals: (evening) *Iftar*, (*Suhoor*) *Fajr* and midnight. The *Iftar* meal should be taken right after sunset (not to be delayed) to avoid low blood sugar levels, while the *Suhoor* meal should be eaten as close to *Fajr* (pre-dawn) as can be permitted.

It is very important to monitor your blood sugar levels before meals and before taking oral medications or insulin, recording the results and discussing them with the assigned medical experts.

• **Can I diet and exercise during Ramadan?**

Dieting during Ramadan is not recommended, instead try to stick to eating healthy foods and avoiding overeating. Follow a balanced meal plan.

As for exercising, you should avoid strenuous exercise during fasting hours, such as running or weight lifting. These may lead to dehydration, fatigue, low blood sugar, and muscle breakdown. Wait for two hours after

your *Iftar* meal or before the *Suhoor* meal to give your body the chance to digest the food.

• **I'm feeling depressed, how can I improve my mental well-being during Ramadan?**

Suffering from feelings of depression or anxiety? Refer to our Mental Health Tool Kit that was developed to help those struggling during the pandemic. Visit: [jhah.com/en/coronavirus/mental-health-tool-kit](https://www.jhah.com/en/coronavirus/mental-health-tool-kit).

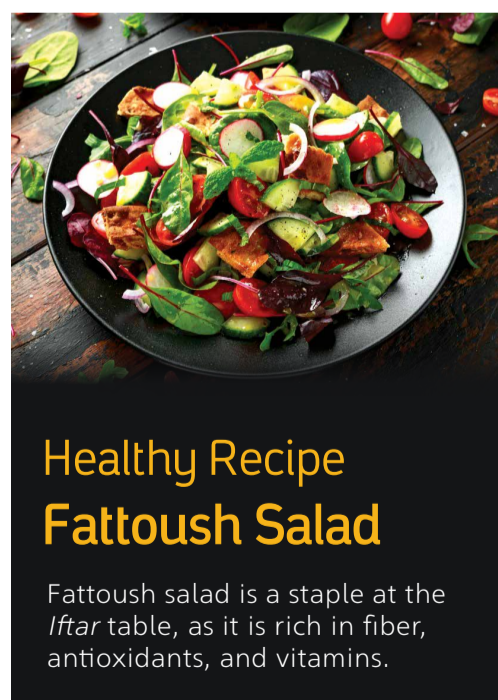


If you are in need of support, you can call JHAH's emotional help line at 013-870-1919.

Looking for more Ramadan health information? Visit Our Health Encyclopedia: <https://www.jhah.com/en/health-wellbeing/health-encyclopedia>.

Tips for safe medication use during the Holy Month of Ramadan

- Do not skip or change your medication doses on your own. Consult your clinician for advice and recommendations.
- Medications with a single daily dose in the evening can be taken with *Suhoor*, or a single daily dose in the morning can be taken with *Iftar*.
- For medications taken twice daily, take the morning dose with *Iftar* and the second dose with *Suhoor*.
- For medications that are taken three times or more daily, consult your clinician.
- Fasting and certain diabetic medications, such as insulin or oral diabetic medications, can put you at risk for hypoglycemia (low blood sugar). Some diabetic patients may require adjustment to their insulin or oral diabetic medication doses. Please consult your clinician.
- It is important to monitor your condition closely during Ramadan and consult your clinician immediately if you have problems with managing your health.
- You may also want to schedule a follow-up consultation after Ramadan to discuss any necessary readjustments of your medication(s).



Healthy Recipe

Fattoush Salad

Fattoush salad is a staple at the *Iftar* table, as it is rich in fiber, antioxidants, and vitamins.

Ingredients

(6 servings of 1 cup each):
 • 3 cups toasted whole-wheat pita bread, cut in pieces
 • 1 cup tomato, diced
 • 1 cucumber, diced
 • 1/4 cup parsley, chopped
 • 1/4 cup green onions, chopped
 • 1/4 cup green pepper, diced
 • 2 cups lettuce, chopped
 • 3 cloves garlic, crushed
 • 1/2 cup lemon juice
 • 2 tablespoons olive oil
 • 1/4 cup fresh mint, chopped
 • 1 teaspoon sumac
 • Black pepper to taste

Preparation:

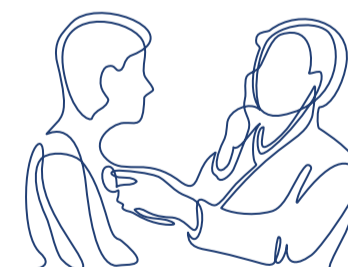
• **Bread pieces:** Pre-heat oven to 300 °F (150 °C). Place the whole-wheat bread pieces on a large baking tray and bake until the bread is golden and crisp.
 • **Salad:** In a large bowl, combine lettuce, bread, cucumber, tomatoes, green peppers, onions, and parsley together. Toss gently.

- **Dressing:** In a small bowl, combine garlic, olive oil, lemon juice, mint, and sumac; mix well. Pour dressing over salad and serve.
- Serve with whole-wheat bread, fresh fruits, low fat or nonfat yogurt or Laban for a more balanced and nutritious salad.

Fat and calories per serving:

• Calories: 75 calories
 • Fat: 2.5 grams

Health Message: Fattoush is appropriate for people with heart disease, diabetes, children, lactating and pregnant women, and seniors. It is not recommended to be served to infants under one year of age or to people with chewing or swallowing difficulties, or to people with dairy or gluten allergies.



Become a patient at Johns Hopkins Aramco Healthcare (JHAH)

Eligible Saudi Aramco employees and their dependents are invited to register for health care at JHAH.

For more information on how to change your registration, contact your local HR Service Center or visit HR Online, or scan the QR code below for detailed instructions.



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HR banks on future human capital with new training program

By Suliman A. Khalifa

A new Human Resources Specialist Development Program (HRSDP) has been launched to create a cohort of agile, world-class practitioners who will lead the workforce into the future.

This new impetus to build advanced HR solutions for one of the world's largest and most diverse companies requires experts with specialized knowledge and skills.

Nabil K. Al Dabal, vice president of HR, said, "I want to see Aramco representing the best of HR at a global level ... not just as members but as leaders and experts in the HR field."

The HRSDP is modeled on the highly successful Specialist Development Program (SDP) launched by Engineering Services in 1984. The goal of the original program was to prepare young engineers and scientists in disciplines where the company had a critical need.

Jamil J. Al-Bagawi, chief engineer and chairman of the SDP Board, said the SDP was designed to cultivate and nurture the next generation of technical talent and improve their career prospects and job satisfaction.

"These key individuals will respond to the future challenges and demands facing our company," he said.



Personnel development

Likewise, the HRSDP has been designed to continually enhance HR capabilities and capacity in response to industry trends and current best practices.

It uses a combination of training, academic research, personal development, and work experience to qualify HR professionals to become subject matter experts in specialized areas, including labor relations, people analytics, digital solutions, and diversity and inclusion.

Bandar F. Al Otaibi, from the Person-

nel Department and board secretary for the HRSDP, said the program is fully aligned with the company's HR strategy.

"With the launch of a formal development program for HR specialists, finding the right people with the appropriate skills and knowledge to solve complex business and people challenges becomes much easier," he said.

Participants' thoughts

Mohammad H. Shabib, an organization performance advisor with the

Organization Consulting Department, recently signed up for the HRSDP program.

"Aramco's Engineering SDP is known for challenging and stretching participants' thinking and developing deep expertise," he said.

"I anticipate the HRSDP will enable me to expand my knowledge and provide me with the experience required to be a specialist in the field of organization."

Hanin A. Jannah, an analyst in HR Policy and Planning Department, said the best part of the job is that people are your most important asset.

"Being a participant in this program has the potential to provide me with the tools specialized to serve the company's greatest asset even better."

How to apply

Employees within HR who want to enter the program should fill out an application and provide the required documents to their department head for approval. The HRSDP Board will review applications and admit select candidates.

Al Otaibi said there are plans for a comprehensive rollout of the program to HR professionals across the company.

Aramco sponsored autism center earns CARF accreditation

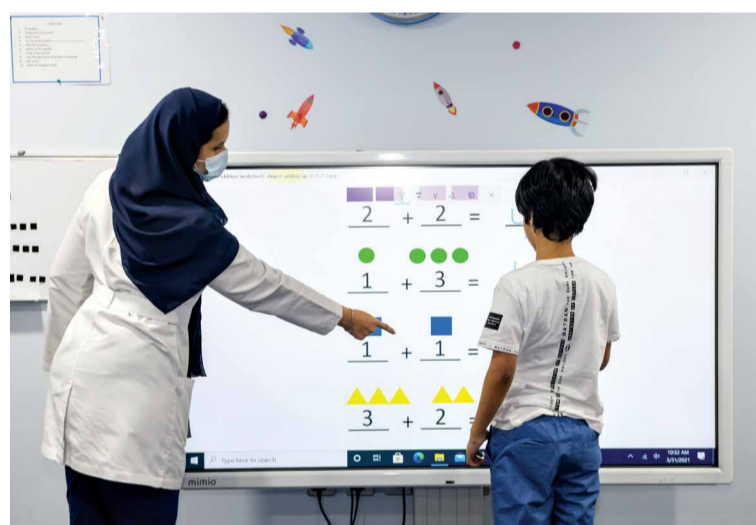
By Jim Cook

The Shamah Autism Center recently accomplished a major milestone, becoming the only autism center in the Middle East to obtain the Commission on Accreditation of Rehabilitation Facilities (CARF) accreditation.

Founded in 1966, CARF provides accreditation standards for health and human services providers and has accredited more than 8,000 service providers and 60,000 programs and services at 28,000-plus locations worldwide.

The Shamah Autism Center's award of CARF accreditation represents a big accomplishment for the center and the Kingdom of Saudi Arabia.

"This is a tremendous accomplishment that is based on some very hard work by our staff," said Dr. Saad Al Sharani, Shamah Autism Center director. "Earning this accreditation will encourage us to maintain our quality and aspire to achieve more. It's a commitment."



(Photo: Hasan Al-Mubarak/MPD)



(Photo: Musleh Al-Khathami/Publishing)

Social responsibility

Aramco provided initial funding for the center as part of the company's social responsibility efforts. Management saw that quality facilities were needed in Saudi Arabia as the cost of sending children with autism and their families outside the Kingdom to seek treatment was exorbitant.

Planning for the center began in 2012, and it was launched in 2018 with 19 students. Today, the center serves 82 students — with a capacity of 100 students.

Services at the center include behavioral, academic, and life skills education and therapy intended to prepare students to be included in regular classrooms and society. Facilities at the center include academic classrooms, water therapy, a sensory room, and mock home and kitchen facilities where students can learn basic self-care, and more.

Calm transition

A good example of Shamah's work is the progress the center has made with Ayan, a young student. On a recent visit to the center, the notes of "Happy Birthday" filled the air as Ayan played them on a toy piano. After a quick song, Ayan returned to a work station and settled back into a lesson. Just a few months ago, this calm transition between tasks would have been unthinkable.

"He joined in October — a very difficult case, screaming, slamming doors," Al Sharani said. "His father gave us a strict deadline. We had two weeks. If he didn't get any better, they were pulling out."

The Shamah Autism Center is well-aligned with the Kingdom's Saudization goals — 90% of its staff are Saudis. Building a strong workforce of qualified professionals to provide services to the center and the Kingdom is a major goal.

Incredible experience

Al Sharani said that the center plans to soon launch an academy to provide training and development to autism care professionals.

Tahany Al Nafea is a senior direct care therapist at the Shamah Autism Center who was hired in 2017 right after she had earned a master's degree from Flinders University in Australia.

Al Nafea said she has gained incredible experience working at the center, along with encouragement to pursue further education and certifications.

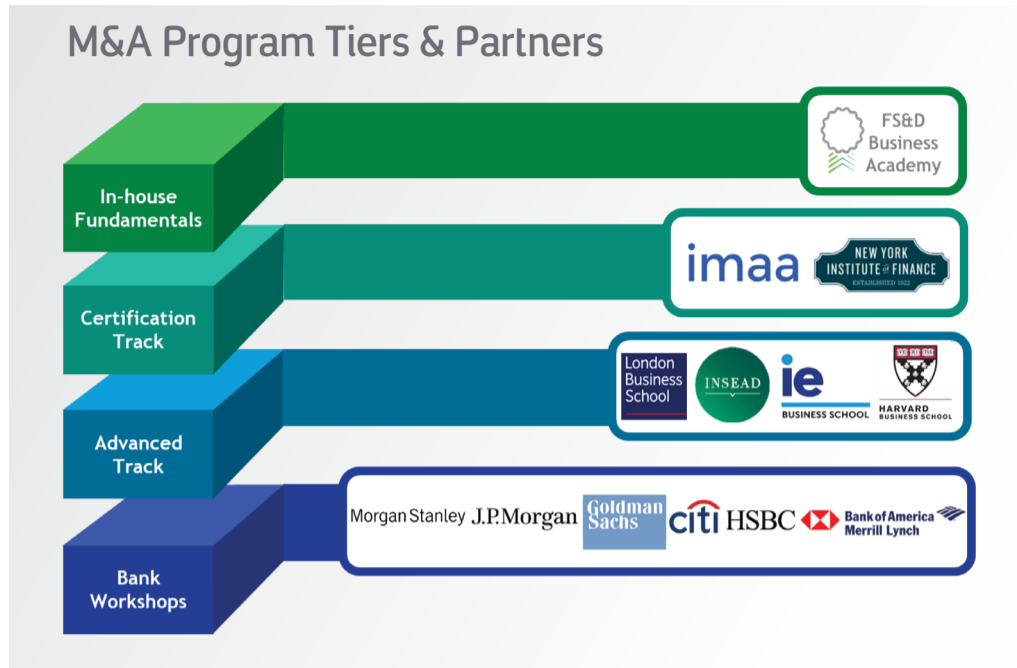
Al Nafea said she is pleased by the center's accomplishment in earning the CARF accreditation.

"I feel so proud to be a part of this accomplishment," she said. "It's hard to do and we did it."



(Photo: Hasan Al-Mubarak/MPD)

FS&D Business Academy launches Mergers & Acquisitions Program



Mergers and Acquisitions (M&A) take place for many strategic business reasons, with economic benefit at its core. The past few years have seen several major acquisitions that are aimed at driving shareholder value, and enabling Aramco's mission of becoming the world's leading integrated energy and petrochemicals company.

As part of Saudi Aramco's continuous commitment to M&A competency development for company employees, the FS&D Business Academy has developed a comprehensive program

that includes deal simulations, case studies, valuation analysis, due diligence, and various certification levels in collaboration with top tier international investment banks and M&A institutions.

Khalid H. Al-Dabbagh, Aramco's Senior Vice President of FS&D said "Achieving success through Mergers and Acquisitions is a company imperative as Aramco moves into the future. The newly developed M&A Program at the FS&D Business Academy will help all those interested in the exciting area

of M&A whilst developing core skills that will serve the company to deliver high quality transactions".

The launch of the M&A Program will enhance Aramco's expertise in creating more value through the full life cycle of M&A. Candidates from across the organization will be able to attend M&A residential programs at some of the top global business schools, including Harvard Business School, INSEAD, and London Business School. In addition, through our partnerships with banking & advisory institutions,

candidates will participate in tailored M&A workshops and practical sessions, providing hands-on knowledge transfer through group discussions. Premier world Investment banking firms will facilitate workshops to share key lessons learned from major transactions. This unique program is now available to interested candidates across business lines to develop their M&A skills and competencies.

For more information about the M&A Program, please email fsdba@aramco.com, or call (013) 873 6735.



Photographic memory

Aramco reaches 3 billion barrels
In early 1977, the computer in the Petroleum Accounting Unit, General Accounting, verifies that Aramco's 1976 oil production figures are over the 3 billion barrel mark. On Dec. 26, 1976, Aramco reached the 3 billion barrel mark of crude oil within one calendar year — averaging about 800,000 barrels per day. At that point, Aramco's cumulative crude oil production pushed beyond 27 billion barrels.



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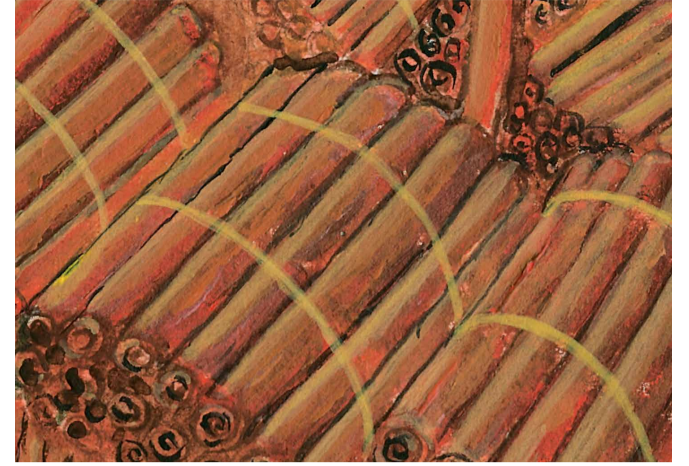


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the arabian sun

Cinnamon rolling through the centuries

see pages 6 and 7



Safaniyah Beach cleanup

In an effort to promote a healthy environment, the Offshore Projects Department (OPD) has embarked on a second Beach Cleanup Campaign. The first, "Go Green Plan" initiative was hosted at the al-Khobar Corniche in December 2020. A second campaign was conducted on Mar. 3, 2021, at the shoreline of the Aramco Safaniyah GOSP.

"OPD continues to execute major construction activities in the Safaniyah (and other) offshore fields. We are now a key contributor to this ecosystem and must rise to the responsibilities that come with the privilege of such an opportunity,"

stated Abdulaziz F. Dulaijan, manager of OPD. "It is for this reason that we have chosen to clean a portion of the Safaniyah shoreline of non-biodegradable material, knowing that our small effort will translate to a positive contribution to our host environment."

Several scientific research journals all agree on one thing, i.e., it takes centuries for non-biodegradable debris to naturally decompose. There is further scientific evidence that demonstrates the negative impact that the debris has on both the marine flora and fauna.

Armed and inspired with the knowledge, more than 250 Aramco and contractor employees signed up for the

cleanup exercise. The Northern Area Industrial Security Operations Department superintendent, Jamal I. Bubshait, participated in the cleanup effort. Representing the Safaniyah Offshore Producing Department was Salem S. Shegeih, the foreman of the Safaniyah South Field Services Unit. While recognizing both organizations, Dulaijan thanked them for their continued partnership as invaluable stakeholders to the department's efforts.

There was sufficient beachfront to allow for the implementation of social distancing during the cleanup exercise. Face masks and gloves were provided to ensure that COVID-19 protocols were strictly observed. Hand sanitization flu-

ids were also available and positioned strategically to ensure that a minimum spacing of 2 meters was observed at all time. Finally, 12 team leaders acted to ensure participants maintained physical distancing. They also supervised the general safety of the event.

The enthusiasm among the participants was very high and palpable. This was evident in the rate at which the 500 meters of beachfront was cleared of all non-biodegradable debris in approximately 50 minutes. Overall, 371 bags of debris — weighing a total of 1,800 kg — was collected during the cleanup event.

OPD themed this campaign, "Do your part ... pick up ... clean up."



(Photo: Mohammed Al-Ebn Alshaikh/MPD)



Palm Trees in al-Ahsa

Ayidh A. Qahtani captured this picture using his iPhone 11 Pro. This group of palm trees are located in al-Ahsa, as palm trees are an integral part of Saudi Arabia. Qahtani is a process engineer in the Process Control System Department. He has been with the company for five years.