Offshore Network

HSE KSA 2026: Saudi Arabia Health, Safety & Environment Outlook



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INTRODUCTION

As Saudi Arabia accelerates its Vision 2030 transformation, the scale and complexity of its megaprojects are reshaping health, safety and environmental management. From evolving regulations and contractor accountability to digital innovation, emergency preparedness and worker wellbeing, organisations face growing pressure to embed HSE into every stage of project delivery.

THE STATE OF HSE IN SAUDI ARABIA

Saudi Arabia is undergoing an unprecedented social and economic transformation underpinned by its Vision 2030 blueprint designed to create a vibrant society, build a diverse economy and champion environmental sustainability.

At the heart of the kingdom's diversification efforts are several massive transformative megaprojects backed by the Kingdom's Public Investment Fund (PIF) designed to widen employment opportunities, open up new sectors such as tourism, leisure and culture, enhance Saudi Arabia's position regionally and internationally and set new standards of sustainability and innovation.

They include NEOM, a 26,500 sq km carbon-neutral economic diversification megaproject comprising various cities, industrial hubs and resorts. In alignment with Vision 2030, NEOM's circular economy, zero-carbon approach and innovative design are set to redefine urban living, promoting sustainability and improving overall quality of life. Other megaprojects include Red Sea Global, a 28,000 sq km sustainability-focused luxury tourism project on Saudi Arabia's Red Sea Coast; Qiddiya, a 376 sq km cultural, sports and entertainment destination city; Diriyah,

SAUDI HSE STATISTICS

Key workplace health & safety indicators

51.8%
Workers reporting the availability of preventive measures implemented by their workplace

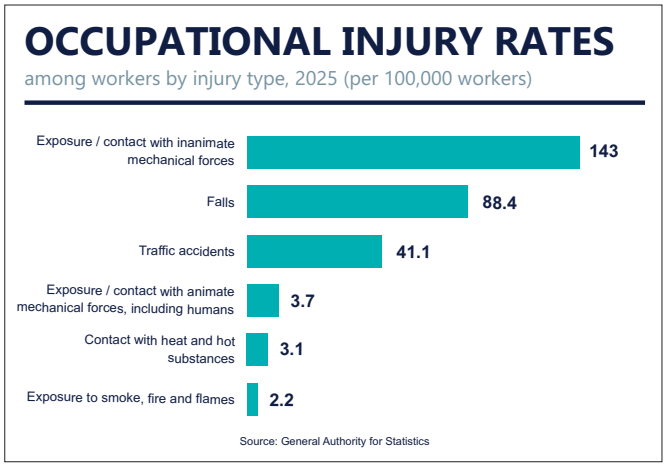
34.5%
Workers having access to workplace resources relating to their personal health

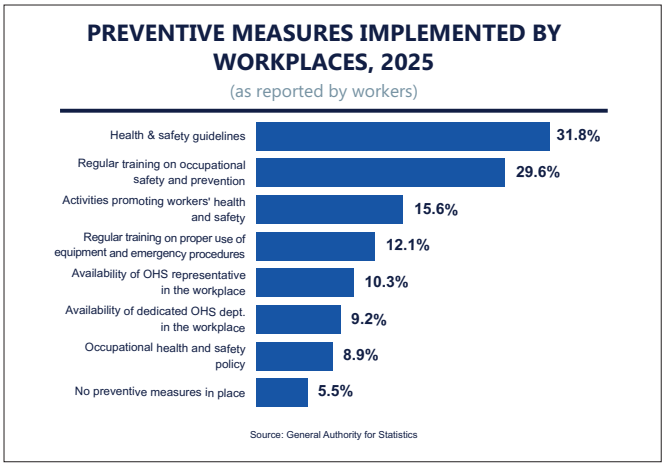
76.4%
Workers receiving training on preventive measures and material risks

29.5%
Workers regularly having occupational health and safety discussions with managers

46.6%
Workers having access to at least one wellbeing initiative to facilitate daily work tasks

Source: General Authority for Statistics, 2025





a development centred on the historic At-Turaif UNESCO World Heritage Site; and Rua Al Madinah, a 1.5mn sq m development in Medina, designed to host pilgrims and to enhance the experience of visiting Medina as a modern Islamic and cultural destination.

Construction and infrastructure expansion

All this entails construction and infrastructure expansion at an unprecedented pace and scale. Saudi Arabia's construction activity expanded for a fifth consecutive month in September, according to the latest Al Rajhi Capital Saudi Construction Index, with resilient market conditions and demand linked to large construction projects as key drivers of activity across residential, commercial and infrastructure work. Saudi Arabia's planned and active project portfolio in construction and real estate was valued at US$1.23 trillion during the first six months of 2026, according to Knight Frank's Saudi Arabia Construction Landscape Review, as the Kingdom's construction pipeline continues to expand under Vision 2030-linked development. A further US$940bn of projects across power, transport, industrial, water, chemical, gas and oil developments are also planned or underway.

These developments are creating increasingly complex HSE environments, and a significant demand for advanced HSE capabilities, with operators having to navigate complex contractor and subcontractor networks, workforce diversity, changing regulations, emerging technologies and evolving expectations around wellbeing and sustainability.

Evolving HSE landscape

The HSE landscape in the Kingdom continues to evolve, with workplace safety, worker wellbeing and environmental stewardship seen as key drivers of sustainable growth and viewed as essential to modernising industries and attracting international investment, core objectives of Saudi Arabia's Vision 2030.

In line with Vision 2030 and the drive to promote a more proactive HSE approach, organisations are moving beyond a narrow focus on regulatory compliance, towards a broader strategy encompassing risk management, business continuity and operational resilience.

ACWA Power's stance, for example, is that "Health, Safety, Security, and Environment (HSSE) is not simply a compliance requirement, it is a strategic imperative." Building a culture of accountability and ownership, raising standards and managing critical risks, and integrating HSSE into projects, tenders and partnerships are the three pillars that guide its approach to safeguarding its people, protecting its assets and ensuring business continuity. This approach is increasingly reflected by other organisations.

Diriyah Company, which is developing the Diriyah project, has been awarded the prestigious British Safety Council Sword of Honour for achieving a Five-Star Occupational Health and Safety Audit rating, which recognises excellence in health and safety management systems. It acknowledges the company's strong commitment to fostering a culture of safety and maintaining world-class health and safety standards and practices across its operations. Jerry Inzerillo, Group CEO commented that safety and well-being are "not just priorities; they are the foundation of everything we do."

Developing regulatory environment

Saudi Arabia continues to strengthen HSE governance, with greater emphasis on worker welfare, contractor accountability and compliance across megaprojects. There has been a significant evolution and tightening up of HSE

regulations, driven by the Ministry of Human Resources and Social Development (MHRSD) and its National Council of Safety and Health (NCOSH).

Recent regulations include the Occupational Fitness Examinations and Non-Communicable Diseases Regulation, which strengthens early prevention of work-related health risks by ensuring that the worker's health condition is suitable for the nature of the tasks performed, particularly in environments that require exposure to high temperatures or physical exertion (heat stress being one of the biggest hazards faced by outdoor workers in the Kingdom).

Another is the Regulation Governing Work in High-risk Occupations, which aims to regulate work involving higher levels of occupational risks and established controls and procedures necessary to protect workers and enhance safety in such occupations.

The NCOSH is playing a significant role in governing the occupational safety and health ecosystem at the national level, strengthening collaboration, coordinating roles and responsibilities among relevant stakeholders, overseeing the implementation of the National Occupational Safety and Health Policy and driving the adoption of global best practices and standards. It is instrumental in developing regulations and legislation, enhancing capabilities and resources, raising awareness among target groups, strengthening oversight and compliance, and encouraging organisations to adopt proactive practices that go beyond minimum compliance requirements.

The Council has signed a number of collaborations such as a partnership with the King Abdullah Financial District (KAFD), aimed at strengthening cooperation and exchanging expertise, knowledge, and best practices in OSH to promote a culture of prevention. It also includes the exchange of observations and lessons learned to support continuous improvement and enhance the effectiveness of risk management. The MoU provides opportunities for cooperation in capacity and skills development, in addition to exploring technological solutions and smart applications that support proactive practices and contribute to enhancing OSH performance.

PROTECTING SAUDI ARABIA'S MEGAPROJECTS

Saudi Arabia's mega projects present an unprecedented HSE challenge: delivering projects at an unprecedented scale and pace while maintaining consistent standards across complex, multinational workforces and supply chains.

Meeting expectations of stakeholders while maintaining safe standards of operation and prioritising worker welfare on fast-moving and demanding projects can be a challenge.

Dealing with variations in safety culture and behaviour as well as disparities in levels of competence of multicultural workforces, along with potential communications difficulties arising from language barriers, is an issue throughout the Gulf but is exacerbated in the case of some of these megaprojects which have seen large influxes of migrant workers. Managing and monitoring workers over large and sometimes remote areas and protecting large sites is another issue. Localisation requirements and quotas mean that training to bridge knowledge gaps of local contractors and suppliers and bring them up to international standards is required.

Training for diverse workforces

It has been found that migrant workers are more likely to make mistakes due to misunderstanding instructions, and more likely to suffer from fatal accidents. Making training programmes and technical safety content more accessible, engaging and understandable for diverse workforces is therefore critical.

Tailored training approaches that consider workers' specific cultural and linguistic context should be considered. Interactive engaging safety programmes that leverage visual learning techniques such as pictograms, visual aids and short videos can make critical safety information easier to understand. Digital learning technologies such as augmented reality, virtual reality and interactive e-learning training models can help improve engagement and reinforce safe working practices.

Jincom Arabia, for example, is developing training programmes with project developers in the Kingdom translating safety content into multiple languages, using minimal text and powerful visuals to communicate critical safety information, based on the philosophy that pictures speak the most universally understood language.

Digitising delivery mechanisms to enable organisations to track training comprehension and engagement, ensure consistent messaging across diverse workforces and



integrate safety content with existing management platforms is also key.

Subcontractor safety and competency

At HSE KSA 2025, issues around subcontractor safety and competency were discussed, where the importance of focusing on the safety management systems and practices of subcontractors was highlighted. Key takeaways included:

- The importance of a robust procurement process, with health and safety embedded right from the start and included in the assessment criteria

- The need for uniform HSE practices across projects and locations, with a focus on self-driven safety leadership and standards rather than relying on client-dependent compliance

- The need for main contractors and subcontractors to have their own HSE management systems

- The role of joint audits, engagement and leadership to improve overall safety culture; joint audit programmes involving the PMC, main contractor and subcontractors can be implemented to identify and address safety gaps

- The importance of evaluating subcontractors through metrics such as Lost Time Injury (LTI) rates and safety statistics, with incentives and penalties to drive continuous improvement

- The role of technology in providing accountability, real-time visibility and proactive monitoring; digital platforms can be implemented to track subcontractor safety metrics and automate alerts for proactive monitoring

- The importance of accountability and leadership and integration of HSE into business priorities.

There is also a need to address any gaps through targeted, on-the-job training programmes, with specific training programmes for the main risk-associated activities – particularly in light of the issue of the new Regulation on Organising Work in High-Risk Professions.

This raises the bar for workplace safety and compliance and could have a significant impact on operators of megaprojects, given work can involve elevated safety risks, such as working at height, heavy equipment operations, welding, cutting and mechanical work. Employees and workers are required to pass medical fitness examinations to obtain a license enabling them to perform the high-risk role, and employers have a duty to avoid assigning such roles to those who do not have the necessary licence in place. For some roles, specialist training will need to be completed before work can be performed.

Law firm Pinsent Masons comments that the new regulation "marks a decisive shift in how employers must manage safety critical roles, representing a structural change in the labour market that will require organisations to rethink how they recruit, train and supervise workers in high-risk environments."

DIGITAL TRANSFORMATION AND DATA-DRIVEN HSE

Technologies such as AI, the Internet of Things (IoT) and predictive analytics are pivotal in moving organisations from reactive to predictive safety management.

Digitalisation has evolved from a tool for operational efficiency into the cornerstone of modern Health, Safety, and Environment (HSE) management. Driven by Saudi Arabia's Vision 2030, AI, predictive analytics, digital twins, drones, connected worker technologies and integrated HSE platforms are rapidly moving from pilot projects to day-to-day operations. By shifting towards a digital-first approach, organisations ensure that safety, governance, and productivity scale seamlessly together across some of the Kingdom's most challenging environments.

Digital HSE platforms

To manage the massive scale of regional operations and mega-projects, Saudi-led deployments are utilising robust digital HSE platforms. Technologies like WakeCap, a sensor-powered project intelligence platform, blend global construction tech with deep industrial expertise to transform jobsite management. These platforms significantly improve critical operational areas:

- **Visibility:** Providing live, site-wide tracking for workforce location, safety, and productivity, replacing manual oversight with complete operational transparency.
- **Assurance:** Supplying empirical hard data to prove compliance and protect crews on the ground across offshore rigs and sprawling urban builds.
- **Reporting:** Automating the tracking of over 150 million labour hours across US$120 billion in active megaprojects
- **Accountability:** Setting a new benchmark for jobsite responsibility by monitoring workforce movements and ensuring strict adherence to safety protocols.
- **Decision-making:** Empowering leadership with the concrete data required to make smarter business choices and successfully reduce insurance costs.

AI & predictive analytics

Instead of relying on periodic, manual safety checks, operators are rapidly integrating advanced intelligence to predict vulnerabilities before they manifest into incidents. A prime example is ARO Drilling, a joint venture between Valaris and Aramco, which is rolling out ALTAVE's Harpia AI analytics platform across a fleet of nine Saudi Arabian offshore jack-up rigs. This application is driving the industry forward through:

- **Artificial Intelligence:** Utilising advanced AI-based video monitoring to minimise human error in highly demanding offshore environments.
- **Predictive analytics:** Shifting the HSE paradigm away from reactive lagging indicators toward predicting and mitigating risks before they occur.
- **Smart technologies:** Deploying computer vision and IoT sensor networks to actively protect workers and scale safety protocols seamlessly.
- **Real-time monitoring:** Maintaining continuous oversight of day-to-day work, replacing old-school manual checks.
- **Data-driven risk management:** Leveraging clear, actionable field data to ensure risks are significantly clearer and better managed.
- **Digital inspections:** Automatically checking that crews are wearing proper personal protective equipment (PPE) and keeping restricted operational zones secure.

Operational intelligence

By harnessing the wealth of data generated by AI and digital platforms, organisations are unlocking deep operational intelligence. Analysing field data at scale enables safety teams and leadership to actively use data to:

- **Identify hazards earlier:** Spotting potential risks early in both offshore and onshore environments through continuous automated monitoring.
- **Improve risk visibility:** Transforming complex, massive-scale sites into transparent operations where worker locations and potential danger zones are mapped live.
- **Strengthen barrier management:** Utilising computer vision to proactively manage restricted-area access and maintain critical safety boundaries.

- **Identify recurring trends:** Analysing data across millions of labour hours to spot historical patterns, behavioural risks, and systemic vulnerabilities.

- **Support proactive decision-making:** Supplying every level of the organisation with the intelligence needed to implement preventative safety measures rather than reacting to past incidents.

However, technology should not be seen as a silver bullet. Technology can enhance oversight but should not supplant the human responsibility inherent in safety roles, or create complacency, amplifying but not replacing human judgement and vigilance.

The ILO has also highlighted the importance of worker participation, appropriate governance and proactive risk assessment when introducing AI and digital technologies into occupational safety and health.

EMERGENCY PREPAREDNESS AND OPERATIONAL RESILIENCE

Emergency preparedness and response are essential to protecting people, safeguarding critical infrastructure and maintaining operational continuity across Saudi Arabia's rapidly developing urban, tourism and infrastructure sectors. Tourism, entertainment and large-scale public infrastructure projects are creating new HSE requirements around crowd safety, emergency preparedness and visitor protection. As the Kingdom advances its Vision 2030 ambitions, organisations must ensure that emergency management frameworks are robust, responsibilities are clearly defined and response capabilities are regularly tested.

Saudi Arabia's Civil Defence framework emphasises risk assessment, emergency planning, warning systems, inter-agency coordination and personnel training. These principles provide an important foundation for organisations seeking to strengthen resilience and prepare for a range of potential incidents, from fires and medical emergencies to infrastructure failures and environmental hazards.

Ultimately, emergency preparedness is an ongoing process rather than a one-off compliance exercise. By combining strong governance, engaged leadership, trained workforces and measurable performance, organisations across Saudi Arabia can strengthen resilience, protect people and assets, and maintain continuity when unexpected events occur.



Saudi Aramco well exemplifies this approach. Speaking at a recent conference, its CEO Amin H Nasser said that resilience is core to the company's design philosophy, guided by "Aramco Standards," which in many areas go beyond industry requirements.

"This means separating our critical facilities; building in backup equipment; planning for maintenance; emergency command and firefighting excellence; rapid damage assessment; and restoring damaged infrastructure at pace.

"And we put people at the heart of our resilience, with long-term investments to match."

HUMAN FACTORS, BEHAVIOURAL SAFETY AND WORKER WELLBEING

There is an increasing recognition that HSE performance depends on understanding the human factors that influence workplace decisions and behaviour. Systemic failures across industrial environments frequently stem from underlying breakdowns in organisational systems and leadership engagement.

Leadership accountability

Leaders should drive a safety first culture as a shared value throughout the organisation and embed accountability from the boardroom to the worksite, with clarity in roles and responsibilities. Leadership should be visible and accessible, breaking down barriers to create a culture where workers feel able to raise concerns about health, safety and welfare. This helps embed safety into everyday working practices. Leadership systems and management choices lay the structural groundwork for safety outcomes long before an incident occurs. Incidents occur when executive oversight relaxes, procedures become impractical, warning signs are normalised, and production pressure overrides safety protocols. Employee training cannot fix problems created by systemic leadership failure.

Key leadership drivers required to cultivate authentic safety cultures include:

- **Visible leadership and presence:** Executive presence on the operational floor, moving beyond audit checks to active engagement and supportive coaching. Leaders should lead by example and 'walk the walk', following up on any issues reported to them.

- **Team empowerment:** Giving employees ownership of their safety responsibility. Providing proper training, resources and fostering collaboration enables teams to prevent incidents before they happen, embedding an engaged and proactive approach

- **Open communication, eliminating blame culture:** Fostering psychological safety where workers feel empowered to report safety concerns and near misses and stop unsafe work without fear of reprisal. Sharing lessons learned and maintaining feedback loops helps everyone improve, so safety processes can evolve based on real experience. Fostering a culture of continuous improvement will make workplaces safer and more productive.

- **Aligning production with safety:** Ensuring that operational schedules and financial targets do not penalise supervisors who enforce safety pauses.

Mitigating human error

Human error remains a major contributor to industrial incidents. Addressing human error requires combining advanced human-factors training with systems that monitor physical fatigue and psychological stress before they manifest in site incidents. SafeStart has pioneered a human factor approach which addresses personal physical and emotional states. Four primary active states (fatigue, rushing, frustration, and complacency) frequently trigger critical errors such as loss of focus or balance. SafeStart has introduced techniques for reducing critical errors, which can be anticipated by self-triggering on the active states.

Worker welfare and wellbeing

Worker wellbeing is increasingly recognised as a direct determinant of safety performance and of business performance generally. Worker mental health, psychological safety, and living conditions directly impact cognitive function and risk awareness. Organisations that invest in comprehensive welfare programmes demonstrate measurable reductions in absenteeism, staff turnover, and site safety infractions. Mace, for example, has integrated psychological safety into its core values in a bid to create a thriving workplace that prioritises health, safety and wellbeing while fostering trust and collaboration.

CONCLUSION

Saudi Arabia's HSE landscape is entering a new phase where operational success will depend on:

- Moving beyond compliance towards ownership
- Embedding HSE into strategic business decisions
- Managing increasingly complex mega-project environments
- Strengthening contractor accountability
- Using digital technologies and data to anticipate risk
- Building organisational resilience
- Developing stronger HSE leadership and workforce capability
- Integrating human factors, wellbeing and behavioural safety
- Preparing for evolving regulations and ESG expectations.

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