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Exploring Opportunities in German-Saudi Cooperation: Utilising playgrounds for early-childhood education for sustainable development

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Utilising playgrounds for early-childhood education for sustainable development

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Introduction

This policy paper explores the potential for collaboration between Germany and Saudi Arabia in the realm of Education for Sustainable Development (ESD). Against this backdrop, it is argued to include educational landscapes with an ESD focus in out-of-school places, such as playgrounds, and in early-childhood and school education. ESD could serve as a response to the pressing issue of human activity driving irreversible changes to Earth's environment and climate, threatening the stability and liveability of the planet. While existing collaboration between the two states primarily focuses on energy transformation and economic cooperation, this paper suggests expanding their partnership to encompass environmental sustainability. Both countries are currently in the process of reforming their education system, driven by Saudi Arabia's 'Vision 2030' and efforts to reduce educational inequalities among children and youth in Germany. However, gaps persist in areas such as the Saudi Green Initiative and the Quality of Life (QoL) Programme in Saudi Arabia, and the diminishing focus on ESD in Germany due to a growing lack of teachers and other educational experts. In this context, the paper highlights the potential of parks as a platform for accessible, affordable, and inclusive environmental education, with ripple effects on health, social life, and intergenerational knowledge transfer. It also proposes recommendations such as learning through play, setting standards for parks, and conducting awareness campaigns.

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Saudi-German Cooperation Potential in ESD

The bilateral relations between Germany and Saudi Arabia are characterised especially by economic ties. High-level visits by Chancellor Olaf Scholz in September 2022¹, Foreign Minister Annalena Baerbock in May 2023, Minister of State Tobias Lindner in June 2023², and German Economy and Climate Minister Robert Habeck in January 2024³ are examples of the diplomatic exchange between the two governments. In 2022, Germany's exports to Saudi Arabia totalled \$7.1 billion, consisting mainly of machinery and motor vehicles. For its part, the Kingdom exported goods valued at \$2.61 billion to the Federal Republic.⁴

Both Saudi Arabia and Germany are undergoing a significant energy transition and promoting alternative energy sources. Since the Russian war on Ukraine started in February 2022, Germany has shifted its energy supply away from Russian natural gas and oil, diversifying its energy partnerships as a result. In this context, Saudi Arabia has become a relevant partner. Saudi Arabia's efforts to diversify its energy production and consumption portfolio to include renewables alongside oil and other fossil fuels also provides opportunities for mutual economic cooperation, knowledge transfer, and political partnership. This led to the signing of a Memorandum of Understanding (MoU) covering renewable energies and other potential elements of deeper ties between the two states in March 2023.⁵ Cooperation between Germany and Saudi Arabia focuses mainly on green hydrogen production, exemplified by the existence of a Hydrogen Diplomacy (H2-Diplo) Office run by the Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), Germany's development cooperation agency, in Riyadh.⁶ A meeting between Dr Jörg Kukies, then-State Secretary in Germany's Federal Ministry of Finance, and Saudi Arabia's Minister of Economy and Planning Faisal bin Fadel Al-Ibrahim during the 2023 SDG Summit in New York also demonstrated both countries' commitment to cooperate more along the lines of the Sustainable Development Goals (SDG).⁷

The awareness of the need to jointly pursue the SDGs arises from the consequences of climate change, which can already be felt in both countries and will have consequences not only for the populations, but also for the economies of Saudi Arabia and Germany. Worldwide, scientists have determined that human activity has caused Earth to exceed six of nine boundaries within which human life can thrive and maintain the planet's stability and biodiversity.⁸ In Germany, the transgression of these limits manifests in changes to vegetation periods and increases in soil temperature, along with increased risks of forest fires, heat stress, heavy rainfall, and prolonged droughts.⁹ Similarly, Saudi Arabia grapples with rising temperatures and intensified heatwaves, straining public health, agriculture, and energy resources. Climate change exacerbates water scarcity in Saudi Arabia, impacting food security and economic stability, while desertification and extreme weather events escalate land degradation and pose risks to lives and property.¹⁰ Both countries thus face grave threats from climate change, including decreased precipitation and increased temperatures, exacerbating existing challenges and underscoring the urgent need for adaptation measures.

Against this backdrop, both states have shown more interest in enhancing their energy partnership by expanding knowledge transfer, economic cooperation, and hydrogen trade. However, the field of Education for Sustainable Development (ESD) is not a prominent pillar of current cooperation.¹¹ Nevertheless, in light of mutual challenges in climate change, this area offers great potential, as both states are endeavouring to promote climate protection and adaptation to climate change. To achieve this, both countries must implement innovations that render possible a future in which the stability of the Earth system – defined as the sum of the physical, chemical, biological, and social components, processes, and interactions that influence the state of and changes to the planet Earth¹² – is maintained and secured. Future leaders, defined as the students of today who will work in politics, economy,

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academia and other fields, will create these innovations. They need to be empowered to solve problems holistically, preventatively, and in a way that promotes the protection of planetary boundaries.

ESD addresses this urgent priority in a comprehensive way. The ultimate goal of ESD is to empower individuals of all ages (but in particular children) to make informed decisions and take responsible actions that contribute to a sustainable and ecologically healthy future.¹³ Childhood is the formative period when children develop foundational values and attitudes, are instilled with a sense of responsibility, respect, and appreciation for the environment, and establish a connection with nature. This connection is essential for promoting a sense of wonder, curiosity, and understanding of the interdependence between humans and the environment. Early education can influence and reinforce such behaviour and choices, encouraging eco-friendly habits that contribute to long-term environmental conservation. It also enhances overall cognitive development and wellbeing and fosters leadership, as well as skills and mindsets essential to moulding globally minded citizens.¹⁴ These competencies are crucial, not only to overcoming climate change, but also to adapting to the rapidly changing job market, which is characterised by new technological developments such as the introduction of artificial intelligence (AI).¹⁵

Therefore, ESD plays a crucial role in producing proactive, environmentally conscious global citizens. However, the existing global education system is insufficient in preparing these future leaders. It remains too strongly oriented towards the Industrial Revolution model, meaning that performance is at the centre of the school system, which aims to increase the intelligence quotient (IQ).¹⁶ To effectively tackle 21st-century climate crises, the education system thus needs to be transformed, prioritising not only job readiness and competitiveness, but also emotional intelligence and well-being.¹⁷

ESD in Saudi Arabia

Since the inception of 'Vision 2030' in 2016, sustainability has taken centre stage in Saudi Arabia, leading to the launch of initiatives such as the Saudi Green Initiative (SGI) and the Quality of Life Programme (QoL). These initiatives aim to combat climate change, enhance the quality of life in the Kingdom, and safeguard the environment for future generations.¹⁸ While these efforts align with the SDGs on a national scale, there are discernible gaps in the strategy.

So far, the SGI focuses mainly on emissions reduction, afforestation, and land and sea protection, while the QoL Programme strives to improve culture, entertainment, sports, and tourism. These programmes not only diversify economic activities, but also contribute to local employment and urban beautification, ultimately enhancing the quality of life. However, the role of education in fostering social awareness and equipping citizens with skills for sustainable behavioural change is notably absent from these initiatives. On the other hand, other Saudi initiatives, such as those of the Prince Mohammed bin Salman bin Abdulaziz Foundation (Misk Foundation), do focus on educational reforms and youth empowerment. Established by Crown Prince Mohammad bin Salman in 2011, the Misk Foundation is dedicated to cultivating leadership skills and promoting learning among the youth for a better future in Saudi Arabia.¹⁹

Across the board, however, Saudi organisations and initiatives overlook early-childhood education and ESD, even in cases where the youth (15-34 years old) are explicitly targeted. As highlighted by Essa and Harvey's (2022) paper focusing on the role of ESD in media and government policy documents in Saudi Arabia, "Vision 2030 does not position ESD as a primary tool for achieving sustainability and environmental preservation."²⁰ The paper uncovers a limited perspective in the discussion concerning

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the incorporation of ESD within the 'Vision 2030' framework. Furthermore, the analysis addresses a wide generalisation in the language employed to outline the plan for implementing ESD, accompanied by ambiguity concerning the suggested procedures for integrating ESD into the Saudi education system. Consequently, there is an absence of a comprehensive strategic plan with predefined steps. The study's findings suggest that despite assertions to the contrary, the Saudi government may not be approaching the integration of ESD into education with the seriousness and commitment that it warrants.²¹ To fill this gap, the responsibility of ESD integration is shouldered by non-profit organisations (NPOs), non-governmental organisations (NGOs), and startups. Since these entities each develop and offer their own environmental education programmes, there is inconsistency across learning environments and a lack of documentation and reporting on the subject. Therefore, in spite of the Ministry of Education's aim to set the SDGs as a key priority to be integrated in its strategy and curriculum²², the institution does not take the lead in harmonising content and approaches across entities under the Saudi Vision 2030 framework. Furthermore, its approach to sustainable development remains mainly technical, focusing on environmental initiatives and efforts to reduce natural-resource consumption, as opposed to integrating ESD seamlessly into the school curriculum.

In terms of early childhood initiatives, the Ministry of Education in Saudi Arabia concentrates on the basics of physical, social, emotional, and mental development for students aged three to eight years. Initiatives include establishing a children's TV channel, developing standards for children's knowledge and skills, and implementing a mother and child education programme.²³ Despite such initiatives, however, ESD for early childhood is still not recognised as a concept or priority.

Finally, there is also a lack of cooperation between relevant entities, such as the Ministry of Education, Ministry of Energy, Ministry of Environment, Water, and Agriculture, Ministry of Human Resources and Social Development, NPOs, NGOs, and initiatives under Saudi 'Vision 2030' to ensure the fulfilment and optimisation of the development and delivery of ESD. Addressing this challenge is crucial for the comprehensive integration of ESD into Saudi Arabia's educational landscape.

ESD in Germany

Compared to Saudi Arabia, Germany has a long tradition of ESD. Since the 1980s, there has been a growing awareness of environmental issues at the national level and of environmental education as an important part of the education system and social values in Germany. Environmental education in Germany is carried out by a variety of actors, including state institutions²⁴ and federal associations²⁵, non-governmental organisations (NGOs)²⁶, educational institutions, businesses, and local initiatives. At the national level, it is primarily the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection (Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz, BMUV) that initiates and funds environmental education programmes. As a higher federal authority within the BMUV, the German Environment Agency (Umweltbundesamt, UBA) is involved in the development of environmental education strategies and materials. In addition to governmental actors at the federal and state levels, private foundations, including environmental foundations such as the German Federal Environmental Foundation (Deutsche Bundesstiftung Umwelt, DBU), are also involved in environmental education projects, along with companies as part of their corporate social responsibility (CSR).

The National Action Plan for Education for Sustainable Development (NAP ESD)²⁷, which is the German contribution to the UNESCO Global Action Programme, sets out the roadmap for transforming the education system towards more sustainability. Although public spending on education has increased in

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recent years²⁸, the sector is still facing large challenges: Unequal distribution of educational opportunities and an existential shortage of teachers currently characterise the German education debate. There will be a shortage of 20,000 to 45,000 teachers in Germany by 2025 and up to 81,000 by 2030, affecting primary schools in particular.²⁹ The shortage of teachers has a significant impact on the nationwide introduction of ESD, which means that additional burdens, such as the implementation of ESD in everyday school life, are currently being put on hold in favour of regular school operations, which include all subjects and lessons.

More financial contributions can certainly help, but these alone will not solve the teacher shortage, as the teaching profession is no longer attractive to many.³⁰ Long-term reforms are needed here, but educational concepts such as ESD also need to be implemented in the short term to enable children to think and act sustainably and develop ideas on how to coexist and promote global prosperity for present and future generations. It is therefore important to look for alternative extracurricular activities that teach ESD.

Playgrounds as a Space for ESD Cooperation between Germany and Saudi Arabia

As outlined, Germany and Saudi Arabia are still facing challenges to introduce ESD into their respective education systems. In general, environmental education can be formal, such as through school curricula, or informal, taking place in community organizations, nature centres, and through media. Concerning ESD, there remains untapped potential in both Saudi Arabia and Germany, particularly with respect to early-childhood environmental education. Scientists have discovered that it takes approximately 400 repetitions to create a new synapse in the brain, unless it is done through play, in which case it only takes 10 to 20 repetitions.³¹ Incorporating environmental education in early childhood is thus essential for shaping environmentally conscious individuals who are equipped to address the environmental challenges of the future and contribute to a more sustainable world.³²

Therefore, including educational landscapes with an ESD focus in out-of-school places relevant to early-childhood education constitutes an excellent opportunity for enhanced cooperation between Germany and Saudi Arabia. In this regard, playgrounds in parks present a non-school learning space in which ESD could be promoted on a more comprehensive level. Creating playgrounds that incorporate environmental education elements would not only provide children with a fun and interactive way to learn about the natural world, but also indirectly nudge parents to adopt more sustainable mindsets and behaviours. These elements could include: eco-friendly and local materials, vegetable and herb gardens, nature exploration zones, educational signage, recycling stations, solar-powered play equipment, birdhouses and feeders, nature art stations, and sensory gardens to stimulate children's senses and provide an opportunity to learn about different plant characteristics.

Collaboration between Saudi Arabia and Germany is particularly beneficial in this regard, given Germany's rich tradition and expertise in park culture, playgrounds, and green urban recreational areas. This experience can provide valuable insights and influence ongoing Saudi initiatives under 'Vision 2030' to improve green spaces, including parks, in urban centres such as Riyadh. Such cooperation could focus on three main areas:

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Infrastructure development

In Germany, a plethora of companies³³ focus on environmental and adventure playgrounds that promote the concept of nature-inspired playgrounds in which not only sustainable raw materials are used, but also knowledge transfer along the lines of ESD takes place. Examples for environmental and adventure playgrounds are Wilde Welt (Berlin, Kienberg)³⁴ and Wicke (Berlin, Marzahn-Nord).³⁵ Highlighted by megaprojects like The Line – a city under construction that aims to establish a zero-carbon, zero-waste, and zero-commute metropolis in NEOM – the Kingdom of Saudi Arabia is also demonstrating significant interest in transforming cities into sustainable and environmentally friendly spaces.³⁶ In addition, the Kingdom is promoting investment in playgrounds as educational and developmental tools, such as the King Salman Park in Riyadh. Accordingly, Saudi Arabia can leverage German expertise from companies specialising in these areas. For its part, Germany can learn from Saudi Arabia regarding the adoption of techniques, designs, and materials that adapt to and mitigate extreme weather conditions, such as heat, in the vicinity of parks and playgrounds.

Skills development and cultural exchange

To ensure culturally relevant, collaborative, participatory, and interdisciplinary cooperation, exchange programmes are essential. These programmes could include primary-school and kindergarten teacher exchanges as well as exchanges between German and Saudi university students across various disciplines such as design, architecture, education, psychology, and sustainability, enabling contributions to playground design and sustainable material selection. Furthermore, arts residency programmes, in partnership with existing artist residencies and Saudi and German consulates, can facilitate artist involvement in playground design, integrating messaging, awareness-raising and participatory elements.

Cultural knowledge exchange and country-level data survey

Saudi-German digitisation efforts can include embedding QR-code sculptures within playground areas, allowing community members to upload images of their local flora, community activities, and gardens, creating an informative digital library accessible to the people of both countries. This way, citizens could learn about flora in their own communities while discovering about community engagement in another country, thus gaining insight into best practices and enhancing their own approaches. This cultural knowledge exchange could be established in the long term through a sister city approach. Additionally, uploading images would contribute valuable data for further research within the countries.

Conclusion

This policy paper emphasises the opportunities associated with collaboration between Germany and Saudi Arabia in the field of ESD, with a specific focus on leveraging the potential of playgrounds for early-childhood education. In order to address the significant challenges arising from climate change, a fundamental shift in education models needs to occur in order to nurture environmentally conscious and proactive global citizens. While both societies are undergoing significant educational reforms, identified gaps in initiatives like the Saudi Green Initiative and the Quality of Life Programme, as well as a lack of teachers to implement ESD in German schools, underscore the potential for enhanced collaboration between Saudi Arabia and Germany in finding creative ways to address these challenges. The paper advocates for the utilisation of parks and playgrounds as inclusive platforms for

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environmental education, stressing their potential benefits to health, social life, and intergenerational knowledge transfer. Recognising the urgency of planetary threats, the paper underscores the importance of ESD and calls for equipping future leaders with comprehensive skills to address 21st-century challenges.

Policy Recommendations

Overall, the recommendations aim to foster an informal approach to ESD and encourage collaboration between Saudi Arabia and Germany, along with an exchange of best practices to leverage parks as places for awareness-raising, learning and exchange.

To national authorities in Saudi Arabia and Germany

1. Increasing investment in awareness-raising campaigns, training and exchange programmes, and relevant research studies. Funding could come from ministries of education or culture, and specifically from Germany's Federal Ministry for Economic Cooperation and Development (BMZ). The German Academic Exchange Service (DAAD) or organisations such as the Robert Bosch Foundation and Stiftung Mercator in Germany, as well as the King Khalid Foundation, Ithra, Neom, and Misk Foundation in Saudi Arabia could also play an important role.
2. Supporting the incorporation of ESD infrastructure in parks at the municipal level, for instance through subsidies and reduced bureaucracy.
3. Promoting a bottom-up approach by partnering with organisations like H2-Diplo, the Center for Applied Research in Partnership with the Orient (CARPO), and the Konrad-Adenauer-Stiftung (KAS) to create formats that foster community participation and local policy development through community-based programmes.
4. Adopting the 15-minute city urban-planning concept to ensure that parks are accessible within a 15-minute walk from every neighbourhood.
5. Implementing and developing joint standards for sustainable park design and implementation to ensure early-childhood ESD. The two countries thus stand out as role models for bilateral cooperation in this field. The process of developing these standards, and possibly the standards themselves, could be adopted by other countries.
6. Promoting joint Saudi-German ministerial participation in conferences, workshops, and initiatives organised by international bodies like UNESCO and the World Economic Forum. This could provide a platform for sharing best practices between Saudi Arabia and Germany, and between the two countries and the world. Further Institutions that could host such exchange platforms are the Misk Foundation, Diriyah Biennale Foundation, King Khalid Foundation, Saudi Youth for Sustainability, or the Aloula Organization in Saudi Arabia, KAS in Germany, or the Global Shapers community, which is part of the World Economic Forum.

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To local authorities in Saudi Arabia and Germany

1. In partnership with NGOs, NPOs, and start-ups, supporting joint initiatives between Saudi and German municipalities and/or educational institutions. These could include training programmes, workshops, and resources focused on capacity-building and accompanying children and parents in parks for additional awareness-raising purposes.
2. Fostering collaboration in higher education and research, including student and faculty exchanges, joint research projects, and academic partnerships. This would enhance understanding of places like parks and their importance as places of extra-curricular education in connection with ESD. Collaboration between the following entities may be relevant: King Abdullah University of Science (KAUST), Prince Sultan University CSC, Dar Al-Hekma University, Princess Noura University, or NEOM in Saudi Arabia, along with the Research Institute for Sustainability (RIFS) and the Technical University of Berlin in Germany.
3. Encouraging the integration of community knowledge, local and recycled materials, and flowers, trees, and other elements of local ecosystems within the park's environment.
4. Involving the playground's community in the process of its design, implementation, maintenance, and development to ensure relevance and value added to the people who will use it. This could be done in collaboration with existing initiatives with expertise in public engagement, such as Stadtlabor or the Berlin School of Public Engagement and Open Science.

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