

German Science Night

24 May 2018

Report

On the evening of 24 May 2018, the DAAD Regional Office Cairo opened its doors to a public audience for the second German Science Night organised by COSIMENA in cooperation with the Cairo department of the German Archaeological Institute (DAI). The concept and the theme of this special event stem from the German initiative of "Lange Nacht der Wissenschaften" (long night of the sciences), where universities and other research institutions in a city present their work in a creative and playful manner in order to arouse interest and curiosity about science particularly among young participants. With this goal in mind, three venues in Cairo's central district Zamalek united to form a campus of science. Visitors, at any point of time, were able to move freely between the DAAD, the DAI and the Zamalek Cinema and to take part in their individual programmes. At the DAAD and the DAI, around 30 Egyptian and German scientists and expert teams provided insights into their ongoing research projects through short talks, exhibitions and interactive workshops, whereas three scientific documentaries were shown in the Zamalek Cinema.

The German Science Night was inaugurated at the Zamalek Cinema with a welcome address by Dr. Roman Luckscheiter, Director of the DAAD Regional Office Cairo, and H.E. Sönke Siemon, Deputy Head of Mission of the German Embassy in Cairo. Both underlined that the interactive format of the event offers a promising way of bridging the gap between scientists and the public by encouraging visitors to discover science first-hand.

Scientific Documentaries

Right afterwards, the screening of three scientific documentaries started in the Zamalek Cinema. The movies discussed global challenges in the fields of agriculture as well as urban planning and development and allowed spectators to retrace how countries in the Middle East, Europe and all around the world are undertaking efforts to tackle those issues. The first documentary "Smart Cities – Building for the Cities of Tomorrow" follows the debate on what green, efficient and technologically advanced cities of the future should look like, with a focus on sustainable building. Successful pilot projects presented in the movie serve as examples of how innovative construction methods can be used to overcome problems like air pollution or increased energy and water consumption resulting from growing urban population worldwide. Sustainable building concepts can also be adapted to arid regions as demonstrated by the Sheikh Zayed Desert Learning Center for example, a museum and research centre in the United Arab Emirates, which uses earth pre-cooling for air conditioning and a photovoltaic system for energy supply.

This was followed by an episode of "National Geographic Megafactories" that looks behind the scenes of Almarai in Saudi Arabia, the largest vertically integrated dairy company in the world. Throughout the movie, the entire production process is made

visible, starting with a herd of 135.000 Holstein cows to 2.5 million litres of milk being processed daily to a range of 2

products to the supermarket shelf. At the same time, animal health as well as food quality and safety are being ensured with the aid of constant research and innovative technologies.

The last documentary rather offered a historical perspective on modern technological achievements by portraying the German philosopher, mathematician, historian and lawyer "Gottfried Wilhelm Leibniz – The Last Universal Genius". Different experts in the movie explain how their research today rests upon Leibniz' work, whose discoveries and inventions in the 17th century, the binary numeral system for instance, made computers, the Internet and social networks possible.

Scientific Short Talks at the DAAD

Meanwhile, a series of scientific short talks were held at the DAAD, which began with an introduction by Dr. Luckscheiter about the presence of the DAAD in Egypt and its endeavours to foster German-Egyptian scientific collaboration. Afterwards, Prof. Dr. Stephan Seidlmayer, Director of the DAI Cairo Department and this year's main event partner, welcomed all guests once more before giving an overview about "German Archaeology in Egypt" and the activities of the DAI. In the eleven talks that followed, Egyptian alumni of German universities alongside other experts from German and Egyptian research institutions gave an insight into one of their current projects, each in a 15-minute talk. For three hours, participants could choose between a vast range of topics all of them referring thematically to one of the seven clusters of COSIMENA.

Prof. Dr. Ghada Bassioni and Dr. Iman Goma, both graduates from the Technical University of Munich, focused on green construction materials with reduced CO₂ emissions in cement manufacturing and on achievements of genetic research in cancer therapy. The programme also featured three alumni of the Technische Universität Berlin: Mohamed Ashraf Hilal's presentation about the Water-Energy-Food Nexus introduced amongst others affordable sanitation systems that can be implemented in Egypt's developing communities. Dr. Moamen elSoudani talked about the potential of renewable energies in urban development towards energy-efficient houses, whereas Dr. Basant El Kady's topic was about the production of so-called recombinant proteins that are biotechnologically produced and can be used pharmaceutically. An alumnus of the Philipps-Universität Marburg, Mahmoud Khairy, took a closer look at the economic development in Egypt and current challenges. Another expert took the visitors on a journey to Egypt's pharaonic past: Ahmed Soliman from the Agricultural Research Centre gave a detailed overview of the botanical diversity of ancient Egyptian gardens whereby he referred to different archaeological sources. Isolde Lehnert from the DAI Cairo Department uncovered the extraordinary biography of Dr. Max Meyerhof, a German eye doctor who first came to Egypt in 1900, where he soon obtained the status of an excellent physician, translator of scientific medical papers and mediator between German and Egyptian research. The programme concluded with Prof. Dr. Abbas Yehia from the National Research Center and the German University in Cairo, who discussed possible strategies in the field of eco-friendly rubber waste management, more precisely the recycling of car tyres and their usage as a floor covering in children's playgrounds.

Science Communication

Another focus of the evening was on the different channels through which science can be effectively communicated to the public. In this context, Ashraf Amin, Head of the Science and Health Department of Al-Ahram newspaper, gave a presentation about science journalism as one of the growing and important thematic media to promote evidence-based science in society. Al-Ahram, the most widely circulating Egyptian daily newspaper and the oldest one in the MENA region, established a science department decades ago. As a journalist, Amin is responsible for a weekly page about science and health as well as for the Al-Ahram science club, which is a weekly session open to the public with the goal of simplifying the access to stories about science for a broader audience. Another speaker, Dr. Gertje Krumbholz, DAAD lecturer at the German Department of Cairo University, offered a small workshop where she first talked about the challenges which journalists can face in their daily work followed by some exercises, where participants learned for example strategies for creating an appealing title for articles about science. Since science communication affects all age groups, an episode of the German children's TV series "Die Sendung mit der Maus" ("The Show with the Mouse") was shown between the two presentations. The TV show consists of different segments including cartoons and educational parts and aims to convey knowledge and information to children in a humorous way. Each TV show is trying to answer a specific question, in this case "How does an LED work?".

Science Garden

For the first time, the DAAD was also able to offer an interactive programme on its grounds. A highly motivated team including two Egyptian start-ups, the German University in Cairo (GUC) and the Deutsche Evangelische Oberschule (DEO) transformed the DAAD garden into a Science Garden and invited visitors to experience science at close range through several hands-on activities. Fabri Gate, one of the start-ups that joined this year's science night, was represented by its co-founder Mohammed Bashier and his team. Fabri Gate is a digital fabrication technology provider that not only designs and manufactures 3D printed objects from digital data, but also sells 3D printers and other high-quality technical machines and supports entrepreneurs to increase their level of innovation and creativity through training sessions. Visitors could get a glimpse of Fabri Gate's technology demonstrated through live 3D printing and a sample of 3D printed objects. Furthermore, Essam El-Saadi and his colleagues presented PraxiLabs software, which was also developed by a young start-up from Cairo. Concerning the importance of laboratory experiments in science education, which are often not easily affordable for students and educational institutions, PraxiLabs offers virtual science labs accessible from everywhere. Under the guidance of El-Saadi, visitors were able to perform scientific experiments in the comfort of the garden through PraxiLab's 3D simulation of a realistic lab. Another highlight were the robotics and virtual reality applications brought live to the DAAD by young scientists from the GUC. Through the presentation of anthropomorphic robotic hands, the audience was able to control the movement of these machines themselves and to understand the mechanic control system behind them. In addition to that, the GUC team offered a virtual

reality experience where visitors could take a walk in a nearly perfectly simulated environment including all audio-visual and physical characteristics. Finally, the DAAD was pleased to welcome Franz Mertens, Math and Physics teacher at Deutsche Evangelische Oberschule (DEO) in Cairo, and a group of young students from one of the most renowned German schools in Egypt. They performed a number of physical experiments that inspired especially the younger participants to become active and understand the impact of science on our daily life. The DEO also engaged the audience through a small competition to test their scientific knowledge. Winners received COSIMENA customised UpFuse bags, an Egyptian brand that upcycles plastic bags into fashionable bags, notebooks, phone covers and much more, provides job opportunities and spreads awareness about plastic consumption in Egypt.

Scientific Short Talks at the DAI

At the DAI, Prof. Seidlmayer welcomed archaeologically interested guests with a diverse programme all about Egypt's rich cultural heritage. Simultaneously with the programme at the DAAD, a series of short lectures started, where researchers of the DAI and experts of Egyptian universities allowed visitors to catch a glimpse of the successful German-Egyptian joint research in exploring Egypt's past. Dr. Martin Sählhof from the GUC focused on strategies in heritage conservation and preservation of monuments and explained how digital technologies can contribute to the accessibility of collected data. Prof. Hosam Refai presented the Heritage and Museum studies programme at Helwan University. Amongst others, a joint Master's programme in Heritage Conservation and Site Management was established in 2012 between Helwan University and Brandenburg University of Technology Cottbus-Senftenberg in Germany with currently 99 enrolled students from 19 countries. DAAD long-term lecturer at Ain Shams University, Dr. Cornelia Römer, talked about teaching papyrology in Egypt, which is one of her main research areas, and showed different examples of what is written on papyrus. Two experts of the DAI Cairo Department provided insights into their research projects at different sites: Dr. Clara Jeuthe gave a report about the discovery of flint tools on the Elephantine island in Aswan, whereas Marie Kristin-Schröder described the different facets of Nubian-Egyptian interactions in Upper Egypt.

Exhibitions and Movies in the DAI Garden

Apart from the lectures, visitors could take a stroll through the DAI garden and learn more about some initiatives for the preservation of the cultural heritage in Egypt in different ways. A poster exhibition informed about the history as well as the numerous activities of the DAI Cairo Department, which are not limited to dozens of archaeological projects all around the country but also include training workshops for young Egyptian archaeologists and study trips to Germany. The DAI is open to the public and scholars as a research facility with its archives and library and organises several conferences and roundtables. This information was accompanied by film footage from the DAI archive, which took the audience on a visual journey to the various archaeological missions and findings from the North to the South of Egypt. Another exhibition on the museum and heritage sites in Egypt was one of the programme highlights. Done by students of Helwan University, the exhibition showed the diversity of the museum landscape from Aswan to Alexandria by not only providing information about famous institutions like the Egyptian Museum in Cairo,

but also about exhibition sites not that well-known in the public including a Crocodile Museum in Aswan or the Umm Kulthum Museum in Cairo.

Presentation of German Universities and Research Institutions

Throughout the evening, the liaison offices of German universities and research institutions in Cairo, which are the Technical University of Munich, the Technische Universität Berlin, the Freie Universität Berlin, the Philipps-Universität Marburg and the Orient-Institut Beirut as well as Helwan University presented their institutions at the DAAD and the DAI and informed about their study programmes. Furthermore, the DAAD and the Alexander von Humboldt-Foundation introduced their funding schemes for study and research projects and explained the different steps that need to be taken in order to apply for these programmes.

Suhur on the DAAD Grounds

Since the German Science Night took place during Ramadan, Suhur was served at 1.00 am to all guests on the DAAD grounds. The evening was rounded off in this special and vivid atmosphere by fruitful and stimulating discussions between visitors and experts. The various contributions proved once more that science does not happen behind closed laboratory doors and showed the inspiring effect of personal exchange of views in order to foster scientific collaboration.